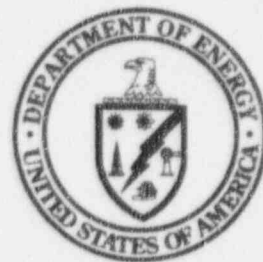


# **1995 Annual Inspection of the Burrell, Pennsylvania, UMTRA Project Vicinity Property Disposal Site**

**December 1995**

**U.S. Department of Energy  
Grand Junction Projects Office  
Grand Junction, Colorado**



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**1995 Annual Inspection  
of the Burrell, Pennsylvania,  
UMTRA Project Vicinity Property Disposal  
Site**

**December 1995**

**Prepared for  
U.S. Department of Energy**

**Prepared by  
Rust Geotech  
Under DOE Contract No. DE-AC04-86ID12584  
U.S. Department of Energy  
Grand Junction Projects Office  
Grand Junction, Colorado**

## Signature Page

The Burrell, Pennsylvania, Uranium Mill Tailings Remedial Action (UMTRA) Project Vicinity Property Disposal Site was inspected on October 10, 1995, in accordance with guidance and direction provided in *Guidance for Implementing the UMTRA Project Long-Term Surveillance Program* (DOE 1992) and *Burrell, Pennsylvania, Vicinity Property Long-Term Surveillance Plan* (DOE 1993a). Contained in this report are the results of that inspection.

By: Craig S. Goodknight  
C.S. Goodknight, Chief Inspector  
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Date: 12/18/95



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## Plate

*(in pocket in back)*

Plate 1. Burrell, Pennsylvania, Inspection Drawing, 1995 Inspection

## 1.0 Introduction

### 1.1 Purpose

This report presents the results of the U.S. Department of Energy's (DOE's) annual inspection of the Burrell, Pennsylvania, Uranium Mill Tailings Radiation Control Act Title I vicinity property disposal site. This site was included under the U.S. Nuclear Regulatory Commission's (NRC's) general license for Title I disposal sites on September 23, 1994. The agreement previously reached by the DOE and the NRC regarding issuance of a license for the Burrell vicinity property is a departure from the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978, which requires the licensing only of disposal sites, not vicinity properties. However, given the unusually large volume of wastes for a vicinity property and the distance of the Burrell vicinity property from the Canonsburg disposal cell, it was agreed that licensing Burrell as a disposal cell with surveillance requirements constituted a reasonable and prudent approach in keeping with the spirit of UMTRCA (DOE 1993a).

The inspection was conducted on October 10, 1995, by C.S. Goodknight (Chief Inspector), and D.L. Langdon (Assistant Inspector), both of Rust Geotech, operating contractor at the DOE Grand Junction Projects Office (GJPO). M. Planinsek and T. Buchan, both of the Commonwealth of Pennsylvania, Department of Environmental Resources, were present during the first part of the inspection. This was the second annual inspection of the Burrell vicinity property as an NRC-licensed site. Procedures and specifications for this inspection are provided in the documents *Guidance for Implementing the UMTRA Project Long-Term Surveillance Program* (DOE 1992) and *Burrell, Pennsylvania, Vicinity Property Long-Term Surveillance Plan* (DOE 1993a).

### 1.2 Site Background

The Burrell vicinity property (Figure 1) covers about 72 acres and consists of two tracts (DOE 1993a). Tract 201 is about 69 acres and includes the fenced area around the disposal cell and the area south of the fence that slopes steeply down to the Conemaugh River. Tract 201-E is about 3 acres and consists of a narrow (about 60 feet wide) corridor about 0.4 mile long that contains the site access gate and road. This report considers the site property as including both tracts; whereas previous inspection reports considered the site security fence as the site property boundary.

## 2.0 Annual Inspection

Methods used during the inspection and the results of the inspection are described in the following sections. Supporting information is provided in Appendix A, Inspection Checklist; Appendix B, Inspection Photograph Log and Photographs; and Plate 1, Burrell, Pennsylvania, Inspection Drawing, 1995 Inspection.

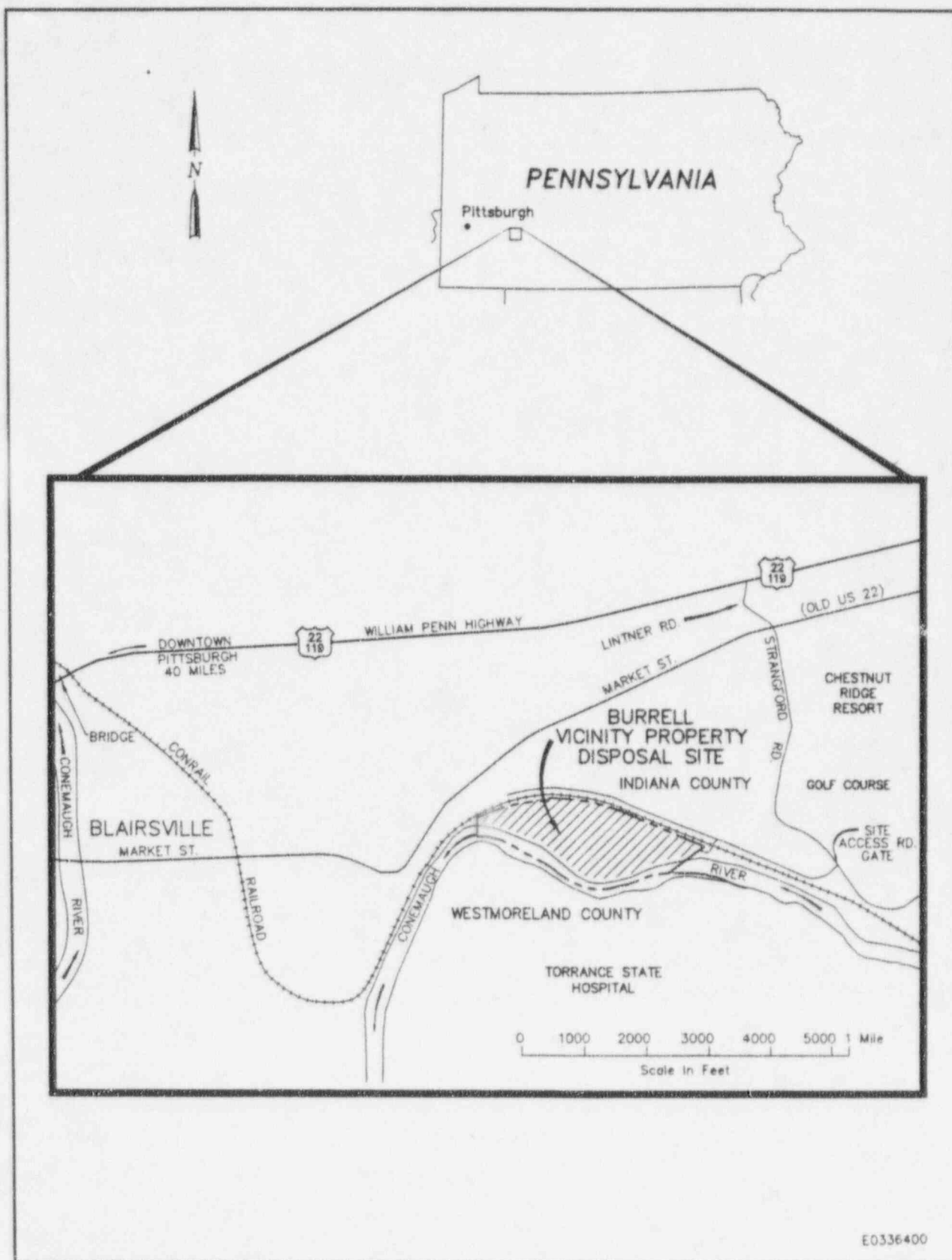


Figure 1. Location of Burrell, Pennsylvania, Vicinity Property Disposal Site

## **2.1 Methods**

The purpose of this inspection is to ensure that the disposal cell continues to comply with Uranium Mill Tailings Remedial Action (UMTRA) Project design standards. Accordingly, the site was divided into four transects, which inspectors covered by walking or driving. The transects are listed in Table 1, and three of the four transects are shown on Figure 2. Within each transect, inspectors examined all specific site surveillance features (Table 2 and Plate 1) and other features of note or interest.

