

EA 137-9
(N-17449 et al)

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CONSERVATION DIVISION
OFFICE OF THE AREA GEOTHERMAL SUPERVISOR
MENLO PARK, CALIFORNIA

Environmental Assessment No. 137-9
(Checklist Analysis)

Prepared by
Diori L. Kreske

September 1979

Prepared for the drilling of six geothermal test wells
and the flow-testing of three of the wells by
Amax Exploration, Inc., McCoy Unit Area,
Churchill and Lander Counties, Nevada

(Participants of field inspection of August 29, 1979
are listed in Appendix C).

Previous EAS
None

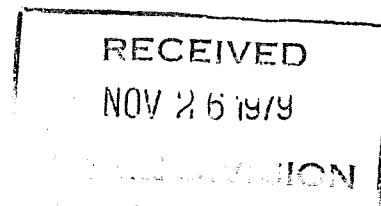


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INTRODUCTION

Amax Exploration, Inc. has submitted a Plan of Operation proposing the truck-mounted drilling of up to six geothermal test wells in the McCoy Unit Area, T22 & 23N and R39 and 40E, Churchill and Lander Counties, Nevada (figure 1). The well sites, on federal land, on leases N-17449, N-17451, N-17452, N-17455, and N-18852 are located in the Augusta Mountains, the Clan Alpine Mountains, and the New Pass Range (figure 2). Up to three of the wells will be exploratory wells to be flow-tested if a resource is found; all others will be thermal gradient holes. During flow-tests, the geothermal effluent will be collected in a reserve pit, then reinjected into one of the idle wells. Two of the potential well sites, 47-6 and 37-9, have topographic constraints for well pad construction; however, these sites are acceptable for thermal gradient holes. Appendix A describes the physical features of the individual well sites.

The other areas of geothermal activity closest to the McCoy Unit are in Dixie Valley approximately 20 km to the west. The geothermal resource in Dixie Valley is believed to be a separate and distinct system from the one in the McCoy Unit (pers. comm. H. Dean Pilkington 8/29/79). O'Brien Resources Corp.'s leases adjacent to Amax are included within the boundaries of the McCoy Unit Agreement.

