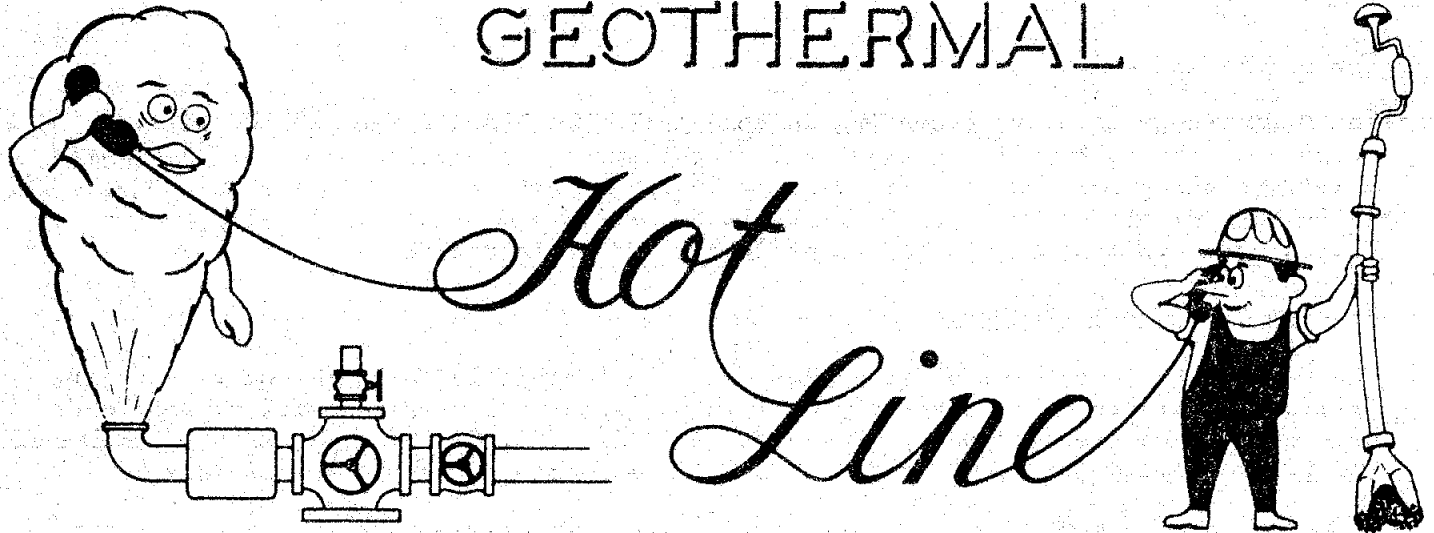


GEOHERMAL



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"ALL THINGS ARE EASY TO INDUSTRY, ALL THINGS DIFFICULT TO SLOTH."

--BEN FRANKLIN

Note: The Department of Conservation's printing facilities are temporarily out of service due to the installation of new equipment. This action has caused a temporary change in the "Hot Line" format. However, by the next printing the new format should be restored.

IMPERIAL VALLEY, CALIFORNIA

Bureau of Reclamation

The contract to drill the Bureau of Reclamation-Office of Saline Water East Mesa deep test in the Imperial Valley, which is programmed for 6,000 feet, was awarded to the Big Chief Drilling Company. The well was spudded on the 23rd of June. Big Chief submitted the low bid of \$299,674. The only other bidder, Conway Drilling Company, submitted a bid of \$310,351.

An environmental impact statement for the project was approved by the Environmental Protection Agency in Washington, D. C. The drilling and testing of this well is the beginning of the first phase of a multimillion dollar project programmed to desalinate the produced brine solution. This desalinated water will be used to enhance the deteriorating water quality of the Colorado River.

Imperial Irrigation District

On May 16, 1972, the Board of Directors of the Imperial Irrigation District approved a request by the San Diego Gas and Electric Company to purchase water. The company plans to use this water (20,000 acre-feet) to cool the condensers in a proposed (200 mw) geothermal power plant. In return the Imperial Irrigation District has the option to purchase power from the company when the proposed plant becomes operational.

