NVO-90

17729

PLANNING DIRECTIVE

DEMOBILIZATION, RESTORATION AND MONITORING

CENTRAL NEVADA TEST AREA

JUNE 1973

UNITED STATES ATOMIC ENERGY COMMISSION
NEVADA OPERATIONS OFFICE
Las Vegas, Nevada

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PLANNING DIRECTIVE - NVO-90
DEMOBILIZATION, RESTORATION & MONITORING
CENTRAL NEVADA TEST AREA

I. INTRODUCTION

A. Background and Purpose

The Central Nevada Test Area (CNTA) was established in 1967 as a supplemental test area to the Nevada Test Site (NTS) for the purpose of testing nuclear devices of higher yield than was acceptable for detonation at NTS. This higher yield testing was to be required for the development of the antiballistic missile (ABM) program. Development of the weapon proceeded to the extent that, in 1970, a decision was made that testing at Central Nevada would not be required; however, the FAULTLESS event was conducted at CNTA in 1968 to calibrate the response of the area to higher yield tests. In addition, extensive facilities were constructed at CNTA during the period 1967 through 1970 and have been held in standby status in the event that redesign of the ABM system was required after the CANNIKIN test which was conducted on Amchitka Island in November 1971.

The Division of Military Applications, Weapons Laboratories and Nevada Operations Office have now decided that the Central Nevada facilities will not be required in the near future and that surface facilities should be removed.

This Planning Directive provides guidance, definition of responsibilities and description of the work to be accomplished in demobilizing the facilities, restoring the area and monitoring the long-term effects of the CNTA.

The document provides direction for the conduct of the Nevada Operations Office (NV) responsibilities and outlines, for informational purposes, the responsibilities of AEC Headquarters.

B. Policy and Objectives

The objectives of the AEC are as follows:

1. Demobilize and remove all AEC constructed facilities and equipment at Central Nevada, except those facilities to be retained by the AEC, Bureau of Land Management or other federal and state agencies. The two emplacement holes (designated UC-3 and UC-4) will be retained as AEC asset in the event that they may be required for future test programs. In addition, drilled exploratory and hydrologic test holes that can be used by the Bureau

of Land Management will be transferred to that agency for their use.

2. Insofar as practical, take the actions which will allow for and enhance the natural restoration of land areas disturbed by AEC activities.

3. Assure that no radiological surface contamination exists that will restrict the use of or access to the land.

4. Conduct a long-term monitoring program to evaluate and document the effects which AEC activities had on the area. Particular emphasis will be placed on monitoring the underground water system.

5. The return of land areas to public domain at such time as it is no longer required for long-term environmental monitoring or possible future use.

II. ORGANIZATION AND RESPONSIBILITIES

Responsibilities in support of the objectives are outlined below:

A. AEC - Division of Military Application (DMA)

The Division of Military Application will provide NV program funding and guidance as well as coordinating AEC policy concerning radiological criteria, demobilization, restoration and long-term effects monitoring plans with other pertinent AEC Headquarters offices.

B. AEC - Nevada Operations Office

The Nevada Operations Office will implement the demobilization, restoration and long-term effects monitoring programs as detailed in the appendices of this directive. NV will coordinate the detail plans with the appropriate representatives of the State of Nevada, Bureau of Land Management, General Services Administration, other AEC offices, and other interested Federal agencies.

The general responsibilities of the NV organization are provided below:

1. Assistant Manager for Engineering and Logistics (A/M E&L)

The Assistant Manager for Engineering and Logistics is responsible for the demobilization and restoration of Central Nevada facilities as outlined in Section III and Appendix 1. He is also responsible for providing support and logistics to the radiological and long-term monitoring programs while demobilization activities are in process. The A/M E&L will assure that the provisions of IAD-5301.8

have been fulfilled prior to the disposal or release of any real and/or related personal property.

The Assistant Manager, Engineering and Logistics, will designate a Site Manager to represent the Assistant Manager, Engineering and Logistics at Central Nevada. The Site Manager will be designated Contract Administrator Representative on the H&N Contract AT(29-2)-20 and any other contract at that site which the Assistant Manager, Engineering and Logistics, is Contract Administrator. He will be responsible for providing support for all on-site demobilization, restoration, radiological and long-term monitoring programs and any other activities at Central Nevada.

2. Director, Property Managment Division

The Director, Property Management Division, is responsible for the disposal or release of any real and/or related personal property and assure the Assistant Manager, Engineering and Logistics, that all provisions of IAD-5301-.8 and AEC PMI Sub Part 109 have been fulfilled prior to release or disposal.

3. Assistant Manager for Operations (A/M O)

The Assistant Manager for Operations is responsible for assuring that identification and disposal of all radioactive material is accomplished as outlined in Appendix 3. He is also responsible for determining that adequate security is established for protection of classified information related to the FAULTLESS test.

4. Director, Office of Effects Evaluation

The Director, Office of Effects Evaluation, is responsible for developing and coordinating the long-term effects monitoring program as outlined in Appendix 2.

5. Assistant Manager for Plans and Budgets (A/M P&B)

The Assistant Manager for Plans and Budgets is responsible for receipt, programmatic control and preparing allocation of funds provided to NV for the Central Nevada Project.

The Assistant Manager, Plans and Budgets, will also be responsible at such time as the Manager, NV, deems appropriate for preparing a site disposal plan which outlines the actions to be taken in order to return withdrawn land to the public domain.

III. DEMOBILIZATION AND RESTORATION

Demobilization and restoration of the Central Nevada Test Area will be initiated in July 1973; however, an earlier start may be approved if funds can be identified for this purpose. Initiation of a start earlier than July 1973 must be approved by the NV Manager. The transfer of equipment and facilities to the NTS and other offices or agencies may also be accomplished prior to July 1973, providing those receiving the property furnish the funds necessary to accommodate the transfer.

The Assistant Manager for Engineering and Logistics will mobilize forces to perform the demobilization and restoration activities, outlined in appendices of this document, and will proceed in a manner which will minimize overall costs to the Government. Equipment and material required for the nuclear testing program at the Nevada Test Site will be transported there with all other facilities, equipment and material excessed or surplused from Central Nevada. Restoration of land areas will primarily be limited to ground contouring and erosion control. Reseeding of land areas will be accomplished as mutually agreed to be NV and other appropriate authorities.

IV. LONG-TERM MONITORING

Long-term monitoring of the effects caused by AEC activities will be conducted as outlined in Appendix 2.

V. REPORTS

Reports other than those required on a routine basis are as follows:

Summary Report of Central Nevada Demobilization and Restoration Activities

The NV Office of Information Services, Technical Information Branch, is responsible for the coordination and preparation within three months after completion of demobilization and restoration activities, of a Summary Report of Central Nevada Demobilization and Restoration Activities. This report will identify (1) the actions taken in each area during demobilization and restoration; (2) the disposition of facilities, equipment and material to the NTS, other agencies, etc., disposition of radioactive materials (if any); (4) the retention and/or release of land; and (5) any other pertinent information.

Mahlon E. Gates
Manager

Multiple Addressees

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APPENDIX 1

DEMOBILIZATION AND RESTORATION PLAN

CENTRAL NEVADA TEST AREA

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I. INTRODUCTION

1.1 PURPOSE

The purpose of this document is to provide a complete plan for demobilization and cleanup of the Central Nevada Test Area (CNTA) and for the restoration of areas disturbed by Atomic Energy Commission (AEC) operations to present a more natural appearance. It includes demobilization, cleanup, and restoration of all drill sites, shot sites, technical complexes, and support facilities in the CNTA.

In general, the work to be done consists of the following:

a. Plugging, capping, or sealing drilled holes except those which will be turned over to the Bureau of Land Management (BLM) "as-is" for future use as water wells and those designated by the Office of Effects Evaluation (OEE), Nevada Operations Office (NV), for use in the Long-Term Hydrologic Monitoring Program.

b. Disposing of contaminated materials.

c. Removing and disposing of all AEC buildings, equipment, and surface facilities, except those designated for use by the Department of the Interior, BLM, or other Government agencies.

d. Contouring disturbed areas.

1.2 OBJECTIVES

When demobilization and restoration of the CNTA begins, objectives will be:

a. To obtain maximum use of Government property through salvage, transfer, and/or excess programs.

b. To prevent safety and health hazards.

c. Within limits of practicality and economy, to improve the general appearance of disturbed areas and minimize further damage to the environment.

1.3 CENTRAL NEVADA TEST AREA

The CNTA is a remote desert area. U.S. Highway 6, extending from Tonopah to Ely, borders the area on the southeast. The base camp, at an elevation of approximately 5250 feet above sea level, is located approximately 57 miles northeast of Tonopah, a mining and ranching community of about 1700 people, and approximately 110 miles southwest of Ely. It is also nine miles northeast of Warm Springs.

Both Tonopah and Warm Springs are in Nye County and Ely is in White Pine County, Nevada. The area was selected because of its remoteness. It was acquired from the BLM thru land withdrawals.

The climate is generally dry and mild, with occasional severe snow and blizzard conditions and an average temperature of 40 degrees in winter and 85 degrees in summer. The average annual precipitation is 4.50 inches.

The locale abounds in points of historical interest such as mines, ghost towns, ranches, Indian encampments, stagecoach stations, and the like.

1.4 CNTA OPERATIONS

Under the direction of the AEC Site Manager, the CNTA was operated and maintained by Holmes & Narver, Inc. (H&N), and its subcontractors. The National Environmental Research Center (NERC, formerly the U.S. Public Health Service), the Air Resources Laboratory (ARL, formerly the U.S. Weather Bureau), the U.S. Geological Survey (USGS), and the National Ocean Survey (NOS, formerly USC&GS) were among the participating Government agencies active at the CNTA. Scientific programs were jointly determined by the Lawrence Livermore Laboratory (LLL), Los Alamos Scientific Laboratory (LASL), and the AEC, and were implemented by AEC prime contractors. Various contractors performed construction and support functions at the CNTA.

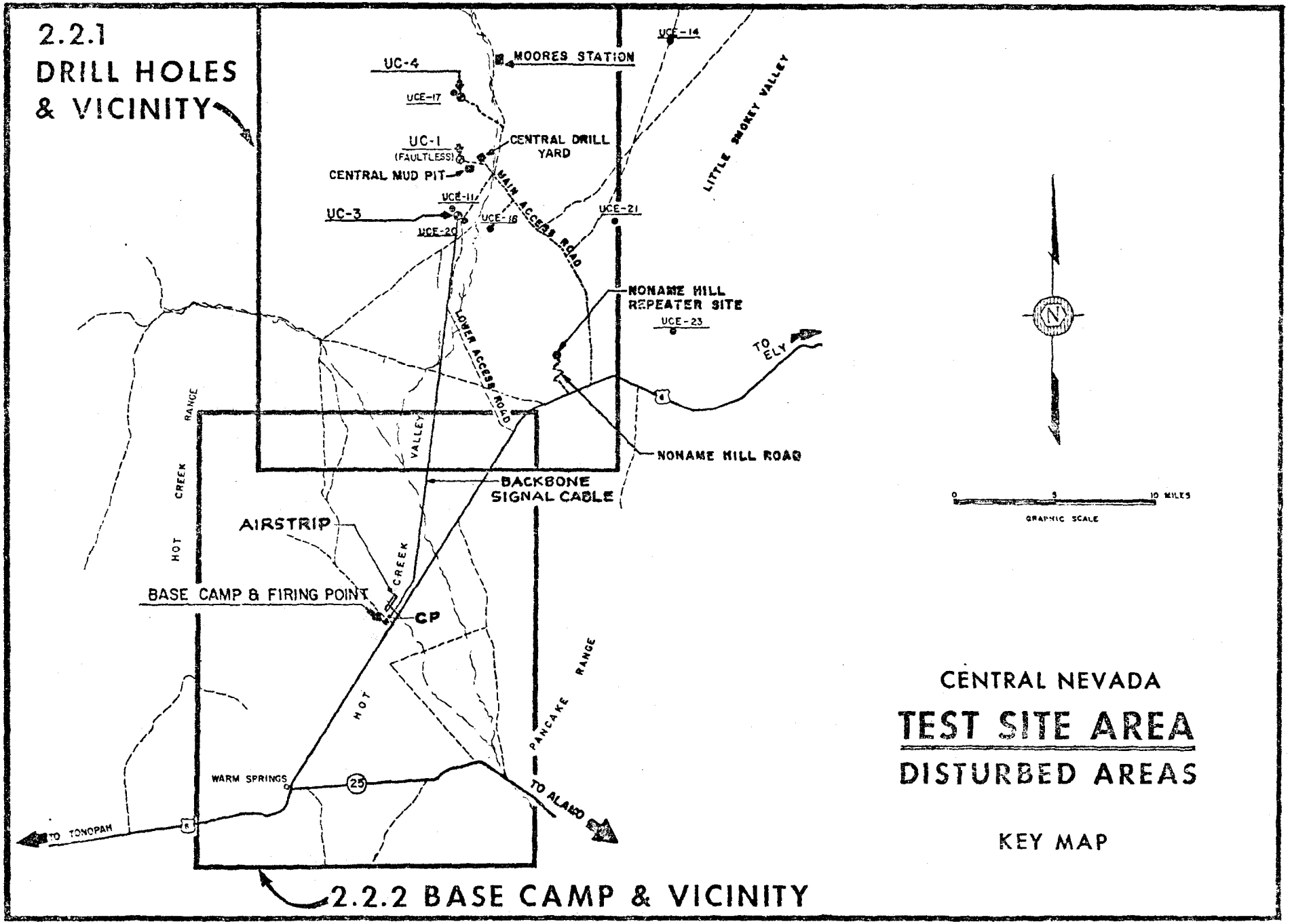
1.5 PROJECT FAULTLESS

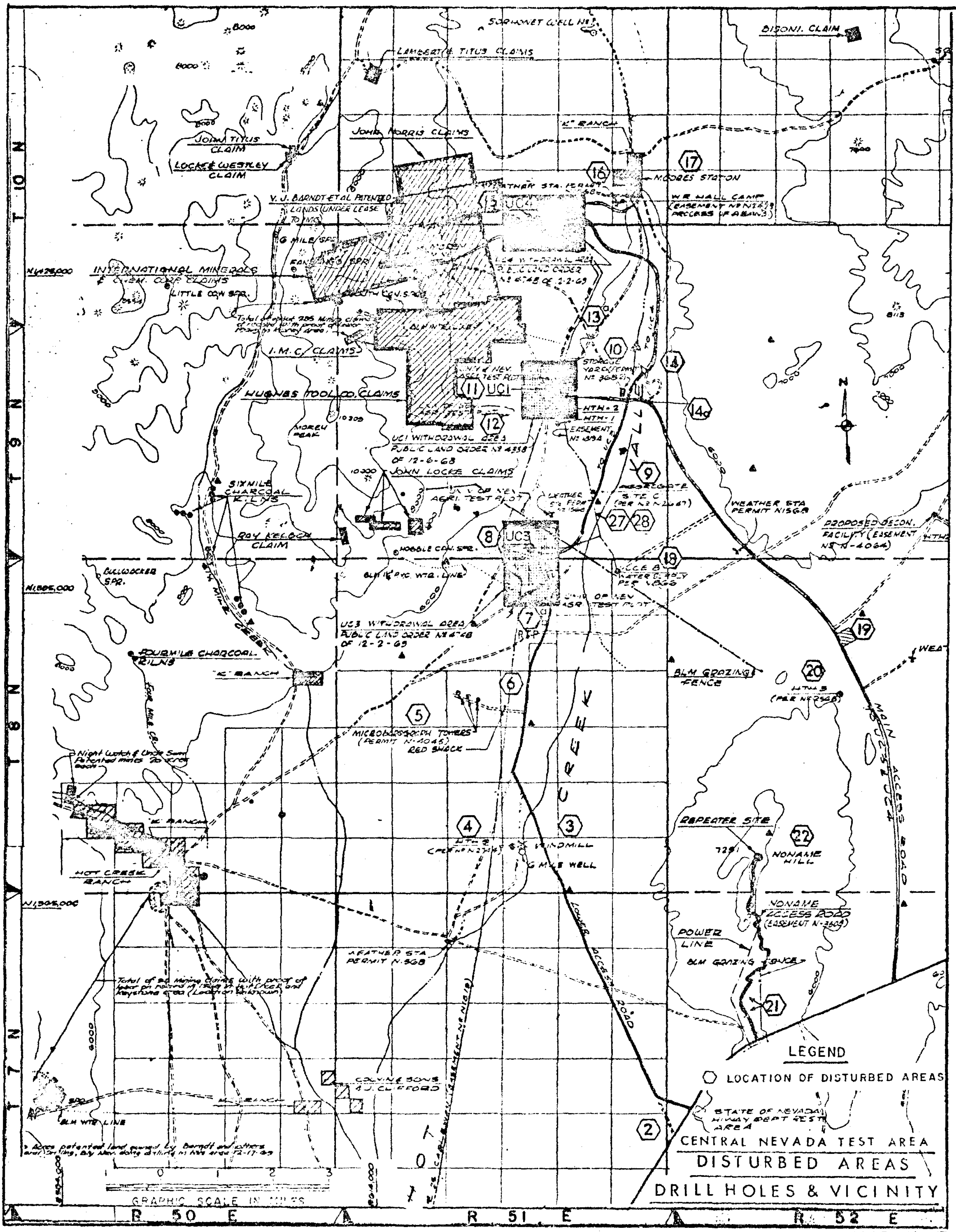
FAULTLESS (Site UC-1) was an underground nuclear detonation conducted by the AEC on January 19, 1968. It was the only executed project at the CNTA and was a calibration experiment of intermediate yield designed to determine whether high yield testing at the CNTA was practical. The detonation produced fractures, vertical displacement, lateral movement, and a substantial subsidence crater 14 feet deep, with a pronounced scarp area surrounding ground zero (GZ).

1.6 OTHER PROJECTS

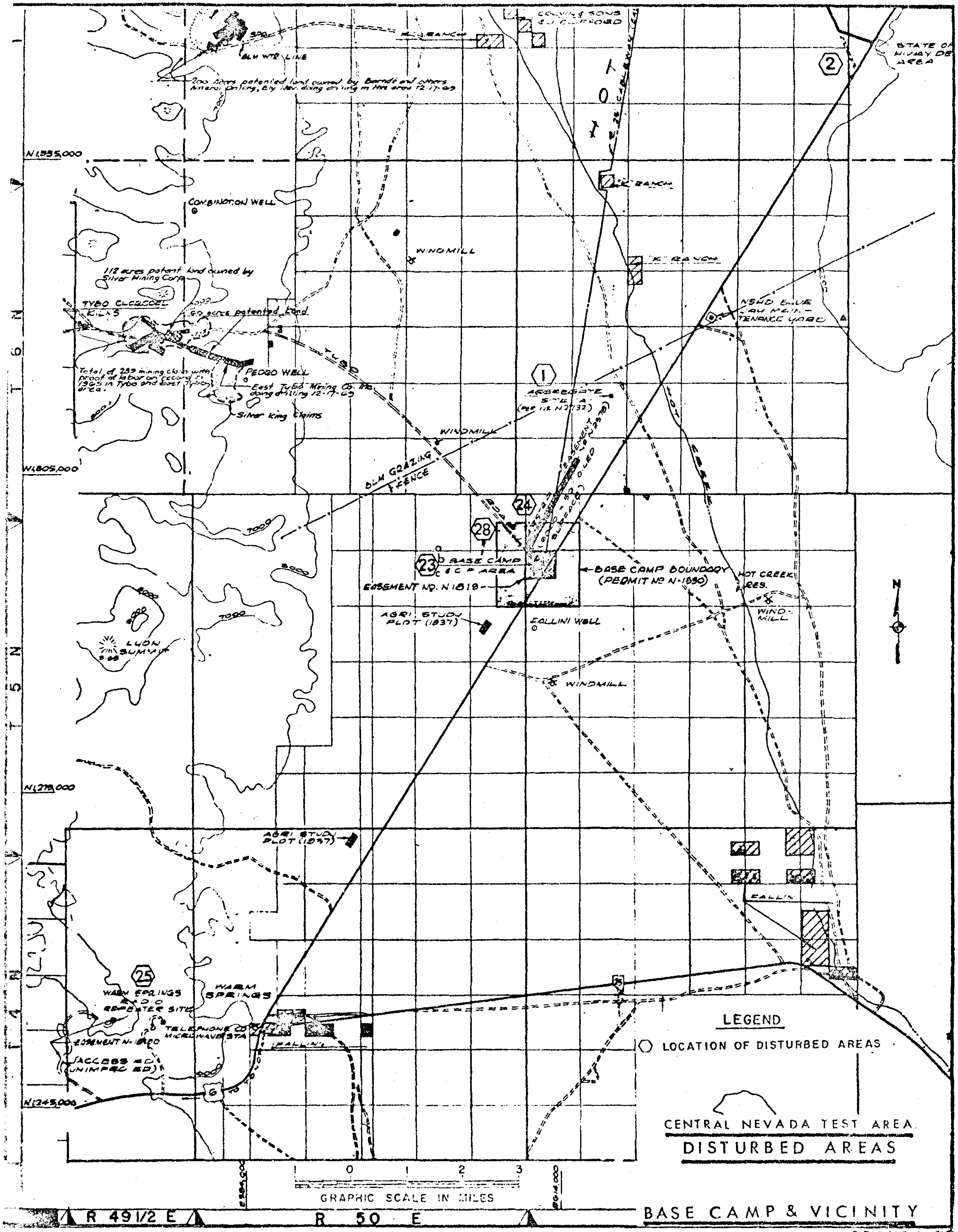
The ADAGIO test, scheduled for Fiscal Year 1970, and subsequent tests were canceled. These developments required the termination of all activities and that the area be placed in caretaker status until further notice.