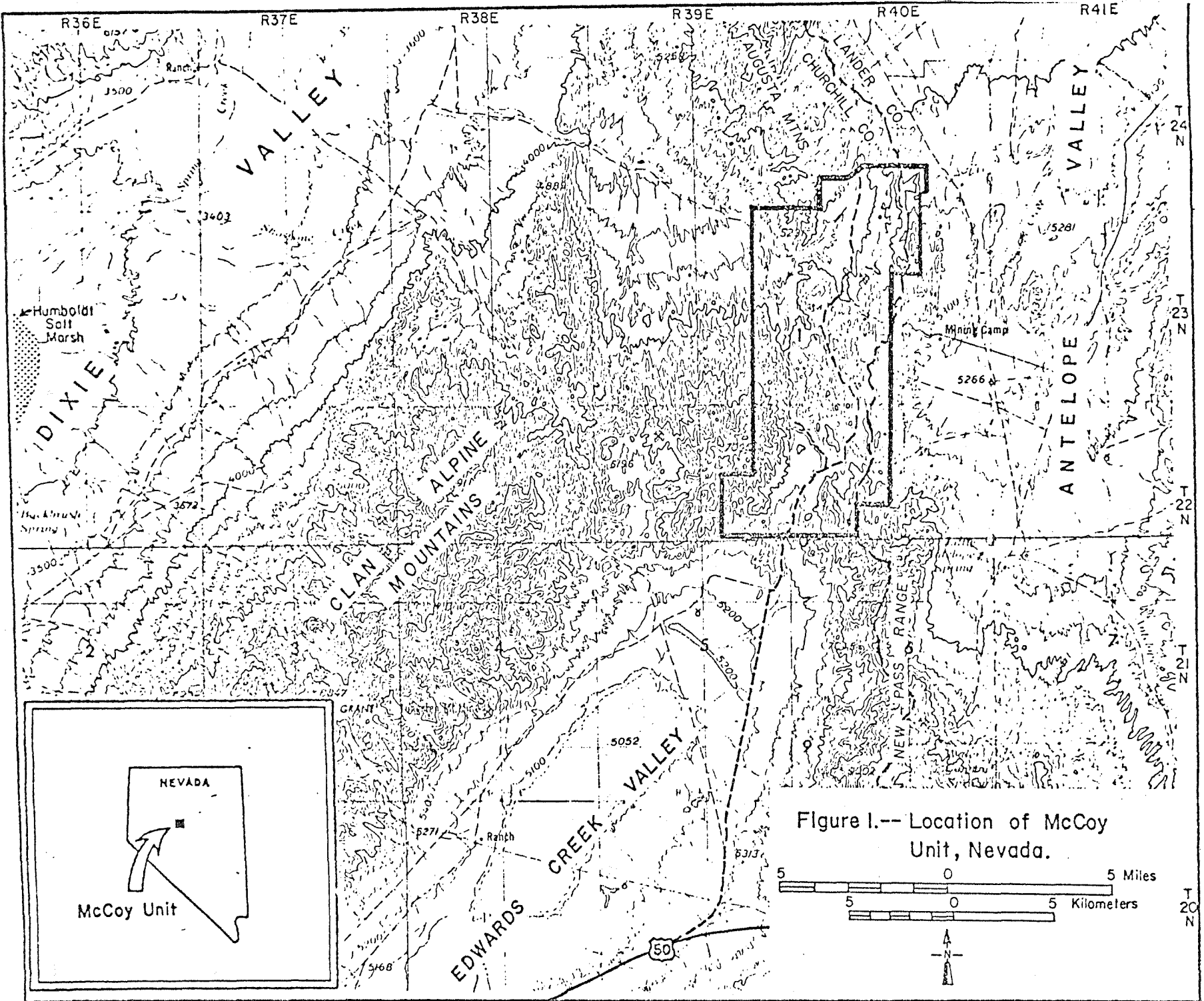


Figure 1.-- Location of McCoy Unit, Nevada.

