

# **1996 Annual Prelicensing Inspection of the Mexican Hat, Utah, UMTRA Project Disposal Site**

## **1.0 Introduction**

This report gives the results of the U.S. Department of Energy (DOE) Uranium Mill Tailings Remedial Action (UMTRA) Project annual prelicensing inspection (API) of the Mexican Hat, Utah, disposal site. The purpose of this API is to ensure that the site continues to comply with UMTRA Project design standards.

Charles Jones, Chief Inspector, and Danni Langdon, Assistant Inspector, both of Rust Geotech, operating contractor at the DOE Grand Junction Projects Office (GJPO), conducted the inspection on May 8, 1996. Ray Charley, representative of the Navajo Abandoned Mine Lands (AML) office and the Navajo Nation, participated in the inspection. The inspection was conducted in accordance with UMTRA Project requirements and procedures established by the GJPO.

## **2.0 Results of Annual Prelicensing Inspection**

Inspection of the Mexican Hat disposal site was performed by dividing the site into four areas of varying size and shape referred to as transects: (1) top of the disposal cell; (2) side slopes and diversion ditches; (3) site perimeter; and (4) outlying areas. Relevant site features and locations of arroyos and seeps in the outlying area are shown on the attached drawings (Attachments 1 and 2). Inspectors walked each transect and examined all as-built features at the site. Seeps in the outlying area also were inspected.

### **2.1 Specific Site Surveillance Features**

The site is surrounded by a high-quality barbed-wire fence. The entrance gate is chain link. On each side of the entrance gate there is a prefabricated panel of chain-link fencing that separates the entrance gate from the beginning of the barbed wire fence. Mr. Charley pointed out that these two panels are very easy to remove and could easily be stolen. He suggested that these two prefabricated panels be replaced by barbed wire to prevent theft and loss of site security. The GJPO agrees and so recommends.

The 1 entrance sign and 43 perimeter warning signs were in good condition and undamaged.

The 2 site markers, 4 survey monuments, 12 boundary monuments, and 6 settlement plates also were in good condition and undamaged. It was noted during the 1995 inspection that one perimeter sign, P27, is in a dirt road (or track) which is seldom used. The road is very wide at this location so that vehicles can easily go around the sign. So far, the sign is undamaged.

It also was noted during the 1995 inspection that several perimeter signs, particularly P4, P24, P28, and P29, and two boundary monuments, BM-1 and BM-11, are on steep slopes subject to erosion. These features are stable at the present time, but warrant annual monitoring.

There are six wells in the area surrounding the site. All but two were noted during the 1995 inspection to be in disrepair and unusable as monitor wells. Because these wells are not identified in the Long Term Surveillance Plan (LTSP) as specific site surveillance features, they were not included in this inspection and will not be included in future inspections. Unless the Navajo Nation has a use for these wells, it is recommended that these wells be formally abandoned. If the UMTRA Project has an understanding or agreement with the Navajo Nation with respect to these wells, this information should be included in the final LTSP before the site is transferred to the GJPO for long-term custody.

## **2.2 Transects**

### **Biointrusion**

So far, undesirable plant species, such as *Tamaryx* and *Cochia*, are not growing in any of the riprapped areas on the site. Scattered tumbleweeds, specifically *Cochia*, are present in reddish soils beyond the riprap apron, but plants are not yet beginning to grow in the riprap.

### **Top of the Disposal Cell**

This transect was in excellent condition.

### **Side Slopes and Diversion Ditches**

This transect was also in excellent condition. One item of note: A vertical cliff of weathered, shaley bedrock rises above the riprapped apron at places along the southern edge of the site. A small scree slope, perhaps 12 inches to 18 inches high, is building out over the riprap at the very base of this cliff. A few boulder-sized blocks up to one foot in diameter have also rolled down the slope and a few feet onto the riprap. This process is not a problem at this time, but should be evaluated during future inspections.

### **Site Perimeter**

Two problems were noted. First, the bottom strand of barbed wire in the fence, and sometimes the second strand from the bottom as well, are slack at some fence corners. Mr. Charley expressed concern that young livestock could get under and through the fence at these locations. It is recommended the strands be tightened.