II. MAPS OF DISTURBED AREAS


2.2.1
DRILL HOLES
& VICINITY
MOORES STATION
UC-4
UCE-17
UC-1
(FAULTLESS)
CENTRAL MUD PIT
CENTRAL DRILL
YARD
UCE-11
UC-3
UCE-20
UCE-18
MAIN ACCESS ROAD
UCE-14
LITTLE SMOKEY VALLEY
UCE-21
NONAME HILL
REPEATER SITE
UCE-23
LOWER ACCESS ROAD
TO ELY
NONAME HILL ROAD
BACKBONE
SIGNAL CABLE
AIRSTRIP
HOT CREEK RANGE
HOT CREEK VALLEY
BASE CAMP & FIRING POINT
CP
HOT CREEK
PANCAKE RANGE
WARM SPRINGS
25
TO ALAMO
TO TONOPAH
2.2.2 BASE CAMP & VICINITY
N
0
5
10 MILES
GRAPHIC SCALE
CENTRAL NEVADA
TEST SITE AREA
DISTURBED AREAS
KEY MAP



BISONI. CLAIM
LAMBERT & TITUS CLAIMS
JOHN TITUS CLAIM
LOCKE & WESTLEY CLAIM
JOHN NORRIS CLAIMS
MOORES STATION
W.R. HALL CAMP
V. J. BARNDT ET AL PATENTED LANDS (UNDER LEASE TO NMC)
6 MILE SPR.
INTERNATIONAL MINERALS & CHEM. CORP. CLAIMS
LITTLE COW SPR.
I.M.C. CLAIMS
HUGHES TOOL CO. CLAIMS
UC4
UC1
UC3
STORAGE
HTH-2
HTH-1
UC1 WITHDRAWAL AREA
PUBLIC LAND ORDER NO 4338 OF 12-6-68
JOHN LOCKE CLAIMS
SIXMILE CHARCOAL KILNS
ROY KELSCH CLAIM
HOBBLE CAN. SPR.
BULLWACKER SPR.
WEATHER STA PERMIT N1568
PROPOSED DECON. FACILITY (EASEMENT NO N-4064)
UC3 WITHDRAWAL AREA
PUBLIC LAND ORDER NO 4768 OF 12-2-69
FOURMILE CHARCOAL KILNS
BLM GRAZING FENCE
MICROWAVE & BOOTH TOWERS (PERMIT N-4045)
RED SHACK
WINDMILL
6 MILE WELL
HOT CREEK RANCH
REPEATER SITE
NONAME HILL
NONAME ACCESS ROAD
POWER LINE
BLM GRAZING FENCE
MAIN ACCESS ROAD
LOWER ACCESS ROAD
HOT CREEK VALLEY
COLVINE SONS & J. CLIFFORD
BLM WTR LINE
STATE OF NEVADA HIWAY DEPT TEST AREA
GRAPHIC SCALE IN MILES
0 1 2 3
1 2 3 4 5 6 7 8 9 10 11 12 13 14 14a 16 17 18 19 20 21 22 27 28
T 10 N
T 9 N
T 8 N
T 7 N
R 50 E
R 51 E
R 52 E
LEGEND
LOCATION OF DISTURBED AREAS
CENTRAL NEVADA TEST AREA
DISTURBED AREAS
DRILL HOLES & VICINITY
SECTION



LEGEND

⬡ LOCATION OF DISTURBED AREAS

CENTRAL NEVADA TEST AREA

DISTURBED AREAS

BASE CAMP & VICINITY

SECTION 2.2.2

III. DEMOBILIZATION AND RESTORATION

3.1 DISTURBED AREAS--GENERAL ITEMS

Methods for demobilization, cleanup, and restoration of areas which occur generally throughout the Test Area are described below:

3.1.1 Roads and Parking Areas

a. Most of the major roads constructed by NV will be taken over in their "as-is" condition by Nye County or the BLM. Minor roads, access roads, and parking areas, which are not required, shall be abandoned.

b. Guard rails, bumpers, highway safety signs, markers, etc., on roads to remain shall be left in place. Signs and markers related only to vehicle speed and to sites and areas to be demobilized shall be removed.

c. Posts or stakes which prove difficult to remove may be cut off flush with or below the ground surface.

d. Salvable guard railing, markers, and signs shall be hauled to the Central Pipe Yard. Nonsalvable, flammable materials may be burned at designated burn pits. All nonsalvable metal materials shall be hauled to a dump area.

3.1.2 Pipelines

Surface pipelines, extending to mud sumps and drill holes, shall be removed. Salvable pipe shall be hauled to the central pipe yard; nonsalvable pipe, to a designated dump. Underground pipelines may be abandoned in place.

3.1.3 Survey Markers

Markers and stakes, placed to aid in aerial mapping and road and building construction, shall be removed and disposed of as specified under paragraph 3.3.1.

Permanent benchmarks and other permanent survey monuments shall remain in place.

3.1.4 Equipment and Materials

Salvable equipment and material which is not disposed of in accordance with Section IV and which NV wishes to retain shall be hauled to designated storage or staging areas and then be shipped to final destination points as directed by NV.

Nonsalvable equipment or materials not disposed of as excess or surplus shall be disposed of as specified in subsection 3.3.

3.1.5 Borrow Pits and Spoil Areas

Clean up areas; round off stockpiles of usable rock, gravel, or sand; and improve slope angles of edges of earth, waste materials, or spoil.

3.1.6 Repeater Stations

The repeater station near Warm Springs and other "offsite" repeater stations will remain in service for NTS operations. No action is required.

3.1.7 Overhead Powerlines, Poles, and Substations

a. Designated overhead lines, transformers, etc., shall be removed. All facilities serving the Base Camp's Fire Station, water wells, pump house, new motor pool, new warehouse, new maintenance building, and sewage lift station shall remain in place.

b. Wiring, poles, equipment, transformers, etc., shall be disconnected and disposed of as described in paragraph 3.1.4, above.

c. Nonsalvable items may be burned in designated areas or hauled to appropriate dumps as specified in paragraph 3.3.1.

3.1.8 Surface and Underground Cables

Signal power and telephone cables remaining on the surface shall be removed. Nonsalvable underground cables may be abandoned in place. Disposition of cables shall be as described in paragraph 3.1.4, above.

3.1.9 Miscellaneous Activity Areas

Sites and areas not listed in subsection 3.2 or described as a disturbed area shall be demobilized, cleaned up, and restored, in general, in accordance with descriptions of similar sites or areas in this section.

3.1.10 Report of Completion

When the demobilization and restoration of the CNTA is completed, a report of completion shall be prepared and signed by the Field Engineer or Site Representative. It will also be signed by representatives of the BLM and NV.

3.2 LIST OF SPECIFIC DISTURBED AREAS

Map Loc. No. | Description of Demobilization, Cleanup, and Restoration Items Site, Area, or Activity

(For map locations, see maps, subsections 2.2.1 and 2.2.2.)

1. Borrow Area (Aggregate Site "A")

   This area, behind a state-owned gravel pit, was used to obtain aggregates for airstrip construction. Improve all steep slopes to a minimum 45° or 1/1 slope.

2. Road Cut-Off (near the old Highway Department rest area)

   This was a "shortcut" road between U.S. Highway 6 and the Lower Access Road. Since shoulders of the highway were damaged by traffic to and from this road, it was barricaded at both ends.

   No action is required.

3. Borrow Area (near Drill Hole HTH-5)

   Cleanup work has been completed. No further action required.

4. HTH-5, Drill Hole Area

   Fill in the "Rat" and "Mouse" holes. Clean up the area as specified in paragraph 3.3.1. See Subsection 6.3, Drill Hole Data, for methods of plugging the drill hole and backfilling the cellar.

5. Microbarograph Tower Areas

   The three tower areas have been cleaned up.

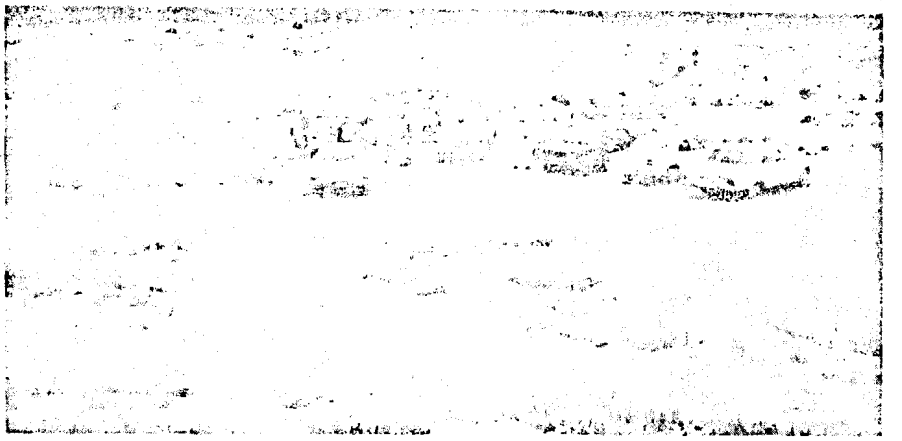
6. Signal and Telephone Cableways

   These cableways extend from the Base Camp and CP to Drill Sites UC-3 and 4. Signal and telephone cables have been abandoned in place (shallow burial). Junction boxes, cable splices, and assemblies on plywood panel backboards (3,000 foot spacing) and posts, stakes, markers, etc., are still in place. The telephone cable is the property of the telephone company.

   Clean up the areas as specified in paragraphs 3.3.1 and 3.3.4.

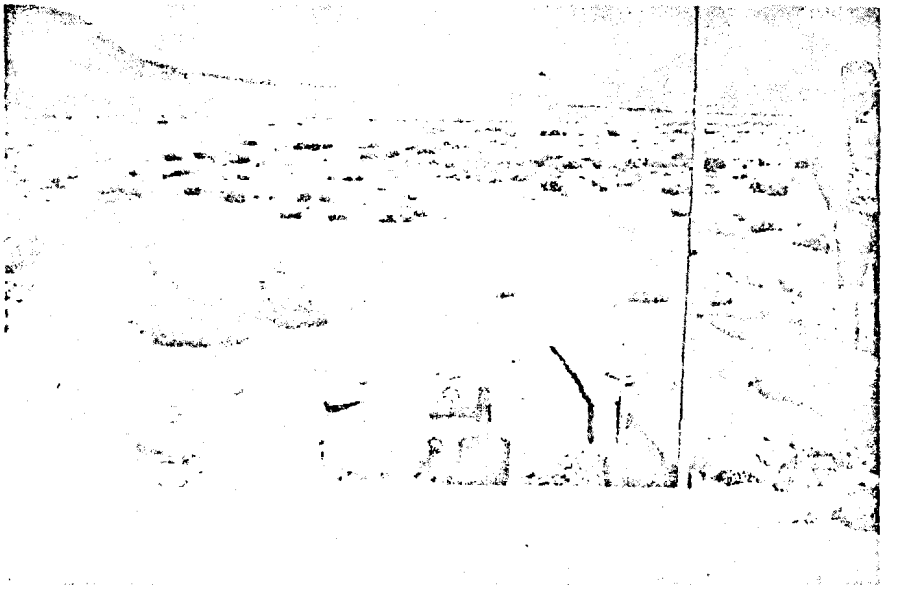
7. Recording Trailer Park (RTP) for UC-3

   This trailer park is a fenced area containing a number of trailers, a cable building, a generator building, guard "shacks" at the gates, a water tank, utilities, walkways, etc.



MAP LOCATION NO. (1)

BORROW AREA



MAP LOCATION NO. (4)

HTH-5, DRILL HOLE

Map
Loc.
No.

Demobilization and restoration shall be as specified in paragraphs 3.1.4, 3.1.8, 3.3.4, and 3.3.5. Remove all aboveground installations. No contouring will be required. Clean up the area as specified in paragraph 3.3.1.

7a. Scientific Cableway (from RTP to UC-3)

This is a barbed wire fenced area extending from the RTP to the UC-3 Ground Zero Area. An access road parallels the cableway.

Remove fencing and clean up the area.

7b. Trash Dump (west of the RTP)

This dump should be used for disposal of nonflammable scrap materials and nonsalvable items. If the capacity of present trenches is inadequate, the mud sumps, Map Location 8, may be used as dumps prior to being backfilled.

After the last trash and scrap materials have been dumped or pushed into the trench, backfill the trench. Clean up and perform a limited amount of contouring.

8. UC-3, Ground Zero Area

This area includes the emplacement hole, "Rat" and "Mouse" holes, five instrument holes, mud sumps, several buildings, a number of trailers, septic tanks, utilities, walkways, etc. The substation and most buildings and trailers are located in a fenced area.

All salvable drilling equipment shall be moved to the central pipe yard. Other demobilization and restoration shall be as described for Location 7 (RTP) above. The mud sumps may be used for trash dumps as described in 7b above.

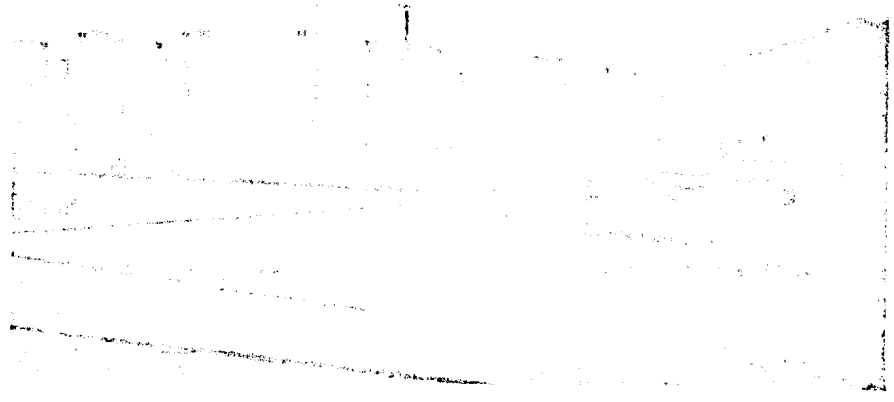
Methods for plugging, capping, or sealing the emplacement and other drill holes are described in Subsection 6.3, Drill Hole Data.

9. Borrow Area (Aggregate Site "C")

This area has already been contoured and is in a fairly clean condition. No restoration action required except for a minor cleanup.

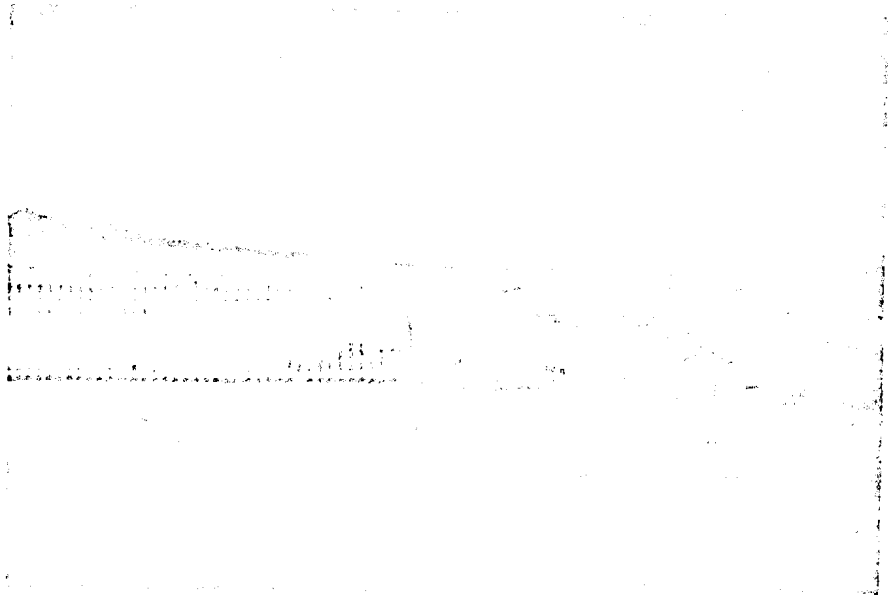
10. Central Pipe Yard

This area consists of a barbed wire fenced storage yard and a nearby salvage dump. The fenced yard contains large diameter (94- and 96-inch) casing pipe and a considerable amount of equipment and materials. The



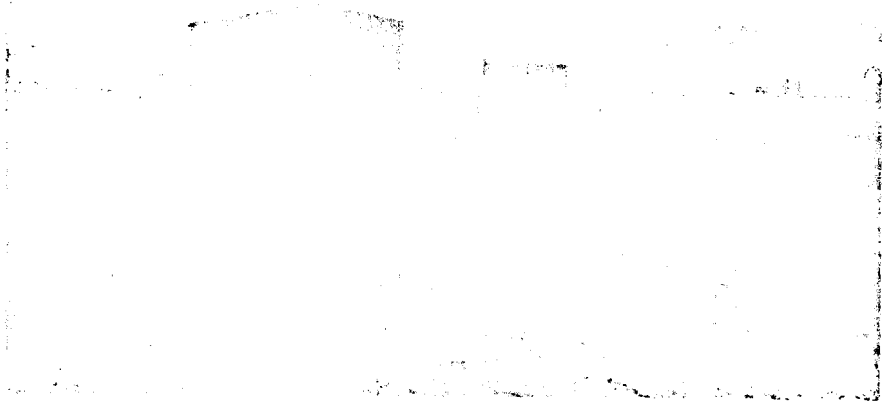
MAP LOCATION NO. 7

RECORDING TRAILER PARK (RTP) FOR UC-3



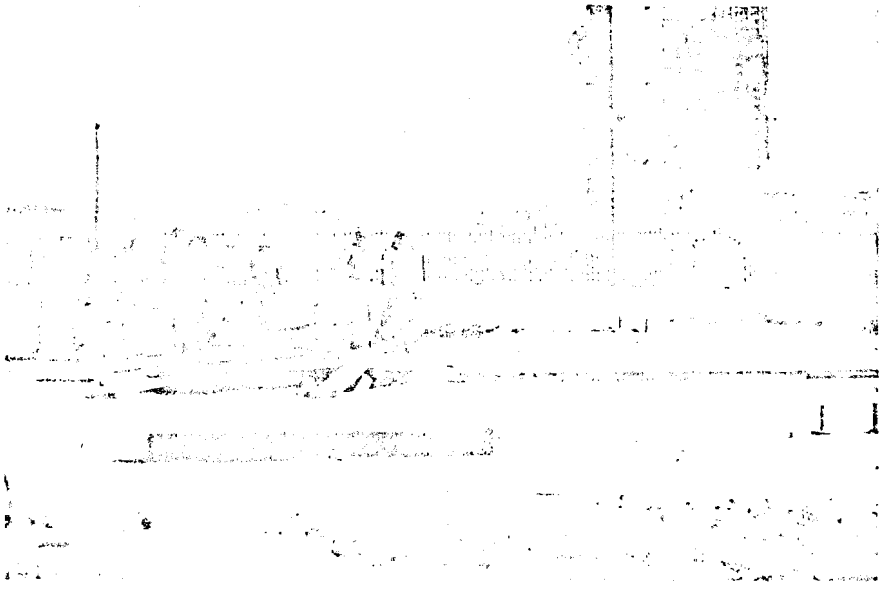
MAP LOCATION NO. 7a

SCIENTIFIC CABLEWAY (FROM RTP TO UC-3)



MAP LOCATION NO. 7b

TRESH DUMP (WEST OF RTP)



MAP LOCATION NO. 8

UC-3 GROUND ZERO AREA

Map
Loc.
No.

dump on a hill to the west contains a large amount of damaged equipment and materials, most of which probably are salvable as heavy metal scrap. Move all scrap inside the fenced enclosure.

This area will continue to be used for storage. No further action is required.

11. Project UC-1 FAULTLESS Site

Methods for plugging, capping, or sealing the emplacement and other drill holes are described in Subsection 6.3, Drill Hole Data. Rad-Safe coverage should be provided while this work is in progress. Erect a permanent concrete monument with suitably inscribed bronze tablets near SGZ. The monument shall be as described in subparagraph 3.5.7. The tablets shall identify the location and state the restrictions on subsurface excavation, mining, and drilling. All monitoring holes shall have an approved hinge and a padlocked cap.

Remove perimeter fencing and clean up the area as described in Standard Specifications paragraphs 3.3.1 and 3.3.5. The vegetation study plot shall remain fenced.

Any demobilization effort involving removal or disturbance of the ground in the SGZ areas shall have Rad-Safe coverage. No effort should be made to contour the subsidence scarp. It is anticipated that a minimum of contaminated material and equipment will result. However, any contaminated items shall be returned to NTS. (See paragraph 3.4.2.) A final Rad-Safe survey shall be made upon completion of the work.