R39E
R39E
T24N
T23N

T23N
T22N

T22N
T21N

R40E
R41E

+

+

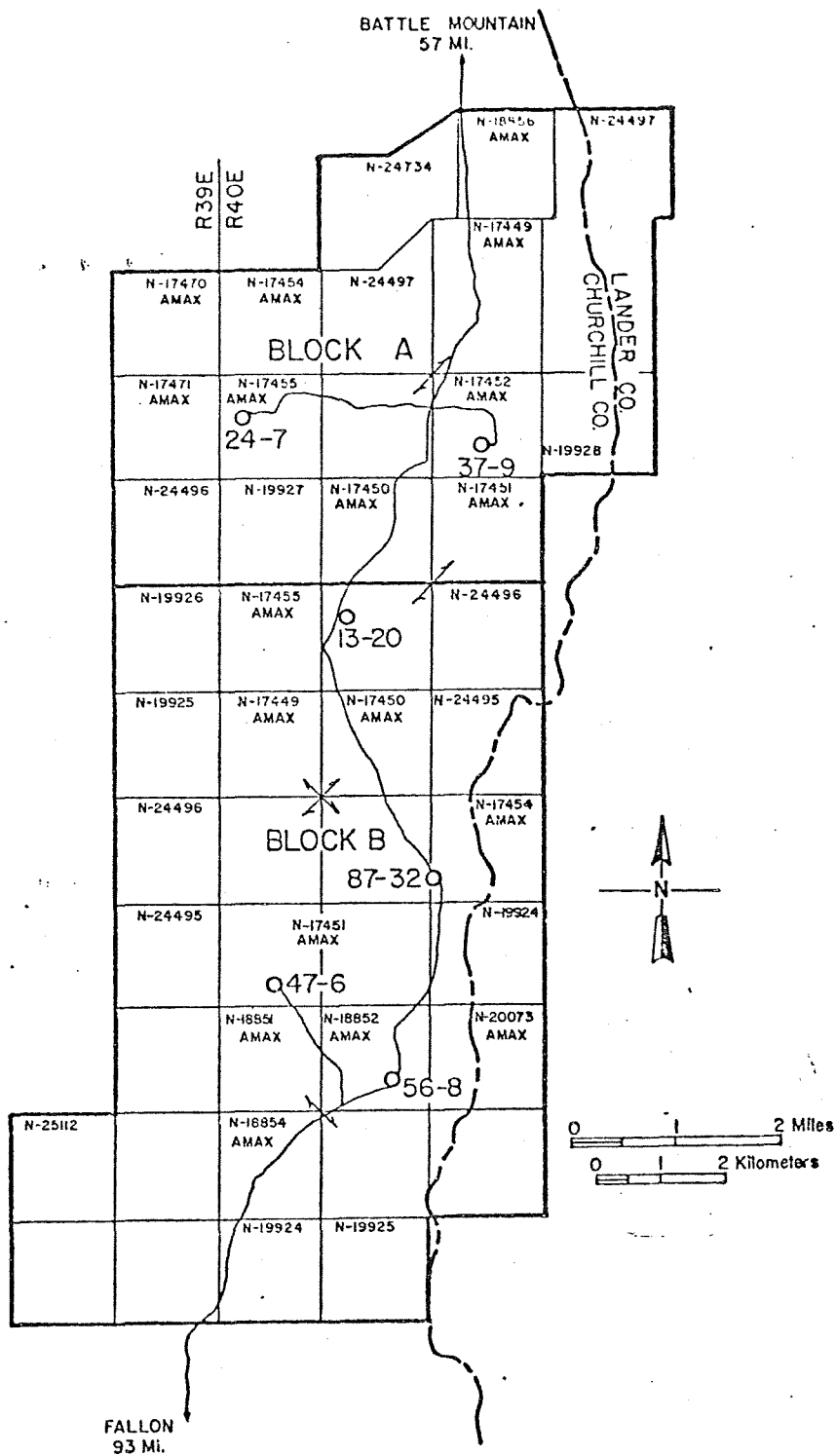


Figure 2.-- Location of leases, wells, and access roads in the McCoy Unit, Nevada.

Checklist Analysis

EA NO. 137-9

Type of Operation Requested Amax Exploration, Inc. proposes the truck-mounted drilling of up to six geothermal test wells in the McCoy Unit Area, Churchill and Lander Counties. Up to three of the wells will be exploratory wells, while the others will be thermal gradient holes.

References:
Lease N-17449 et al.
EAR Fort Churchill
Clan Alpine area
EA'S None
Others _____

Extent of Surface Disturbance An existing BLM-maintained road provides access to the well sites. The road is of sufficient width and should not require additional surface disturbance for this project. Each well site could undergo up to .1 ha of surface disturbance to accommodate the drilling equipment, trucks, mud pit and sump.

Contacts:
BLM Dan Jacquet
Carson City District
F&WS _____

Extent of Subsurface Disturbance Up to six geothermal test wells will be drilled to a depth of 610 m+ approx. 30-100 m.

<u>Parameter</u>	<u>Impact Evaluation</u>	<u>Mitigating Measures</u>
Slope Stability	No impact anticipated providing well pads are not constructed on sites 47-6 and 37-9	GRO Order 4(5)
Seismicity	No impact anticipated in this sparsely populated area	
Subsidence	No impact anticipated in this sparsely populated area	
Blow out	No impact anticipated; BOP equipment required during drilling	GRO Order 2(2)
Air quality	Minor impact; dust from vehicles and construction will be controlled by watering. Emissions shall not exceed local air pollution standards	GRO Order 4(9.A.3)
Noise	Minor impact; temporary increase in noise levels during construction, drilling, and flow-testing; area is sparsely populated	GRO Order 4(11)
Water quantity	No impact anticipated; water will be obtained from a private well; relatively small quantities will be required	
Water quality	No impact anticipated; runoff from drill sites will be confined to sumps having impervious liners	GRO Order 4(10)
Soil erosion	Minor impact; cleared areas will be revegetated, culverts and energy dissipaters will be installed where necessary	GRO Order 4(5)
Waste Disposal	No impact anticipated; solid waste will be hauled to an approved dump, well test effluent will be reinjected	GRO Order 4(9.A.1, 2&4)

