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

Volume 2, Number 7 *December 1972*

THROW EVERY NEGATIVE THOUGHT INTO THE CONSUMING FIRES AND CLOSE STEEL DOORS ON THE IRRESOLUTE PAST.

Dale Carnegie

WASHINGTON, D. C. NEWS RELEASE

Revised Geothermal Leasing Proposal Announced

Revised regulations to govern the proposed leasing of geothermal resources on public lands were announced by Secretary of the Interior Rogers C. B. Morton.

The revisions also cover related geothermal operations and the proposed geothermal unit plan of development. Changes made in the regulations by the Department reflect comments received from the public on proposed regulations published July 23, 1971 and May 3, 1972. The changes also reflect the comments received as a result of the draft environmental statement prepared on the proposed action.

The revised proposal will be published in the Federal Register, Wednesday, November 29. The public is invited to comment on the revised proposal through December 29, 1972. Written comments should be addressed to: Geothermal Coordinator, Room 7000, U. S. Department of the Interior, Washington, D. C., 20240.

All comments received will be given careful consideration before promulgating the regulations in final form for the proposed geothermal resources leasing program, officials said.

Secretary Morton pointed out that no final decision will be made on geothermal leasing until the Final Environmental Statement has been prepared and released to the concerned agencies and the public.

He said, however, that in line with President Nixon's Clean Energy Message to Congress in June 1971, "there is an urgent need to develop needed new sources of energy as rapidly as possible that are in compliance with the National Environmental Policy Act of 1969."

Ed. note: This is probably the last time that comments can be made on the leasing, operating, and unit regulations. It pays to comment.

SAN FRANCISCO U. S. DISTRICT COURT GEOTHERMAL TEST CASE

On October 13, 1972 a civil action suit, "The United States of America versus Union, Magma, Thermal, and others", was filed by David Golay, an Assistant United States Attorney. The complaint, No. C-72-1866 GBH, states that some of the leased land in The Geysers Geothermal field was granted by the Federal Government in 1926 and 1931 under the Stock Raising Homestead Act, 43 U.S.C. sec. 291-302. Under this act, the government reserves the rights to all coal and other minerals in the patented lands.

The questions to be decided in court are: 1) whether or not the geothermal resources fall under the concept of the mineral rights retained by the U. S. Government, and 2) if the government owns the geothermal steam, can it recover damages amounting to a reasonable rental value for the land and a reasonable royalty value for the produced geothermal resources.

If it is decided that the government owns the geothermal

rights, the exploitation of this resource would come under the Geothermal Steam Act of 1970. As of December 11, 1972 the complaint had not been answered by the defendents. This case is extremely important to the entire geothermal industry as geothermal resources could be legally defined in such a manner as to adversely affect geothermal development. Watch the hotline for further developments.

DRILLING ACTIVITY

In the middle of November, the number of drilling geothermal wells in California reached what we believe is an all-time high. Seven rigs were on site and two other wells were scheduled to begin drilling soon. The drilling activity by area is:

Area	Operator	Drilling Rig
Imperial County:		
Heber:	Chevron	Calif. Prod. Service No. D7
Salton Sea:	Magma Power	Big Chief Drlg. Co. No. 18
Modoc County:	Magma Power	Beeline Drlg. Co. No. 5
Lake County:	E. B. Towne, Oper.	R. B. Montgomery No. 14
Sonoma County:		
The Geysers:	Union Oil	Hoover Drlg. No. A-1
	Union Oil	Hoover Drlg. No. E-2
	Pacific Energy	Big Chief Drlg. Co. No. 38

REPORT FOR NATIONAL SCIENCE FOUNDATION SEATTLE CONFERENCE

The Geothermal Resources Research Conference, held at Battelle Seattle Research Center, has released its report "Geothermal Energy, a National Proposal for Geothermal Resources Research". The meeting, held on September 18-20, 1972 in Seattle, Washington, was sponsored by the National Science Foundation under the program, Research Applied to National Needs. Walter J. Hickel of the University of Alaska was chairman of the conference. (Also see "Hot Line" issues v. 2, n. 6 and v. 2, n. 3)

A limited number of copies of this 95-page report are available from:

Kenneth M. Rae
Vice President for Research
University of Alaska
College, Alaska 99701

UNIVERSITY OF CALIFORNIA, BERKELEY INSTITUTE OF GOVERNMENTAL STUDIES

The Institute of Governmental Studies has announced the release of the third in a series of Public Policy Bibliographies. "Power from the Earth: Geothermal Energy" by Dorothy C. Tompkins, 1972, 34 pages, $2.50, is designed to help teachers, researchers, and citizen groups gain access to current literature.

