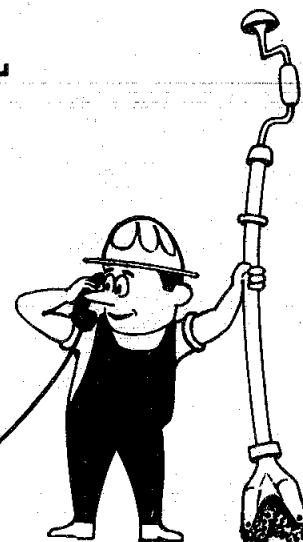
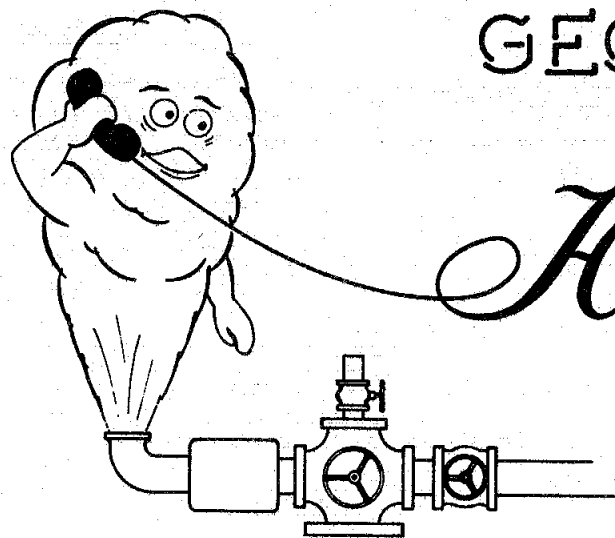


GEOHERMAL

Hot Line



A publication of the State of California - Division of Oil and Gas

Volume 4, Number 1

February, 1974

B.L.M. MEETING FOR GEOTHERMAL OPERATORS

The Bureau of Land Management has announced that it will hold a one day B.L.M. - Geothermal Operator roundtable discussion regarding Federal Regulations as applied to geothermal leasing, on February 20, 1974, at 9:00 a.m. at the B.L.M. office, 2800 Cottage Way, Sacramento, California, 95825. If you plan to attend, write or call George Nielsen (phone (916) 484-4701). *D.N.A.*

JOINT VENTURE ANNOUNCED

Geothermal Resources International, Inc., of Marina del Rey, California, announced in mid-January, the completion of an agreement in principal with Chevron Oil Co., a wholly owned subsidiary of Standard Oil Co. of California. Under this agreement the two companies will move toward the acquisition, exploration and development of certain lands in California for the purpose of producing geothermal energy. GRI holds preference rights under the Geothermal Steam Act of 1970 for these lands. Chevron will be the operator of this joint venture and will conduct the necessary geologic research prior to the exploratory drilling. *G.E.C.*

GEOHERMAL FIELD MAPS

The Division of Oil and Gas map G5-1 of the Casa Diablo Geothermal Field has been completely revised. Changes include surveyed well locations and corrected names and numbers for the wells. The names and numbers now correspond to those used during the period of drilling from 1959 to 1969. The three geothermal field maps G1-1 (Salton Sea), G5-1 (Casa Diablo), and G6-1 (The Geysers) are \$1.00 each. All geothermal maps are drawn to a scale of 1:20,000. *M.J.R.*

GEOHERMAL DEVELOPMENT IN NICARAGUA

The joint U.N.-Nicaragua geothermal project has gone through a series of ups and downs. As the project was initially set up, geotechnical and feasibility studies were to be followed by exploratory drilling. However, subsequent to the December 1972 Managua earthquakes, the project was curtailed to geotechnical studies only; the balance of the budget having been shifted to other Nicaraguan projects of higher priority. In October 1973, when the world energy crisis became obvious, the Nicaraguan government again re-ordered its system of priorities and shifted funds back to geothermal exploration. Feasibility studies and drilling are now scheduled.