Magma Power Company

The Magma Power Company, operating in conjunction with San Diego Gas and Electric Company in the valley, is continuing its geothermal exploration program. Currently a well is being drilled one mile west of their "Heber" well. This new well "Holtz" 2 is in the SW $\frac{1}{4}$ of Sec. 31, T. 16 S., R. 14 E., S.B.B.& M. Both wells will be connected by a pipeline and tested as producers and/or injectors.

Department of Water Resources

The California Department of Water Resources in conjunction with the University of California, Riverside is currently drilling a geothermal research well on the Dunes heat anomaly on the East Mesa. The well is in Sec. 33, T. 15 S., R. 19 E., S.B.B.& M. and is programmed for 2,000 feet. It should be completed by the end of July.

When completed U.C.R. plans to extensively test the potential of the anomaly. The well is near a Bureau of Reclamation temperature test well drilled in 1971, in which temperatures of 233° F were recorded at a depth of 375 feet.

PENDING CALIFORNIA GEOTHERMAL LEGISLATION

Senate Bill 113

On January 24, 1972, Senator Alquist introduced Senate Bill 113 which would authorize the Geothermal Resources Board to conduct jointly with the United States Department of Interior a design study for a pilot program to determine the most efficient and economical methods of producing electric power, mineral by-products, and demineralized water from geothermal resources. It will appropriate \$100,000, of which \$50,000 would be from the General Fund and the other \$50,000 from the Petroleum and Gas Fund for such purposes. It will be heard by the "Government Organization" Committee, but no hearing date has been set.

Assembly Bill 890

On March 13, 1972, Assemblyman Seeley introduced Assembly Bill No. 890 which will strengthen Chapter 4, Division 3 of the Public Resources Code. Chapter 4 contains the California Laws for the Conservation of Geothermal Resources.

The changes are as follows:

1. It gives the Supervisor the authority to exclude from geothermal regulations other wells in geothermal resources areas, which are defined by the Supervisor, when he determines that there is no probability of encountering geothermal resources at the proposed depths.
2. It requires the new owner of a previously unbonded well to file a bond with the Division of Oil and Gas. The last legislative session passed a law extending the term of an indemnity bond for the life of a well (see Issue No. 8, 1971).
3. Finally, it alters the bonding requirements to permit the deposit of a cash bond in lieu of the normal surety bond.

The bill has been passed by the Assembly and the Senate Committee on Natural Resources and Wildlife. It has been sent to the Senate Finance Committee.

PENDING FEDERAL GEOTHERMAL LEGISLATION

House of Representatives Bill No. 14801

House of Representatives Bill No. 14801 was introduced by Representative Matsunaga of Hawaii on May 4, 1972. The bill provides for the creation of a United States Geothermal Research Institute to be established in Hawaii and for the issuance of geothermal resource development loans.

The institute would function as a depository for geothermal information, a research organization, and a clearinghouse for data related to geothermal energy. The appropriation for the institute is set at \$10,000,000 for the five-year life of the program.

The Secretary of the Interior would also be authorized to enter into contracts with persons engaged in the business of developing power from geothermal resources. Loans would be granted up to 75 percent of the cost of the proposed projects which would include exploration, development of power generation and by-product recovery technology, and disposal of waste products. The appropriation for the first year would be \$20,000,000. In addition, \$5,000,000 would be available for each following year provided that in no event shall the revolving fund exceed \$20,000,000.

House of Representatives Bill No. 12885

The bill, introduced by Representative Dingell of Michigan, would provide for the regulation of ground water withdrawal, the use of ground water, and the disposition of wastes by subsurface injection throughout the United States. The Environmental Protection Agency is designated as the Administrator.

The main sections read:

"The Administrator shall have exclusive authority for determining:

- (1) The ground waters within the United States;
- (2) The withdrawals and uses which may be made of ground waters within the United States;
- (3) Those subsurface areas and stratigraphic zones which are suitable for subsurface disposal of wastes;
- (4) Those wastes (including sewage) which are suitable for subsurface disposal; and
- (5) Criteria for the construction and operation of wells for the disposal of such wastes."

The act would supersede any law, ordinance, rule, regulation, or standard respecting the withdrawal or use of ground waters and the subsurface disposal or storage of wastes now in effect or to be adopted by a state or political subdivision.

The act also provides for the acceptance by the E.P.A. of laws, ordinances, rules, regulations, and standards of states or political subdivisions provided they meet criteria set forth by the Administrator.

