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Leach Hot Spr.



UNITED STATES
DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY
Area Geothermal Supervisor's Office
Conservation Division, MS 92
345 Middlefield Road
Menlo Park, CA 94025

AREA
NU
Pershing
Leach
Plan of Oper.

EU'S 1013

NOV 29 1979

Memorandum

To: INTERESTED PARTIES

From: *Acting* Area Geothermal Supervisor

Subject: Unit Plan of Operation, Aminoil USA, Inc., Leach Hot Springs
Area, Pershing County, Nevada

Ref: 2404-02a Leach Hot Sprs./Panther Canyon (POO for EA #145-80)

Aminoil USA, Inc. has submitted a Plan of Operation in accordance with 30 CFR 270.34 to drill up to nine (9) exploratory wells in both the proposed Leach Hot Springs Unit and the proposed Panther Canyon Unit. A copy is enclosed for your review and comment.

An Environmental Assessment (EA) #145-80 will be prepared by the Office of the Area Geothermal Supervisor for the proposed action.

You are invited to participate in a field inspection being led by Mr. Bernie Moroz, Reno District Geothermal Supervisor, USGS, on December 19, 1979. Participants are asked to meet at the BLM office, 705 E. 4th Street, Winnemucca, Nevada at 8:00a.m. the day of the inspection.

We urge you to send written commentary and will appreciate hearing from you even if you are of the opinion that the existing regulations, lease terms and operational orders provide adequate environmental protection.

All comments concerning the proposed actions should be received no later than January 4, 1980 by:

Area Geothermal Supervisor
U.S. Geological Survey
Conservation Division
345 Middlefield Road, MS 92
Menlo Park, CA 94025
(415) 323-8111 x2845; (FTS) 467-2845

All comments will be given serious consideration in the preparation of the Environmental Assessment and any subsequent conditions of approval.

The Area Geothermal Supervisor's office will routinely distribute copies of the completed final EA to the surface managing agency, the lessee, the Geothermal Environmental Advisory Panel (GEAP) and the U. S. Fish and Wildlife Service. Other interested parties may receive a copy of the final EA upon request. Copies of EA's will also be available for inspection during normal business hours at the Area Geothermal Supervisor's office the District Geothermal Supervisor's office, Reno, Nevada and the BLM, Winnemucca, Nevada, District Manager's office.



Reid T. Stone

Enclosure

INTERESTED PARTIES EA #145-80

incoil USA, Inc.
Leach Hot Springs Unit
Leach Hot Springs Area
Leach P00 -- Nine Exploratory Wells

Leach Hot Springs Unit
Leach Hot Springs Area

* * * * *

strict Geothermal Supervisor
GS, Conservation Division
etzke Plaza, Bldg. D, Suite 137
00 Kietzke
no, Nevada 89502
TS: 470-5676 Comm: 704-784-5676

Conservation Manager, Western Region
ATTN: Environmental Staff
USGS, Conservation Division
345 Middlefield Rd., MS 80
Menlo Park, California 94025
*FTS: 467-2108 Comm: 415-323-8111

. Henry Cullins
ea Geologist, Pacific Area
GS-Conservation Division
5 Middlefield Road, MS 80
nlo Park, California 94025
TS: 467-2053 Comm: 415-323-8111

Dr. G. D. Robinson, Chairman
Geothermal Environmental Advisory
Panel
345 Middlefield Road, MS 19
Menlo Park, California 94025
*FTS 467-2871 415-323-8111 X2871

. Theodore W. Holland
S. Bureau of Land Management
0 W. Forth St., Box 042
ise, Idaho 83724

Nevada State Director
Bureau of Land Management
Federal Building, Room 3008
300 Booth Street
Reno, Nevada 89509
*FTS 470-5451 Comm: 702-784-5451

S. Bureau of Reclamation
TN: Lloyd Osbourne
st Office Box 640
rson City, Nevada 89701
el: (702) 882-3436

U.S. Fish and wildlife Service
ATTN: Field Superv Ecological Serv
2800 Cottage way
Sacramento, California 95825
*FTS: 468-4516 Comm: 916-484-4516

S. Fish and Wildlife Service
TN: Gail Kobetich
dangered Species Office
00 Cottage way, Room E-2720
cramento, California 95825
TS: 468-4516 Comm: 916-484-4516