Two areas are being considered for development: Volcan Momotombo and San Jacinto. Resistivity surveys run by the U.N., supplementing previous studies by U.S. A.I.D., show that both areas are characterized by low resistivity anomalies of less than 5 ohm-m.

One interpretation of the resistivity data of the Momotombo area suggests that molten rock may exist at a depth of only 2 km. Momotombo has erupted once in this century and at present is steaming in the crater and on some slopes. Hence, the question of siting a powerplant there is complicated by the potential of a volcanic eruption.

T. Meidav

GEOHERMAL DEVELOPMENT IN CHILE

Geothermal exploration at El Tatio, high on a remote desert plateau in northern Chile, began in 1967 with a program of geological studies and was followed by the drilling of several slim holes. Slim-hole drilling was done as a practical necessity because of the altitude (4000m+) and remoteness of the area. For the same reasons, this joint U.N.-Chilean project has progressed very slowly. However, in spite of the numerous setbacks, standard diameter drilling is now underway at El Tatio. *T. Meidav*

FEDERAL GEOTHERMAL LEASE SALE

The first Federal geothermal lease sale was held at the Bureau of Land Management office in Sacramento, California, on January 22, 1974. More than 50,000 acres in three Known Geothermal Resource Areas (K.G.R.A.)--Geysers, Mono-Long Valley, and East Mesa-- were put up for bid (see Hot Line Special Issue, Dec. 1973). All of the 12 lease units in The Geysers K.G.R.A. were bid on; 3 of the 7 units in the Mono-Long Valley K.G.R.A. receive bids, and 5 of the 14 units in the East Mesa K.G.R.A. received bids. Following is a tabulation of the bidding by area showing high bid and runner-up:

Geysers K.G.R.A.		
Company	Bid	Cost/Acre
Unit 1 (2340 acres)		
Shell Oil Co.	\$3,200,000.00	\$1,367.52
Signal Oil & Gas & Natomas Co.	1,516,660.00	648.15
Unit 2 (1534 acres)		
Shell Oil Co.	\$1,300,000.00	\$ 847.46
Union Oil Co.	1,163,953.18	758.77
Unit 3 (175 acres)		
Thermogenics Inc.	\$ 22,050.00	\$ 126.00
C.J. Folmar	11,450.00	65.43
Unit 4 (101 acres)		
Union Oil Co.	\$ 48,314.36	\$ 478.36
Signal Oil & Gas	28,381.00	281.00
Unit 5 (169 acres)		
Union Oil Co.	\$ 80,842.84	\$ 478.36
R. D. Shoen	10,369.84	61.36
Unit 6 (2396 acres)		
Union Oil Co.	\$ 12,243.56	\$ 5.11
E. B. Towne	2,346.35	0.98
Unit 7 (626 acres)		
Union Oil Co.	\$ 318,120.68	\$ 508.18
Signal Oil & Gas	180,288.00	288.00
Unit 8 (250 acres)		
Signal Oil & Gas	\$ 75,600.00	\$ 302.40
Union Oil Co.	57,045.00	228.18
Unit 9 (160 acres)		
Occidental Pet. Corp.	\$ 163,360.00	\$1,021.00
Union Oil Co.	129,161.00	807.26
Unit 10 (222 acres)		
Occidental Pet. Corp.	\$ 226,662.00	\$1,021.00
Signal Oil & Gas	78,588.00	354.00
Unit 11 (45 acres)		
Union Oil Co.	\$ 22,868.10	\$ 508.18
Signal Oil & Gas	4,770.00	106.00
Unit 12 (737 acres)		
Signal Oil & Gas	\$ 56,666.00	\$ 76.89
Union Oil Co.	18,631.36	25.28

Mono-Long Valley K.G.R.A.

