

## CHAPTER 4

### RESOURCE MANAGEMENT GOALS

This chapter contains the goals for the management of resources and land-use constraints that the DOE is proposing to include in this *Resource Management Plan*. They are based on public comment, laws, regulations, and the DOE's policies for the management of these resources and constraints. These goals are general, qualitative statements summarizing the DOE's commitments for managing resources. In the future, they may be revised to include more specific, quantitative information that can be used to identify limits on resource uses and conflicts between alternate uses and goals. They will be used to evaluate the effects of the DOE/NV activities on resource issues and to identify management actions needed for wise resource use and sound ecosystem management. Also included are brief explanations of why the DOE chose these goals; constraints on the use or management of the resources imposed by laws, regulations, mission requirements, and prior DOE commitments; limitations on the DOE's ability to achieve the goals; and, when available, map products documenting the DOE's knowledge of NTS resources and constraints.

There will be times when mission requirements and/or goals for resources conflict and cannot be achieved simultaneously. These conflicts will be identified and proposed resolutions evaluated during the National Environmental Policy Act review process and discussed in the appropriate Environmental Assessment or EIS. Possible solutions that may be considered include canceling a proposed mission, modifying a proposed mission to reduce impacts on a resource, modifying existing missions, or not achieving a goal. Of course, goals based on federal, state, and county laws and regulations, and human health and safety, will always be adhered to. As part of the National Environmental Policy Act review process, interested parties will then be able to comment on the conflicts and proposed resolutions. Decisionmakers within the DOE or other appropriate agencies will then select a resolution based on costs, benefits, and public comments.

#### 4.1 Existing Missions

The DOE/NV identified two goals to ensure the success of existing missions on the NTS:

- Ensure new uses of the NTS do not interfere with critical operations of existing missions or create additional costs for those missions
- Manage existing missions in a way that most effectively and efficiently uses the resources of the NTS.

The first goal was selected to ensure that the land and other resources required for ongoing missions are reserved for those missions, and that the siting and operation of new missions, does not jeopardize the success of those missions. If alternative uses such as industrial, commercial, or recreational are accepted for the NTS to promote economic development or other needs of interested parties, those uses will then be treated as existing missions. Resource requirements for those uses will be identified and reserved. Currently, conflicts with existing missions are minimized through the Site Development Planning and Operations Permit processes. The second goal was chosen to ensure that existing missions are operated in a safe and prudent manner that does not jeopardize new missions.

#### 4.2 Site Support Activities and Facilities

The maintenance of the infrastructure and facilities on the NTS is critical to the success of ongoing missions on the NTS and for sustaining the value of this site as a premier outdoor laboratory. The following goals will ensure that ongoing missions are supported and the potential for future missions is maintained:

- Support existing NTS missions by maintaining existing infrastructure and facilities

- Accommodate expanded uses of the NTS through proactive planning and development of new or expanded infrastructure
- Site new facilities to take maximum advantage of existing site support activities and facilities.

The DOE/NV's ability to maintain and expand site support activities will be constrained by availability of funding. The third goal was chosen to minimize the environmental and economic impacts of having to develop a new, redundant infrastructure and facilities. Currently, the use of existing site support activities and facilities is managed through the Site Development Planning and Operations Permit processes and by NTS Standard Operating Procedure 4304 (DOE/NV, 1994b).

The DOE has developed several map products through the use of a geographic information system to assist the infrastructure planning effort. Plate 1 provides a representation of the NTS road network; other maps identifying facility and other infrastructure features are currently under development.

### 4.3 Health and Safety

Worker and public health and safety are top priorities for the DOE on the NTS. Consideration of safety requirements and risks during the siting of new facilities, as required by the following goal, will minimize those risks.

- Site new facilities in areas that comply with applicable safety regulations and have minimal radiation and other safety risks.

This goal will also eliminate the costs of adapting new facilities to minimize risks associated with inherently unsafe sites. Health and safety requirements are defined in the DOE directives and are considered in the design criteria for each construction effort.

Areas of the NTS which pose health or safety risks include those associated with past nuclear activities. Plate 2 shows the locations of past nuclear tests. Plate 3 shows manmade radiation exposure rates, and Plate 4 shows the total terrestrial exposure rate.

### 4.4 Land

Use of the NTS is controlled by public land withdrawals and other legal constraints. The DOE developed the following goals to comply with legal restrictions and to minimize construction costs:

- Site new facilities to ensure compliance with public land withdrawals, Memorandum of Understanding, and other legal constraints on use of real estate
- When possible, site new facilities in, or as close as possible, to previously disturbed lands in order to preserve and protect undisturbed land
- When possible, site new facilities in areas with suitable soil, slope, drainage, and other natural features.

The first goal was developed to ensure that those restrictions are considered. The legally acceptable uses for all lands on the NTS will be identified and incorporated into land-use planning. Land withdrawals pertaining to the NTS are discussed in Volume 1 of the NTS EIS.

The second goal will promote the long-term protection of natural resources on the NTS. Because vegetation in the desert ecosystem on the NTS takes a long time to return to its predisturbance state (Angerer et al., 1994), one of the best ways to protect natural environments is to minimize disturbances. The ability to achieve this goal may be constrained by the operational requirements of specific activities.

There are numerous locations on the NTS that have steep slopes, unstable soil, or other natural features that will require expensive modification of facilities constructed on those locations. The third goal was selected to require the consideration of those constraints during land-use planning and to minimize construction costs. The ability to achieve this goal will be constrained by the land-use requirements of each project or facility. For example, a monitoring station or other facility that must be located in a specific, remote section of the NTS will be designed and constructed to fit that

site, even if there are additional construction costs for adapting the facility to the site. Engineering constraints such as these are considered in the design criteria for each construction effort.

Plates 5 and 6 show the topography and surface drainage, respectively, of the NTS. In addition to natural hazards, areas of the NTS have been permanently disturbed as a result of underground nuclear testing. Plate 7 shows the areas within Yucca Flat where land use is constrained by the presence of nuclear explosion craters.

#### 4.5 Water

The following goals were selected to ensure the quality and quantity of surface and subsurface water:

- Maintain an adequate water supply for existing uses on the NTS while ensuring a long-term sustainable supply of water for the NTS and the surrounding ecosystem
- Maintain the quality of those waters that are presently clean enough to be in compliance with state and federal standards.

The first goal was selected to ensure that a balance is achieved between current use of water on the NTS and future sustainable use on the NTS and in the surrounding region. The DOE will strive to achieve the second goal to ensure that available water will be suitable for all future uses and to comply with the Clean Water Act, the Safe Drinking Water Act, and the Nevada Water Pollution Control Law. The DOE/NV currently manages a system of groundwater production and monitoring wells in compliance with applicable state and federal regulations. Withdrawal of water by the DOE/NV on the NTS is exempt from Nevada water laws when water is used to support primary mission activities.

#### 4.6 Cultural and American Indian Resources

To ensure preservation of cultural resources on the NTS, the DOE selected the following goal:

- Identify and protect American Indian, historic, and other cultural resources on the NTS and preserve the historic, cultural, and scientific values they represent, in conformance with all laws and DOE policies, and with the results of consultation with the Consolidated Group of Tribes and Organizations.

This goal was selected to ensure that the DOE complies with all appropriate laws and regulations regarding cultural resources, and to incorporate the results of ongoing consultations with American Indians into the DOE/NV's land-use planning process. The ability to achieve this goal will be constrained by the requirements of ongoing missions and safety considerations on the NTS. Currently, the DOE/NV holds regular working meetings with the Consolidated Group of Tribes and Organizations and, when needed, special studies and visits to the NTS are conducted. These consultations have resulted in 58 mitigation recommendations for protection of cultural resource sites (DRI, 1994). Section 110 of the National Historic Preservation Act requires federal agencies to establish a preservation program to protect and preserve all historic properties, including National Historic Landmarks, and to provide a process for nominating properties to the National Register of Historic Places. The preservation program must ensure that agreements on how adverse effects on National Register properties will be considered are developed and implemented through consultation with local governments, Indian tribes, the State Historic Preservation Office (SHPO), and interested public. Section 106 of the National Historic Preservation Act also requires federal agencies to consult with SHPO as well as the Advisory Council on Historic Preservation when evaluating the effects of their actions on historic properties. American Indian participation in the protection and management of resources at the NTS is not limited to compliance with Section 106 of the Historic Preservation Act, but includes 10 years of consultation with DOE/NV, including the AIRFA compliance program, the NAGPRA compliance program, and the direct participation of American Indians in the writing of sections for the NTS EIS. Consultation that may be implemented in the future, specifically that related to the *Resource Management Plan*, will be successful if it is built on

past and present relationships between the DOE/NV and the Consolidated Group of Tribes and Organizations. The DOE/NV expects to continue these consultations throughout the development and implementation of the *Resource Management Plan* to ensure American Indian participation in managing cultural resources on the NTS.

#### 4.7 Biological Resources

Maintenance of biodiversity and ecosystem integrity is one of the important principles of ecosystem management. To achieve this principle, the DOE selected the following goal:

- Maintain habitat and ecosystem processes needed to support viable populations of all native plants and animals, including state and federal endangered, threatened, and candidate species.

This goal will be achieved by managing human activities that influence the habitat, community structure, and ecosystem processes that are important to each species. By achieving this goal, the DOE will ensure that its activities do not jeopardize the continued existence of any populations of plants or animals on or near the NTS or cause any species to be listed as threatened or endangered under the Endangered Species Act. The goal also ensures compliance with that section of the Endangered Species Act that requires federal agencies to carry out programs for conserving threatened and endangered species. Currently, the DOE/NV consults with the U.S. Fish and Wildlife Service, per Section 7 of the Endangered Species Act to ensure that its actions are not likely to jeopardize the continued existence of any listed species or will not adversely affect critical habitat. In order to comply with the Endangered Species Act at the NTS, the DOE/NV Order 54XC.1B (DOE Order NV54XC.1B, 1994) provides guidance for the protection of threatened, endangered, proposed, and candidate species, and NTS Standard Operating Procedure 5418 (DOE/NV, 1994c) guides the conduct of preconstruction surveys. The DOE/NV monitors the natural environment as part of the Basic Environmental Compliance and Monitoring Program.

Plate 8 shows the distribution of plant species, which in 1995 were designated as candidates for listing under the Endangered Species Act on the NTS. Tortoise sightings and the extent of tortoise habitat are shown on Plate 9. Plates 10 through 16 show areas of land and habitat disturbances on the NTS resulting from historic operations.

#### 4.8 Air

To ensure compliance with applicable air-quality regulations, maintenance of air quality on the NTS, and minimal impact on future missions and the ecosystem, the DOE identified the following goal:

- Ensure that the current air quality attainment designation found on the NTS is maintained so that humans, existing and new missions, and biological resources on and around the NTS are not negatively affected.

Currently, the DOE/NV coordinates with the State of Nevada Division of Environmental Protection, Air Quality Bureau, and implements a permitting program regarding air quality for its facilities at the NTS.

#### 4.9 Geological and Mineral Resources

The DOE selected the following goals regarding the extraction and use of geological and mineral resources on the NTS:

- Minimize impacts to unique geological resources and economically important mineral resources and provide access to the scientific community for the study of those unique resources when possible
- Make economically important geological resources available with minimum adverse impact on the DOE's missions.