Upon completion of the need for access into reentry holes for monitoring, the holes shall be plugged back in accordance with Subsection 6.3, Drill Hole Data.

12. Recording Trailer Park (RTP) for UC-1

All buildings and trailers have been removed. The area is fairly clean except for surface and underground cables extending from the RTP to UC-1.

Clean up area and remove the backboard and cables as specified in paragraphs 3.3.1 and 3.3.4. No contouring will be necessary but existing holes must be filled.

13. Central Mud Pit

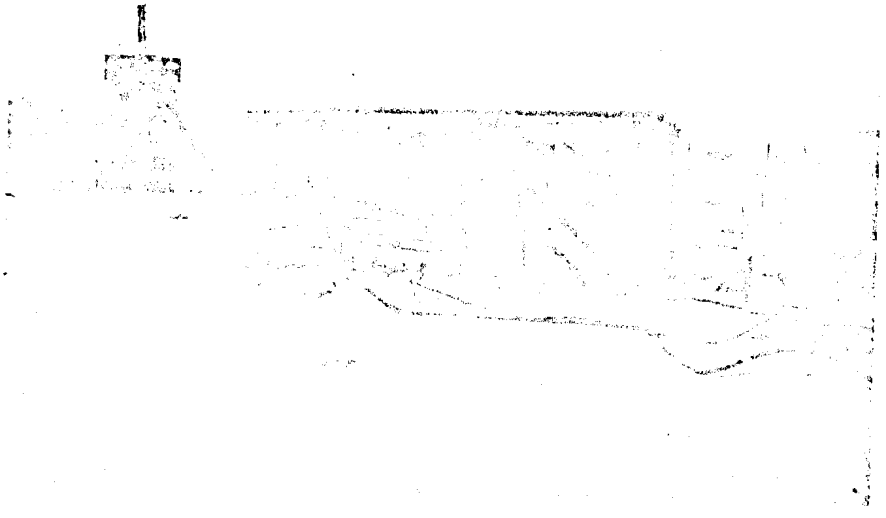
This fenced sump provided storage for approximately 200,000 barrels of drilling mud which has now dried to a semisolid state. The mud and water piping systems, including a pump house, tanks, and piping to Water Well 18 and to Drill Hole Sites UC-3 and UC-4, are still in place and operational.

MAP LOCATION NO. (10)

CENTRAL STORAGE YARD

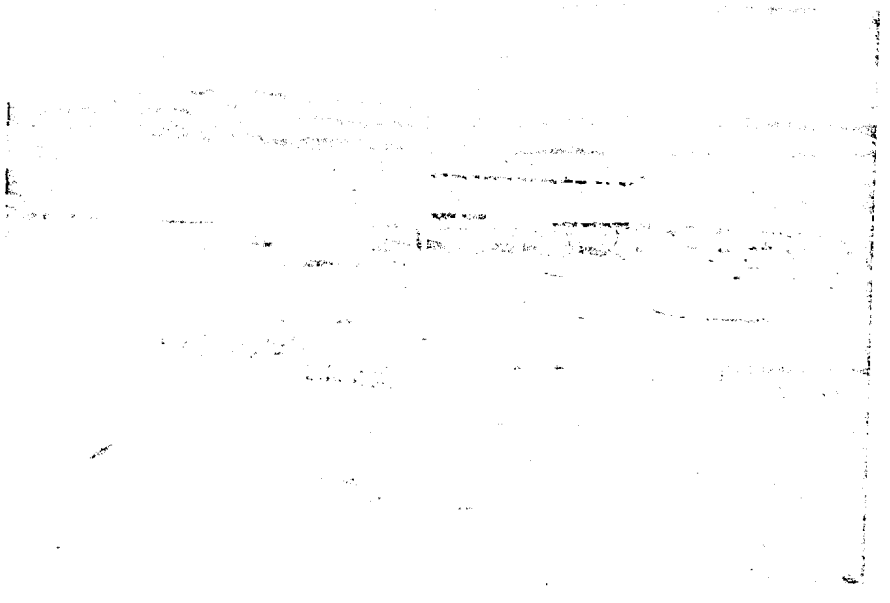
MAP LOCATION NO. (11)

PROJECT UC-1 FAULTLESS SITE



MAP LOCATION NO. (11)

PROJECT UC-1 FAULTLESS SITE



MAP LOCATION NO. (12)

RECORDING TRAILER PARK (RTP) FOR UC-1

Map
Loc.
No.

Retain fencing around the mud sump. Remove the fencing around the adjacent pit which contains a mud pump. Remove salvable drilling equipment to the central pipe yard. Remove mud and water piping systems, pump house, tanks, and utilities as specified in paragraphs 3.1.2, 3.1.4, 3.1.8, and 3.1.9; also Standard Specifications paragraphs 3.3.4 and 3.3.5. Clean up area as specified in paragraph 3.3.1. The pit which now contains a mud pump may be used for trash disposal as described for 7b above.

13a. Decontamination Facility Pit

This pit may be contaminated. A Rad-Safe survey will be made in FY 73. Any contaminated materials should be returned to the NTS. (See paragraph 3.4.2.)

After the Rad-Safe survey, fill in the pit, clean up, remove fencing, and contour the area as specified in paragraphs 3.3.1 and 3.3.2.

14. Borrow Area (approximately one-half mile north of the Central Pipe Yard, Item 10, above)

There are two borrow pits here but there has been only minor disturbance. No restorative action is required as the disturbance is considered to be self-restoring.

15. UC-4 Ground Zero Area

This is a barbed wire fenced area around the emplacement hole. No buildings were constructed, but five mud sumps were excavated and a large wooden bulkhead was constructed at the Shaker Pad location. Large diameter casing, casing jacks, and other equipment and materials are stored in a nearby storage yard. Only one exploratory hole was drilled. There are no instrument holes.

Burn the Shaker Plant Bulkhead and clean up the area as specified in paragraphs 3.3.1 and 3.3.6. Roads shall be as described in paragraph 3.1.1. All fencing, and all equipment and materials in the storage yard, shall remain in place.

16. Contractor's Camp Site

This area has been cleaned up and the ground has been loosened with a rooter. No further restorative action required, except that some old pieces of culvert pipe near this camp area should be hauled to a designated dump.

17. Moore's Station

Several old, abandoned ranch buildings are located on this private property. They were shored and braced after the FAULTLESS (UC-1) detonation.

MAP LOCATION NO. (13)

CENTRAL MUD PIT

MAP LOCATION NO. (15)

UC-4 GROUND ZERO AREA

MAP LOCATION NO. (16)

CONTRACTOR'S CAMP SITE

Map
Loc.
No.

No further restorative action is anticipated. Additional requirements may develop as a result of NV's negotiations with the owners when the contract is terminated.

18. UCE-18, Water Supply Well

This well served as a source of water for most CNTA drilling and road building operations. See subsection 6.3 for additional data concerning the demobilization of this hole.

19. Postshot Storage Yard

All major items that were previously stored in this area by various CNTA contractors and subcontractors have been removed.

Clean up the area as specified in paragraphs 3.3.1 and 3.3.5. No contouring is required.

20. HTH-3, Drill Hole (see Map Location 4, Drill Hole HTH-5, above)

21. Borrow Areas

These areas are located on each side of Noname Access Road near its intersection with U.S. Highway 6.

The pits are fairly clean. No restorative action is required other than minor cleanup.

22. Noname Hill and Access Road

The top of the hill has been graded to provide a parking area. A tower, 52 feet high, with five platforms, stands at one side of the leveled area. The lowest platform is 14 feet aboveground. The remainder are spaced approximately 9 feet apart. The winding, gravel, minimal access road is in good condition. A powerline, belonging to the Sierra Pacific Power Co., extends from Highway 6 to the top of the hill.

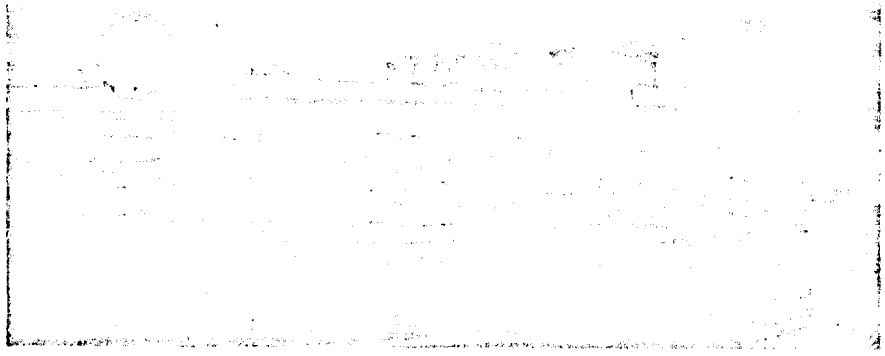
Leave the hilltop, access road, and gate "as-is." It is anticipated that the entire facility will be transferred to another government agency.

23. Base Camp, Control Point, and Balloon Launch Area

These complexes include several fenced areas enclosing buildings, trailers, substations, water, POL tanks, utilities, storage yards, etc. A large portion of these facilities are being demobilized by other agencies. The fire station, new warehouse, new motor pool, new maintenance building, radio shop, utilities for those structures and area fencing will remain. Demobilization and restoration for other facilities shall be as specified in paragraphs 3.1.1 through

MAP LOCATION NO. (18)

UCE-18, WATER SUPPLY WELL



MAP LOCATION NO. (19)

POSTSHOT STORAGE YARD

Map
Loc.
No.

3.1.4, 3.1.8, 3.1.9, 3.1.11, 3.3.4, and 3.3.5. Cleanup of these areas shall be as described in paragraph 3.3.1.

23a. Sewage Lagoons for Base Camp Area

There is one small, old lagoon, which was abandoned because of inadequate capacity, and four large, new lagoons, which now serve the area.

Remove fencing around the small lagoon only. Retain one large lagoon and the sewage lift station. Clean up area as described in paragraph 3.3.1. The lagoons to be demobilized may be used as dumps. If they are used as dumps, their berms shall be pushed in to cover all debris.

23b. Scrap and Trash Dump Areas (north of CP)

Use of dump areas for disposal of additional scrap materials and restoration of the areas shall be as described for Location 7b, above.

23c. Borrow Area (south of Base Camp)

Clean up the area and improve appearance as specified in paragraphs 3.1.5 and 3.3.1.

24. Airstrip

The paved airstrip is in good condition but will probably gradually deteriorate due to lack of maintenance. It should be left "as-is," with present "X" markings and fencing, so that it can be used for emergency landings, only.

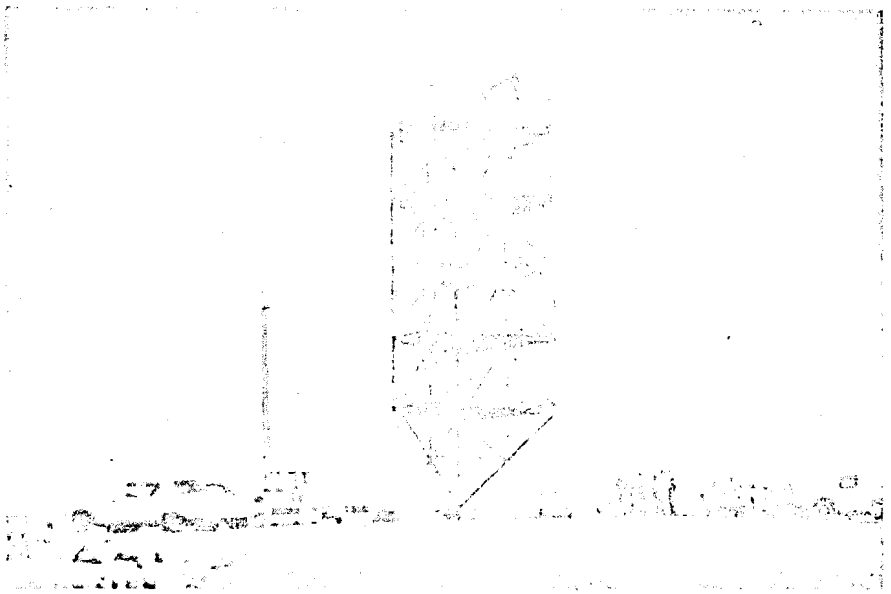
No restoration action is required except general cleanup as described in paragraph 3.3.1.

25. Repeater Site (near Warm Springs)

This and other "offsite" repeater stations will remain in service for NTS operations. No demobilization and restorative action is required.

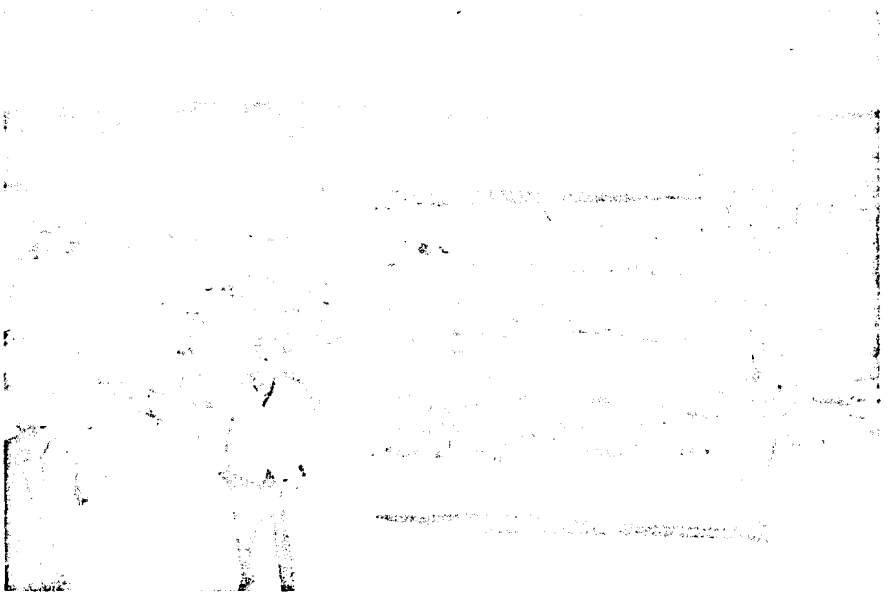
26. Tonopah Compound (at Tonopah Airport)

A warehouse, several huts, equipment, and materials are all enclosed in a chain link fenced area at the airport. The entire facility has been removed.



MAP LOCATION NO. 22

NONAME HILL AND ACCESS ROAD

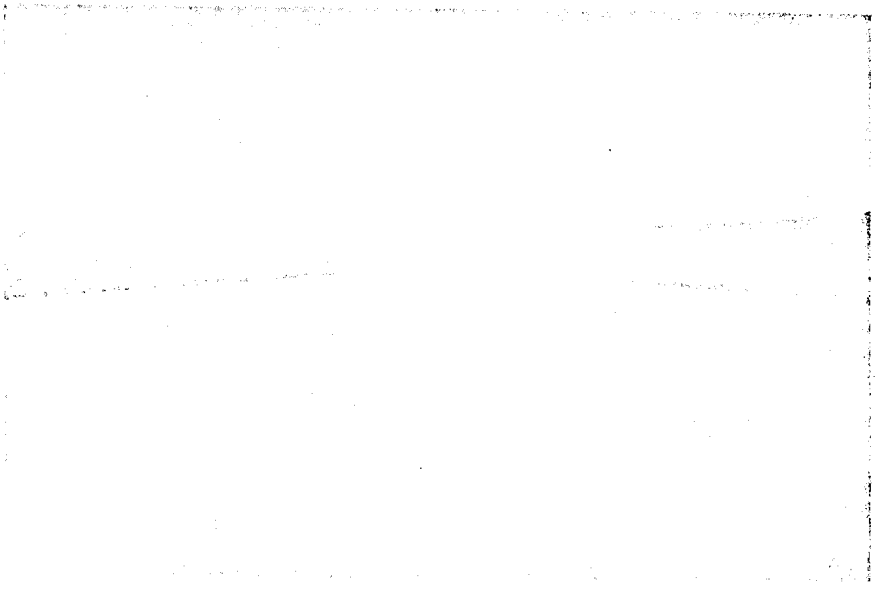


MAP LOCATION NO. 23a

SEWAGE LAGOONS FOR BASE CAMP AREA

MAP LOCATION NO. 23b

SCRAP AND TRASH DUMP AREAS
(NORTH OF CP)



MAP LOCATION NO. 24

AIRSTRIP

Map
Loc.
No.

27. Drilling Mud Pipelines

All surface pipelines shall be removed and disposed of as described in paragraphs 3.1.2 and 3.1.4. (Buried lines may be abandoned in place.)

28. Waterlines

Procedure shall be same as above for mud pipelines.

3.3 STANDARD SPECIFICATIONS (for demobilization and restoration of specific areas)

Brief descriptions in subsection 3.2 are further defined and clarified below.

3.3.1 Cleanup

a. Remove and return all salvable equipment and materials to designated storage or staging areas.

b. Burn all flammable trash and scrap materials at designated points or haul to a dump.

c. Remove or cut off all poles, stakes, protruding bolts, angles, pipe conduit, "tie-down" eyes, etc. If cut off, cuts should be made flush with or below surrounding surfaces. Methods for plugging, capping, and sealing emplacement and other drill hole casings will be described in Subsection 6.3, Drill Hole Data.

d. Cut off all buried cables and service pipelines. Cuts shall be made at or below surrounding surfaces.

e. Remove all remaining fencing where retention has not been indicated elsewhere in this plan (NVO-90). Remove all speed limit and other signs except traffic safety signs on roads to remain in use. Fence or sign posts difficult to remove may be cut off at the surface of the ground or surrounding pavement.

f. Haul all nonflammable scrap to a dump.

g. Designated concrete foundations, curbs, pads, and slabs on grade shall be left in place "as-is." Concrete foundation pillars, posts, etc., protruding appreciably above the surface shall be cut off or broken up and removed.

h. Areas shall be left reasonably clean with no trash, debris, or scrap materials remaining.

3.3.2 Study Plots

Located on the CNTA is a University of Nevada vegetation study plot which is marked with a sign. Several one-acre enclosures are located just south of UC-3. These enclosures are part of another study and are not to be disturbed. It is anticipated that studies will continue.

Cleanup and restoration work in the areas should not affect these studies.

3.3.3 Surface and Underground Cables, Overhead Lines, Poles, and Substations

a. All surface and overhead lines, substations, junction boxes, assemblies on backboards, posts, signs, stakes, markers, etc., shall be removed.

b. Salvable underground cables shall also be removed and disposed of as described for salvable equipment and materials in paragraphs 3.1.1 and 3.1.9 of this section. Nonsalvable underground cables with adequate ground cover may be abandoned in place.

c. Nonsalvable items may be burned in designated areas or hauled to appropriate dumps as specified in paragraph 3.3.1, above.

3.3.4 Buildings to be Removed

a. Salvable buildings (including trailer-type housing and messing complexes) which are to be retained by the AEC for future use at the NTS or elsewhere shall be dismantled. Trailer units and the framing members, panels, roofing, and siding of buildings shall be hauled to designated staging areas. Individual trailers to be retained by the NV shall also be hauled to the designated areas. Building and trailer sites shall be cleaned of trash, debris, or scrap materials.

b. Other salvable buildings, trailer-type complexes, and trailers which will not be retained by NV may be left "as-is" on their present sites for transfer to other government agencies. They may be disposed of as described in Section IV, Disposal of AEC Property at CNTA.

c. Nonsalvable buildings shall be wrecked. Metal frame members, roofing, siding, and other nonflammable materials shall be hauled to a dump as specified under paragraph 3.3.1, above. Flammable materials may be burned at the site.

3.3.5 Mud Pits and Sumps

Wood bulkheads, baffles, piping, etc., which will not be covered by backfill shall be removed as specified in 3.3.1, above.

3.3.6 Project Monument

A permanent concrete monument with appropriate bronze tablets shall be erected near the emplacement hole at SGZ of Project FAULTLESS, Site UC-1. The tablets shall identify the location and state the restrictions on subsurface excavation, mining, and drilling. Wording must be approved by the BLM and the AEC.

3.3.7 Slabs Over Drill Holes

Where required, slabs over drill holes shall be installed in accordance with subsection 6.3.

3.3.8 Self-Restoring and Irreparable Damage

Several areas of disturbance are best left alone. Either repair of the damage is not economically justifiable or the repairs are better left to natural processes. Mud leaks and spills, sewage leaks, and off-road traffic damage are examples of these types of disturbance.

3.4 DISPOSAL PLANS

3.4.1 Trash and Scrap Materials

Scrap metals should be included in lists of declared "surplus materials" and should be sold to "junk" dealers in the manner described in Section IV. Scrap metal which cannot be disposed of in this manner shall be hauled to a designated dump area. After dumping is completed, trenches shall be backfilled and the areas shall be cleaned up as described for the "Trash Dump" in subsection 3.2, Map Location 7b.

Flammable scrap and trash should be burned at designated locations or at the dump.

3.4.2 Contaminated Materials and Wastes

Contaminated areas will be cleaned up according to standards prescribed by NV and material reading above such standards will be disposed of at NTS.