Company	Bid	Cost/Acres
Unit 1 (1815.08 acres)		
Chevron Oil Co.	\$ 18,459.36	\$ 10.17
Geothermal Resources Int.	9,080.00	5.00
Unit 2 (1895.21 acres)		
Getty Oil Co. & Mono Power Co.	\$ 98,592.00	\$ 52.02
Chevron Oil Co.	25,073.63	13.23
Unit 3 (1772.70 acres)		
Republic Geothermal	\$ 515,767.07	\$ 209.95
Union Oil Co.	281,504.76	158.80

Units 4,5,6 and 7 received no bids

East Mesa K.G.R.A.

Units 1 and 2 received no bids

Unit 3 (1867.60 acres)		
Magma Power Co.*	\$ 4,203.00	\$ 2.25

Units 4,5,6 and 7 received no bids

Unit 8 (1437.12 acres)		
Magma Power Co.*	\$ 3,235.50	\$ 2.25

Unit 9 (2549.09 acres)		
Republic Geothermal*	\$ 432,810.01	\$ 169.79

Unit 10 received no bids

Unit 11 (1596.19 acres)		
Republic Geothermal*	\$ 208,925.31	\$ 130.89

Unit 12 (1760.0 acres)		
Magma Power Co.*	\$ 3,960.00	\$ 2.25

Units 13 and 14 received no bids

* Only bidder

Bidding Recap

Total Money exposed (all areas)	\$ 12,499,494.60
Total of high bids (all areas)	6,812,679.79
Average bid/acre (all areas)	290.54
Average bid/acre Geysers K.G.R.A.	631.00
Average bid/acre Mono-Long Valley K.G.R.A.	115.00
Average bid/acre East Mesa K.G.R.A.	71.00
	D.N.A.

GRADUATE SEMINAR

The University of Southern California, Petroleum Engineering Department will offer P.E. 547a, a 3 unit graduate seminar titled Geothermal Energy. U.S.C. courses are currently \$90 per unit, for a total cost of \$270. The course will meet Wednesday nights from 7:00 p.m. to 9:40 p.m. during the Spring Semester. Guest speakers will cover different topics at each class:

Feb. 6,	Introduction to Geothermal Energy C. Otte, Union Oil Co. of Calif.
Feb. 13,	Theory and Technology of a Geothermal Field G. Facca, Consultant
Feb. 20,	Geothermal Exploration Methods J. Koenig, Consultant
Feb. 27,	Thermodynamic Properties of Steam E. Dougherty, U.S.C.
Mar. 6,	Flow of Two Phase Single Component Through Porous Media L. Handy, U.S.C.
Mar. 13,	Reservoir Engineering Aspects of Geothermal Steam H. Ramey, Stanford
Mar. 27,	Explosive Stimulation of Geothermal Wells P. Kruger, Stanford
Apr. 3,	Drilling Problems in Geothermal Fields W. House, Signal Oil & Gas Co.
Apr. 17,	Well Completion Practices in Geothermal Steam Wells S. Shryock, Jr., Halliburton
Apr. 24,	Formation Evaluation in Geothermal Steam Wells J. Bohs, Schlumberger
May 1,	Geothermal Development in California D. Anderson, Calif. Div. Oil & Gas
May 8,	Geothermal Power Plants B. Holt, The Ben Holt Co.
May 15,	Geothermal Power Economics and Government Regulations F. Hortig, Consultant

For additional information contact:

Dr. L. Handy, Chairman
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(213) 746-2583

M.J.R.

EXPLORATION IN GREECE

The Greek government has been conducting exploration for geothermal resources during the past two years. Most of the potential prospects are on islands in the Aegean Sea, but some mainland areas are also under consideration. Areas in various stages of exploration are Milos Island, Nyseros Island, Lesbos Island, the Methana Peninsula, the Sousaki region, Thermopyle, and northern Euboea.