<u>Parameter</u>	<u>Impact Evaluation</u>	<u>Mitigating Measures</u>
Vegetation	Minor impact; approx. .6 ha will be cleared of vegetation, cleared areas will be revegetated prior to winter snows	GRO Order 4 (2 & 6)
Wildlife habitat	Minor impact; loss of vegetation will result in loss of habitat, how- ever, loss is minor since similar habitat is abundant throughout the area	GRO Order 4 (6 & 11)
Endangered species	No impact anticipated; no endangered species present	
Recreation use	Minor impact on hunting	GRO Order 4(4)
Aesthetic value	Minor impact; impact will be temporary, proposed activities will not be visible to populated areas or transportation arteries	GRO Order 4(1)
Grazing	Minor impact; small area (.6 ha) will not be accessible to cattle. Pits and sumps shall be fenced to protect wildlife and livestock	GRO Order 4(9.A.4)
Cultural Resource	No impact anticipated; no cultural or archaeological values present (see Appendix C)	
Socio-economic	No impact anticipated since work force is small	
Fire	No impact anticipated due to absence of wildland fuels	GRO Order 4(9)
Other safety matters	No impact anticipated	

Diori Kreske 10-02-79
 Prepared by Date

Recommended Mitigating Measures

1. Sites 47-6 and 37-9 should have temperature gradient holes only, no cut-and-fill or pad construction (see Appendix B).
2. Until the BLM determines that the public lands covered by this EA do not meet the criteria for wilderness study area or until Congress decides against the designation of lands included within this Area of Operations as wilderness, the Operator agrees not to occupy or use the surface for electrical power development or production purposes, except for certain exploration activities and associated improvements addressed herein. If all or any part of the Area of Operations is formally designated by Congress as wilderness, all geothermal resources operations taking place or to take place on that part of the Area shall become subject to: (1) The provisions of the Wilderness Act of 1964 which apply to National Forest wilderness areas, 16 U.S.C. Sec. 1131, et seq., as amended; (2) the Act of Congress designating the land as wilderness; and (3) Interior Department regulations and policies pertaining thereto.

UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

The proposed project will remove vegetation and wildlife habitat from a maximum area of approximately .6 hectares. A slight, temporary impairment of air quality and short-term increases in noise levels will be unavoidable.

ALTERNATIVES TO THE PROPOSED ACTION

Possible alternatives for the proposed action are the following:

1. Not approve the proposal
2. Approve the proposal with mitigating measures.

The environmental impacts resulting from the proposed actions will not be adverse enough to warrant non-approval of the proposal. The potential environmental impacts are expected to be minimal and/or can be mitigated. Therefore, the appropriate alternative is to approve the proposal with mitigating measures.

STATEMENT OF REASONS OF NO SIGNIFICANT IMPACT

The quality of the environment in the McCoy Unit area, Nevada, will not be significantly affected by Amax's proposal. This conclusion is based on this EA and the experience of field personnel. Amax's Plan of Operation was sent to numerous Interested Parties for comments concerning the proposed actions.

The Interested Parties are local, state, and federal agencies responsible for protecting the environment, and individuals involved or interested in the geothermal development process. Responses were received from three of the Interested Parties, none of which opposed the proposal.

The Plan of Operation has been reviewed by the Operations, Engineering, and Environmental and Safety Sections of the Office of the Area Geothermal Supervisor. The proposed well sites were inspected by personnel from the U.S. Geological Survey and Bureau of Land Management. The inspectors found the sites to be environmentally adequate for truck-mounted drilling, although two sites are not suitable for production wells and will have thermal gradient holes only (see Recommended Mitigating Measures).

EIS DETERMINATION

In my opinion, the proposed action does not constitute a major Federal action significantly affecting the quality of the human environment in the sense of NEPA, Section 102(2)(C).

