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Imperial County Geothermal
Development Quarterly Report

July 1 - September 30, 1983

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This Quarterly Report discusses the highlights of geothermal development in Imperial County during July, August, and September, 1983. Topics include the status of geothermal development projects in the County, geothermal staff activities and research projects, and other geothermal-related topics.

SECTION 1: STATUS OF GEOTHERMAL DEVELOPMENT

Power Plants

East Mesa 10 Megawatt Binary Power Plant: The Magma facility was shut down for annual inspection and overhaul from July 1 through August 20. No significant problems were identified. Since the project was put back on line in October 1982, following the plant rebuild, the operating record has been outstanding.

The U.S. Bureau of Land Management has approved Magma's application for three additional wells at the East Mesa site. Additional wells are necessary to bring the plant to full design capacity of 12 MW (gross).

Brawley and Salton Sea 10 Megawatt Flash Power Plants: Union and Edison have been working on alternative water resources for their two flash power plants. Short term tests on use of steam condensate for cooling have been conducted at both the Brawley and the Salton Sea facilities. A second test is in progress at the Salton Sea Plant. The objective of testing is to determine the desirability and problems with use of steam condensate for cooling.

County permits authorizing both projects require permittees to develop methods of water conservation and to investigate alternative sources of cooling water.

A cooperative effort of the County, Union, and Edison has resulted in paving of the access road to the Salton Sea Power Plant. The project was funded by Union and Edison.

Power Plant Projects

Heber Binary Project: Construction is underway for the Heber Binary Project. Since initiation of site preparation in mid-June, developers have proceeded with site grading and foundations work.

Chevron plans to begin work on site preparation for the brine handling system during the next quarter. Well drilling is to begin in mid-1984.

Heber 49 Megawatt Flash Power Plant: In September, Chevron Geothermal and Dravo Corporation completed necessary contracts and agreements for construction of the Heber Flash Power Plant. Well field work, interrupted when Edison withdrew from the project, should resume during the next quarter. Dravo is proceeding with engineering work begun by Edison for the project.

Salton Sea 28 Megawatt Flash Power Plant: Magma is working on the engineering for the 28 megawatt flash power plant. Financing of the project is in progress.

Salton Sea 49 Megawatt Flash Power Plant: Magma is continuing with predevelopment work on this project.

South Brawley 49 Megawatt Flash Power Plant: In August, the Imperial County Planning Commission approved a Conditional Use Permit for the South Brawley 49 Megawatt Flash Power Plant. This followed the May approval of geothermal overlay zoning for the South Brawley area.

Both the County and the Division of Oil and Gas approved an 80% reinjection rate for the project. Due to depth of the resource and area geology, risk of subsidence was not determined to be serious.

The County permit specifies standards to be met in construction and operation, and requires monitoring and/or mitigation of possible detrimental impacts. Monitoring programs include: subsidence monitoring, detection of micro-seismicity, and air and water quality monitoring. In addition, monitoring and mitigation programs were imposed to identify and reduce detrimental impacts, if any, to area wildlife.

MCR is currently working to complete DOE requirements for the current phase of work, as required by their Geothermal Loan Guarantee. Current efforts include the completion of necessary technical reports. MCR hopes to move into the field development phase of the project in the near future.

Proposed Power Plant

Niland 49 Megawatt Flash Power Plant: The U.S. Department of Energy announced the approval of a \$99.6 million loan guarantee for the Niland Development Project. The plant, a joint project of Republic Geothermal and a subsidiary of the Parson's Corporation, is scheduled for operation in early 1986.

Geothermal zoning for the project area was considered by the Planning Commission in late September and a decision is to be made in early October. The Planning Commission recommendation will then be considered by the Board of Supervisors and a final decision on zoning of the area will be made.

The Draft Environmental Impact Report for the power plant project is under development, and is expected to be issued in the near future.

Direct Heat Development

City of El Centro: El Centro is continuing negotiations with the U.S. Department of Energy for modification of the contract for their direct heat project.

UltraSystems: Ultrasystems is continuing predevelopment work for the Ultrasweet High Fructose Corn Syrup Plant to be built in Heber. Developers are proceeding with process engineering and continuing necessary contract negotiations.

Calipatria Industrial Park: The City of Calipatria has received grants from the U.S. Department of Housing and Urban Development and the California Energy Commission for part of the funding necessary for development of the Calipatria Geothermal Industrial Park.

The city has contracted with Lahontan, Inc., for project management of the geothermal development portion of the project as well as necessary marketing work.

CEC funding will support work necessary for the location and evaluation of a suitable geothermal resource for the project. Two or three shallow exploratory wells are to be drilled before the end of the year, depth is to be approximately 2000 feet. Developers hope for brine temperature of 170 to 250 degrees fahrenheit. Project permitting requirements have been discussed with County planning staff.

Developers hope to attract labor-intensive industries to the area to increase local employment opportunities.

Exploration

Imperial Energy Corporation: Work continues towards testing of a downhole heat exchanger.

Bear Creek: An application for four exploratory wells has been filed by Bear Creek. Proposed wells would be located in the Wister State Wildlife Refuge. Bear Creek has two approved exploratory projects in the area, one is also within the Wister Unit.

