

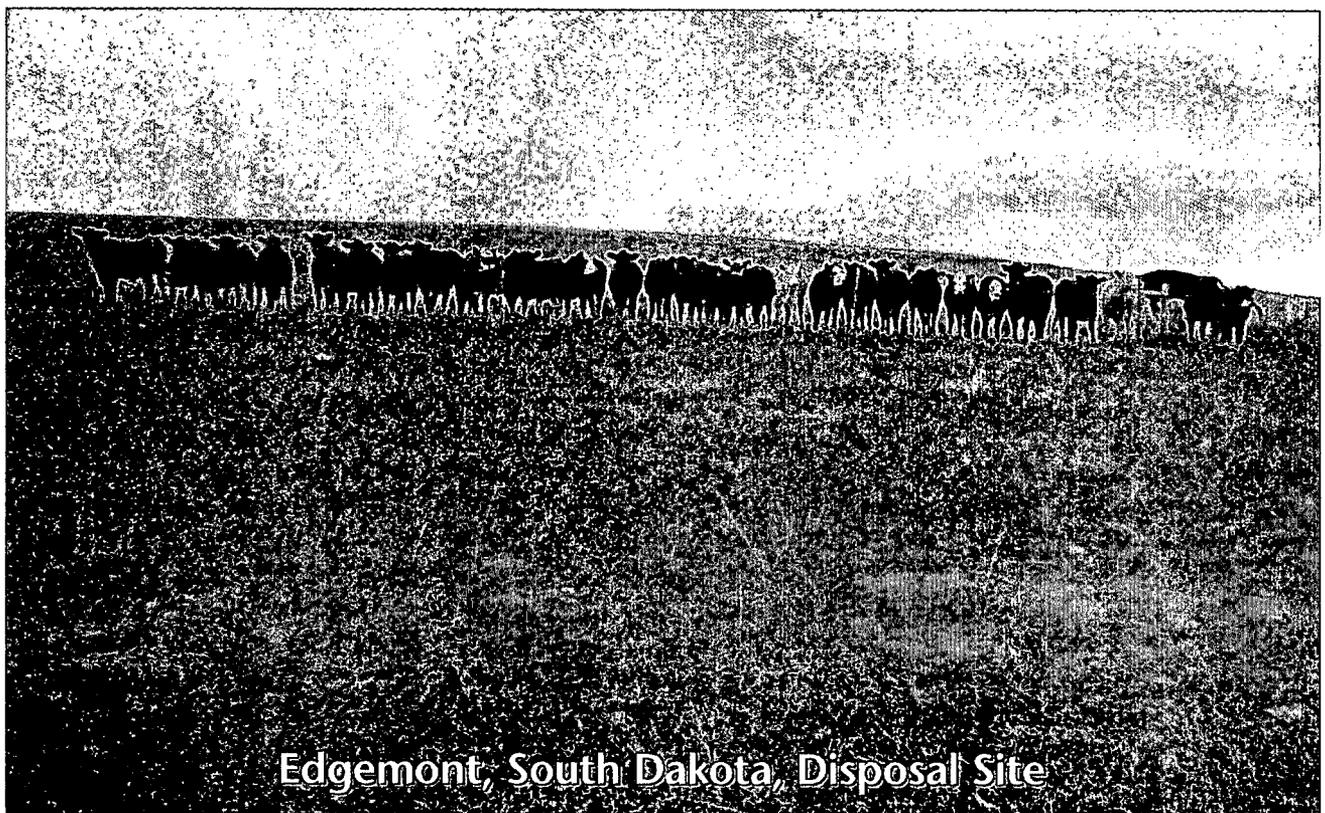
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**Long-Term Surveillance and Monitoring Program**

**1998 Annual Site Inspection  
and Monitoring Report for  
Uranium Mill Tailings Radiation  
Control Act Title II Disposal Sites**

**September 1998**



**Edgemont, South Dakota, Disposal Site**

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**Long-Term Surveillance and Monitoring Program**

**Annual Site Inspection and Monitoring Report**  
**for**  
**Uranium Mill Tailings Radiation Control Act**  
**Title II Disposal Sites**

**1998 Annual Report**

September 1998

Prepared for  
U.S. Department of Energy  
Albuquerque Operations Office  
Grand Junction, Colorado

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## Summary

This report presents results of annual site inspections for the two Uranium Mill Tailings Radiation Control Act (UMTRCA) Title II mill tailings sites that currently fall under the DOE general license for long-term custody and care of uranium or thorium byproduct materials disposal sites (10 CFR 40.28). Specific inspection and monitoring requirements are in the Long-Term Surveillance Plans for each site.

The Bluewater, New Mexico, UMTRCA Title II disposal site was inspected on April 7 and 8, 1998. The site is generally in excellent condition. One concern exists: ponded water was present at the top of the north end of the main tailings pile. Occurrence of ponded water on top of the main tailings pile will be monitored during future inspections. NRC required ground-water monitoring will be conducted during the Fall of 1998. Results of this monitoring will be formally reported in the 1999 Annual Inspection and Monitoring Report for Title II sites. EPA-required PCB monitoring conducted in November 1997, resulted in no detection of PCBs.

The Edgemont, South Dakota, UMTRCA Title II disposal site was inspected on June 16, 1998. The site is in excellent condition. Ground-water monitoring is not required for this site.

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## 1.0 Introduction

Regulations that implement the Uranium Mill Tailings Radiation Control Act of 1978 require the U.S. Department of Energy (DOE) to inspect licensed Title II sites annually and to report the results of the inspections to the U.S. Nuclear Regulatory Commission (NRC).

The DOE combines all Title II inspection trip reports into one annual report. The annual report covers a calendar year (CY) instead of the federal government's fiscal year. During CY 1998, DOE inspected the Bluewater, New Mexico, and Edgemont, South Dakota, Title II sites. Inspection reports for these two sites are included in this report.

Ground-water monitoring required by the NRC for the Bluewater site will be conducted in the Fall of 1998. The results of this monitoring event will be formally reported in the 1999 annual report. Ground-water monitoring is not required at the Edgemont site.

Table 1-1 summarizes potential issues at each site.

*Table 1-1. Potential Issues*

Site	Potential Issue
Bluewater	Ponded water at north end of top of main tailings pile (see page 3-3)
Edgemont	None

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## 2.0 Site Inspection Reports

Title II disposal sites are included under the general licence of 10 CFR 40.28 when the following actions are completed: (1) site reclamation is completed, (2) the NRC accepts the site-specific Long-Term Surveillance Plan (LTSP), and (3) the long-term care fee required under criterion 10 of Appendix A of 10 CFR 40, has been paid to the U.S. Treasury. The DOE's Long-Term Surveillance and Monitoring (LTSM) Program conducts inspections, monitoring, and maintenance in accordance with the LTSP and procedures established by the DOE-Grand Junction Office (GJO) to comply with 10 CFR 40.28.

The purposes of the annual inspection are to confirm the integrity of visible features at the site, to identify changes or new conditions that may affect site integrity, and to determine the need, if any, for maintenance or follow-up inspections and monitoring.

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## **3.0 Bluewater Title II Disposal Site Bluewater, New Mexico**

### **Summary**

The Bluewater, New Mexico, UMTRCA Title II disposal site was inspected on April 7 and 8, 1998. The site is generally in excellent condition. One concern exists: ponded water was present at the top of the north end of the main tailings pile. Occurrence of ponded water on top of the main tailings pile will be monitored during future inspections. NRC required ground-water monitoring will be conducted during the fall of 1998. Results of this monitoring will be formally reported in the 1999 Annual Inspection and Monitoring Report for Title II sites. EPA-required PCB monitoring conducted in November 1997, resulted in no detection of PCBs. Complete records of the sampling results are on file at the DOE-GJO. Since this inspection represented the first annual inspection for the Bluewater site, an extensive set of baseline photographs was taken for future reference. These photographs are attached to this report. Subsequent inspections will only photograph features of particular interest.

### **3.1 Specific Site Surveillance Features**

The site was inspected by C. S. Goodknight (Chief Inspector) and M. P. Plessinger (Assistant Inspector), of MACTEC-ERS, Technical Assistance Contractor at the DOE Grand Junction Office (GJO), on April 7 and 8, 1998. In the descriptions that follow, photographs are referred to by photograph location (PL) number. The prefix for the site (i.e., BLU for Bluewater) appears before the PL number. Site features and PL numbers are shown on Plate 1. An overview of the site's largest disposal cell, which includes the main and acid tailings piles, and much of the northwest part of the site is shown in BLU PL-1A and BLU PL-1B, taken from a hilltop near the northwest corner of the site.

#### **Entrance Gate, Access Road, and Access Road Gate**

The site entrance gate (BLU PL-2) is a steel, double-swing stock gate that is secured by a chain with padlocks belonging to DOE and others who hold rights of way across DOE's property. The gate, in excellent condition, provides access to the site off County Road 334. An all-weather, crushed basalt access road extends approximately 1,700 feet north along DOE's easement to the site access gate (BLU PL-3). This gate, also a steel, double-swing stock gate in excellent condition, is secured by padlocks that are keyed the same as on the entrance gate.

#### **Perimeter Signs**

Fifty-two perimeter or warning signs, designated P1 through P52, are placed in various positions around the site boundary and around the main and carbonate tailings piles. The signs are attached to steel posts set in concrete at a height of about 5 feet above ground. A typical perimeter sign (P1) is shown in BLU PL-4.

Of the 52 signs, ten signs (P1 through P10) are placed around the site boundary, about 5 feet inside the site fence, mainly at vehicle access gates for the various utility company rights-of-way that cross the site. Sign P1 is not present at the site entrance gate, as indicated in the LTSP. Instead, it has been placed adjacent to the access road gate (BLU PL-3). This alternate location for P1, at the entrance to the main body of the site property, is acceptable and is probably in a more appropriate location to announce the site rather than at the entrance gate on the county road. Therefore, the relocation of P1 from the site entrance gate to the access road gate is an acceptable variance.

The remaining 42 signs (P11 through P52) are placed no more than 500 feet apart around the main and carbonate tailings piles. The signs are about 100 feet from the edge of each of the piles. All the signs are in excellent condition. Sign P13 was removed by the inspectors and attached to the site boundary fence in the southwest part of the site where the fence had been cut to allow cattle to access the site.

### **Site Marker and Boundary Monuments**

A granite site marker (BLU PL-5) is located between the southwest corner of the main tailings pile and the northwest corner of the carbonate tailings pile. The marker is in excellent condition.

Twenty-four boundary monuments define the site boundary. These monuments are set several feet inside the boundary from the actual corner and inside the site boundary fence. All but two of the boundary monuments (BM-15 and BM-24) were found, and all of these are in excellent condition. BM-1 through BM-14 are shown in BLU PL-6 through BLU PL-19, respectively, and BM-16 through BM-23 are shown in BLU PL-20 through BLU PL-27, respectively.

BM-15 in the northeast part of the site (Plate 1) could not be found. It is probably present but is buried by windblown sand and silt along the site perimeter road at this corner. BM-24 along the south boundary of the site also could not be found. It, likewise, is probably buried by windblown sand along the side of the site perimeter road (BLU PL-28). Both boundary monuments can be found by using construction diagrams that show the monuments in relation to the boundary fence. Attempts will be made to find both monuments during the next annual inspection.

### **Monitor Wells**

Nine monitor wells are inside the site property. Five of the wells are screened in the alluvial aquifer (designated by an "M") and the other four are screened in the San Andres Limestone-Glorieta Sandstone bedrock aquifer (referred to as the San Andres and designated by an "SG").

The five alluvial wells, E(M) in BLU PL-29, F(M) in BLU PL-30, T(M) in BLU PL-31, X(M) in BLU PL-32A and BLU PL-32B, and Y2(M) in BLU PL-33, are all in excellent condition except for minor damage caused by cattle to three of the wells. The damage consists of chewed wiring at wells T(M) and X(M), shown in BLU PL-31 and BLU PL-32B, respectively, and broken PVC pipe (BLU PL-33) that transmits pumped water from well Y2(M) to an evaporation tank.

The four bedrock (San Andres) wells, L(SG) in BLU PL-34, OBS-3 in BLU PL-35, S(SG) in BLU PL-36, and I(SG) in BLU PL-37, are all in excellent condition except for minor damage caused by cattle to one of the wells. The one well damaged is OBS-3 (BLU PL-35) where wiring has been chewed and PVC piping has been broken.

Cattle grazing on the site and their resulting rubbing against and breaking of well piping as well as chewing exposed wiring will continue to damage the monitor wells until cattle are eliminated from the site or until fencing is placed around the wells. Damage to the wells should continue to be monitored during future inspections. Stock fencing should be placed around the wells to prevent damage.

### **3.2 Areal Features**

The overall, or areal, condition of the site was inspected by dividing the site into four areas of varying size and shape referred to as transects: (1) the main tailings pile, including the acid tailings pile and south bench; (2) the carbonate tailings pile, including the asbestos and PCB disposal areas and landfills; (3) other areas inside the site (excluding the disposal cells, asbestos and PCB disposal areas, and landfills); and (4) the site boundary and outlying areas.

#### **Main Tailings, Acid Tailings, and South Bench**

Basalt riprap covers the top and side slopes of the approximately 320 acre main tailings pile. The top of the main pile slopes northward. The slope varies from 3 to 4 percent in the southern half and flattens to less than 0.5 percent in the northern half. The flat tops of the acid tailings pile and the south bench are grass covered; the side slopes are covered by basalt riprap.

Condition of the main tailings, acid tailings, and south bench is generally excellent (BLU PL-38 through BLU PL-48). No evidence of slumping or erosion was seen on the top or side slopes of these features.

A thin accumulation of red, windblown sand from prevailing westerly winds is present for about 1,000 feet along the top of the east side slope of the main tailings pile (Plate 1). This deposition on the lee side of the main tailings pile will likely increase. The progress of this accumulation will be monitored during future inspections.

Water has accumulated in a small area at the north end of the top of the main tailings pile (BLU PL-43 and BLU PL-44). At the time of the inspection, ponded water several inches deep covered an area less than 0.5 acre. A water line on the rock surface indicated that the recent extent of ponded water extended over an area of 4 to 5 acres (Plate 1). This water accumulation may be an indication of settling of the north end of the tailings pile where the slimes were placed, or it may be an artifact of site construction. The slope specification for this portion of the main tailings pile is a maximum of 0.5 percent. Because the recent winter in this area was much wetter than normal, it is not known if the presence of ponded water will be a yearly occurrence. This area will be carefully inspected during future inspections.

## **Carbonate Tailings, Asbestos and PCB Disposal Areas, and Landfills**

The top and side slopes of the carbonate tailings are covered with basalt riprap. The top, for the most part, slopes gently eastward. The small northwest and southeast extensions slope in their respective directions (Plate 1). Condition of the carbonate tailings pile cover is excellent (BLU PL-39A, BLU PL-39B, BLU PL-40B, and BLU PL-49 through BLU PL-54). No evidence of settling, slumping, or erosion was seen.

The asbestos disposal area is a bowl-like depression just south of the carbonate pile. It is in excellent condition (BLU PL-55 and BLU PL-56). The north, west, and south side slopes of this depression are covered by limestone riprap; the bottom of the depression is grass covered.