The greatest interest has centered on the island of Milos, 150 km south of Athens, where four 1000 m deep wells will be drilled this summer. The drilling sites were chosen on the basis of temperature gradient measurement in over 65 shallow (50 to 100 m) drill holes, geologic mapping, electrical resistivity surveys, and chemical sampling of hot springs and fumaroles. Geothermal fluids are expected to exist in faulted Mesozoic marble and schist. Above the metamorphic basement are a Late Tertiary limestone and extensive Quaternary siliceous volcanic rocks.
A. Lundberg

CERRO PRIETO COST ANALYSIS

The Mexican Department of Geothermal Resources released a report "Geothermalelectric Plant Cerro Prieto 75 MW", dated June 1973. This report describes the equipment and methods used in constructing the power plant and gives a cost breakdown for the power plant and 15 supporting wells. (For cost of the total field development, see "Hot Line" v. 3, n. 7, Dec. 1973).

Summary of Costs:

	Pesos	Dollars
Previous studies	3,000,000	240,000
Drilling, control and conditioning of wells	46,600,000	3,728,000
Surface installations	2,500,000	200,000
Steam lines and accessories	10,500,000	840,000
Collectors and secondary separators	800,000	64,000
Turbogenerator units, condensers and ejectors	26,500,000	2,120,000
Cooling tower	10,000,000	800,000
Fire prevention system	1,400,000	112,000
Water storage tank	200,000	16,000
Projectors	3,000,000	240,000
Public works and construction materials	18,500,000	1,480,000
Electromechanical assembly	6,000,000	480,000
Land acquisition and ground preparation	6,800,000	544,000
Defogging system	4,500,000	360,000
Accessory equipment	1,500,000	120,000
Substation	14,000,000	1,120,000
Transmission lines	9,400,000	752,000
Subtotal-Direct costs	165,200,000	13,216,000
Indirect costs	82,600,000	6,608,000
Total	247,800,000	19,824,000

Cost per installed kilowatt 3,304.00 264.32

M.J.R.

GEOTHERMAL DEVELOPMENT IN EL SALVADOR

As a result of the completion of a successful exploration and development program, jointly sponsored by the government of El Salvador and the United Nations, a 30 MW geothermal powerplant is now under construction at the Ahuachapan Field. Exploration activities began there in 1965, and the powerplant is expected to be producing electricity late this year or early in 1975.

Drilling is now underway for Phase II in development of this area of Quaternary andesitic volcanoes. It is expected that a second 30 MW powerplant will be built and producing electricity as early as 1976.

By 1978, a bottoming-cycle powerplant should be producing power by utilizing the waste hot water from the first two plants, passing it through a lower pressure stage for secondary flashing, to generate another 20 MW of electricity. Thus, the total generating capacity at Ahuachapan is expected to be 80 MW by the end of 1978. T. Meidav

ATOMIC ENERGY COMMISSION GEOTHERMAL PROJECTS

The Atomic Energy Commission has budgeted \$4.7 million for the funding of geothermal research and development programs during the remainder of the current fiscal year. The headquarters office and five contract labs will be involved in the geothermal projects. Some of the projects now underway are expected to continue for about ten years. The A.E.C. commitment and its subsequent funding are expected to increase in the next few years.

The Los Alamos Scientific Lab in New Mexico has received \$3 million for the hot, dry rock project. These funds will be used to drill additional test wells in New Mexico and to continue tests of hydrofracture methods. (See "Hot Line" v. 3, n. 7, Dec. 1973.)

The Lawrence Berkeley Lab in California has received \$800,000 for a geothermal program in Nevada. Initial work involves geophysical exploration of Buffalo Valley, Kyle Hot Spring, and Leach Hot Springs. The A.E.C. has asked the Bureau of Land Management to withdraw 356 km² (88,000 acres) of land from public exploration in these three areas for up to two years. As these areas are evaluated, the less likely prospects will be returned to public domain. Selection will be made, if feasible, of a site up to 20 km² (5000 acres) for 2 or 4 producing wells and a 10 MW experimental power plant.

The Lawrence Livermore Lab in California received \$350,000 for studies in the Salton Sea Geothermal Field. The proposed research project will attempt to bring the high temperature, high salinity brine field into economic power production by 1980. The first stage of the study involves the design of a total flow turbine to control mineral deposition and corrosion associated with the hot brine. Plans call for a 10 MW pilot plant to be tested in the late 1970's.