Inspection equipment included a 35-millimeter camera, measuring tapes, a Brunton compass, a hand level, a field notebook, and forms for recording observations and photograph information. Photographs were taken without filtration on color-negative film (Kodacolor ISO 200). Photographs are identified in the text of the report, in Appendix B, and on Plate 1 by photograph location (PL) number.

## **2.2 Results**

Results of the 1995 inspection are reported under two main headings, "Site Access Road and Specific Site Surveillance Features" and "Transects." Although most specific features are within a transect, they are reported separately, by category, because (1) they are an important focus of the inspection, and (2) this categorization allows the performance of each type of specific feature to be evaluated separately. Eighteen photographs taken at 18 locations on the site illustrate changes in specific features since the 1994 inspection or new features of interest or concern that were identified during the 1995 inspection.

### **2.2.1 Site Access Road and Specific Site Surveillance Features**

Following a description of the site access road and gate, specific site surveillance features are discussed in the order presented in Table 2.

#### **Site Access Road and Gate**

The site access road is about 0.4 mile long and is the DOE's only legal access to the disposal site. The road corridor is about 60 feet wide and is legally described as Tract 201-E (DOE 1993a). Strangford Road is at the east end of the access road, which was the haul road route used during construction of the disposal cell.



Table 1. Transects Used during Inspection of Burrell Vicinity Property Disposal Site

Transect	Explanation
Disposal Cell	
Top and North Side Slope of Disposal Cell	Includes small east and west side slopes of the disposal cell. Also includes a low-lying area at the toe of the north side slope.
South Side Slope of Disposal Cell	Large south side slope of the disposal cell. Also includes the slough area at the toe of the south side slope.
Area Adjacent to Disposal Cell	Area between the toe of the disposal cell and the site security fence.
Site Perimeter	Features on and near the site property boundary. Includes areas within the site property west and south of the site security fence, and the site access road property.
Outlying Areas	Areas outside the site property boundary. Includes mainly the area north of the site security fence that contains two monitor wells, the ConRail tracks, and the Strangford dump.

Recommendations made in the 1994 inspection report (DOE 1994) about improving the site access road gate were carried out during maintenance activities at the site in the summer of 1995. The site access road gate is operable and in good condition (PL-1). A new lock has been installed on the gate and the steel cable that had been stretched across the gate in 1994 has been removed. Short sections of chain link fence 8 feet high have been installed on both ends of the site access road gate (PL-1). This installation was done to prevent vehicle traffic of people discarding trash north of the ConRail Railroad tracks.

West of the gate, vegetation on the site access road has been mowed and for the first 300 feet, the road is covered by short grass (PL-1). Beyond this point, the gravel-surfaced access road is in good condition, contains no grass cover, parallels the ConRail Railroad tracks, and has been used by the public to access the Strangford dump. The condition of the site access road gate and the effectiveness of the adjacent chain link fence to prevent vehicle access should be noted during future inspections.

#### Entrance Gate and Signs

The entrance gate is functional and in good condition, except for some minor damage to the chain link fence fabric where the entrance sign is attached to the gate (PL-2). The entrance sign, designated on Plate 1 by an "E," has been damaged by an attempt to pull the sign off the entrance gate. Damage of the sign (still attached to the gate) consists of a bend on the right side. Additionally, the bolt in the upper right corner was pulled through the sign as the sign separated from the aluminum strap attaching it to the gate (PL-2). The sign is repairable and should be straightened and re-attached to the entrance gate before or during the 1996 site inspection; at the same time, the minor damage to the chain link fence fabric of the entrance gate should be repaired.