The small, basalt riprap-covered PCB disposal area (BLU PL-57 and BLU PL-58) is in excellent condition. Also in excellent condition are the two landfills (west landfill in BLU PL-59) in grass-covered depressions east of the carbonate pile.

### **Other Areas Inside the Site**

The inspectors covered this large area of nearly 3,000 acres (4.5 square miles) mainly by driving on the site perimeter road and on numerous roads in the utility company right-of-ways and other areas. Much of the south and west parts of the site is covered by basalt flows, which form rugged topography referred to as malpais (BLU PL-1A, BLU PL-1B, and BLU PL-60).

The site perimeter road is mainly dirt-surfaced, but is covered by crushed basalt (BLU PL-61) in a few places. The road inside the site stays close to the site boundary in part of the south and most of the north and east parts of the site. The road is in good to excellent condition, but may require periodic maintenance in places to remain passable. Most notable is the gully erosion (BLU PL-62), up to 3 feet deep along a short section of the road in the northeast part of the site. The progress of this erosion area and others along the road will be noted during future site inspections. These erosion areas are not a threat to disposal site integrity.

Several utility company rights-of-way cross the site. The rights-of-way are enclosed by stock fence with gates where the site perimeter road or their roads cross them (BLU PL-61 and BLU PL-63). Roads that are generally crushed basalt-covered follow each right-of-way providing the utility companies all-weather access. The roads are generally in excellent condition, but erosion in several places may require periodic maintenance by the utility companies. None of this erosion threatens disposal site integrity. Basalt riprap stockpiles that could be used for future road repairs are located in two areas of the site—one just north of the access road gate (BLU PL-3) and three just east of the main tailings pile (BLU PL-64). Fencing materials available for the utility company right-of-ways or the site boundary fence are also stockpiled just east of the main tailings pile (BLU PL-64). An electric power substation is in a security-fenced area near the center of the site along the Plains Electric Company right-of-way (BLU PL-33, BLU PL-51B, and BLU PL-59). The inner security fence and outer stock fence around this facility are in good condition.

Two other disposal areas, disposal area number 1 (BLU PL-57 and BLU PL-58) and the stockpile area (BLU PL-51B), occur on the site south of the carbonate tailings. Both of these grass-covered areas are in excellent condition.

### **Site Boundary and Outlying Areas**

The site boundary fence is generally several feet inside the actual DOE property line. The boundary fence, generally in good to excellent condition, is constructed with steel T-posts strung with four strands of barbed wire. A section of damaged fence about 50 feet long between the site entrance gate and BM-20 was repaired and tightened (BLU PL-65). This section of fence will be monitored during future inspections and repaired as necessary to prevent livestock entry.

During the inspection of the site perimeter, evidence of unauthorized cattle grazing was obvious. Ten to fifteen cows were seen in the southwest (BLU PL-66) and east (BLU PL-67) parts of the site. The main entry point for the cattle was found in the southwest part of the site where the fence had been cut along an old road from the south (BLU PL-68A). The fence was repaired by the inspectors (BLU PL-68B) and a warning (perimeter) sign placard (P13) was placed on the fence. Along the north site boundary, another section of stock fence along a utility company right-of-way was open (BLU PL-69). This open section about 4 feet wide was adjacent to the gate for the site perimeter road to cross the El Paso Natural Gas Pipeline right-of-way. The fence was repaired. Also noted was the absence of a lock on the right-of-way gate just to the north at the site boundary (Plate 1). As a result of this inspection, the DOE has notified adjacent private landowners that cattle grazing on the site is not authorized. Also, DOE may request that a lock be placed on the El-Paso-Transwestern right-of-way gate along the north site property boundary.

Most of the site drains to the east and an area of ponded water occurs along the site boundary fence (BLU PL-70). A short section of the boundary fence is down in this flooded area. The presence of water here is intermittent, but was particularly high after the wet winter experienced in the area. The high water also covers the site perimeter road and closes it. The site fence in this area should be repaired when the water recedes. This water does not threaten disposal site integrity.

Several survey markers were noted during the traverse around the site property boundary. Aluminum survey markers (BLU PL-71) identify the exact DOE site property corners; the boundary monuments are set several feet inside these property corners. Several quarter-corner cadastral survey markers occur along the site boundary (Plate 1) and one section corner cadastral survey marker (BLU PL-72) was found. Several other cadastral survey markers are likely present on the site.

The area outside the site boundary is used for grazing and is covered mainly by short, sparse grass. Steep, rocky hillsides along the northwest and northeast boundaries of the site contain scattered juniper trees. No evidence of activity in the surrounding area that might threaten the site was observed.

### 3.3 Conclusions

With the exception of the presence of a small area of ponded water on the top of the main tailings pile, the Bluewater disposal site is in excellent condition. Other minor issues noted during the inspection do not pose any threat to the integrity of the disposal cells.

### 3.4 Photograph Log and Photographs

Table 3-1. Photograph Descriptions for Bluewater, New Mexico, Site

Photograph Number	Photograph Description
BLU PL-1A	Panorama of main and acid tailings piles from hilltop near BM-5, view SE
BLU PL-1B	Panorama of main and acid tailings piles from hilltop near BM-5, view ESE
BLU PL-2	Entrance gate and access road, view N
BLU PL-3	Access road, access road gate, and P1, view N
BLU PL-4	Typical warning sign (P1), view N
BLU PL-5	Site marker, view N
BLU PL-6	BM-1
BLU PL-7	BM-2
BLU PL-8	BM-3
BLU PL-9	BM-4
BLU PL-10	BM-5
BLU PL-11	BM-6
BLU PL-12	BM-7
BLU PL-13	BM-8
BLU PL-14	BM-9
BLU PL-15	BM-10
BLU PL-16	BM-11
BLU PL-17	BM-12
BLU PL-18	BM-13
BLU PL-19	BM-14
BLU PL-20	BM-16
BLU PL-21	BM-17
BLU PL-22	BM-18
BLU PL-23	BM-19
BLU PL-24	BM-20
BLU PL-25	BM-21
BLU PL-26	BM-22
BLU PL-27	BM-23
BLU PL-28	Reported location of BM-24 (not found), view W
BLU PL-29	E(M), background alluvial well
BLU PL-30	F(M), point of compliance alluvial well
BLU PL-31	T(M), point of compliance alluvial well, chewed wiring
BLU PL-32A	X(M), point of exposure alluvial well
BLU PL-32B	X(M), chewed wiring
BLU PL-33	Y2(M), point of compliance alluvial well for PCBs, damaged PVC pipe

See Plate 1 for map of photograph locations

Table 3-1 (continued). Photograph Descriptions for Bluewater, New Mexico, Site

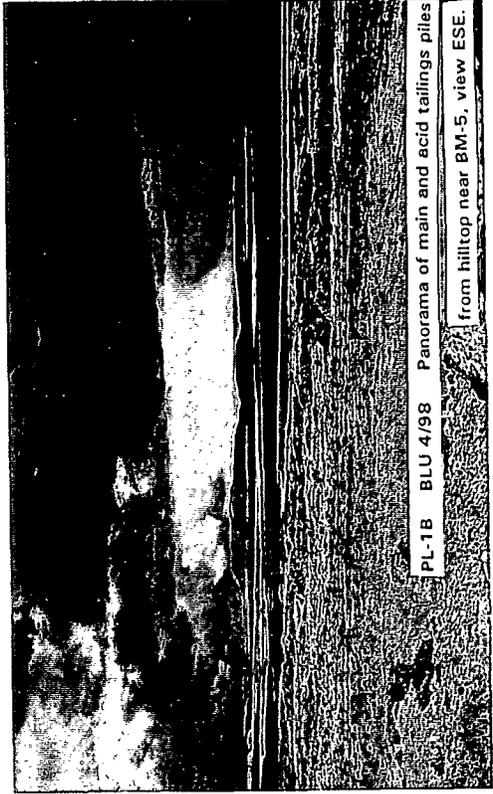
Photograph Number	Photograph Description
BLU PL-34	L(SG), background San Andres well
BLU PL-35	OBS-3, point of compliance San Andres well, damaged pipe and wiring
BLU PL-36	S(SG), point of compliance San Andres well
BLU PL-37	I(SG), point of exposure San Andres well
BLU PL-38	SW side slope and top of main tailings, view NW
BLU PL-39A	S side slope of main tailings and carbonate tailings, view SSE
BLU PL-39B	S side slope of main tailings and carbonate tailings, view SSW
BLU PL-40A	S Side slope and top of main tailings, view WSW
BLU PL-40B	S side slope of main tailings and carbonate tailings, view SSW
BLU PL-40C	S side slope of main tailings and south bench, view SSE
BLU PL-41	E side slope and top of main tailings, view N
BLU PL-42	E side slope and top of main tailings, view S
BLU PL-43	Ponded water in N part of top of main tailings, view W
BLU PL-44	Ponded water in N part of top of main tailings, view SW
BLU PL-45	N side slope and top of main tailings, view W
BLU PL-46	NW side slope of main tailings and acid tailings, view WSW
BLU PL-47	NW side slope of main tailings and acid tailings, view NNE
BLU PL-48	SW side slope and top of main tailings, view SE
BLU PL-49	Top of carbonate tailings, view ENE
BLU PL-50	Top and S side slope of carbonate tailings, view E
BLU PL-51A	SE extension of carbonate tailings, view NNE
BLU PL-51B	Stockpile area and power substation, view ESE
BLU PL-52	Top and E side slope of carbonate tailings, view N
BLU PL-53	Top and N side slope of carbonate tailings, view W
BLU PL-54	N side slope and NW extension of carbonate tailings, view W
BLU PL-55	Asbestos disposal area, view SE
BLU PL-56	Asbestos disposal area, view WNW
BLU PL-57	Rock-covered PCB disposal area, view SE
BLU PL-58	Rock-covered PCB disposal area, view S
BLU PL-59	W landfill area and power substation, view ESE
BLU PL-60	Malpais in W part of site, view NE
BLU PL-61	Gate to site perimeter road, view W
BLU PL-62	Gully erosion along site perimeter road, view NNW
BLU PL-63	Gates on site perimeter road crossing El Paso Natural Gas right of way
BLU PL-64	Fence materials stockpile and basalt stockpiles, view SW
BLU PL-65	Damaged fence between entrance gate and BM-20, view NNE
BLU PL-66	Cattle grazing on site N (right) of boundary fence, view W

See Plate 1 for map of photograph locations

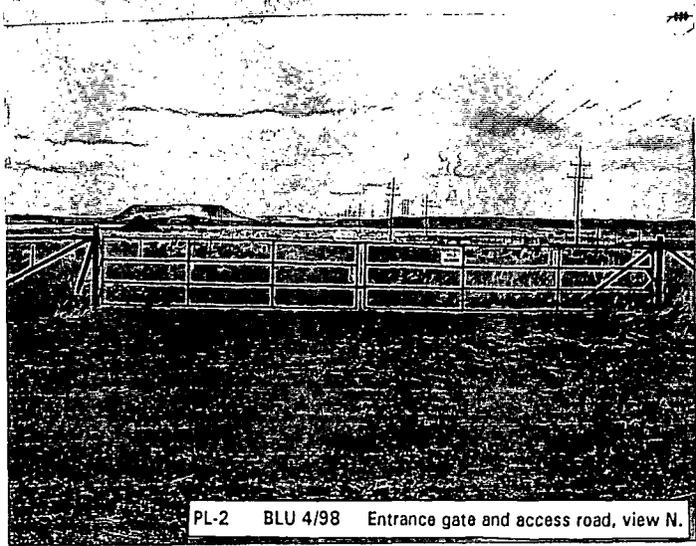
Table 3-1 (continued). Photograph Descriptions for Bluewater, New Mexico, Site

Photograph Number	Photograph Description
BLU PL-67	Cattle grazing on site N of BM-18, view N
BLU PL-68A	Site boundary fence cut along old road for cattle access
BLU PL-68B	Installing warning sign (P13) at site of repaired boundary fence
BLU PL-69	Open right-of-way fence for cattle access along N site boundary
BLU PL-70	Ponded water covering site perimeter road between BM-17 and BM-18
BLU PL-71	Survey marker S of BM-1 with exact location of property corner 1
BLU PL-72	Section corner survey marker just SE of BM-18

See Plate 1 for map of photograph locations



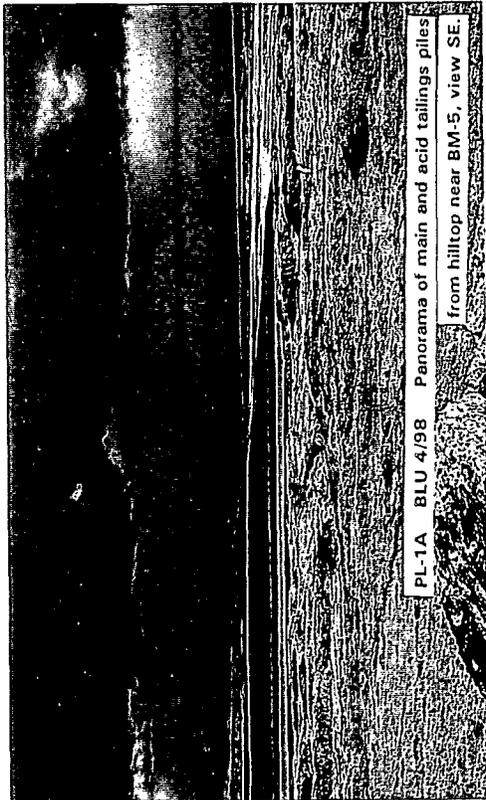
PL-1B BLU 4/98 Panorama of main and acid tailings piles from hilltop near BM-5, view ESE.



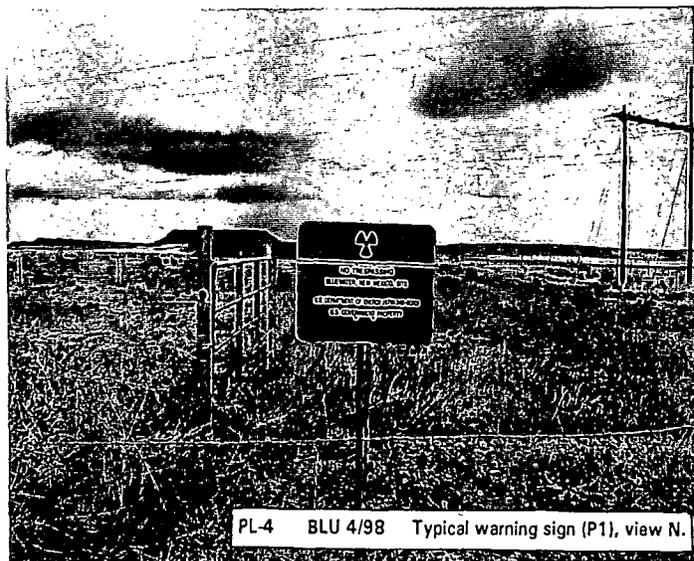
PL-2 BLU 4/98 Entrance gate and access road, view N.