The first goal focuses on the conservation and study of unique resources, such as type sections, rare fossils, and the Timber Mountain Caldera National Natural Landmark, and on the prevention of damage to economically important mineral resources through inadvertent actions related to the DOE's missions on the NTS. The second will allow

mining of important geological resources, such as gravel, and allow the possibility of mineral exploration on the NTS. Plates 17 through 20 show subsurface nuclear test locations as an example of how three-dimensional mapping could be used to display geological information. Use of geological resources is not currently permitted on the NTS and, if permitted in the future, will be constrained by the security and safety requirements of the DOE missions, health and safety concerns, land-use agreements, and other regulations.

#### 4.10 Airspace

The following goal was chosen to maximize the effectiveness of restricted airspace over the NTS and surrounding lands:

- Coordinate airspace requirements with surrounding land-management agencies and make restricted airspace available for uses compatible with the DOE's missions.

Currently airspace over the NTS is classified as restricted by the Federal Aviation Administration and controlled by the U.S. Air Force. As missions on the NTS change, the use of airspace will be

evaluated for other possible uses, such as increased military training flights.

#### 4.11 Socioeconomics

The following goal was chosen to ensure that the impact on surrounding areas is considered when making land-use decisions:

- Manage resources and missions in a manner that considers the local and regional social and economic values and stimulates the local and regional economy.

Land-use decisions made for the NTS will affect surrounding communities in such areas as transportation, law enforcement, emergency management, procurement, and economic development. This goal was chosen to ensure that the impact on surrounding communities is considered when making land-use decisions. To the extent consistent with its mission, the DOE/NV will cooperate with land-use plans of local governments such as Nye County and other surrounding counties. On issues related to economic development and its effects on the NTS and its surrounding communities, the DOE/NV will also talk with the Community Reuse Organization.

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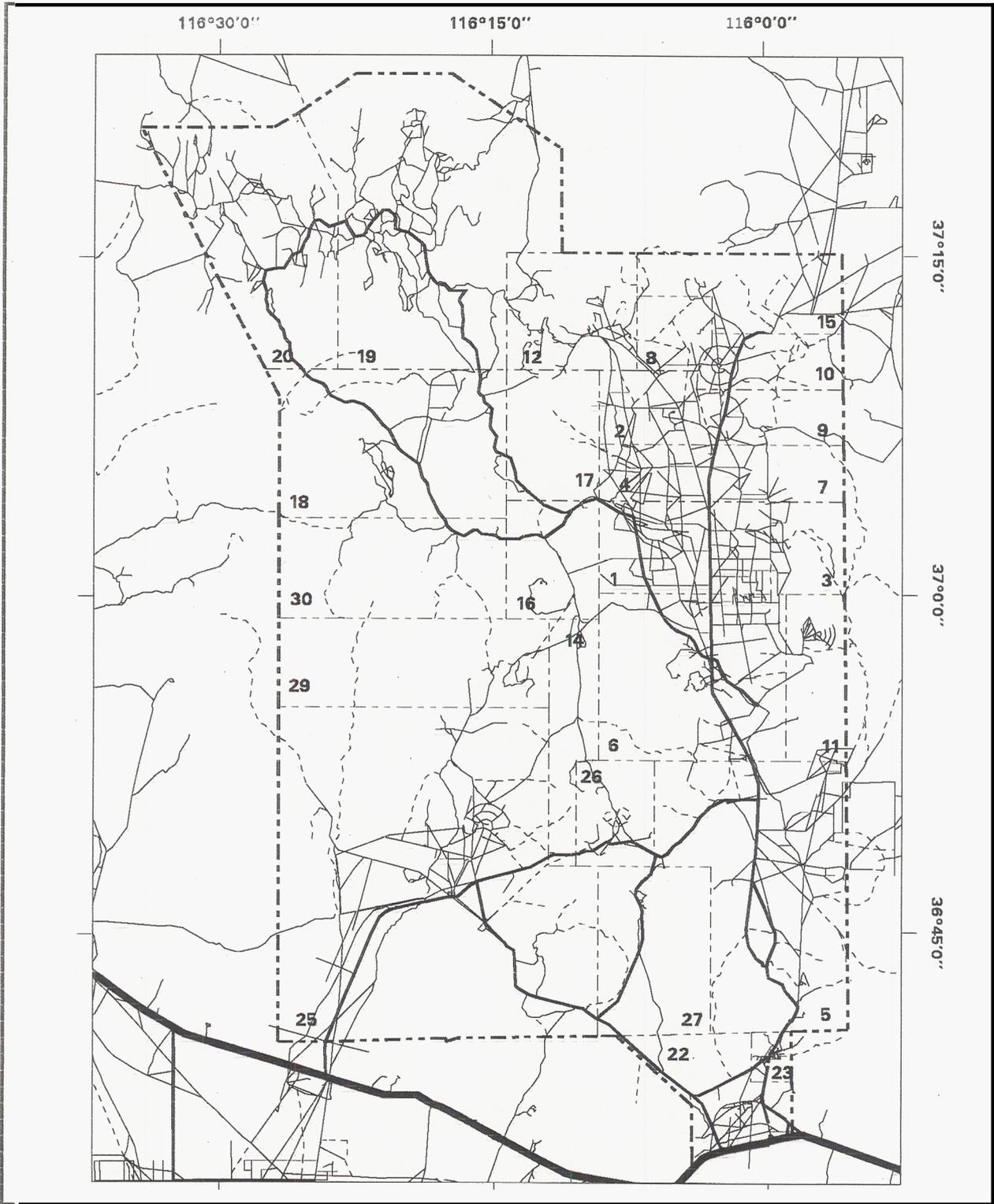
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**CHAPTER 6  
PLATES**

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-  Primary Road
-  Unimproved Road
-  Light Duty Road
-  Trail

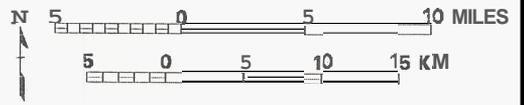
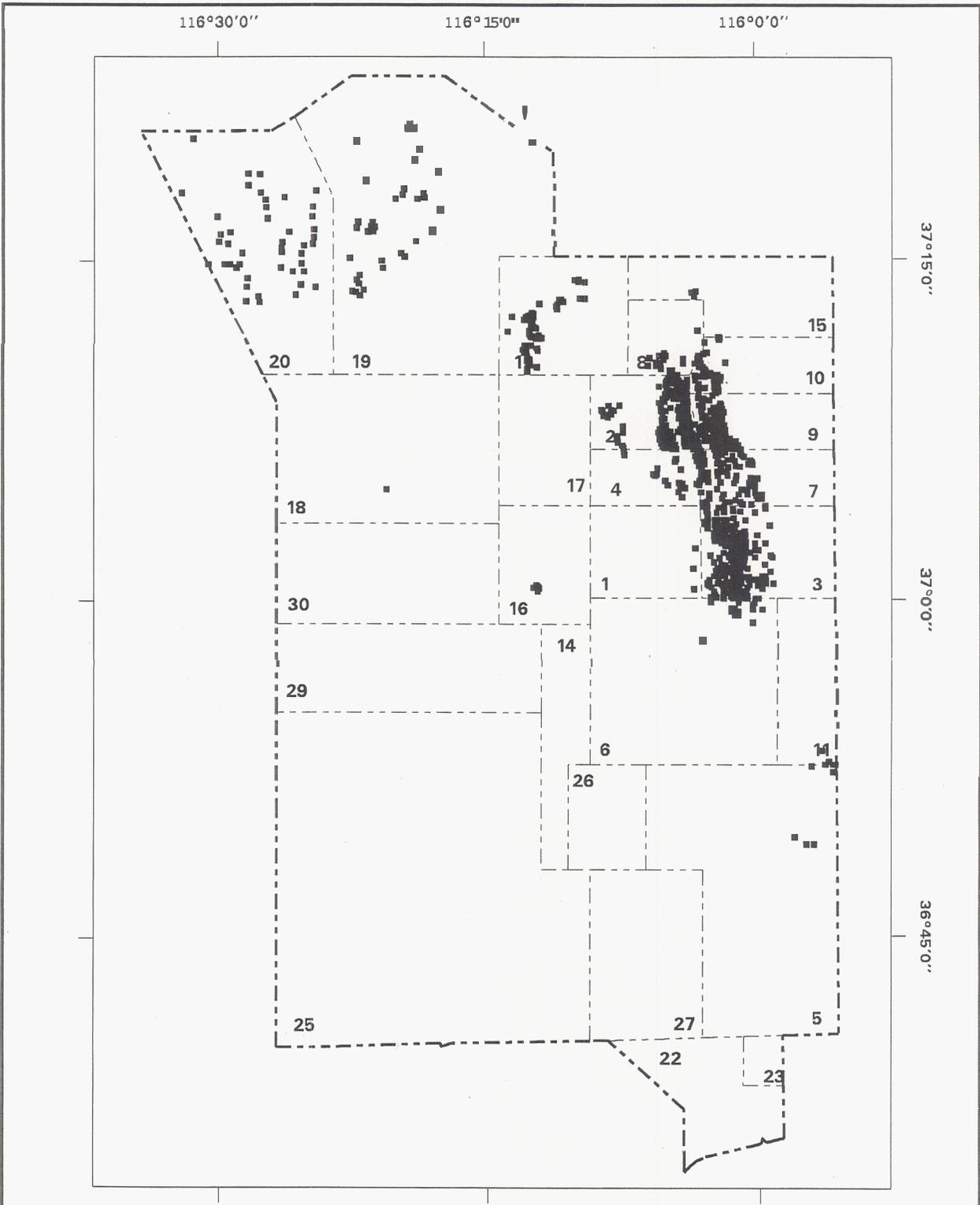


Plate 1: Roads.