Second, here as at other sites in this region, tumbleweeds are beginning to accumulate along fence lines perpendicular to prevailing winds. At this time, the problem can be solved by a few hours of work with a pitch-fork. This work will be easier if completed before this year's crop of tumbleweeds adds to the accumulation.

## **2.3 Outlying Areas**

The area surrounding the site was viewed for signs of erosion, development, or other disturbance that might affect site security or integrity. Nothing appears to have changed since the site was constructed.

The LTSP states that certain seeps in North Arroyo and along Gypsum Creek will be sampled periodically as a best management practice. The LTSP also states that flow at the seeps may be intermittent. The seeps were inspected to record their current state. Of the several seeps noted in the 1995 inspection report, all but four seeps were dry.

Seep 255 in North Arroyo was damp enough that a sample could probably be obtained if a shallow depression were dug to collect the water. Seep 248, upstream along the west bank of Gypsum Creek, was dripping and could easily be sampled. Seep 922, downstream along Gypsum Creek was wet and could be sampled. Flow from Seep 253, just above the confluence of Gypsum Creek and North Arroyo, was meager but perceptible. The flow was from bedding planes in the rock at about the same elevation as standing water in the creek. A sample here would be difficult because it would be hard to exclude creek water from the sample. Clearly, sampling these seeps will at times be impractical.

The draft LTSP states that these seeps will be sampled "periodically"; but the LTSP gives no indication what an acceptable interval or period might be. It is requested that the UMTRA Project clarify the term "periodically" in the final LTSP, particularly if the DOE has an agreement or understanding with the Navajo Nation or the Nuclear Regulatory Commission (NRC) on the frequency of sampling.

### **3.0 Conclusions and Recommendations**

#### **3.1 Conclusions**

The second API of the Mexican Hat disposal site found the site to be in excellent condition. All specific site surveillance features are intact and undisturbed. Inspection of the transects revealed little or no change since the site was constructed. Specific observations and recommendations for the site follow.

#### **3.2 Observations and Recommendations**

1. Two prefabricated panels of chain-link fencing, one on each side of the entrance gate, separate the gate from the beginning of the barbed wire fence. These panels are easy to remove and may be easily stolen. (See page 1.)

**Recommendation:** Remove both panels and extend the barbed wire fence up to the heavy posts on each side of the entrance gate.

2. The status of six wells, all outside the site boundary, is unknown. Four of the six wells are in disrepair and can not be used for monitoring. These wells are not listed in the LTSP as specific site surveillance features. (See page 2.)

**Recommendation:** If the Navajo Nation has no use for these wells, the wells should be abandoned. If the UMTRA Project has an agreement or understanding with the Navajo Nations with respect to these wells, this information should be included in the final LTSP before the site is transferred to the GJPO.

