

GEOHERMAL HOT LINE

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"A SPEECH IS A SOLEMN RESPONSIBILITY. THE MAN WHO MAKES A BAD 30-MINUTE SPEECH TO 200 PEOPLE WASTES ONLY A HALF HOUR OF HIS OWN TIME. BUT HE WASTES 100 HOURS OF THE AUDIENCE'S TIME--MORE THAN FOUR DAYS--WHICH SHOULD BE A HANGING OFFENSE."

--JENKIN LLOYD JONES

GEOHERMAL METHODS SEMINAR

McPhar Geophysics, Inc., of Tucson, Arizona, will hold a free, one-day seminar on "Electrical Geophysical Methods Applicable to Geothermal Exploration".

Talks will be presented on surface and downhole-induced polarization and resistivity surveys and application of AFMAG (an inductive electromagnetic method) and magnetotellurics to locate large, deep, conductive sources.

The seminar will be held at the International Hotel, 6211 West Century Boulevard, Los Angeles, California, on February 14, 1972, at 9:00 a.m. For reservations and additional information, contact:

Bruce S. Bell
McPhar Geophysics, Inc.
818 West Miracle Mile
Tucson, Arizona 85705
(602) 624-2588

GEOHERMAL RESOURCES COUNCIL

Plans for the Geothermal Resources Council Conference to be held in El Centro, California, on February 16, 17 and 18, 1972, are being rapidly culminated. Registration to date is well over the anticipated 250 to 300 mark. This enormous response has caused the scheduling of a second banquet on the night of the 17th, with the same program.

Some rooms are still available at the following:

El Noh Motel	El Centro	(714) 352-5511
Hollie's Fiesta Motel	Calxico	(714) 357-3271
El Rancho Moter Hotel	Calxico	(714) 357-2468
Villa Sur	Calxico	(714) 357-3112
The Brawley Inn	Brawley	(714) 344-1150

All those holding reservations should confirm them by sending a deposit. All unconfirmed reservations will be held until 6:00 p.m., February 15, 1972. If you have motel reservations and have not registered for the Conference, please do so as soon as possible so your ticket packet can be prepared. Registration for the Conference will be limited to 400 persons.

DRILLING UNDER WAY IN IMPERIAL VALLEY

Magma Power Co., in a joint venture with San Diego Gas and Electric Co., has begun a drilling program just south of the Salton Sea in Imperial County, California. The first well, "Magmamax" 1, drilled to a total depth of 2800⁺1, is in Section 33, T. 11 S., R. 13 E., S.B.B.& M., and was temporarily suspended after casing was run. The second well in the program, "Dearborn" 1, Sec. 30, T. 12 S., R. 13 E., S.B.B.& M., was spudded on January 23, 1972.

The wells are being drilled to produce geothermal fluids for a Magmamax power plant system. San Diego Gas and Electric Co. has announced that they are definitely interested in the construction of a power plant at a later date and not merely seeking geological data.

GEYSERS FIELD LANDSCAPING AND BEAUTIFICATION

Landscaping and beautification have become a major undertaking at The Geysers, where Union Oil Co. of California acts as operator for itself, Magma Power Co. of Los Angeles, and Thermal Power Co. of San Francisco.

The steam gathering lines are being camouflaged to blend with the natural foliage and soil. The program calls for all pipelines, old and new, to be finished in a bayberry color.

Road construction, clearing of drillsites, and construction of generating plants are now being carefully planned to blend in with the natural environment.

Replanting of native grasses, trees, and shrubs has become a major project and Union has engaged an environmental horticulturist from the University of California at Davis. Wild oats, rye, and other grasses are being planted, using the hydro-mulching system, for immediate ground cover to prevent erosion. For long-term growth, they are planting such native trees as Big Leaf Maple, Chamise, California Buckeye, Coastal White Thorn, Digger Pine, several varieties of oak, and many others.

(SAN FRANCISCO CHRONICLE)

SAN FRANCISCO

Mr. J. T. Kuwada of Rogers Engineering Co., Inc., has developed a new downhole pumping system (patents pending) for geothermal wells. This system is designed to be used in wells that would normally foul or seal off if brines were allowed to flash within the well bore.

