



GL03131

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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

UNIVERSITY OF UTAH
RESEARCH INSTITUTE
EARTH SCIENCE LAB.

OCT 25 1979

Memorandum

To: Interested Parties

From: Area Geothermal Supervisor

Subject: Plan of Operation, Aminoil USA, Inc., Federal Lease CA-1862
Geysers-Calistoga KGRA, Lake and Sonoma Counties, CA
Ref: 2403-01 CA-1862 (POO for EA #143-80)

Aminoil USA, Inc. has submitted a Plan of Operation for Exploration in accordance with 30 CFR 270.34 to drill an exploratory well from a surface location on privately owned land to a bottom hole location on Federal Lease CA-1862, Geysers-Calistoga KGRA, Lake and Sonoma Counties, CA. A copy of the Plan of Operation is enclosed for your review and files.

Environmental impacts for the surface location were addressed in a certified Environmental Assessment prepared for Lake County by Atlantis Scientific in September, 1979. A land use permit for the project was approved by the County of Lake Planning Commission on September 20, 1979. An Environmental Analysis (EA) #143-80 will be prepared by the Office of the Area Geothermal Supervisor for the proposed action.

No field inspection will be held since site specific surface impacts were addressed and subjected to public review in the Lake County Environmental Assessment.

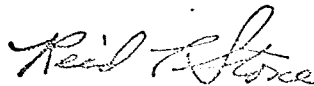
We urge you to send written commentary and will appreciate hearing from you even if you are of the opinion that the existing regulations, lease terms and operational orders provide adequate environmental protection.

All comments concerning the proposed actions should be received no later than November 14, 1979.

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 Analysis and any subsequent conditions of approval.

The Area Geothermal Supervisor's Office will not send a draft Environmental Analysis to interested parties for review for the proposed action. Certain parties, however, such as 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 the Environmental Analyses are available for inspection during normal business hours at the Area Geothermal Supervisor's Office, the Santa Rosa District Geothermal Supervisor's Office, and the Ukiah BLM District Manager's Offices.



Reid T. Stone

Enclosure

bcc: Reading File 101-02
Subject File 2403-01 CA-1862 (POO for EA #143-80)
ENG
ENV
OPE
DGS, Reno, NV
DGS, SLC, UT
REDeTar/km/10/23/79

INTERESTED PARTIES EA #143-80

Aminoil USA, Incorporated
Plan of Operation

CA-1862
Geysers-Calistoga KGRA

* * * * *

District Geothermal Supervisor
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Mr. Theodore W. Holland
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California State Director
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Ukiah District Manager
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U.S. Fish and Wildlife Service
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U. S. Fish and Wildlife Service
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Endangered Species Office
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Department of Energy, Geothermal
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INTERESTED PARTIES for EA #143-80

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State of California
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Aminoil USA, Incorporated
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INTERESTED PARTIES for FA #143-40

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Mandocan Division
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SAYWRIGHT Corporation
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Sunoco Energy Development Company
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INTERESTED PARTIES for EA #143-80

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Union Oil Company of California
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Union Oil Company
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Gulf Mineral Resources Company
Exploration Department
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*FTS Ope: 327-0111 303-758-1700

Southland Royalty Company
ATTN: Jere Denton
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Fort Worth, Texas 76102
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New Albion Resources Company
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Plan of Exploration Operation
Lease Unit 7 CA 1862
Supplement IV
26 September, 1979

Sections 21, 27, 28 and 29, T11N, R8W, MDB & M
Geysers Area KGRA
Lake and Sonoma Counties, California

Amincoil USA, Inc.
Geothermal Resources Division
P. O. BOX 11279
Santa Rosa, California 95406
(707) 527-5332

Plan proposes the directional drilling of one geothermal resource well from a surface location on fee property to a bottom hole location in Section 27, T11N, R8W, MDM on Federal Lease Unit 7 East to evaluate the potential for geothermal resource reserves.

INTRODUCTION

Pursuant to 30 CFR 270.34, Aminoil USA, Inc. (formerly Burmah Oil and Gas Company), hereby supplements its Plan of Operation Lease Unit 7 CA 1862, Geysers Area KGRA, Lake and Sonoma Counties, California, submitted May 14, 1975 and approved by USGS letter dated July 7, 1975.

