



GL03137-3043

UNITED STATES
DEPARTMENT OF THE INTERIOR

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

FC
USGS
AGSO
Memo 4
CA
Lake/Sonoma
Co.

DEC 20 1977

12/20/77 Memorandum

To: Interested Parties

From: Area Geothermal Supervisor

Subject: Supplemental Plans of Operation, Shell Oil Company, Multiple Well Drill Sites H and I - Federal Lease CA-950, and Multiple Well Drill Sites J, K, L, M, P, and Q - Federal Lease CA-949, Geysers-Calistoga KGRA, Lake and Sonoma Counties, California (Ref: 1760 CA-950 POO Drill Site H and I EA#80) (Ref: 1760 CA-949 POO Drill Site J, K, L, M, P, Q EA#95)

Shell Oil Company has submitted two Supplements to a previously approved Plan of Operation (approved September 6, 1974), in accordance with 30 CFR 270.34, to construct multiple well drill sites H, I, J, K, L, M, P, and Q, on Federal Leases CA-949 and CA-950, in the Geysers-Calistoga KGRA, Lake and Sonoma Counties, California. Enclosed are copies of the Supplements.

Environmental Analyses #80 and #95 will be prepared for the proposed action by the office of the Area Geothermal Supervisor for multiple well drill sites H and I, and J, K, L, M, P, and Q, respectively.

You are invited to participate in a field inspection led by Ted Hudson, Santa Rosa District Geothermal Supervisor, USGS, on January 11, 1978. Participants are asked to meet at 9:30 a.m. at the Union '76' service station in Middletown, California.

All comments concerning the proposed action must be received no later than January 25, 1978, by:

Area Geothermal Supervisor
Conservation Division
U.S. Geological Survey
345 Middlefield Road MS 92
Menlo Park, California 94025

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.

UNIVERSITY OF UTAH
RESEARCH INSTITUTE
EARTH SCIENCE LAB.

Further, we solicit your comments and suggestions on the proposed action even though you may not be able to participate in the inspection. All comments will be given serious consideration in the preparation of the environmental analysis and any subsequent conditions of approval thereafter.

Draft Environmental Analyses (EA#80, Drill Sites H and I, and EA#95, Drill Sites J, K, L, M, P, and Q) will be sent to interested parties for review and comment. The surface managing agency, the lessee, GEAP, and USFWS will receive a copy of the completed EA. Other interested parties will not receive a copy of the final EA unless such parties comment on the proposed action in writing or request a copy of the particular EA pursuant to the Freedom of Information Act. Copies of Environmental Analyses are available for inspection during normal business hours at the Area Geothermal Supervisor's Office and the Santa Rosa District Geothermal Supervisor's Office, as well as the appropriate BLM, District Manager's Office, and the State Director, BLM Office.

A handwritten signature in cursive script, appearing to read "Reid Stone". The signature is written in dark ink and is positioned to the right of the main text block.

INTERESTED PARTIES EA'S #80 and #95
Geysers-Calistoga KGRA
Lake and Sonoma Counties, California

Shell Oil Company
Plan of Operation:

Multiple Well Drill Site H, & I, (Federal Lease CA-950) EA#80
Multiple Well Drill Site J, K, L, M, P, & Q (Federal Lease CA-949) EA#95

USGS-Conservation Division
Attn: Ted Hudson
District Geothermal Supervisor
777 Sonoma Ave., Federal Bldg., Rm. 213
Santa Rosa, CA 95404
(707) 525-4326
FTS: 8-623-1326

USGS-Conservation Division
Conservation Manager, Western Region
Attn: Environmental Staff
345 Middlefield Road, MS 80
Menlo Park, CA 94025
(415) 323-8111, Ext., 2093
FTS: 467-2093

USGS-Conservation Division
Attn: Henry Cullins
Area Geologist, Pacific Area
345 Middlefield Road, MS 80
Menlo Park, CA 94025
(415) 323-8111, Ext. 2563
FTS: 467-2563

Geothermal Environmental Adv. Panel
Attn: Max Crittenden, Chairman
345 Middlefield Road, MS 75
Menlo Park, CA 94025
(415) 323-8111, Ext. 2317
FTS: 467-2317