3. The bottom and sometimes the second strand of barbed wire are slack at several corner posts. (See page 2.)

**Recommendation:** Take up the slack to keep young livestock out.

4. Tumbleweeds are beginning to accumulate along fence lines perpendicular to prevailing winds. (See page 2.)

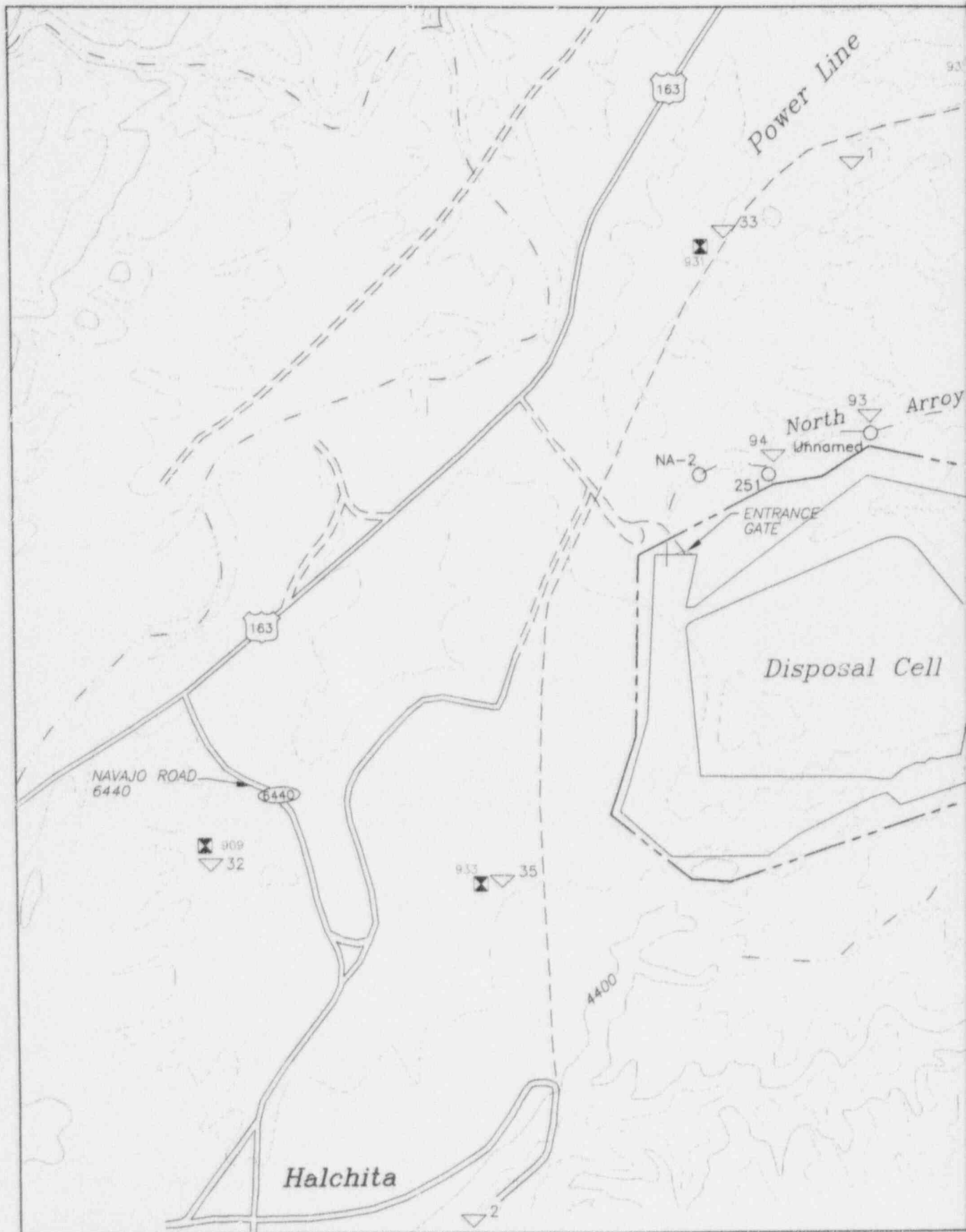
**Recommendation:** Clear the weeds from the fence line before this year's crop adds to the accumulation.

5. The LTSP states that seeps will be sampled periodically, but does not define the term "periodically." (See page 3.)

**Recommendation:** The UMTRA Project should clarify the term in the final LTSP, particularly if the DOE has an understanding or commitment with the Navajo Nation or NRC on the frequency of sampling.