The Battelle Memorial Institute in Washington has a budget of \$200,000 for development of computer programming. Continuing computer assessment will be provided for the research, development, and economic components of the total A.E.C. geothermal program.

A.E.C. Headquarters in Washington, D.C. has a \$200,000 budget for administration and coordination of the geothermal program.

The National Reactor Test Lab in Idaho received \$150,000 for a feasibility study of low-temperature geothermal power generation. Initial work will involve turbine design studies for the use of 150°C or lower fluid temperature. Part of the funds will be transferred to the U. S. Geological Survey to carry out geophysical exploration in the Raft River Valley of Idaho (previous geochemical studies in the Raft River area indicate reservoir temperatures up to 150°C). The A.E.C. has requested the withdrawal of 340 km² (84,000 acres) of public land in the Raft River Valley for up to two years of exploration. As much as 20 km² (5000 acres) of land may eventually be selected as a site for geothermal wells and a pilot plant.

(Editor's Note) At the present rate of compilation for environmental impact reports on federal geothermal leasing, the two year withdrawal of public land should have no effect on private leasing and development. *M.J.R.*

U.S.G.S. OPEN FILE REPORTS

U.S. Geological Survey reports released in open file are available for inspection in the U.S.G.S. libraries:

1033 GSA Bldg., Washington, D.C. 20244

Bldg. 25, Federal Center, Denver, Colo. 80225

345 Middlefield Rd., Menlo Park, Calif. 94025
in the U.S.G.S. sales offices:

504 Custom House, San Francisco, Calif. 94111

7638 Federal Bldg., Los Angeles, Calif. 90012

and at the California Division of Mines and Geology:

1416 Ninth St., Sacramento, Calif. 95814

107 S. Broadway, Los Angeles, Calif. 90012

Ferry Bldg., San Francisco, Calif. 94111

"Geochemical indicators of subsurface temperature, Part I: basic assumptions", by R. O. Fournier, D. E. White, and A. H. Truesdell.

"Geochemical indicators of subsurface temperature, Part II: estimation of temperature and fraction of hot water mixed with cold water", by R. O. Fournier and A. H. Truesdell.

"Evaluation of audio-magnetotelluric techniques as a reconnaissance exploration tool in Long Valley, Mono and Inyo Counties, California", by D. B. Hoover, F. C. Frischknecht, and C. L. Tippens.

"Preliminary results of deep electrical studies in the Long Valley Caldera, Mono and Inyo Counties, California", by W. D. Stanley, D. B. Jackson, and A. Zohdy.

"Chemistry of thermal waters in Long Valley, Mono County, California", by L. M. Willey, J. R. O'Neil, and J. B. Rapp (available only at U.S.G.S. offices).

"Flashing flow in hot water geothermal wells", by M. Nathenson (available only at U.S.G.S. offices).

"An x-ray and optical study of cuttings from the U. S. Bureau of Reclamation, Mesa 6-1 drillhole, Imperia County, California", by R. B. Fournier (available only at U.S.G.S., Menlo Park).

"A self-potential survey of Long Valley Caldera, Mono County, California", by L. A. Anderson and G. R. Johnson.

"Reconnaissance study of the geothermal resources of Modoc County, California", by W. A. Duffield and R. O. Fournier.

"Data on wells, springs, and thermal springs in Long Valley, Mono County, California", by R. E. Lewis (available only at U.S.G.S. offices). *M.J.R.*

PHILIPPINES - NEW ZEALAND COOPERATIVE PROJECT

Geothermal personnel and equipment of the New Zealand government have been made available to the consulting firm Kingston Reynolds Thom & Allardice Ltd. of Auckland. The company is carrying out a Philippines - New Zealand technical cooperation project for geothermal development.

In the Tongonan Valley on the north end of Leyte Island, a seven well exploratory drilling program is underway; and if preliminary results are favorable, production drilling will follow. The involvement of K.R.T.A. will continue from exploration through to the power plant design.