Robert H. Kimmel 10/2/79 Richard C. [unclear] 10-3-79
Acting Chief, Environmental and Safety Section Date District Geothermal Supervisor Date

I determine that preparation of an environmental impact statement is not required

[Signature] 10/2/79
for Area Geothermal Supervisor Date

APPENDIX A

Coordination and Correspondence



THE NEVADA DIVISION OF HISTORIC PRESERVATION AND ARCHIEOLOGY
 201 South Fall Street — Nyo Building — Room 113 — Carson City, Nevada 89710
 MIMI RODDEN, Administrator Telephone (702) 885-5138

*Subject File 2500-05
 (P/O for EA 137-9)*

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

ROLAND D. WESTERGARD, Director

ROBERT LIST
 GOVERNOR

RECEIVED

SEP 4 1979

AREA GEOTHERMAL SUPERVISOR'S OFFICE
 CONSERVATION DIVISION
 U.S. GEOLOGICAL SURVEY
 MENLO PARK, CALIFORNIA

August 29, 1979

Mr. Reid Stone
 Area Geothermal Supervisor
 U.S. Geological Survey
 345 Middlefield Road
 Menlo Park, CA 94025

Dear Mr. Stone:

This office has received and reviewed your letter of August 14, 1979 regarding a proposed plan of operation (EA #137-9) by Amax Exploration, Inc. The National Register of Historic Places has been checked and no properties listed on or pending nomination to the Register are located within or immediately adjacent to the project area. The cultural resource report prepared by the Carson City District Office of the Bureau of Land Management is adequate to ensure that no further archeological or historical research need be done.

In that no cultural resources were located in the project area, the proposed project will have "no effect" on properties of National Register quality.

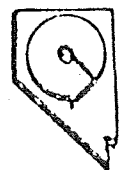
A copy of this letter should be retained in the project file as documentation of consultation as required by 36 CFR, Part 800.4.

Sincerely,

Mimi Rodden


MIMI RODDEN, Administrator
 (State Historic Preservation Officer)

CDZ:vh



Form 1542-4
 (April 1976)
 (formerly 4-1123)

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT
 ROUTING AND TRANSMITTAL SLIP

TO			ACTION	ROOM NO.
CODE	NAME	ORGANIZATION		
	 <p>U. S. DEPT. OF THE INTERIOR BUREAU OF LAND MANAGEMENT CARSON CITY DISTRICT OFFICE</p> <p>BRIAN W. HATOFF DISTRICT ARCHAEOLOGIST</p> <p>1050 E. WILLIAMS STREET SUITE 335 CARSON CITY, NV. 89701</p> <p>(702) 882-1631 (FTS) 470-5612</p>			

1. Necessary
2. Approval
3. Signature
4. Prepare reply
5. Your comment and return
7. Note and return
8. Your information
9. See me
- 10.

From	Date	Room No.
Brian Hatoff	9/13/79	
Office	Phone	
Carson City	882-1631	

Remarks

This cultural resource report constitutes clearance for six drill sites proposed by AMAX on a plan of operation (NOI N3-10-79).
 Ref: 2403-01 N-17449 (POO for EA#137-9).

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

District Office
1050 E. William Street, Suite 335
Carson City, Nevada 89701

IN REPLY REFER TO:
3209.1
(N-032)

To : Area Geothermal Supervisor
FROM : District Manager, Carson City District Office
SUBJECT : Plan of Operation for Amax Exploration, Inc.
POO for EA No. 137-9

Date: September 7, 1979

RECEIVED

SEP 10 1979

AREA GEOTHERMAL SUPERVISOR'S OFFICE
CONSERVATION DIVISION
U.S. GEOLOGICAL SURVEY
MENLO PARK, CALIFORNIA

We request you incorporate the following comments on wilderness resources in the subject EA for Amax. If the comments are incorporated as submitted, we will not request a draft EA for review.

In your Impact Evaluation section, insert the following heading and paragraph:

"Wilderness Resources

The applicant's proposed well sites are located on public lands subject to wilderness review under Section 603 of the Federal Land Policy and Management Act (FLPMA) of 1976. POO Well No. 47-6 (N.O.I. Hole No. 864-55; Location 22 N. 40 E., Section 6, SE $\frac{1}{2}$ SW $\frac{1}{2}$) is located on a roadless public land (Unit No. NV-030-106, Shoshone Meadows) tract which will be intensively inventoried for wilderness characteristics.

