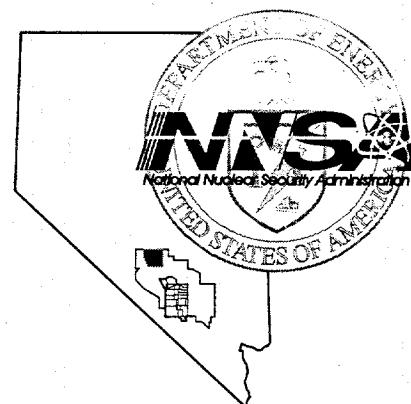


Nevada
Environmental
Restoration
Project

DOE/NV--802



Post-Closure Inspection Report for
Corrective Action Unit 427: Area 3
Septic Waste Systems 2 and 6
Tonopah Test Range, Nevada
Calendar Year 2001

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**POST-CLOSURE INSPECTION REPORT FOR
CORRECTIVE ACTION UNIT 427:
AREA 3 SEPTIC WASTE SYSTEMS 2 AND 6
TONOPAH TEST RANGE, NEVADA
CALENDAR YEAR 2001**

**Prepared for
U. S. Department of Energy
National Nuclear Security Administration
Nevada Operations Office
Work Performed Under Contract No.
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**POST-CLOSURE INSPECTION REPORT FOR
CORRECTIVE ACTION UNIT 427:
AREA 3 SEPTIC WASTE SYSTEMS 2 AND 6
TONOPAH TEST RANGE, NEVADA
CALENDAR YEAR 2001**

Approved by: Kevin Cahill *for*
Janet L. Appenzeller-Wing, Project Manager
Industrial Sites Project

Date: 1/23/02

Approved by: Runore Wycoff
Runore C. Wycoff, Division Director

Date: 1-28-02

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1.0 INTRODUCTION

Post-closure inspection requirements for the Area 3 Septic Waste Systems 2 and 6 (Corrective Action Unit [CAU] 427) (Figure 1) are described in Closure Report for Corrective Action Unit 427, Area 3 Septic Waste Systems 2 and 6, Tonopah Test Range, Nevada, report number DOE/NV-561, August 1999. The Closure Report (CR) was submitted to the Nevada Division of Environmental Protection (NDEP) on August 16, 1999. The CR (containing the Post-Closure Inspection Plan) was approved by the NDEP on August 27, 1999.

As stated in Section 5.1 of the NDEP-approved CR, the annual Post-Closure inspection at CAU 427 consists of the following:

- Verification of the presence of all leachfield and septic tank below-grade markers.
- Verification that all warning signs are in-place, intact, and readable.
- Visual observation of the soil and asphalt cover for indications of subsidence, erosion, and unauthorized use.

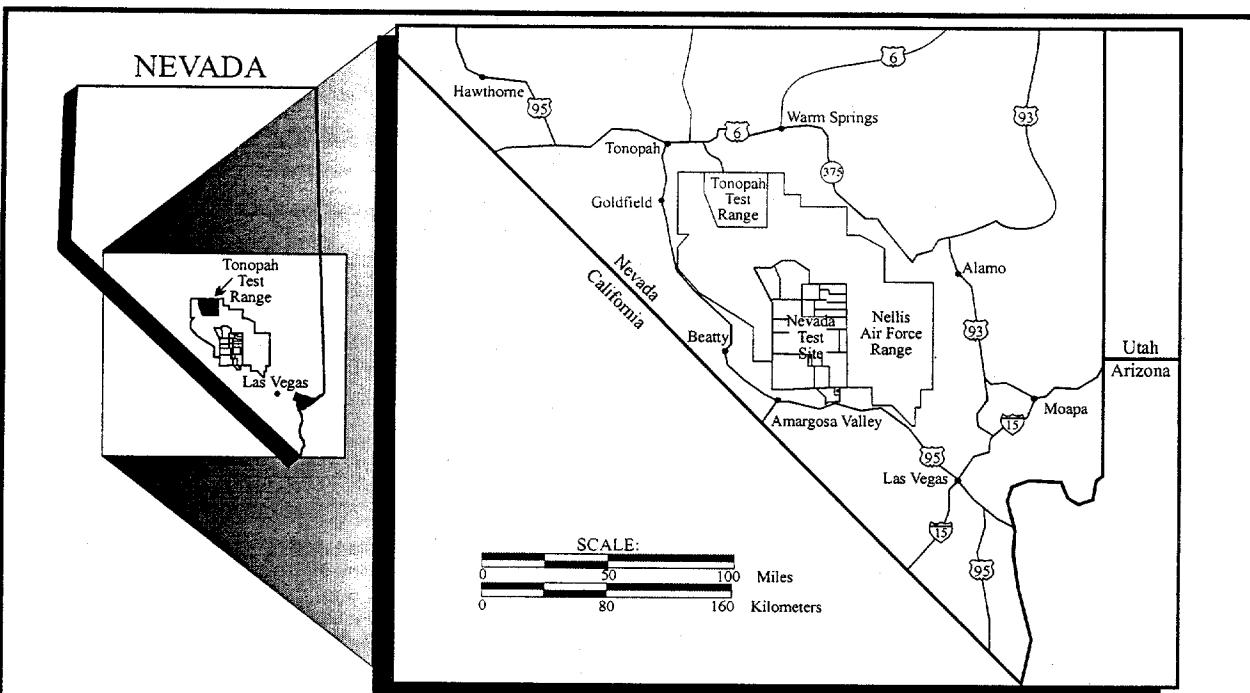
The site inspections were conducted on May 16, 2001, and November 6, 2001. All inspections were made after NDEP approval of the CR, and were conducted in accordance with the Post-Closure Inspection Plan in the NDEP-approved CR. No maintenance or repairs were conducted at the site.