U.S. Bureau of Land Management
State Director
Federal Office Bldg.
2800 Cottage Way, Rm. E-2841
Sacramento, CA 95825
(916) 484-4676
FTS: 468-4676

US Bureau of Land Management
District Office
555 Leslie Street
Ukiah, CA 95482
(707) 462-3873

U.S. Bureau of Land Management
Geothermal Specialist
Attn: Theodore W. Holland
Denver Federal Center, Bldg. 50 (D-3)
Denver, CO 80225
(303) 234-5098
FTS: 234-5098

U.S. Fish and Wildlife Service
Office of Biological Services
Attn: L.A. Mehrhoff
Geothermal Advisor - Region I
4620 Overland Road, Room 210
Boise, Idaho 83705
(208) 834-1931
FTS: 554-1931

U.S. Fish and Wildlife Service
Attn: Felix Smith, Field Supervisor
2800 Cottage way, R. E-2727
Sacramento, CA 95825
(916) 484-4731
FTS: 468-4731

U.S. Department of Energy
Div. of Geothermal Energy, 3rd Floor
Attn: A.G. Follett
20 Massachusetts Ave., NW
Washington, D.C. 20545
(202) 376-1690
FTS: 376-1690

U.S. Environmental Protection Agency
Environmental Monitoring & Support L.
Attn: Michael O'Connell
P.O. Box 15027
Las Vegas, NV 89114
(702) 736-2969
FTS: 595-2969

State of California
Dept. of Fish & Game
Attn: Don Lollóck
1416 Ninth St.
Sacramento, CA 95814
(916) 455-1383
FTS: 465-1383

State of California
Sept. of Fish and Game
Attn: John Emig
P.O.Box 47
Yountville, CA 94599
(707) 944-2443

State of California
Division of Oil and Gas
Attn: Jack Miller
240 "D" Coddington Center
Santa Rosa, CA 95401
(707) 525-0479

State of California
Dept. of Parks & Recreation
State Resources Agency
Attn: Knox Mellon, SHPO
P.O. Box 2390
Sacramento, CA 95811
(916) 445-2358

State of California
Calif. Regional Water Quality Control Board
North Coast Region
Attn: David Snetsinger
1000 Coddington Center
Santa Rosa, CA 95401
(707) 545-2620

State of California
Water Resources Control Board
Attn: Alvin Franks
P.O. Box 100
Sacramento, CA 95801
(916) 322-4548

Sonoma County Planning Director
Attn: Tom Cordill
County Admin. Bldg., Room 105A
255 Mendocino Ave.
Santa Rosa, CA 95401
(707) 527-2412

Lake County Planning Director
Attn: Don Johnson
255 N. Forbes Street
Lakeport, CA 95453
(707) 263-5471, Ext. 248

State of California
Governor's Office of Planning and Research
State Clearing House
Attn: Bill Kirkham
1400 Tenth Street
Sacramento, CA 95814
(916) 445-0613
FTS: 465-0613

AMAX Exploration
Attn: Larry Hall
4704 Harlan Street
Denver, CO 80212
(303) 433-6151

Anadarko Production Company
Attn: John Syptak
P.O. Box 1330
Houston, TX 77001
(713) 526-5421

Calif. Energy Company, Inc.
Attn: Paul V. Storm
P.O. Box 3909
Santa Rosa, CA 95402
(707) 526-1000

Chevron USA, Inc.
Attn: J.G. Turner/P. Smith
P.O. Box 3722
San Francisco, CA 94119
(415) 894-2726

Dresser Industries
MAGCOBAR Division
Attn: Jim Fox
475 17th Street, Suite 1600
Denver, CO 80202

Earth Science Laboratory
University of Utah Research Institute
Research Park
391 Chipeta Way
Salt Lake City, UT 84108
(801) 581-5226

Energy and Natural Resources Consultants
Attn: Richard Jodry
P.O. Box 941
Richardson, TX 75080

Geothermal Power Corp.
Attn: Frank G. Metcalfe
P.O. Box 1186
Novato, CA 94947
(415) 897-7833

GeothermEx, Inc.
Attn: James B. Koenig
901 Mendocino Ave.
Berkeley, CA 94707
(415) 524-9242