Aminoil USA, Inc. plans to continue the exploration of Lease Unit 7 East, CA 1862 with the drilling of an additional well, CA 1862 No. 77-22 (52-27), from the Moody fee lease. The well is proposed to be directionally drilled to a depth of 2440 meters (8000') from the Moody A surface location at 259 meters (850') N and 137 meters (450') W of the SE Corner Section 22, T11N, R8W, MDB & M, Lake County, California to a proposed bottom hole location under Federal Lease Unit No. 7 East, CA 1862 being 229 meters (750') S and 488 meters (1600') W of the NE Corner Section 27, T11N, R8W, MDB & M, Lake County, California (see Exhibit A).

One well CA 1862 26-27, was completed on the east parcel of Lease Unit No. 7 in the SW 1/4 of Section 27, October 3, 1975. A second well, CA 1862 37-21, was completed on the west parcel of Lease Unit 7 in the SW 1/4 of Section 21, July 13, 1976. A third well, CA 1862 57-22, was directionally drilled and completed from an adjacent private lease into the east parcel of Lease Unit 7 to a bottom hole location in the SE 1/4 of Section 27, June 7, 1979.

The project defined by this Plan is proposed to help evaluate the potential for adequate geothermal resource reserves on the east parcel of Lease Unit 7 CA 1862 in Section 27, T11N, R8W, to supply a portion of the steam for operation of a 55 MW electric generation facility for up to 30 years.

The Final "Environmental Assessment for Geothermal Well Sites Moody "A" and "B", Ford Flat West, Lake County, California Atlantis Scientific, September 5, 1979 was certified and a Land Use Permit for construction of the surface location and drilling of two wells was approved at a public hearing before the Lake County Planning Commission September 20, 1979.

I. Project Location

Aminoil USA, Inc. proposes to construct a multiple well drill pad site on fee property and directionally drill a geothermal resource well to a depth of \pm 2440 meters (8000') to further evaluate the geothermal resource reserves underlying the east parcel of Federal Lease Unit 7 CA 1862, Section 27, T11N, R8W, MDB & M, Lake County, California.

The well pad site is to be constructed within 100 meters (330') of an existing gravel surfaced access road at a location 259 meters (850') N and 137 meters (450') west of the SE Corner of Section 22, T11N, R8W, MDB & M.

II. Project Access

Access to the project site is provided by a gravel surfaced road, in good condition, which traverses upslope from the Socrates Mine Road located about 1000 meters (3300') to the Southeast.

The proposed drill pad site, lies within 100 meters (3300') of the existing gravel surfaced road and will require only a minor amount of road construction for access.

III. Site Construction

Impacts associated with construction of the surface location for the proposed well have been considered in the "Draft Environmental Assessment for Geothermal Well Sites Moody "A" and "B", Ford Flat West, Lake County, California" prepared by Atlantis Scientific, Beverly Hills, California, June 14, 1979 (copy enclosed). The Final Environmental Assessment was certified and a Land Use Permit approved by the County of Lake Planning Commission September 20, 1979.

Application for a land use permit for construction of the access road and drill pad site and the drilling of two exploratory geothermal resource wells, Moody "A" and "B", was filed with the County of Lake in December, 1978. The application was filed prior to the effective date of California AB 2644 which designated the California Division of Oil and Gas as Lead Agency for processing applications for geothermal exploration projects.

The Moody drill pad site is located on presently unimproved land on top of a broad, long, east to southeast trending arcuate ridge. The ridge line profile is gently sloping to occasionally flat. The site will be constructed near the south edge of the ridge within a saddle at an elevation of about 770 meters (2515').

The Aminoil USA, Inc. Geothermal Resources Division "Contract Book for Construction of Access Road and Geothermal Well Location Moody No. 1 in Lake County, Contract No. Moody-1" Hawke Engineers, August, 1979 (copy enclosed) includes drawings and specifications for construction of the surface location.

