CONF-920378--29

DE92 019090

GEOTHERMAL PROGRAM REVIEW X

PROCEEDINGS

"Geothermal Energy and the Utility Market - The Opportunities and Challenges for Expanding Geothermal Energy in a Competitive Supply Market"

March 24 - 26, 1992
San Francisco, CA

Sponsored by:

U.S. Department of Energy
Assistant Secretary, Conservation and Renewable Energy
Geothermal Division
Washington, DC 20585

DISCLAIMER

OVERVIEW OF GEOPRESSURED-GEOTHERMAL

Allan Jelacic
DOE Geothermal Division

Dr. Mock began the session by paying tribute to Dr. Myron Dorfman, Professor of Petroleum Engineering at the University of Texas, who had just passed away after a protracted illness. Dr. Dorfman, more than other any individual, was responsible for bringing the geopressured-geothermal state-of-the-art to its present technological readiness for commercialization by industry.

Allan Jelacic, Geosciences Team Leader, Geothermal Division, chaired the formal session and gave a historic overview of the conference that defined research needs and economic potential of the resource. First the Nevada Field Office and later the Idaho Field Office took the lead in setting research directions and managing the program. The major research activity was to flow-test ten Wells of Opportunity, provided by industry, as well as the Design Wells, of which four were drilled. Initial problems with calcium carbonate scale deposition and the safe handling and disposition of up to 30,000 barrels of geopressured brine per day were solved. A series of seminal conferences followed so that by the mid-eighties, the resource's extent and productivity were understood, and DOE's Geothermal Division was proceeding with technology transfer to industry. Allan Jelacic pointed out that currently the program is phasing down, with only three active wells remaining: Hulin, Pleasant Bayou, and Gladys McCall. Nevertheless, environmental monitoring, which to date has yielded no significant water quality or seismicity problems, will continue for several more years. The $190 million spent on the program yielded a number of major accomplishments, not the least of which was confirming USGS's initial estimate of the resource, which turned out to be the largest source of natural gas in the US. The economics of power production, however, are not attractive at this time, given the relatively low brine temperatures and current economic conditions in the energy sector.

The next speaker, Ben Eaton, of Eaton Operating Company, concentrated on the operating history of Gladys McCall and Pleasant Bayou Wells. Ben Eaton noted that early problems with scaling and acidification required frequent shutdown -- driving costs up. He stated that once these problems found solutions and proper injection techniques were adopted, the wells demonstrated reliable, long-term flow.

Michael Shook of INEL spoke next about the numerical modelling of the Pleasant Bayou well. The object of this INEL research was to check the accuracy of a currently used model for geopressured reservoirs referred to as 'the leaky fault model'. Data from transient pressure tests covering ten years of production from the Pleasant Bayou well should provide the corroboration. Mr. Shook noted that preliminary analysis strongly suggests the model to be accurate.

Michael Kramer of the California Energy Commission then analyzed the Geopressured resource in the State of California and pointed out a number of suspected geopressured basins throughout the State. Mr. Kramer noted that the Commission was proposing that GeothermEx identify the geopressured basins through an explicit exploration program with the goal of possible economic development of the resource.

Jane Negus-de Wys closed the session with a review of the organizations and mechanisms available for technology transfer -- organizations such as the American Association of Petroleum Geologists, the Industrial Consortium for the Utilization of the Geopressured Geothermal Resource, and the GRC, and mechanisms such as CRADAs and research consortia. Jane Negus-de Wys exhorted the attendees to give serious thought to "the best way to reach the market". She closed by acknowledging her debt to the leadership of Dr. Myron Dorfman.