The proposed well site in Unit NV-030-106, Shoshone Meadows, would alter surface vegetation and topsoil over approximately 2,000 square feet, resulting in changes in naturalness and ecological interrelationships as described in other sections of the EA. The visual intrusions and reduction in primitive recreation and solitude opportunities would result in temporary impacts, which would not significantly impair suitability of the Shoshone Meadows Unit for preservation as wilderness. Existing disturbance from past exploration activities, as well as the close proximity of an existing road, tend to keep the environmental impacts of Test Well No. 47-6 at a low intensity."

In your Recommended Mitigating Measures section, insert the following:

"Until the BLM determines that the public lands covered by this EA do not meet the criteria for wilderness study area or until Congress decides against the designation of lands included within this Area of Operations as wilderness, the Operator agrees

not to occupy or use the surface for electrical power development or production purposes, except for certain exploration activities and associated improvements addressed herein. If all or any part of the Area of Operations is formally designated by Congress as wilderness, all geothermal resources operations taking place or to take place on that part of the Area shall become subject to: (1) The provisions of the Wilderness Act of 1964 which apply to National Forest wilderness areas, 16 U.S.C. Sec. 1131, et seq., as amended; (2) the Act of Congress designating the land as wilderness; and (3) Interior Department regulations and policies pertaining thereto."

H. James Fox
Acting

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

CULTURAL RESOURCES REPORT

1. CR Report #: 3-302(N) 2. Date(s) of field ops: 5-30-79
3. Archaeologist or DAT: Brian Hatoff and Dan Jacquet (DAT)
4. Project: NOI N3-10-79 - Amax Exploration, Inc.
5. District Office: Carson City Planning Unit: Clan Alpine
6. State: Nevada 7. County: Churchill
8. Legal Description: T. 22 N., R. 40 E. and T. 23 N., R. 40 E., MDM
(See attached map)
9. Map Reference: U.S.G.S., 15', Shoshone Meadows, Nevada, 1966 and
U.S.G.S. 7.5', Gilbert Creek SW, Nevada, 1969
10. Research Objectives: Clearance and Inventory of geothermal temperat
gradient holes.
11. Consultations/Existing Data Review: The latest listing of the Nati
Register of Historic Places (Federal Register through 2/78) indicat
no sites on, or nominated to, the Register in the immediate vicini
of this project. Numerous geothermal related cultural resource in-
vestigations have been conducted in the Dixie Valley-Clan Alpine Ar
Specifically, CR Reports BLM 3-261(N) and 3-278(N) were conducted
within the project area. Both reports indicated negative findings.
12. Area & Environmental Setting: The subject area is in hilly terrain
at the interface between the New Pass Range and Augusta Mountains.
(See Attached Sheet)
13. Water: No currently active natural springs or surface waters obser
Note: Pleistocene travertine deposits located in Section 8, T. 23
R. 40 E., approximately 1 mile east of Site 864-58 indicate a fossi
hot spring (personal comm. D. Pilkington 1979).
14. Field Examination Techniques: Each proposed drill site was walked
over in an approximately 20 meter diameter in a manner that insured
100% visual coverage. As each of the drill sites was adjacent to
an existing road, no access areas required investigation.

15. Findings: Negative
16. National Register Recommendations: None
17. Summary & Mitigation Recommendations: The proposed drill sites are devoid of cultural resources. It is recommended that a cultural resources clearance be granted. Photos: On file, Carson City BLM District Office, Case NOI N3-10-79.

Note: "This Cultural Resources Investigation has been conducted in accordance with techniques described which are considered to have been adequate for evaluating any Cultural Resources that could be affected by this project. However, if during the course of any project activities that may be authorized subsequent to the submission of this report notable Cultural Resources should be discovered, care shall be exercised so as not to disturb such Resources and the Carson City District Manager shall be informed immediately."