This report includes copies of inspection checklists, photographs, recommendations, and conclusions. Copies of the Post-Closure Inspection Checklists are found in Attachment A, a copy of the field notes is found in Attachment B, and a copy of the inspection photographs is found in Attachments C.

2.0 INSPECTION RESULTS

2.1 May 16, 2001 Inspection

The first annual inspection was conducted on May 16, 2001. All 20 subsurface metal markers were located at the corners of the Leachfield A (four markers), Leachfield B (four markers), Pre-1965 Leachfield (four markers), Abandoned Leachfield (four markers), and Septic Tank 33-5 (four markers) with a metal detector. The four warning signs were observed to be at the as-built locations on Building 03070T (two signs), Building 0367 (one sign), and east of Building 0367 (one sign). No damage to the signs was observed, and all signs were in good readable condition. The soil and asphalt cover areas are located in high traffic areas. Based upon the traffic and yard maintenance activities, no vegetation was observed in the areas. A slight erosion feature/depression was present over Leachfield B and the Abandoned Leachfield. The feature does not effect the integrity of the covers. No other features were observed to indicate



TONOPAH TEST RANGE

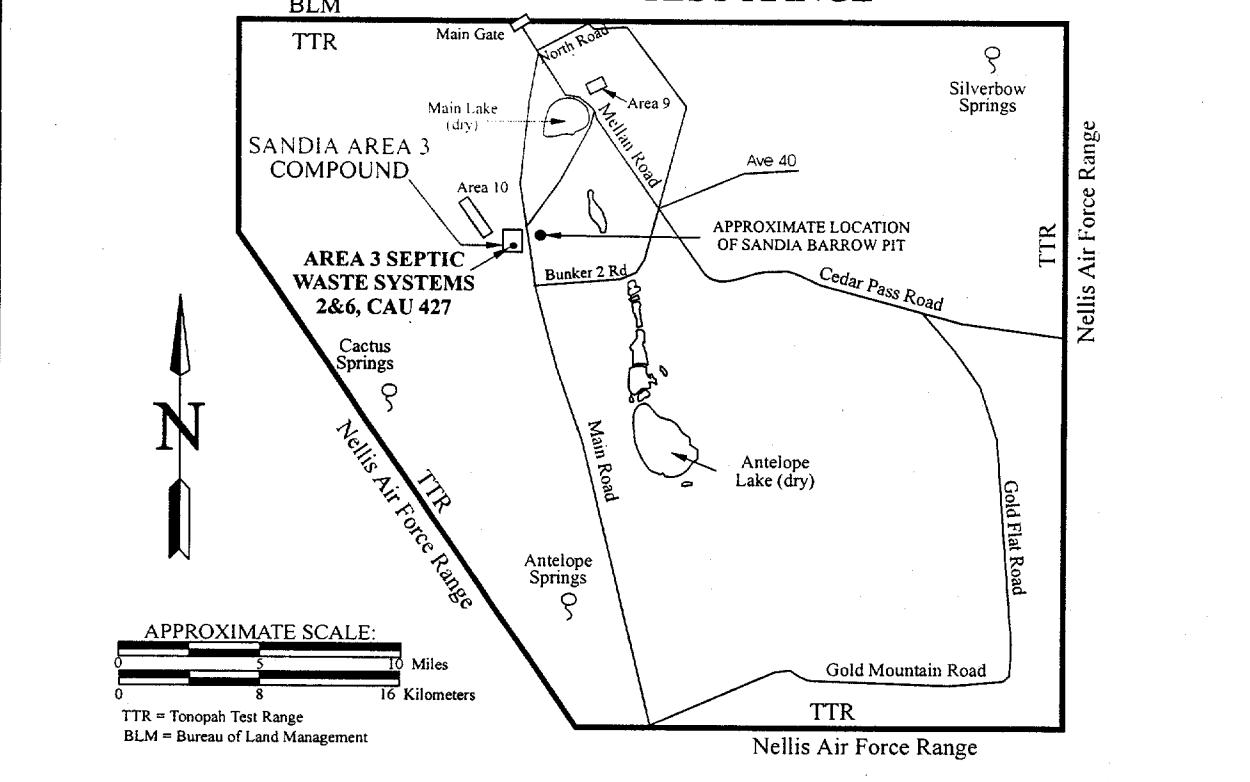


FIGURE 1
 AREA 3 SEPTIC WASTE SYSTEMS 2 AND 6
 CAU 427 LOCATION MAP

subsidence, erosion, or unauthorized use (cracks, depressions, erosional channeling, etc.) of the closed sites. The site is in excellent condition.

2.2 November 6, 2001 Inspection

The second inspection was conducted on November 6, 2001. Only 8 of the 20 subsurface metal markers were located using a metal detector. The following markers were located using a metal detector:

- Leachfield A - two markers at the west end and one at the east end
- Leachfield B - two markers at the east end
- Pre-1965 Leachfield - no markers
- Abandoned Leachfield - two markers at the west end and one at the east end
- Septic Tank 33-5 - no markers were located

The four warning signs were located as shown on the as-built drawing on Building 03070T (two signs), Building 0367 (one sign), and east of Building 0367 (one sign). No damage to the signs was observed, and all signs were in good readable condition. The soil and asphalt cover areas are located in high traffic areas. Based upon the traffic and yard maintenance activities, no vegetation was observed in the areas. No features were observed to indicate subsidence, erosion, or unauthorized use (cracks, depressions, erosional channeling, etc.) of the closed sites. The site is in excellent condition.

3.0 CONCLUSIONS AND RECOMMENDATIONS

All signs were in place. No surface features affecting the integrity of the cover area were observed in the soil and asphalt cover to indicate subsidence, erosion, or unauthorized use. To verify the presence of all subsurface corner markers, it is recommended that during calendar year 2002 the following actions be taken:

- Attempt to locate all subsurface markers using a metal detector.
- If unable to locate with a metal detector, locate markers by surveying from the as-built coordinates (Appendix B of the CR), and expose by digging one foot below ground surface by hand.
- Perform any required maintenance/replacement of the markers before re-burrowing.
- Mark locations on the surface with survey nails and whiskers and/or paint to aid in locating markers in the future.

Inspection of CAU 427 is recommended for the third year as proposed in the CR. No modifications or repairs to the cover, or changes in the frequency of site inspections, are recommended at this time.

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APPENDIX A
INSPECTION CHECKLISTS

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POST-CLOSURE INSPECTION CHECKLIST

CAU 427: Area 3 Septic Waste Systems 2 & 6, Tonopah Test Range, Nevada

Date of Last Inspection: 20 Nov 2000	Reason for Last Inspection: 1 st Ann-1 Inspection - CO
Responsible Agency: BN-ER DOE-NV	Project Manager: Wayne Johnson
Inspection Date: 16 May 2001	
Inspector: Brad Jackson	Title: Task Manager Organization: BN-ER
Assistant Inspector (optional): Kevin Cubble	Title: Task Manager Organization DOE-NV

A. GENERAL INSTRUCTIONS

1. All checklist items must be completed and detailed comments made to document the results of the site inspection. The completed checklist is part of the field record of the inspection. Additional pages should be used as necessary so a complete record is made. Attach the additional pages and number all pages upon completion of the inspection.
3. Any checklist line item marked by an inspector in a SHADED BOX, must be fully explained or an appropriate reference to previous reports provided. The purpose of this requirement is to provide a written explanation of inspector observations and the inspector's rationale for conclusions and recommendations. Explanations are to be placed on additional attachments and cross-referenced appropriately. Explanations, in addition to the narrative, will take the form of sketches, measurements, and/or annotated site maps.
4. The site inspection is a walking inspection of the entire site including the perimeter and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.
5. A standard set of color photographs (35 mm, digital, or equivalent) are required to document reportable changes in site conditions between inspections. In addition, all anomalous features or new features (such as changes in adjacent area land use) are to be photographed. A photo log entry will be made for each photograph taken and submitted with the checklist referencing it.
6. This unit will be inspected annually with formal reporting to the Nevada Division of Environmental Protection before completion of the fiscal year in which the inspection occurred. The annual report will include: a narrative summary including recommendations and conclusions; this inspection checklist; inspection field notes; a maintenance record; and photo log (when reportable changes in site conditions are noted).