■ Events

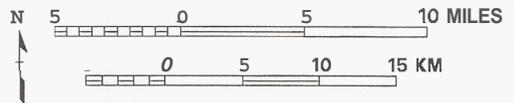
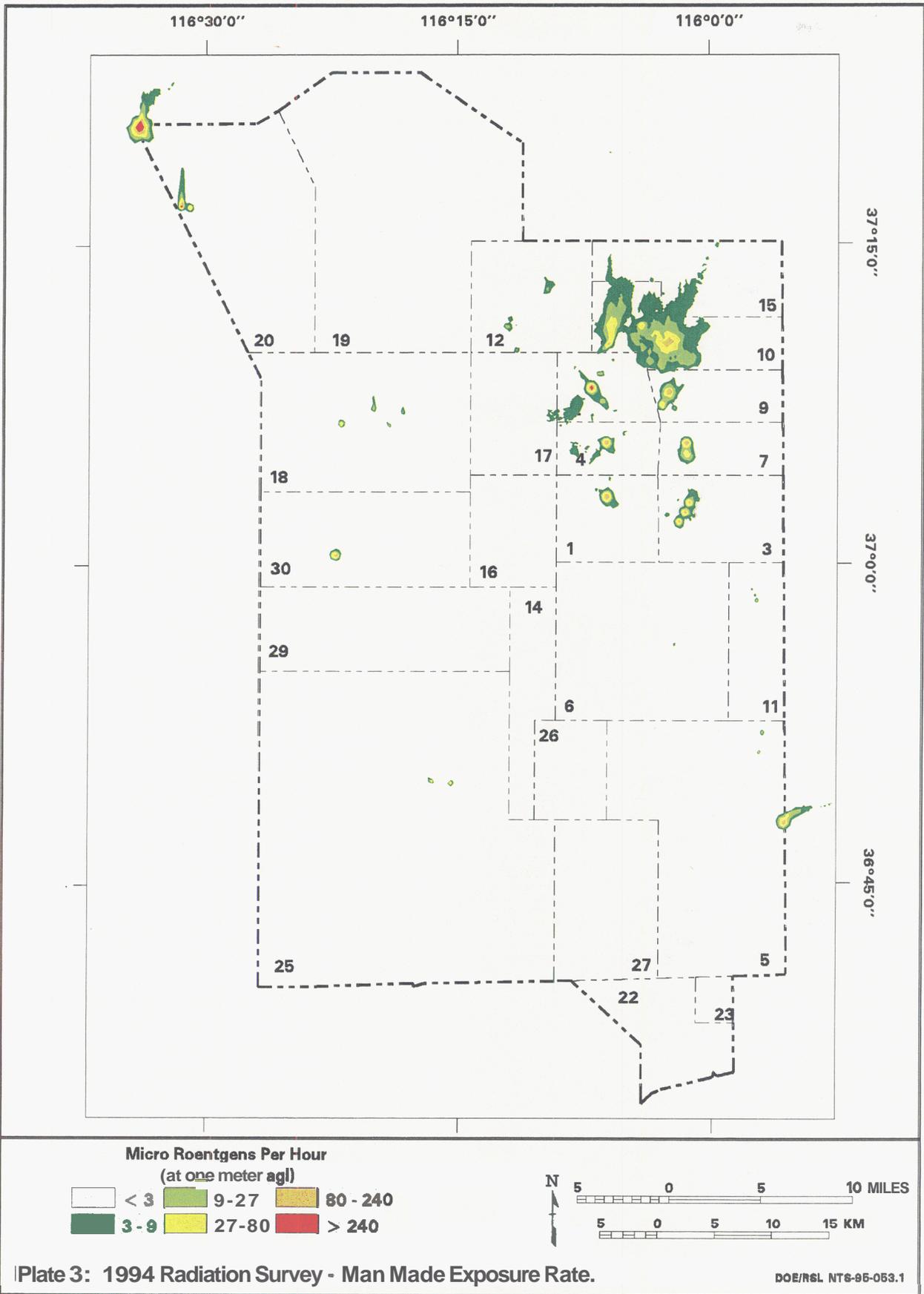
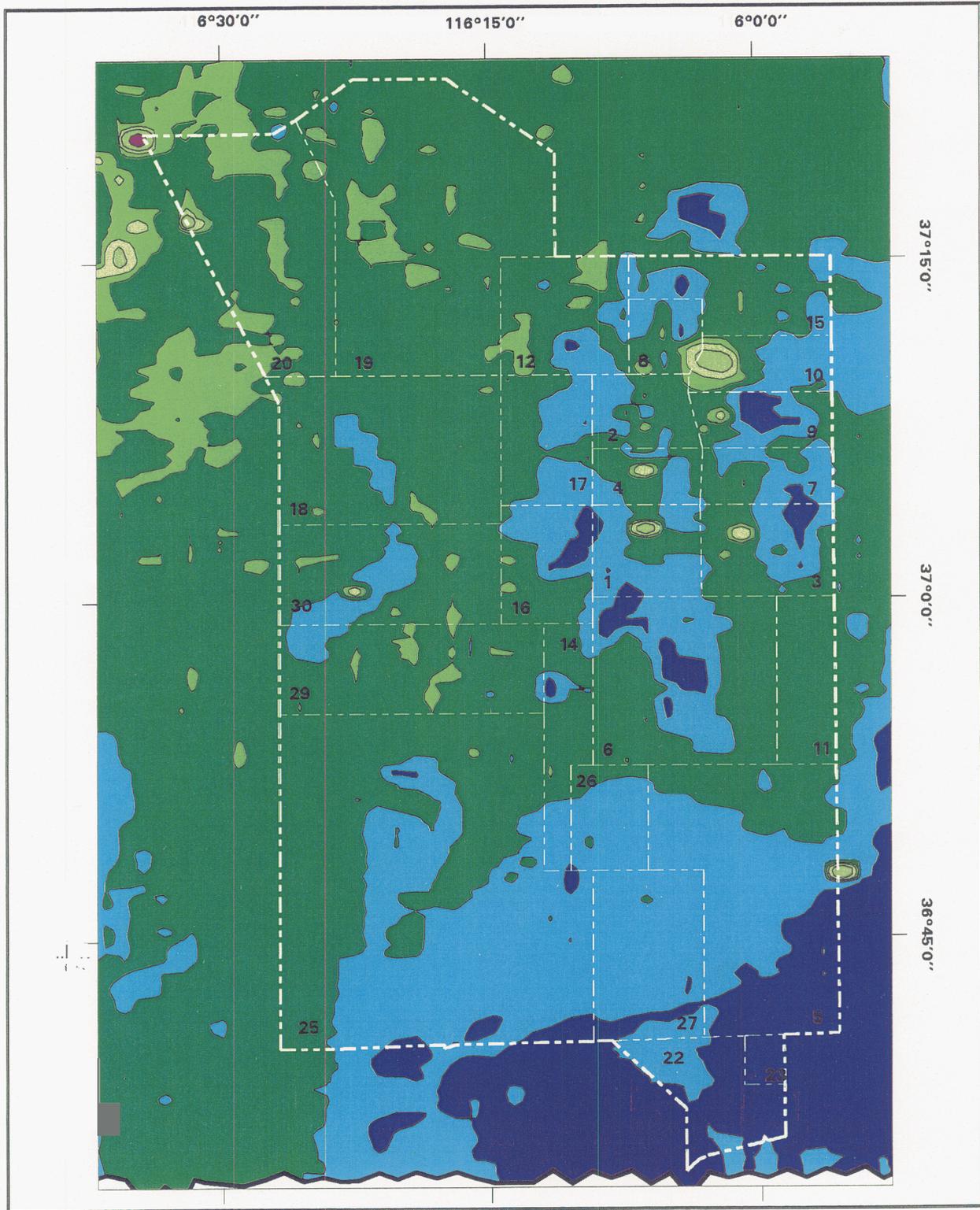


Plate 2: Events.





Micro Roentgens Per Hour  
(at one meter agl)

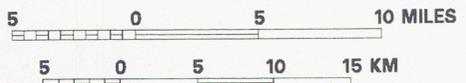
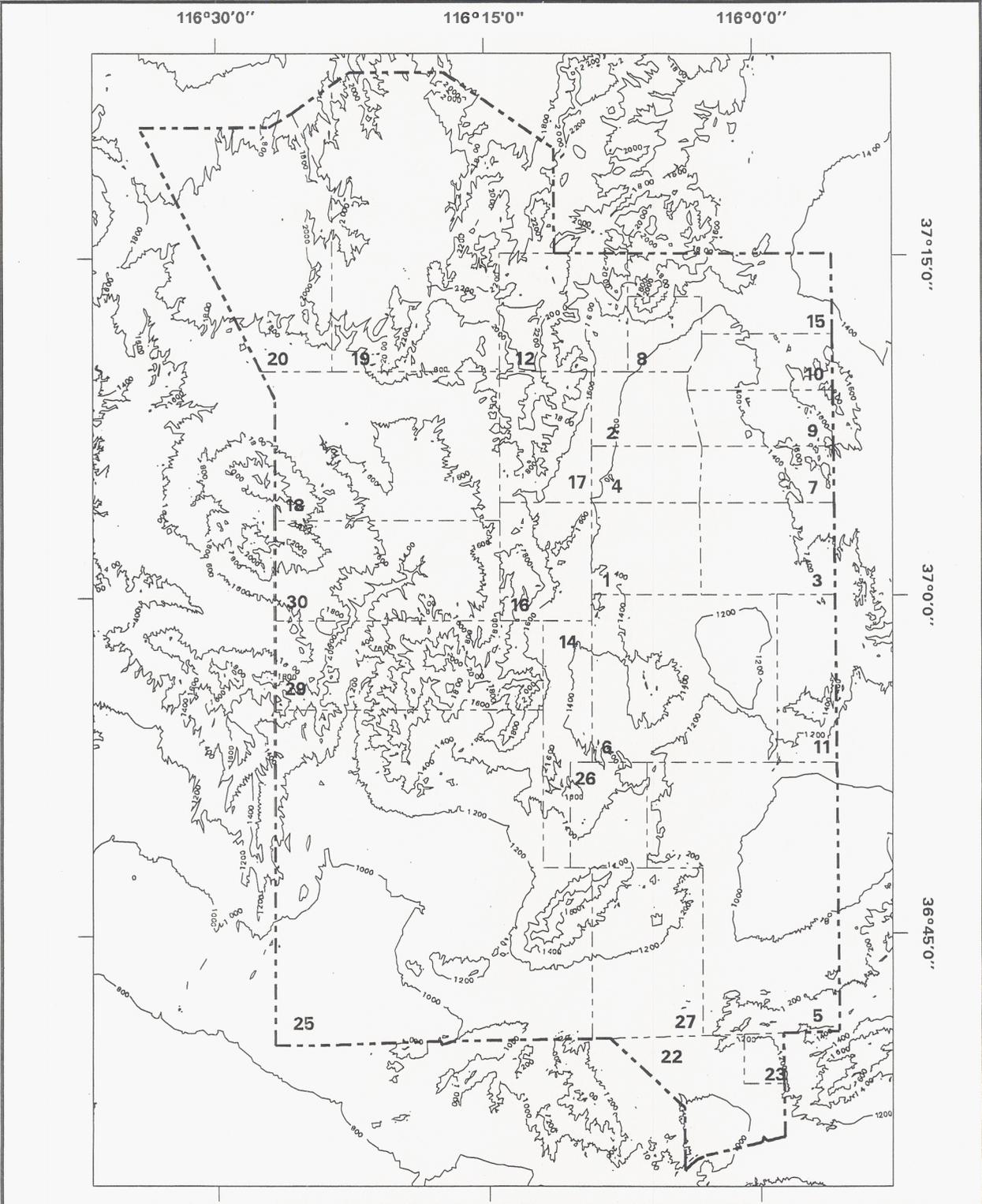


Plate 4: 1992 Radiation Survey - Terrestrial Exposure Rate.