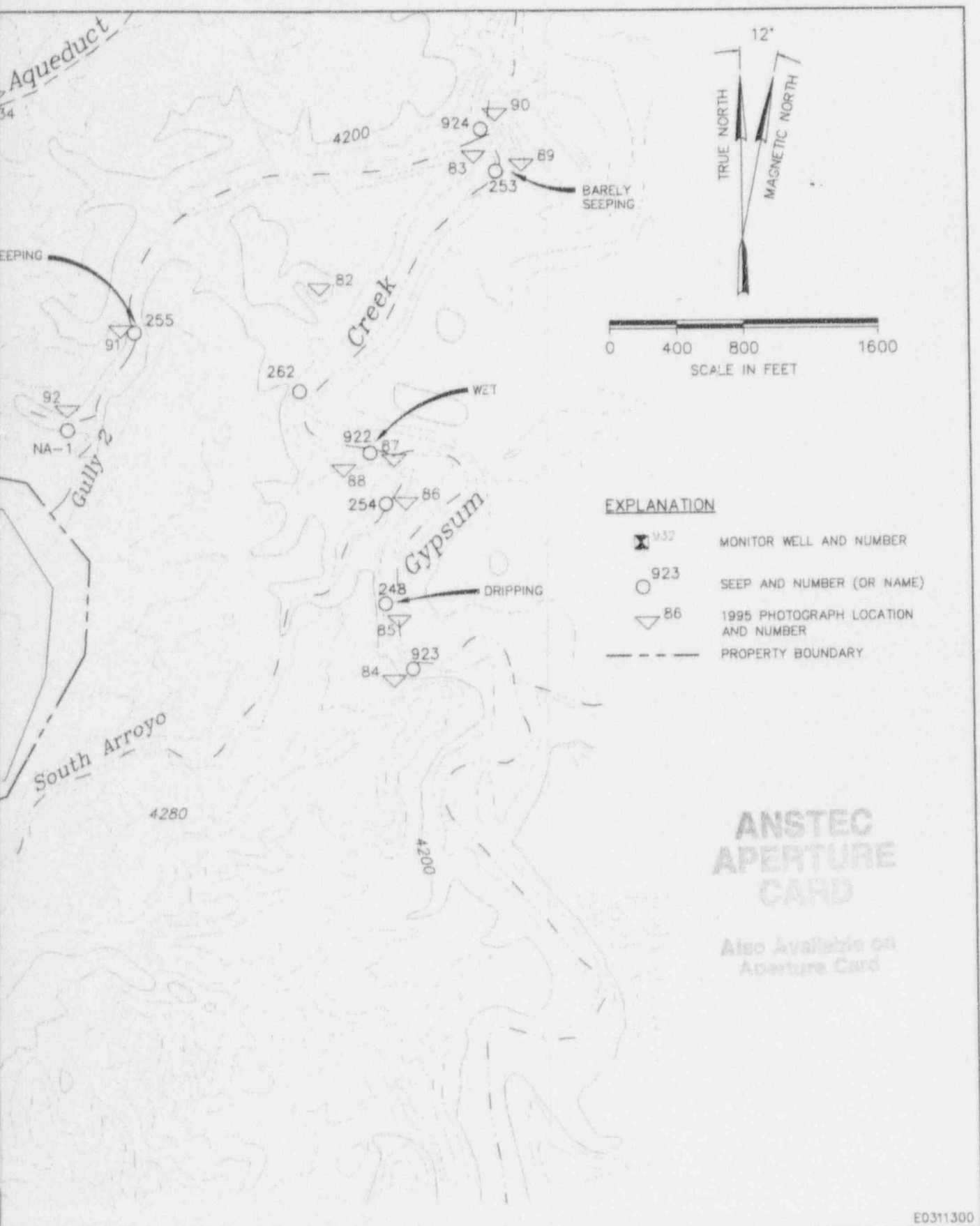
The following should be monitored during future inspections:

- The perimeter sign, P27, which is located in the middle of a road; and all perimeter signs and boundary monuments in steep areas subject to erosion.
- Growth of the scree slope at the base of cliffs along the south edge of the riprap apron.