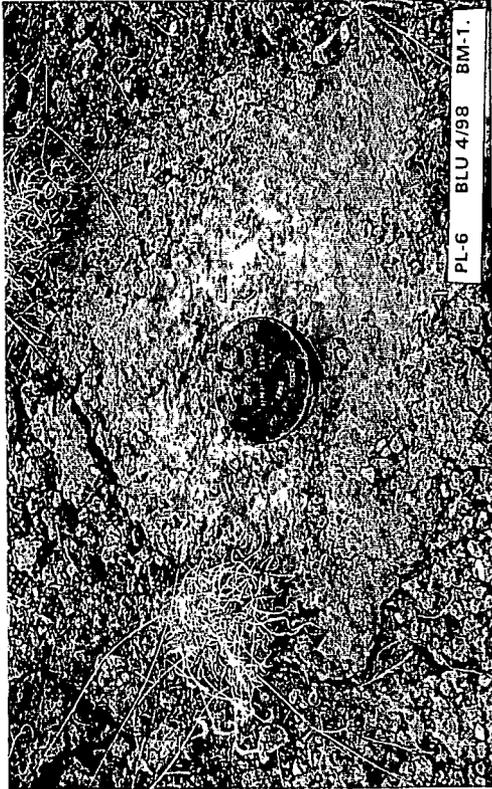
PL-3 BLU 4/98 Access road, access road gate, and P1, view N.



PL-1A BLU 4/98 Panorama of main and acid tailings piles from hilltop near BM-5, view SE.



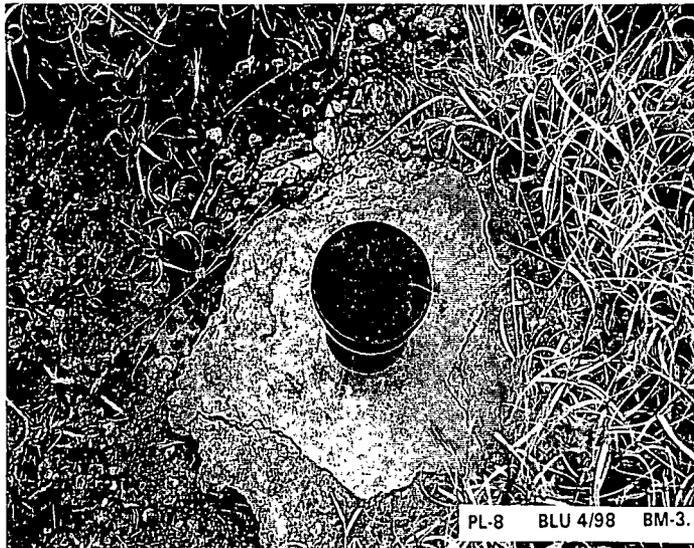
PL-4 BLU 4/98 Typical warning sign (P1), view N.



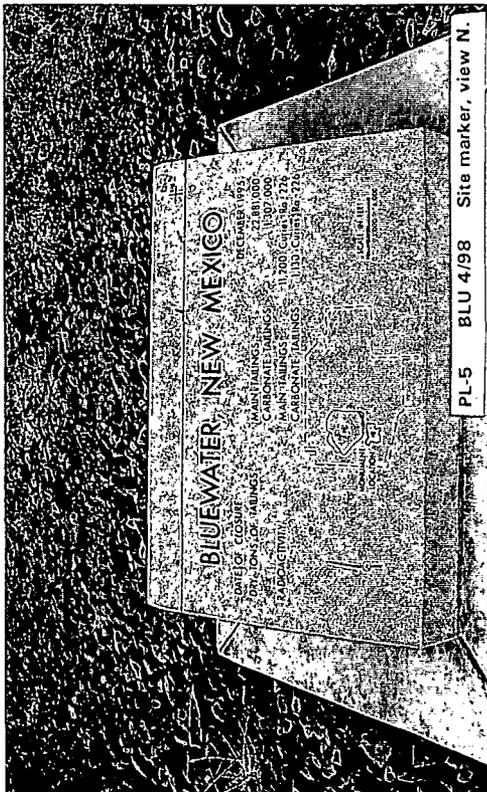
PL-6 BLU 4/98 BM-1.



PL-7 BLU 4/98 BM-2.



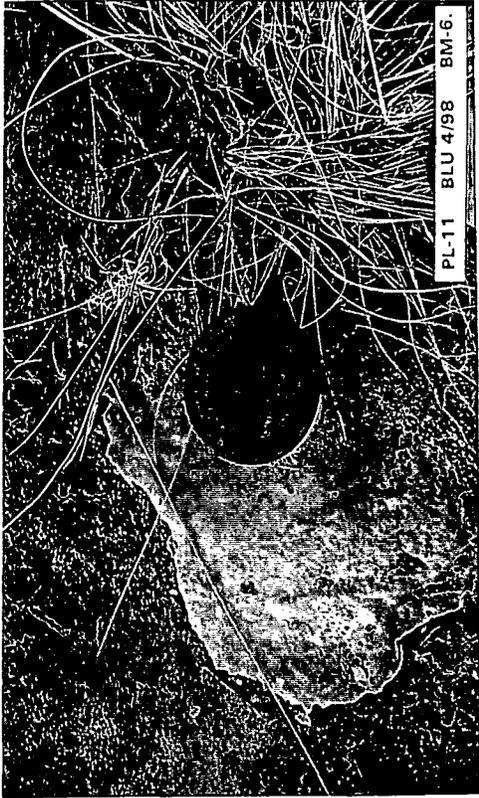
PL-8 BLU 4/98 BM-3.



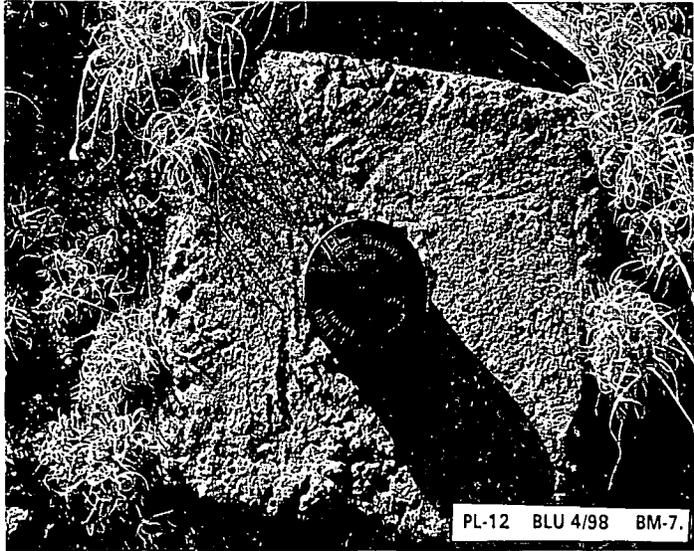
PL-5 BLU 4/98 Site marker, view N.



PL-9 BLU 4/98 BM-4.



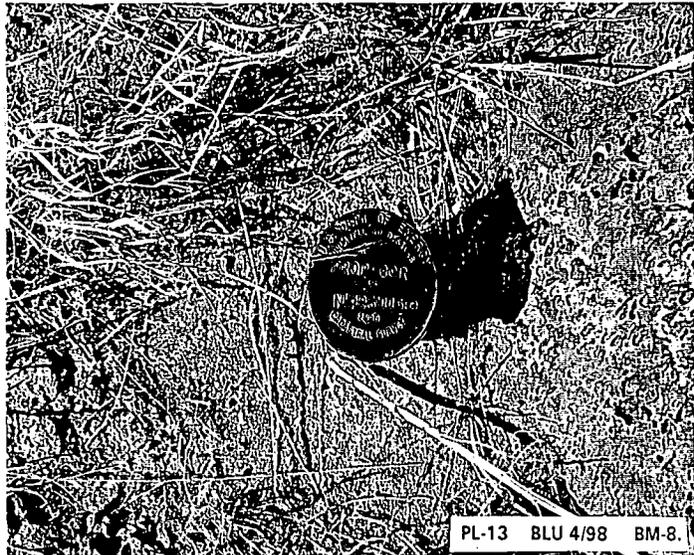
PL-11 BLU 4/98 BM-6



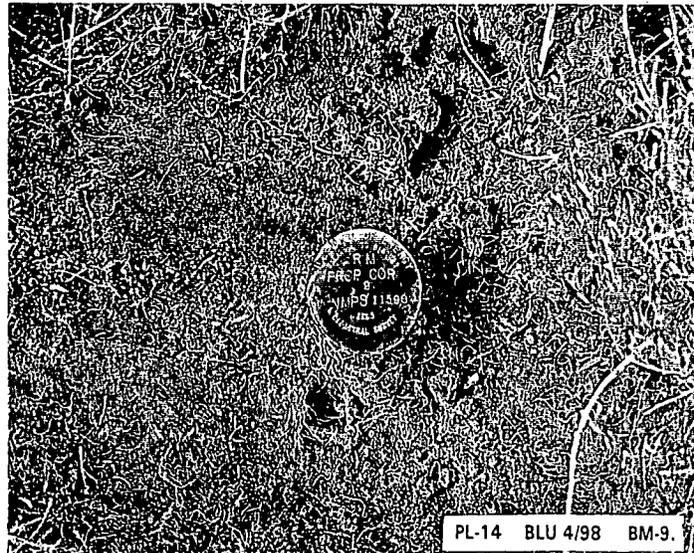
PL-12 BLU 4/98 BM-7



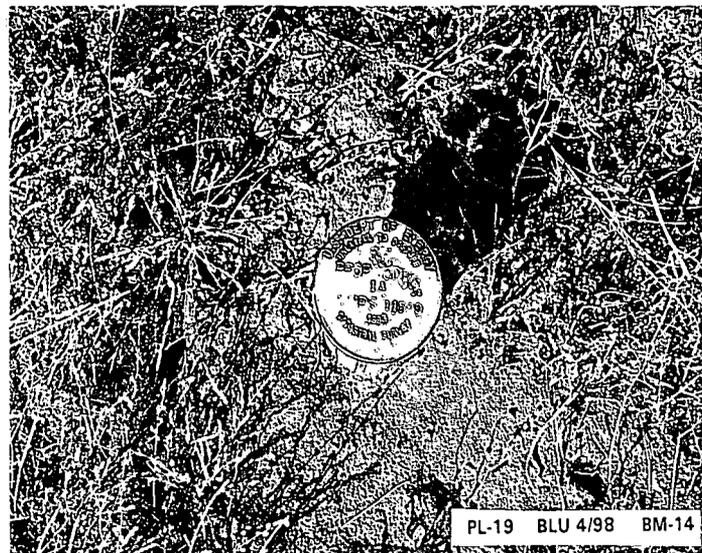
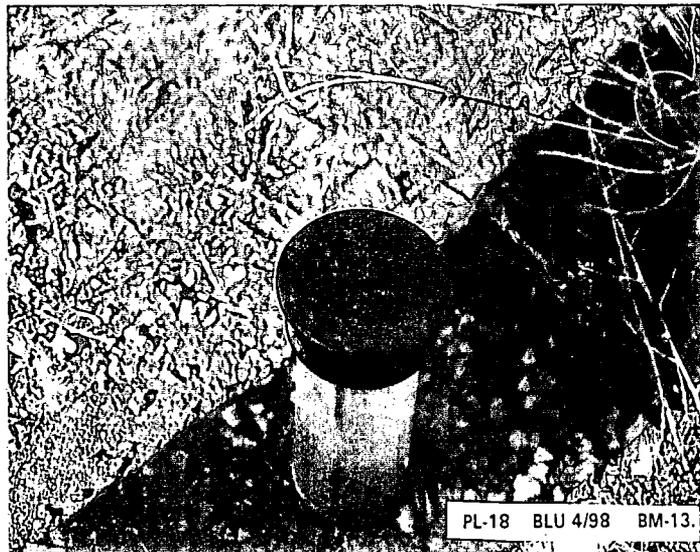
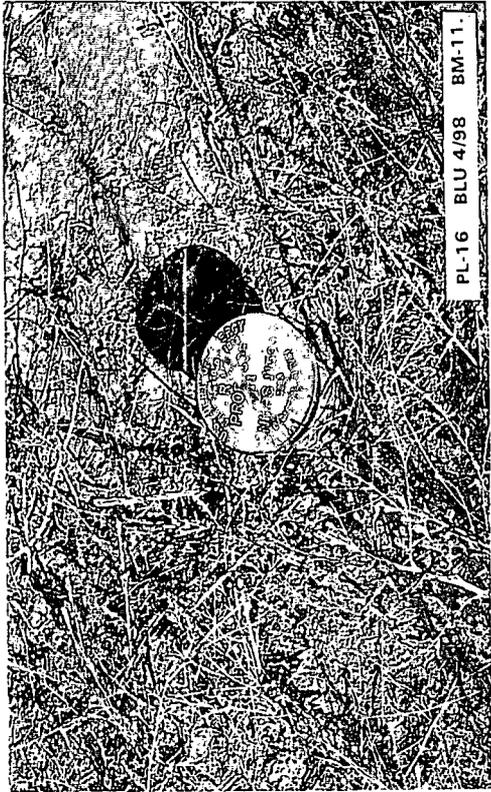
PL-10 BLU 4/98 BM-5

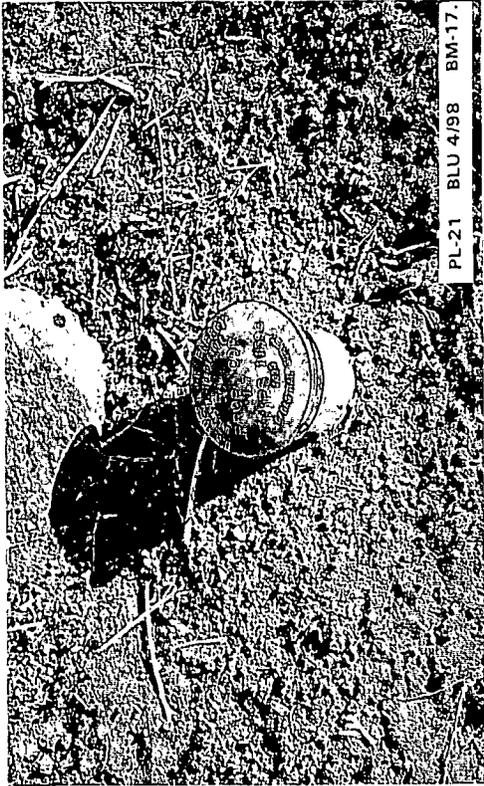


PL-13 BLU 4/98 BM-8

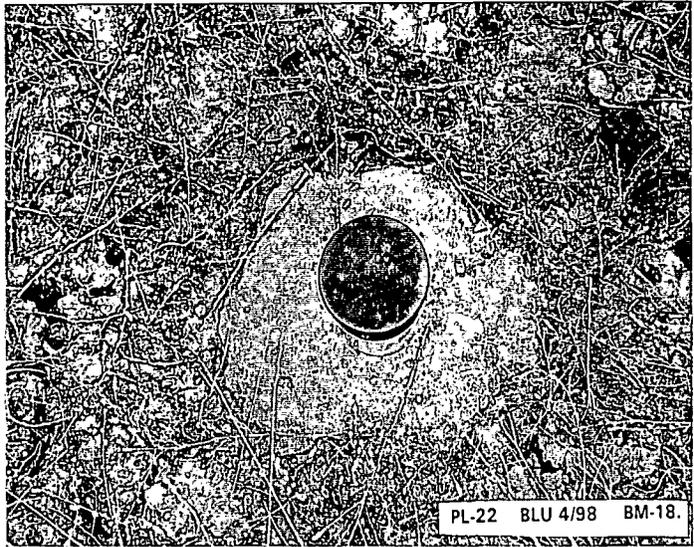


PL-14 BLU 4/98 BM-9





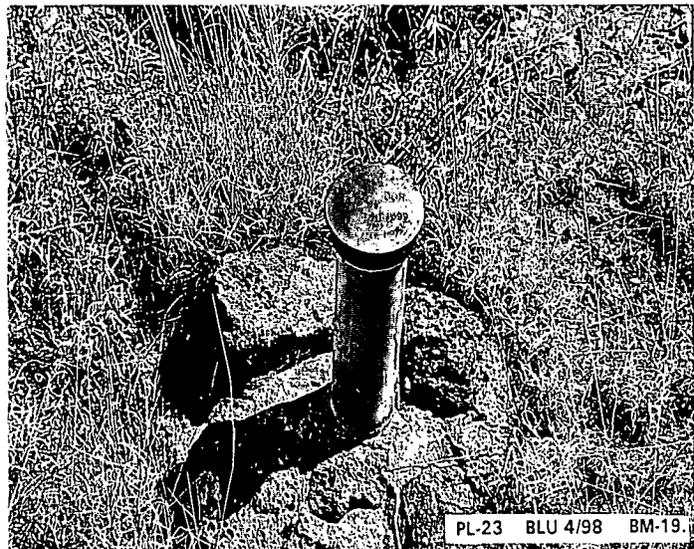
PL-21 BLU 4/98 BM-17.