DOE/RSI NT6-95-054.1



∨ 200 Meter Elevation Contour

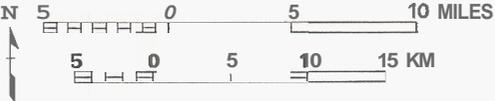
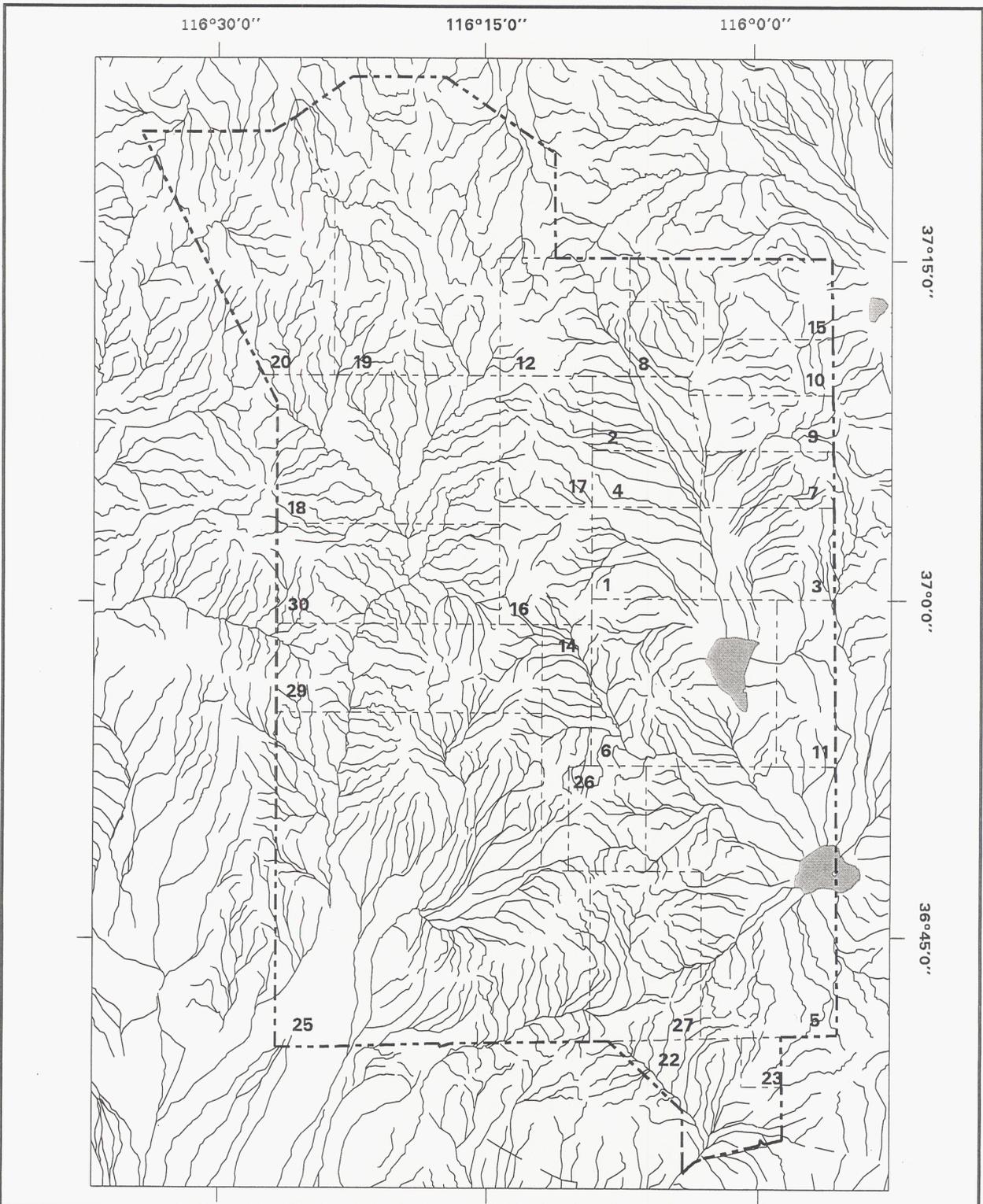
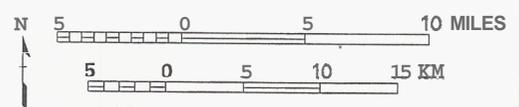


Plate 5: Topography.



 Intermittent Stream  
 Dry Lake



**Plate 6: Surface Drainage.**

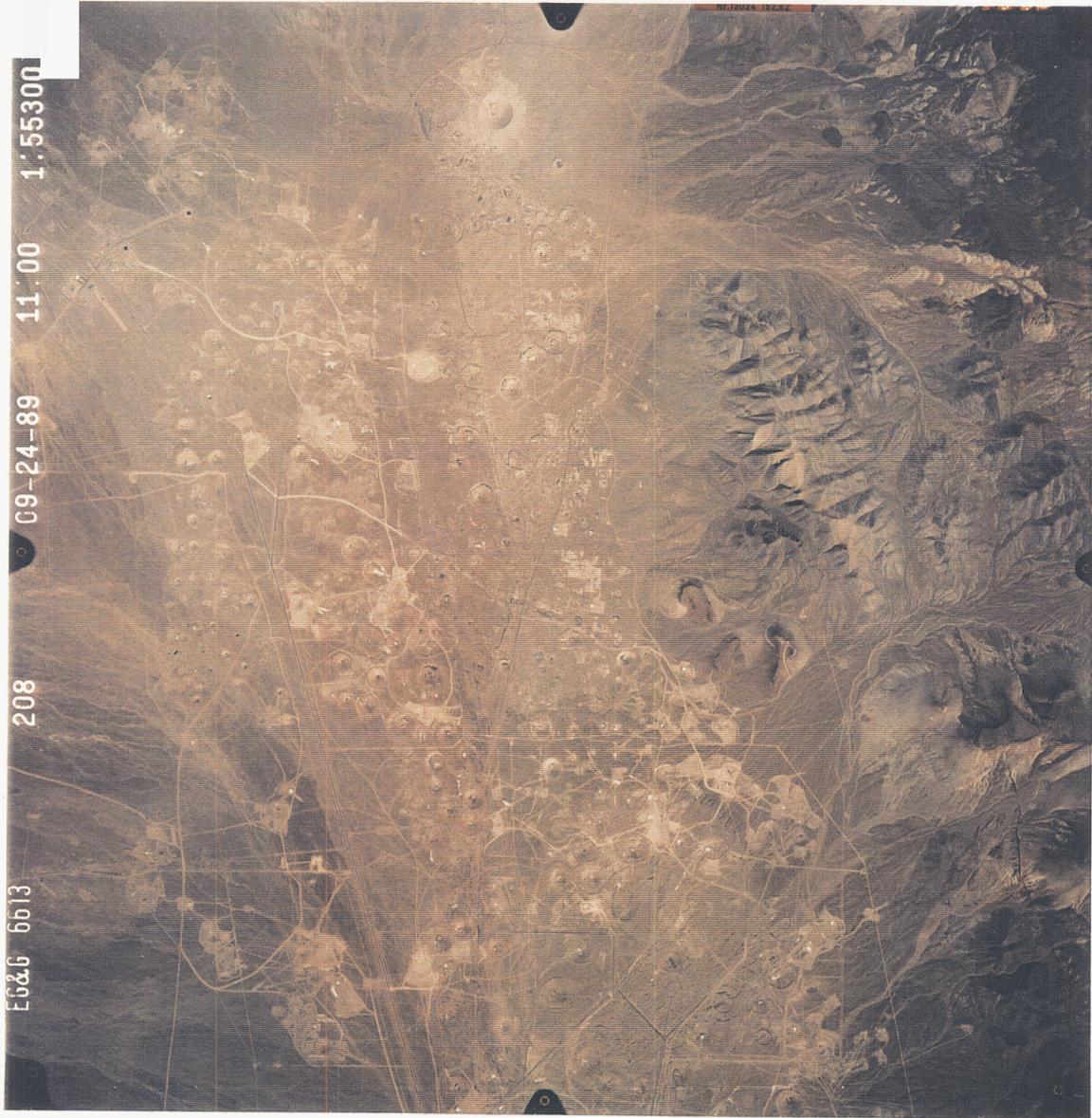
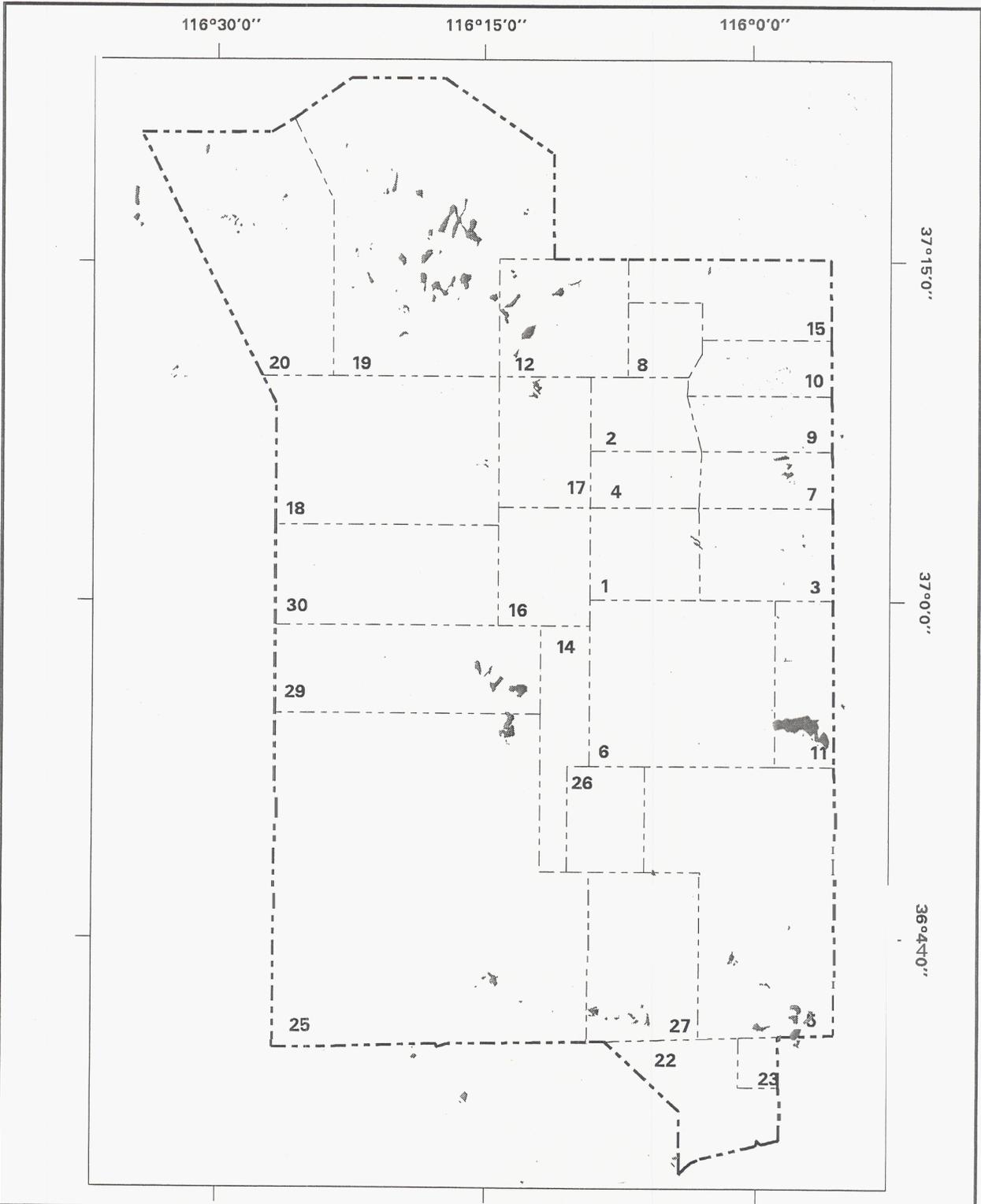
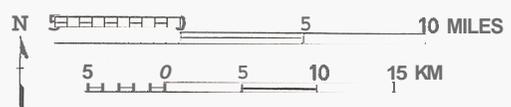


Plate 7: Aerial View of the Many Craters within Yucca Flat.

