



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Carson District Office
1050 E. William St., Suite 335
Carson City, Nevada 89701

IN REPLY REFER TO

3209.1
N3-03-79
(N-036)

March 2, 1979

Amax Exploration, Inc.
4704 Harlan Street
Denver, CO 80212

Gentlemen:

Enclosed is Amax's approved Notice of Intent to Conduct Geothermal Resource Exploration Operations. If you have any questions regarding this Notice, please contact Dan Jacquet of our office.

Sincerely yours,

Thomas J. Owen
District Manager

Enclosures
Form 3200-9
Special Stipulations



Save Energy and You Serve America!

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Notice Number

N3-03-79

NOTICE OF INTENT TO CONDUCT GEOTHERMAL RESOURCE
EXPLORATION OPERATIONS

| | |
|--|--|
| Applicant(s) AMAX Exploration, Inc. | Address (include zip code) 4704 Harlan Street Denver, Colorado 80212 |
| Operator AMAX Exploration, Inc. | Address (include zip code) 4704 Harlan Street Denver, Colorado 80212 |
| Contractor(s) | Address (include zip code) |

hereby apply for authorization to conduct exploration operations pursuant to the provisions of 43 CFR 3209 now or hereafter in force across and upon the following-described lands (give description of lands by township, attach map or maps showing lands to be entered or affected)

T20 and 21N, R35 and 36E, MDM, Churchill County, Nevada
See Exhibit "A" and vicinity map attached

Type of operations to be conducted (give brief description) Drilling of 14 (150 meter or less) thermal gradient holes No.'s 903-2 through 903-15

Exploration operations will be conducted during the period (date) from March 1, 1979 to March 1, 1980

Attached \$ 50,000.00 Surety bond Rider to Nationwide bond Rider to Statewide bond Bond to be furnished
Nationwide Geothermal Resource Exploration Operation Bond (evidence attached)

Upon completion of exploration operations the undersigned agrees to notify the Authorized Officer that authorized exploration operations have been completed in conformance with the general and special terms and stipulations of the notice.

The undersigned hereby agrees (1) that he will not enter upon the described land until he has been informed in writing whether there are special stipulations applicable to his Notice of Intent, as to either time or method of operation or otherwise, and, if there are such stipulations, what those stipulations are, (2) that he will comply with those special stipulations, if any; and (3) that he will not enter upon the described lands until his entry has been approved by the Authorized Officer.

The undersigned agrees to be bound by the terms and conditions of this notice to conduct exploration operations when approved by the Authorized Officer.

The undersigned agrees that the filing of this Notice under the regulations (43 CFR Subpart 3209) does not vest or confer any preference right to a geothermal resources lease.

The undersigned agrees further that all exploration operations shall be conducted pursuant to the following terms and conditions:

1. Exploration operations shall be conducted in compliance with all Federal, State, and local laws, ordinances, or regulations which are applicable to the area of operations including, but not limited to, those pertaining to fire, sanitation, conservation, water pollution, fish, and game. All operations hereunder shall be conducted in a prudent manner.
2. Due care shall be exercised in protecting the described lands from damage. All necessary precautions shall be taken to avoid any damage other than normal wear and tear to improvements on the land including, but not limited to, gates, bridges, roads, culverts, cattle guards, fences, dams, dikes, vegetative cover, improvements, stock watering, and other facilities.
3. All drill holes shall be capped when not in use and appropriate procedures shall be taken to protect against

hazards in order to protect the lives, safety, or property of other persons or of wildlife and livestock.

4. All vehicles shall be operated at a reasonable rate of speed and, in the operation of vehicles, due care shall be taken to safeguard livestock and wildlife in the vicinity of operations. Existing roads and trails shall be used wherever possible. If new roads and trails are to be constructed, the Authorized Officer must be consulted prior to construction as to location and specifications. Reclamation and/or reseeding of new roads and trails shall be made as requested by the Authorized Officer.
5. Upon expiration, conclusion, or abandonment of operations conducted pursuant to this Notice, all equipment shall be removed from the land, and the land shall be restored as nearly as practicable to its original condition by such measures as the Authorized Officer may specify. All geophysical holes shall be safely plugged. The Authorized Officer shall be furnished a Notice of Completion of Geothermal Resource Exploration Operations (Form 3200-3) immediately upon cessation of all such operations and shall be further informed of the completion of reclamation work as soon as possible.
6. Location and depth of water sands encountered shall be disclosed to the Authorized Officer.