B. PREPARATION (To be completed prior to site visit)	YES	NO	EXPLANATION
1. Site as-built plans and site base map reviewed.	✓		
2. Previous inspection reports reviewed.	✓		
a. Were anomalies or trends detected on previous inspections?		✓	

POST-CLOSURE INSPECTION CHECKLIST
CAU 427: Area 3 Septic Waste Systems 2 & 6, Tonopah Test Range, Nevada

B. PREPARATION (To be completed prior to site visit)		YES	NO	EXPLANATION
2. b. Was maintenance performed?			✓	
3. Site maintenance and repair records reviewed.			✓	None prepared
a. Has site repair resulted in a change from as-built conditions?			✓	N/A
b. Are revised as-builts available that reflect repair changes?			✓	N/A
C. SITE INSPECTION (To be completed during inspection)		YES	NO	EXPLANATION
1. Adjacent off-site features.				
a. Have there been any changes in use of adjacent areas?			✓	
b. Change in surrounding vegetation?			✓	
2. Security, signs.				
a. Displacement of fences, site markers, boundary markers, or monuments? (disturbed by man or natural processes?)			✓	
b. Have any signs been damaged or removed? (Number of signs replaced: <u>0</u>)			✓	
c. Were all subsurface markers detected? (i.e. using a magnatometer or equivalent)		✓		

POST-CLOSURE INSPECTION CHECKLIST
CAU 427: Area 3 Septic Waste Systems 2 & 6, Tonopah Test Range, Nevada

3. Soil/asphalt cover.

- a. Is there evidence of settling?
- b. Is there cracking?
- c. Is there evidence of erosion near the use restriction boundaries?
- d. Is there evidence of animal burrowing?
- e. Is there vegetation?
- g. Do natural processes threaten to integrity of any cover or site marker?
- h. Is there evidence suggesting unauthorized excavations have taken place?
- h. Other?

YES	NO	EXPLANATION
-----	----	-------------

	✓	
	✓	
✓		Minor
	✓	
	✓	
	✓	
	✓	
	✓	
	✓	
	✓	

4. Photo Documentation

- a. Has a photo log been prepared?
- c. Number of photos taken (7)

✓		
---	--	--

D. FIELD CONCLUSIONS

1. Is there an imminent hazard to the integrity of the unit? (Immediate report required)

	✓	
--	---	--

Person/Agency to whom report made:

2. Are more frequent inspections required?

3. Are existing maintenance/repair actions satisfactory?

4. Is other maintenance/repair necessary?

✓	
---	--

	N/A
--	-----

5. Rationale for field conclusions: No change since last inspection.

POST-CLOSURE INSPECTION CHECKLIST
CAU 427: Area 3 Septic Waste Systems 2 & 6, Tonopah Test Range, Nevada

E. CERTIFICATION

I have conducted an inspection of the CAU 427, Area 3 Septic Systems 2 & 6, at the TTR following the Post-Closure Inspection Plan* as recorded on this checklist, attached sheets, field notes, photo logs, and photographs.

*see the CAU 427 Closure Report for post-closure inspection requirements

Chief Inspector's Signature: <i>RJM</i>	Printed Name: Brad Jackson
Title: Task Manager	Date: 16 May 2001

CAU 427: AREA 3 SEPTIC WASTE SYSTEMS 2 & 6, POST-CLOSURE MONITORING CHECKLIST

 Date of Last Inspection: 16 May 2001

 Reason for Last Inspection: Bi-annual

 Responsible Agency: UNSAW NV BNER

 Project Manager: Wayne Johnson

 Inspection Date: 6 November 2001

 Inspector (name, title, organization): Kevin B. Campbell Technical Lead BNER

 Assistant Inspector (name, title, organization): NA
A. GENERAL INSTRUCTIONS

1. All checklist items must be completed and detailed comments made to document the results of the site inspection. The completed checklist is part of the field record of the inspection. Additional pages should be used as necessary to ensure that a complete record is made. Attach the additional pages and number all pages upon completion of the inspection.
2. Any checklist line item marked by an inspector in a SHADED BOX, must be fully explained or an appropriate reference to previous reports provided. The purpose of this requirement is to provide a written explanation of inspector observations and the inspector's rationale for conclusions and recommendations. Explanations are to be placed on additional attachments and cross-referenced appropriately. Explanations, in addition to narrative, will take the form of sketches, measurements, annotated site maps.
3. The site inspection is a walking inspection of the entire site including the perimeter and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.
4. A standard set of color 35 mm photographs (or equivalent) is required. In addition, all anomalous features or new features (such as changes in adjacent area land use) are to be photographed. A photo log entry will be made for each photograph taken.
5. This unit will be inspected biannually with formal reporting to the Nevada Division of Environmental Protection to be done annually. The annual report will include an executive summary, this inspection checklist with field notes and photo log attached, and recommendations and conclusions.