This bibliography includes publications since 1965 in public administration, water resources, engineering, and earth sciences. Geothermal references are given for nine of the western states. A copy can be obtained from:

Mrs. Pat Tomason
Institute of Governmental Studies
109 Moses Hall
University of California
Berkeley, California 94720

U.S.G.S. PRESS RELEASE
Maps and Reports on Geothermal Areas

In the near future, the U.S. Geological Survey plans to release to the open file some preliminary maps, reports, and data related to studies of geothermal energy. This information will thus be made available to the public quickly without going through normal publications procedures.

When information is open filed, a copy is placed in one or more depositories (generally Survey libraries and Public Information Offices) and its availability is announced to the public by means of a press release. This release states that the report is available for inspection, and if reproducible material exists, its location is specified. Persons interested in obtaining a copy of the open-file report should contact the office holding the reproducible material and request a copy which is available at cost.

Individuals or companies not already receiving Survey press releases, should write to the following address and request that their names be placed on the mailing list to receive *all* press releases:

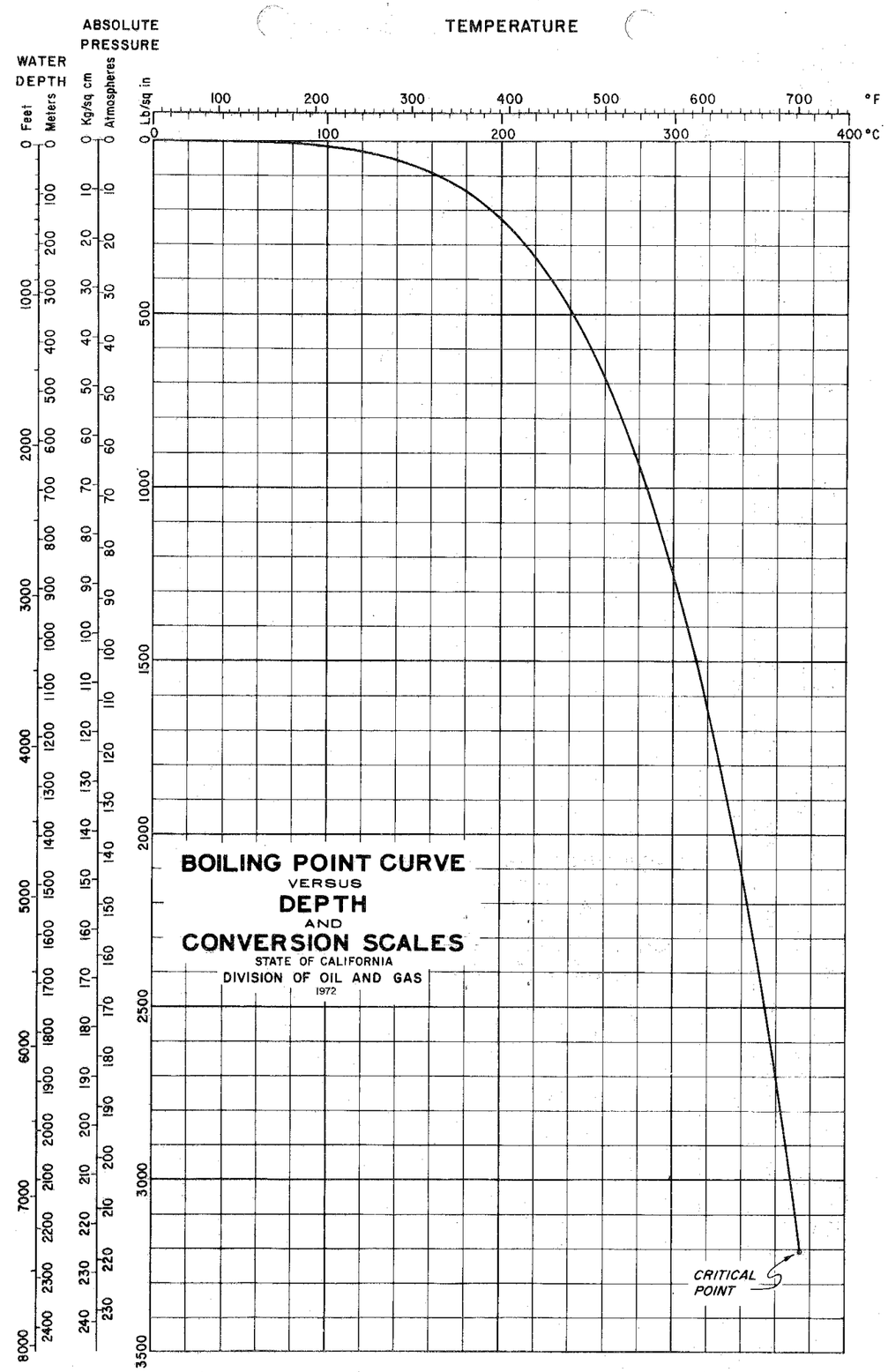
Chief, Branch of Distribution
Publications Division
U.S. Geological Survey
Washington, D. C. 20242