IV. Proposed Well

Aminoil proposes to directionally drill one geothermal resource well to a depth of + 2440 meters (8000') to evaluate the potential geothermal resource reserves underlying the east parcel of Lease Unit 7 CA 1862. The proposed well, CA 1862 77-22 (52-27) is to be directionally drilled from a surface location on fee property approximately 259 meters (850') N and 137 meters (450') W of the SE corner of Section 22, T11N, R8W, MDB & M, Lake County to a bottom hole location Federal Lease Unit 7 East, CA 1862 approximately 229 meters (750') S and 488 meters (1600') W of the NE corner of Section 27, T11N, R8W, MDB & M, Lake County, California (see Exhibit A).

Pursuant to the cooperative procedures as outlined in the April 27, 1979 letter Agreement between the California Division of Oil and Gas and the U. S. Geological Survey, the USGS has the responsibility to permit and inspect drilling activities where the lessee or operator is conducting such activities to recover Federal geothermal resources. Aminoil's proposed drilling program provides for the well to be surfaced on fee property (Moody lease) and directionally drilled for completion and production from Federal Lease Unit 7 East, CA 1862.

Though the initial drilling program provides for completion of the well under Federal Lease Unit 7 East, two other possible completions are evident. The well could penetrate steam production prior to entry onto Federal Lease Unit 7 and be completed entirely on private land, or partial steam production could

be encountered prior to entry onto Federal Lease Unit 7 resulting in a dual completion of both Federal and non-Federal resources.

Pursuant to 30 CFR 270.71, the Application for a Permit to Drill (Form 9-331C) appended with a drilling program summary and plat indicating the proposed surface and subsurface well locations is attached. Aminoil has scheduled commencement of drilling operations for the CA 1862 37-22 (S2-27) well on or about December 1, 1979.

V. Water Supply

Water for drilling operations will be supplied from an 80 cubic meter (500 bbl) storage tank which is located on fee property. Sources of water will be as defined in the Lease Unit No. 7 CA 1862 Plan of Operation as approved by USGS letter dated July 7, 1975.

VI. Camp Sites Air Strips and Other Support Facilities

Completion of the project as proposed by this plan does not alter Aminoil's plan to utilize its existing geothermal operations support facilities which are located on adjacent private lands.

No campsites, crew housing, air strips or other supporting facilities will be constructed on Federal lands by reason of this project.

VII. Protection of the Environment

A. Surface and Ground Water

Two permanent streams flow through the Ford Flat West Section. Anderson Creek is approximately 7 Km (4.5 mi) long and empties into Putah Creek at an elevation of 415 meters (1360'). Its headwaters lie just east of the Sonoma-Lake County boundary line at an elevation of approximately 1250 meters (4000'). Gunning Creek has headwaters at an elevation of approximately 1160 meters (3800') and lies northeasterly of Anderson Creek. Gunning Creek eventually empties into Anderson Creek at an elevation of approximately 500 meters (1600'). Although no stream courses traverse the Moody well pad site, it is situated between both Gunning and Anderson Creeks. Both streams are located in excess of 150 meters (500') from the project site.

B. Wildlife

The peregrine falcon aeries which had been identified in Sections 21 and 22 T11N, R8W, MDB & M, were the subject of an extensive study completed by Dr. Kenneth E. Stager, PhD. Senior Curator Emeritus from the Los Angeles Museum of Natural History, in April, 1977. That study (copy on file with the USGS Office of the Area Geothermal Supervisor, Menlo Park) concluded that geothermal development in the Cobb Mountain area was exerting no detrimental impact upon the welfare of the endangered American peregrine falcon. The Director, U. S. Fish and Wildlife Service, in the Federal Register for August 11, 1977, recognized that reports of the Peregrine falcon nesting in the proposed Cobb Mountain Peregrine falcon Critical Habitat Zone were questionable and, therefore, the determination of the Cobb Mountain Zone as Critical Habitat for the Peregrine Falcon was not made at that time.

All other comments as contained in the Aminoil (Burmah Oil and Gas Company) initial Lease Unit 7, CA 1862 Plan of Operations submitted June 24, 1975 and approved July 7, 1975, Supplement I dated July 14, 1975 and approved September 11, 1975, Supplement II dated November 30, 1977, and Supplement III dated April 23, 1979, continue to be applicable.

VIII. Schedule of Operations

Commencement of Construction	October 5, 1979
Commencement of Drilling Operation	January 1, 1980