This new system maximizes production of hot water for use in "binary fluid" (closed systems) power plants and power plants utilizing turbines that can operate on two-phase flow.

The system is free of two of the more critical depth limitations imposed on deep well vertical pumps: maximum shaft length and operating pressures. It requires only about 80 percent of the capital investment of a deep well vertical pump and half the horsepower. Maintenance cost savings should prove to be significant because the new system has no downhole moving parts. (see issues 1 and 7, 1971)

ARTICLES OF INTEREST

ATLANTA ECONOMIC REVIEW - December, 1971

"Geothermal Energy, Its Future and Economics," an 18-page article by Joseph C. Horvath and Robert L. Chaffin, is a survey of the country's energy crisis. The authors strongly

support geothermal energy as the most immediately feasible energy source to supplement the nation's burgeoning demands for electric power.

Copies are available at \$1.00 each from:

ATLANTA ECONOMIC REVIEW
33 Gilmer Street, S.E.
Atlanta, GA 30303

SCIENTIFIC AMERICAN - January, 1972

An 8-page article entitled "Geothermal Power," by Joseph Barnea (Director, Resources and Transport Division, United Nations), discusses exploration programs and various methods of exploitation of geothermal resources. "At this stage it is impossible to estimate the magnitude of the exploitable resources of geothermal energy that lie hidden under our feet in the earth's crust. The world's energy needs and exciting recent discoveries, however, certainly warrant a great effort of exploration for this ready-made store of energy."

Copies are available at \$1.00 each from:

SCIENTIFIC AMERICAN, INC.
415 Madison Avenue
New York, NY 10017

INTERNATIONAL INSTITUTE FOR GEOTHERMAL RESEARCH - PISA, ITALY

Dr. Giancarlo Facca reported the following items:

1. The periodical "Geothermics" will be published quarterly under the supervision of C. J. Banwell, T. Boldizsar, M. Hayakawa, E. A. Lubimova, J. R. McNitt, T. Meidav, G. Palmason, and E. Tongiorgi. The review will include information gathered by the Heat Flow Committee and progress reports on the UN geothermal projects. The proceedings of the Pisa Symposium will be published in special editions of the periodical during 1972. "Geothermics" is distributed by Maxwell Scientific International of New York (Pergamon Press).
2. In collaboration with the Natural Resources Division of the United Nations, the Institute is planning a World Geothermal Catalogue/Atlas. Participants in the project are the International Volcanological Association and the International Committee on Heat Flow.
3. The Institute is carrying out a new series of investigations at the Larderello field. A precision topographical survey, new gravimetric measurements, micro-seismic survey, heat flow measurements, and publication of a comprehensive monograph are planned.
4. The Institute is also making an infrared survey of the geothermal areas in Tuscany, Latium, and Campi Flegrei, Italy. Two German organizations and an American company (Earth Resources Technology Satellites) are participating in this program.
5. During the last two years, the Institute has investigated the utilization of geothermal energy in greenhouses for controlling soil temperatures. Another program in progress is investigating the use of natural hot waters in the culture of mushrooms.

6. As proposed by Professor Silvestri at the Pisa Symposium, a pilot plant, for investigating the feasibility of a gravimetric loop activated by geothermal energy, is under construction.
7. The postgraduate geothermal courses will be continued.

COLORADO SCHOOL OF MINES "MINERAL INDUSTRIES BULLETIN"

The January, 1972, issue (Vol. 15, No. 1) of the Colorado "Mineral Industries Bulletin" is devoted to Part 2 of "Geothermal Energy: Geology, Exploration and Developments" by Dr. L. Trowbridge Grose, Colorado School of Mines. Part 1 was mentioned in the November, 1971, issue.

ABSTRACT

Part 2 is a review of the geology and geothermal energy development in the following countries, which are currently commercially producing electric power from geothermal steam: United States, Iceland, Italy, Japan, Mexico, New Zealand, and Russia. Six other countries should have geothermal energy production in a few years, and at least 19 others are in the investigative stages. Current economics and governmental legislation in the United States are summarized. A select bibliography on the geology and exploration for geothermal energy in significant areas of the world is included.