Getty Oil Company
Attn: Dan W. Sparks
P.O. Box 5237
Bakersfield, CA 93308
(805) 399-2961

Gulf Mineral Resources Co.
Exploration Department
Attn: E.W. Westrick
1720 S. Bellaire St.
Denver, CO 80222
(303) 758-1700

Hydro-Search, Inc.
Attn: Virgil Wilhite
333 Flint St.
Reno, NV 89501
(702) 322-4173

ICF, Inc.
Attn: Doug Fried
1990 M Street, NW
Washington, D.C. 20036
(202) 785-3440

Mr. Clyde E. Kuhn
2207 Carroll St., Apt. 3
Oakland, CA 94606
(415) 451-3714

Magma Power Company
Attn: Dick Foss/Tom Hinrichs
631 S. Witmer St.
Los Angeles, CA 90017
(213) 483-2285

Mr. Jack McNamera
Law Center, Room 422
University of Southern California
Los Angeles, CA 90007
(213) 741-7569

Occidental Geothermal, Inc.
Attn: B.J. Wyant
5000 Stockdale Highway
Bakersfield, CA 93309
(805) 327-7351

Phillips Petroleum Company
Attn: R.L. Wright
P.O. Box 752
Del Mar, CA 92014
(714) 755-0131

Republic Geothermal, Inc.
Attn: Dwight Carey
P.O. Box 3388
Santa Fe Springs, CA 90670
(213) 945-3661

Republic Geothermal, Inc.
Attn: J.L. Sheidenberger
2544 Cleveland Avenue
Santa Rosa, CA 95401
(707) 527-7755

Shell Oil Company
Attn: Fred Nantker
Worldway Center
P.O. Box 92047
Los Angeles, CA 90009
(805) 648-2751

Sunoco Energy Development Co.
Attn: C.T. Clark, Jr.
12700 Park Central Pl., Suite 1500
Dallas, TX 75251
(214) 233-2600, Ext. 515

Thermal Power Company
Attn: K.R. Davis
601 California Street
San Francisco, CA 94108
(415) 981-5700

Union Oil Company of California
Geothermal Division
Attn: Neil J. Stefanides
Union Oil Center, Box 7600
Los Angeles, CA 90051
(213) 486-7740

Union Oil Company
1250 Coddington Center
P.O. Box 6854
Santa Rosa, CA 95406
(707) 542-9543

cc: Reading File 101-02
Subject File 1760 CA-950 POO DS H & I EA #80
Subject File 1760 CA-949 POO DS J, K, L, M, P, & Q EA #95
ENV EA #80, EA #95
ENG
OPE WB
OPE EB

BGKarnacki/bgk/12/19/77

SUPPLEMENT TO
APPROVED PLAN OF OPERATION
UNITED STATES GEOTHERMAL LEASE
SERIAL NO. CA-950
DRILLSITE-H
DRILLSITE-I

SHELL OIL COMPANY
WESTERN DIVISION
WEST COAST OPERATIONS OFFICE
VENTURA, CALIFORNIA

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EXHIBITS

(The following exhibits typify these drillsites.)

- "A" Topographic Map Showing Geysers KGRA Lease CA-950
- "B" Proposed Drillsite Layout and Construction Detail, Shell-U.S. Geothermal Lease CA-949, Drillsite E.
- "C" Construction Specifications, Site-I.
- "D" Geologic Investigation to follow.
- "E" Environmental Impact Report, refer to the Environmental Impact Analysis, Shell Oil Company, USGR Lease Two (CA-950), Drill Site G, Sonoma County, California, by Ecoview previously submitted.

SUPPLEMENT TO
APPROVED PLAN OF OPERATION
UNITED STATES GEOTHERMAL LEASE

Serial No. CA-950

Further to the Shell Oil Company Proposed Plan of Operation, United States Geothermal Lease, Serial No. CA-950, submitted July 24, 1974, and approved September 6, 1974, covering construction of an access road, drillsite and the drilling of one exploratory well, Shell hereby submits a supplement to the approved plan delineating construction of an additional drillsites and the drilling of exploratory wells. Shell anticipates drilling up to five geothermal wells from each location.