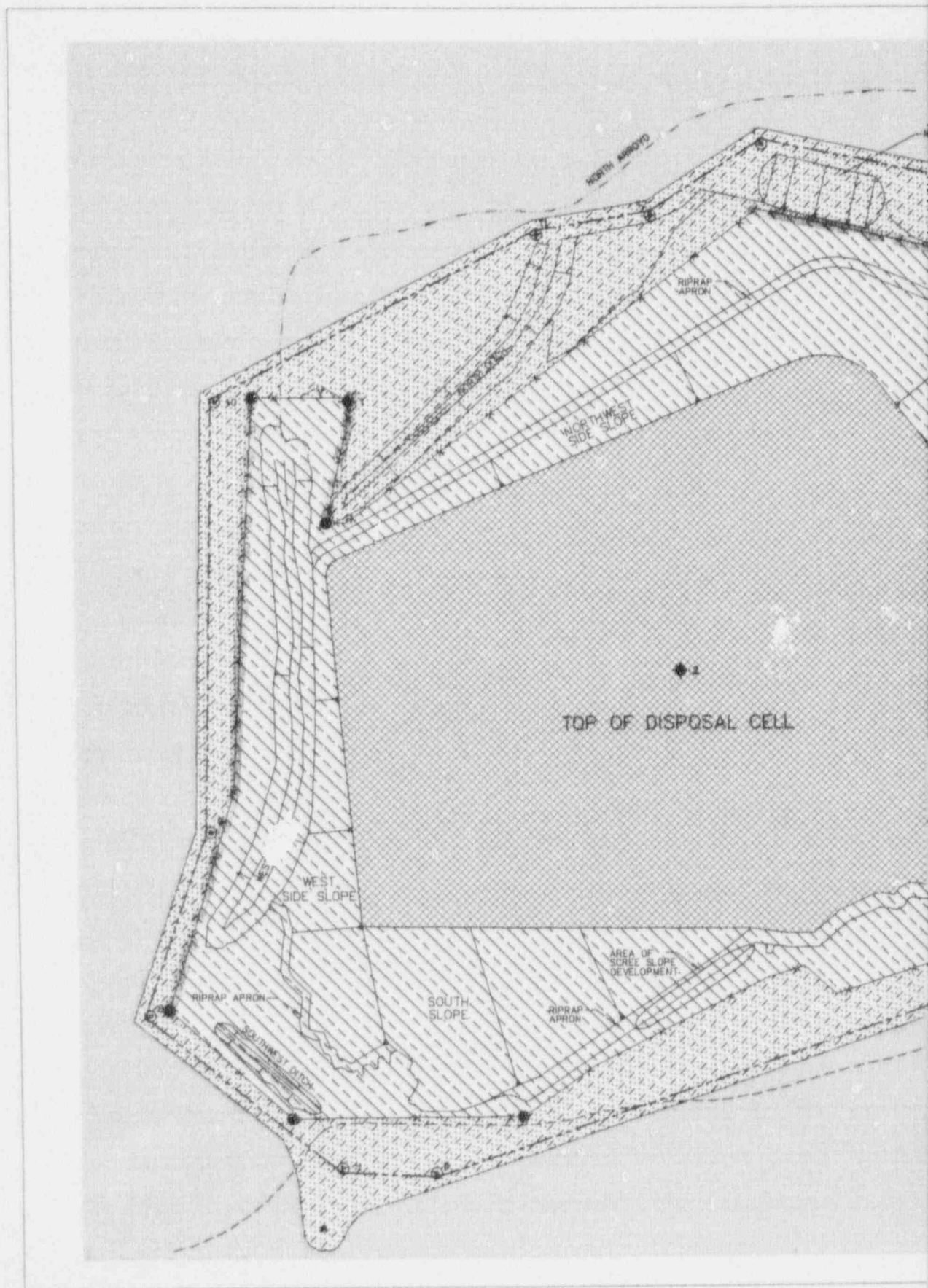
Attachment 2. Location of Monitor Wells, and See