Copies of the bulletin are available at 50 cents each from:

Colorado School of Mines
Golden, Colorado 80401

HOT LINE SUBSCRIPTION DEADLINE

The February issue of the "Hot Line" (Vol. 2, No. 2) will be the last free issue! If you have not sent in \$3.00 for your 1972 subscription by March 1, 1972, your name will be removed from the mailing list. In order to avoid errors and delays in receiving your "Hot Line," be sure to include the exact address and name of the person (or company, etc.) who is to receive the subscription. **DON'T DELAY, DO IT TODAY!**

Direct all correspondence to:

Geothermal Hot Line
Division of Oil and Gas
1416 - 9th Street, Room 1316-35
Sacramento, California 95814

If you wish to submit a newsworthy item, please make it as concise and complete as possible and include your name, address, and phone number.

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ADDENDA
GEOHERMAL HOT LINE
ISSUE NO. 8

GEOHERMAL RESOURCES COUNCIL
EL CENTRO CONFERENCE NOTES
FEBRUARY 16, 17, AND 18, 1972

Attached is a copy of page 2 of the Program which has been revised. Speakers note the new times. (see issue No. 8, "Geothermal Hot Line")

Following, for your information, is a list of important notes concerning the Conference:

1. Captain Parker, Commanding Officer of the Naval Air Facility in El Centro, has generously provided two buses for local transportation. It is hoped that the remainder of the transportation needs can be provided by private cars.
2. Transportation for the Cerro Prieto field trip will be by train from Mexicali. Transportation from El Centro to Mexicali Must be by Navy bus or private car. There is a possibility that train transportation can be arranged from El Centro. Final details will be announced at the beginning of the Conference.
3. All aliens planning to go into Mexico for the field trip must have a proper visa in order to return to the United States.
4. The field trip should take less than 8 hours; however, it cannot be guaranteed.
5. Air West, the major air carrier serving El Centro, is now on strike. If the strike has not ended before the Conference, the following alternate means of transportation must be used:

<u>City</u>	<u>Rental Car</u>	<u>Bus</u>	<u>Air</u>
San Diego	Yes	Yes	Yes*
Ontario	Yes	?	No
Palm Springs	Yes	No	No
Phoenix	Yes	Yes	No
Los Angeles	Yes	Yes	No

*Imperial Air Lines, San Diego - (714) 357-3781 (limited service)

The Geothermal Resources Council would like to thank all those who are generously donating their time, energy, and resources to make this Conference a success. Captain Parker of the Naval Air Facility in El Centro has offered transportation, audio-visual equipment, and manpower. Sue Colwell has spent untold hours making arrangements for facilities and services.

David N. Anderson, Secretary
Geothermal Resources Council

REVISED

Luncheon Speaker

Environmental Priorities, Human Needs, and Geothermal Power
Dr. Hamilton Hess
Sierra Club Representative

2:00 - 2:15 Travel to Imperial Valley College

Afternoon Session

2:20 - 2:30 Welcome to Imperial Valley College
Buck Paoli
Dean of Instruction, Imperial Valley College

2:35 - 3:05 Dry Steam Power Plants
David Barton
Pacific Gas and Electric Company

3:10 - 3:40 Flashed Steam Power Plants
Jorge Guiza L.
Jefe del Departamento de Recursos Geotermicos, Comision Federal de Electricidad, Mexico

3:45 - 4:15 Geology of Imperial Valley
Dr. Robert Rex
University of California, Riverside

4:20 - 4:50 Review and Discussion of Geothermal Exploration Techniques
Dr. Jim Combs
University of California, Riverside

5:00 - Exhibits

Evening Activities

7:30 p.m. Icebreaker cocktail party, no host

8:30 - 9:45 Banquet at the Holiday Inn

Banquet Speaker

Review of Some of the Legal Problems in Geothermal Development
Joseph Aidlin
Aidlin, Martin, and Mamakos

THURSDAY, FEBRUARY 17

Morning Session

Imperial Valley Country Club

7:00 a.m. Late registration