U.S. Environmental Protection Adcy.
Environmental Monitoring &
Support Laboratory
ATTN: Michael O'Connell
P.O.Box 15027 Las Vegas, NV 89114
*FTS: 595-2969 Comm: 702-736-2969

partment of Energy, Geothermal
TN: Bennie DiBona
Massachusetts Avenue, NW
shington, D.C. 20545
TS 376-1690 Comm: 202-376-1690

U.S. Department of Energy, Nevada
Operations Office
ATTN: John Cummins
Post Office Box 14100
Las Vegas, Nevada 89114
*FTS: 598-3591 Comm: 702-734-3591

. Mary Rusco, Archaeologist
vada State Museum
0 N. Carson Street
rson City, Nevada 89701
el: (702) 885-4810

Nevada Bureau of Mines and Geology
ATTN: Larry Garside - Geoth Specl
University of Nevada
Reno, Nevada 89507
*Comm: 702-784-6691

ate Of Nevada
partment of Energy
50 E. William, Suite 405
rson City, Nevada 89701

State of Nevada, Environ Protection
Agency Svcs, Dept of Cons & Res
ATTN: Wendell McCurry, Vern Ross
Post Box 14100

INTERESTED PARTIES for EA #145-80

Mr. Ray Corlett, Regional Manager
Nevada Dept. of Fish and Game
380 West B Street
Fallon, Nevada 89406
*Tel: (702) 423-3171

State of Nevada
Department of Fish and Game
ATTN: Mr. Dale V. Lockhard
Post Office Box 10678
Fallon, Nevada 89510
Tel: (702) 784-6214

State of Nevada, Div of Historic
Preservation and Archaeology
ATTN: Mimi Rodden
201 South Fall St. Capitol Complex
Carson City, Nevada 89710
*Tel: (702) 885-5138

State of Nevada
Department of Human Resources
ATTN: Lou Dodgin
Capitol Complex
109 Johnson Street
Carson City, Nevada 89710

State of Nevada, Div of State Lands
ATTN: Jac Shaw, Jim Hansen
201 S. Fall Street
Capitol Complex, Rm. 339
Carson City, Nevada 89710
*Tel: (702) 885-4363

State of Nevada, Planning Coordinator
ATTN: Bob Hill
150 E. Williams, Suite 402
Capitol Plaza
Carson City, Nevada 89701
Tel: (702) 885-4865

State of Nevada
Division of Water Resources
C/O State Engineer
201 South Fall Street
Carson City, Nevada 89710
*Tel: (702) 885-4380

Office of Review and Compliance
Advisory Council on Historic
Preservation
ATTN: Michael H. Soreman
P.O. Box 25085
Denver, Colorado 80225

Earth Science Laboratory
Univ of Utah Research Institute
ATTN: Phillip M. Wright
420 Chiceta Way, Suite 120
Salt Lake City, Utah 84108
*Tel: (801) 581-5283

Lawrence Livermore Laboratory
Box 5507, Mail Code L-523
Livermore, California 94550
RTS 532-1109 Comm: 415-422-1100

Mrs. Margaret Williams
Director, Northern Nevada Native
Plant Society
P.O. Box 8965
Reno, Nevada 89507

Exploration Geologists of Nevada
ATTN: Ralph D. Mulhollen
P.O. Box 3043
Reno, Nevada 89505

Amex Exploration, Incorporated
ATTN: Mr. Larry Hall
7100 West 44th Avenue
Wheatridge, Colorado 80033
*RTS 234-3131 (303-420-8100)

Gevron USA, Inc.
ATTN: J.G. Turner
Post Office Box 3722
San Francisco, California 94119
Tel: (415) 894-2726

GeothermEx, Inc
Attn: James B. Koenig
901 Mendocino Avenue
Berkeley, California 94707
*Comm: 415-524-9242

INTERESTED PARTIES for EA #145-80

Geothermal Power Corporation
 ATTN: Mr. Frank Metcalfe
 27 Grant Avenue, Suite 6
 P.O. Box 1186
 Yuwato, California 94947
 Phone: 415-897-7833

Geothermal Resources Council
 Attn: Mr. David Anderson
 P.O. Box 98
 Davis, CA 95616
 *Comm: 916-758-2360

Getty Oil Company
 ATTN: Mr. Dan W. Sparks
 Post Office Box 5237
 Yuba City, California 93388
 Tel: (805) 399-2961

Gulf Mineral Resources Company
 Exploration Department
 ATTN: Mr. Glen Campbell
 1720 South Belaire Street
 Denver, Colorado 80222
 *FIS Doc: 327-0111 303-758-1700