(Continued on reverse)

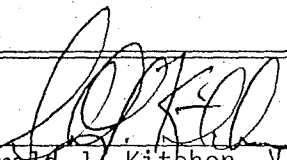
Form 3200-9 (December 1973)

7. Operator shall contact the Authorized Officer prior to actual entry upon the land in order to be appraised of practices which shall be followed or avoided in the conduct of exploration operations pursuant to the terms of this *Notice* and applicable regulations. Operator will conduct no operations on the land unless the attached bond is in good standing.
8. Due care shall be exercised to avoid scarring or removal of ground vegetative cover.
9. All operations shall be conducted in such a manner to avoid (a) blockage of any drainage systems; (b) changing the character, or causing the pollution or siltation of rivers, streams, lakes, ponds, waterholes, seeps, and marshes; and (c) damaging fish and wildlife resources or habitat. Cuts or fills causing any of the above-mentioned problems will be repaired immediately in accordance with specifications of the Authorized Officer.
10. Vegetation shall not be disturbed within 300 feet of waters designated by the Authorized Officer, except at approved stream crossings.
11. Surface damage which induces soil movement and/or water pollution shall be subject to corrective action as required by the Authorized Officer.
12. Trails and campsites shall be kept clean. All garbage and foreign debris shall be eliminated as required by the Authorized Officer.
13. Operator shall protect all survey monuments, witness corners, reference monuments, and bearing trees against destruction, obliteration, or damage. He shall, at his expense reestablish damaged, destroyed, or obliterated monuments and corners, using a licensed surveyor, in accordance with Federal survey procedures. A record of the reestablishment shall be submitted to the Authorized Officer.
14. Operator shall make every reasonable effort to prevent, control, or suppress any fires started by the operator, and

- to report, as soon as possible, to the Authorized Officer location and size of fires, and assistance needed to suppress such fires. Operator shall inform the Authorized Officer as soon as possible of all fires, regardless of location, noted, or suppressed by independent action.
15. No work shall be done within one-half mile of a developed recreation site without specific written authority from the Authorized Officer. Any travel within one-half mile of a recreation site shall be over existing roads or trails.
16. Use of explosives within one-half mile of designated waters is prohibited unless approved, in writing, by the Authorized Officer.
17. If operations conducted under the provisions of this *Notice* causes any damage to the surface of the national resource lands, such as, but not limited to, soil erosion, pollution of water, injury or destruction of livestock or wildlife, or littering, operator shall, within 48 hours, file with the Authorized Officer a map showing exact location of such damage and a written report containing operator's plans for correcting or minimizing damage, if possible.
18. Violation of, or failure to comply with any of these terms and conditions shall result in immediate shutdown of field operations until deficiency is corrected. Failure to correct deficiency within the time period allowed by the Authorized Officer shall result in forfeiture of bond.
19. The Bureau of Land Management reserves the right to close any area to operators in periods of fire danger or when irreparable damage to natural resources is imminent.
20. Contractor shall be liable for assuring compliance with all terms and conditions of this *Notice* and all actions of his designated operator, agents, and employees.
21. Where continuation of the operation will result in irreparable damage to the land and other natural resources this *Notice* will be immediately cancelled by the Authorized Officer.

22. Special Stipulations:

See attachment A.

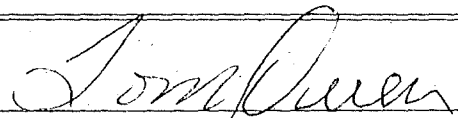


 Gerald J. Kitchen, Vice President (Date) 2/2/79 (Signature of Operator) _____ (Date) _____