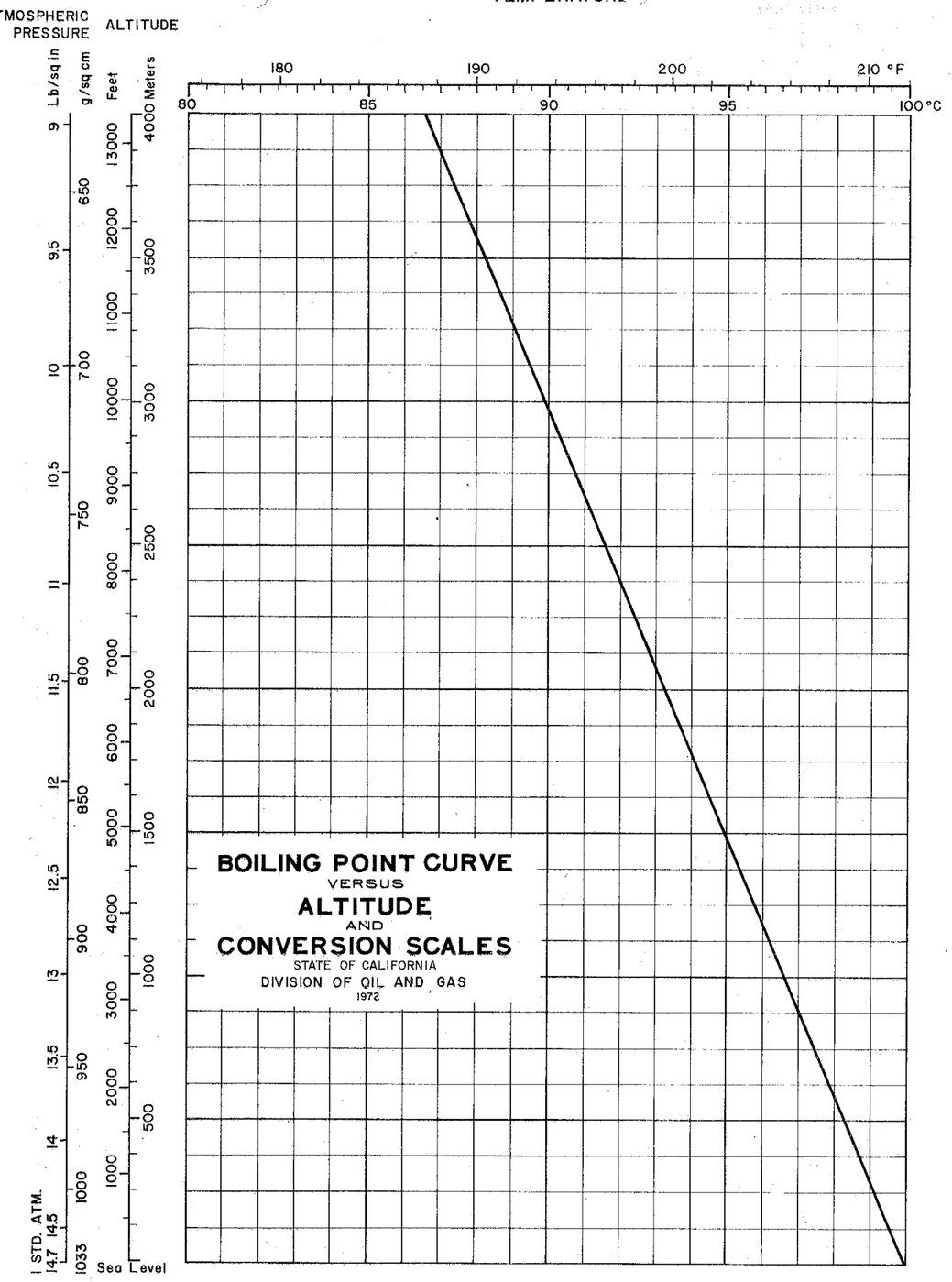
PROPOSED GEOTHERMAL SHORT COURSE

Consideration is being given to presenting a geothermal course this spring by the Geothermal Resources Council and the State of California. The plans include four days of lectures and discussion sessions on the following topics:

1. Plate Tectonics in Relation to Geothermal Zones.
2. Geothermal Exploration.
3. Geothermal Exploitation and Development.
4. Utilization of Geothermal Resources.

The classes would be held in the Sacramento area, and participation would be limited to 50 persons. If you are interested in more information, please contact the "Hot Line" editor.





SACRAMENTO, CALIFORNIA

In October 1972, the Geothermal Unit of the Division of Oil and Gas in Sacramento was augmented by the addition of two new members. This brings the staff total to four. The present Geothermal Unit breakdown is as follows:

Sacramento
David N. Anderson - Geothermal Officer
Glen E. Campbell - Assistant Geothermal Officer
Marshall J. Reed - Assistant Geothermal Officer

Long Beach
Don Lande - Assistant Geothermal Officer