3.4.3 Drilling Mud Waste Materials

Little or no drilling mud remains in any of the pits or sumps, except in the large Central Mud Pit near Site UC-1. This pit is described in subsection 3.2, Map Location 13,

of this section. The mud has already lost most of its fluids and will be completely dehydrated in time, so that only solids will remain. The fence shall be removed.

All surface pipelines and facilities shall be removed as described in paragraphs 3.1.2 and 3.1.4. Buried lines may be abandoned in place if well covered.

3.5 DEMOBILIZATION PLAN

3.5.1 Real Property

a. The AEC controls approximately 2,560 acres at the CNTA in three separate land withdrawals, as shown in Section 2, Map 2.2.1 of "Drill Holes and Vicinity." The three tracts include the following sites:

1.	Drill Hole Site UC-1 (Project FAULTLESS)	640 acres
2.	Drill Hole Site UC-3	960 acres
3.	Drill Hole Site UC-4	960 acres
	TOTAL	2,560 acres

The above tracts, obtained by Public Land Orders (PLO), are more fully described in Background Document 6.1.1.

This land was unimproved at the inception of the CNTA Program.

b. AEC control of other areas in the CNTA (Base Camp, CP, airstrip, etc.) is by virtue of easements and special land-use permits with the Bureau of Land Management (BLM) and by contracts wih private owners. The status of the land withdrawals, easements, permits, and contracts is shown in the table, "Status of CNTA Land Rights," in Background Document 6.1.2.

c. The AEC also has renewable agreements covering the use of Nye County land at the Tonopah Airport. This land was used in connection with operations at the CNTA.

3.5.2 Camp Demobilization

(This paragraph will be inserted later.)

3.5.3 Control Point (CP) Demobilization

It is anticipated that all structures in the CP will be removed by other agencies. The substation serving the sewage lift station will remain and shall be fenced.

IV. DISPOSAL OF AEC PROPERTY AT CNTA

4.1 GENERAL

With the conclusion of activities at CNTA, NV will demobilize all facilities, equipment, and material for disposal or removal from the area, except certain facilities and equipment which will not be removed until completion of the Long-Range Effects Monitoring Program and those facilities to be transferred in place to other agencies.

Disposal activity will be conducted in support of the CNTA Demobilization and Restoration Plan. For purposes of this plan, the following definitions pertain:

4.1.1 Demobilization

The dismantling of structures and facilities and removal to a staging or shipping area. Movement of equipment and material to a staging or shipping area in preparation for shipment.

4.1.2 Disposal

The effort required to load, ship, unload, or otherwise transfer the facilities and equipment from AEC property assets to another agency or private organization, through excessing or sale procedures. Disposal effort includes the determination of those things required to be permanently left at CNTA, those things required at CNTA to implement the demobilization plan, selective screening of assets for possible use by other offices, transfers to other Government agencies, assignment to GSA, and the documentation necessary to support and record all transactions.

The Demobilization and Restoration Plan is predicated on the AEC commitment to the BLM to restore the CNTA as far as practicable, to the condition extant prior to AEC occupancy. This requires the removal of much equipment and material of no further use to the AEC, but which may be of use and value to other agencies. In view of the general condition and age of the equipment and the costs of shipping, disposal of the excess CNTA assets would be in the best interest of the Government. The excess assets will be made available, first, to agencies requesting property in support of federally approved programs or projects and, thus, the transfer of the excess would result in a direct saving to federal programs.

The General Services Administration (GSA) has concurred in the direct transfer of excess assets from the AEC to other Government agencies. GSA is aware that the AEC may request assistance

in the disposal of equipment and material which must be removed from CNTA, but which has not been requested by other agencies. The GSA should be furnished copies of all transfer documents concerning excess and disposal of CNTA assets.

4.2 SCHEDULING

The schedule and activities of any agency providing its own work force for removal of facilities or equipment will be subject to approval of the AEC Site Manager. Agencies should be advised of the equipment made available for transfer, and the availability date.

4.3 RECEIVING AGENCIES

Receiving agencies must bear the cost of transporting facilities and equipment from CNTA to destination.

4.4 EXCESS TRANSFER PROCEDURE

The AEC general support contractor will prepare Standard Form 120 (SF-120), "Report of Excess Personal Property" for both reportable and nonreportable personal property located at the CNTA.

For reportable personal property that is to be circularized, the SF-120 must be completely filled in. The acquisition cost, quantity, description, and condition code shall be entered on the form as appropriate for all items being offered. Nonreportable personal property items should not be listed on SF-120s containing reportable personal property items. Distribution for SF-120s being circularized shall be in accordance with established procedures.

For reportable personal property that is not to be circularized, the SF-120 will be used and shall include acquisition costs, quantity, and description of the items approved for transfer. Condition code need not be shown on the SF-120 as the requesting organization has this information.

Nonreportable personal property being transferred shall be reported to NV and the GSA Regional Office, San Francisco, California, using the SF-120. The acquisition cost, quantity, and description of the items approved for transfer will be entered as appropriate on the form. Condition code need not be shown on the SF-120 as the requesting organization has this information.

Sufficient copies of all SF-120s shall be prepared to meet Holmes & Narver, Inc.'s requirements plus two copies for transmittal to the GSA Regional Office, San Francisco, California, and one copy for transmittal to NV.

For record and audit purposes, military and civilian Government agencies must submit a Form DD-1149, "Requisition and Invoice Shipping Document," or an SF-122, "Transfer Order for Excess Personal Property,"

or other similar document evidencing a request for transfer of the personal property. Civilian Government agencies must submit Forms SF-122 or DD-1149 to the GSA Regional Office, San Francisco, California, for approval, prior to forwarding to NV.

State and local governments requesting personal property must submit an SF-123, "Application for Donation of Surplus Personal Property," which shall be approved by GSA and DHEW.

V. SCHEDULE

5.1 BASIC SCHEDULING ASSUMPTIONS

No nuclear tests are currently identified for the CNTA.

Except for a radiological survey of the FAULTLESS Site, CNTA will remain in caretaker status during FY 1973.

Facilities will be released to other offices and agencies during FY 1973 providing they furnish funds for removal and transportation.

Demobilization of structures, equipment, and supplies by AEC/NV will begin in FY 1974.

5.2 CONTINUING PROGRAMS

Effects evaluation activities, including monitoring of the FAULTLESS Site (UC-1), will continue.

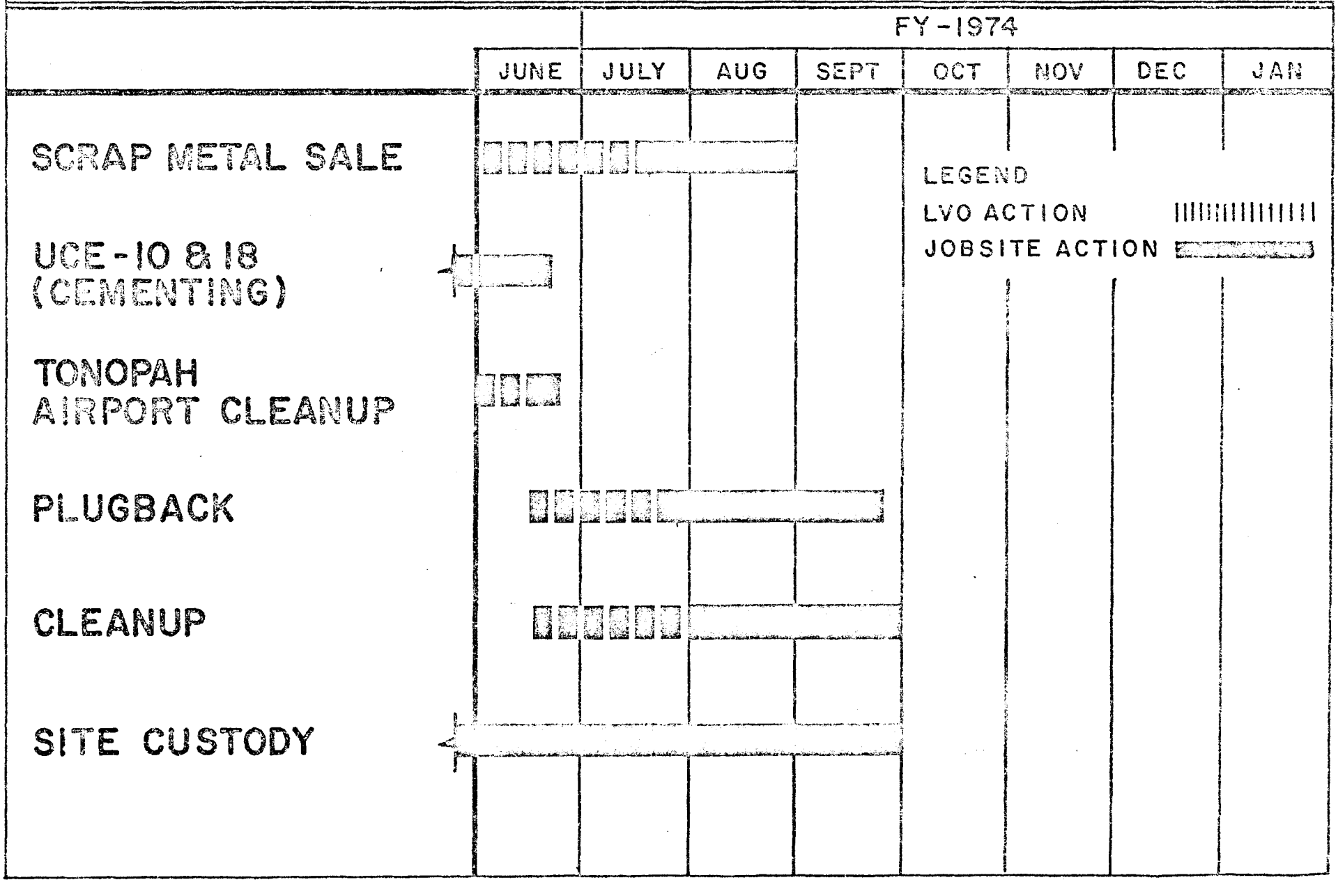
The University of Nevada, Reno, will continue ecological studies through FY 1973. Demobilization and site restoration activities will not affect these studies.

NV will continue to utilize the UC-1, UC-3, and UC-4 land withdrawals; the Base Camp, CP, airstrip near Base Camp, Warm Springs repeater site, and Noname Hill site--land easements; and the Base Camp sewer lagoon, HTH-1 test hole, and pipe and storage yard--special land use permits.

5.3 SCHEDULE

A schedule of activities, based on the above assumptions, follows this page. Tentative starting and completion dates for principal activities are shown.

CNTA
DEMOBILIZATION SCHEDULE



VI. BACKGROUND DOCUMENTS

6.1 LAND RIGHTS (See subsection 3.5.1 "Real Property")

6.1.1 Land Withdrawls

The AEC controls three tracts, approximately 2560 acres, by Public Land Orders (PLO). These tracts, withdrawn for use as Drill Hole Sites UC-1, 3, and 4, are described as follows:

(1) UC-1 (FAULTLESS)

This is a 5280-foot square tract, the southeast corner of which is N36°8'9"W, 15,911.64 feet from the southeast corner of Township 9 north, Range 51 east, approximately 640 acres.

(2) UC-3

Beginning at a point S67°34'33"W, 11,046.97 feet from the southeast corner of Township 9 north, Range 51 east,

Thence west 5280 feet,
Thence north 7920 feet,
Thence east 5280 feet,
Thence south 7920 feet, to the point of beginning, containing approximately 960 acres.

(3) UC-4

Township 9 north, Range 51 east,
Section 2, northwest quarter, Section 3, north half.

Township 10 north, Range 51 east,
Section 34, south half, Section 35, southwest quarter, containing approximately 960 acres.

6.1.2 Status of CNTA Land Rights

The status of other AEC land rights at the CNTA is shown on the following lists.

Contract AT(26-1)-357 provides that the government repair or purchase privately owned improvements damaged as a result of government operations. The total appraised value of these improvements is $18,656. Further, in connection with this test area, the AEC has a renewable agreement covering use of Nye County-owned land at the Tonopah airport.

6.1.2 Status of Central Nevada Test Area Land Rights With Bureau of Land Management

	Number	Identification	Date Originally Acquired	Purpose	Expiration
a.	Land Withdrawals	Public Land Orders (PLO)			
	PLO 4338	Project FAULTLESS Withdrawal	12/06/68	640 acre detonation site	Indefinite
	PLO 4748	UC-3 and UC-4 Withdrawal	12/02/69	960 acres of 1 1/2 sections at each detonation site	Indefinite
b.	Easements	Under 44LD513 Authority			
	N 1819A	Water Lines from UCE-18	06/19/67	10 miles of water supply lines for drilling	Indefinite
	N 1819B	AEC Base Camp & CP Area	06/19/67	160 acres for camp buildings & CP	Indefinite
	N 1819C	Cable Way	06/19/67	22 miles of cable from camp to UC-1	Indefinite
	N 1819D	Warm Springs Repeater	06/19/67	Net 12 Communication link	Indefinite
	N 3505	No Name Hill Road & Repeater	04/10/69	Communication net for testing	Indefinite
	N 2578	Airstrip near Base Camp	10/07/68	Airplane landing field	Indefinite
	N 2473	Contractors Camp	06/20/68	Used by McKenzie for field camp	Indefinite
	N 4064	Decontamination Facility	10/28/69	Washing down equipment	Indefinite

6.1.2 (Continued)

Number	Identification	Date Originally Acquired	Purpose	Expiration
c. Special Land Use Permits (SLUP)				
N 1330	Base Camp Construction Area	06/19/67	1440 acres for sewage lagoons, etc.	06/30/75
N 1568	5 Weather Stations	08/28/67	ARL 60 ft. triangular weather sites	06/30/75
N 2204	UCE-21 & 23 & HTH Holes	04/01/68	USGS Exploratory testing	06/30/75
N 2568	HTH-3 Test Hole	07/15/68	USGS Hydro Thermal testing	06/30/75
N 4045	Red Shack, Micro Towers, & 26 USGS Seismic Stations	08/15/69	UC-3 ground motion information	06/30/75
N 6-71-4	HTH-1 Test Hole	09/02/70	USGS testing	06/30/75
N 4029	UCE-10, 11, & 14	08/15/69	Renewal permit for USGS test holes	06/30/75
N 866	UCE-18 Test Hole	02/06/67	Water supply for drilling use	06/30/75
N 2744	HTH-5 Test Holes	10/07/68	USGS Hydro Thermal testings	06/30/75
N 3682	AEC Storage Yard	04/01/69	AEC Pipe & Miscellaneous Storage Yard	06/30/75

6.1.2 (Continued)

Number	Identification	Date Originally Acquired	Purpose	Expiration
d. Contract with Private Owners in CNTA				
AT(26-1)-357	K Ranch, Inc.	12/28/67	Repair or purchase of buildings	03/31/73
e. Contract with Nye County in Tonopah, NV				
AT(26-1)-552	Nye County	07/01/71	Land area 300 x 300 ft. w/storage bldg., of 4,060 sq. ft. area, and including utilities and fencing.	06/30/73

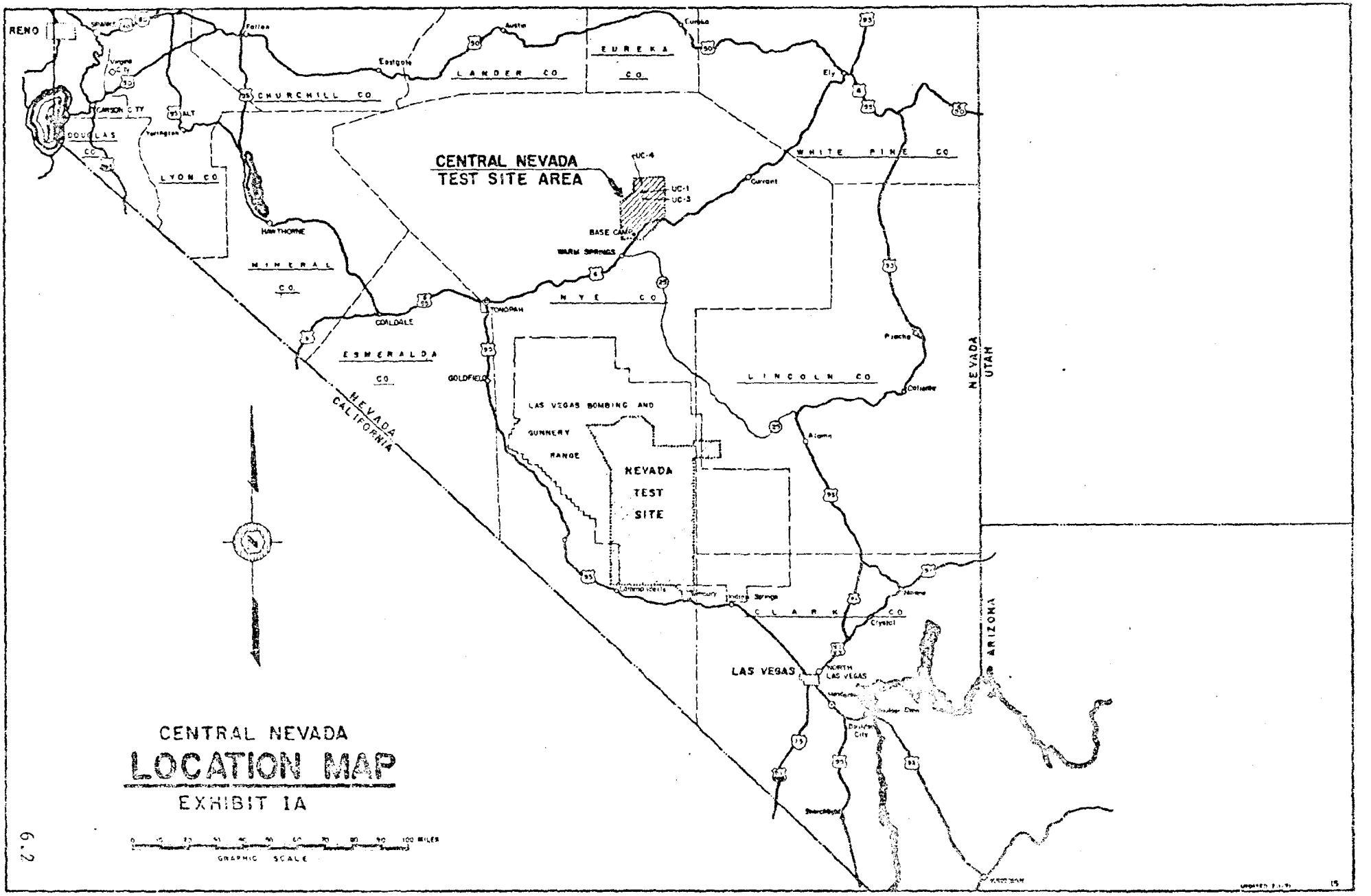
NOTE: The outlying communication and seismic station sites at Hawthorne, Battle Mountain, Ely, Mina, Elko, and elsewhere were not listed in the above tabulation since these facilities are used for both NTS, CNTA, and other purposes.