A map designated "EXHIBIT A" showing the topography of the subject leased land and the surrounding area is attached. This map is a revised version of the "EXHIBIT A" submitted with the approved Plan of Operation for Lease CA-950. Actual location of the completed access road and drillsites are shown along with the proposed sites and wells.

I. Drill Site Construction.

A. Site H

1. Shell proposes to build a drillsite hereafter to be known as Site H on U.S. Lease No. CA-950. The coordinates of this proposed site are 1,295.4M (4,250 feet) West and 1,920.2M (6,300 feet) South of the Northeast section corner of Section 3, Township 10 North, Range 8 West. The corresponding California State coordinates are 540,332.7M (1,790,363.2 feet) East and 119,753.2M (392,890.4 feet) North, Mount Diablo Base and Meridian.
2. The site is situated adjacent to the existing Pine Flat Road, see "EXHIBIT A". This road is believed to have been built several years ago as access to mining claims and has been maintained by the Bureau of Land Management because of its locale on Federal lands. Plans are to up-grade this road from proposed Site I, it's entire length South, to where it ends near Big Sulphur Creek. Improvements will be in width, grade, drainage, and stability maintaining existing roadway where practical. Further plans are to construct a new road connecting Pine Flat Road to Drillsite A across Big Sulphur Creek to be known as Sulphur Creek Crossing. Construction designs and plans will follow when an alignment is picked.

B. Site I

1. Shell proposes to build a second drillsite hereafter to be known as Site I on U.S. Lease No. CA-950. The coordinates of this proposed site are 1,981.2M (6,500 feet) West and 762.0M (2,500 feet) South of the Northeast section corner of Section 3, Township 10 North, Range 8 West. The corresponding

California State coordinates are 545,018.0M (1,788,113.2 feet) East and 120,911.5M (396,690.4 feet) North, Mount Diablo Base and Meridian.