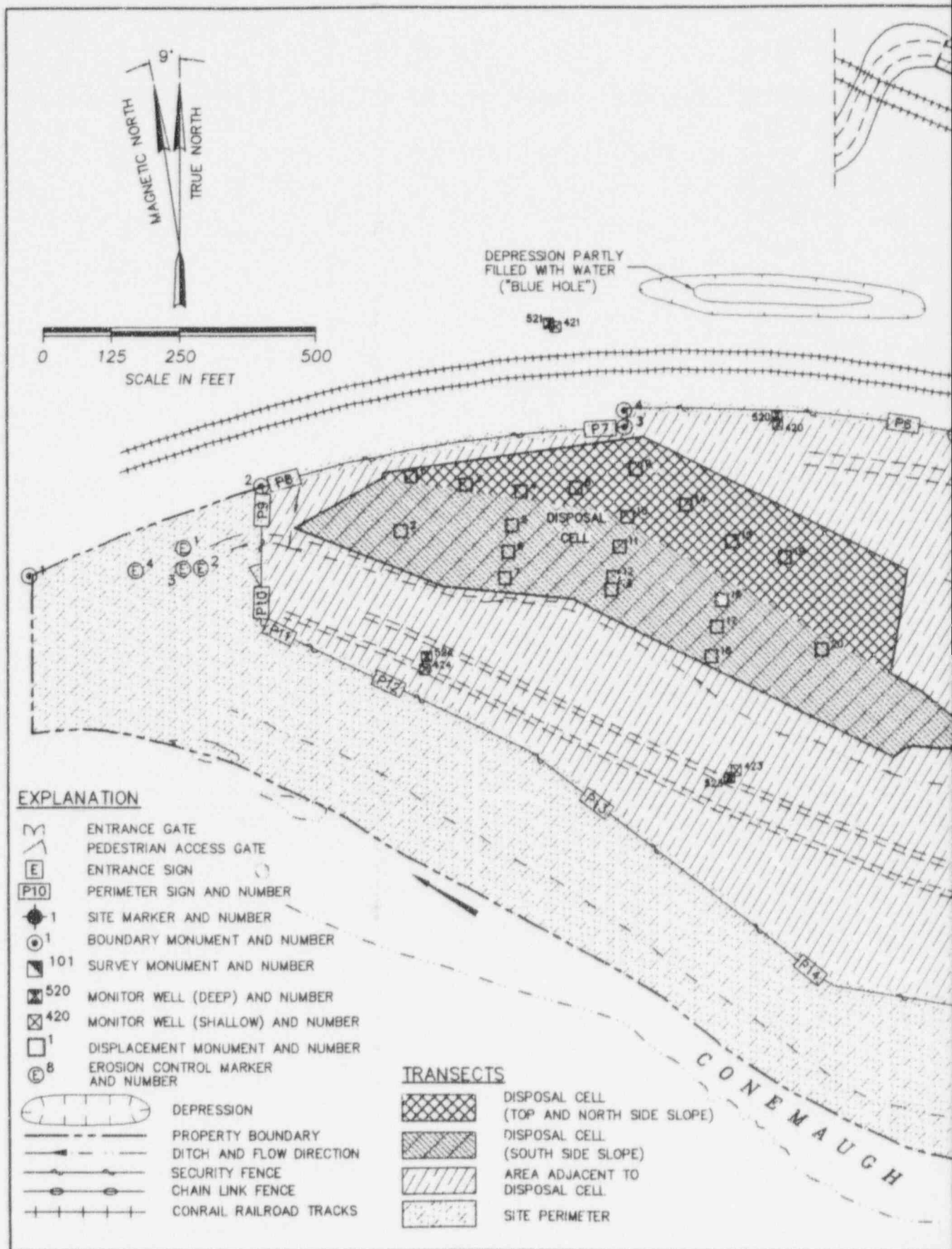
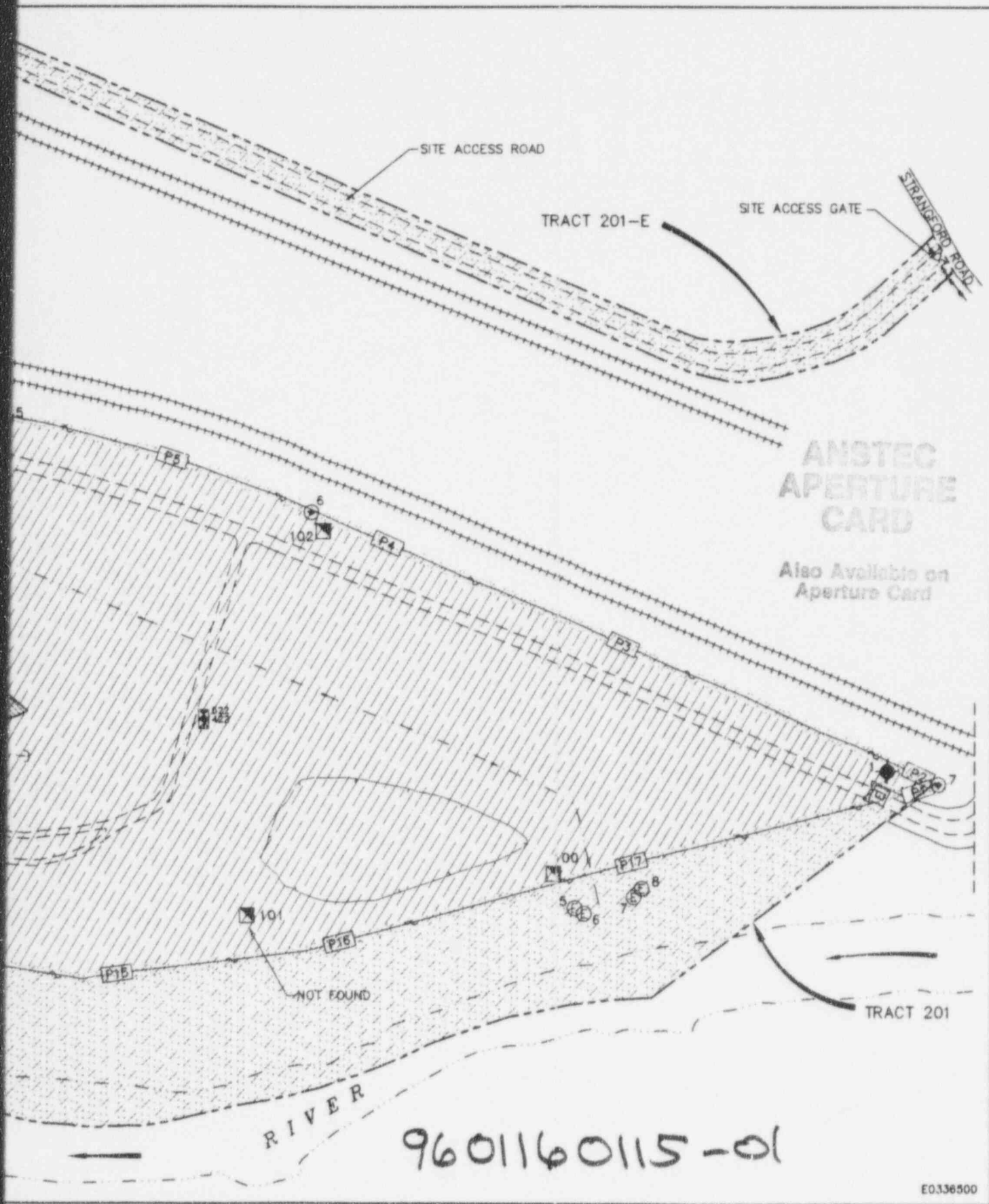


Figure 2. Map of Inspection Transects



for Burrell Vicinity Property Disposal Site



Table 2. Specific Site Surveillance Features at Burrell Vicinity  
Property Disposal Site

Identifier	Feature
---	Site access road gate
---	Entrance gal.
E	Entrance sign
P1, P2, etc.	Perimeter signs (17 total)
SMK-1	Site marker 1
SM-100	Survey monument 100
SM-102	Survey monument 102
BM-1	Boundary monument 1
BM-2	Boundary monument 2
BM-3	Boundary monument 3
BM-4	Boundary monument 4
BM-5	Boundary monument 5
BM-6	Boundary monument 6
BM-7	Boundary monument 7
ECM-5	Erosion control marker 5
ECM-6	Erosion control marker 6
ECM-7	Erosion control marker 7
ECM-8	Erosion control marker 8
DM-1	Displacement monument 1
DM-2	Displacement monument 2
DM-3	Displacement monument 3
DM-4	Displacement monument 4
DM-5	Displacement monument 5
DM-6	Displacement monument 6
DM-7	Displacement monument 7
DM-8	Displacement monument 8
DM-9	Displacement monument 9
DM-10	Displacement monument 10
DM-11	Displacement monument 11
DM-12	Displacement monument 12
DM-13	Displacement monument 13
DM-14	Displacement monument 14
DM-15	Displacement monument 15
DM-16	Displacement monument 16
DM-17	Displacement monument 17
DM-18	Displacement monument 18
DM-19	Displacement monument 19
DM-20	Displacement monument 20
MW-420	Monitor well 420
MW-520	Monitor well 520
MW-421	Monitor well 421
MW-521	Monitor well 521
MW-422	Monitor well 422
MW-522	Monitor well 522
MW-423	Monitor well 423
MW-523	Monitor well 523
MW-424	Monitor well 424
MW-524	Monitor well 524

In addition to the entrance sign, 17 perimeter signs are in place around the site on the security fence. Perimeter signs are designated by a "P" on Plate 1 and are numbered (e.g., P1, P2) for use as reference points. Numbering proceeds counterclockwise starting at the entrance gate. Seventeen perimeter signs are present, although the *Burrell, Pennsylvania, Vicinity Property Long-Term Surveillance Plan* (LTSP) (DOE 1993a, Plate 1) shows only 15 perimeter signs at the site.

Damage to perimeter signs by rifle fire and shotgun blasts continues to be a problem; however, damage at this time is confined to the 7 signs along the north side of the site that face northward and can be seen from the Strangford dump area. Bullet damage to a typical sign (P2), which remains legible, is shown in PL-3. P4, which has sustained the worst damage from numerous bullet holes (PL-4), is partly illegible. The presence of bullet holes noted during this inspection in each of the seven north-facing perimeter signs is shown on Plate 1. Perimeter signs will continue to be monitored for damage and will be replaced when they become illegible.

### **Site Marker**

Only one site marker is present at this site. This marker, SMK-1, is near the entrance gate and is in excellent condition, although it is becoming increasingly covered by vegetation (PL-5). A second site marker at the crest of the disposal cell is necessary for the site to comply with Environmental Restoration Division—Uranium Mill Tailings Remedial Action (UMTRA) Project requirements (DOE 1992). The UMTRA Project Office has requested the GJPO to install the second site marker as soon as practicable. Installation of the second site marker is planned in 1996 if funds are available, and after specifications for the marker are reviewed.

### **Survey Monuments and Boundary Monuments**

Three survey monuments (SM) and seven boundary monuments (BM) have been installed at the Burrell site (DOE 1993a). Only two of the survey monuments (SM-100 and SM-102, shown on Plate 1) have been found, and they are in excellent condition. SM-101 has not been found by site inspections since 1990; the monument is known to be present but is obscured by thick grass and vegetation in the southern part of the site. A survey should be conducted to reestablish and confirm the location of SM-101. A permanent marker post should also be installed to assist in future location of the monument. The survey to locate SM-101 is planned in 1996, if funds are available, and will occur at the same time that a second site marker is installed.