STS CONSTRUCTION PROJECTS

U.S. ATOMIC ENERGY COMMISSION-NEVADA OPERATIONS OFFICE
HOLMES & NARVER INC. - ON CONTINENT TEST DIVISION

CENTRAL NEVADA

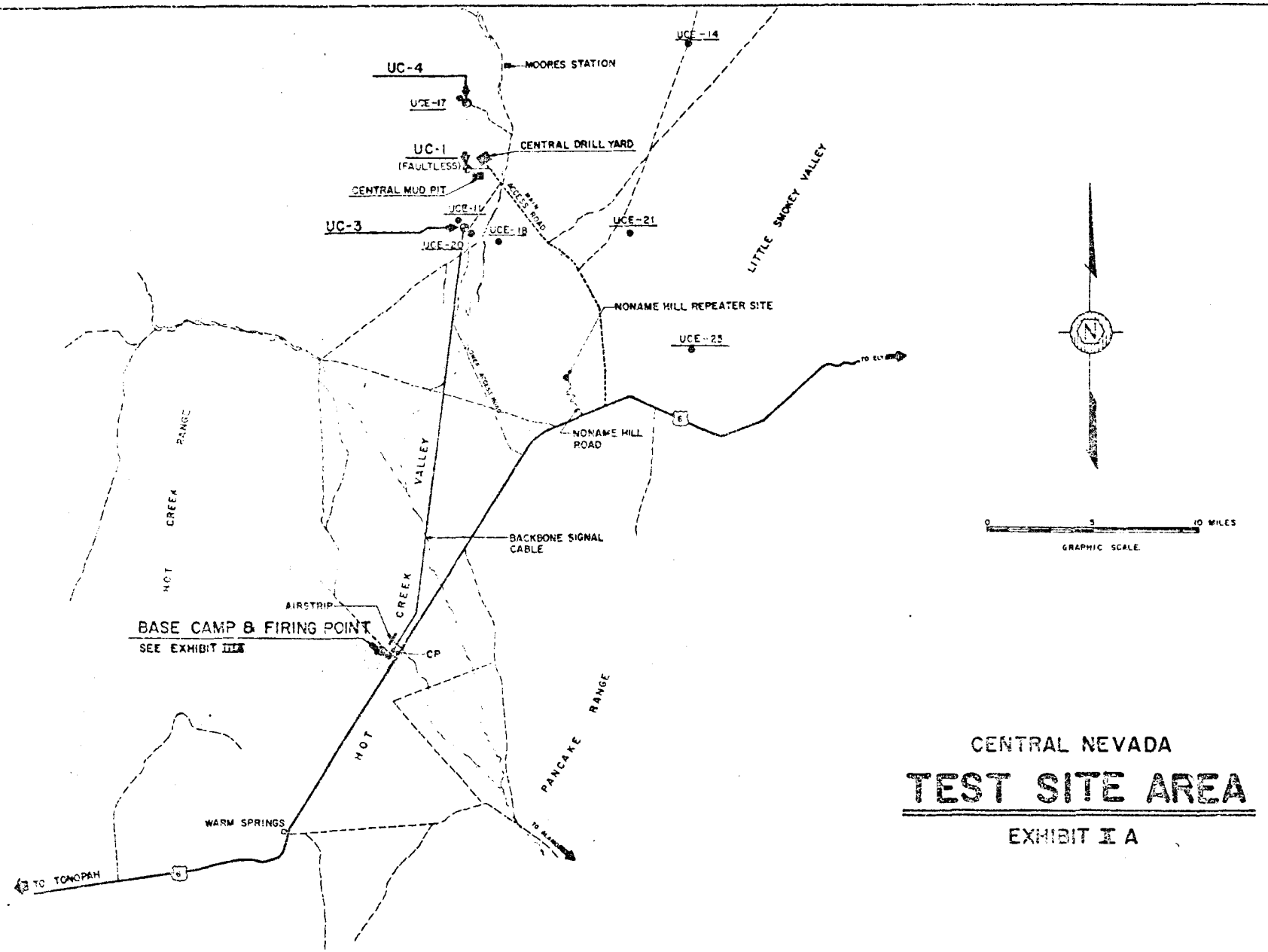
LOCATION MAP	I A
TEST SITE AREA	II A
C.P. & BASE CAMP	III A
TECHNICAL FACILITIES UC-3	IV A
DRILL SITES	V A



CENTRAL NEVADA

LOCATION MAP

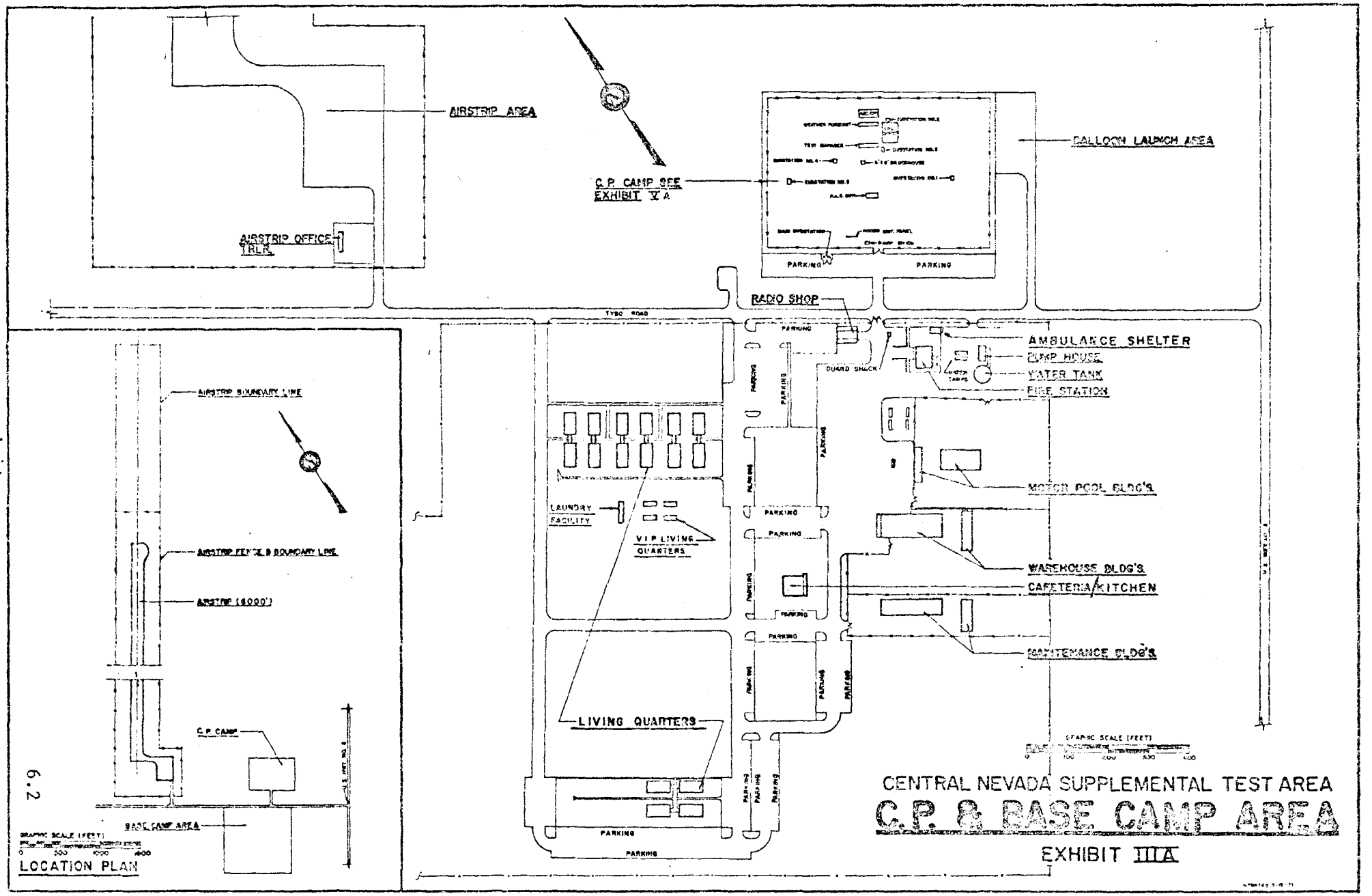
EXHIBIT IA



CENTRAL NEVADA

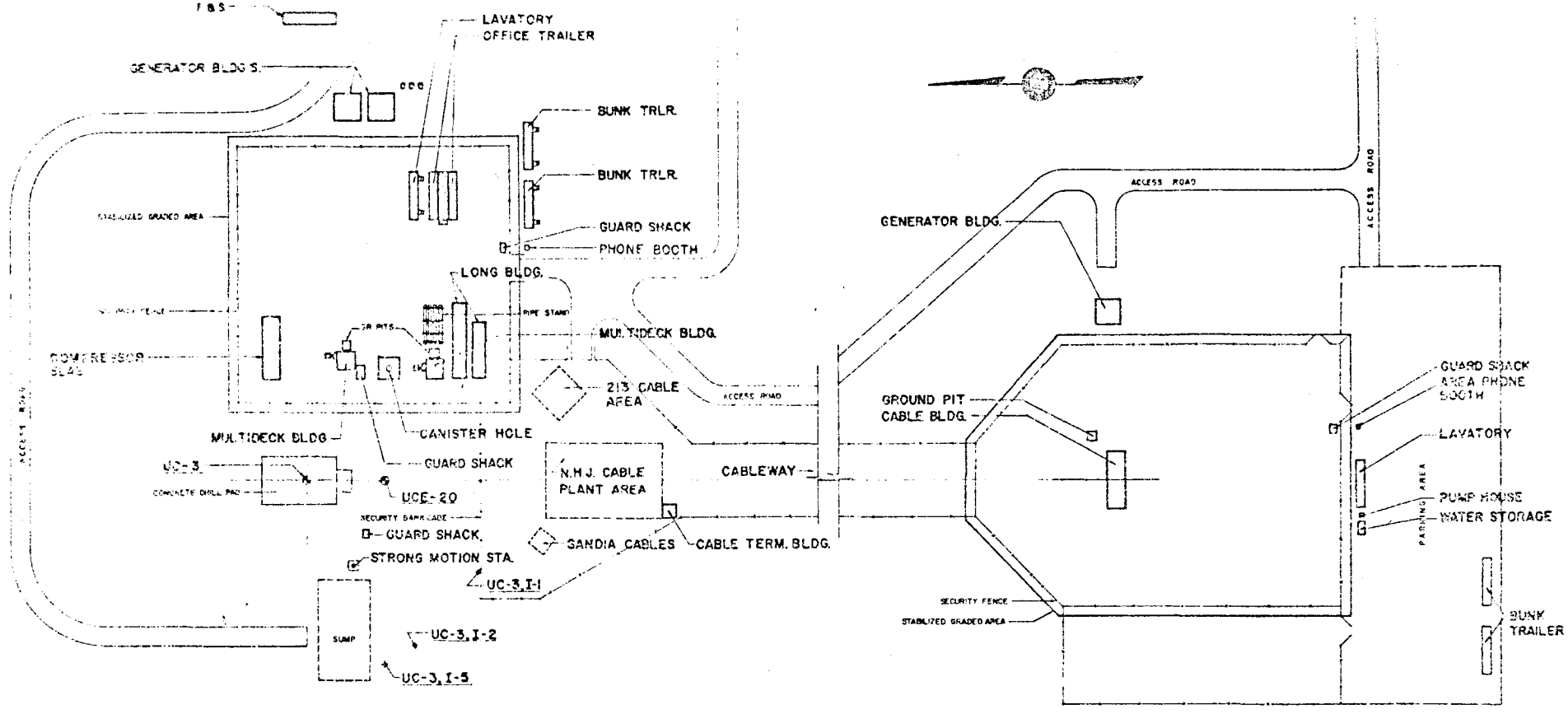
TEST SITE AREA

EXHIBIT I A


AIRSTRIP AREA
AIRSTRIP OFFICE
TRLR.
C.P. CAMP SEE
EXHIBIT V A
BALLOON LAUNCH AREA
PARKING
PARKING
RADIO SHOP
TYBO ROAD
PARKING
GUARD SHACK
AMBULANCE SHELTER
PUMP HOUSE
WATER TANK
FIRE STATION
MOTOR POOL BLDG'S.
WAREHOUSE BLDG'S.
CAFETERIA/KITCHEN
MAINTENANCE BLDG'S.
LAUNDRY FACILITY
V I P LIVING QUARTERS
LIVING QUARTERS
PARKING
PARKING
PARKING
PARKING
PARKING
PARKING
PARKING
PARKING
PARKING
PARKING
PARKING
PARKING
GRAPHIC SCALE (FEET)
0 100 200 300 400
AIRSTRIP BOUNDARY LINE
AIRSTRIP FENCE & BOUNDARY LINE
AIRSTRIP (6000')
C.P. CAMP
BASE CAMP AREA
U.S. HWY. NO. 6
GRAPHIC SCALE (FEET)
0 500 1000 1500
LOCATION PLAN
CENTRAL NEVADA SUPPLEMENTAL TEST AREA
C.P. & BASE CAMP AREA
EXHIBIT IIIA

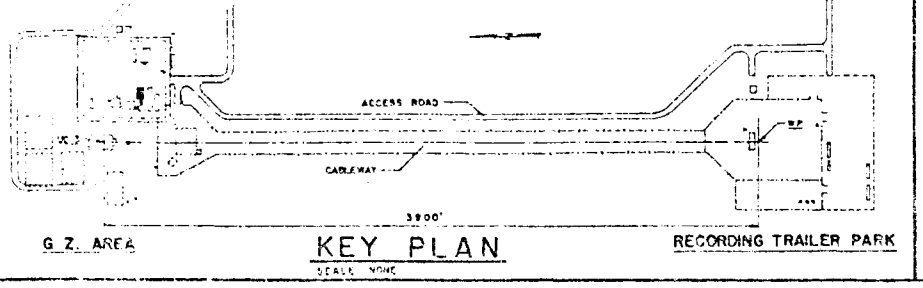
6.2

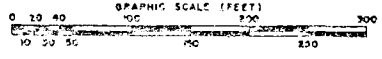
1-41



G. Z. AREA

RECORDING TRAILER PARK





CENTRAL NEVADA SUPPLEMENTAL TEST AREA

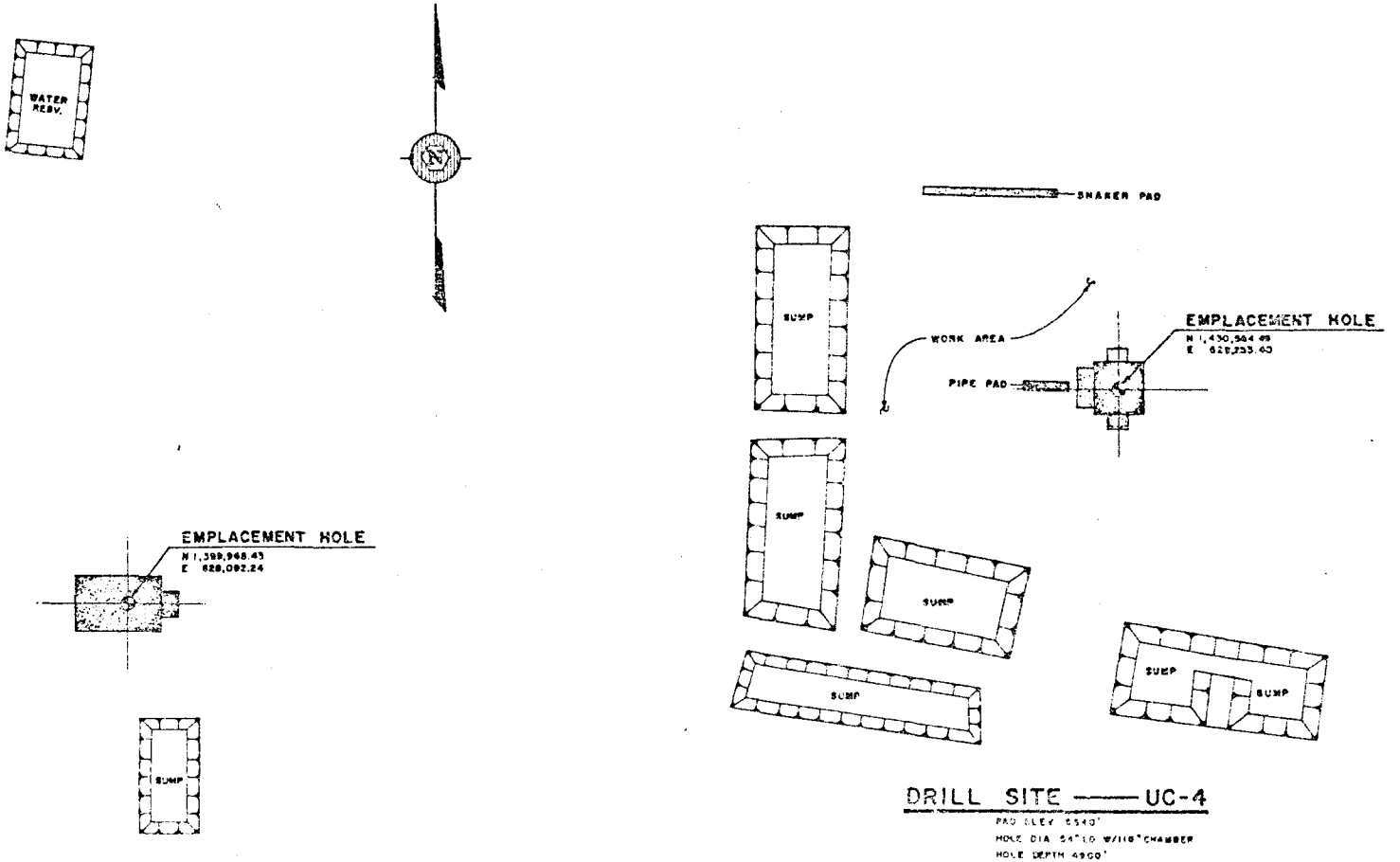
TECHNICAL FACILITY

UC-3

EXHIBIT IV A

1-42

6.2



DRILL SITE —— UC-4

PAD ELEV 6540'
HOLE DIA 54" I.D. W/116" CHAMBER
HOLE DEPTH 4900'

DRILL SITE —— UC-3

PAD ELEV 6759'
HOLE DIA 54" I.D. W/116" OD CHAMBER
HOLE DEPTH 4750'

CENTRAL NEVADA SUPPLEMENTAL TEST AREA

DRILL SITES

EXHIBIT V A

UPDATED 8-19-71

6.3 DRILL HOLE DATA

6.3.1 Exploratory Holes Drilled at CNTA

UCE-1 Coordinates: N - 1,395,000.00
D - 429,400.00

17 1/2" hole. 9 5/8" csg. cemented at 406' w/450 ft.^{3}
7 7/8" hole to 478'.
6 1/8" hole to 2000'. 2 3/8" O.D. tubing cemented at 2000' w/633 ft.^{3} Calculated annular volume 491 ft.^{3} Water in tubing.

ABANDONMENT PROGRAM

1. Excavate around the hole and cut off 9 5/8" casing, 2 3/8" tubing, and annular cement at 1 ft. below ground level.

2. Set a bridging plug in the 2 3/8" tubing 10 ft. below top of tubing and fill with a cement/water slurry.

3. Weld a 4" dia. x 4 ft. lg. marker post to the 9 5/8" dia. casing. Weld marker plate to post. Backfill hole with native soil and clean up the area.

Note: A mining claim (4" x 4" post with notice) has been installed adjacent to the 9 5/8" casing. If it is necessary to disturb the claim to accomplish the above work, reinstall post and notice at the same location.

UCE-2 Coordinates: N - 1,293,700.00
E - 523,800.00

15" hole. 13 3/8" csg. cemented at 15' w/12 ft.^{3}
12 1/4" hole to 18'.
6 1/8" hole to 1659'. 2 3/8" O.D. tubing cemented at 1605' w/1015 ft.^{3} Calculated annular volume 337 ft.^{3} Swab was run to 1300' to check for obstruction, some water could have been swabbed.

This hole has been assigned to the U.S. Bureau of Land Management, therefore, an abandonment program is not required.

UCE-3 Coordinates: N - 1,535,900.00
E - 508,900.00

15" hole. 13 3/8" casing cemented at 15' w/5 ft.^{3}
8 3/4" hole to 23'.
7 7/8" hole to 36'.
6 1/8" hole to 2000'. 2 3/8" O.D. tubing cemented at 1967' w/650 ft.^{3} Calculated annular volume 484 ft.^{3} Tubing full of water.

ABANDONMENT PROGRAM

1. Excavate around hole and cut off 13 3/8" casing, 2 3/8" tubing, and all annular cement at 1 ft. below ground level.

2. Install a bridging plug in 2 3/8" tubing 10 ft. below top of tubing and fill with a water/cement slurry.

3. Weld a 4" dia. x 4' lg. marker post to the 13 3/8" casing. Weld a marker plate to the post. Backfill hole with native soil and clean up the area.

UCE-9 Coordinates: N - 1,477,975.69
E - 562,341.41

7 7/8" hole to 3009'.
6 1/4" hole to 3295'. 4 1/2" slotted line pipe hung at 3019'.
Slotted from 110' - 1530'
1634' - 2996'.
Fluid level at 125', could not lower by bailing.

ABANDONMENT PROGRAM

1. Remove bull plug from 4 1/2" casing and chip away surface cement until a hole large enough to drop 4 1/2" casing is obtained. (Four sacks of cement were used to seal this hole at the top.)

2. Release 4 1/2" casing from clamps and allow casing to drop.

3. Set a bridging plug in 7 7/8" hole 10 ft. below ground level. If the 4 1/2" casing did not drop in step 2 above or cannot be driven at least 10 ft. below ground level, set bridging plugs 10 ft. below ground level both inside 4 1/2" casing and in annulus outside the casing. Cut off 4 1/2" casing 1 ft. below ground level if it protrudes higher.

UCE-9 (continued)

4. Fill hole with concrete to ground level and install marker post before concrete sets. Weld marker plate to post.

5. Clean up the area.

UCE-10 Coordinates: N - 1,433,560.43
E - 558,294.63

12 1/4" hole. 9 5/8" casing cemented at 30' w/19 ft.^{3}
7 7/8" hole to 2695'.
6 1/4" hole to 2963'. 4 1/2" slotted casing hung at 2710'.
Casing slotted at 55' - 288'
798' - 1902'
2467' - 2691'.

Found water level at 250', could not lower by bailing.

ABANDONMENT PROGRAM

1. Cut off annular cement, 9 5/8" casing and 4 1/2" casing 1 ft. below ground level.

2. Weld 4" dia. x 4' lg. marker post to 4 1/2" casing. Weld marker plate to post and backfill hole with native soil.

3. Clean up the area.

UCE-11 Coordinates: N - 1,401,350.93
E - 626,475.43

12 1/4" hole to 31'. 7 5/8" casing cemented at 33' w/35 ft.^{3} (Casing stripped over 4 1/2" casing and cemented.)
7 7/8" hole to 4052'. 4 1/2" slotted casing hung at 4047', slotted from 3008' to 4047'. Static water level 663 1/2'.
6 1/4" hole to 4198'.
6 1/8" hole to 4206'.