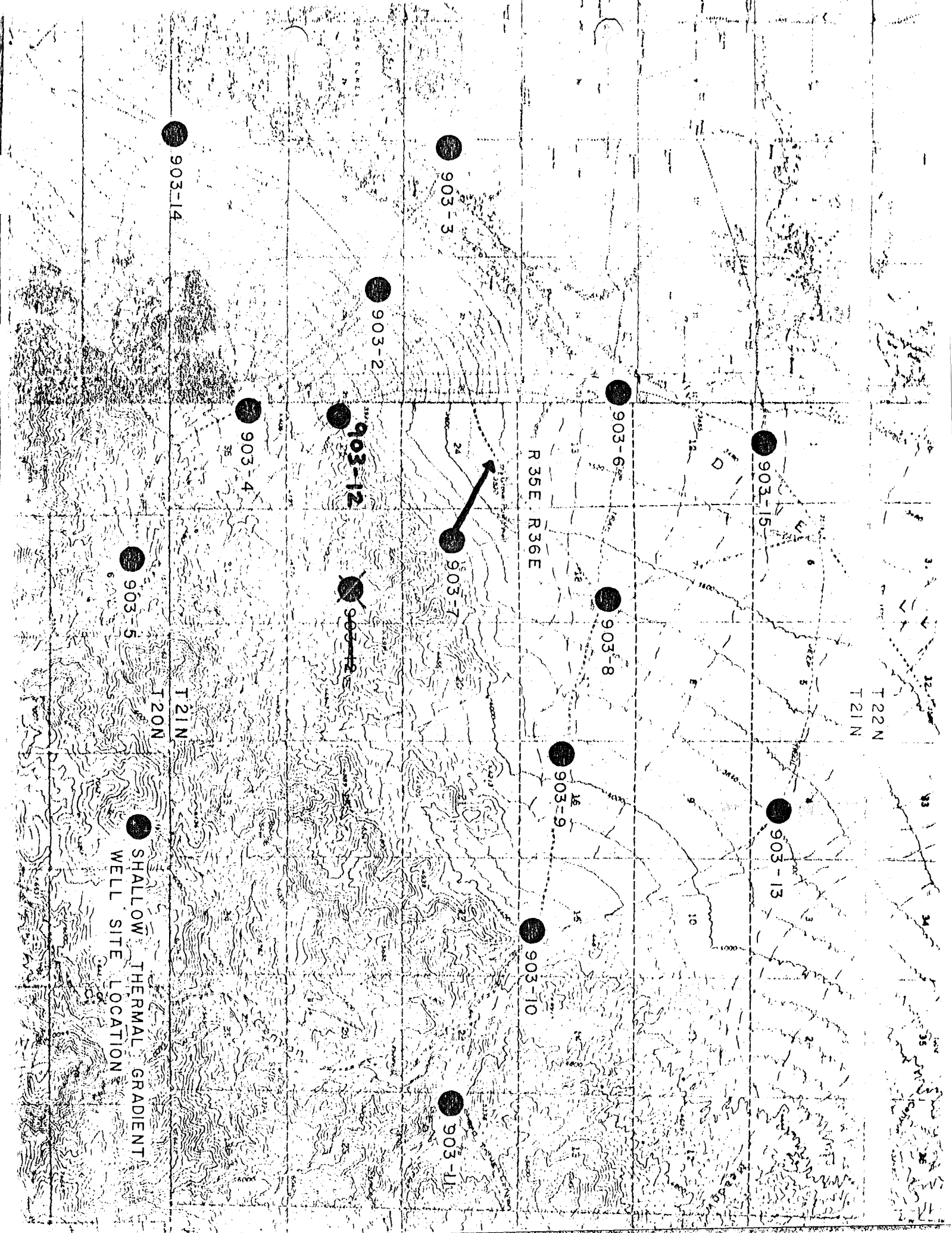
We hereby agree to the special stipulations added and made a part of this *Notice* to conduct exploration operations.

_____ (Signature of Holder of Notice) _____ (Date) _____ (Signature of Operator) _____ (Date) _____

I hereby approve this *Notice* to conduct exploration operations.



 (Signature of Authorized Officer) _____ (Title) _____ (Date) 3-4-79



903-14

903-3

903-2

903-4

903-12

903-5

T 21N

SHALLOW THERMAL GRADIENT WELL SITE LOCATION

903-7

R 35E R 36E

903-6

903-8

903-9

903-10

903-15

T 22N

903-13

903-11

Exhibit A

| <u>Hole No.</u> | <u>Location</u> | <u>Section</u> | <u>Township</u> | <u>Range</u> | <u>Meridian</u> |
|-----------------|--|---------------------|-----------------|-----------------------|-----------------|
| 903-2 | NW $\frac{1}{4}$ NW $\frac{1}{4}$ | 26 | 21N | 35E | MDM |
| 903-3 | NW $\frac{1}{4}$ SW $\frac{1}{4}$ | 22 | 21N | 35E | MDM |
| 903-4 | SW$\frac{1}{4}$NW$\frac{1}{4}$ LOT 6 | 36 | 21N | 35E | MDM |
| 903-5 | SE $\frac{1}{4}$ NW $\frac{1}{4}$ | 6 | 20N | 36E | MDM |
| 903-6 | NW$\frac{1}{4}$NW$\frac{1}{4}$ LOT 4 | 13 | 21N | 35E | MDM |
| 903-7 | NE$\frac{1}{4}$SW$\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ | 19 24 | 21N | 36E 35E | MDM |
| 903-8 | NE $\frac{1}{4}$ NE $\frac{1}{4}$ | 18 | 21N | 36E | MDM |
| 903-9 | NW $\frac{1}{4}$ SW $\frac{1}{4}$ | 16 | 21N | 36E | MDM |
| 903-10 | SW $\frac{1}{4}$ SE $\frac{1}{4}$ | 15 | 21N | 36E | MDM |
| 903-11 | NW $\frac{1}{4}$ SW $\frac{1}{4}$ | 24 | 21N | 36E | MDM |
| 903-12 | SE $\frac{1}{4}$ NE $\frac{1}{4}$ | 30 | 21N | 36E | MDM |
| 903-13 | SW $\frac{1}{4}$ SE $\frac{1}{4}$ | 4 | 21N | 36E | MDM |
| 903-14 | SE $\frac{1}{4}$ SE $\frac{1}{4}$ | 33 | 21N | 35E | MDM |
| 903-15 | SW $\frac{1}{4}$ SE $\frac{1}{4}$ LOT 19 | 1 | 21N | 35E | MDM |