All seven boundary monuments (BM-1 through BM-7, shown on Plate 1) were inspected, and they all are in excellent condition. Because of the remote, wooded location of BM-1 and its susceptibility of being covered by silt from future high stands of the Conemaugh River Reservoir, it is recommended that a permanent marker post rising 3 to 4 feet above the ground surface be installed at BM-1 to assist in future location of the monument. Installation of the marker post is planned in 1996, if funds are available, and will occur at the same time a second site marker and marker post for SM-101 are installed.

### **Erosion Control Markers**

### **Erosion Control Markers**

Eight erosion control markers (ECM) are at the Burrell site (Plate 1). In accordance with UMTRA Project Office response to the 1992 inspection report, only two pairs (5 and 6, 7 and 8) of ECMs are now inspected. These two pairs are south of the security fence on the edge of the steep, filled bank that rises above the Conemaugh River. These ECMs are at the south end of a subtle drainage swale that was designed to drain surface water from the disposal cell eastward off the site to the Conemaugh River. The two pairs of ECMs are all in excellent condition. There was no evidence of erosion or slope instability in the vicinity of either ECM pair.

Since 1991, measurements have been made during each inspection along a line of bearing formed by the two markers in each ECM pair. The measurements were from the outermost marker to the apparent break in slope above the Conemaugh River. These measurements have been very subjective, and irreproducible among different inspectors, because the break in slope is irregular or stepped and obscured by thick vegetation. Because these measurements are so subjective and irreproducible, they are of questionable value. They are not required by the LTSP (DOE 1993a). Therefore, these measurements are no longer part of the annual inspection. If erosion or slope retreat becomes a problem in the future, appropriate measurements and a photographic record will be made at that time.

### **Displacement Monuments**

Twenty displacement monuments (DM) are on the top and south side slope of the disposal cell. The DMs were installed during remedial action to monitor possible differential settlement of the disposal cell. From measurements taken at these monuments both during and after construction, it was concluded that movements would be insignificant and that sagging of the cell would not occur (DOE 1993a). All of the monuments (DM-1 through DM-20) were inspected and found to be in good condition. The LTSP for the site (DOE 1993a) also stated that continued monitoring of the DMs is no longer required; therefore, DMs will no longer be monitored during the annual inspection.

### **Monitor Wells**

Five pairs of monitor wells (10) shown on Plate 1 were inspected. Each monitor well pair consists of one "shallow" well (well number in the 400s) completed in unconsolidated alluvial or fill material and one "deep" well (well number in the 500s) completed in bedrock of the Casselman Formation of Pennsylvanian age. All wells are in good condition and unchanged from the 1994 inspection. Padlocks on the wells appeared to be operable and lock lubricant was applied to maintain them as rust-free as possible. Grass had been mowed along access routes to four pairs of wells inside the site security fence to ensure that the wells were accessible by low-clearance vehicles.

## **2.2.2 Transects**

Inspection transects are listed in Table 1 and are shown, except for the "outlying areas" transect, in Figure 2.

### **Disposal Cell**

Inspection of the disposal cell consisted of walking two transects. One transect covered the top, the small east and west side slopes, the north side slope, and a low-lying area at the toe of the north

side slope that usually contains ponded water. The second transect covered the south side slope and the slough area at the toe of the south side slope. While walking these transects, inspectors looked for evidence of differential settlement, erosion, deterioration of rock riprap, animal burrowing, ponded water, seeps, and plant encroachment. Inspectors found no evidence of uneven settling, erosion, rock degradation, or animal burrowing on the disposal cell.

Prolific growth of herbaceous and woody vegetation occurs on the top and north side slope (PL-6) of the disposal cell. Since the spraying of the herbicides on woody plants and Japanese knotweed on the disposal cell in August 1992, this vegetation is becoming thicker and growth height is increasing. A special study is in progress, as a result of a recommendation in the 1994 inspection report (DOE 1994), to evaluate the effects of deep-rooted plants to the long-term performance of the disposal cell cover. If the study supports removal of deep-rooted species, herbicide spraying may be resumed, but long-term alternatives to spraying (such as establishment of a grass cover) should be considered. (No recommendation on vegetation management or control will be made until the special study is completed.)

No ponded water was present in a long, narrow, low-lying area at the toe of the north side slope of the disposal cell. Instead, the surface of this area was only slightly moist. The lack of water is likely a result of the drier than normal conditions that have occurred in this region during the past year. Eastward drainage of ponded water in this area can occur by construction of a short ditch as recommended in the section "Area Adjacent to Disposal Cell."

The south side slope of the disposal cell also hosts an increasing growth of herbaceous and woody vegetation (PL-7 through PL-9). Sycamore trees up to 15 feet tall, which represents a 3-year growth period since herbicide spray was applied, are present on this slope.

No flow was observed from the two seeps (Plate 1) near the base of the south side slope. The surface at the site of these seeps was only slightly moist. Water level in the slough just to the south appeared low compared to levels observed in previous inspections. The inactive seeps and low water level in the slough are also likely a result of dry conditions this year. The level of water in the slough reflects (or is very near) the ground-water surface, which can fluctuate a foot or more in response to dry or wet periods. The ground-water surface elevation decreases to the south toward the Conemaugh River, which is only about 5 feet below the elevation of the slough water level. The level of water in the slough and the flow of seeps near the base of the south side slope of the disposal cell will continue to be visually monitored in future inspections.

#### **Area Adjacent to Disposal Cell**

The large open area east of the disposal cell inside the security fence is covered mostly by thick grass and scattered trees and shrubs. A depression about 15 feet deep and 500 feet long is present in this area (PL-10). During wet periods, surface water collects in the depression, and if the depression filled with water, additional water would spill eastward to the nearby swale and drain south into the Conemaugh River. No water was present in the depression at the time of this inspection.

Access to the four pairs of water monitor wells inside the security fence east and south of the disposal cell is maintained by annual mowing of the grass and hardwood understory on a system of well-sampling access roads (Plate 1). These roads are all in good condition.



A drain pipe 24 inches in diameter (PL-11), first noticed during the 1994 inspection (DOE 1994), is at the east end of the slough in thick understory southeast of the disposal cell. No water was flowing from the pipe at the time of this inspection, and the area drained by the pipe is not known. No drains were seen on the site east of the pipe.

East of the disposal cell and north of the depression, a long, shallow swale about 2 feet deep drains surface water off the site to the east-southeast (PL-12). Just east of the depression, the swale turns southward and crosses the security fence between SM-100 and P17 (Plate 1). Water that ponds in a low-lying area along the toe of the north side slope of the disposal cell cannot reach the swale because of an area of slightly elevated ground about 150 feet wide just north of the northeast toe of the disposal cell (lower left part of PL-12). Collection of water in this area has the potential to infiltrate the disposal cell and may contribute to flow from seeps on the south side slope of the disposal cell. Drainage of water to the east was the intent of construction design, as stated by UMTRA representatives who visited the site in November 1990 during the first precicensing inspection, but final grading failed to achieve the intended drainage.

To correct the drainage problem, the 1994 inspection report (DOE 1994) recommended that small-scale recontouring of the high ground be conducted. This translates to constructing a shallow ditch about 2 feet deep and 150 feet long eastward across the area of elevated ground (Plate 1). This would restore surface drainage to its intended design without significantly altering final site contours.