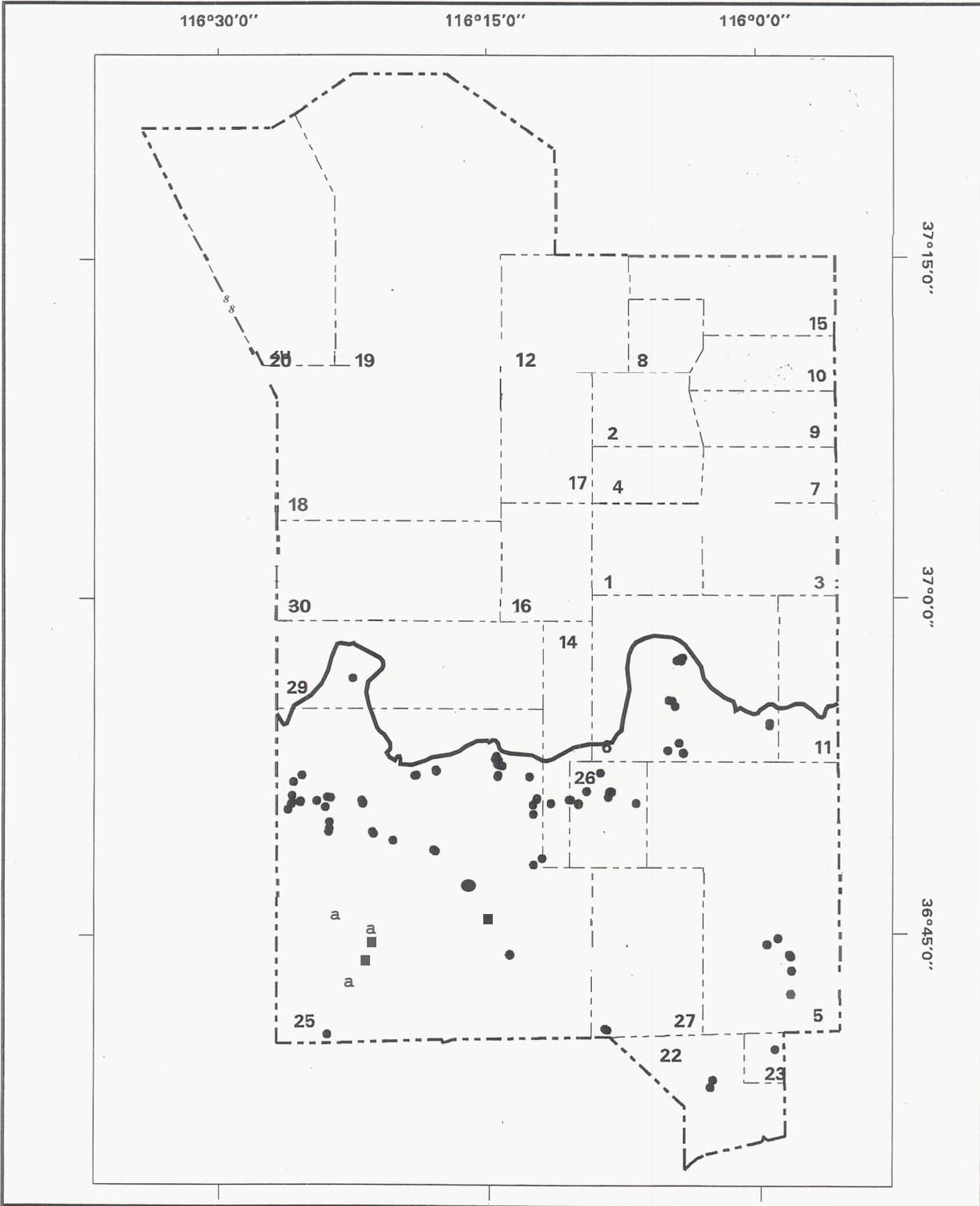
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Candidate Plant Species



**Plate 8: Distribution of Candidate Plant Species.**



• Tortoise Sighting  
 ~ Approximate Northern Extension of the Desert Tortoise

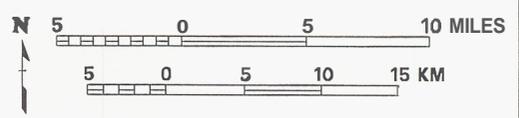
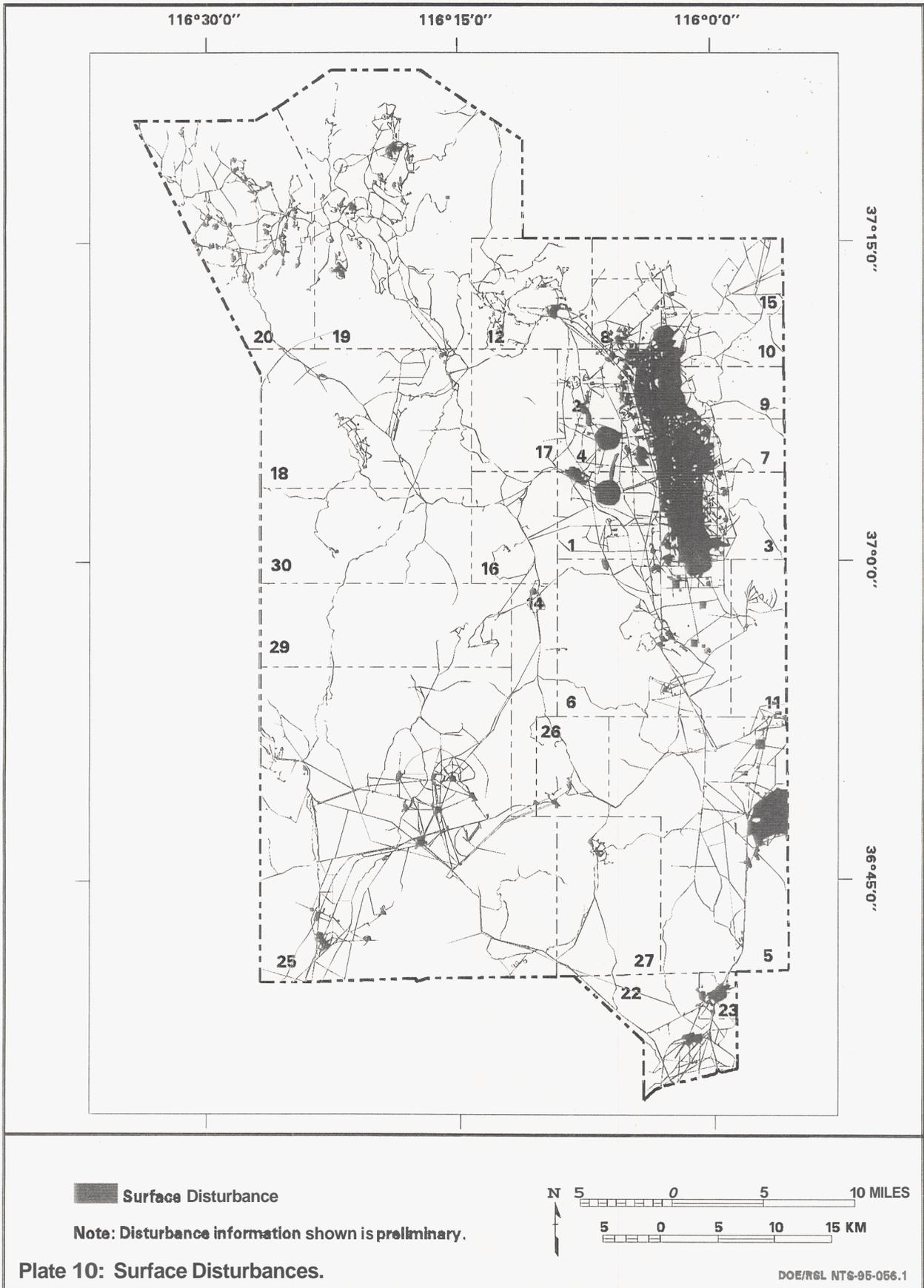
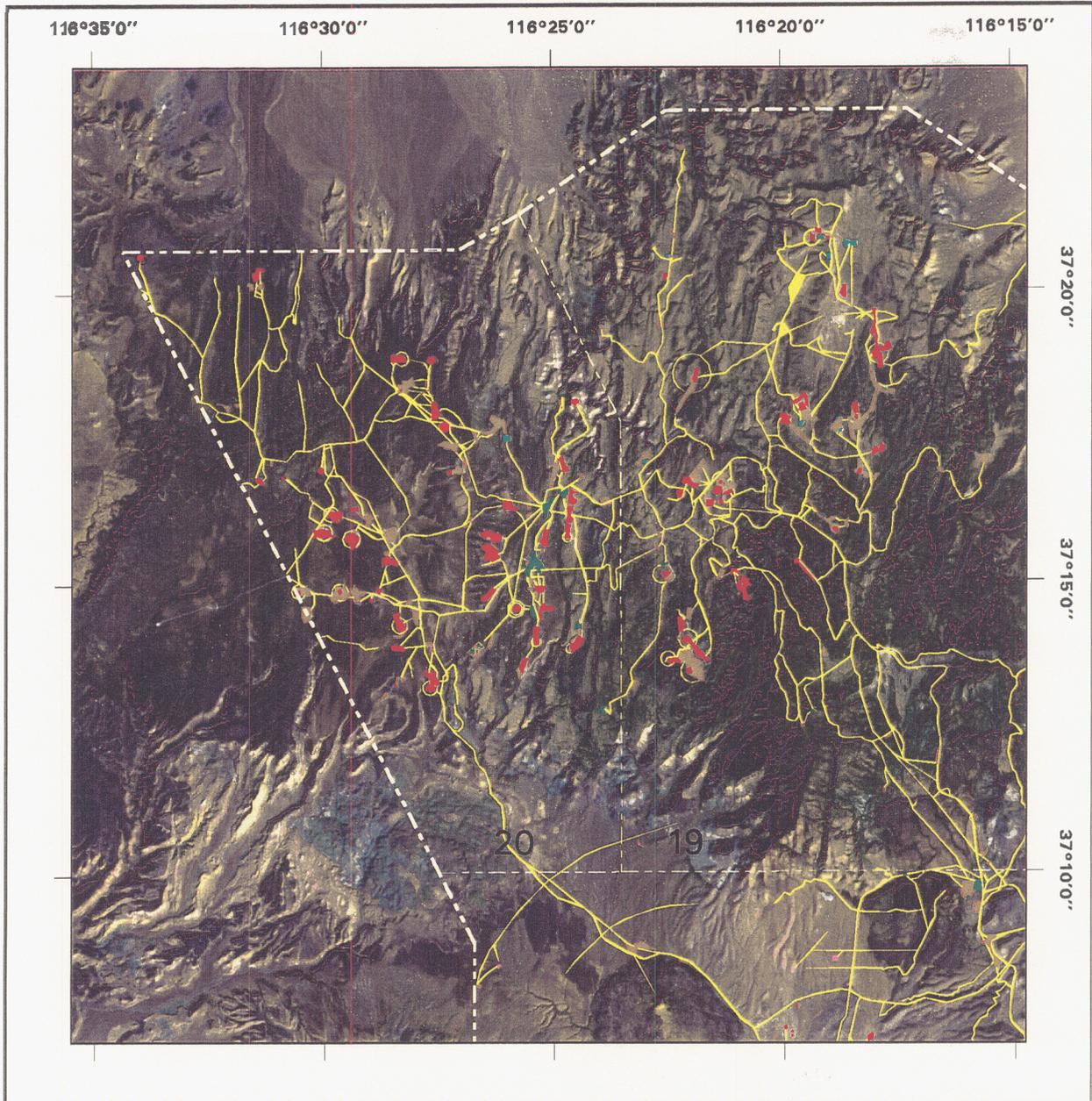


Plate 9: Tortoise Sightings.

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|---|--|
|  Facility Related        |  Earthen Structure      |
|  Suspected Event Related |  Road or Linear Feature |
|  Scrape or Clearing      |  Unknown Type           |

Note: Disturbance information shown is preliminary.