Previously, the Union Oil Co. operation in the Tiwi field of southern Luzon Island was the only foreign participation in geothermal development of the Philippines. *M.J.R.*

SUMMARY OF ACTIVITY AT THE GEYSERS - 1973

Development activity at The Geysers Geothermal field in 1973, showed a marked increase over 1972, with 2 new wells being drilled and one existing well being deepened. At year's end four of these wells were still drilling and a total of 47,281 m of new hole had been drilled.

The deepest well drilled during the year was Union Oil Company's "LF State 4597" 15 (Sec. 20, T. 11N., R. 8W., M.D.B.&M.) to a total depth of 2898.2 m, making it the deepest producing steam well in the world. During testing it produced dry steam at the rate of 45,360 kg/hr.

Pacific Energy Corp. completed the most prolific well of the year when their well, "Rorabaugh" A-7, in Sec. 14, T. 11N., R. 9W., flowed dry steam at the rate of 138,000 kg/hr. during a test. The total depth of this well is 1881.7 m.

Pacific Gas & Electric Co. completed power plant Units 9 & 10 during 1973. Unit 9 began generating electricity on October 15th and Unit 10 began on November 30th, raising the total generating capacity at The Geysers to 412,500 kw, making it the largest producing geothermal field in the world.

Continued power plant development is planned with construction of Unit 11 well underway; completion is expected in September 1974. Preliminary plans have been completed for Units 12 through 15, but, as yet, no permits for construction have been issued by the California Public Utilities Commission. *R. Curtin*

WELL OPERATIONS

MARICOPA COUNTY, ARIZONA

Geothermal Kinetics Systems Corp.

In early January GKS ran drillstem tests in both of their wells near Higley (see Hot Line v. 3, n. 3). In "Power Ranches" 1, with packers set at 2287 m and 1982 m, the flow rates were 206 l/min. and 582 l/min., respectively. In "Power Ranches" 2 tests indicated that the upper producing zone was poor and that the casing had been poorly cemented; consequently the top of the producing zone was squeeze-cemented, thereby recementing the casing and plugging off the unwanted zone.

At present both wells are shut-in allowing them to heat back up to static temperature. *G.E.C.*

BOX ELDER COUNTY, UTAH

Geothermal Kinetics Systems Corp.

In mid-February Geothermal Kinetics, in joint venture with Utah Power and Light Co., hopes to begin drilling a deep geothermal test well a few miles south of one of Utah's major hot springs, Crystal Hot Springs, which flows at a rate of about 475 l/min. at 58°C from fissures in the Wasatch Front fault zone.

GKS expects to drill through a thick section of Paleozoic carbonate rocks and intersect one or more of the faults in the Wasatch Front fault zone at depth. *G.E.C.*

LANDER COUNTY, NEVADA

Chevron Oil Co.

Chevron, as operator for a joint venture with American Thermal Resources, set conductor January 23 for well "Chevron-ATR-Ginn" 1-13 (Nevada application No. 27959) in the Beowawe area of Whirlwind Valley. Located in the center of SE 1/4, SE 1/4, Sec. 13, T. 31N., R. 47E., M.D.B.&M., this well is proposed as a 3000 m test. The present site is 2.5 km west of 11 wells drilled during the period of 1959-1965 by Magma Power Co. *M.J.R.*

SANDOVAL COUNTY, NEW MEXICO

Union Oil Company

Union Oil, acting as operator for a Union Oil, Dunigan Enterprises, Baca Land and Cattle Co. joint venture, has completed well "Baca" 11 near the north 1/4 corner of projected Sec. 12, T.19N., R.3W., N.M.B.&M. in the Valles Caldera. The well was drilled to a total depth of 2112 m and contains 24.4 cm casing to 1030 m. Testing indicates that the separated steam has a power capacity of 6.5 MW. The reservoir contains water under hydrostatic pressure and at temperatures above 250°C.