B. PREPARATION (To be completed prior to site visit)		YES	NO	EXPLANATION
1. Site as-built plans and site base map reviewed.		✓		
2. Previous inspection reports reviewed.		✓		
a. Were anomalies or trends detected on previous inspections?			✓	
b. Was maintenance performed?			✓	
3. Site maintenance and repair records reviewed.		✓		<u>NA no repair required</u>
a. Has site repair resulted in a change from as-built conditions?			✓	<u>NA</u>
b. Are revised as-builts available that reflect repair changes?			✓	<u>NA</u>
C. SITE INSPECTION (To be completed during inspection)		YES	NO	EXPLANATION
1. Adjacent off-site features within watershed areas.				
a. Have there been any changes in use of adjacent area?		✓		
b. Are there any new roads or trails?		✓		
2. Security signs.				
a. Displacement of site markers, boundary markers, or monuments? (disturbed by man or natural processes?)		✓		
b. Have any signs been damaged or removed? (Number of signs replaced: <u>0</u>)		✓		
c. Were all subsurface markers detected? (i.e., using a magnetometer or equivalent)		✓		<u>6 were located. But the others were not located.</u>

CAU 427: AREA 3 SEPTIC WASTE SYSTEMS 2 & 6, POST-CLOSURE MONITORING CHECKLIST

3. Soil/asphalt cover. a. Is there evidence of settling? b. Is there cracking? c. Is there evidence of erosion near use restriction boundaries? d. Is there evidence of animal burrowing? e. Is there vegetation? f. Do natural processes threaten to integrity of any cover or site marker? g. Is there evidence suggesting unauthorized excavations have taken place? e. Other?	YES	NO	EXPLANATION
		✓	
		✓	
		✓	
		✓	
		✓	
		✓	
		✓	
4. Photo Documentation a. Has a photo log been prepared? <input checked="" type="checkbox"/> c. Number of photos exposed (5)			
D. FIELD CONCLUSIONS			
1. Is there an imminent hazard to the integrity of the unit? (Immediate report required)		✓	
Person/Agency to whom report made:			
2. Are more frequent inspections required?		✓	
3. Are existing maintenance/repair actions satisfactory?	✓		
4. Is other maintenance/repair necessary?		✓	
5. Rationale for field conclusions:	<i>Sigas in excellent condition. Could not locate approximately half of the subsurface ferrous corner markers using a metal detector. May need to excavate ~1 ft bgs to locate.</i>		
E. CERTIFICATION			
I have conducted an inspection of the Cactus Spring Waste Trenches, CAU 426, at the TTR in accordance with the Post-Closure Monitoring Plan (see Closure Report) as recorded on this checklist, attached sheets, field notes, photo logs, and photographs.			
Chief Inspector's Signature: <i>Kevin B. Campbell</i>	Printed Name: <i>Kevin B. Campbell</i>		
Title: <i>BNER Technical Lead</i>	Date: <i>11/6/2001</i>		

APPENDIX B
FIELD NOTES

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Work continued from Page 18

24U 427 A3 Septic Waste System 2 & 6

4 posted signs in excellent condition

minor erosion feature down the center of Leachfield B and the abandoned
leachfield. Feature does not effect integrity of cover.

5 All areas, septic fields, Septic tanks, in high traffic areas which undergoes
periodic maintenance/grading.

All subsurface markers detected at indicated locations on ex-buillt drawing.

Site in excellent repair/condition.

Last line

3

5

1

1

NATURE	DATE	WITNESS	DATE
I CLOSED TO AND UNDERSTOOD BY			5/16/01

Work continued from Page 23

1410 Start Area 3 Septic Waste systems (CAU 427) inspection

Using metal detector to locate buried corner markers

All signs (4 total) in excellent condition.

No vegetation as area is heavily trafficed.

5 No significant erosion features.

Site in good condition.

Located below grade markers at west end of 3 septic fields Total of 8 markers and east

Were unable to locate markers for Pre 1965-leachfield

Could not locate 12

Subgrade markers

1455 Completed Area 3 Septic Waste Systems (CAU 427) inspection.

0 1500 Heading to Cactus (CAU 426)

1513 Arrive at Cactus

Fence sign gate in excellent condition.

Small mammal burrows at base of fence

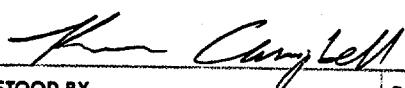
Vegetation very healthy, no significant erosion features

5 Cover looks in excellent condition

Depart Cactus for Area 3.