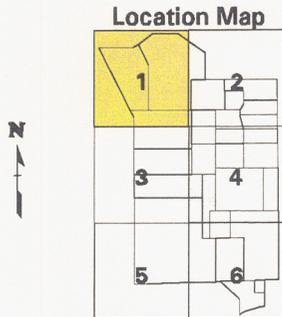
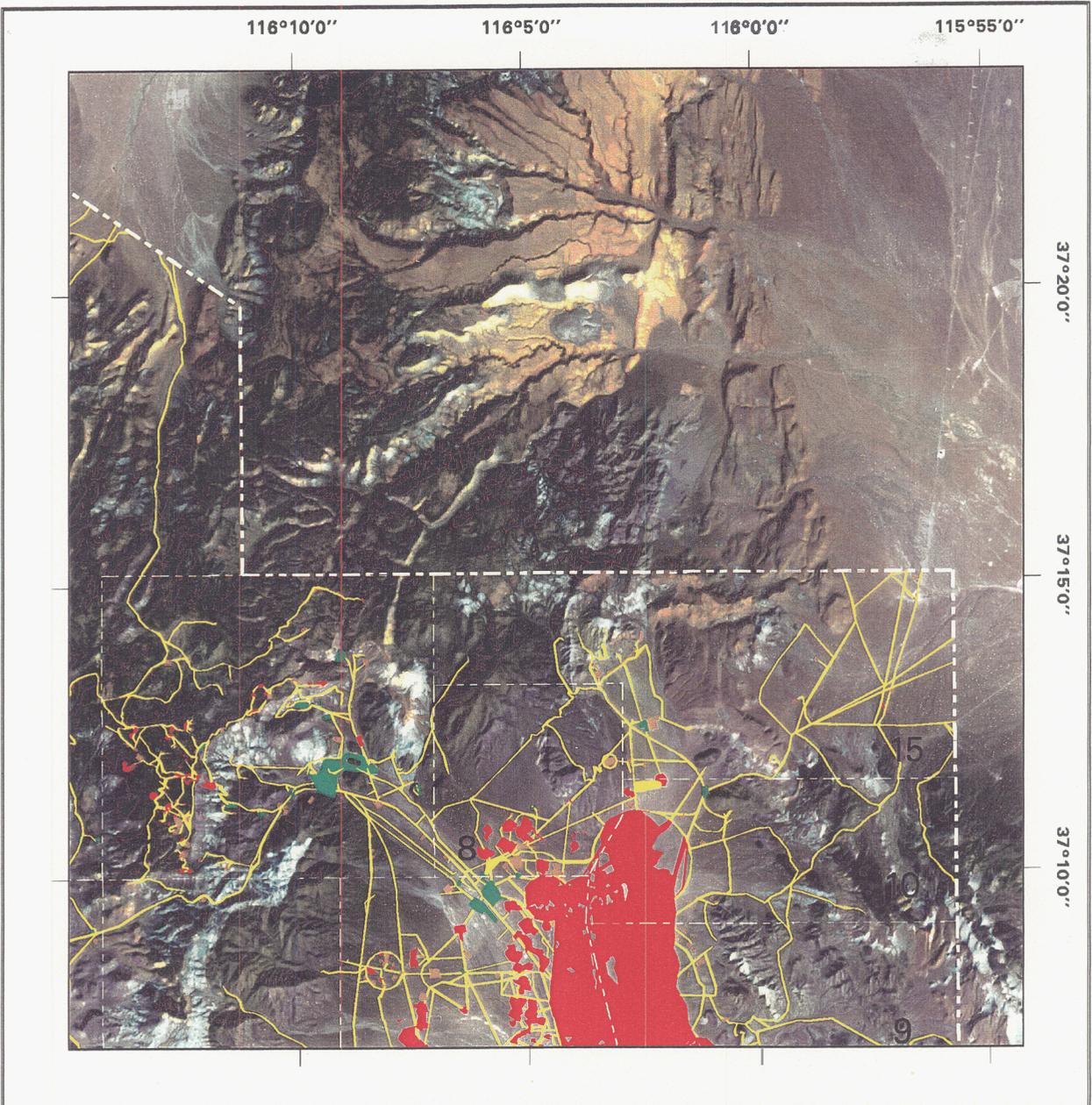


Plate 11: Surface Disturbances - Sheet 1 of 6.



- |   |  |
|---|--|
|  Facility Related        |  Earthen Structure      |
|  Suspected Event Related |  Road or Linear Feature |
|  Scrape or Clearing      |  Unknown Type           |

Note: Disturbance information shown is preliminary.

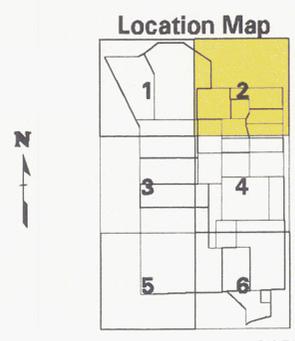


Plate 12: Surface Disturbances - Sheet 2 of 6.

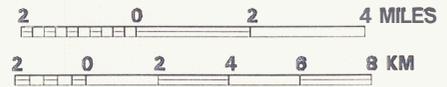
116°35'0"

116°30'0"

116°25'0"

116°20'0"

116°15'0"



- |  |  |
|--|--|
| <span style="color: red;">■</span> Facility Related        | <span style="color: blue;">■</span> Earthen Structure        |
| <span style="color: red;">●</span> Suspected Event Related | <span style="color: yellow;">■</span> Road or Linear Feature |
| <span style="color: orange;">■</span> Scrape or Clearing   | <span style="color: purple;">■</span> Unknown Type           |

Note: Disturbance information shown is preliminary.

Location Map

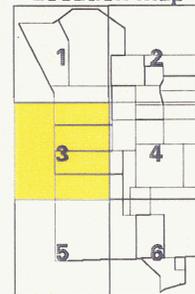
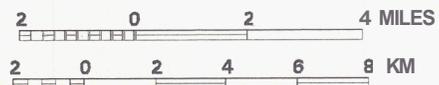
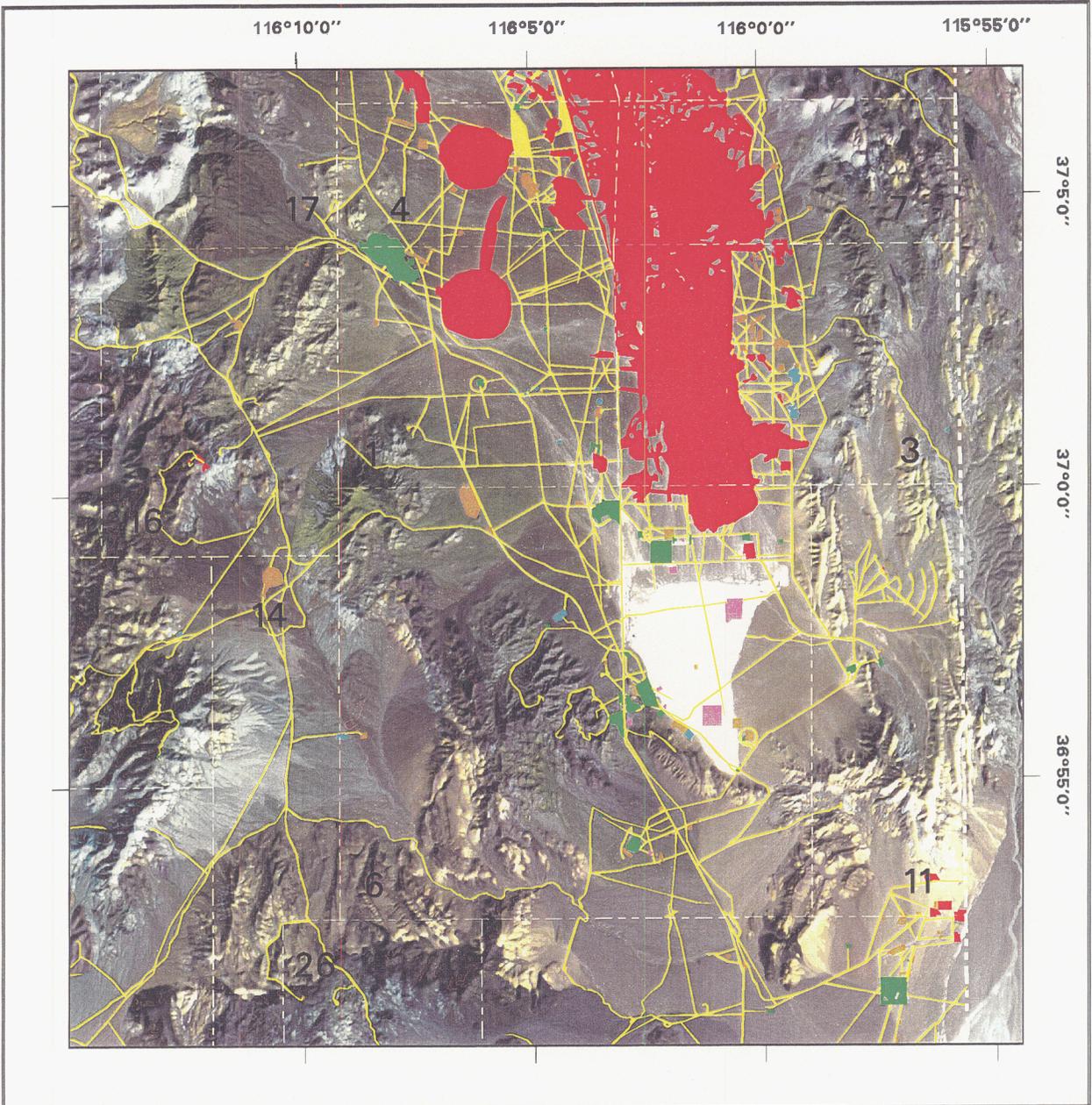


Plate 13: Surface Disturbances - Sheet 3 of 6.

DOE/RL NT6-95-046.2



- |   |  |
|---|--|
|  Facility Related        |  Earthen Structure      |
|  Suspected Event Related |  Road or Linear Feature |
|  Scrape or Clearing      |  Unknown Type           |

Note: Disturbance information shown is preliminary.