Two rusted, mostly disintegrated, 55-gallon drums were found during the 1994 site inspection (DOE 1994) about 100 feet east of the pedestrian gate. A search for these two drums and others that may occur in the general area was conducted during this inspection. M. Planinsek and T. Buchan participated in the search during the early part of the inspection. What is believed to be the same two drums found in the 1994 inspection were found during this inspection, and their locations are shown in Plate 1. One drum (PL-13) is about 3 feet above the level of the slough just to the north and the other drum (PL-14) is about 5 feet above the slough level. Both drums are obscured by thick vegetation and are near the base of a steep, north-facing slope of fill material containing railroad ties, bricks, and glass. The drums are unlabeled and appear to have contained a solidified, black substance like coal tar. After reviewing the situation of the drums and their contents, which appear relatively immobile, the Commonwealth of Pennsylvania has informed the GJPO that no further sampling or analyses of either the material in the drums or the ground and surface water at the site is necessary.

#### **Site Perimeter**

No further human or animal-caused damage to the security fence was observed since the 1994 site inspection. The one exception to this is the minor fence damage associated with the entrance sign, described in the section on "Entrance Gate and Signs."

Condition of the security fence around the site is generally good, except in several places in the south part of the site where the fence passes through a wooded and heavily vegetated area. Here, large branches of trees overhanging the fence and trees growing through the fence (PL-15) may soon cause significant damage to the fence. To prevent this damage, it is recommended that trees growing through the security fence be cut down and tree limbs overhanging the fence be cut. This cutting should extend from the area of SM-100 westward along the security fence to the pedestrian gate.

Several areas of woodchuck burrows occur along the security fence on the north boundary of the site (Plate 1). The only additional burrowing area found during this inspection has created a 1-foot

gap under the security fence (PL-16), but it does not pose a threat to the fence. The level of burrowing activity appears to have remained constant for the past 5 years—additional burrows have been noted, but the number of active burrows is about the same. Burrowing will be monitored during future inspections.

The seep along the security fence about 60 feet east of P8 (just west of the disposal cell) noted in previous inspections was flowing slightly and had a noticeable oily sheen (PL-17). Flow from the seep was estimated at less than 1 gallon per minute at the source, just north of the fence. Water from the seep flows south and joins the slough; just north of the slough, flow was estimated at about 1 gallon per minute. The seep does not threaten the integrity of the security fence or disposal cell, but its flow should be visually monitored during future inspections.

Included in this transect is the area up to 200 feet wide at the south edge of the site property between the south security fence and the north bank of the Conemaugh River. Just south of the security fence, the high area between 980 and 990 feet in elevation is the former site of the old Pennsylvania Railroad spur built in the late 1940s on a berm of fill material along the north side of the Conemaugh River (DOE 1983, Figure C.2-3). The steep south slope away from the berm drops about 50 feet to the Conemaugh River. Woodland and thick understory vegetation (dominated by Japanese knotweed) cover most of this area.

During this inspection, a traverse from west to east was walked by the inspectors across this south margin of the site. M. Planinsek and T. Buchan participated in the inspection of this area, which was suspected to contain drums like those found just south of the slough. A total of 13 partly to mostly disintegrated drums (PL-18) was found in the area during the traverse; the approximate locations of the drums are shown in Plate 1. Some of the drums are empty and some are partially filled with a solid black substance like coal tar (similar to that found in the drums just south of the slough). The steep, wooded fill area also contains an abundance of old railroad ties, bricks, concrete chunks, old tires, metal scrap, and coal slag. Void space between these materials and abundance of vegetation make walking conditions in this area difficult and dangerous. As stated on page 10, the Commonwealth of Pennsylvania has informed the GJPO that no further sampling or analyses of either the material in the drums or the ground and surface water at the site is necessary.

No seeps were noted along the steep slope north of the Conemaugh River, and the river does not appear to be cutting or eroding into the slope. No areas of slumping or sliding were noticed along the slope. The slope appears to be stable, and the slope composition of fill material covered by dense vegetation combine to lower the probability of significant erosion.

Also part of this transect is the site access road property, which is contained in Tract 201-E (Plate 1). As described in the section "Site Access Road and Gate," this part of the site property is in good condition.

### **Outlying Areas**

The nearby area outside the site property boundary was examined for signs of erosion, development, or other disturbances that might affect the site. Features of concern are mainly north of the site and include the Strangford dump area north of the ConRail tracks and a depression partly filled with water, known as "Blue Hole," in the west part of the dump area.

A dirt road just north of the ConRail tracks goes westward from the site access road just before the site access road crosses the tracks. This dirt road continues about 0.5 mile and provides access to the pair of monitoring wells MW-421 and MW-521 (Plate 1). The road also provides access to a long, narrow area of illegally dumped material (Plate 1) known as the Strangford dump just north of the road. Refuse in the dump consists mainly of household wastes, some of which contain petroleum-based constituents. No evidence was seen that local authorities are discouraging the dumping; no "No Dumping" signs are posted in the area. M. Planinsek and T. Buchan were present during the inspection of the Strangford dump area; neither indicated that the Commonwealth of Pennsylvania had current plans to prevent further dumping.

The Strangford dump, at its closest point, is less than 200 feet from the disposal cell. The volume of dumped material has slowly increased since the 1990 site inspection; newly dumped material is present each year. The concern is that contaminants in the refuse are being introduced into the ground water, which travels downgradient from the dump area to the south and southwest under the site and disposal cell and into the Conemaugh River (DOE 1983). The extent and relative amount of new material added to the dump and any controls on dumping will be monitored during future inspections.

The depression partly filled with water just east of MW-421 and MW-521 is known as "Blue Hole." Dimensions of the depression are described in the 1994 inspection report. Garbage from part of the Strangford dump has spilled down along the south side of the depression and into the bottom where it is covered by water. Depth of water observed in "Blue Hole" during this inspection was only 1 to 2 feet, which is somewhat less than observed in the past two years. This water level is likely the ground-water surface, which is lower in 1995 because of below-normal rainfall conditions in the region. Therefore, garbage at "Blue Hole" is likely in direct contact with ground water, which travels downgradient toward the site. The relative water level and the amount and type of garbage in and along "Blue Hole" depression will continue to be monitored during future inspections. Because of the hazard of climbing down through garbage to the bottom of the depression, the water level and amount of garbage will be estimated from a safely accessed vantage point along the top edge of the depression.

## **3.0 Conclusions and Recommendations**

### **3.1 Conclusions**

The Burrell disposal site was in good condition at the time of the inspection. The most significant concerns continue to be the increase in abundance and size of plants on the disposal cell and their effect on cell integrity and a low-lying area along the toe of the north side slope of the disposal cell. Another concern is the continued trash accumulation at the Strangford dump and its effect on ground water, which travels downgradient beneath the site to the Conemaugh River. These and other observations and recommendations follow.



## 3.2 Observations and Recommendations

1. The entrance sign has been damaged (bent) in an attempt to pull it off the entrance gate, which also incurred minor damage to the chain link fabric. (See page 4.)

**Recommendation:** Repair the entrance sign and chain link fabric of the entrance gate.

2. The site marker near the entrance gate is the only marker present at this site. A second site marker was never installed at the site, although it is an UMTRA Project requirement (DOE 1992). (See page 7.)

**Recommendation:** Install a second site marker on top of the disposal cell in 1996, if funds are available, and after specifications for the site marker are reviewed.

3. Site inspections since 1990 have failed to find survey monument 101 (SM-101) because it is covered by thick grass and vegetation. (See page 7.)

**Recommendation:** Locate SM-101 by survey methods and install a permanent marker post at the same time the missing site marker is installed (Recommendation 2).

4. Boundary monument 1 (BM-1) is in a remote, wooded location, and it is susceptible to being covered by silt deposited from future high levels of the Conemaugh River Reservoir. (See page 7.)

**Recommendation:** Install a permanent marker post beside BM-1 in 1996 if funds are available.

5. A long, narrow, low-lying area occurs along the toe of the north side slope of the disposal cell. Ponded water in this area may potentially infiltrate the disposal cell and may contribute to flow from the seeps on the south side slope of the disposal cell. The intent of construction design was to drain the ponded water to the east away from the disposal cell; however, an area of slightly elevated ground prevents the drainage. (See pages 9 and 10.)