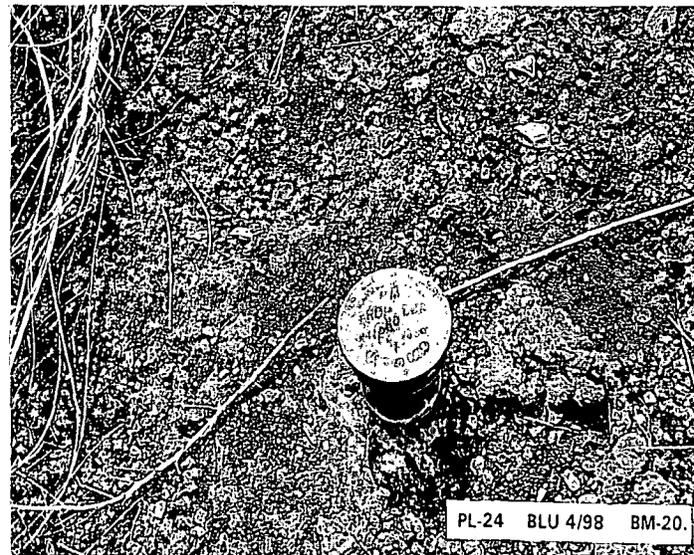
PL-22 BLU 4/98 BM-18.



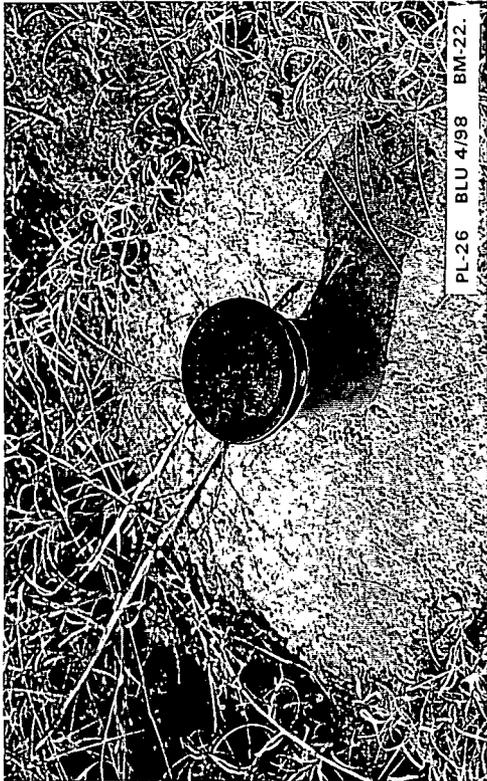
PL-20 BLU 4/98 BM-16.



PL-23 BLU 4/98 BM-19.



PL-24 BLU 4/98 BM-20.



PL-26 BLU 4/98 BM-22.



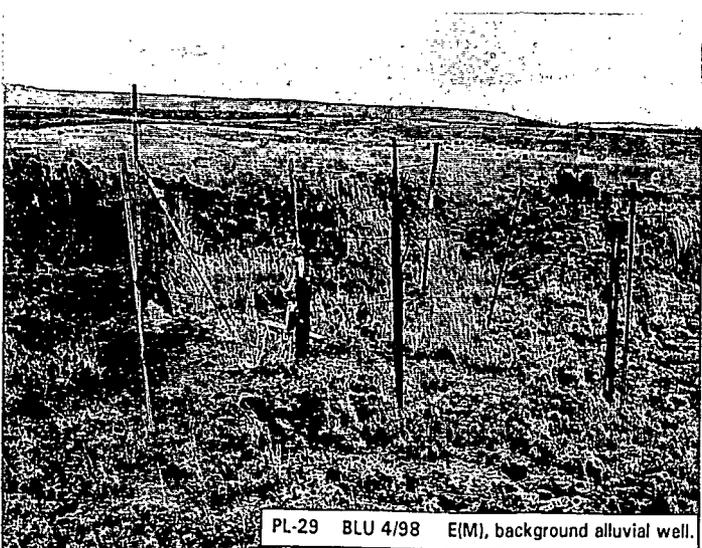
PL-27 BLU 4/98 BM-23.



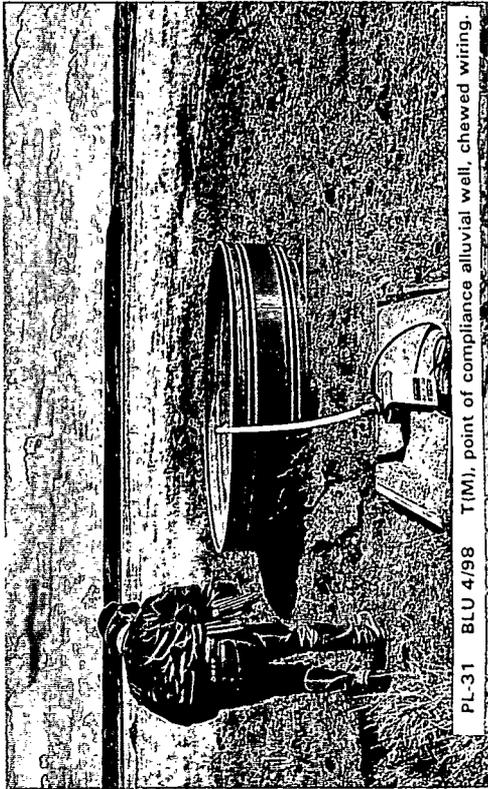
PL-25 BLU 4/98 BM-21.



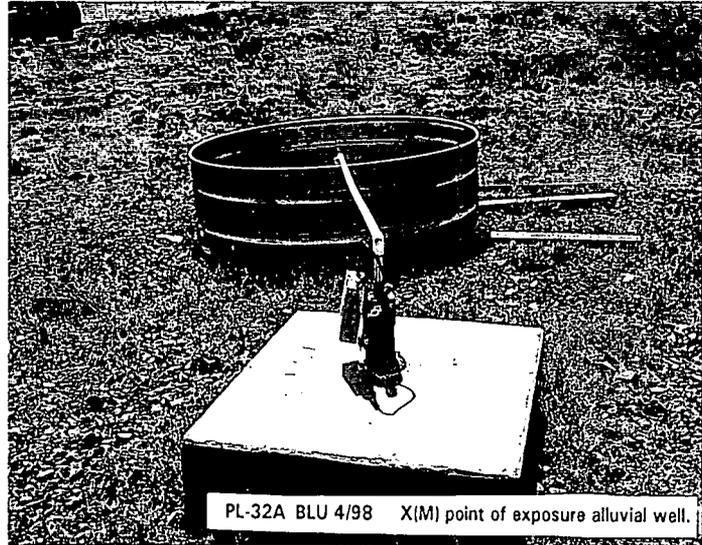
PL-28 BLU 4/98 Reported location of BM-24 (not found, view W).



PL-29 BLU 4/98 E(M), background alluvial well.



PL-31 BLU 4/98 T(M), point of compliance alluvial well, chewed wiring.



PL-32A BLU 4/98 X(M) point of exposure alluvial well.



PL-32B BLU 4/98 X(M), chewed wiring.

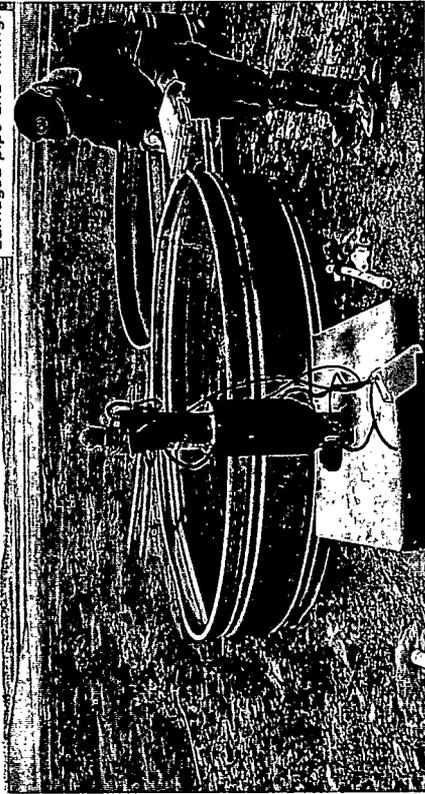


PL-30 BLU 4/98 F(M), point of compliance alluvial well.



PL-33 BLU 4/98 Y2(M), point of compliance alluvial well for PCBs, damaged PVC pipe.

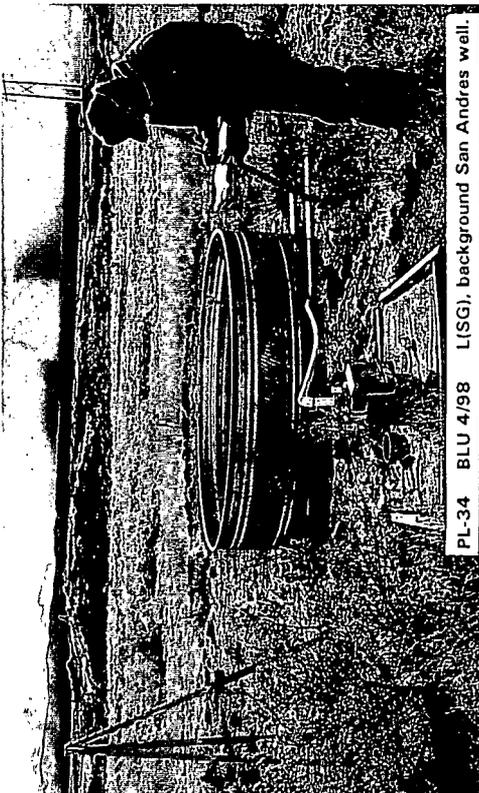
PL-35 BLU 4/98 OBS-3, point of compliance San Andres well,  
damaged pipe and wiring.



PL-36 BLU 4/98 S(SG), point of compliance San Andres well.

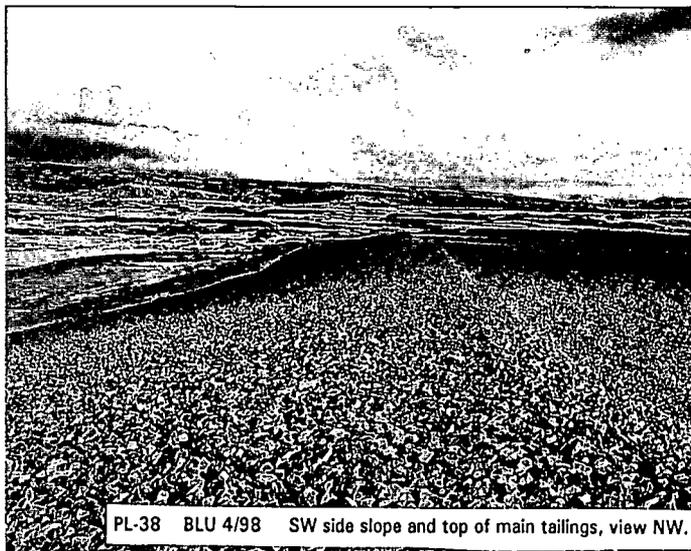


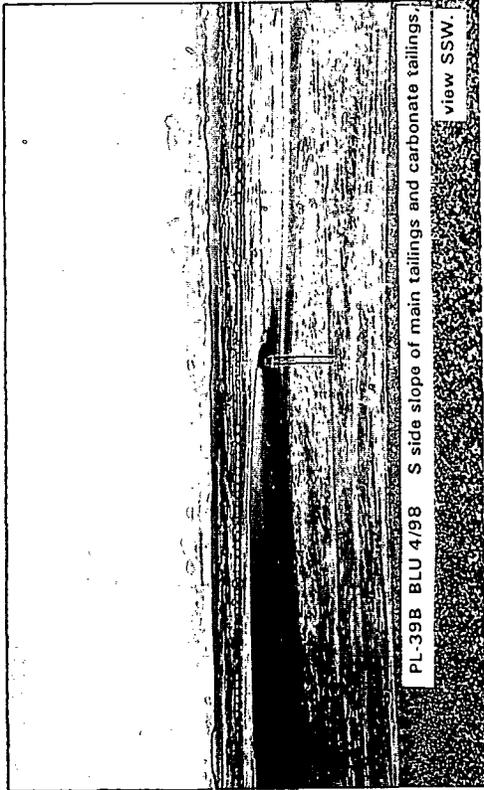
PL-37 BLU 4/98 I(SG), point of exposure San Andres well.



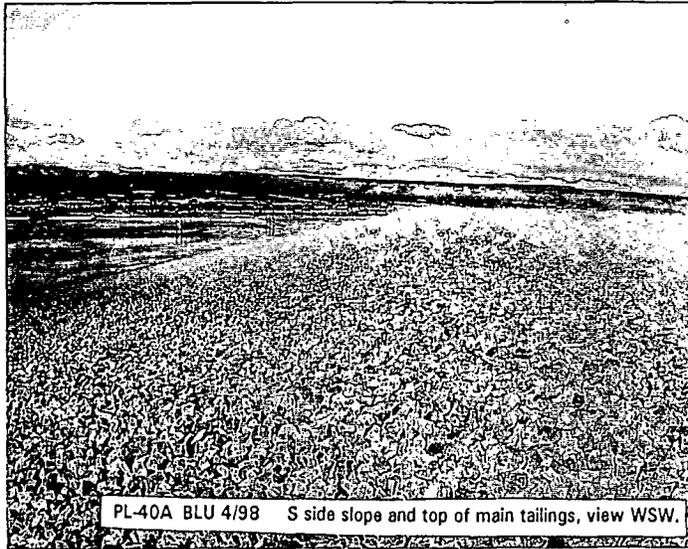
PL-34 BLU 4/98 I(SG), background San Andres well.