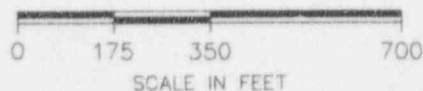
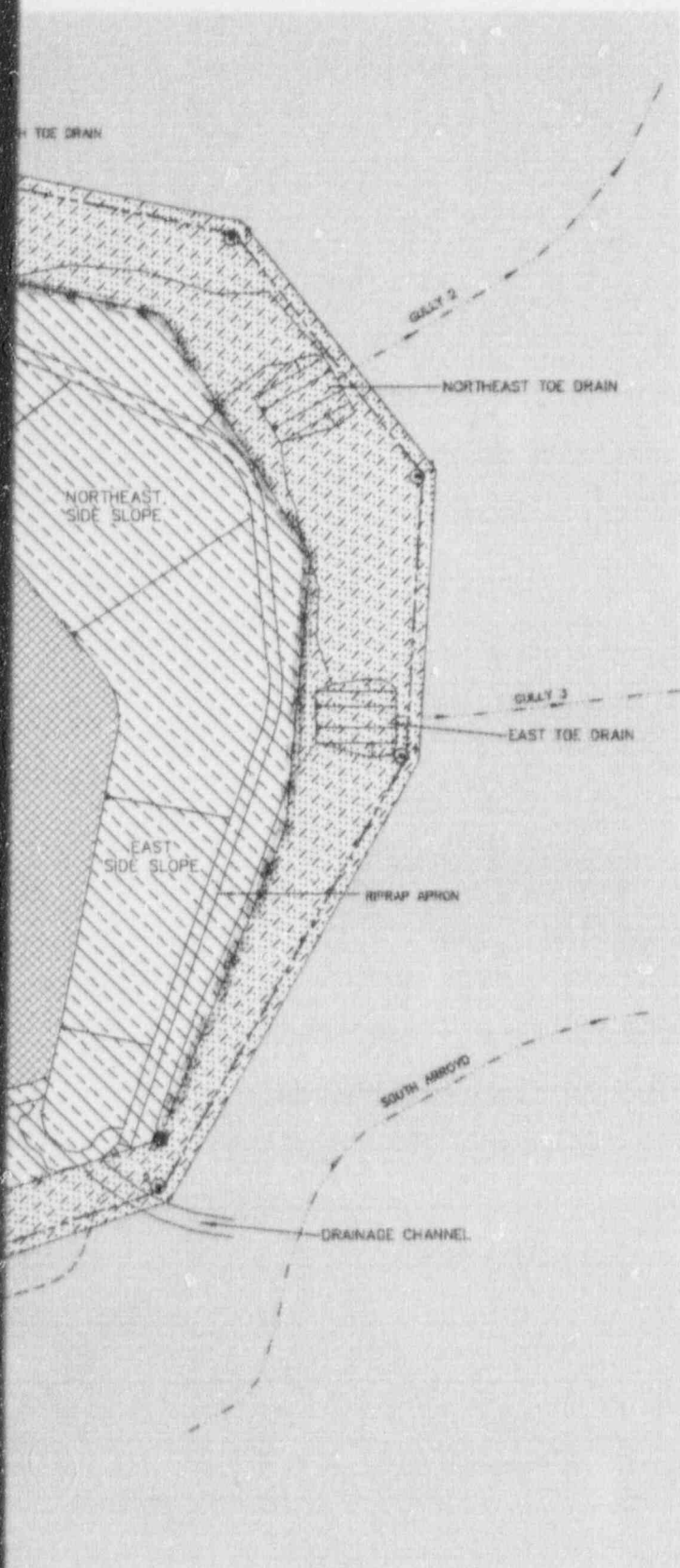


in Outlying Areas Around Mexican Hat, Utah, Disposal Site

9704160241-01



Attachment 1. Map of Inspection Trans



ANSTEC  
APERTURE  
CARD

Also Available as  
Aperture Card

# EXPLANATION

	TOP OF DISPOSAL CELL
	SIDE SLOPES AND DITCHES
	SITE PERIMETER
	OUTLYING AREAS
	SITE MARKER AND NUMBER
	BOUNDARY MONUMENT AND NUMBER
	SURVEY STATION 4
	BARBED-WIRE FENCE
	ENTRANCE GATE
	PROPERTY BOUNDARY
	EMBANKMENT SHOWING DIRECTION OF SLOPE
	APPROXIMATE LOCATION OF DRAINAGES
	DIRT ROAD
	BOTTOM STRAND(S) OF LOOSE BARBED WIRE
	TUMBLEWEED ACCUMULATION

E0311500

ts at Mexican Hat, Utah, Disposal Site

9704160241-02