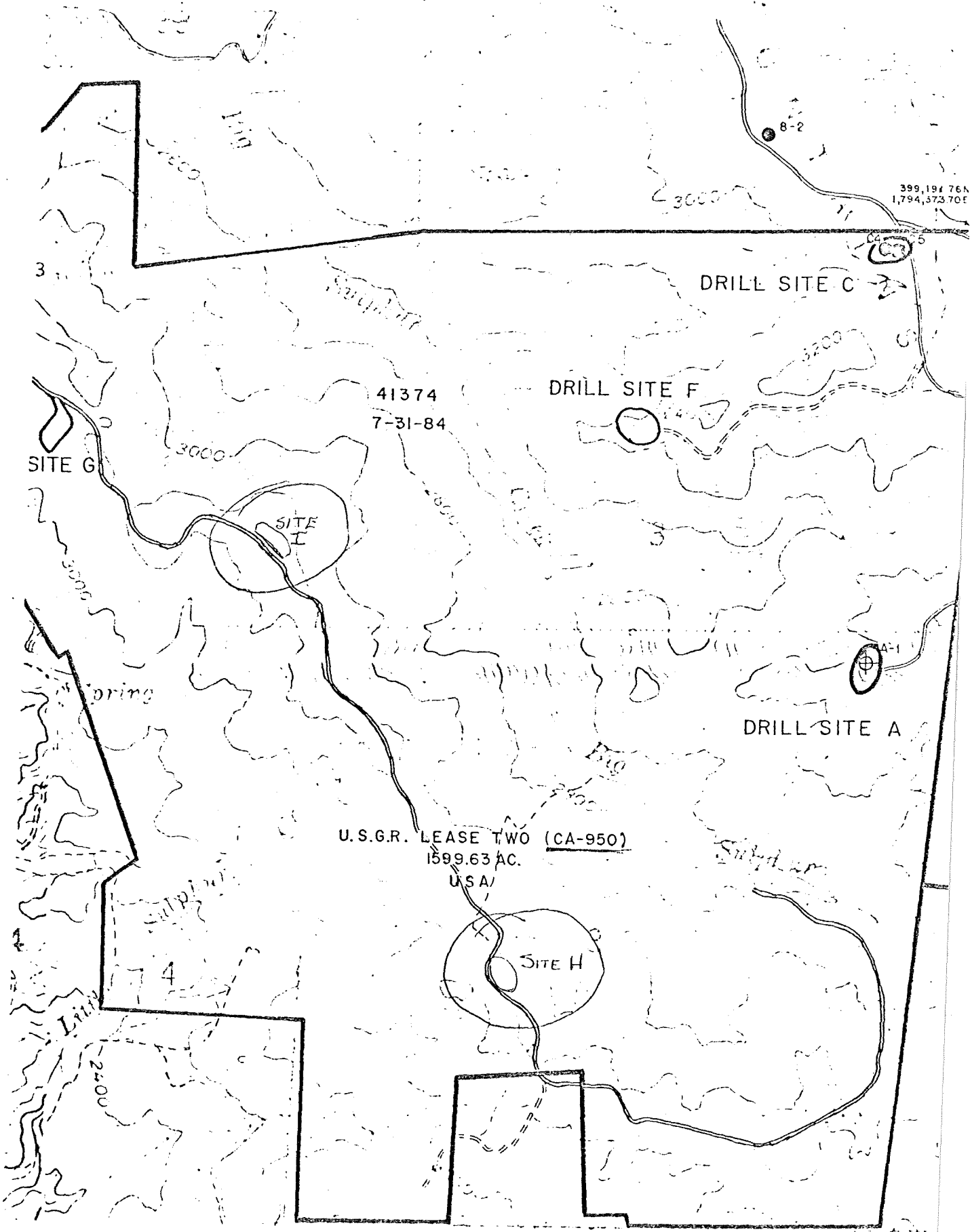
2. The site is situated adjacent to the existing Pine Flat Road, see "EXHIBIT A". Plans are to up-grade this road from Site G to Site I. Improvements will be in width, grade, drainage, and stability maintaining existing roadway where practical.
- C. Retaining levees or berms will be constructed along the periphery of the drillsites to direct runoff water away from fill slopes into natural drainage courses. To further protect the drillsites, interceptor ditches will be provided above any cut slope. Only that rain falling directly on the disposal sumps or fluid created by drilling, i.e., drill mud, muffler effluent, etc., will be channeled to the disposal sumps.
 - D. The sumps will be constructed with a two foot thick clay liner whose permeability will not exceed 1×10^{-6} cm/sec, compacted to 95 percent of maximum density and keyed to prevent slippage. The sumps will be used for the disposal of drilling effluent from the proposed wells, and future wells from these locations. Upon completion of the disposal sumps use, all liquids will be removed by solar evaporation or other appropriate methods. With only solid waste material remaining, the sumps will be filled in, compacted to a degree specified by a Soils Engineer, graded, and reseeded with native vegetation to minimize possibility of erosion. Furthermore, all surface drainage will be directed away from the immediate area of the sumps to minimize seepage and erosion.
 - E. Water for construction, drilling, and all associated operations will be obtained by trucking from outside commercial sources.
 - F. All construction standards and practices will conform to those set forth in the approved Plan of Operation, United States Geothermal Lease, Serial No. CA-950, approved September 6, 1974, and the attached Construction Specifications, "EXHIBIT C".
 - G. Construction activities are anticipated to begin approximately April 15, 1978, and/or as soon as approval can be acquired.

II. Protection of the Environment.

See Plan of Operation, United States Geothermal Lease, Serial No. CA-950, approved September 6, 1974, pages 5, 6, and 7.

III. Drilling Prognosis.

Refer to the Exploration Model Drilling Plan of Operations and Attachments, Geysers Area, United States Geothermal Lease, Serial No. CA-949 and CA-950, approved February 17, 1977, for Shell-U.S. Geothermal (CA-949) D-7 (24A-2) to fulfill this section.