ABANDONMENT PROGRAM

1. Remove bull plug with handle from 4 1/2" casing. Release casing clamps and let casing drop.

UCE-11 (continued)

2. Excavate around hole and cut off annular cement and 7 5/8" casing 1 ft. below ground level. Set bridging plug in 7 5/8" casing 10 ft. below top of casing.

3. If the 4 1/2" casing will not drop in step 1 and cannot be driven down 10 ft. below surface of 7 5/8" casing, cut off the 4 1/2" casing 1 ft. below ground level. Then set bridging plugs 10 ft. below top of 7 5/8" casing both inside 4 1/2" casing and in the 4 1/2"--7 5/8" annulus.

4. Fill the 7 5/8" casing and 4 1/2" casing if required, with concrete.

5. Weld a 4" dia. x 4' lg. marker post to the 7 5/8" casing. Back fill the 1 ft. hole with native soil.

6. Clean up the area.

UCE-12A Coordinates: N - 1,514,975.55
E - 594,617.42

15" hole. 10 3/4" casing cemented at 100' w/104 ft.^{3}
9 7/8" hole. 7 5/8" casing cemented at 1580' w/615 ft.^{3} Calculated annular volume 429 ft.^{3}
6 3/4" hole to 3482'. Water left in hole. Hole bridged at 2318'.

ABANDONMENT PROGRAM

1. Excavate around hole and cut off the annular cement, 10 3/4" casing and 7 5/8" casing 1 ft. below ground level.

2. Place a bridging plug 10 ft. below top of casing in the 7 5/8" casing and fill with concrete.

3. Weld a 4" dia. x 4' lg. marker post to the 7 5/8" casing. Weld marker plate to post and backfill surface hole with native soil.

4. Clean up the area.

UCE-13 Coordinates: N - 1,655,605.36
E - 597,793.93

12 1/4" hole to 120'.
7 7/8" hole to 1579'. No casing - mud in hole.

UCE-13 (continued)

ABANDONMENT PROGRAM

1. Set a bridging plug 10 ft. below ground level in the 12 1/4" hole.

2. Fill hole with concrete and set a 4" dia. x 4' lg. marker post 1 ft. into the concrete before it sets.

3. Weld a marker plate to the post.

4. Clean up the area.

UCE-14 Coordinates: N - 1,444,693.12
E - 682,524.23

9 5/8" hole to 30'.
7 7/8" hole to 1450'.
6 1/4" hole to 1548'. 4 1/2" slotted casing hung at 1452'. Casing slotted from 59' to 1452'.
Fluid level at 1135'. Water and mud bailed from hole.

ABANDONMENT PROGRAM

1. Remove bull plug from 4 1/2" casing. Release 4 1/2" casing from the clamps and allow casing to drop.

2. Place a bridging plug in hole 10 ft. below ground level.

3. If 4 1/2" casing did not drop (Step 1) or cannot be driven 10 ft. below ground level, place bridging plugs 10 ft. below ground level in both 4 1/2" casing and in annulus. Cut off 4 1/2" casing 1 ft. below ground level if it still projects higher.

4. Fill hole with concrete and set 4" dia. x 4' lg. marker post 1 ft. into concrete before it sets. Weld marker plate to post.

5. Clean up the area.

UCE-16 Coordinates: N - 1,499,400.00
E - 487,000.00

30" hole. 20" casing cemented at 52' w/299 ft.^{3}
17 1/2' hole. 13 3/8" casing cemented at 1687' w/5464 ft.^{3} Calculated annular volume 1695 ft.^{3}
9 7/8" hole to 4353'. Hole will flow.

UCE-16 (continued)

This hole has been assigned to the U.S. Bureau of Land Management, therefore, an abandonment program is not required.

UCE-17 Coordinates: N - 1,430,621.72
E - 628,171.70

30" hole. 20" casing cemented at 34' w/207 ft.^{3}
17 1/2" hole to 501'. 13 3/8" casing cemented at 500' w/713 ft.^{3}
12 1/4" hole to 2279'. 9 5/8" casing cemented at 2278' w/1566 ft.^{3} Calculated annular volume 844 ft.^{3}
8 3/4" hole to 7978'. Top of fish at 6576'. Static water level at 535'.

This hole has been assigned to the U.S. Bureau of Land Management, therefore, an abandonment program is not required.

UCE-18 Coordinates: N - 1,396,833.39
E - 635,840.12

26" hole. 20" casing cemented at 80' w/540 ft.^{3}
17 1/2" hole. 13 3/8" casing cemented at 1206' w/1298 ft.^{3} Calculated annular volume 1072 ft.^{3}
12 1/4" hole to 4798'. 9 5/8" casing cemented at 4797' w/2104 ft.^{3} Calculated annular volume 1977 ft.^{3}
8 3/4" hole to 6503'.
6 1/8" hole to 6514'. Top of fish at 6469'.
9 5/8" casing parted in collar at 514'.
9 5/8" casing perforated 406' - 598'
4060' - 4190'
4555' - 4747'
The 9 5/8" casing was perforated from 1090' to 1095' and squeezed w/80 ft.^{3} Static water level 200'.

The decision to abandon this hole or to assign it to the U.S. Bureau of Land Management awaits the results of a remedial program which is designed to shut off bottom hole water from the upper water bearing zone.

UCE-20 Coordinates: N - 1,399,868.46
E - 628,092.75

UCE-20 (continued)

30" hole. 20" casing cemented at 30' w/193 ft.^{3}
17 1/2" hole to 540'. 13 3/8" casing cemented at 536' w/830 ft.^{3} Calculated annular volume 611 ft.^{3}
12 1/4" hole to 4860'. 9 5/8" casing cemented at 4856' w/3356 ft.^{3}
8 3/4" hole to 6000'. Plugged back to surface from 4565' w/2103 ft.^{3}

ABANDONMENT PROGRAM

1. Weld a 4" dia. x 4' lg. marker post to existing plate at surface. (The hole has been filled with cement.) Weld marker plate to post.

2. If the plate in Step 1 cannot be located, excavate a 1' x 1' x 2' deep hole at the above coordinates. Place 4" dia. x 4' lg. marker post in the hole and backfill with concrete. Weld marker post to plate. Clean up the area.

UCE-21 Coordinates: N - 1,397,350.13
E - 668,405.56

30" hole. 20" casing cemented at 60' w/240 ft.^{3}
17 1/2" hole to 303'. 13 3/8" casing cemented at 302' w/405 ft.^{3}, circulated out cement leaving 212 ft.^{3} in the annulus. Calculated annular volume 232 ft.^{3}
7 7/8" hole to 6490'.
6 1/8" hole to 6495'.

ABANDONMENT PROGRAM

1. Cut off 20" casing, 13 3/8" casing, and annular cement 1 ft. below ground level.

2. Set a bridging plug 10 ft. below top of 13 3/8" casing and fill with concrete.

3. Weld a 4" dia. x 4' lg. marker post to the 13 3/8" casing. Weld marker plate to the post.

4. Backfill with native soil and clean up the area.

UCE-23 Coordinates: N - 1,369,026.53
E - 683,894.78

26" hole to 95'. 20" casing cemented at 80' w/247 ft.^{3}
17 1/2" hole. 13 3/8" casing cemented at 300' w/413 ft.^{3} Calculated annular volume 279 ft.^{3}
7 7/8" hole to 6493'.
6 1/8" hole to 6500'. Top of logging decentralizer at 6493'. Hole bridged at 483'.

UCE-23 (continued)

ABANDONMENT PROGRAM

1. Cut off 13 3/8" casing and 20" casing at base of 13 3/8" to 20" transition piece.

2. Set bridging plug in 13 3/8" casing 10 ft. below its top and fill 13 3/8" casing with concrete.

3. Weld 4" dia. x 4' marker post to 13 3/8" casing. Weld marker plate to post.

4. Backfill cellar with native soil and clean up the area.

6.3.2 Hydrological Test Holes Drilled at CNTA

HTH-1 Coordinates: N - 1,411,442.75
E - 629,720.11

17 1/2" hole. 13 3/8" casing cemented at 52' w/64 ft.^{3}
12 1/4" hole. 9 5/8" casing cemented at 3704' w/3504 ft.^{3} Calculated annular volume 2382 ft.^{3}
9 5/8" casing perforated from 150' to 3665'.
Fluid level was 231' before hydrological testing.

Note: This hole is being used for long-term monitoring. The following program will be deferred until a decision is made to abandon the hole.

ABANDONMENT PROGRAM

1. Excavate around hole and cut off annular cement, 13 3/8" casing and 9 5/8" casing at 1 ft. below ground level.

2. Set a bridging plug 10 ft. below top of casing and fill 9 5/8" casing with concrete.

3. Weld a 4" dia. x 4' lg. marker post to 9 5/8" casing. Weld a marker plate to the post and backfill hole with native soil.

4. Remove electrical backboard, switchgear, and protective fence.

5. Clean up the area.

HTH-2 Coordinates: N - 1,411,929.43
E - 629,587.75

17 1/2" hole. 13 3/8" casing cemented at 50' w/69 ft.^{3}

12 1/4" hole. 9 5/8" casing set on bottom at 1000', no cement. Casing slotted from 504' to 1000'. Static water level 570'.

Note: This hole is being used for long-term monitoring. The following program will be deferred until a decision is made to abandon the hole.

ABANDONMENT PROGRAM

1. Excavate around casing to expose 12"--900 series head.

2. Cut off head from 13 3/8" casing. Set bridging plugs in 9 5/8"--13 3/8" annulus 10 ft. below top of 13 3/8" casing. Cut off 9 5/8" casing at top of 13 3/8" casing and set a bridging plug 10 ft. further down. Fill both 9 5/8" casing and annulus with concrete and/or a water cement slurry.

3. Weld 4" dia. x 4' lg. marker post to 9 5/8" casing. Weld marker plate to post and backfill with native soil.

4. Remove electrical backboard, switchgear, and protective fence.

5. Clean up the area.

HTH-3 Coordinates: N - 1,385,943.94
E - 657,118.89

26" hole. 20" casing cemented at 52' w/220 ft.^{3}

17 1/2" hole to 648'. 13 3/8" casing cemented at 647' w/625 ft.^{3} Calculated annular volume 450 ft.^{3}

12 1/4" hole to 4700'. 9 5/8" liner ran from 576' to 4697', cemented w/234 ft.^{3} Calculated annular volume 2342 ft.^{3} Top of cement by log 4150'.

8 3/4" hole to 6009'. 5 1/2" liner ran from 4623' to 5982', no cement, liner slotted. 9 5/8" casing perforated 3800' - 3820'. Static water level before testing 573'.

HTH-3 (continued)

ABANDONMENT PROGRAM

1. Cut off 13 3/8" casing and 20" casing at base of 13 3/8" to 20" transition piece.

2. Set a bridging plug in 13 3/8" casing 10 ft. below its surface and fill with concrete.

3. Weld a 4" dia. x 4' lg. marker post to the 13 3/8" casing. Weld a marker plate to the post.

4. Backfill cellar with native soil and clean up the area.

HTH-4 Coordinates: N - 1,385,984.00
E - 685,984.00

26" hole to 63'. 20" casing cemented at 62' w/278 ft.^{3}
17 1/2" hole. 13 3/8" casing cemented at 1500' w/1600 ft.^{3} Top of good cement by log at 720', top of poor cement at 360'. Calculated annular volume to 360' was 1949 ft.^{3}
13 3/8" casing performated 505' - 520', 575' - 585', 870' - 890'.
8 3/4" hole. 5 1/2" casing cemented at 6040' w/5016 ft.^{3} Top of good cement by log at 1350', top of poor cement at 1260'. Calculated annular volume to 1260' was 2659 ft.^{3} Water in hole.

This hole has been assigned to the U.S. Bureau of Land Management, therefore, an abandonment program is not required.

HTH-5 Coordinates: N - 1,368,424.47
E - 625,928.65

30" hole to 65'. 20" casing cemented at 64' w/260 ft.^{3}
17 1/2" hole to 454'. 13 3/8" casing cemented at 452' w/649 ft.^{3} Calculated annular volume 335 ft.^{3}
12 1/4" hole to 2085'. 9 5/8" casing cemented at 2084' w/1354 ft.^{3} Calculated annular volume 1624 ft.^{3} Top of cement by log was 394'.
9 5/8" casing perforated 570' - 590', 1760' - 1810'.
8 3/4" hole to 6000'.
6 1/8" hole to 6007'. 5 1/2" slotted liner from 1981' to 6004', not cemented. Water in hole.

HTH-5 (continued)

ABANDONMENT PROGRAM

1. Cut off 9 5/8" casing, 13 3/8" casing, 20" casing and annular cement 1 ft. below ground level.

2. Install bridging plugs in the 9 5/8" casing and 9 5/8"--13 3/8" annulus 10 ft. below top of casing. Fill both openings with concrete.

3. Weld a 4" dia. x 4' lg. marker post of 13 3/8" or 9 5/8" casing. Weld a marker plate to the post and backfill cellar with native soil.

4. Clean up the area.

HTH-21 Coordinates: N - 1,397,350.13
E - 668,505.56

26" hole. 20" casing cemented at 33' w/129 ft.^{3}
17 1/2" hole. 13 3/8 casing cemented at 598' w/2761 ft.^{3}
12 1/4" hole to 1330'. Hole abandoned because of excessive caving, probably from behind the 13 3/8" casing. Cleaned out to 612' before abandoning, hole caving. Water in hole.

ABANDONMENT PROGRAM

1. Excavate around hole and cut off 13 3/8" casing, 20" casing, and annular cement 1 ft. below ground level.

2. Install a bridging plug in the 13 3/8" casing 10 ft. below top of casing and fill with concrete.

3. Weld a 4" dia. x 4' lg. marker post to the 13 3/8" casing. Weld a marker plate to post and backfill hole with native soil.

4. Clean up the area.

HTH-21-1 Coordinates: N - 1,397,250.13
E - 668,505.56

26" hole. 20" casing cemented at 70' w/378 ft.^{3}
17 1/2" hole to 768 1/2'. 13 3/8" casing cemented at 768' w/1150 ft.^{3} Calculated annular volume 570 ft.^{3}
12 1/4" hole to 2280'. 9 5/8" casing cemented at 2279' w/200 ft.^{3} No cement top obtained.

HTH-21-1 (continued)

8 3/4" hole to 6500'. Top of fish in hole at 5410'. Perforated 9 5/8" casing 1340' - 1360' 1690' - 1710', 1856' - 1876', 2030' - 2050'. Water in hole.

ABANDONMENT PROGRAM

1. Excavate around hole and cut off annular cement, 13 3/8" casing and 9 5/8" casing at base of 9 5/8" to 13 3/8" transition.

2. Set bridging plugs in 9 5/8" casing and 9 5/8"--13 3/8" annulus 10 ft. below top of casing and fill both openings with concrete.

3. Weld 4" dia. x 4' lg. marker post to 9 5/8" casing. Weld marker plate to post and backfill surface hole with native soil. Clean up the area.

HTH-23 Coordinates: N - 1,368,087.00
E - 684,237.00

30" hole. 20" casing cemented at 61' w/216 ft.^{3}
12 1/4" hole. 9 5/8" casing cemented at 1244' w/200 ft.^{3} Top of cement by log was 1050'.
8 3/4" hole to 4510'. 7 5/8" liner ran from 1152' to 4507'. Cemented and squeezed with 311 ft.^{3} Top of cement at 3484' by log. Liner parted from 4420' to 4433'.
6 3/4" hole to 7503'. Top of fish at 6445'. Water in hole.

This hole has been assigned to the U.S. Bureau of Land Management, therefore, an abandonment program is not required.

6.3.3 Project FAULTLESS Emplacement Hole

UC-1
Project
FAULTLESS Coordinates: N - 1,414,339.91
E - 628,920.87

This drill hole has been expended. Project FAULTLESS was detonated on January 19, 1968.
Excavated hole. 88" casing cemented at 10' w/400 ft.^{3}
72" hole to 400'. 48" casing cemented at 396' w/5696 ft.^{3} Calculated annular volume 6418 ft.^{3}
42" hole to 3275'. 26" casing cemented at 3250' w/24,001 ft.^{3} Calculated annular volume 20,984 ft.^{3} Stemmed to surface.

UC-1 (continued)

ABANDONMENT PROGRAM

Note: This hole was plugged back during a radiological survey of the faultless area during April of 1973. The only remaining work is to weld a marker plate to the protruding 88" casing.

6.3.4 Project FAULTLESS Instrument Holes

UC-1-I-1 Coordinates: N - 1,414,262.85
E - 628,900.14

Excavated hole. 36" casing cemented at 8' w/59 ft.^{3}
26" hole. 20" casing cemented at 97' w/380 ft.^{3}
17 1/2" hole. 13 3/8" casing cemented at 1300' w/2316 ft.^{3} Calculated annular volume 1764 ft.^{3}
12 1/4" hole to 3500'. Stemmed to surface.

ABANDONMENT PROGRAM

Note: This hole was also plugged during the radiological survey in April of 1973. The only remaining work is to weld a marker plate to the 4" dia. marker post.

UC-1-I-2 Coordinates: N - 1,414,320.47
E - 628,846.59

17 1/2" hole to 52'. 13 3/8" casing cemented at 50' w/154 ft.^{3}
12 1/4" hole to 1100'.
8 3/4" hole to 1500'. Stemmed to surface.

ABANDONMENT PROGRAM

Note: This hole was plugged during the radiological survey in April of 1973. The only remaining work is to weld a marker plate to the 4" dia. marker post.

6.3.5 Project FAULTLESS Postshot Holes

UC-1-P-1 Coordinates: N - 1,413,421.49
E - 629,840.66

Excavated to 8'. Concrete cellar 9' x 9' x 8'.
26" hole in 50'. 18" casing cemented at 40' w/220 ft.^{3}
15" hole to 510'. 10 3/4" casing cemented at 502' w/492 ft.^{3} 10 3/4" casing collapsed at 185', worked 9 7/8" bit to 205' and abandoned hole.

UC-1-P-1 (continued)

This hole was solidly cemented from approximately 205 ft. to the bottom of the cellar at 8 ft. The cellar has been backfilled.

ABANDONMENT PROGRAM

Excavate a 1' x 1' x 2' deep hole at the above coordinates. Install a 4" dia. x 4 ft. lg. marker post in the hole and backfill with concrete. Weld a marker plate to the post and clean up the area.

UC-1-P-1S Coordinates: N - 1,413,403.26
E - 629,836.97

Excavated. 108" corrugated metal pipe at 10'.
Backfilled. 30" hole. 20" casing cemented at 30' w/201 ft.^{3}
15" hole. 10 3/4" casing cemented at 524' w/600 ft.^{3}
9 7/8" hole to 2734'. Struck drill pipe, plugged back hole to 600'. Drilled 9 7/8" hole from 600' to 789' and reentered old hole. Cleaned out hole to top of fish at 964'. Ran 4 1/2" casing to 922', slotted from 34' to 922'. Water level 176'.

This hole is being used for long-term monitoring. The following program will be deferred until a decision is made to abandon the hole.

ABANDONMENT PROGRAM

1. Excavate around the 108" and 4 1/2" casings. Remove 4 1/2" valve and cut off both casings 1 ft. below ground level.

2. Set a bridging plug in 4 1/2" casing 10 ft. below top of casing and fill with concrete.

3. Weld a 4" dia. x 4' lg. marker post to the 4 1/2" casing. Weld a marker plate to post and backfill with native soil.

4. Clean up the area.

UC-1-P-2 Coordinates: N - 1,414,632.50
E - 628,982.18

UC-1-P-2 (continued)

Excavated. 108" casing cemented at 10' w/704 ft.^{3}
26" hole to 222'. 20" casing cemented at 181' w/635 ft.^{3}
17 1/2" hole. 13 3/8" casing cemented at 1150' w/1174 ft.^{3}
12 1/4" hole. 9 5/8" casing cemented at 1950' w/661 ft.^{3} Top of cement at 1100' by log.
8 3/4" hole to 3694'.

UC-1-P-2S (First Sidetrack)

8 3/4" hole from 2700' to 3176'. Could not get back into sidetracked hole plugged back to 2863'.

UC-1-P-2SR (Second Sidetrack)

8 3/4" hole from 2700' to 3600'. Perforated 9 5/8" casing from 1148' to 1945'. Ran 5 1/2" casing to 2792', hung on slips. Perforated 5 1/2" casing from 1148' to 2790'. Mud in hole.

This hole will also be used for long-term monitoring. The following program will be deferred until a decision is made to abandon the hole.

ABANDONMENT PROGRAM

1. Remove the grating cover and all wellhead equipment.

2. Cut loose the 5 1/2" casing and allow it to drop.

3. Set bridging plugs 10 ft. below the cellar floor in the 9 5/8" casing, and 9 5/8"--13 3/8" annulus. If the 5 1/2" casing did not drop 10 ft. in step 2 above, set bridging plugs in the 5 1/2" casing, 5 1/2"--9 5/8" annulus and 9 5/8"--13 3/8" annulus at 10 ft. below floor of cellar. Fill all openings with concrete.