~~Test Line~~

SIGNATURE



DISCLOSED TO AND UNDERSTOOD BY

DATE

WITNESS

DATE

11/6/01

DATE

APPENDIX C
PHOTOGRAPH LOG AND PHOTOGRAPHS

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PHOTOGRAPH LOG

PHOTO NUMBER	DATE	DESCRIPTION
1	05/16/2001	View north over Septic Tank 33-5 (central area of photograph). Warning sign on south side of septic tank is visible in center of the photograph.
2	05/16/2001	View to southwest across Pre-1965 Leachfield, and of the southeast ends of Leachfield A, Leachfield B, and Abandoned Leachfield.
3	05/16/2001	View of the two warning sign on the west and south sides of Building 0367.
4	05/16/2001	View to east of Leachfield B and Abandoned Leachfield. Note the presence of a slight erosion feature/depression trending along the axis of Leachfield B and the Abandoned Leachfield.
5	11/06/2001	View to east of Abandoned Leachfield and Leachfield B. Note that the erosion feature/depression present in photograph 4 is no longer present; the area has been regraded.
6	11/06/2001	View to southeast of Leachfield B and Abandoned Leachfield.
7	11/06/2001	View of warning sign posted on the west side of Building 0367.
8	11/06/2001	View north of Pre-1965 Leachfield.

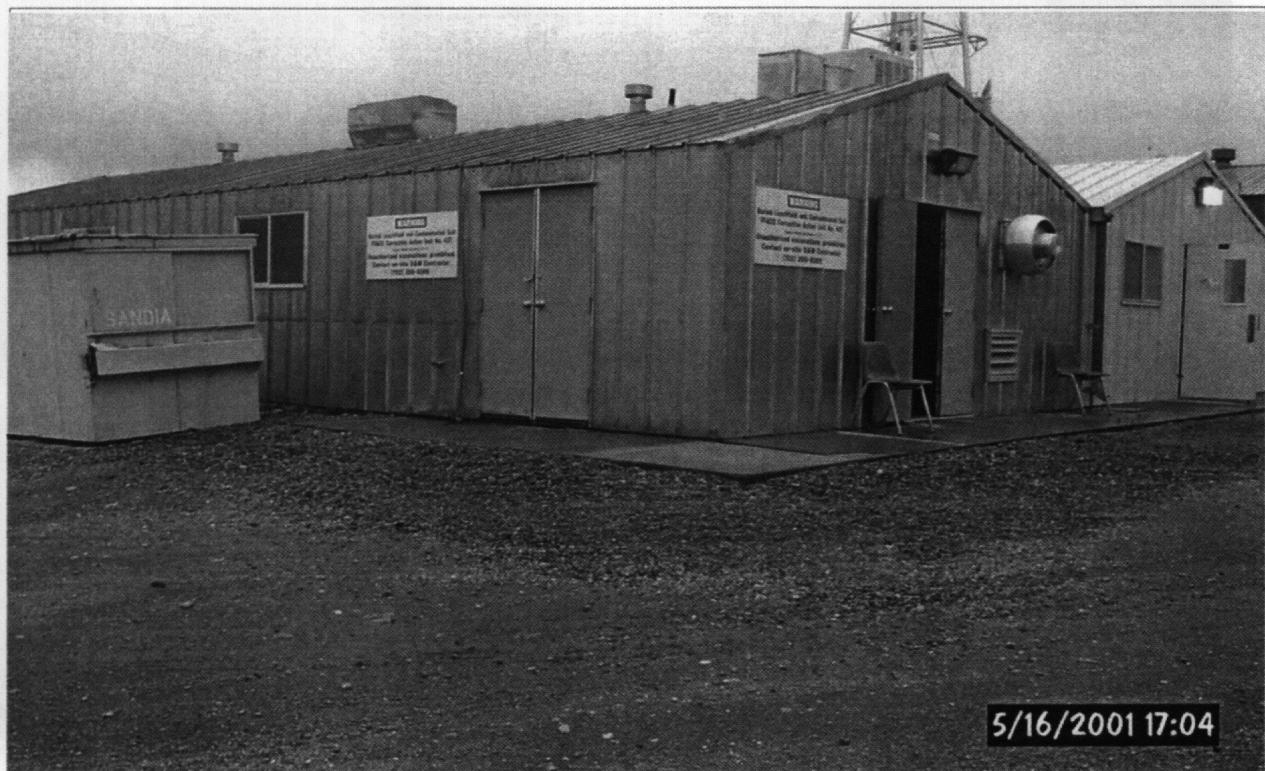
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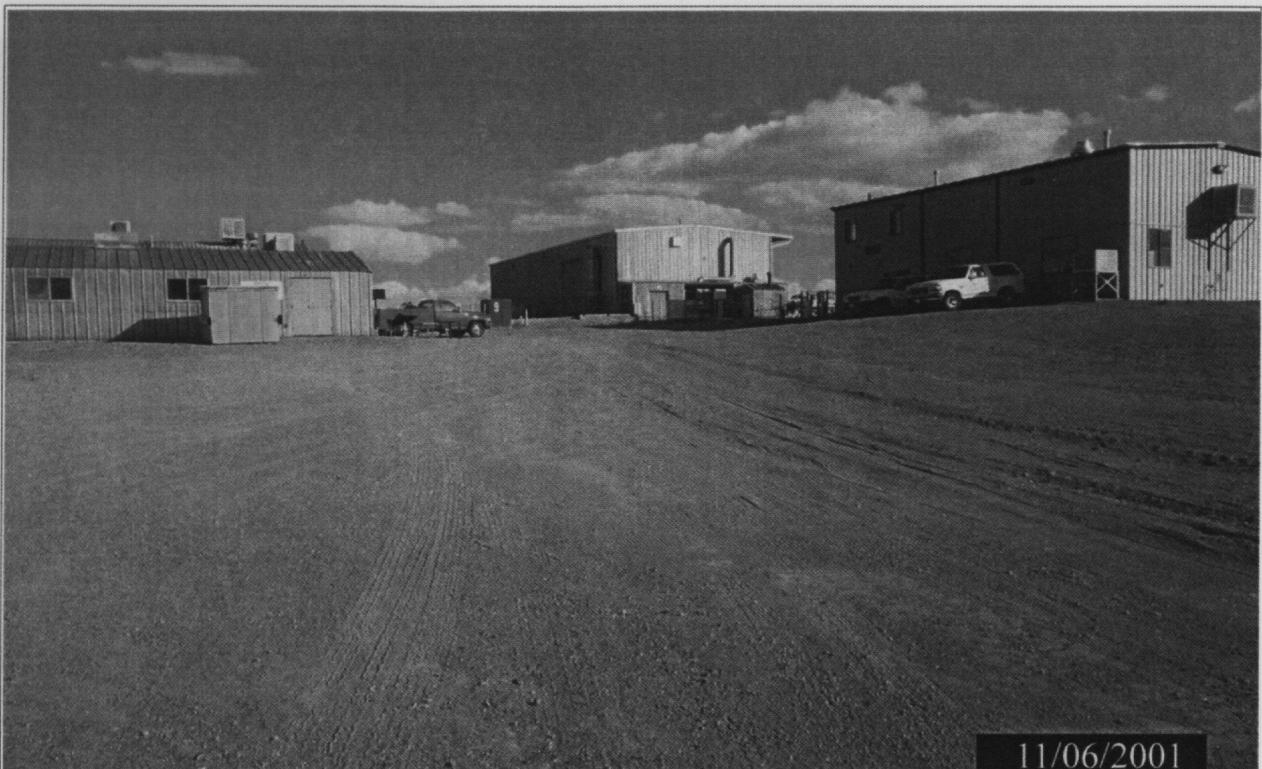
2