Special Stipulations for Shallow Temperature Gradient Holes

Drilled Under BLM or Forest Service Exploration Permits

1. Holes for measuring temperature gradients to determine heat flow shall be limited to a depth of 152 meters (500 feet), unless otherwise authorized.
2. Inlet and outlet temperatures shall be recorded at frequent time intervals during drilling operations in temperature gradient holes. Normally, hourly or 9 meter (30 feet) intervals.
3. If flow line mud temperature should reach 52°C (125°F.) without special cooling, further drilling shall stop immediately and the hole will be either:
 - (a) completed as an observation hole by running steel tubing to the desired depth and filling the annulus with drilling mud from total depth to 3 meters (10 feet) and with cement 10' to the surface.
 - (b) abandoned by filling the hole with drilling mud to within 3 meters (10 feet) of the surface and with cement to the surface.
 - (c) equipped with mud cooling and wellhead control equipment, to maintain the mud returns temperature at or below 52°C. (125°F.). If approved by the Authorized Officer in consultation with the Area Geothermal Supervisor, drilling may then be resumed.
4. If flowing steam or hot water 65°C. (150°F.) is encountered, further drilling shall stop immediately and the hole will be either (a) completed as an observation hole using steel tubing and circulating cement from total depth to surface or (b) abandoned by plugging with cement from total depth to surface.

Exceptions will be allowed only with specific permission from the Authorized Officer, after consultation with the Area Geothermal Supervisor.
5. If cold flowing artesian water is encountered, hole will be completed as in (4) above, except that plastic tubing may be used.

If conditions outlined in either (3), (4) or (5) above are encountered, the Authorized Officer shall be notified immediately.
6. The operator shall submit the following information with the "Notice of Intent" (Form 3200-9), (a) the approximated location to the nearest 30 meters (100 feet) from some identifiable marker or object within a section and hole number or designation of each proposed hole and order of drilling; (b) the type and size of drilling rig; (c) the proposed drilling program including: drilling method (auger, cable, rotary with mud or air) and the approximate depth, casing and wellhead design; (d) the type of drilling sump and proposed method of sump abandonment; (e) the approximate time the holes are expected to be used for observation; and (f) the proposed method of abandonment.
7. All changes of location or added wells must be approved by the Authorized Officer after consultation with the Supervisor.

8. Locations proposed in natural thermal areas, within 460 meters (1500 feet) radius of known hot springs, fumaroles, or other surface geothermal indicia or in areas of known artesian water flow, will require a drilling program for each hole, approved by the Authorized Officer after consultation with the Area Geothermal Supervisor. Such holes may require special drilling and completion techniques (such as cemented surface casing and simple bag packer blowout preventers) to safely control formations containing geothermal resources which may be penetrated.

9. Holes shall be completed for observation purposes in a manner which shall allow satisfactory subsequent abandonment. Unless otherwise required, this will normally mean cementing the annular area (between the tubing and the hole wall) from 10' to the surface.

10. Holes shall be abandoned in a manner that will prevent subsurface inter-zonal migration of fluids and surface leakage. As a minimum, the top 3 meters (10 feet) of tubing should be filled with cement. Tubing shall be cut off at ground level or as directed by the Authorized Officer.

11. The notice of Completion of Geothermal Resource Exploration Operations (Form 3200-10), as required under Condition 5 of this permit, shall be submitted in duplicate and shall contain, among other items, the following information for each hole drilled:

(a) Final hole designation and location.

(b) A drillers log noting water table, fluid and/or mineral contents of identifiable formation intervals.

(c) Method of completion, cementing, as casing and/or tubing with wellhead components. This may be presented by engineering drawings.

(d) Details of abandonment or current status of the well.

(e) Any information on drilling difficulties or unusual circumstances encountered which would be helpful in assuring future safety of operations or protection of the environment in the area concerned.

12. Drilling fluids or cuttings shall not be discharged onto the surface where such discharge will contaminate lakes and perennial or intermittent streams. Excavated pits or sumps used in drilling will be backfilled as soon as practicable and restored to conform with the original topography.

13. Unless otherwise authorized, unattended sumps shall be fenced to protect domestic stock or wildlife.

14. Applicant shall contact appropriate BLM district office prior to actual entry upon the land.

USGS:CD:July 1976 Revision
USGS:CD:August 1977 Revision