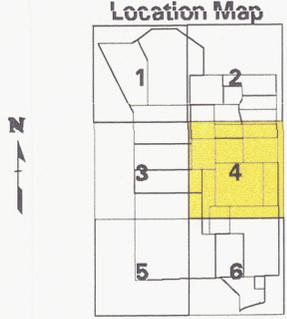
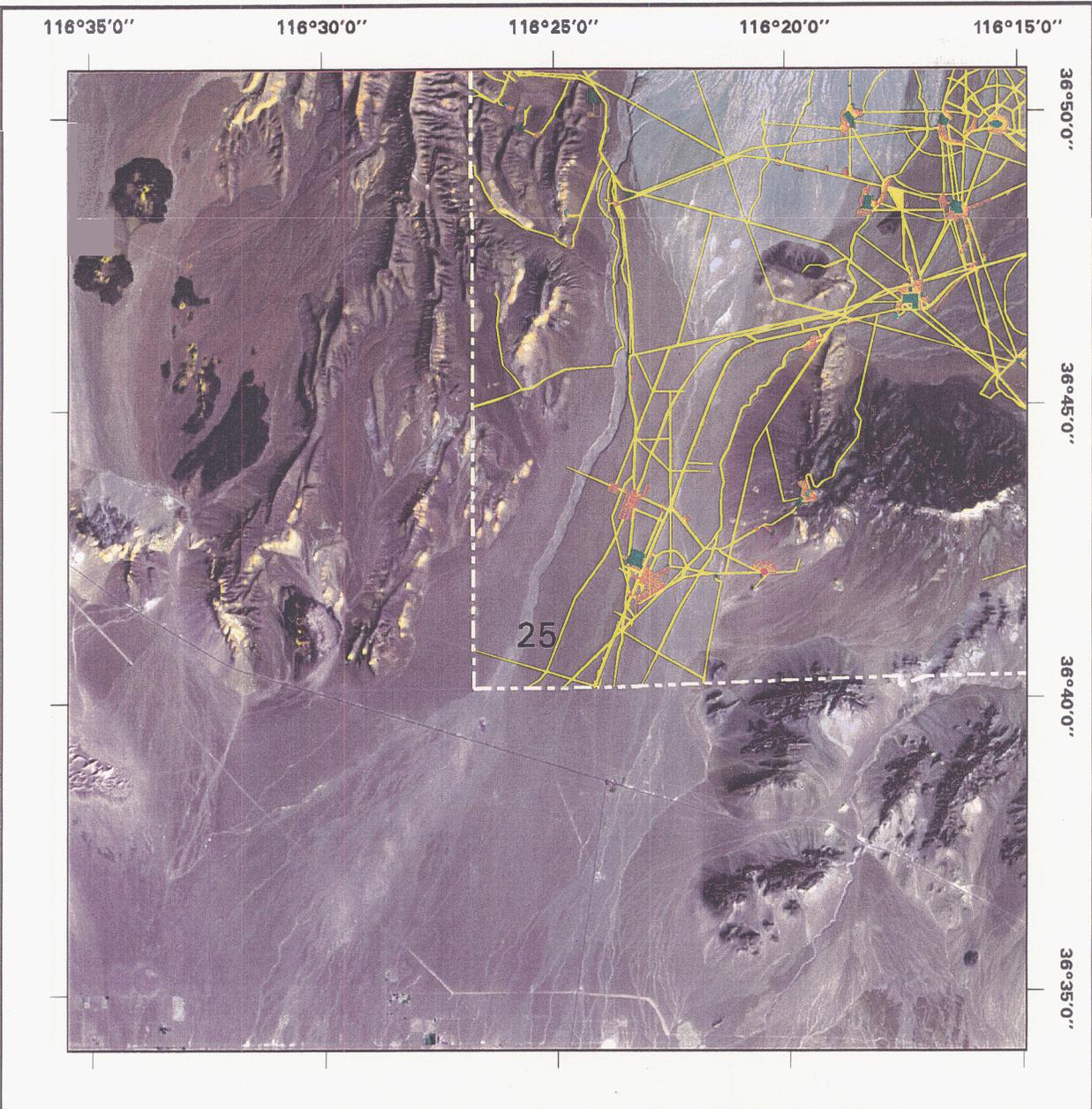


Plate 14: Surface Disturbances - Sheet 4 of 6.



- |   |  |
|---|--|
|  Facility Related        |  Earthen Structure      |
|  Suspected Event Related |  Road or Linear Feature |
|  Scrape or Clearing      |  Unknown Type           |

Note: Disturbance information shown is preliminary.

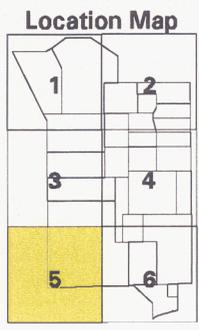
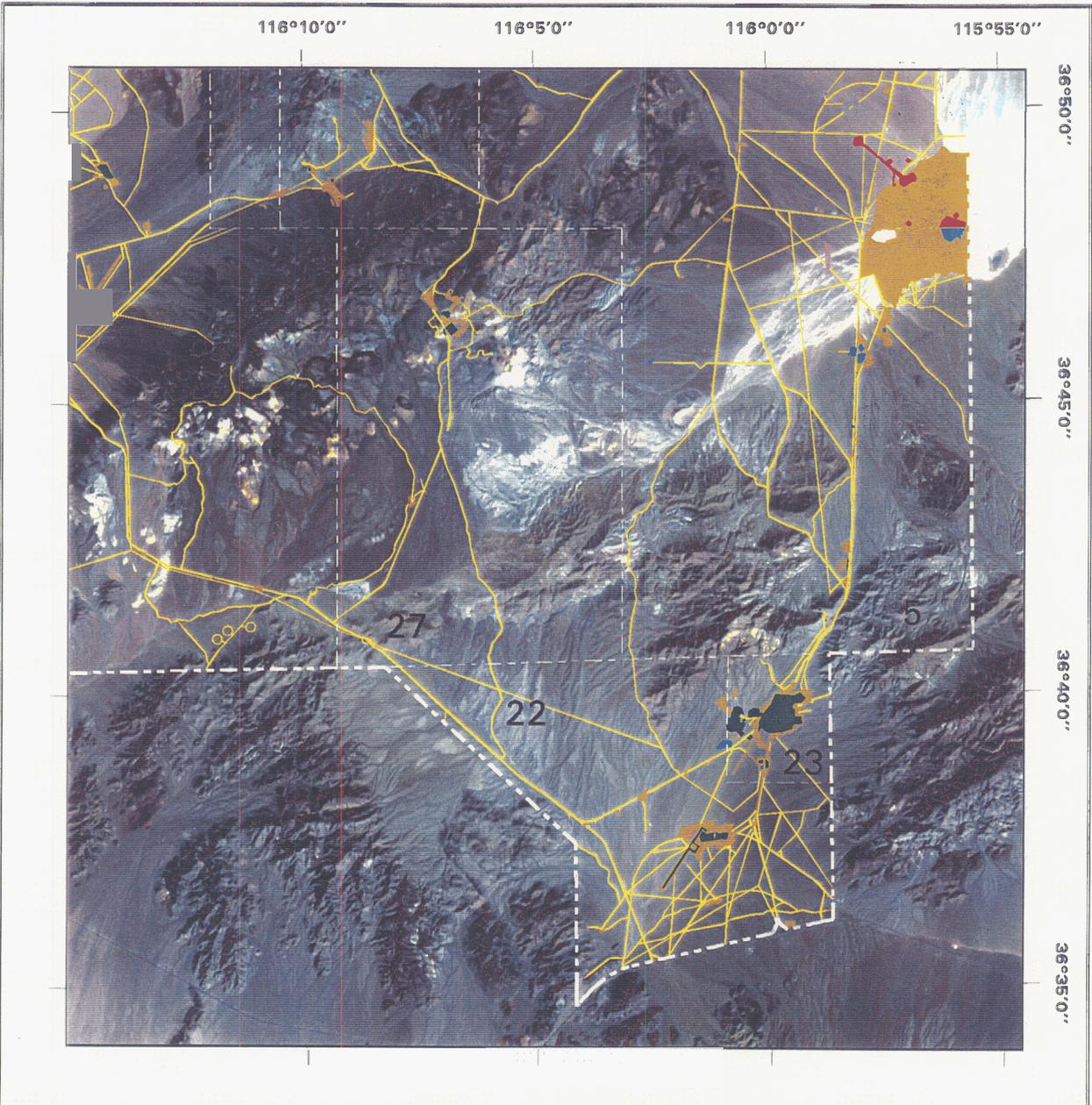


Plate 15: Surface Disturbances - Sheet 5 of 6.



- |   |  |
|---|--|
|  Facility Related        |  Earthen Structure      |
|  Suspected Event Related |  Road or Linear Feature |
|  Scrape or Clearing      |  Unknown Type           |

Note: Disturbance information shown is preliminary.

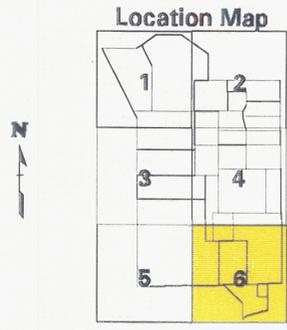
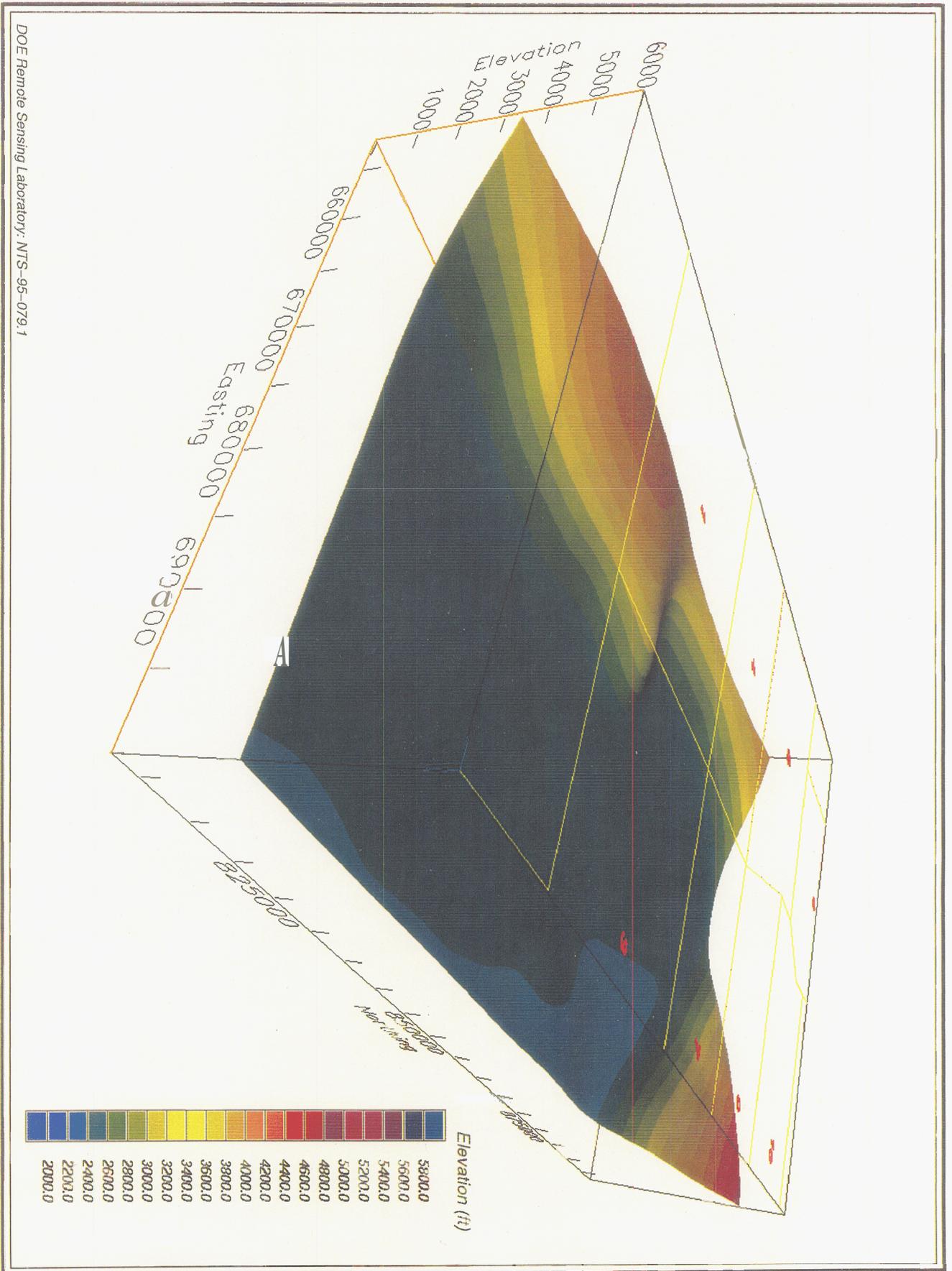


Plate 16: Surface Disturbances - Sheet 6 of 6.