399,194 76N
1,794,373 70E

DRILL SITE C

DRILL SITE F

41374
7-31-84

SITE G

SITE I

DRILL SITE A

U.S.G.R. LEASE TWO (CA-950)
1599.63 AC.
USA

SITE H

3

4

8-2

SUPPLEMENT TO
APPROVED PLAN OF OPERATION
UNITED STATES GEOTHERMAL LEASE
Serial No. CA-949
Drillsites J, K, L, M, P, Q

WESTERN DIVISION
WEST COAST OPERATIONS OFFICE
VENTURA, CALIFORNIA

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- "B" Proposed Drillsite Layout and Construction Detail, Shell-U.S. Geothermal Lease CA-949, Drillsite E.
- "C" Construction Specifications, Site I.
- "D" Geologic Investigation to follow.
- "E" Environmental Impact Report, refer to the Environmental Impact Analysis, Shell Oil Company, U.S. Geothermal Leasehold, Drillsite "E", Lake County, California, and the Environmental Impact Analysis, United States Geothermal Lease No. 2 (CA-950), Drillsites "C" and "D", Geysers Area, Sonoma County, California, both by Ecoview and previously submitted.

SUPPLEMENT TO
APPROVED PLAN OF OPERATION
UNITED STATES GEOTHERMAL LEASE

Serial No. CA-949

Further to the Shell Oil Company Proposed Plan of Operation, United States Geothermal Lease, Serial No. CA-949, submitted July 24, 1974, and approved September 6, 1974, covering construction of an access road, drillsite and the drilling of one exploratory well, Shell hereby submits a supplement to the approved plan delineating construction of six additional drillsites and the drilling of up to five geothermal wells per location.

A map designated "EXHIBIT A" showing the topography of the subject leased land and the surrounding area is attached. This map is a revised version of the "EXHIBIT A" submitted with the approved Plan of Operation for Lease CA-949. Actual location of the completed access roads and drillsites are shown along with the proposed site and well.

I. Drillsite Construction

- A. At this time, Shell proposed to build six additional drillsites on Lease No. CA-949. These drillsites will be known as J, K, L, M, P, and Q, coordinates given below. If a replacement for one of these preferred drillsites is needed, Shell is also submitting Drillsites K₁, K₂, M₁, M₂, P₁, and Q₁.
1. The coordinates of Drillsite J are 832.1M (2,730 feet) East, 1,703.8M (5,590 feet) South of the Northeast Section Corner of Section 3, Township 10 North, Range 8 West. The corresponding California State Coordinates are 547,831.3M (1,797,343.2 feet) East and 119,969.7M (393,600.4 feet) North, Mount Diablo Base and Meridian.
 2. The coordinates of Drillsite K are 2,439.3M (8,180 feet) East, 1,649.8M (5,380 feet) South of the Northeast Section Corner of Section 3, Township 10 North, Range 8 West. The corresponding California State Coordinates are 549,492.5M (1,802,793.2 feet) East and 120,033.7M (393,810.4 feet) North, Mount Diablo Base and Meridian.
 3. The coordinates of Drillsite L are 2,612.1M (8,570 feet) East, 1,066.8M (3,500 feet) South of the Northeast Section Corner of Section 3, Township 10 North, Range 8 West. The corresponding California State Coordinates are 549,611.3M (1,803,183.2 feet) East and 120,606.7M (395,690.4 feet) North, Mount Diablo Base and Meridian.
 4. The coordinates of Drillsite M are 2,734.1M (8,970 feet) East, 335.3M (1,100 feet) South of the Northeast Section Corner of Section 3, Township 10 North, Range 8 West. The corresponding California State Coordinates are 549,733.3M (1,803,583.2 feet) East and 121,338.2M (398,090.4 feet) North, Mount Diablo Base and Meridian.