Joint Energy Corporation
 Attn: Geothermal Department
 500 First National Bank Building
 Dallas, Texas 75202
 FTS 729-4011 748-1300 (Mr. Powers)

Magma Power Company
 ATTN: Mr. Richard Foss
 51 S. Witmer Street
 Los Angeles, California 90017
 Tel: (213) 483-2265

Magma Electric Company
 ATTN: Tom Hinrichs
 Post Office Box 2082
 Escondido, CA 92025
 *Tel: (714) 743-7008

Occidental Geothermal, Inc.
 ATTN: B.J. Wyant
 100 Stockdale Highway
 Yuba City, California 93389
 Tel: (805) 327-7351

Pacific Gas & Electric Co
 ATTN: Dan Hoyer
 77 Beale Street, Room 2362
 San Francisco, CA 94106
 *Tel: 415-781-4211, Ext 3340

Phillips Petroleum Company
 ATTN: R.T. Forest
 Energy Minerals Division
 Post Office Box 6256
 Reno, Nevada 89513
 Tel: (702) 786-2273

Republic Geothermal, Incorporated
 ATTN: Mr. Dwight Carey, and
 Ms. Tawna Nichols
 Post Office Box 3388
 Santa Fe Springs, California 90670
 *Tel: (213) 945-3661

Republic Geothermal, Incorporated
 Southern California Office
 ATTN: J. L. Schneidender
 111 College Avenue, Suite 220
 Santa Rosa, California 95404
 Phone: 707-527-7755

San Diego Gas and Electric Company
 ATTN: Larry Grogan/J.M. Nugent
 P.O. Box 1831
 San Diego, California 92112
 *(714-232-4252, Ext. 1715/1903

RAYWRIGHT Corporation
 ATTN: Mr. Wayne L. Sayer
 Post Office Box 229
 Yuba City, California 94533
 Tel: 707-429-5777

Shell Oil Company
 ATTN: Mr. F.W. Nantker
 Post Office Box 92047
 Worldway Center
 Los Angeles, California 90009
 *Tel: (805) 648-2751

INTERESTED PARTIES for EA #145-80

Inoco Energy Development Company
ATTN: Mr. John Williams
Suite 1500 -- Box 9
2700 Park Central Place
Dallas, Texas 75251
FIS 729-4011 214-233-2600

Southland Royalty Company
ATTN: Jere Denton
1000 Fort worth Club Tower
Fort Worth, Texas 76102
*FIS Opr: 334-3001 (817)390-9200

Apron Energy Corporation
Bldg. V, Fifth Floor
1300 North Central Expressway
Dallas, TX 75231
Tel: (214) 691-9141

Thermal Power Company
ATTN: Mr. Richard Miller
601 California Street, Suite 1302
San Francisco, California 94108
*415-981-5700

Union Oil Company of California
Geothermal Division
ATTN: Neil Stefanides
Union Oil Center, PO Box 7600
Los Angeles, California 90051
213-486-7740

Aminoil USA, Incorporated
ATTN: Mr. C. E. Woods
Post Office Box 11279
Santa Rosa, California 95406
*FIS Ope: 623-1011 707-527-5333/2

Madarko Production Company
ATTN: Mr. R. C. Edmiston
Post Office Box 1330
Houston, Texas 77001
FIS Ope: 527-4011 713-526-5421

Phillips Petroleum Company
Geothermal Operations
ATTN: Bob Wright
Post Office Box 239
Salt Lake City, Utah 84110
*Comm: 801-364-2063

Mr. Clyde E. Kuhn
Cultural Resources Management, Inc
Post Office box 69
Davis, California 95616

Mr. G. Martin Booth, III
4275 Mackamore Drive
Reno, Nevada 89502
*FIS 470-5911 (702-747-5063)

Mr. Jerry H. Clay
18 Fair Foundation Building
Tyler, Texas 75702

Mr. Warren M. Woodward
125 Drew Drive
Reno, Nevada 89511
*FIS 470-5911 702-825-3079

Mr. Jack McNamara
1850 Wilshire Blvd, Suite 790
Los Angeles, California 90024
Tel: (213) 475-4933

Aminoil USA, Inc.
P. O. Box 11279
Santa Rosa, California 95406
(707) 527-5333

AMINOIL USA

November 8, 1979

U. S. Geological Survey
Conservation Division, MS 92
345 Middlefield Road
Menlo Park, Calif. 94025

Attention: Mr. David K. Bickmore

Gentlemen:

Pursuant to 30 CFR 270.34 and Draft GRO Order No. 5, Aminoil USA, Inc. hereby submits in triplicate a Plan of Operation Exploration for Federal Leases Nos. N-12130A, N-13899, N-13900, N-15777 and N-18649, Leach Hot Springs, Pershing County, Nevada.