3

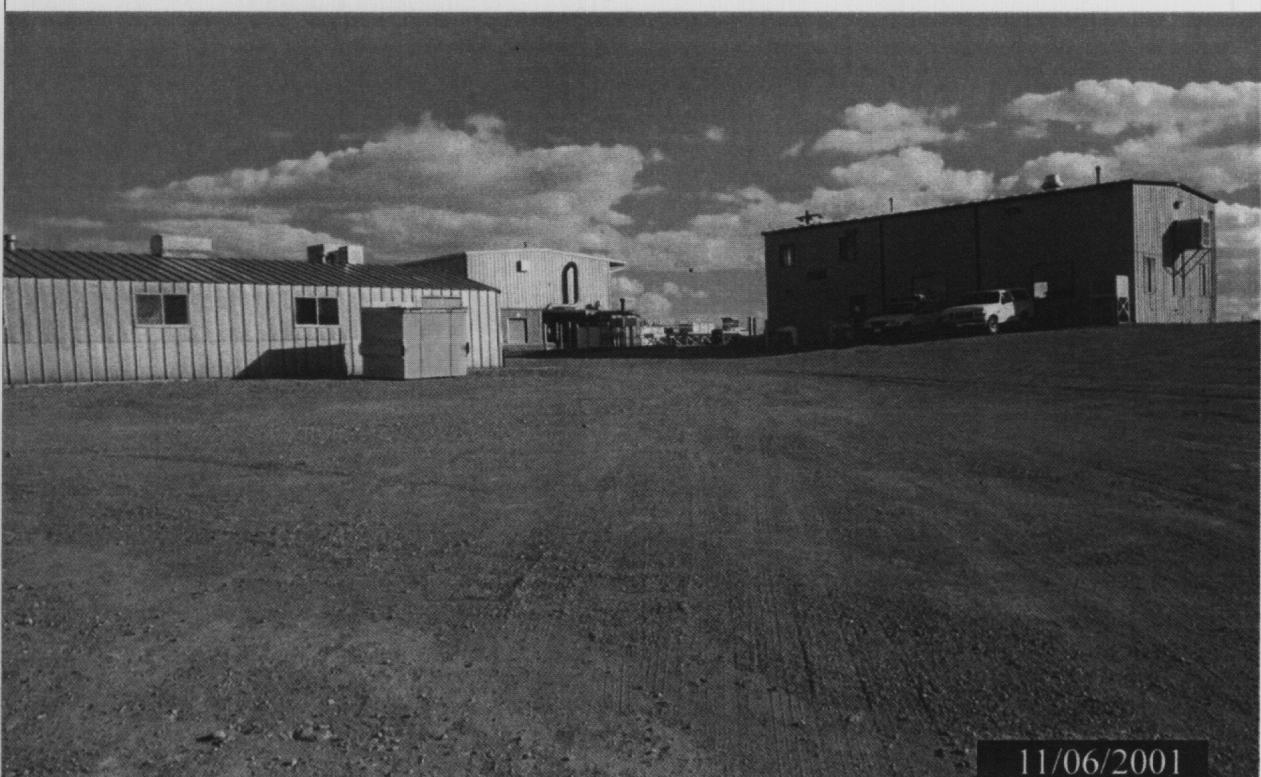


4



11/06/2001

5



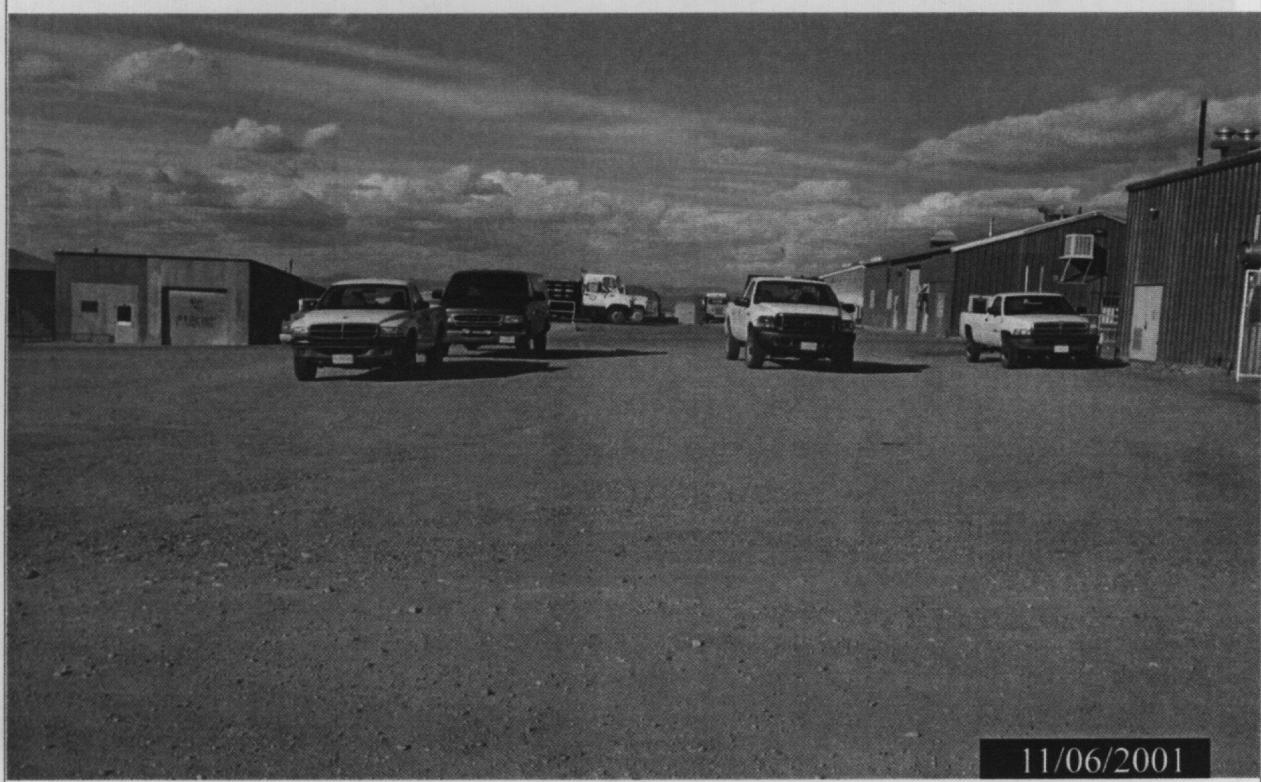
11/06/2001

6



11/06/2001

7



11/06/2001

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