5. The coordinates of Drillsite P are 1,621.5M (5,320 feet) East, 323.1M (1,060 feet) South of the Northeast Section Corner of Section 3, Township 10 North, Range 8 West. The corresponding California State coordinates are 548,620.7M (1,799,933.2 feet) East and 121,350.4M (398,130.4 feet) North, Mount Diablo Base and Meridian.
6. The coordinates of Drillsite Q are 832.1M (2,730 feet) East, 295.7M (970 feet) South of the Northeast Section Corner of Section 3, Township 10 North, Range 8 West. The corresponding California State coordinates are 547,831.8M (1,797,343.2 feet) East and 121,377.8M (398,220.4 feet) North, Mount Diablo Base and Meridian.
7. The coordinates of Drillsite K₁ are 2,365.3M (7,760 feet) East, 1,478.3M (4,850 feet) South of the Northeast Section Corner of Section 3, Township 10 North, Range 8 West. The corresponding California State coordinates are 549,364.5M (1,802,373.2 feet) East and 120,195.2M (394,340.4 feet) North, Mount Diablo Base and Meridian.
8. The coordinates of Drillsite K₂ are 2,328.7M (7,640 feet) East, 1,594.1M (5,230 feet) South of the Northeast Section Corner of Section 3, Township 10 North, Range 8 West. The corresponding California State coordinates are 549,327.9M (1,802,253.2 feet) East and 120,079.4M (393,960.4 feet) North, Mount Diablo Base and Meridian.
9. The coordinates of Drillsite M₁ are 2,728.0M (8,950 feet) East, 792.5M (2,600 feet) South of the Northeast Section Corner of Section 3, Township 10 North, Range 8 West. The corresponding California State coordinates are 549,727.2M (1,803,563.2 feet) East and 120,881.0M (396,590.4 feet) North, Mount Diablo Base and Meridian.
10. The coordinates of Drillsite M₂ are 2,734.1M (8,970 feet) East, 530.4M (1,740 feet) South of the Northeast Section Corner of Section 3, Township 10 North, Range 8 West. The corresponding California State coordinates are 549,733.3M (1,803,583.2 feet) East and 121,143.1M (397,450.4 feet) North, Mount Diablo Base and Meridian.
11. The coordinates of Drillsite P₁ are 1,481.3M (4,860 feet) East, 551.7M (1,810 feet) South of the Northeast Section Corner of Section 3, Township 10 North, Range 8 West. The corresponding California State coordinates are 548,480.5M (1,799,473.2 feet) East and 121,121.8M (397,380.4 feet) North, Mount Diablo Base and Meridian.
12. The coordinates of Drillsite Q₁ are 832.1M (2,730 feet) East, 545.6M (1,790 feet) South of the Northeast Section Corner of Section 3, Township 10 North, Range 8 West. The corresponding California State coordinates are 547,831.8M (1,797,343.2 feet) East and 121,127.9M (397,400.4 feet) North, Mount Diablo Base and Meridian.