Plate 17: Yuca Flat Water Table Elevation Contours (View to the Northwest)



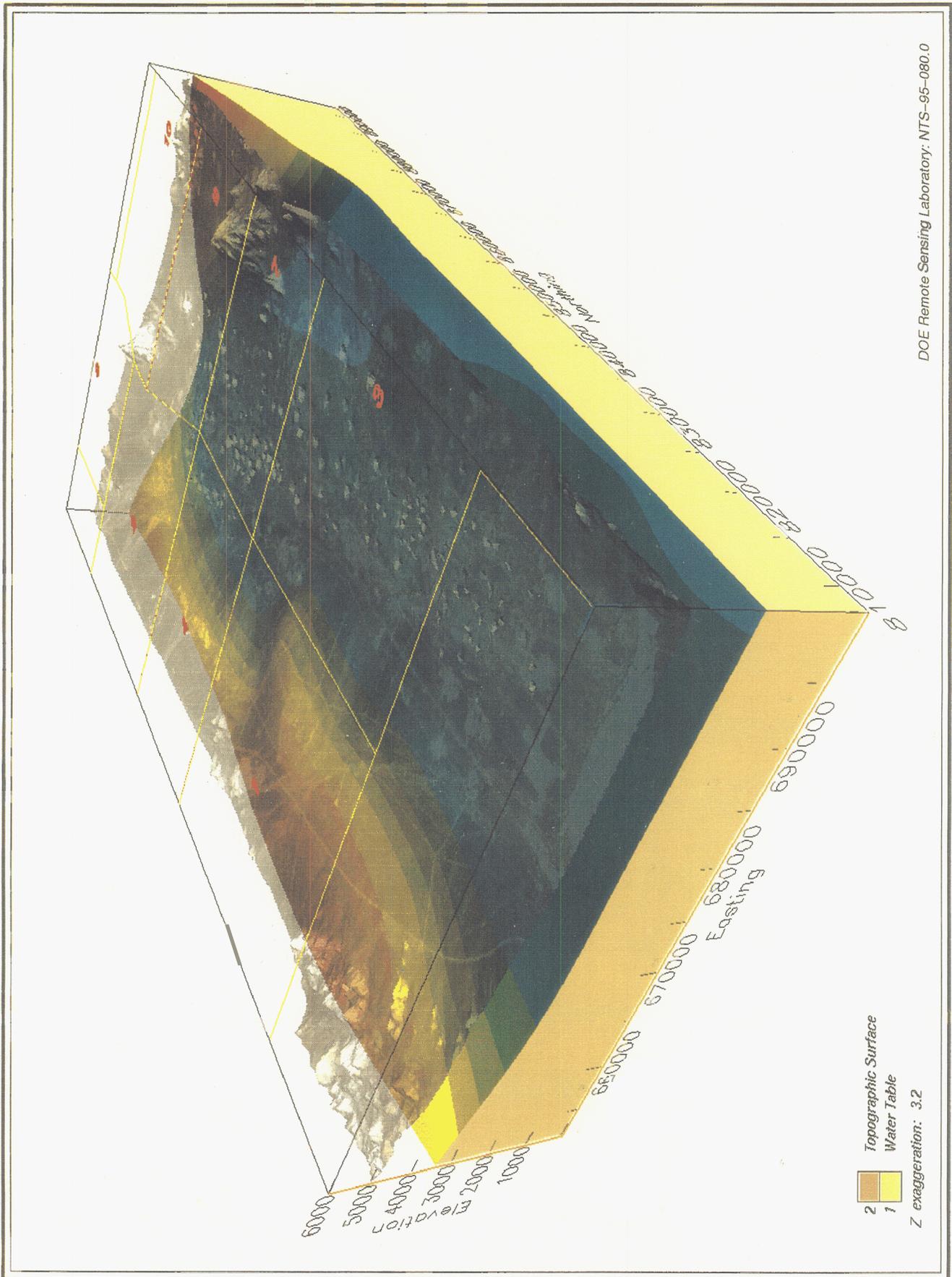


Plate 18: Yucca Flat Water Table Elevation Contours and Transparent Topographic Map image (View to the Northwest)

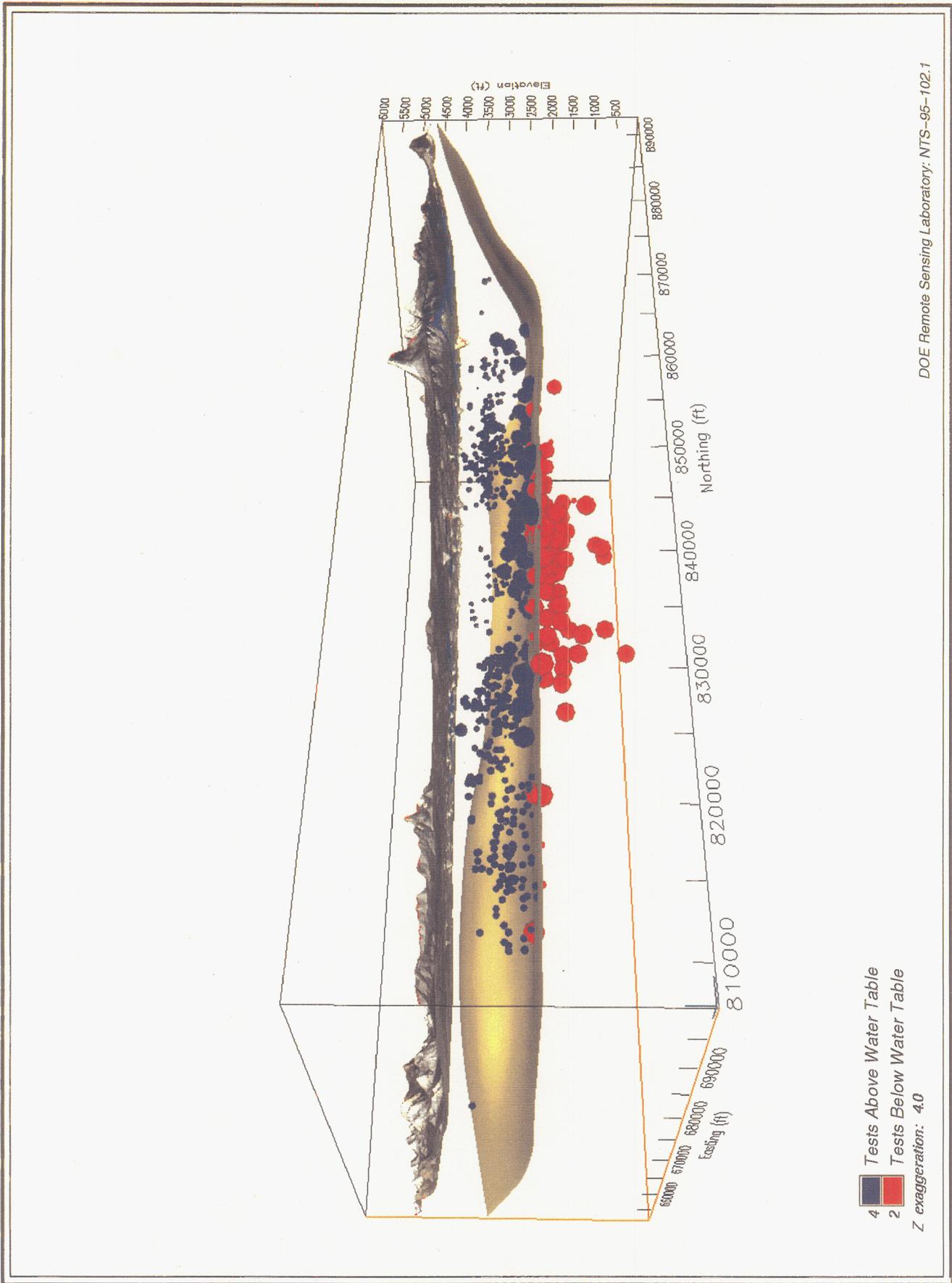
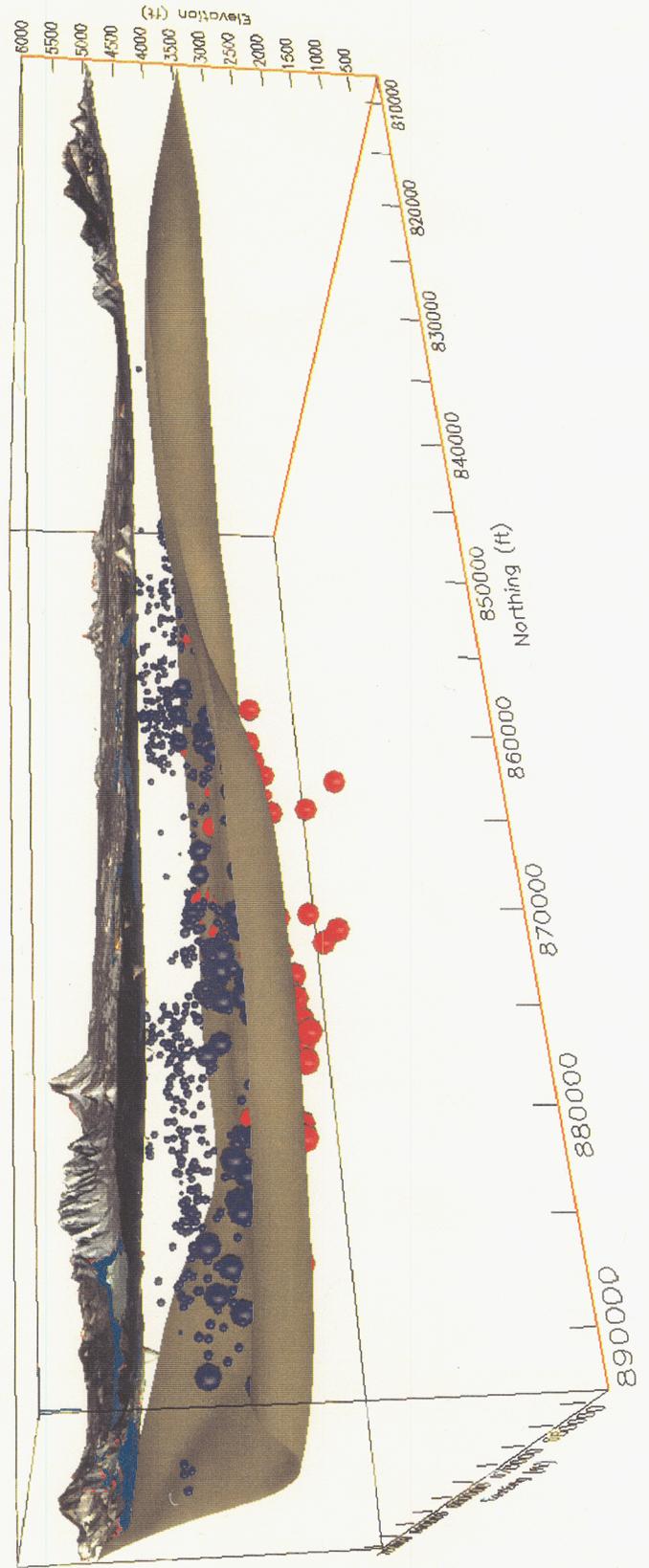


Plate 19: Yucca Flat Showing Location of Tests Both Above and Below the Water Table (View to the Northwest)



4 Tests Above Water Table  
2 Tests Below Water Table  
Z exaggeration: 40

Plate 20 : Yucca Flat Showing Location of Tests Both Above and Below the Water Table (view to the Southeast)