**Recommendation:** Restore surface drainage in this area so it conforms to site design. Construct a shallow ditch about 2 feet deep and 150 feet long across the area of slightly elevated ground that prevents drainage of ponded water eastward into the existing swale.

6. The security fence in the south part of the site passes through wooded and heavily vegetated areas where, in places, trees are growing through the fence and large branches of trees hang over the fence. This growth may soon cause significant structural damage to the fence. (See page 10.)

**Recommendation:** Cut down the trees growing through the security fence and cut the tree limbs hanging over the fence from the area of SM-100 westward to the pedestrian gate.

Monitor the following during future inspections:

- Condition of site access road gate and adjacent chain link fence. (See page 4.)

- Level of water in the slough and flow of seeps at the bottom of the south side slope of the disposal cell and the seep east of P8. (See pages 9 and 11.)
- Animal burrowing along security fence. (See pages 10–11.)
- Extent and relative amount of new material added to the Strangford dump and any controls on dumping. (See page 12.)
- Relative water level and type of garbage in and along the depression known as "Blue Hole." (See page 12.)

### 3.3 Contingency Plans

As indicated in the *Burrell, Pennsylvania, Vicinity Property Long-Term Surveillance Plan* (DOE 1993a), the DOE established notification procedures with the National Weather Service, the National Earthquake Information Center, and the Pennsylvania State Police. These agencies will contact the DOE if any unusual event comes to their attention that might affect the security or integrity of the Burrell site.

## 4.0 References

DOE (U.S. Department of Energy), 1983. *Final Environmental Impact Statement, Remedial Actions at the Former Vitro Rare Metals Plant Site, Canonsburg, Washington County, Pennsylvania*, 2 volumes, UMTRA–DOE/EIS–0096–F, DOE UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico.

\_\_\_\_\_, 1992. *Guidance for Implementing the UMTRA Project Long-Term Surveillance Program*, UMTRA–DOE/AL–350125.0000, Rev. 1, DOE UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico.

\_\_\_\_\_, 1993a. *Burrell, Pennsylvania, Vicinity Property Long-Term Surveillance Plan*, DOE/AL–62350–3F, DOE UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico.

\_\_\_\_\_, 1993b. *Occurrence Reporting and Processing of Operations Information*. DOE Order 5000.3B (January 19, 1993).

\_\_\_\_\_, 1994. *1994 Annual Inspection of the Burrell, Pennsylvania, UMTRA Project Disposal Site*, DOE/ID/12584–206, Department of Energy, Grand Junction, Colorado.

## **Appendix A Inspection Checklist**

## **Inspection Checklist Annual (Phase 1) Inspection**

**Site:** Burrell Title I (UMTRA Project) Vicinity Property Disposal Site

**Date Prepared:** October 4, 1995

**Date of Last Inspection:** October 5, 1994

**Type of Inspection:** Annual Inspection

**Date of Next Inspection:** October 10, 1995

**Type of Inspection:** Annual Inspection

### **I. General Instructions**

- A. This inspection checklist is site specific. It incorporates general and site-specific requirements for annual inspections of the subject site. This checklist may be revised in response to new requirements as result from previous inspections or maintenance develop, or as new information about the site is received.
- B. Purpose of the checklist is to support
- Planning for the inspection
  - Inspection of the site
  - Evaluation of the thoroughness of the inspection before the inspection party leaves the site at the conclusion of the inspection
  - Preparation of the inspection report
- C. This checklist is provided for the convenience of those planning and conducting the inspection. Other information, materials, or guidance may be used in place of or in addition to the checklist if warranted by site conditions.

### **II. Preparation for the Inspection**

- A. Review license requirements, if applicable, and inspection guidance documents:
- *Guidance for Implementing the UMTRA Project Long-Term Surveillance Program* (DOE 1992)
  - *Burrell, Pennsylvania, Vicinity Property Long-Term Surveillance Plan* (DOE 1993a)



B. Review previous inspection reports, field notes from previous inspections, maps and drawings of the site, and other documents as necessary to become familiar with site history, current conditions at the site, and the results of recent inspections and maintenance. Obtain copies of maps, plans, and other documents required for the inspection:

- 1994 inspection report and field notes
- 1994 inspection drawing
- Set of color photographs from the 1994 inspection report
- Specifications for site maintenance (see Section III.E)
- Handout on deer ticks and lyme disease

C. Review site access procedures and protocols. Notify affected agencies. Complete actions required to enter the site.

- State of Pennsylvania: Mr. J. Yusko 412-645-7100
- Grand Junction Projects Office: Mr. J. Virgona 970-248-6006
- Obtain keys for locks on gates and monitor wells

D. Review specific observations to be made and problems to be studied or resolved during the coming inspection. (See Section IV of this checklist.)

E. Inspection Equipment: Assemble and pack field equipment required for the inspection of the site:

- Camera
- Spare batteries
- Camera accessories
- Film, two rolls of 36-exposure, ISO 200 (or equivalent) color print film
- Photograph scale/north arrow
- Brunton compass
- 50-foot tape
- 10- to 20-foot tape
- Keys
- Clipboard

- Canteens or other provision for water in hot weather
- Field photograph forms
- Orange notebook of Burrell field notes
- Black, indelible, felt-tip marker with broad point
- Day packs (optional but advisable for this site)
- First aid kit
- Extra padlocks and keys for monitor wells
- Rust-preventive lubricant

### III. Site Access

The route from the east end of the U.S. Highway 22 and 119 bridge over the Conemaugh River to the entrance gate at the site is described below.

- Mile 0.0: East end of U.S. Highway 22 and 119 bridge over the Conemaugh River. Proceed eastward on highway.
- Mile 0.2: Exit to Blairsville. Stay on highway and continue eastward.
- Mile 2.1: Turn right (south) on Lintner Road.
- Mile 2.3: Intersection of Market Street (old U.S. Highway 22) and Strangford Road (to south). Cross Market Street and proceed south and southeast on Strangford Road.
- Mile 3.2: Turn right (southwest) and stop at the site access road gate. Unlock the gate and proceed westward on what was the haul road for construction of the disposal cell.
- Mile 3.6: Park vehicles north of the ConRail railroad tracks. Here, the road turns left (south) and crosses the railroad tracks. Proceed on foot across the tracks.
- Mile 3.7: Entrance gate at the east end of the fenced Burrell disposal site.

### IV. Site Inspection

- A. The checklist is not intended to be exhaustive or constraining. The inspection party is free to make other observations as judgment and site conditions dictate.
- B. Before the inspection of the site is completed and before the inspection party leaves the site, the inspection party should satisfy itself that the site has been fully inspected and evaluated

and that adequate photographs and measurements have been obtained.

- C. Health and Safety: The Burrell site contains thick grass, which is often wet, and densely wooded areas with thick Japanese knotweed understory in the south and southwest parts of the site. Safety shoes are not required at this site; however, high-topped boots that can be waterproofed are recommended. Inspectors should be familiar with the hazards posed by deer ticks (lyme disease) by reading the provided information on the subject. Weather conditions are characterized by high humidity and occasional rain. Personnel should plan accordingly for the following seasons:

1. Spring, Summer, and Fall:

- Drinking water (personal canteens recommended)
- Insect repellent for work in thick grass and underbrush
- Waterproof footwear
- Raincoat
- Light gloves

2. Winter:

- Warm, water repellent, layered clothing
- Waterproof, insulated footwear

Emergency contacts and phone numbers for the Burrell site are as follows:

- Emergency Medical Service/Ambulance  
Indiana Hospital in Indiana, PA  
Phone 911 or 412-357-7121
- Local Police or Fire  
Phone 911
- Non-Emergency Medical Diagnostic Testing Center on Market Street in downtown  
Blairsville  
Phone 412-459-5444
- Pennsylvania State Police  
Phone 412-357-2888

When accessing the site, park vehicle(s) just north of the ConRail tracks, about 300 feet northeast of the site entrance gate. Trains often occupy the siding, and parking north of the tracks will avoid being stranded south of the tracks by trains.