18. CR Inventory Acreage:

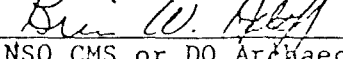
Extensive: -----
Intensive: 1 Acre

19. Time Expenditure:

Field: 16 Hours
Office: 3 Hours
TOTAL: 19 Hours

20. Submitted by:  Date: 6-22-79

Title: District Archaeologist Technician Trainee (DATT)

Reviewed: 
NSO CMS or DO Archaeologist

Date: 6/26/79

Specifically at each drill site:

- 864-55: Located adjacent to dirt road. Vegetation dominated by pinyon pine, juniper and sagebrush.
- 864-54: Located adjacent to dirt road. Vegetation dominated by sagebrush.
- 864-57: Located adjacent to dirt road. Vegetation dominated by shadscale and low sage.
- 864-59: Located in the center of a dirt road within the McCoy mining area. Vegetation is dominated by shadscale.
- 864-58: Located adjacent to a dirt road. Vegetation dominated by cheatgrass.

APPENDIX B

Field Notes: Amax Exploration, Inc.
McCoy Unit Field Inspection, Aug. 29, 1979

Field Notes: Amax Exploration, Inc., McCoy Unit Field Inspection
August 29, 1979

Site 47-6 N-17451

Topographic description: Site is located on a bench on the west side of a steep canyon. Ravine at the bottom marks a fault, along which flows an intermittent (seasonal) stream.

Vegetation and wildlife: Predominant vegetative communities present are big sagebrush and pinyon pine/juniper. A good stand of grass, herbaceous annuals, and small shrubs are present. Vegetation covers about 80% of the ground surface. Wildlife observed include: blacktailed jackrabbit, cottontail, mourning dove, chukar partridge, quail, common raven, horned lark, and wild horse.

Comments: Slope is too steep for cut-and-fill or pad construction.

Site 56-8 N-18852

Topographic description: Site is located on a broad, relatively flat valley, gently sloping to the west.

Vegetation and wildlife: Primary vegetative community is big sagebrush. Four to five different grasses are present. Shrub species are winterfat and ephedra. Vegetation covers about 75% of the surface. Fecal droppings indicate moderate grazing by cattle, sheep, and wild horses. Rabbit droppings are also present. Ravens and horned larks were observed.

Site 87-32 N-17449

Topographic description: Site is located on the west side of a valley (approx. 500 m wide) on about 5% slope.

Vegetation and wildlife: Primary plant cover is big sagebrush. There is a good stand of grass and about 70% of the surface is vegetated. Grazing by cows and horses is evident. Rabbit droppings are present and a coyote track was observed along the edge of the road. In addition, a desert horned lizard was seen.

Site 13-20 N-17451

Topographic description: Site is on a westward sloping (5% or less) valley bottom.

Vegetation and wildlife: Primary vegetative community is shadscale/grass. Horse and cow droppings are evident with a noticeable lack of rabbit droppings. Horned larks are present.

Site 37-9 N-17452

Topographic description: Site is on a road located on a hillside having a slope of 15% or more.