PL-38 BLU 4/98 SW side slope and top of main tailings, view NW.

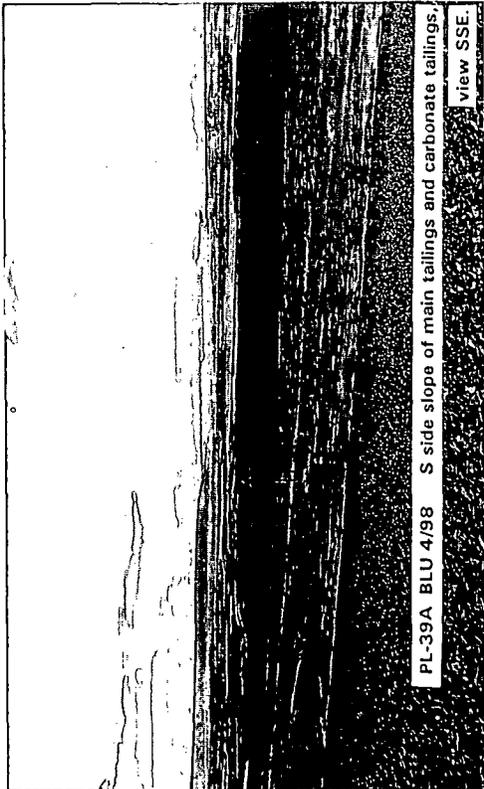




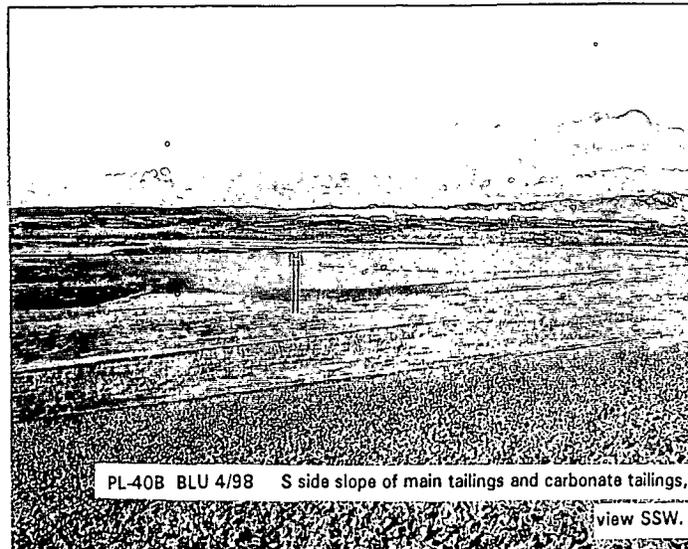
PL-39B BLU 4/98 S side slope of main tailings and carbonate tailings, view SSW.



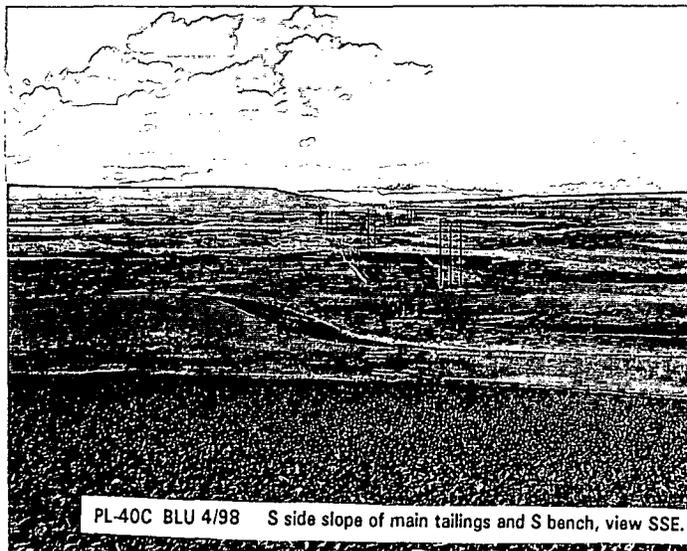
PL-40A BLU 4/98 S side slope and top of main tailings, view WSW.



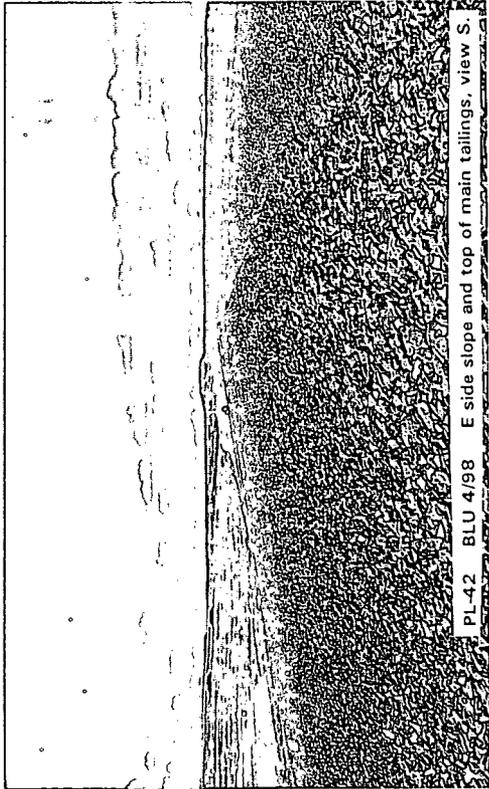
PL-39A BLU 4/98 S side slope of main tailings and carbonate tailings, view SSE.



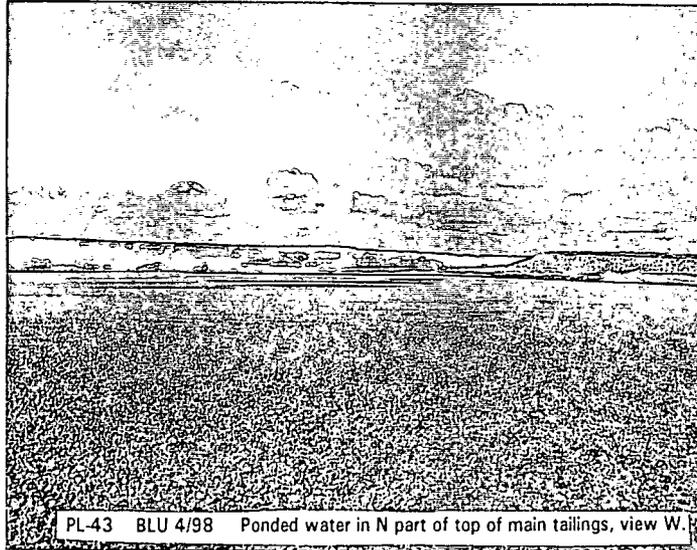
PL-40B BLU 4/98 S side slope of main tailings and carbonate tailings, view SSW.



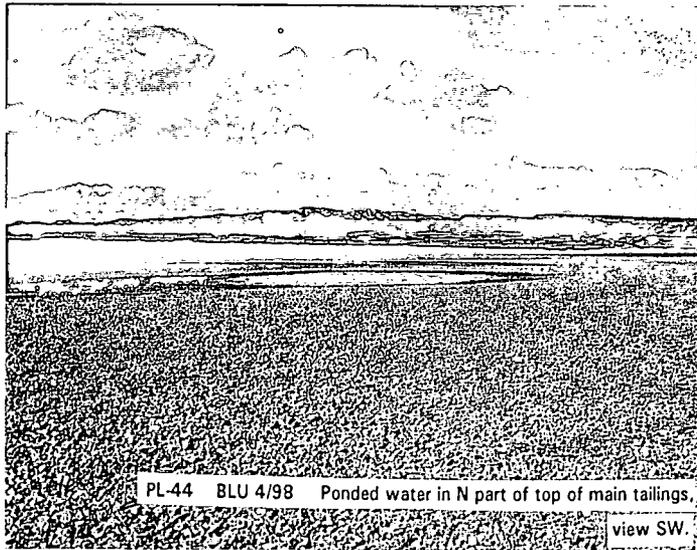
PL-40C BLU 4/98 S side slope of main tailings and S bench, view SSE.



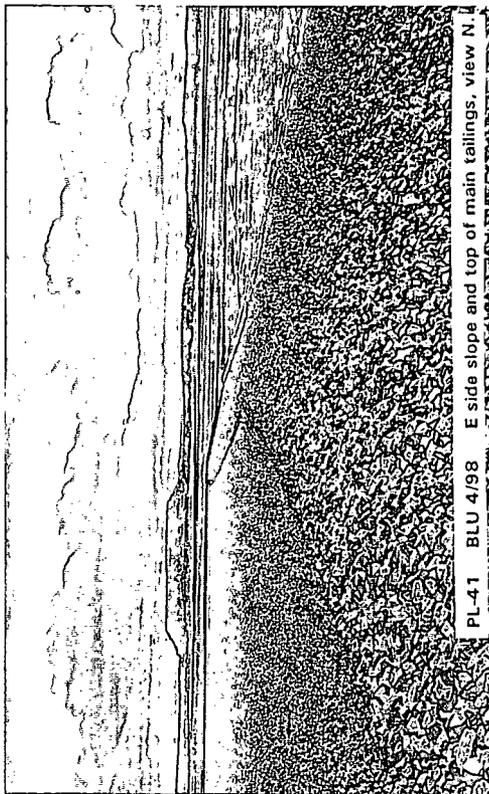
PL-42 BLU 4/98 E side slope and top of main tailings, view S.



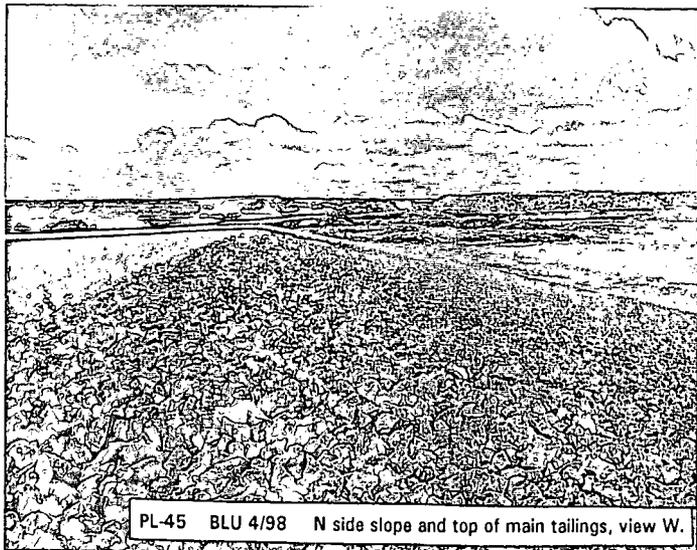
PL-43 BLU 4/98 Ponded water in N part of top of main tailings, view W.



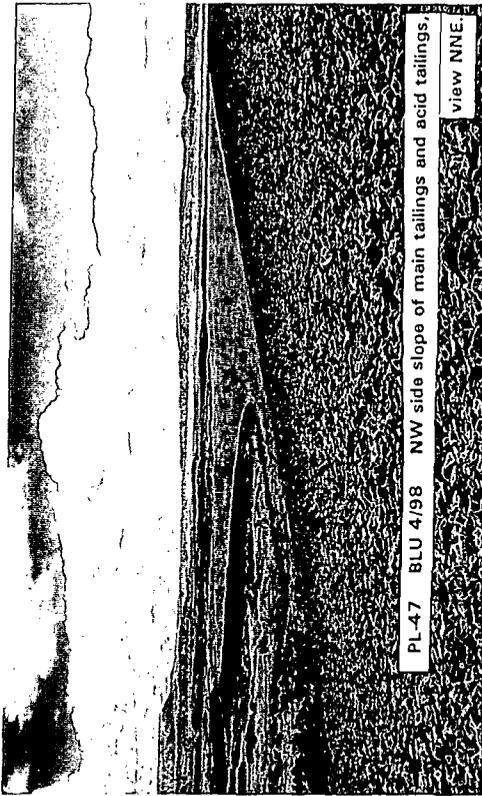
PL-44 BLU 4/98 Ponded water in N part of top of main tailings, view SW.



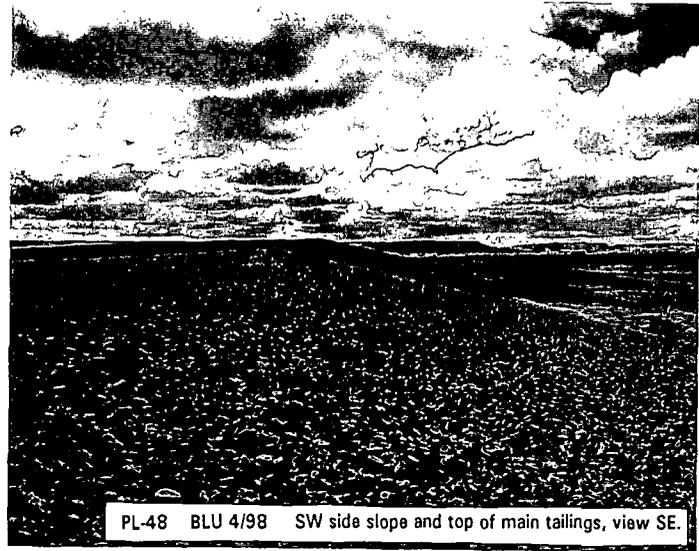
PL-41 BLU 4/98 E side slope and top of main tailings, view N.



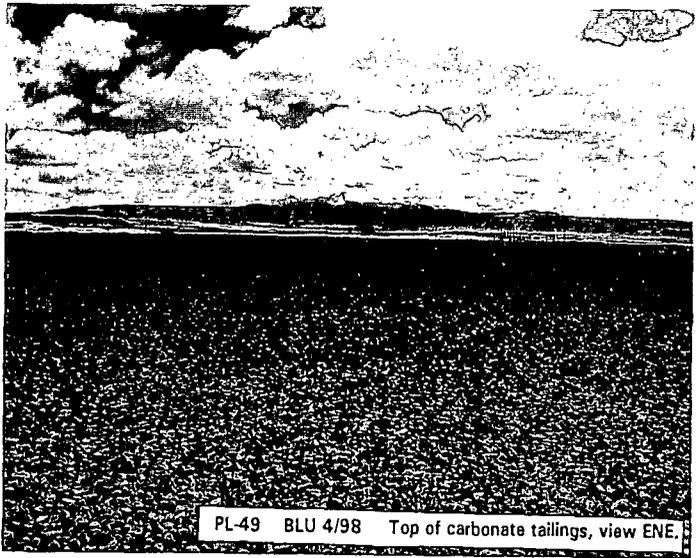
PL-45 BLU 4/98 N side slope and top of main tailings, view W.