In general the Northern California well operations (except for The Geysers field which will be handled from the Division's Woodland office) will be handled by Mr. Campbell, and the Southern California well operations by Mr. Lande. Mr. Reed will handle statewide geochemistry and corrosion problems.

Following are biographies of the two new members:

Marshall J. Reed

B.A. in Geology, 1966, University of California, Berkeley; M.A. in Geological Sciences, 1968, University of California, Riverside; Ph.D. candidate in Geological Sciences, University of California, Riverside.

Geology instructor, Foothill College, Los Altos Hills, 1969-70. Ph.D. dissertation on the geology and geochemistry of the Cerro Prieto Geothermal field.

Specialities: geochemistry, hot springs, hydrothermal metamorphism, metamorphic and igneous petrology.

Glen E. Campbell

B.S. in Geology, 1960, University of Oklahoma, Norman.

Air Force weather observer, 1951-55; geological draftsman, Oklahoma Geological Survey, 1959-60; geological assistant, Standard Oil Co. Paleontology Department, La Habra, 1960-66; oil scout, Standard Oil Co., 1966-67; oil and gas engineer, California Division of Oil and Gas, Bakersfield, 1967-72.

Specialities: geologic mapping and stratigraphy.

WELL OPERATIONS

MODOC COUNTY, CALIFORNIA

NEW GEOTHERMAL FIELD DISCOVERY?