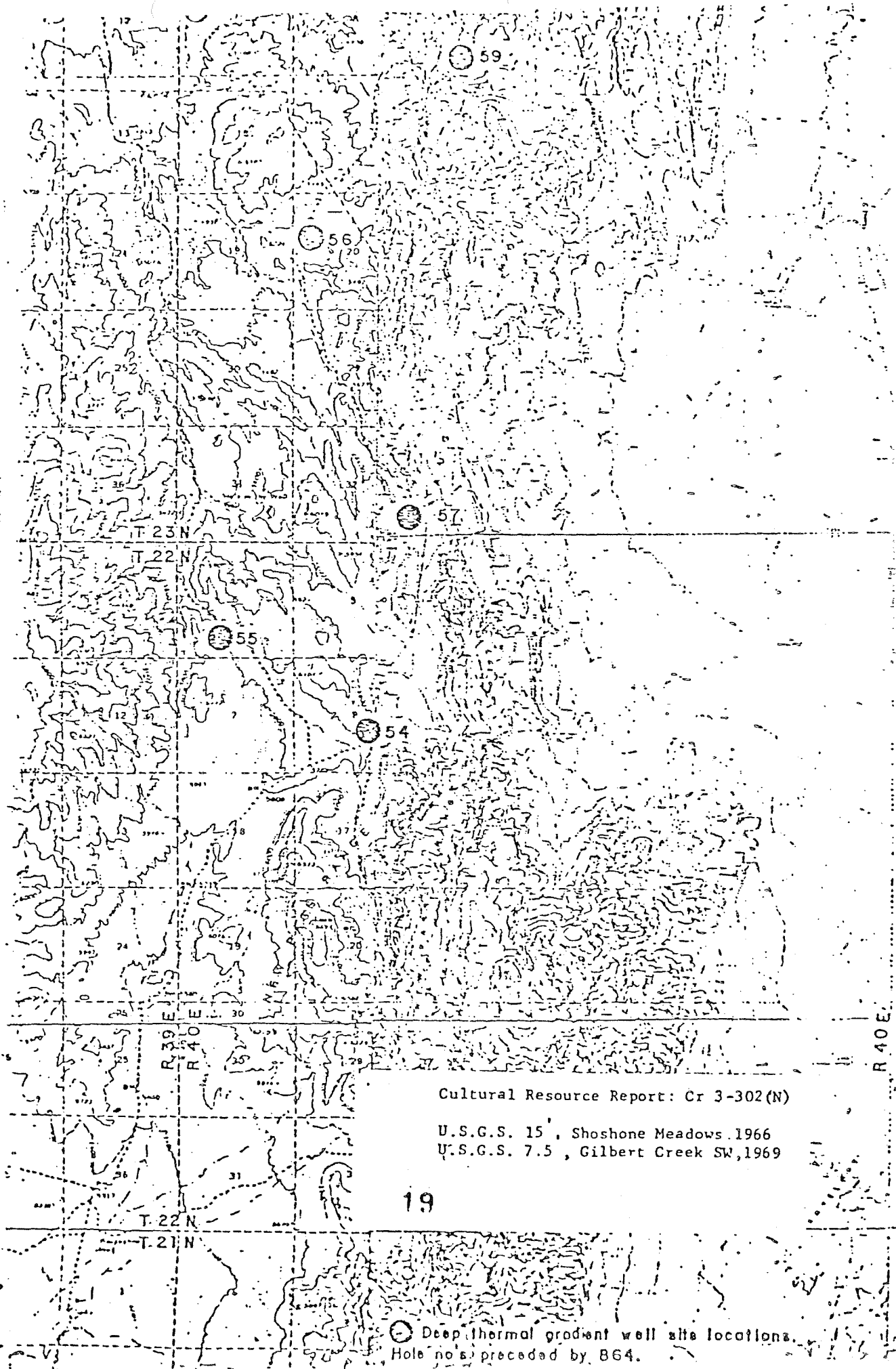
Vegetation and wildlife: Primary vegetative community is shadscale/grass. Big sagebrush is also present in limited concentrations. A small covey (20) of young chukars was flushed nearby. A desert horned lizard was on the road near the site.

Comments: If drilling is to go deeper than for a thermal gradient hole, site should be moved to the top of the hillside which is more level, since the hillside steepens below the road.

Site 24-7 N-17455

Topographic description: Site is located at the mouth of a well-defined flash flood canyon on a bench removed from the flooding zone. Active drainage channels exist around the bench, but not across it.

Vegetation and wildlife: Primary vegetative cover is grass and shadscale with some big sagebrush and ephedra. Numerous small mammal burrows are present. High grazing use by cows, chukar partridge were flushed approximately 1/4 mile from site. Rabbit droppings present around the site.



Cultural Resource Report: Cr 3-302(N)

U.S.G.S. 15 , Shoshone Meadows, 1966

U.S.G.S. 7.5 , Gilbert Creek SW, 1969

19

○ Deep thermal gradient well site locations.
Hole no's preceded by 864.

APPENDIX C

Field Inspection Participants, Aug. 29, 1979

Field Inspection Participants, August 29, 1979

Bernard Moroz - USGS District Geothermal Supervisor, Reno, NV
Douglas Koza - " " " "
Dean Pilkington - Amax Exploration, Inc., Denver CO
Dick Forester - USGS Area Geothermal Supervisor's Office, Menlo Park, CA
Diori Kreske - " " " " " "
Bill Levine - " " " " " "

Personnel from BLM, Carson City, NV inspected the sites prior to the August 29, 1979 field inspection.