4. Weld a length of 4" dia. marker post to 9 5/8" casing (or 5 1/2" casing). Provide enough post to permit a 3 ft. extension above ground level. Weld a marker plate to the post.

5. Excavate for and cut off 108" casing 1 ft. below ground level.

6. Backfill the 108" dia. x 10' deep cellar with native soil and clean up the area.

6.3.6 Project ADAGIO Emplacement Hole

UC-3
Project
ADAGIO

Coordinates: N - 1,399,948.43
E - 628,092.24

This project was not executed. The drill hole is being held in reserve.
Excavated. 144" corrugated metal pipe at 10', cemented w/pad.
140" hole to 394'. 122" casing cemented at 391' w/10,136 ft.^{3}
120" hole to 4846'. 54" casing cemented at 4862' w/312,999 ft.^{3} Calculated annular volume 304,800 ft.^{3}

ABANDONMENT PROGRAM

1. Safety belts shall be worn while working close to the open hole.

2. Remove the 54" hole cover and replace it by welding a 2" thick steel plate over the 54" casing.

3. Construct a concrete pad cover in accordance with dwg. N-UC3-S27.

4. Install a marker plate in the concrete before it sets.

5. Clean up the area.

6.3.7 Project ADAGIO Canister Hole

UC-3

Coordinates:

Excavated 11 1/2' x 11 1/2' x 27' deep. 94" casing cemented at 27' w/1927 ft.^{3}
86" hole to 307'. 54" casing landed at 305.47' w/baker float shoe on bottom. Casing set on bottom, had 2' of fill. Hole dry.

ABANDONMENT PROGRAM

1. Safety belts shall be worn while working close to the open hole.

2. Remove existing cover plate from 54" casing.

3. Install 2" cover plate and construct a concrete pad cover in accordance with dwg. N-UC3-S28.

UC-3 (continued)

4. Install a marker plate in the concrete before it sets.

5. Clean up the area.

6.3.8 Project ADAGIO Instrument Holes

UC-3-I-1 Coordinates: N - 1,399,719.62
E - 627,972.29

29" hole. 20" casing cemented at 60' w/241 ft.^{3}
17 1/2" hole to 1008'. 13 3/8" casing cemented at 1000' w/3380 ft.^{3}
12 1/4" hole to 4870'. Fish at 4869.66'. Mud in hole.

ABANDONMENT PROGRAM

1. Clean out hole to a depth of 10 ft. and set a bridging plug 10 ft. below pad level.

2. Fill the hole and cable trench with concrete.

3. Install a marker plate in the concrete before it sets.

4. Clean up the area.

UC-3-I-2 Coordinates: N - 1,399.838.12
E - 627,922.79

26" hole. 20" casing cemented at 60' w/237 ft.^{3}
17 1/2" hole. 13 3/8" casing cemented at 410' w/440 ft.^{3} Calculated annular volume 430 ft.^{3}
12 1/4" hole to 2550'. Mud in hole.

ABANDONMENT PROGRAM

1. Clean out hole to a depth of 10 ft. and set a bridging plug 10 ft. below pad level.

2. Fill the hole and cable trench with concrete.

3. Install a marker plate in the concrete before it sets.

4. Clean up the area.

UC-3-I-3 Coordinates: N - 1,399,248.21
E - 627,892.79

26" hole to 69'. 20" casing cemented at 60' w/261 ft.^{3}
12 1/4" hole to 1010'. 8 5/8" casing cemented at 1000' w/1218 ft.^{3} Calculated annular volume 789 ft.^{3}
7 7/8" hole to 3002'. Mud in hole.

ABANDONMENT PROGRAM

1. Clean out hole to a depth of 10 ft. and set a bridging plug 10 ft. below pad level.

2. Fill the hole and cable trench with concrete.

3. Install a marker plate in the concrete before it sets.

4. Clean up the area.

UC-3-I-4 Coordinates: N - 1,398,948.12
E - 627,892.79

26" hole. 20" casing cemented at 60' w/177 ft.^{3}
16 1/2" hole. 13 3/8" casing cemented at 1005' w/1135 ft.^{3} Calculated annular volume 1189 ft.^{3}
7 7/8" hole to 3002'. Mud in hole.

ABANDONMENT PROGRAM

1. Clean out hole to a depth of 10 ft. and set a bridging plug 10 ft. below pad level.

2. Fill the hole and cable trench with concrete.

3. Install a marker plate in the concrete before it sets.

4. Clean up the area.

UC-3-I-5R Coordinates: N - 1,399,805.46
E - 627,948.09

26" hole. 13 3/8" casing cemented at 40' w/178 ft.^{3}
12 1/4" hole to 360'. Mud in hole.

UC-3-I-5R (continued)

ABANDONMENT PROGRAM

1. Clean out hole to a depth of 10 ft. and set a bridging plug 10 ft. below pad level.

2. Fill the hole and cable trench with concrete.

3. Install a marker plate in the concrete before it sets.

4. Clean up the area.

6.3.9 Future Project Emplacement Hole (Project Name Unassigned)

UC-4 Coordinates: N - 1,430,564.49
E - 628,253.40

Excavated. 144" corrugated metal pipe at 12', cemented w/pad.
140" hole to 415'. 122" casing cemented at 413' w/10,825 ft.^{3} Calculated annular volume 10,572 ft.^{3}
120" hole to 5500'. Mud in hole.

ABANDONMENT PROGRAM

1. Install a concrete pad cover in accordance with dwg. N-UC4-S3.

2. Install a marker plate in the concrete before it sets.

3. Clean up the area.

Demobilization/Restoration Disturbed Area Completion Report	HOLMES & NARVER, INC. TECHNOLOGY - CONSTRUCTION ON-CONTINENT TEST DIVISION	Date _____ CNTA

TO: Site Representative

The work described below has been completed.

_____
Field Engineer

WORK ORDER NO. OR CONTRACT NO.	DESCRIPTION	MAP LOCATION NO.

Inspection Detail:

Completed in accordance with plan except as follows:

_____

_____

_____

_____

_____

SAMPLE

RECOMMENDED _____
Site Representative, Holmes & Narver, Inc. Date

APPROVED _____
CNTA Site Representative, USAEC Date

ACCEPTED _____
Area Manager, Bureau of Land Management Date

Distribution:

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APPENDIX 2

LONG TERM SURVEILLANCE PLAN

CENTRAL NEVADA TEST AREA

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I. INTRODUCTION

A. Reasons for a Long Term Surveillance Program

The Nevada Operations Office, U. S. Atomic Energy Commission, acknowledges the responsibility of obtaining and having available for dissemination data adequate to:

1. Assure the public safety.
2. If the need arises, to inform the public, the news media, and the scientific community.
3. Document compliance with existing Federal, and possible future state and local anti-pollution requirements.
4. Improve pre-event prediction capabilities.

These responsibilities can only be fulfilled by execution of a long term monitoring program.

It is contemplated that the long term surveillance program will remain in effect until action is taken to modify or terminate it.

II. SITE DESCRIPTION

A. Geographical Description

Hot Creek Valley is located within the Great Basin section of the basin and range physiographic province.

The Central Nevada Test Area (CNTA) is located in Hot Creek Valley approximately 60 miles northeast of Tonopah, Nevada. It is accessible from Tonopah via State Highway 6 and from the southeast via Highway 25, which connects with Highway 6. The CNTA Base Camp is located on Highway 6 approximately 55 miles northeast of Tonopah. The Faultless event site is 25 miles further north and is served by a main access road from Highway 6. Hot Creek Valley is about 70 miles long on its north-south axis and varies in width from 10 to 20 miles. The Faultless site is in the north central portion of the valley. The valley is bounded on the west by Stone Cabin and Little Fish Lake Valleys and on the east by Railroad and Little Smokey Valleys. The rugged Hot Creek Mountain Range separates Hot Creek Valley from Little Fish Lake Valley to the west. Morey Peak, some 5 miles west of the Faultless site, reaches an elevation of over 10,000 feet.

B. Climate and Meteorology

The average yearly temperature in Hot Creek Valley is 51°F, with average daily highs and lows of 55°F and 37°F respectively. The maximum recorded temperature was 103°F in July and the lowest

recorded -19°F, in February. The average yearly precipitation is 4.75 inches. This data originated at the Rattlesnake Weather Station which is at the same approximate elevation as the Faultless site.

C. Geology

The thick alluvial fill of Hot Creek Valley displays little evidence of the structural framework or the stratigraphy of the valley; therefore, the primary source of subsurface geologic data comes from the several exploratory holes which were drilled in the area. The Faultless emplacement hole (UC-1) penetrated alluvium from the surface to a depth of 2400 feet. The alluvium is underlain by tuffaceous sediment and zeolitized tuff from 2400 to 3275 feet, which was total depth of the hole.

D. Hydrology

The water table in the immediate area of the Faultless site is about 500 feet below land surface. Hydrologic test holes drilled in the area indicate that ground water potentials do not increase or decrease with depth; therefore, the flow is lateral. The recharge area for Hot Creek Valley is found in the Hot Creek Range to the west and northwest of the valley. Water moves downward and laterally from the alluvial fans toward the central portion of the valley. Ground water movement in the central valley and movement away from the general area of Faultless is in a southeasterly direction towards Railroad Valley. (See Figure 1)

E. Ecology

The vegetation of this area is within the sagebrush and shade scale zone.

(Details will be provided by the Bioenvironmental Branch)

III. SITE HISTORY

A. Introduction

A one square mile land withdrawal at the Faultless Site (UC-1) (See Figure 2) was formalized between the AEC and Bureau of Land Management on December 6, 1968, under Public Land Order No. 4338. Subsequent withdrawals were made for the UC-3 and UC-4 sites on December 2, 1969, under Public Land Order No. 4748. During this period, other permits and easements were obtained for exploratory drill sites, weather stations and other support areas in Hot Creek Valley. The withdrawals for the UC-3 and UC-4 sites were larger than the UC-1 site by about 1/2 square mile.

Emplacement holes were drilled on all three sites. Casing was installed and cemented at the UC-1 and UC-3 sites. The UC-4 emplacement hole remains uncased.

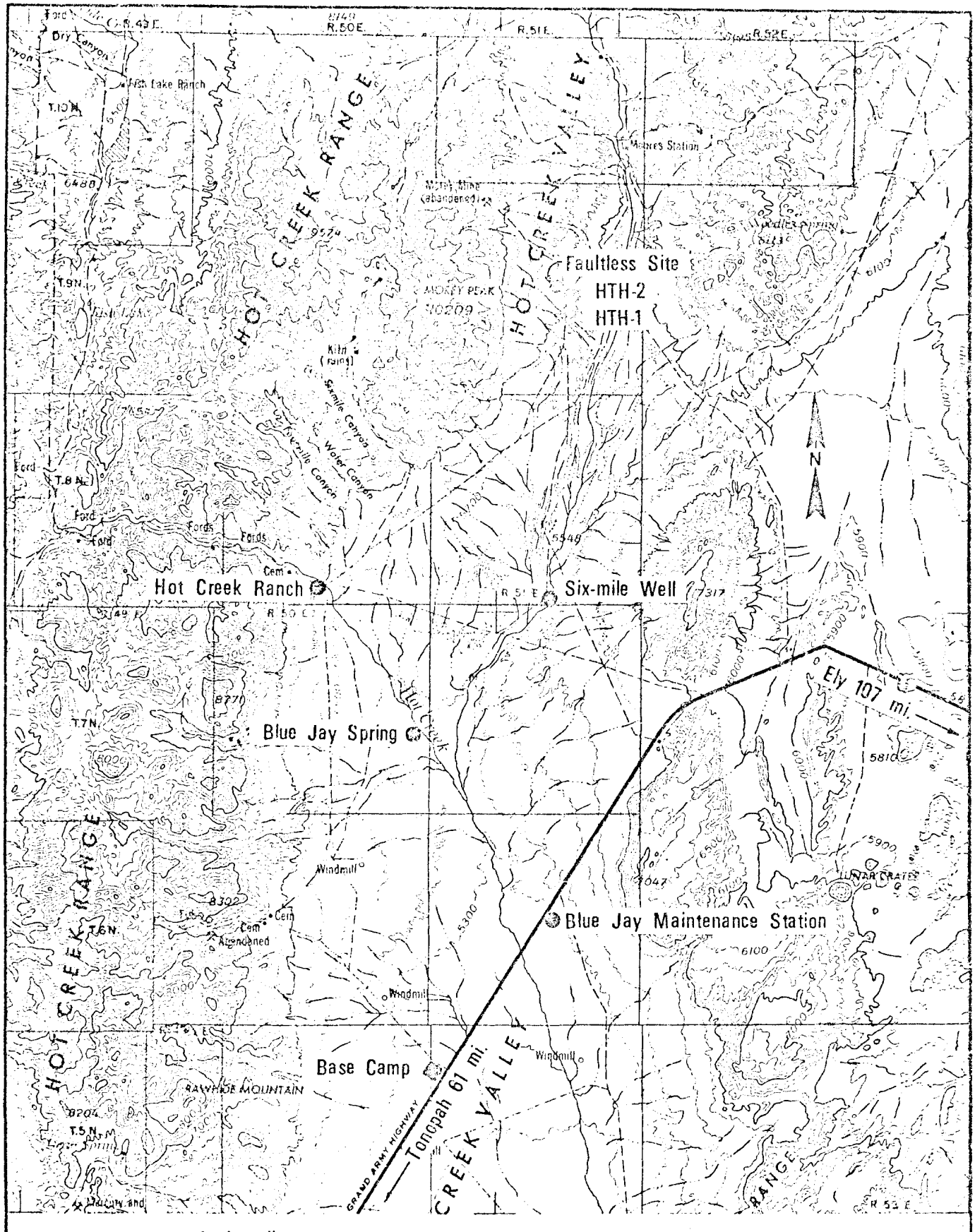

FIGURE 1. HOT CREEK VALLEY, INCLUDING FAULTLESS GROUND ZERO AND THE WATER SAMPLING POINT NETWORK

B. The Faultless Event

The Faultless event was conducted at 1015 hours Pacific Standard Time (PST) on January 19, 1968, in UC-1 at a depth of 3200 feet.

The geologic media at shotpoint consisted of tuffaceous sediments and zeolitized non-welded tuffs. The Faultless event was in the intermediate yield range.

C. Close in Geologic and Hydrologic Effects of the Faultless Event

The Faultless event produced abundant surface fractures up to 9,000 feet and greater in length. Vertical displacements on these fractures are up to 15 feet and horizontal offsets as much as 3 feet. Some of these displacements occurred at the time of detonation while others are suspected of occurring several hours later and seem to be related to the subsidence of the quasi-sink in the surface GZ area. This sink is a graben bounded on the northwest, southeast, and south by faults. The area of subsidence is roughly 4,000 feet square.

A hydrologic mound exists around the Faultless site which produces a gradient toward the chimney. The chimney has not filled above 2280 feet below land surface in the four years since the event.

D. Contamination at the Faultless Site

The only known radioactive contamination at the Central Nevada Test Area is confined to the Faultless cavity-chimney complex.

IV. GROUND WATER CONTAMINATION PREDICTION

Ground water cannot leave an explosion site until the event induced cavity/chimney complex has been filled and ground water approaches the pre-event level. After this occurs at the Faultless site contaminated ground water could leave the chimney in a general south southeast direction at a velocity of 0.4 feet per year. At the time of this publication the Faultless chimney is estimated to be about 30% filled. The time estimated to be required for total filling is 80 to 100 years. In this time frame, radionuclides in ground water will be at background concentrations well before reaching the boundary of the AEC controlled land.

V. PRE- AND POST-EVENT MONITORING

A. NERC/EPA (Formerly USPHS)

1. Milk Sampling

Thirty-six milk sampling points were monitored on a continuous basis around the NTS at the time of the

Faultless event. Five months prior to the event special milk sampling stations were established at six central and northern Nevada towns. Post-event sampling and analysis revealed no increase over natural background radioactivity.

2. Water Sampling

About 90 water sampling stations were in existence for several years prior to the Faultless event. Eight additional stations were established in central and northern Nevada and western Utah for the Faultless event. Post-shot sampling and subsequent analysis have failed to show any increase over background radioactivity as a result of the Faultless event.

3. Air Sampling

Six months prior to the Faultless event the ERC/EPA (formerly USPHS) expanded its routine NTS off-site air surveillance and dosimetry program to include the outlying areas north and northeast of the CNTA. Permanent air sampling stations were established at Blue Eagle Ranch, Currie and Duckwater, Nevada, increasing surveillance capabilities to 109 routine stations. Since no fresh fission products were detected in any environmental sample collected off-site, and no air samples contained levels of gross beta activity above the expected background, it is concluded that no detectable contamination of the off-site area resulted from the Faultless event.

B. U. S. Geological Survey

The USGS established a network of 168 sampling points in Central Nevada in 1967. This network represented an areal evaluation of springs, wells and seeps in the area. Laboratory work on samples from this network included chemical, spectrochemical and radiochemical analysis. No increase in background radioactivity was noted post-Faultless in water samples from this network.

C. Teledyne Isotopes

The Teledyne Isotopes Palo Alto Laboratory established a 60-point water sampling network in the Central Nevada Test Area in early 1967. During the summer the network was reduced to 30 points. Preshot samplings were made on a monthly basis and subsequent Laboratory analysis for gross radioactivity and low level tritium were conducted. The first post-shot sampling of the network was accomplished in March 1968. The network was reduced to 8 points and sampled until 1971. No increase in background activity was found.

VI. LONG TERM RADIOLOGICAL SURVEILLANCE

A. Hydrology

1. Sample Point Network (See Figure 1)

Hole HTH-1
Hole HTH-2
Hot Creek Ranch Domestic Water Supply
6-Mile Well
Blue Jay Spring
Blue Jay Maintenance Station Well

2. Frequency

The sample point network for CNTA is to be sampled annually during the month of September.

3. Analyses to be Performed

All samples will be analyzed for tritium using a technique with a lower detection level of 150 tritium units. All samples will be analyzed for gross alpha, gross beta and a gamma spectral scan. Gross chemistry analyses, comparable to the USGS chemical water quality analyses, are to be performed on all samples collected on the initial sample run. Based on the results of the above analyses, suspect samples will be analyzed for appropriate naturally occurring and man-made isotopes. Splits of each sample collected will be retained for this purpose until it is demonstrated that the need no longer exists.

4. Reports

The first of the annual reports which are to be prepared will contain but not be limited to the following:

a. A description of the basis hydrologic system.
b. Pertinent historic data including prediction of ground water contamination and event effects.
c. Description of sampling network.
d. Results.
e. Explanation of results.
f. Evaluation of the program.
g. Suggested modification for program improvement.

Subsequent annual reports need only address items d through g, unless data is obtained which changes the basic hydrologic concepts.

5. Duration

The monitoring program for CNTA is to continue until, based on continued negative results, a decision is made to terminate it.

B. Bioenvironmental

No need for bioenvironmental monitoring has been identified.

VII. SEISMIC

No need for continued seismic monitoring in CNTA has been identified.

VIII. SECURITY AND CLASSIFICATION

Classified debris in CNTA is confined to the Faultless cavity and lower chimney. The re-entry drill hole (UC-1-P-2SR) remains open for chimney water monitoring purposes; however, it does not allow access to the classified debris in the lower cavity regions. While not in use this hole is chained and locked. Prior to removal of security guards, mining and drilling restrictions will be imposed on the square mile in which Faultless was executed. These restrictions will effectively prevent access to this debris. Periodic visits are and will continue to be conducted to the site by Security and other members of the NV staff.

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APPENDIX 3

RADIOLOGICAL SURVEY PLAN FOR CLEANUP AND DEMOBILIZATION

CENTRAL NEVADA TEST AREA

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RADIOLOGICAL SURVEY PLAN FOR THE CLEANUP AND DEMOBILIZATION OF THE CENTRAL NEVADA TEST AREA

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RADIOLOGICAL SURVEY PLAN FOR THE CLEANUP AND DEMOBILIZATION OF THE CENTRAL NEVADA TEST AREA (CNTA)

I. RESPONSIBILITIES

A. Assistant Manager for Operations (AMO)

The AMO shall be responsible for assuring that all radioactive materials at CNTA are identified and disposed of in accordance with AEC-NV/HQ manual chapters and pertinent criteria.

B. Director, Radiological Operations Division (ROD)

The Director, ROD is assigned the responsibility for technical implementation of this plan through contract administration of the radiological support contractor. A representative of the ROD shall be on site during all radiological resurvey or cleanup operations.

C. Assistant Manager for Engineering and Logistics (AME&L)

The AME&L will provide engineering and logistical support for radiological resurvey or cleanup operations.

D. AEC Site Manager

The AEC Site Manager shall be responsible for the radiological safety of all personnel working on the CNTA and for assuring that the final condition of the CNTA meets the radiological safety criteria provided by AEC Headquarters.

E. Radiological Safety Support Contractor

The Radiological Safety Support Contractor (hereinafter called RSSC) shall be responsible to provide radiological safety support including plans, procedures, controls, and monitoring programs.

II. RADIOLOGICAL CLEANUP AND DEMOBILIZATION

A. Radiological Criteria

Radiological criteria for surveys, decontamination, and cleanup of CNTA shall be in accordance with AEC Headquarters criteria.