D. General Surveillance



1. Specific Site Surveillance Features

- Access road gate
- Entrance gate
- Entrance sign
- Perimeter signs, 17
- Site marker, 1
- Survey monuments, 3 (only 2 have been located)
- Boundary monuments, 7
- Erosion control markers, 4 (2 pairs)
- Displacement monuments, 20
- Monitor wells, 10 (5 pairs)

2. Transects

- Disposal cell, top and north side slope and south side slope
- Area adjacent to disposal cell
- Fenced perimeter and out to site property boundary
- Outlying areas outside site property

3. For all transects:

- Settlement, slumping, heaving, cracking
- Erosion
- Accumulation of water
- Accumulation of trash
- Encroachment of vegetation
- Intrusion by humans or domestic animals
- Vandalism
- Other: animal burrows

4. Area Within 0.25 Mile of the Site

- Change in land use
- New construction or development
- Earth movement, erosion, or changes in nearby stream channels
- Accumulation of trash

5. Specific Tasks and Observations

- Evaluate condition of access road gate
- Note locked or unlocked status and condition of monitor wells
- Note condition and extent of vegetation on top of the disposal cell
- Note condition of perimeter signs
- Lubricate locks with rust-preventive oil
- Note the location and extent of woodchuck burrows
- Check condition of the security fence
- Evaluate the extent of a low-lying area at the bottom of the north side slope of the disposal cell and the seeps at the toe of the south part of the disposal cell
- Look for seeps or other evidence of ground-water discharge along steep north bank of Conemaugh River along south edge of site property. Also look for evidence of erosion along this steep bank
- Check for presence of additional drums in the landfill area of the southwest part of the site
- Note the water level in the long depression, which is north of the disposal cell and north of the ConRail tracks

E. Recommendations from previous inspection:

- Remove the cable from the access road gate and replace the rusted lock and chain. Install cable or fencing from the access road gate posts to adjacent trees to deter access by trash dumpers
- Install a second site marker
- Locate SM-101 (by survey) and mark it with a metal stake

- Install a marker post for future location of BM-1
- Recontour high ground east of ponded water that is north of the disposal cell to promote eastward drainage of ponded water
- Sample seeps south of the disposal cell and the drainage channel for tailings contaminants
- Develop and implement a program to control the growth of deep-rooted species on the disposal cell
- Sample the contents of the drums and surrounding soil that were found in the southwest part of the site

## V. Inspection Closeout Summary

- A. At the end of the inspection and before leaving the site, the inspection team should
  1. Satisfy itself that it has sufficient information (photographs, measurements, sketches, etc.) to describe and evaluate findings and observations for the site inspection report.
  2. Summarize, in the field notes or elsewhere, the following information:
    - Serious problems or threatening factors requiring immediate follow-up action;
    - Actual or potential problems not requiring immediate attention but that require further observation, possibly including a follow-up inspection; and
    - Changes recommended for this checklist before the next inspection.
- B. If serious problems are identified during the inspection, the inspection team should
  1. Notify the DOE-GJPO Project Site Manager immediately, and
  2. Follow GJPO procedures for compliance with DOE Order 5000.3B (DOE 1993b).

## **Appendix B**

# **Inspection Photograph Log and Photographs**

# Inspection Photograph Log

## Explanation

Photographs referred to in the text of this report, as well as a list of these photographs, are included in this appendix (Appendix B). Photographs are identified by photograph location (PL) number. PL numbers also appear on the Inspection Drawing (Plate 1).

## Specifications

Photographs were taken on Kodacolor 135 film, ISO 200, with a variable (35 to 105 mm) focal length (zoom) lens. All photographs were exposed with daylight illumination and without filtration.

## Photograph Labels

Photographs in Appendix B are labeled as follows:

Photograph Location Number

Description

Date

PL-2 BUR 10/95 Entrance sign and damage

Site Abbreviation

## Abbreviations

The following abbreviations may be used in this appendix:

NE	Northeast	DC	Disposal cell
E	East	DM	Displacement monument
ESE	East southeast	ft	Feet
S	South	in	Inches
WSW	West southwest	P3	Perimeter sign and number
W	West	SMK	Site marker



# Inspection Photograph Log

Site: Burrell, Pennsylvania

Date of Inspection: October 10, 1995

Time of Day: From 9:30 a.m. to 6:15 p.m.

Weather Conditions: Clear, light and variable winds, 55 °F to 75 °F

Photographer's Location No. <sup>a</sup>	Azimuth <sup>b</sup>	Photograph Description/Remarks
1	270	Site access road gate
2	225	Entrance sign; damage to sign, metal strap, and mesh on fence
3	165	P2 with 3 bullet holes
4	180	P4 and numerous bullet holes that make sign partly illegible
5	000	SMK-1 and thick vegetation
6	100	View E along N side slope of DC from near DM-15
7	110	View ESE of S side slope of DC from W end of site along ConRail tracks
8	105	View ESE of S side slope of DC from DM-3
9	240	View WSW of slough and Conemaugh River from top of W end of DC
10	090	View E of depression in E part of site
11	110	View ESE of 24 in. diameter drain pipe at head (E end) of slough
12	100	View E from NE corner of top of DC toward ESE-trending drainage swale
13	150	Partly disintegrated drum on slope about 3 ft above slough S of W end of DC
14	150	Mostly disintegrated drum on slope about 5 ft above slough S of W end of DC
15	070	Tree growing through S security fence about 6 ft E of P14
16	060	Gap made by woodchucks about 12 in. high under security fence; gap is 18 fence posts E of P6
17	135	Oily sheen on seep just inside security fence about 60 ft E of P8
18	315	Three partly disintegrated drums in lower part of slope S of area between P16 and P17

<sup>a</sup>See Plate 1 for map of photograph locations.

<sup>b</sup>Declination angle: 9° W.