Operations at Leach Hot Springs KGRA are being performed under DOE Contract No. DE-AC08-79ET 27005 awarded to Aminoil USA, Inc. April 1, 1979 for a "Geothermal Reservoir Assessment Case Study - Northern Basin and Range Province".

Subsequent to award of the Contract, Aminoil USA entered into an agreement with Sunoco Energy Development Co. (Sunedco), Dallas, Texas, whereby Aminoil remains the contract operator for the DOE Contract and Sunedco is to perform the field operations.

Pursuant to the Agreement between Aminoil and Sunedco, the Plan of Operation Exploration submitted herewith has been prepared by Sunedco and forwarded to Aminoil for review and submittal. All future notices and correspondence related to the Aminoil/Sunedco Plan of Operation Exploration for the Leach Hot Springs project should be forwarded to Sunoco Energy Development Co., 12700 Park Central Pl., Box 9, Suite 1500, Dallas, Texas 75251, attention Mr. John F. Williams, Jr. with a copy to Aminoil USA, Inc., P. O. Box 11279, Santa Rosa, California 95406, attention Mr. C. E. Woods.

Pursuant to 30 CFR 270.71, applications for Permit to Drill (Form 9-331C) for eight wells, appended with a Drilling Program, have been included with the Plan of Operation.

Sundry Notice for approval to proceed with specific construction projects will be filed under separate cover pursuant to 30 CFR 270.72 following approval of the Plan of Operation.

Sunedco would like to schedule commencement of construction activities and the drilling of wells included in the Leach Hot Springs Plan of Operation for January, 1980.

RECEIVED

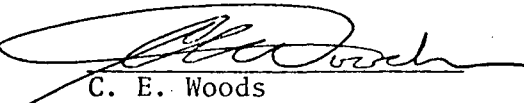
NOV 16 1979

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

Your assistance in the processing of the Plan to accomodate the Sunedco schedule will be greatly appreciated.