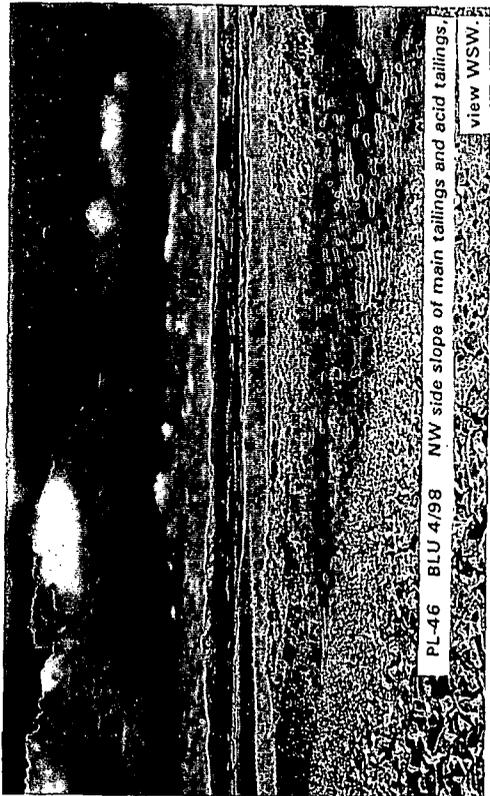
PL-47 BLU 4/98 NW side slope of main tailings and acid tailings, view NNE.



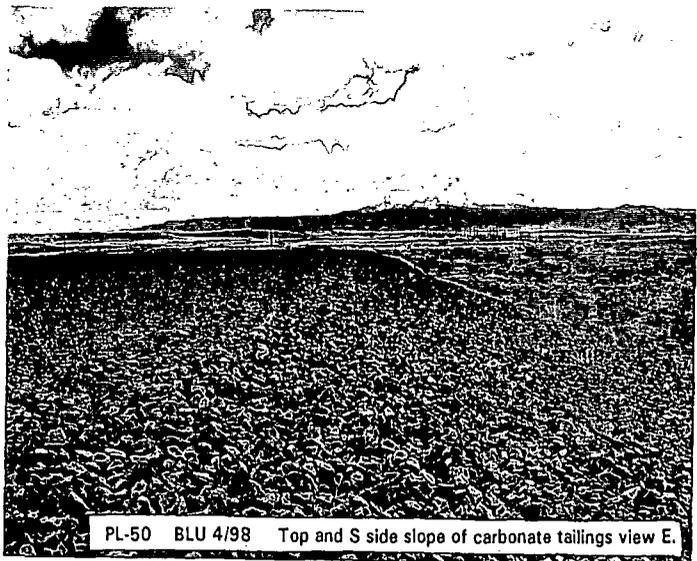
PL-48 BLU 4/98 SW side slope and top of main tailings, view SE.



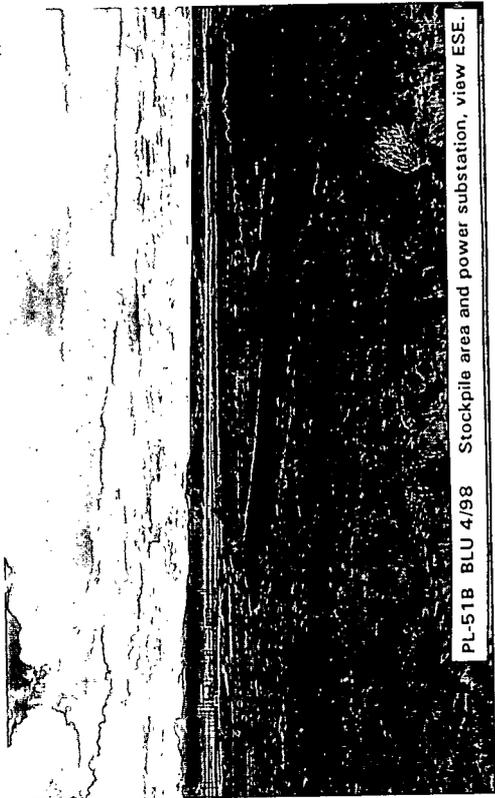
PL-49 BLU 4/98 Top of carbonate tailings, view ENE.



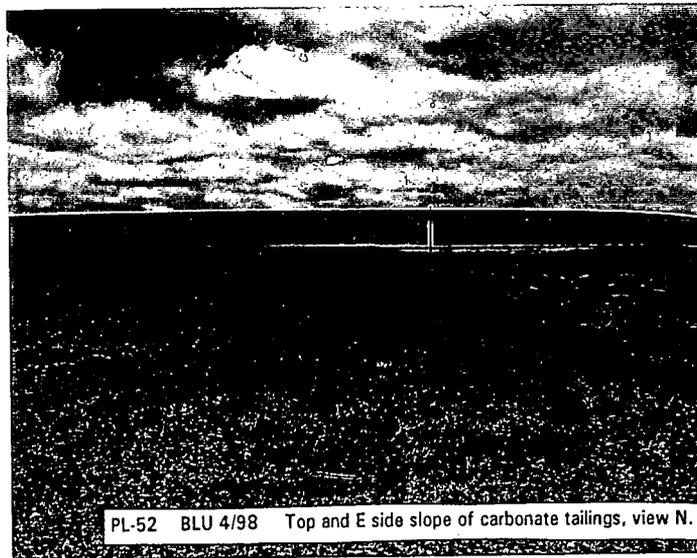
PL-46 BLU 4/98 NW side slope of main tailings and acid tailings, view WSW.



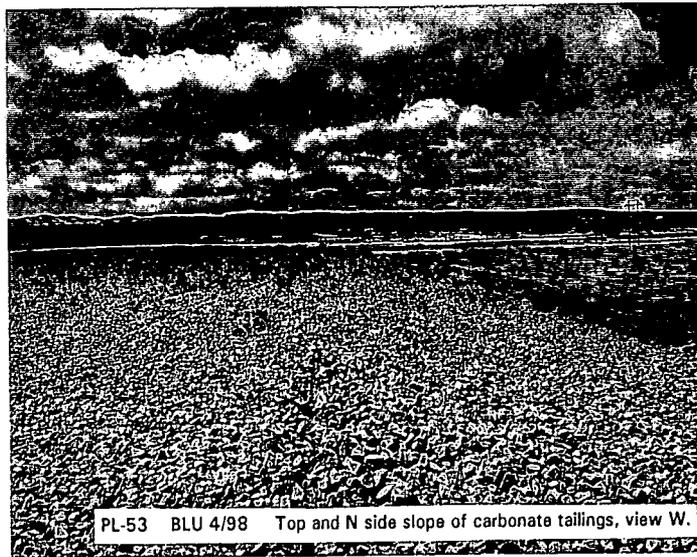
PL-50 BLU 4/98 Top and S side slope of carbonate tailings view E.



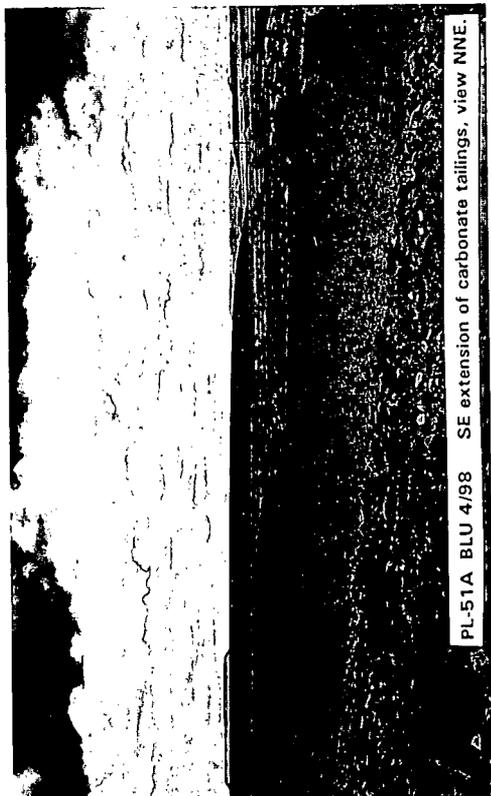
PL-51B BLU 4/98 Stockpile area and power substation, view ESE.



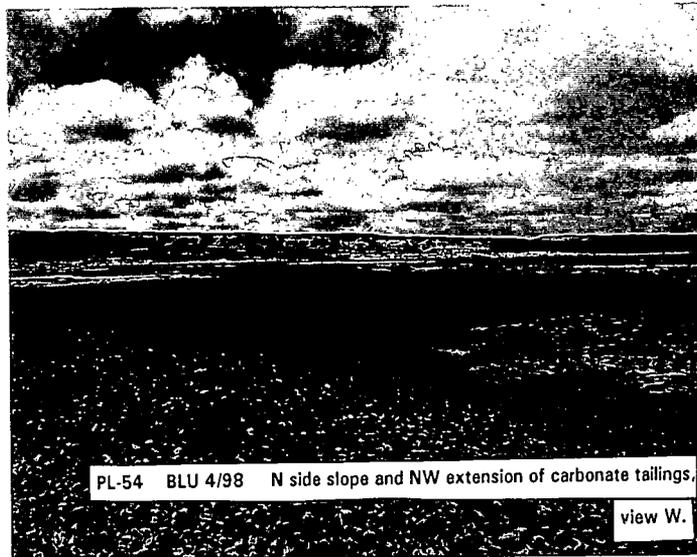
PL-52 BLU 4/98 Top and E side slope of carbonate tailings, view N.



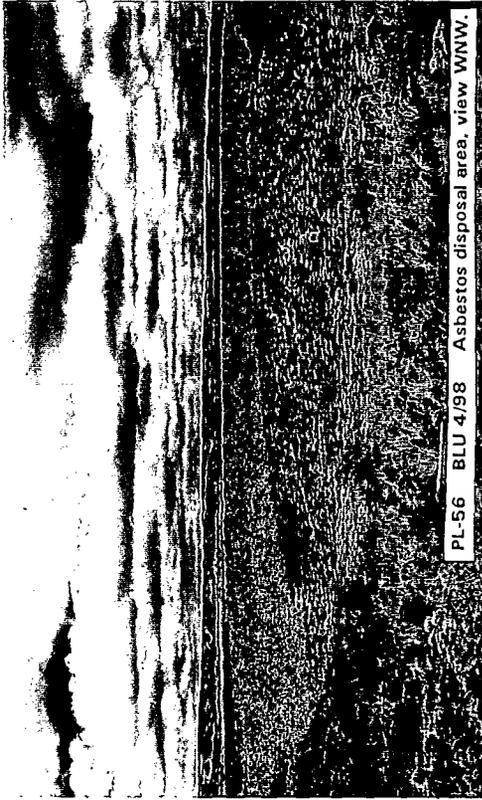
PL-53 BLU 4/98 Top and N side slope of carbonate tailings, view W.



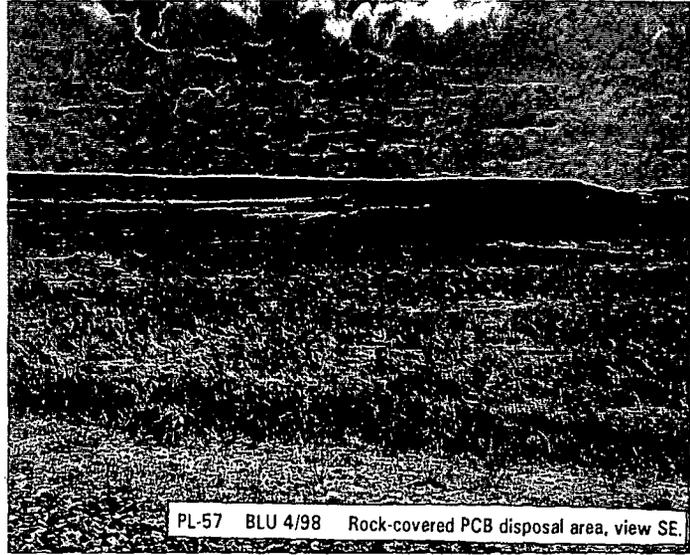
PL-51A BLU 4/98 SE extension of carbonate tailings, view NNE.



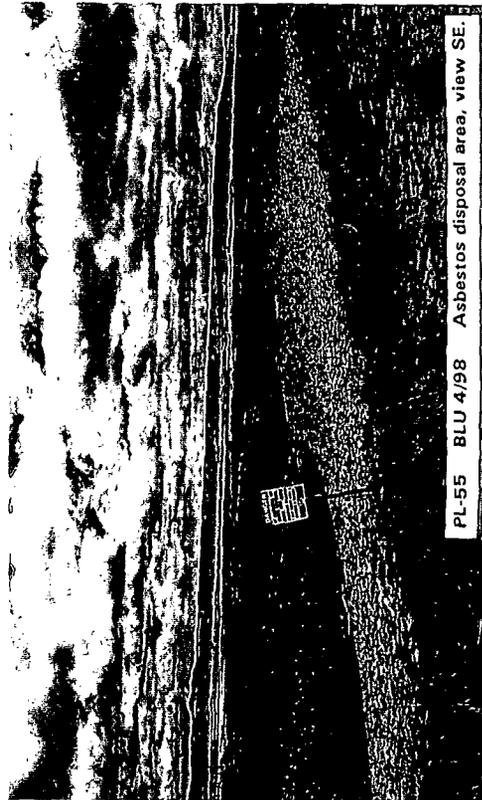
PL-54 BLU 4/98 N side slope and NW extension of carbonate tailings, view W.



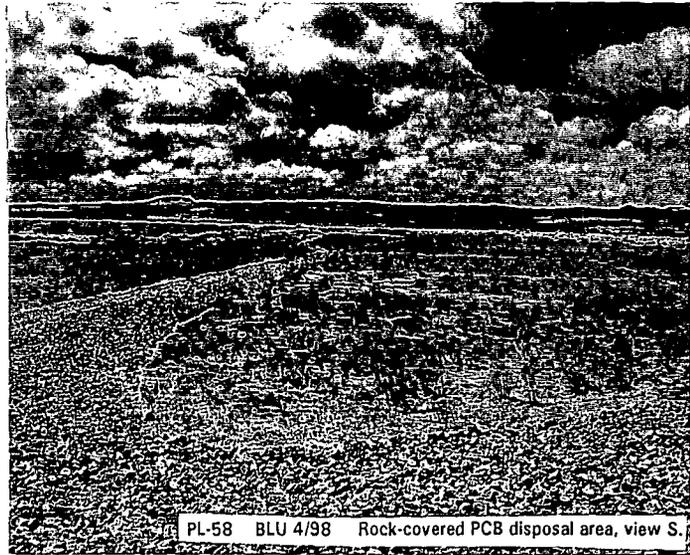
PL-56 BLU 4/98 Asbestos disposal area, view WNW.



PL-57 BLU 4/98 Rock-covered PCB disposal area, view SE.