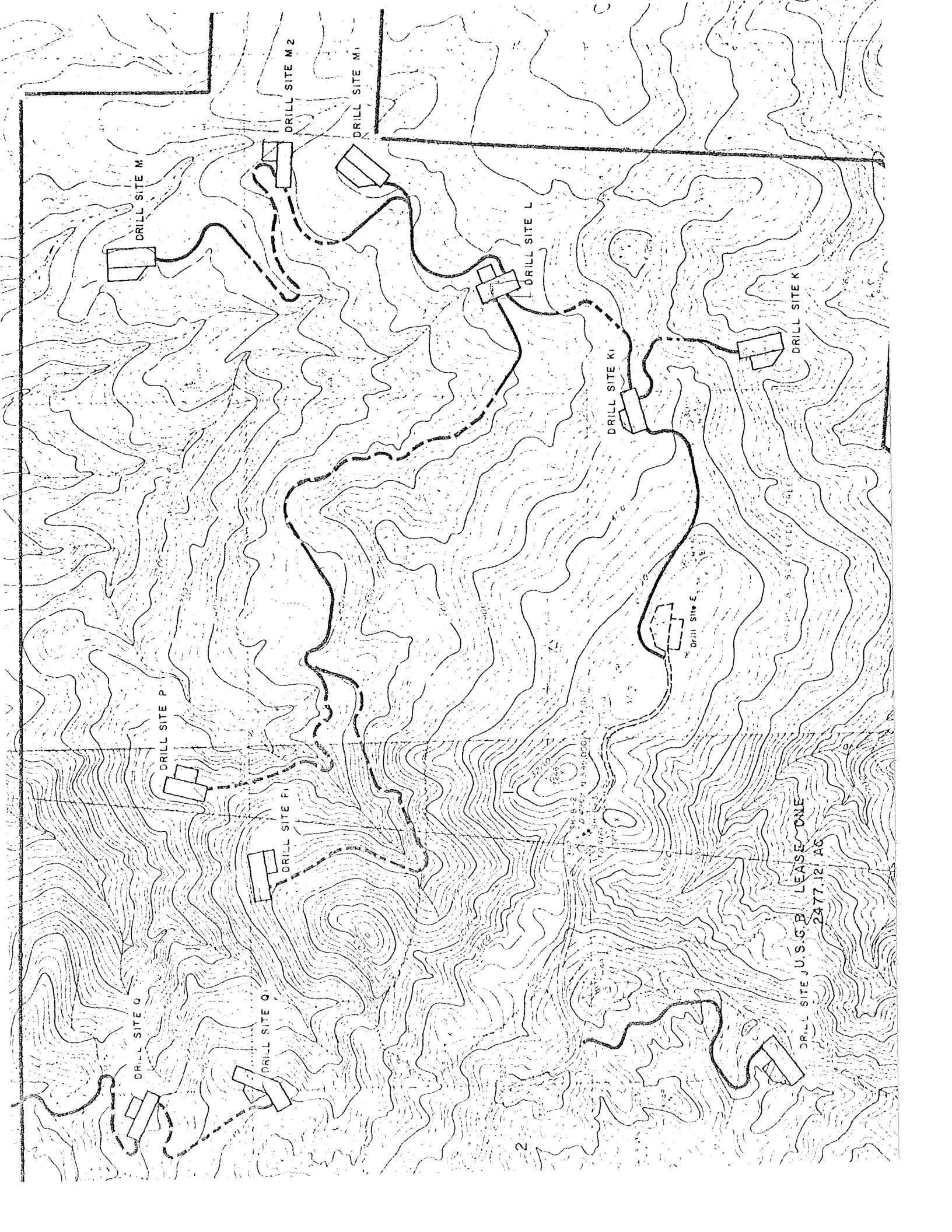
- B. Approximately 4.2 miles of new roads will be needed to provide access to these proposed locations. Drillsite J will be serviced by a road following the approximate alignment of the fire road branching off the Ridge Road some 1500 feet West of Drillsite B. The remaining Drillsites (K, L, M, P, and Q) will be reached by an extension of the Ridge Road off Drillsite E. The alignment of this road will be based on the final site selection.
- C. Retaining levees or berms will be constructed along the periphery of the drillsites to direct runoff water away from fill slopes into natural drainage courses. To further protect the drillsites, interceptor ditches will be provided above cut slopes. Only that rain falling directly on the disposal sumps or fluid created by drilling, i.e., drill mud, muffler effluent, etc., will be channeled to the disposal sumps.
- D. The sumps will be constructed with a two foot thick clay liner whose permeability will not exceed 1×10^{-6} cm/sec, compacted to 95 percent of maximum density and keyed to prevent slippage. The sumps will be used for the disposal of drilling effluent from the proposed wells, and future wells from these locations. Upon completion of the disposal sumps use, all liquids will be removed by solar evaporation or other appropriate methods. With only solid waste material remaining, the sumps will be filled in, compacted to a degree specified by a Soils Engineer, graded, and reseeded with native vegetation to minimize possibilities of erosion. Furthermore, all surface drainage will be directed away from the immediate area of the sumps to minimize seepage and erosion.
- E. Water for construction, drilling, and all associated operations will be obtained by trucking from outside commercial sources.
- F. All construction standards and practices will conform to those set forth in the approved Plan of Operation, United States Geothermal Lease, Serial No. CA-950, approved September 6, 1974, and the attached Construction Specifications, "EXHIBIT C".
- G. Construction activities are anticipated to begin approximately April 15, 1978, and/or as soon as approval can be acquired.

II. Protection of The Environment.

See Plan of Operation, United States Geothermal Lease, Serial No. CA-949, approved September 6, 1974, pages 5, 6, and 7.

III. Drilling Prognosis.

Refer to the Exploration Model Drilling Plan of Operations and Attachments, Geysers Area, United States Geothermal Lease, Serial No. CA-949 and CA-950, approved February 17, 1977, for Shell-U.S. Geothermal (CA-949) D-7 (24A-2) to fulfill this section.



DRILL SITE M

DRILL SITE M 2

DRILL SITE M 1

DRILL SITE L

DRILL SITE K I

DRILL SITE K

DRILL SITE P

DRILL SITE F I

DRILL SITE Q

DRILL SITE Q

DRILL SITE J. U.S.G.B. LEASE ONE
2477.12 AC

2