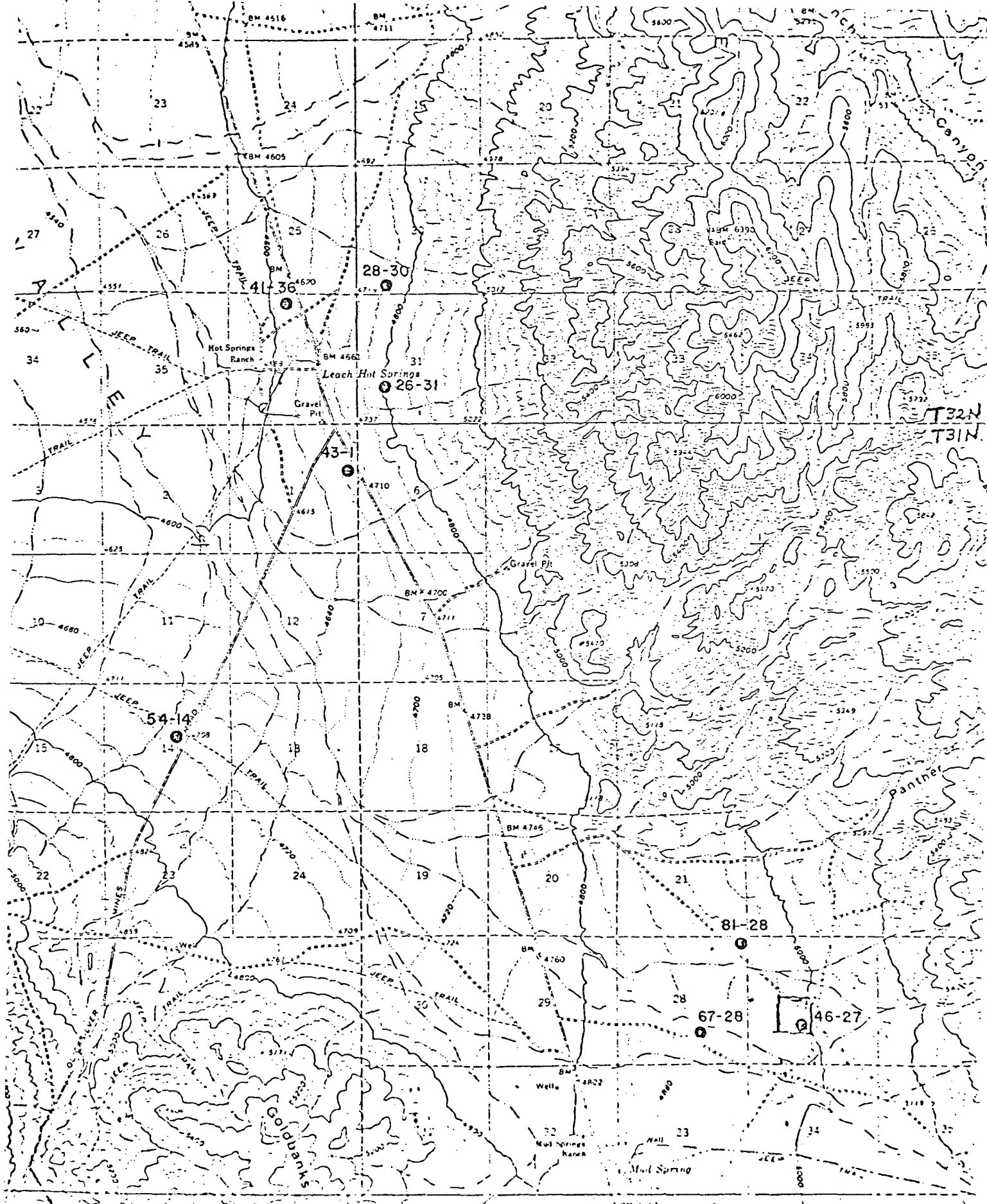
If you have any questions or need for further information with regard to the Plan, please call Mr. John Williams, Sunedco (214) 233-2600.

Yours very truly,



C. E. Woods

CEW:aa



LEACH HOT SPRINGS AREA
 PERSHING CO., NEVADA

PLAN OF OPERATION PER 30 CFR 270.34

The plan is to drill eight exploratory wells in Leach Hot Springs, Nevada, to a depth of approximately 8,500 feet each.

- A. The proposed location of each well is shown on the attached topo map. A rig layout showing the position of the mud tanks, reserve pits, pipe racks, and other surface facilities is also attached.
- B. Existing and planned access and lateral roads are shown on the topo map for each well.
- C. Locations of Water Supply

A central water supply well will be drilled to serve geothermal wells 41-36, 28-30, 26-31, and 43-1.

A water supply will be drilled approximately 200 feet northwest of geothermal well 54-14.

A central water supply well will be drilled for geothermal wells 81-28, 67-28, and 46-27.

Road Building Material

BLM gravel pits located in Sections 36 and 8 are shown on the topo map.

- D. Location of Support Facilities

A campsite will be located in the S/2 of Section 31-32N-39E.

- E. There should be no other areas of surface disturbance except those as listed here and as shown on the attached topo map.
- F. The topographic features and drainage features are depicted on the topo map.
- G. Methods of disposing of existing materials are discussed in the environmental section and the drilling plans.

Methods used to protect the environment are discussed in the environmental section.

All pertinent information required for proper and timely consideration of the Plan of Operation should be included herein. If any other data are required, we will furnish them. Various required data will be taken throughout operations to insure that the plan is being followed and that we are in compliance with applicable rules, regulations, and GRO orders.

- H. Should sufficient geothermal resources be encountered during the exploratory phase of the Plan of Operation, a one-year baseline datum will subsequently be initiated to address other environmental requirements.

METHODS OF DISPOSING OF WASTE MATERIAL

Reserve pits will be located adjacent to each drill pad for containment. If the well is completed as a producing well the reserve pits will be left intact for future use during testing, workovers, or deepenings.

If the well is not completed as a producing well the reserve pits will be evaporated to dryness and then reclaimed by filling and grading.

Effluents produced during testing operations are of better quality than existing surface waters in area. Approval to allow the produced effluents to flow into the natural drainage will again be requested from appropriate agencies.

A burn pit will be used at each drill site for the disposal of flammable waste material such as mud sacks and rags. Solid waste such as cans and bottles will be placed in a pit which will be covered over with dirt after the drill rig has been removed from the location.