How strong is your state's laws, regulations, etc., on ground water withdrawal, disposition, and subsurface injection?

PACIFIC COAST LAND SERVICE

The Pacific Coast Land Service is now in the process of completing a set of land maps for the Imperial Valley, California. The company plans to provide maps for other potential areas in Nevada, Oregon, and other western states as the need arises.

For further information on price and availability write:

Pacific Coast Land Service
P. O. Box 862
Newbury Park, California 91320

WASHINGTON, D. C.

Atomic Energy Commission

Glen T. Seaborg, former chairman of the Atomic Energy Commission, is advocating expansion of the A.E.C. into the U. S. Energy Agency. He feels that the A.E.C. has made nuclear development possible in this country only through its sustained efforts. He now proposes that the A.E.C. with its superb research base, with its excellent laboratories, and its ability to manage large projects be given the charge of developing the other potential sources of energy in this country. The other energy sources mentioned are geothermal, solar radiation, and the fusion of light nuclei. Only in the last of these, nuclear fusion, is the United States engaged in a serious, although not yet adequate, development effort. Finally, he feels that the development and utilization of these technologies in the most economic and expeditious manner must be the responsibility of a single government agency.

Department of the Interior

The Department of the Interior has announced that it has rescinded the proposed 30-day delay on applications filed for approval to drill exploratory steam wells (see Federal Register, May 5, 1972). The original proposal was published in the Federal Register on March 11, 1972.

The Department decided, after reviewing the comments from interested parties, that the proposed 30-day posting of notices prior to approval of exploratory steam wells would have been unreasonably onerous to operators, particularly if the public had already participated in environmental statements and public hearings before the issuance of leases.

It pays to comment. (Editor)

U. S. GEOLOGICAL SURVEY AT MENLO PARK, CALIFORNIA

Water Studies

The U. S. Geological Survey has announced the publication of a ground water study of the Imperial Valley, California. The authors included all available ground water

information in the area and have arrived at some informative conclusions. This document should be read by all who are involved in the development of geothermal resources in the Imperial Valley. To obtain a free copy write the U. S. Geological Survey, Washington, D. C. 20242. Ask for:

U.S.G.S. Circular 649 (1972)
Preliminary Appraisal of Ground Water in Storage
with Reference to Geothermal Resources in the
Imperial Valley Area

by

L. C. Dutcher, W. F. Hardt, and W. R. Moyle, Jr.

Long Valley Studies

During the month of June 1972, the U. S. Geological Survey began three major research efforts in the Long Valley area of eastern California. A volcanological study being led by R. A. Bailey is focusing on the post-caldera (i.e., less than 700,000 years B.P.) volcanic and structural history. An electrical and electromagnetic study, directed by W. D. Stanley, includes Schlumberger resistivity, dipole-dipole resistivity, transient electromagnetic, audio-frequency magnetotelluric, and self potential. A hydrologic study by R. E. Lewis is designed to appraise the ground water hydrology and the relations between cold ground water and the thermal waters. In addition, geochemical sampling of springs and wells in Long Valley, under the direction of I. Barnes, has been completed and analyses are in progress.

GEOTHERMAL RESOURCES TO LET 80 ACRES TO HUGHES AIR UNITS

Los Angeles, California - the Wall Street Journal

Geothermal Resources International, Inc., said it agreed to sublease 80 acres in The Geysers area of Sonoma County, California, to three affiliates of Hughes Aircraft Co. In addition, Geothermal Resources said it also has agreed to modifications in a sublease agreement covering 1,100 acres contiguous with the 80 acres that it first subleased to one of the Hughes affiliates in 1970.

Terms call for Pacific Energy Corp., one of the Hughes affiliates, to pay \$500,000 to Geothermal Resources for the transfer of the 80 acres and for G.R.I. to retain a royalty position in that acreage. In addition, Geothermal Resources said it's entitled to receive \$5 million production payment from a portion of gross receipts from steam sales over the next several years and an overriding royalty entitling it to 10% of the gross proceeds from steam sales for the life of the property.

Under terms of the initial sublease of the 1,100 acres, Geothermal Resources was to receive a 5% overriding royalty in the gross proceeds from steam sales for the life of the property.