The Valles Caldera, 95 km north of Albuquerque, is a collapsed Pleistocene volcanic center which erupted voluminous pyroclastic debris. Jemez Hot Springs and Sulphur Springs lie along the western margin of the extensive fault system in the caldera. In 1960 Westates Petroleum drilled a 1120 m deep oil test located 2.5 km north of "Baca" 11 which produced steam and water. Dunigan Enterprises drilled four "Baca" geothermal wells in 1963 and 1964, before bringing Union in as the operator. This is the seventh and most successful exploratory well drilled by Union on the 405 km² Baca Ranch lease. The 12 wells drilled thus far are in an area of 15 km² on the west side of the caldera. *M.J.R.*

IMPERIAL COUNTY, CALIFORNIA

Chevron Oil Co.

Chevron, operator for the Chevron, Magma Power, San Diego Gas & Electric joint venture, has begun testing wells in the Heber geothermal area, Imperial County, California. Down-hole pumps have been installed in the production wells ("Nowlin Partnership" 1 and "Holtz" 1), and waste fluids will be injected into "Holtz" 2.

The down-hole pumps are used to bring geothermal fluid to the surface at sufficient pressure to remain in the liquid phase. By preventing the geothermal water from boiling, Chevron hopes to prevent the scale buildup that has caused problems in wells and surface installations in other areas of the Imperial Valley. At the surface the hot water will be used to test an experimental binary cycle heat exchanger. The salinity of the geothermal fluid at Heber is similar to that at Cerro Prieto, Mexico (18,000 to 20,000 ppm). Bottom-hole temperatures at Heber are above 160°C. *M.J.R.*

MENDOCINO COUNTY, CALIFORNIA

Sun Oil Co.

In early January Sun Oil Co. filed with the Division of Oil and Gas a notice to drill a wildcat geothermal well, "Annette Fedeli" 1. This new well will be 567 m north and 1059 m west of the southeast corner of Sec. 23, T. 12N., R. 10W., M.D.B.&M., which is approximately 2075 m west of Cordero Mining Co.'s "Torchio-Ferro" 1, drilled (2422 m total depth) and abandoned in 1972.

Sun plans to begin drilling operations in early spring.
G.E.C.

MODOC COUNTY, CALIFORNIA

Kelley Hot Springs, Ltd.

A notice has been filed to drill a geothermal prospect well "Kelley Hot Springs" 1, 4.5 km east-northeast of Canby. This exploratory test is 805 m east and 15 m north from the southwest corner of Sec. 21, T. 42N., R. 10E., M.D.B.&M. Drilling will begin when the weather becomes favorable, possibly in April or May. In 1971, Geothermal Resources International drilled "Kelly Hot Springs Ranch" 1 at a location 1300 m southwest of the present exploration site, and was abandoned at a depth of 977 m. M.J.R.

PLUMAS COUNTY, CALIFORNIA

Phillips Petroleum Co.

Phillips well "Filippini-A" 1 located 488m east and 137 m north from the southwest corner of Sec. 32, T. 22N., R. 15E., M.D.B.&M. was abandoned at a total depth of 680 m. Approximately 400 m of lake sediments and 250 m of volcanic rocks were drilled before granitic rock was encountered.
M.J.R.

STATE OF CALIFORNIA
DIVISION OF OIL AND GAS
1416 NINTH STREET, ROOM 1316-35
SACRAMENTO, CALIFORNIA 95814

SONOMA COUNTY, CALIFORNIA

The Geysers Geothermal Field Geothermal Kinetics Systems Corp.

Geothermal Kinetics filed a notice to drill well "Rorabaugh" 2 with the Division of Oil and Gas in January 1974. It will be the second well drilled by GKS in California. The well will be 24 m north and 128 m west of the west-quarter corner of Sec. 14, T. 11N., R. 9W., M.D.B.&M., and is intended to augment production on their Rorabaugh lease. Weather permitting, "Rorabaugh" 1 (560 m south of proposed "Rorabaugh" 2), completed in late 1973, will undergo extensive production testing to determine the reservoir potential.
G.E.C.

Geothermal Hot Line

A periodic publication of the California Division of Oil and Gas. Subscription price, January through December, \$3.

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