Planning staff has discussed the Bear Creek exploratory program with representatives of the State Lands Commission. Items discussed include environmental documentation, environmental impacts and mitigations, and necessary permit conditions.

Crocker: A temperature observation well has been drilled by Crocker near Salton City. Developers hope to indentify a resource suitable for a direct heat project.

Republic: Initial discussions have been held to determine permitting requirements for the proposed deep geothermal well project sponsored by the Federal Government. The project would extend a geothermal well to 18,000 feet, adding 6,000 feet to the planned depth of the well.

Grace: Grace Geothermal has discussed a proposed exploratory project with County staff. The project, located in the Brawley KGRA, would begin with drilling of several temperature gradient holes during the next quarter. Developers hope to drill an exploratory well in 1984.

SECTION 2: COUNTY SERVICES AND RESEARCH FOR GEOTHERMAL DEVELOPMENT

The County Geothermal staff performs a variety of investigations and activities directed at stimulating and supporting the development of geothermal energy in Imperial County. Research and services are intended to facilitate development for both electricity generation projects and direct heat applications. Specific projects are discussed in the following Section.

Geothermal Environmental Monitoring Programs

Geothermal Subsidence Detection Network Monitoring: Imperial County has completed field work in the first phase of a project to resurvey the Geothermal Subsidence Detection Network. During the next 12 to 18 months, the National Geodetic Survey will adjust and analyze the data and prepare a report on the findings. The first phase of the project resulted in the resurvey of a major portion of the north/south first order survey line and is funded in part by a grant from the California Energy Commission.

The County has been awarded additional CEC grant money to fund continued resurvey work during the 1983-84 winter. The second phase will resurvey a major portion of the east/west first order line (see Appendix 1 for Phases 1 and 2 survey routes). Field work for Phase 2 has begun.

Seismic Monitoring Program: Public Works Department staff is continuing to collect information regarding seismic monitoring and the necessary requirements for the County Seismic Monitoring Program. Staff has requested input from geothermal developers and government seismic experts and will meet with industry representatives to discuss policy development during the next quarter.

Air Quality Monitoring: The Imperial County Air Pollution Control District has received a grant from the California Energy Commission to fund the establishment and operation of an area station for monitoring air quality. The station will be located in the Brawley KGRA, south-east of the Union/Edison power plant. APCD staff is proceeding with station setup and acquisition of necessary equipment and supplies.

Additional stations are necessary to provide adequate air quality monitoring. The APCD hopes to place a station in the Heber area in 1984, if funding can be obtained. Other stations will be established as funding allows.

Geothermal Element Review

The Imperial County Planning Department has been awarded a California Energy Commission Grant to fund the update of the County Geothermal Element and related documents and policies. The Geothermal Planner will be the project manager, under the direction of the Planning Director, and will supervise a Planner hired specifically for the update project.

The Planning Department will work with committees of the Board of Supervisors, the Planning Commission, and the Geothermal Industrial Committee during the course of the project. Duration of the project is estimated to be approximately 18 months.

Current activity includes recruiting for a planner and development of the work program.

Direct Heat Utilization Project

Work continues on the direct heat marketing brochure. Preparation of "camera-ready" copy is nearly complete.

Following receipt of "camera-ready" brochure copy from the consultant, the brochure package and information on printing and distribution will be submitted to the Board of Supervisors for Board direction on further marketing efforts.

Planning staff is drafting a proposed ordinance regarding permitting of direct heat projects.

The "Geothermal Direct Heat Study - Imperial County, California," prepared as part of this project, has been published by the DOE's Technical Information Center in Oakridge, Tennessee. Substantial interest in this Report is anticipated and availability of the Report through the TIC will lead to greater public use.

SECTION 3: OTHER GEOTHERMAL-RELATED TOPICS

Geothermal Waste Disposal Site

IT Corporation has submitted a second application for a Conditional Use Permit that would allow acceptance of additional types of waste at the existing geothermal waste disposal site. Environmental analysis to supplement previous work is in progress.

Federal Geothermal Lease Sale

Magma Energy, Incorporated, was the successful bidder on 1,560 acres in the East Mesa KGRA. No bids were received by BLM on other Imperial County parcels offered in the July lease sale.

Water-Related Issues

Issues related to water quality and water use received much public and governmental attention in the past quarter. The serious pollution problem in the New and Alamo Rivers was discussed and solutions were proposed. Pollutants, including sewage and industrial wastes, enter the rivers in Mexico and are carried into the County and to the Salton Sea by these rivers, leading to a serious pollution problem in the Salton Sea.

The California Water Resources Control Board held a hearing in late September to discuss usage of Colorado River water in Imperial County. Several speakers stressed that substantial quantities of water will be needed for cooling of geothermal power plants as the industry develops, and urged consideration of geothermal industry needs in Board decisions.

County geothermal staff is reviewing past studies of water requirements and alternatives for geothermal development in the County, and is preparing a brief report summarizing water issues related to geothermal development.

Appendix 1

PHASES 1 AND 2 SURVEY ROUTES