Geothermal Resources said Pacific Energy has been conducting geothermal exploration on the property since last year and that four commercially productive steam wells already have been drilled and tested. It added that these wells, together with those formerly drilled by G.R.I., will be capable of producing more than one million pounds of dry steam per day.

STATE OF WASHINGTON

The Department of Natural Resources' Division of Mines and Geology has "open-filed" a Report on Geothermal Ground Noise Measurements in Washington State. Copies are available for examination at:

Department of Natural Resources
Division of Mines and Geology
335 General Administration Building
Olympia, Washington 98504

Department of Geology and Mineral Industries
1069 State Office Building
Portland, Oregon 97201

California Division of Oil and Gas
1416 Ninth Street, Room 1316-35
Sacramento, California 95814

Data were gathered at 83 stations, all in the vicinity of either thermal springs or Pliocene-to-Recent volcanism. The report includes 14 pages of text plus references, tables, maps, with plots of power spectra for the Klamath Falls, Oregon, and Klickitat and Tum Tum Mountain, Washington areas.

STATE OF NEVADA

In April of 1972, the Washoe County Planning Commission granted the Gulf Oil Corporation a permit to drill a well and conduct geothermal studies at Steamboat Springs, about 10 miles south of Reno. The exact location has not been announced but it is believed to be in or near Sec. 34, T. 18 N., R. 20 E., M.D.B. & M. The well is scheduled for 500 feet and will be spudded in volcanic rock.

GEOHERMAL RESOURCES COUNCIL

Incorporation

On June 8, 1972, the Geothermal Resources Council was officially incorporated in the State of Washington. The council, a non-profit, non-stock organization, has a membership of over 450, including representatives from government, industry, environmental organizations and the countries of Canada, England, Mexico, and New Zealand.

The Board of Directors of the Geothermal Resources Council listed as the incorporators are: Bert L. Cole and Robert G. Bates, Olympia, Washington; Henry G. Curtis, Vancouver, Washington; Richard G. Bowen, Portland, Oregon; David N. Anderson, Sacramento, California; Sam Dermengian, West Covina, California; Joseph W. Aidlin, Los Angeles, California; and W. K. Summers, Socorro, New Mexico.

The purposes of the Geothermal Resources Council are:

1. To encourage research, exploration, and development of geothermal energy;
2. To encourage and promote establishment of criteria for the development of geothermal resources compatible with the natural environment;

3. To encourage establishment of sound public, legislative and administrative policy by national, state and local governments, and government agencies, to support enactment and adoption of uniform and appropriate legislation, rules and regulations for development and utilization of geothermal energy resources;
4. To serve as a public forum to provide objective and unbiased information on the nature of geothermal energy and its development;
5. To encourage the collection and dissemination of data related to geothermal resources and development;
6. To cooperate and communicate with national, international, governmental, institutional, and private agencies in matters relating to development and utilization of geothermal resources and the collection and dissemination of information related thereto; and
7. To do all things which the Board of Directors of this corporation deems appropriate to effectuate the purposes for which it is formed.

A copy of the by-laws should be mailed to the members by the end of July 1972.

1973 Conference

The next conference of the council will be held in San Francisco at the Sheraton Palace Hotel on September 25-28, 1973. Tentative plans of the Conference Committee include duplicate field trips to The Geysers and Lake County on September 25 and 28. The technical sessions will be held at the hotel on the intervening days, September 26 and 27. In setting up the program, the committee plans to emphasize the case history approach. An attempt will be made when possible to arrange the papers on any one geothermal area in sequence to demonstrate the approach and solution to the problems encountered in the exploration, development, and possibly the production of an area.

AMERICAN NUCLEAR SOCIETY

The special Symposium on Geothermal Energy, which was included as part of the American Nuclear Society Conference held in June 1972 in Las Vegas, Nevada, was a complete success. The symposium included articles on geothermal resource occurrence, geothermal energy production, stimulation concepts for geothermal energy using nuclear explosive devices, and related papers. The proceedings of the geothermal symposium will be published in one volume, about 384 pages long at a cost of about \$15, in November 1972 by the Stanford University Press, Stanford, California 94305. Ask for:

Geothermal Energy Resources,
Production, Stimulation

Edited by Paul Kruger and Carel Otte
November 1972

GEOTHERMAL HOT LINE

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

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