In Surprise Valley Magma Energy, Inc., working under extremely adverse weather conditions (-30°F and 2 feet of snow), attempted last week to open hole to 4,205 feet total depth and run 8 5/8" casing in their "Phipps" 2 (see "Hot Line" v. 2, n. 6). However, frozen equipment and mud lines finally forced them to shut down all operations on Sunday, December 10, 1972. It is expected that it will be some time before the area thaws enough to resume working.

Regardless of the bad weather, B. C. McCabe, Magma's president, seems quite pleased with the well and claims that it's ideally suited for their "Magmamax" process. He reports that the bottom-hole temperature is well in excess of 300°F and expects that news of this well will spur exploration activity next spring.

LAKE COUNTY, CALIFORNIA

E. B. Towne, Operator

E. B. Towne, Operator well "Sullivan" 1, a wildcat geothermal well, located in the SW 1/4 of the SW 1/4, Sec. 18, T. 12 N., R. 8 W., M.D.B.&M., was abandoned on November 29, 1972. Drilling was in serpentine from the surface to a total depth of 6,140 feet. The reported mud line temperature at the shaker for 5,985 feet was 180°F, and after four hours without circulation, the temperature log at this depth indicated 273°F. Temperature gradient calculations from the peaks on the temperature logs give 15°F/100 feet for the bottom 200 feet of the well and an average of 6°F/100 feet above the bottom interval.

Ed. note: In The Geysers field, 4 1/2 miles to the south, impermeable serpentine often acts as a cap rock above fractured graywacke which comprises the deep producing zone. Heat flow through fractured graywacke of high permeability is primarily by fluid convection, but heat flow in serpentine

cut here

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is primarily by conduction through the rock. Serpentine has a thermal conductivity of 5.7 to 7.0 x 10^{-3} cal/cm sec °C (Clark, GSA Mem 97, 461, 1966). The bottom-hole temperature and high temperature gradient can be interpreted to mean that the well was near the base of the serpentine and that a hotter zone lies just below.

Signal Oil and Gas Company
Signal Oil and Gas Company's 8500 foot test well, "Bianchi" 1, located 400 feet N and 2155 feet W from the SE corner of Sec. 23, T. 11 N., R. 8 W., M.D.B.&M., has been drilled to 789 feet and was standing cemented, December 6, 1972, with 13 3/8 inch casing in graywacke at that depth. After pressure testing the B.O.P.E., the well will be drilled with air to approximately 2500 feet where protective casing will be set before drilling ahead.

IMPERIAL COUNTY, CALIFORNIA

Chevron Oil Company
In the Heber area of Imperial Valley, Chevron Oil Co. set casing in their geothermal well, "Nowlin Partnership" 1. The well was drilled to 5,030 feet, total depth, but the casing point is not known at this writing. Since November 12, 1972, when they set casing, Chevron has been making temperature and pressure surveys and will probably continue testing for some time. (Also see "HOT LINE" v. 2, n. 6).

Bureau of Reclamation Well
The Bureau of Reclamation plans to add more perforation zones to its 8,030 foot well in the East Mesa area. The uphole perforations are expected to substantially increase the flow rate. A progress report, containing data obtained from the well, should be out in the near future. Installation of the desalination plant has been delayed until after January 1. The Bureau is planning a dipole-dipole resistivity survey to more closely delineate the geothermal area of the East Mesa. (Also see "Hot Line" issues v. 2, n. 6 and v. 2, n. 5)

Magma Power Company
San Diego Gas and Electric Co. and Magma Power Co have completed drilling operations on their "Magmamax" 4, the fifth and last in the program in the Buttes area. The total depth of this well was 2560 feet with the bottom-hole temperature in excess of 500°F.

Of the wells drilled under this program, "Magmamax" 1 and "Woolsey" 1 will be producers, "Magmamax" 2 and 3 will be injection wells, and the latest well, "Magmamax" 4, will be an observation well.

The two companies are very optimistic about this area of the Imperial Valley because they feel that "Magmamax" 4 confirms the existence of a major hot water reservoir there. Construction of the world's first binary power plant is scheduled to begin next month at this location. (Also see "HOT LINE" v.2, n.6).

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MERRY CHRISTMAS AND HAPPY NEW YEAR

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