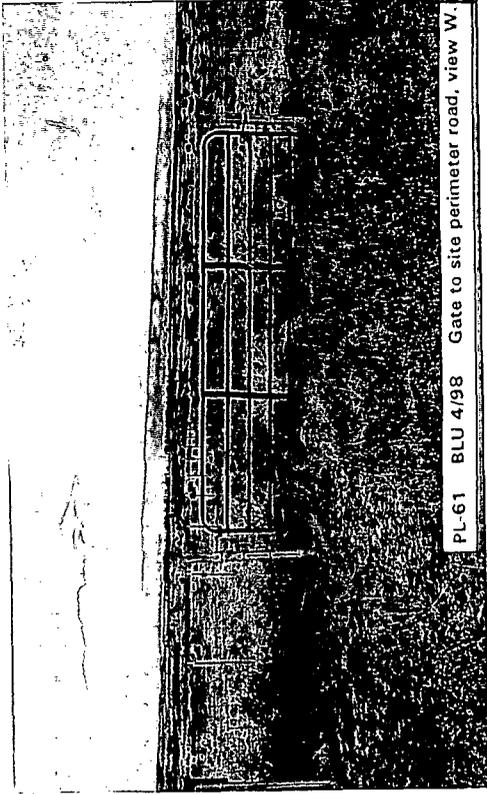
PL-55 BLU 4/98 Asbestos disposal area, view SE.



PL-58 BLU 4/98 Rock-covered PCB disposal area, view S.



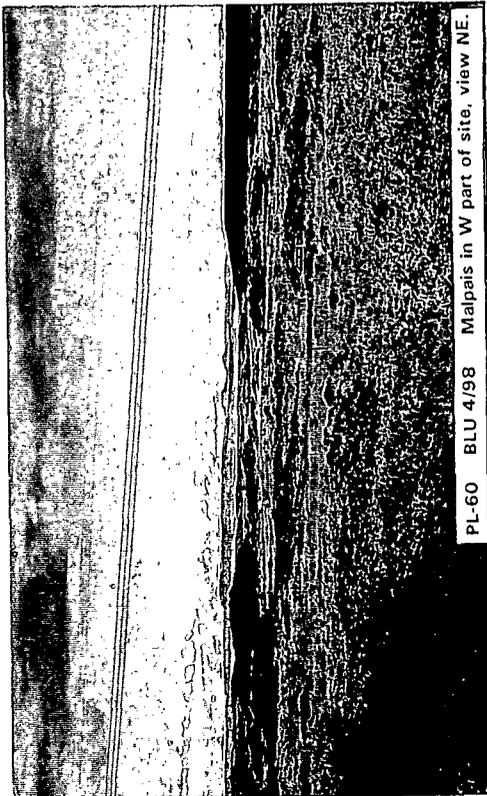
PL-59 BLU 4/98 W landfill area and power substation, view ESE.



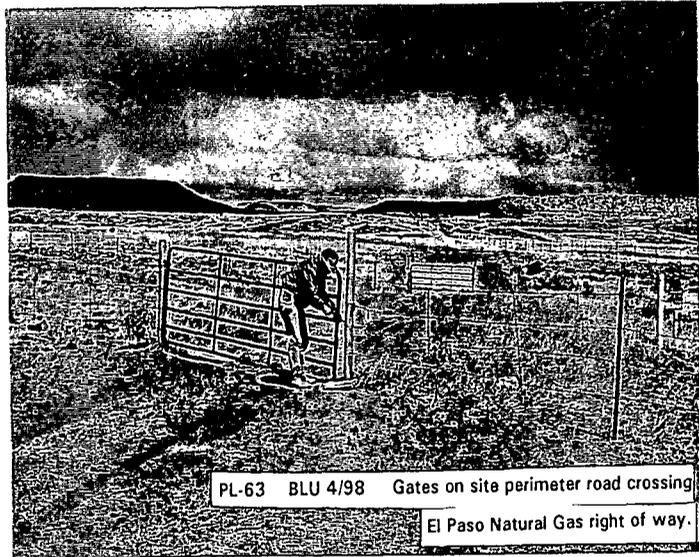
PL-61 BLU 4/98 Gate to site perimeter road, view W.



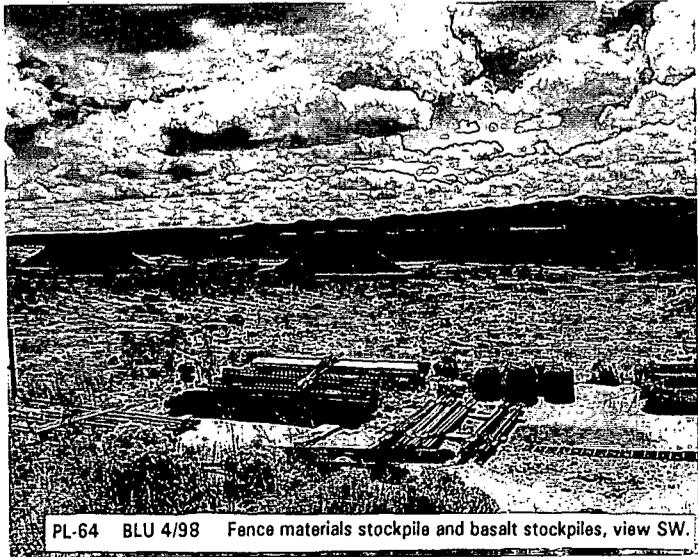
PL-62 BLU 4/98 Gully erosion along site perimeter road, view NNW.



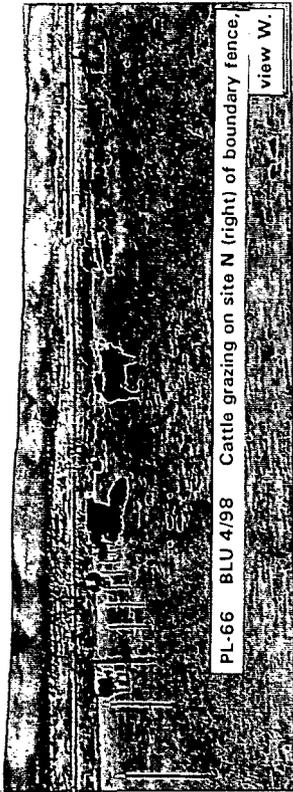
PL-60 BLU 4/98 Malpais in W part of site, view NE.



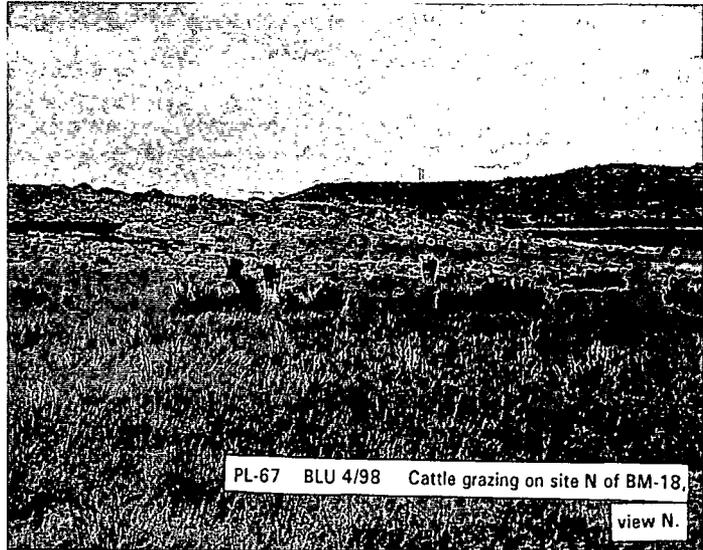
PL-63 BLU 4/98 Gates on site perimeter road crossing El Paso Natural Gas right of way.



PL-64 BLU 4/98 Fence materials stockpile and basalt stockpiles, view SW.



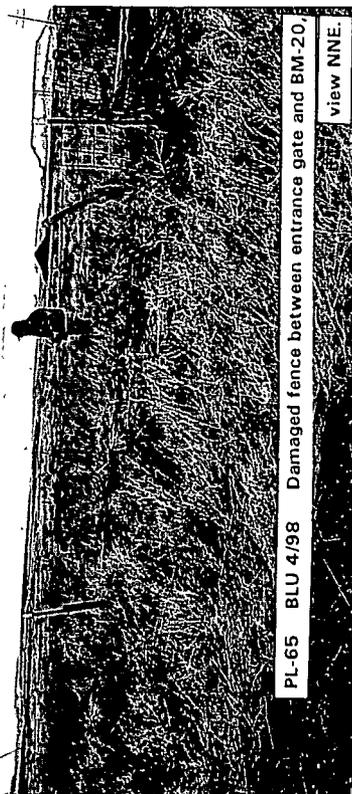
PL-66 BLU 4/98 Cattle grazing on site N (right) of boundary fence, view W.



PL-67 BLU 4/98 Cattle grazing on site N of BM-18, view N.



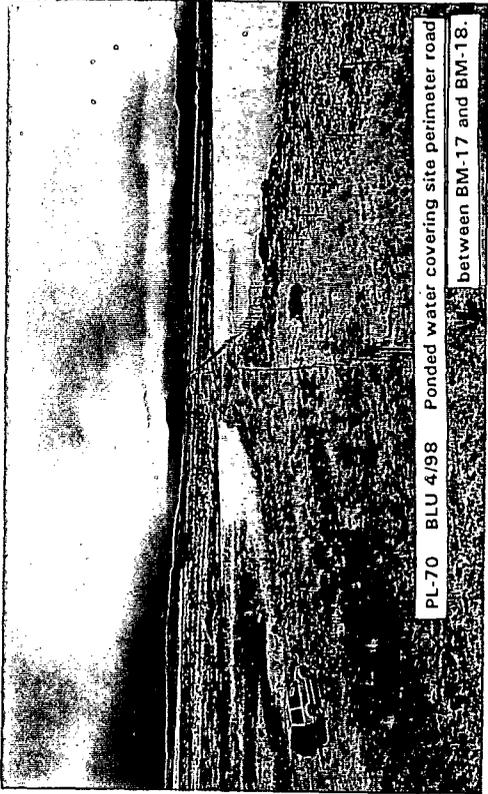
PL-68A BLU 4/98 Site boundary fence cut along old road for cattle access.



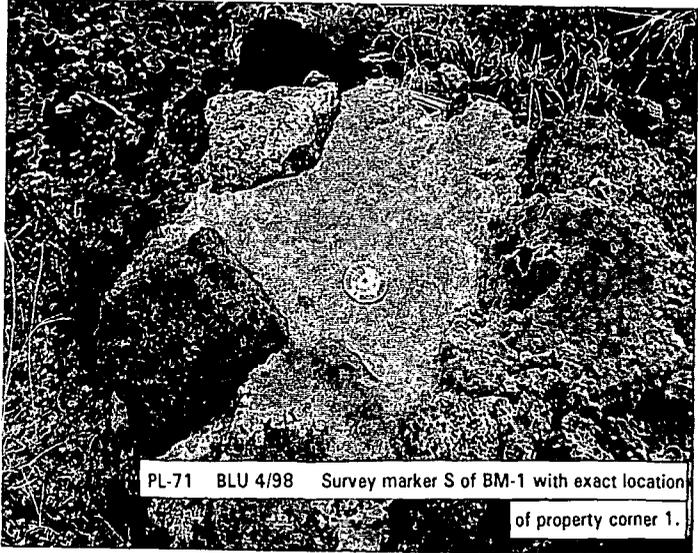
PL-65 BLU 4/98 Damaged fence between entrance gate and BM-20, view NNE.



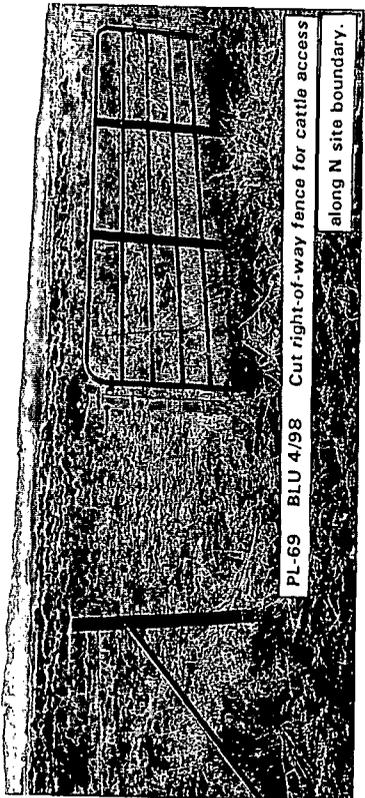
PL-68B BLU 4/98 Installing warning sign (P13) at site of repaired boundary fence.



PL-70 BLU 4/98 Ponded water covering site perimeter road between BM-17 and BM-18.



PL-71 BLU 4/98 Survey marker S of BM-1 with exact location of property corner 1.



PL-69 BLU 4/98 Cut right-of-way fence for cattle access along N site boundary.



PL-72 BLU 4/98 Section corner survey marker just SE of BM-18.

## 4.0 Edgemont Title II Disposal Site Edgemont, South Dakota

### Summary

The site, inspected on June 16, 1998, is in excellent condition. No issues or concerns related to disposal site integrity were identified during the inspection.

#### 4.1 Specific Site Surveillance Features

The inspection was conducted by C. A. Jones, Chief Inspector, and M. K. Kastens, Assistant Inspector, of MACTEC-ERS, contractor at the DOE Grand Junction Office (GJO). In the descriptions that follow, photographs included in the report are referred to by photograph location (PL) number. The prefix for the site (i.e., EDG for Edgemont) appears before the PL number. Site features and PL numbers are shown on Figure 4-1.

##### Access Road, Entrance Gate Area, and Fencing

Access to the Edgemont disposal site is immediately off an all-weather county road and is unimpaired. The entrance gate is a simple barbed-wire gate secured by a padlocked chain. The gate is in good condition. The site marker, recently installed, is just inside the gate to the left (EDG PL-1). During the inspection, inspectors placed an entrance sign on a newly installed sign post just inside the gate to the right (EDG PL-2).

Since the first annual inspection in 1997, DOE set boundary monuments at the four corners of the site. Two of these, BM-4 and BM-1, were located during the inspection (EDG PL-3 and EDG PL-4). BM-3, at the southeast corner, is in an area of rolling topography and could not be found. BM-2 is at the northeast corner of the site, some distance from the disposal cell. It was not inspected for lack of time. Both BM-2 and BM-3 are presumed present. Photographs of BM-2 and BM-3 were provided by the surveyor who installed the monuments at the time of installation.

There are three barbed-wire fences at the site. One runs along the west edge of the site, and, for the most part, is just inside the site boundary. There are two more-or-less concentric fences inside the site. The inner loop follows the outline of the disposal cell. The outer loop delineates a previous site boundary. DOE is building a new fence along the final site boundary. When the new fence is complete, parts of the two interior fences will be taken down to allow the entire site to be grazed.

There are no monitor wells at this site.

## 4.2 Areal Features

The overall, or areal, condition of the site was inspected by dividing the site into four areas of varying size and shape referred to as transects: (1) the top of the disposal basin; (2) the tailings dam face and drainage and diversion ditches; (3) the area between the disposal basin and the site perimeter; and (4) outlying areas.

### Top of Disposal Basin

The 100-acre top of the disposal cell is grass-covered. DOE intends to manage this range by controlled grazing. About two dozen cattle were on site the day of the inspection. The grass is well established and was not over-grazed when inspected.