B. Radiological Survey Procedures

Radiological surveys will be conducted by using the following techniques:

1. Portable monitoring instruments

2. Swipe tests

3. Analysis of appropriate environmental samples, particularly soil and soil moisture samples.

C. Precleanup Radiological Surveys

Precleanup radiological surveys in accordance with the above survey procedures will be performed on the following locations (plus any other deemed necessary by the ROD representative) prior to any cleanup or demobilization. (Refer to Annex I for map locations cited.)

Trash Dump (west of RTP) Map Loc. No. 7b

Scrap & Trash Dump Areas (north of the CP); Map Loc. No. 23b

UC-1 (SGZ), Map Loc. 11, Coordinates: N-1,414,339.91 E-628,920.87

UC-1-P-1S, Map Loc. 11, Coordinates: N-1,413,403.26 E-629,836.97

UC-1-1-1 (Inst. hole), Map Loc. 11, Coordinates: N-1,414,262.85 E-628,900.14

UC-1-1-2 (Inst. hole), Map Loc. 11, Coordinates: N-1,414,320.47 E-628,846.59

UC-1-P-2, Map Loc. 11, Coordinates: N-1,414,632.50 E-628,982.18

UC-1 Decontamination Facility and Sump, Map Loc. 11 and 13a

Any area found to be contaminated will be decontaminated to meet AEC Headquarters criteria.

Particular attention will be paid to any post-shot drilling mouse holes, rat holes, and core handling locations.

D. Secondary Cleanup and Final Surveys

Secondary cleanup and final surveys will be conducted as necessary in order to comply with the procedures in this plan and the AEC Headquarters criteria.

E. Radiological Safety Coverage of Cleanup and Demobilization Activities

Radiological safety procedures will be required for any area found to have contamination levels above the HQ criteria and specifically for the following cleanup or demobilization activities:

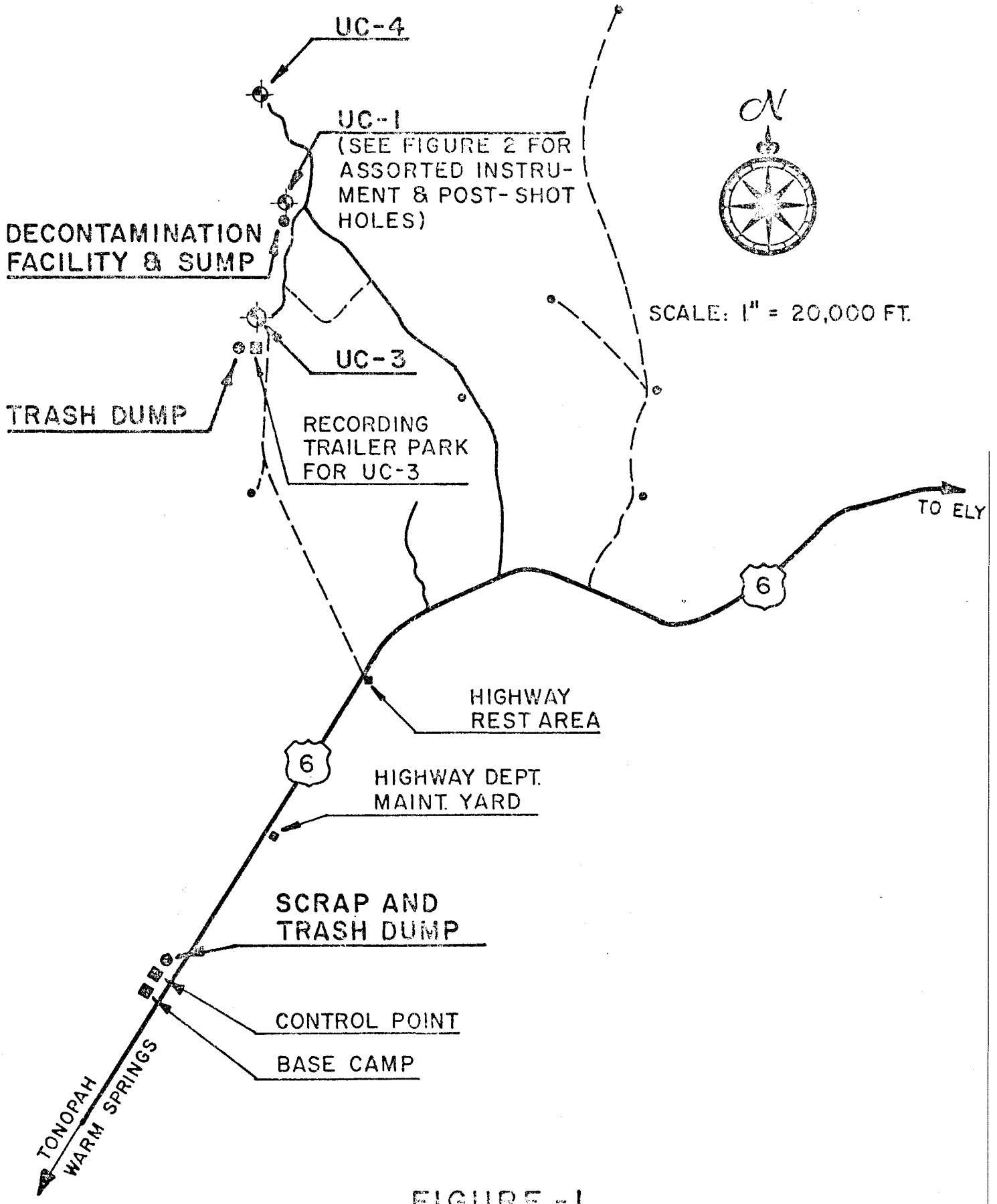

FIGURE - 1

PLANNED RADIOLOGICAL SURVEY LOCATIONS

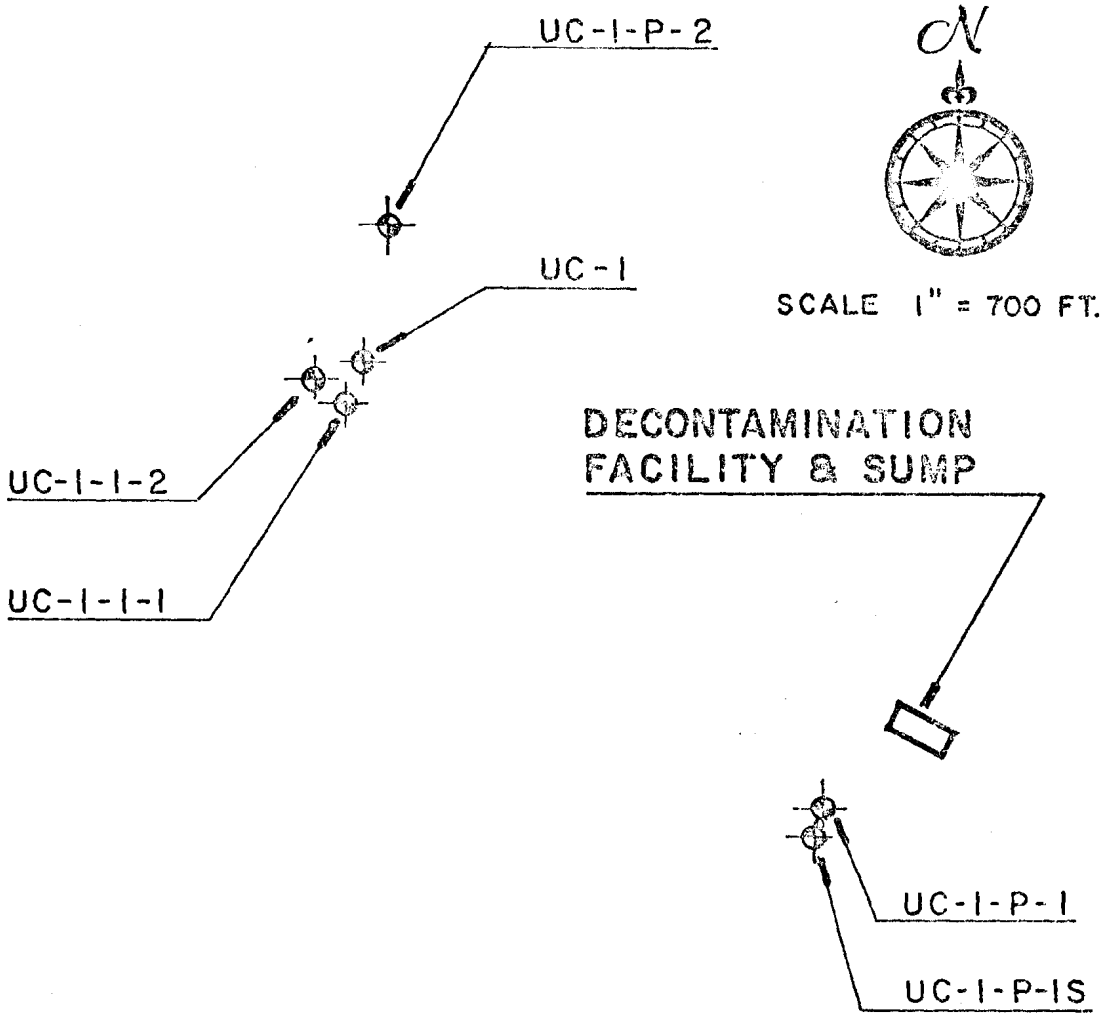

FIGURE-2

PLANNED
RADIOLOGICAL SURVEY LOCATIONS
UC-1 VICINITY

1. Cutting of protruding casings and cables at the UC-1 area.

2. Any effort involving removal or disturbance of the ground in the UC-1 SGZ, post-shot drilling and decontamination facility areas.

3. Removal of debris or equipment from the UC-1 areas.

4. Cleaning and plugging of wellhead collars in the UC-1 area.

F. Radiological Safety Procedures - Post-Shot Hole Water Sampling

Current plans provide for periodically taking water samples from the post-shot reentry hole. When such sampling is planned it will be necessary to notify the Director, ROD in advance so that arrangements for radiological safety coverage of the operation may be made. The following procedures will apply:

1. A radiological safety monitor must be present during all sampling operations.

2. Radiological safety procedures as presented in Part III.D. will apply.

3. Every precaution will be taken to prevent any environmental contamination as a result of the water sampling operation.

4. Contaminated equipment will be packaged in sheet plastic with absorbent material and then packaged in suitable DOT-approved containers for return to NTS.

5. Containment and packaging of samples will be such that there can be no possible release of contents under conditions normally incident to transportation.

6. Notification shall be provided ROD/NV prior to any radioactive materials being transported to or removed from CNTA. Initial notification may be verbal; however, it shall be followed by a written description of the source(s), identification number(s), and intended use or disposition. This document shall be delivered to the ROD office prior to the arrival of the source on CNTA.

7. At the termination of water sampling activities at the post-shot drillback hole a cleanup program will be accomplished. This cleanup will be in accordance with the procedures and criteria contained in this plan.

III. RADIOLOGICAL SURVEY SUPPORT PLAN

A. Purpose

The purpose of this plan is to describe the basic responsibilities of the Radiological Safety Support Contractor (RSSC) during cleanup and demobilization of CNTA.

B. Responsibilities of the Radiological Safety Support Contractor

The RSSC shall provide:

1. Radiation safety support services to assure that exposure to ionizing radiation is maintained within the criteria specified in AECM 0524.

2. On-site radiological monitoring, sampling, and surveillance as required.

3. Radiation detection equipment and related services.

4. Protective apparel supply and laundering arrangements as applicable.

5. Decontamination monitoring and radioactive material control.

6. Access control as necessary for all radiation/contamination areas (i.e., RADEX areas).

7. Laboratory analysis capability for collected samples.

8. Guidance, evaluation, and related services to assure compliance with AEC/DOT regulation on the shipment of radioactive materials.

9. Reports as required.

10. Personnel to adequately support assigned responsibilities.

11. Radiological indoctrination of all workers on location prior to their working in or adjacent to radiological control area.

12. Written instructions to workers to establish understanding of plans and procedures.

C. Equipment and Facilities

The following radiological safety facilities, equipment, and supplies shall be provided by the RSSC:

1. Radiation Detection Instruments

   a. Portable survey instruments for alpha, beta, and gamma detection, specifically low level gamma and beta detectors having not more than 7 mg per cm^2 of absorbing material.

   b. Laboratory counting instruments for gross alpha, beta, and gamma analyses, a liquid scintillation counter and a multichannel analyzer.

2. Personnel Dosimeters

   The standard NTS film badge or the Eberline Instrument Corporation thermoluminescent dosimeter (TLD) will be used as the personnel dosimeter of record.

3. Sample Preparation and Analytical Facilities

   Mobile laboratory trailers will be maintained for sample preparation and housing laboratory counting instruments at an on-site location to be established. Suitable electrical power and water will be furnished by NV/E&L at this location.

4. Protective Clothing and Equipment

   An ample supply of coveralls, gloves, rubber shoe covers, dust respirators and other necessary equipment will be maintained at the radiological access control location for the UC-1 area.

5. Decontamination Facilities

   a. Personnel - A means of decontaminating personnel will be available.

   b. Laundry Facilities - No laundry facility for radiologically contaminated clothing will be maintained on site. Arrangements for handling contaminated clothing at an approved off-CNTA location will be established.

   c. Equipment - Decontamination facilities for equipment will be instituted and developed as required.

6. Environmental Sampling Equipment

   Equipment for obtaining biological, soil, and soil moisture samples at depths up to six feet must be available at CNTA. In addition, equipment should be available to obtain samples from the bottom of the post-shot drillback mouse and rat holes.

D. Radiological Safety Procedures

1. Personnel Contamination Control

a. Personnel actively engaged in handling radioactively contaminated or potentially contaminated equipment and materials will wear a minimum of anti-contamination (anti-C) apparel consisting of coveralls, gloves, and rubber shoe covers. Changes in the amount and types of protective apparel may be prescribed as appropriate by the RSSC. If possible all such changes shall have the concurrence of the ROD representative before being put into practice.

b. All personnel leaving potentially contaminated or contaminated areas will be required to receive an appropriate radiation survey prior to entering the "clean" area. For casual visitors this will require a minimum of a hand and shoe survey by a qualified radiation monitor. A complete personnel survey will be performed by a qualified monitor for employees who have been actively working with contaminated materials.

All personnel monitoring surveys will be conducted using the type of instrument for the appropriate radiation of concern. Beta-gamma detectors must have not more than 7 mg/cm^2 of absorbing window thickness.

2. Internal Dosimetry

Urine samples will be obtained from all workers actively engaged in RADEX areas prior to entering these areas (base line sample) and at the completion of the total operation or at weekly intervals, whichever is the shorter period.

On-site analysis will consist of gross gamma counts. Any levels above 3 σ of the base line count will require an immediate 24-hour composite sample and immediate notification of the ROD representative.

Should tritiated water or soils be encountered at the work location, the on-site analysis will also consist of tritium measurement using liquid scintillation techniques. Any urine sample having tritium in excess of 3 σ of the base line sample will require immediate initiation of a 24-hour composite sample and immediate notification of the ROD representative. All 24-hour composite samples will be forwarded to an appropriate low level laboratory for a more detailed qualitative analysis. A verbal report of the results will be made as soon as possible to the ROD representative.

3. External Dosimetry

Film or TLD badges will be required on demobilization personnel only while working within the radiologically controlled areas. Film exchange will be on a monthly basis or at job termination, whichever is the shorter period.

4. Contaminated Materials

Liquids - All contaminated liquids will be contained and solidified for shipment to the NTS or returned downhole to the Project Faultless chimney.

Solid Waste - All contaminated solid wastes (soil and debris) will be properly packaged for shipment to the NTS for disposal.

Equipment - All contaminated equipment will be decontaminated if feasible and disposed of according to the degree of contamination remaining. Equipment remaining contaminated above the criteria levels provided in this plan after two attempts to decontaminate will be properly packaged for shipment to the NTS.

Anti-C Apparel - All contaminated apparel will be properly packaged for shipment to a qualified radiological decontamination laundry.

Samples (liquid and solids) - Those samples having radioactivity levels above that level which the DOT regulations define as "radioactive material" will be handled in accordance with DOT and AEC regulations.

5. Decontamination

Field decontamination, if required, of personnel and equipment will be attempted under RSSC supervision. All incidents of detected personnel contamination will be reported to the ROD representative as soon as possible.

If decontamination is not successful, the ROD representative will be consulted for further guidance.

All waste and effluents from decontamination operations will be considered contaminated waste.

6. Release Limits for Contaminated Materials

All items registering any radioactivity above normal background based on use of a portable survey instrument having not more than a total of 7 mg/cm^2 of absorbing material shall be considered contaminated and controlled appropriately.

Items not registering activity levels above background on portable instruments will be swipe tested. Swipes will be made with Whatman-41 filters over 100 cm^2 of the surface in question. Wet swipes will be used for tritium determinations and dry swipes for alpha, beta, and gamma. Items whose swipes exhibit activity in excess of AEC HQ criteria will be considered contaminated. Those swipes having activity below cleanup criteria may be released for public use.

Any item having inaccessible surfaces for monitoring or swiping and which otherwise indicates no detectable activity will be considered potentially contaminated and not certified for release to public salvage. The AEC Site Manager will determine whether such objects merit disassembly for monitoring and/or decontamination.

Masses of small items, junk, etc. found within a contaminated area having little or no intrinsic value, and requiring a prohibitive expenditure of man-hours to survey or swipe, will be considered as contaminated waste.

All soil and vegetative matter contaminated to levels in excess of the AEC Headquarters cleanup criteria will be packaged according to part D.7, Packaging and Shipping Criteria for Radioactive Materials, and transported to the NTS.

7. Packaging and Shipping Criteria for Radioactive Materials

It is expected that all radioactively contaminated materials and equipment intended for shipment from the Central Nevada Test Area can be shipped under one of the DOT categories entitled (a) Small Quantities, (b) Low Specific Activities, and (c) Type A Quantities.

Regulations for transportation of these materials vary according to the mode of travel and according to whether the vehicle is in sole-use status.

The RSSC as well as the shipper of the radioactive material is expected to be cognizant of and have available the current shipping regulations as presented in the following document in order to assure compliance with the applicable regulations: Code of Federal Regulations, Title 49, Transportation, Parts 1 to 199.

All packages, particularly those of a complex nature, will be thoroughly inspected to assure there is no unintentional shipment of radioactive liquids in or associated with the package.

8. Transportation of Radioactive Materials

Radioactive solid waste, soil, and contaminated equipment may have to be transported by truck from CNTA to NTS. All

transportation of such material will be in accordance with Section D.7 of this plan. In addition, the following procedures are required.

a. The shipment shall be inspected for containment integrity prior to embarkation on the conveyance removing it from the packaging and/or storage location on CNTA and subsequently at each point at which the conveyance makes a planned or unplanned stop, and at the final destination. The inspection shall include examination for leakage, damage, and any other abnormal condition of the shipment which would affect its safe transportation to the final destination. At points of material transfer from one conveyance to another, each package and each conveyance (new and old) shall be surveyed and swipe tested to assure that no leakage of radioactive material has occurred.

b. The locations and times of all stops, transfers, etc., and the results of any surveys and swipe tests shall be documented and reported upon completion of the transportation.

c. Any vehicle found contaminated will be decontaminated and all vehicles utilized will be certified in writing as being radiologically clean prior to release from the mission. One copy of this certification will be forwarded to the ROD representative and the original given to the operator of the vehicle.

d. Any spillage or leaking of radioactive materials occurring during transportation of the shipment will be immediately reported to the ROD representative. Action will be taken to protect personnel and to reduce or prevent any spread of contamination.

9. Radioactive Materials Storage Area(s)

The need for storage of contaminated waste, soil, etc. may arise during CNTA cleanup and demobilization operations. If and when the need does arise, the RSSC should make the need known to the AEC Site Manager through the ROD representative. At that time a mutually acceptable location will be selected.

In general, storage locations should be such that the items stored are protected from harsh environmental conditions; the area should be posted with proper signs and access controls established.

IV. RECORDS AND REPORTS

A complete record will be maintained of all radiological surveys, disposals, occurrences and shipments of radioactive materials associated with the CNTA cleanup and demobilization.

Current records shall be provided the ROD representative as the program progresses.

Upon completion of the program the RSSC shall provide the ROD/NV with a detailed final report of the cleanup effort and final survey results. Both graphic and tabular displays plus a narrative interpretation of the data shall be utilized to present the desired information. Copies of personnel exposure history and bioassay records will be provided to the REECo Environmental Sciences Department for incorporation into master exposure records.

V. CLASSIFICATION

Classification guidance provided by the NV Classification Officer indicates that radioactive materials and/or radioactively contaminated materials originating from the FAULTLESS test which have beta plus gamma exposure rates in excess of 0.1 mrad/h above background as measured at 1 cm through not more than 7 mg/cm^2 absorber will be classified as Secret-Restricted Data and must be protected as such.

The movement of classified (radioactive) material from any location at CNTA shall be in accordance with procedures established by the Director, Security Division, NV. All such classified materials will be returned to the NTS by AEC couriers or by Q-cleared escorts on a schedule approved by the NV Radiological Operations Divison and the Security Division.