PL-2 BUR 10/95 Entrance sign and damage



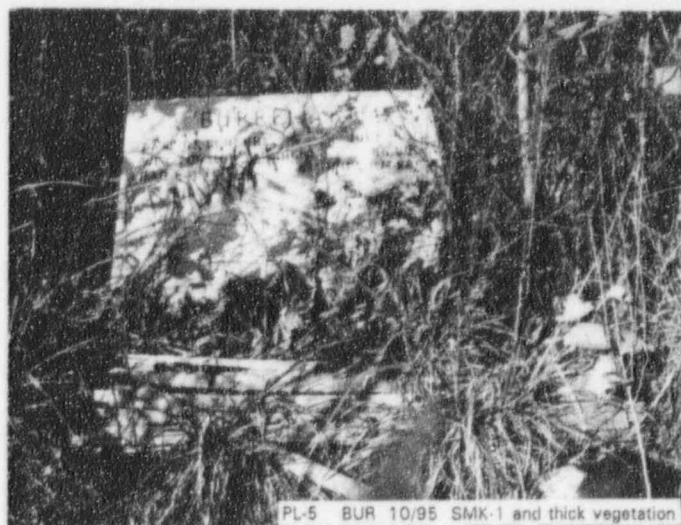
PL-3 BUR 10/95 P2 and 3 bullet holes



PL-4 BUR 10/95 Partly illegible P4



PL-1 BUR 10/95 Site access road gate, view W

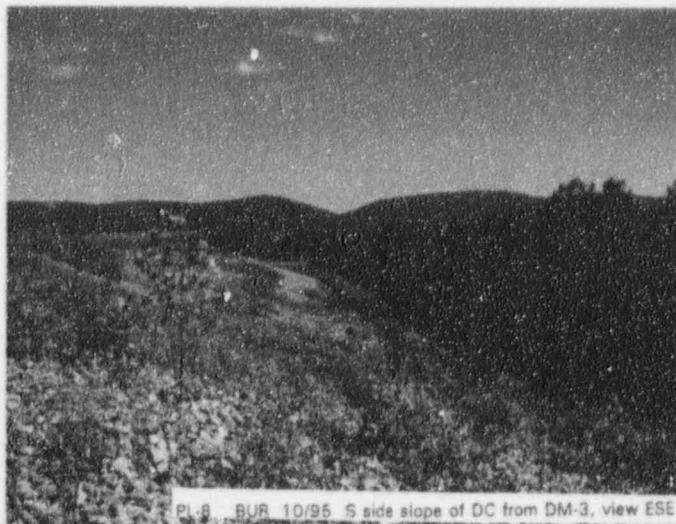


PL-5 BUR 10/95 SMK-1 and thick vegetation





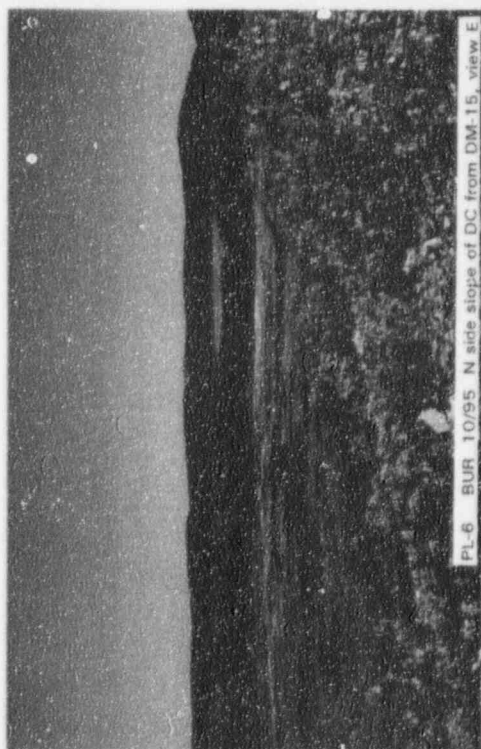
PL-7 BUR 10/95 S side slope of DC from W end of site, view ESE



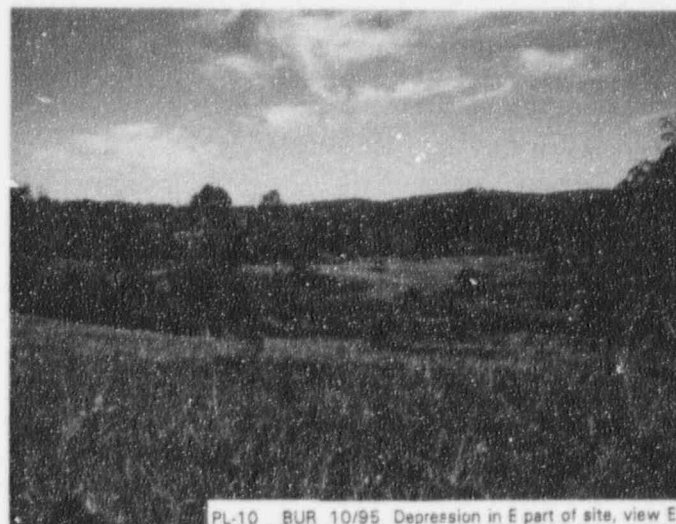
PL-8 BUR 10/95 S side slope of DC from DM-3, view ESE



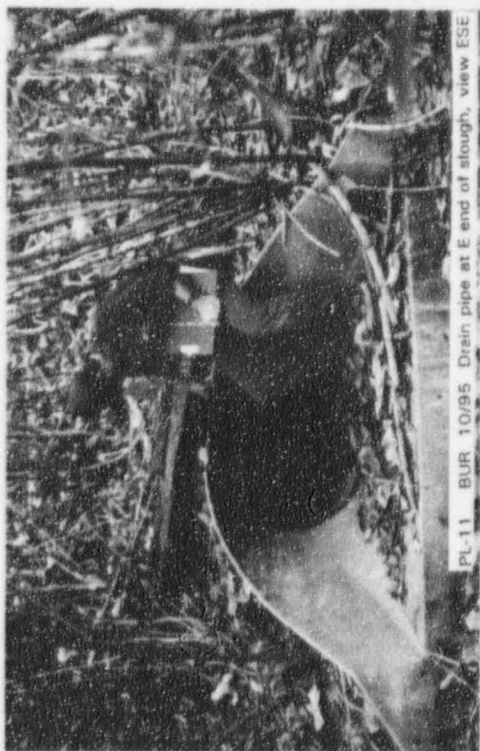
PL-9 BUR 10/95 Slough and Conemaugh River from top W end of DC



PL-6 BUR 10/95 N side slope of DC from DM-15, view E



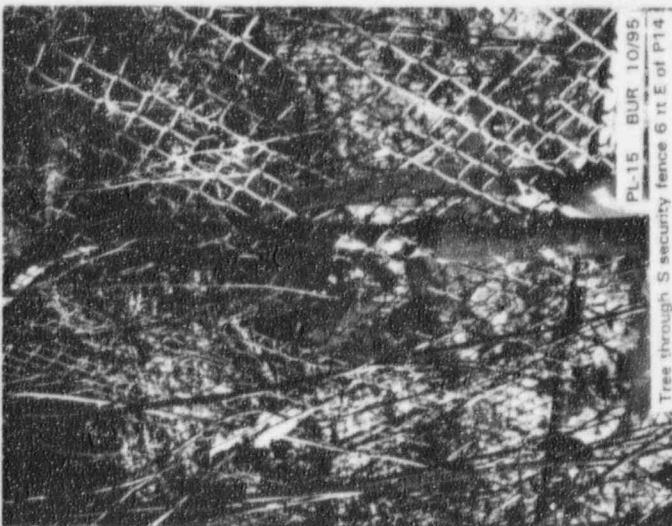
PL-10 BUR 10/95 Depression in E part of site, view E



PL-11 BUR 10/95 Drain pipe at E end of slough, view ESE



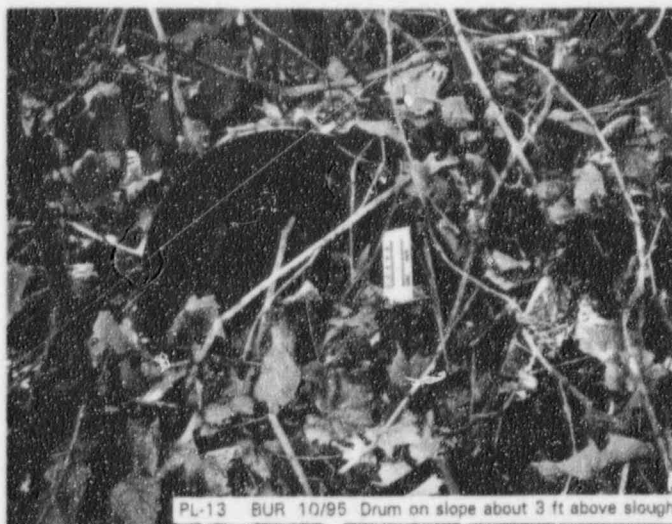
PL-12 BUR 10/95 ESE-trending drainage swale from NE top of DC



PL-15 BUR 10/95  
Tree through S security fence 6 ft E of P14



PL-14 BUR 10/95 Drum on slope about 5 ft above slough



PL-13 BUR 10/95 Drum on slope about 3 ft above slough



PL-16 BUR 10/95 Gap made by woodchucks under security fence



PL-17 BUR 10/95 Oily sheen on seep about 50 ft E of P8



PL-18 BUR 10/95  
Three drums in slope S of area between P16 and P17



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