There was no evidence of settling, slumping, or erosion on the disposal cell or on the face of the tailings (see below). Animal burrows, reported previously, are doubtless present but were not observed.

### Tailings Dam Face and Drainage and Diversion Ditches

The tailings dam face is covered with riprap and represents the steepest slope on site. The slope is stable, and the riprap is in excellent condition. Scattered plants grow in the riprap, mostly grass-like plants (EDG PL-5 and EDG PL-6). The number of plants in the riprap is likely to increase over time. No woody species were noted.

Water stands in the drainage outlet below the tailings dam, as reported previously. The drainage outlet is the lowest point on site and obviously the catchment for most meteoric water that leaves the site. Wetland vegetation has established in the drainage outlet below the dam. Diversion and drainage ditches are grass-covered (upgradient) and riprapped (downgradient and on steeper slopes). Minor amounts of vegetation occur in the riprap. The amount of vegetation will likely increase over time. Vegetation in ditches and on the dam face is not a concern at this time, but at some point may have to be evaluated, particularly if woody species begin to show in the succession.

Grass in the grass-lined portion of the ditches is dense and healthy. There is no erosion.

An area of thistle below the dam face was noted during the 1997 inspection. This area was reinspected. Thistle is confined to a long, narrow, moist area immediately adjacent to the rock at the foot of the dam face (EDG PL-7). Tentative identification is *Cirsium arvense* (L.) Scop., or Canada thistle.

Another thistle, with purple blooms, occurs as solitary plants in dryer, upland areas across the site (EDG PL-8). Taxonomy of this plant, grey thistle or *Cirsium undulatum* (Nutt.) Sprengel, is more certain.

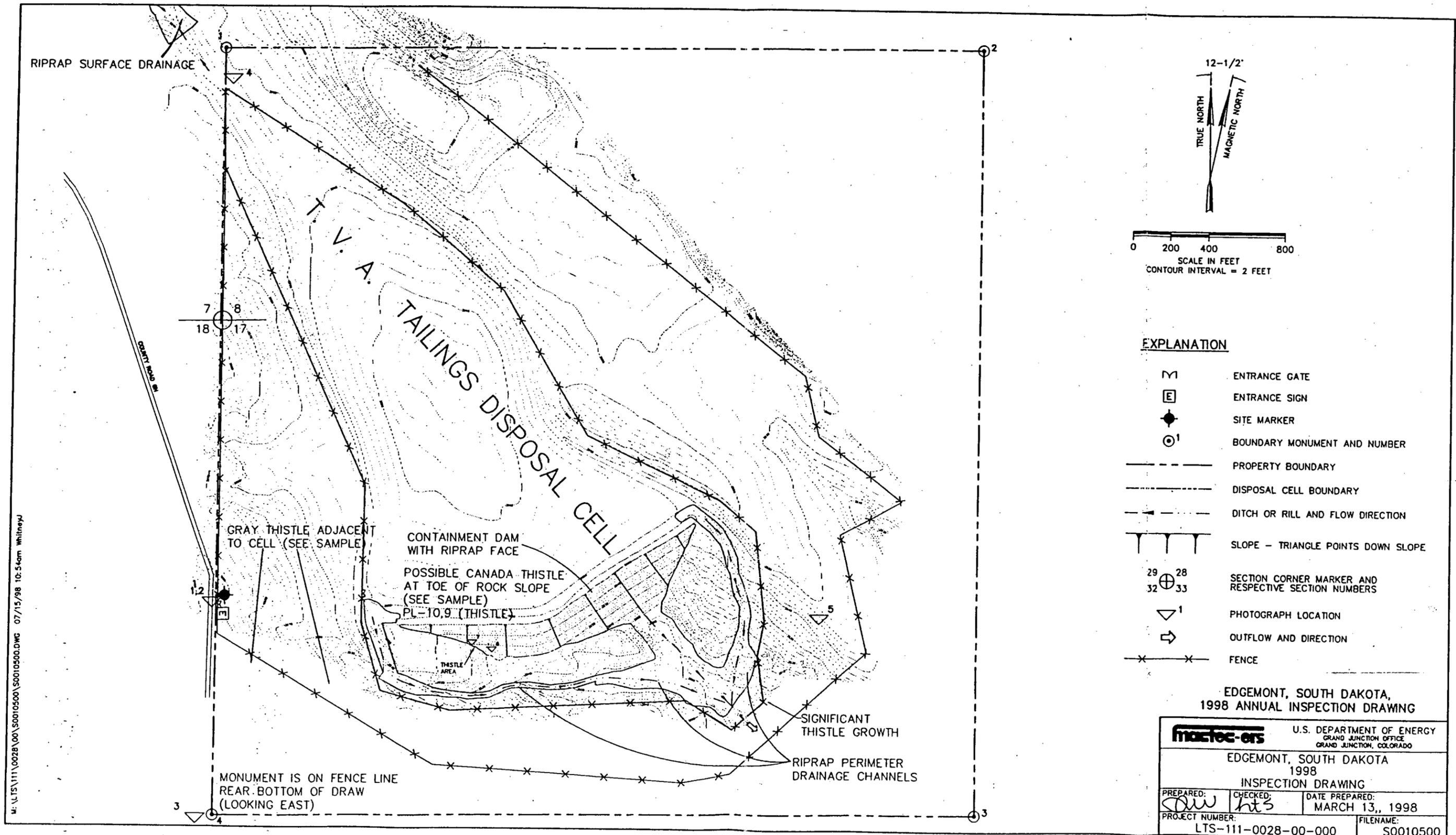


Figure 4-1. Edgemont, South Dakota, 1998 Inspection Drawing

A copy of the State of South Dakota's weed control law and list of noxious species indicates that Canada thistle will have to be controlled. The Fall River County Weed and Pest Supervisor was contacted and sprayed the weeds at the Edgemont site.

### Area Between the Disposal Basin and the Site Perimeter

The area between the disposal cell (disposal basin) and the site perimeter is grass-covered. The grass is well established and will be managed by DOE by controlled grazing (see "Top of Disposal Cell," above).

### Outlying Areas

The area east of the disposal cell and the area beyond the boundary for about a quarter mile was inspected from a distance. The city of Edgemont operates a municipal landfill north-northwest of the site. An occasional piece of wind-blown trash from the landfill occurs here and there on site or along the fences. No evidence of activity or change in land use that could affect the site was seen.

## 4.3 Conclusions

The Edgemont site is in excellent condition at this time. With the exception of a possible noxious weed problem, inspectors noted no problem or concern.

## 4.4 Photograph Log and Photographs

Table 4-1. Photograph Descriptions for Edgemont, South Dakota, Site

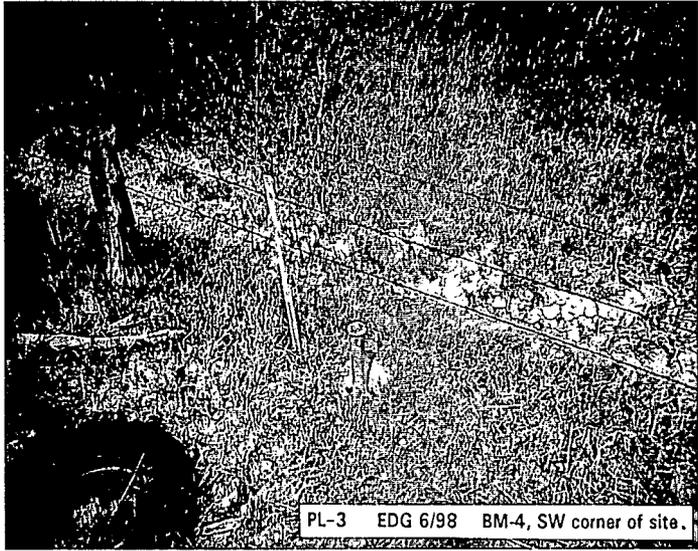
Photograph Number	Photograph Description
EDG PL-1	New site marker
EDG PL-2	New entrance sign
EDG PL-3	BM-4, southwest corner of site
EDG PL-4	BM-1, northwest corner of site
EDG PL-5	Distant view: vegetation on dam face
EDG PL-6	Vegetation on dam face
EDG PL-7	Thistle at bottom of dam face
EDG PL-8	Thistle at entrance

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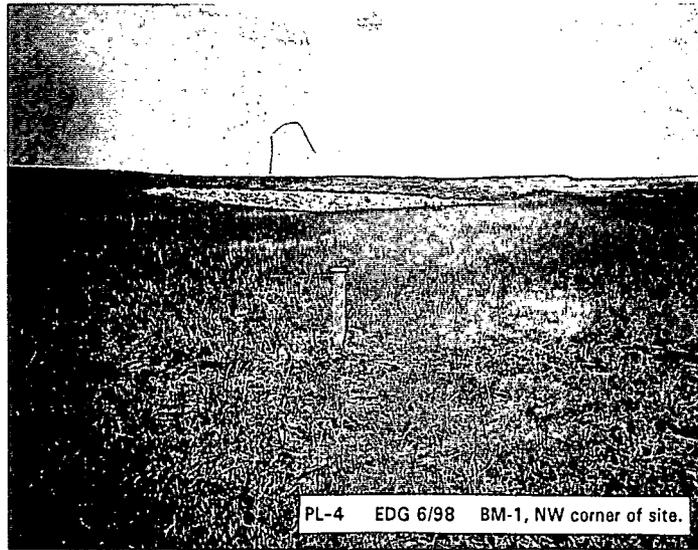
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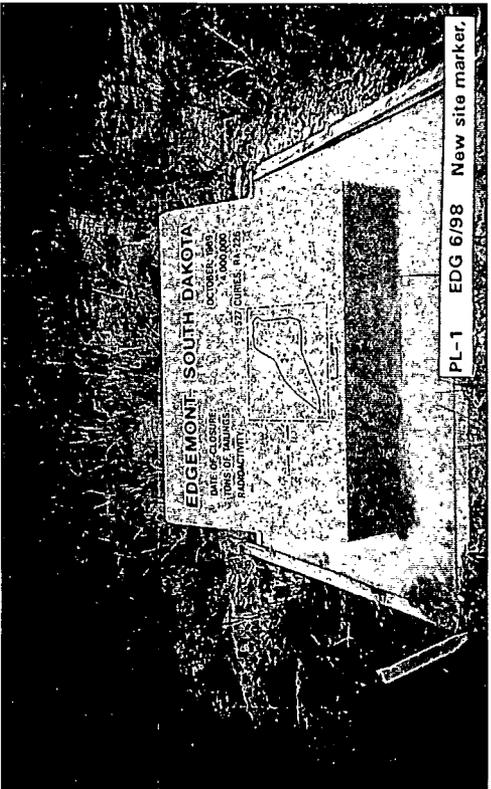
PL-2 EDG 6/98 New entrance sign.



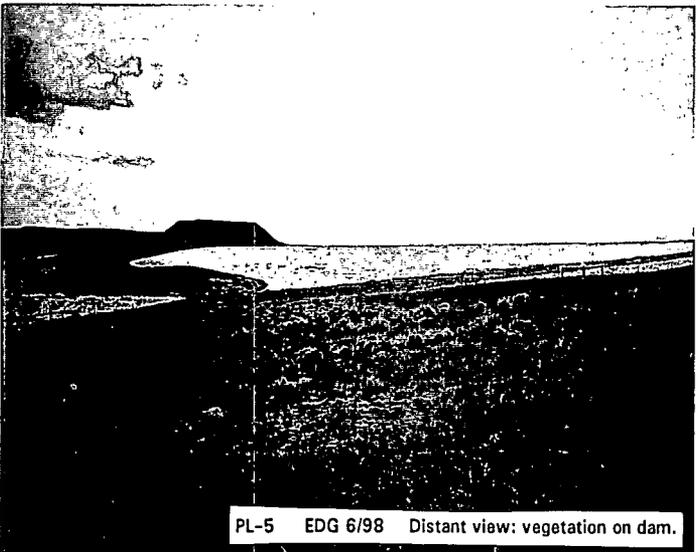
PL-3 EDG 6/98 BM-4, SW corner of site.



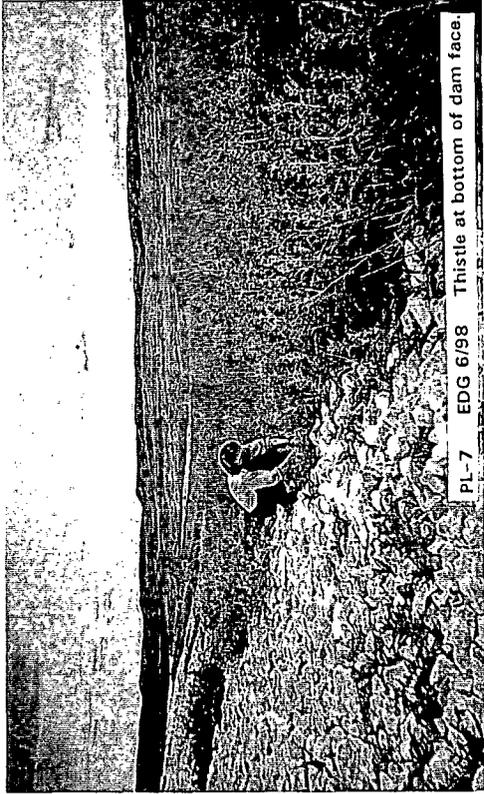
PL-4 EDG 6/98 BM-1, NW corner of site.



PL-1 EDG 6/98 New site marker.



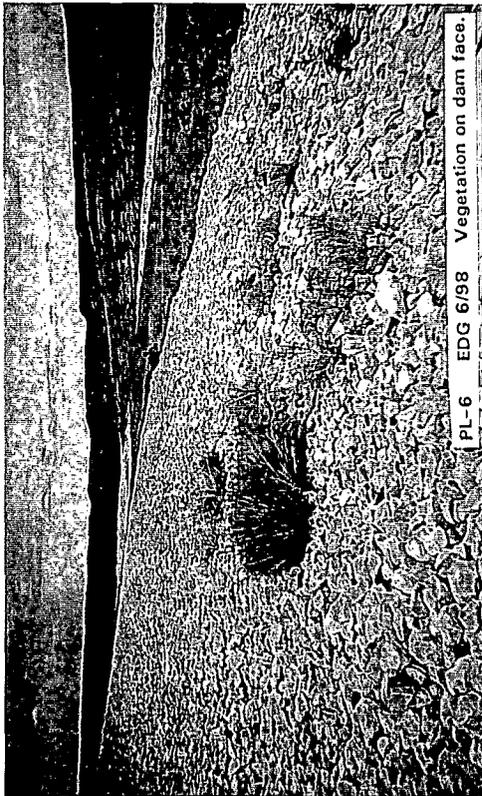
PL-5 EDG 6/98 Distant view: vegetation on dam.



PL-7 EDG 6/98 Thistle at bottom of dam face.



PL-8 EDG 6/98 Thistle at entrance.



PL-6 EDG 6/98 Vegetation on dam face.

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RECORD TITLED:**

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AREA, 1998 ANNUAL INSPECTION"**

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INSPECTION DRAWING, SOUTH  
AREA, 1998 ANNUAL INSPECTION"**

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