A "sanihut" will be provided for the use of the drilling crews and other personnel working on the drilling operation.

ENVIRONMENTAL PROTECTION

The following practices will be followed with regard to environmental protection.

FIRE

All Local, State, and Federal fire standards applicable to the operator's activities will be observed. Vegetation removed in pad and road construction will be placed at a reasonable distance from drilling sites. Smoking will be permitted only in designated areas with care being taken to avoid accidental ignition of brush or other flammable materials. All vehicles on the location will meet applicable state highway standards. Water and fire extinguishers will be kept available at all times at each location.

SOIL EROSION

Road improvements will be limited to that which is necessary. The drainage pattern and topography of area will be considered in the design of the access roads.

NOISE AND AIR QUALITY

Noise generated by drilling operations should have little or no effect on the environment.

The drilling operations should have little effect on the air quality of the area. H₂S emissions for nearby well have monitored concentrations of less than 1 ppm during drilling/flow test operations.

HAZARDS TO PUBLIC HEALTH AND SAFETY

Drilling operations can be hazardous to passers-by and other unauthorized personnel. For this reason, areas in which drilling and other operations underway will be restricted, except to authorized personnel. In addition, sumps and other excavations will be fenced to prevent accidents. The proposed sites are in locations which are not readily accessible to the general public. Should any emergency arise during the proposed operation, the appropriate local, state, and federal agencies will be notified on matters pertaining to their interest.

PLUGGING AND ABANDONMENT PROCEDURES

IN THE EVENT THIS WELL IS A DRY HOLE, OR WHEN THE WELL IS DEPLETED, THE FOLLOWING PROCEDURES WILL BE USED TO ABANDON THE WELL.

1. RUN IN HOLE WITH OPEN-ENDED DRILLPIPE 100 FT. BELOW 9 5/8 CASING SHOE AND SET 200 FT. PLUG.
2. PULL UP ABOVE PLUG, WAIT ON CEMENT EIGHT HOURS, TAG PLUG AND SET DOWN WITH 15,000 LBS. WEIGHT TO CHECK PLUG.
3. FILL HOLE FROM TOP OF PLUG TO SURFACE WITH MUD.
4. CUT OFF 20", 13 3/8", and 9 5/8" CASING SIX FEET BELOW GROUND LEVEL AND PLACE A TEN FOOT CEMENT PLUG IN THE 9 5/8.
5. WELD 20" STEEL PLATE ON TOP OF 20" CASING.
6. BACK FILL HOLE, REMOVE ALL STRUCTURES, CONTOUR LAND, AND RESTORE LAND AS SPECIFIED BY SUPERVISOR.

BLOWOUT PREVENTION PROGRAM

As detailed in the Drilling and Completion Procedure our blowout prevention program consists of three phases: blowout prevention containment devices (blowout preventers, rotating head and master gate), blowout warning devices (pit level alarm, degasser, temperature monitor), and blowout control drills for crew members.

The containment devices will be equipped with high temperature resistant packing elements and ram rubbers. All of the containment devices used will be rated and tested to 2,000 psi except for the rotating head which is 1,000 psi W.P. All of the containment devices will be installed and used above ground level so that any leaks will be visible and accessible for repair. As outlined in the Drilling Procedure, blowout preventers will be pressure tested when installed; then pressure tested not less than once each week; and again pressure tested if any of the equipment is removed or if any seals are broken for any reason. The equipment will be tested for operating ability not less than once each day.

The warning device in use on this well will consist of a pit level alarm rigged to actuate both an audio and visual warning in event the level of fluids in the mud pits increases or decreases. The warning device will be located on the rig floor near the drillers station. In addition to mud level monitoring, mud temperatures will be monitored and recorded, which will also serve as a warning device as temperatures increase.

A blowout contingency plan in detail will also be placed in a conspicuous place near the rig floor and will concern actions to be taken after kick control procedures are begun. This plan will consist of three main thrusts: containment of well fluids, insulation of the public from danger, and cleanup measures.

The reserve pit built on the well site will at all times be capable of handling several thousand barrels of well fluids in addition to drilling fluids discarded as normal operating procedures. If this pit should prove to be inadequate for fluid containment, additional earthen pits will be made to hold well fluids.

The access road to the well site will be equipped with signs warning the general public of possible danger and advising unauthorized personnel to stay away from the well site at all times.