

Director's Message

Happy Birthday, Joe!

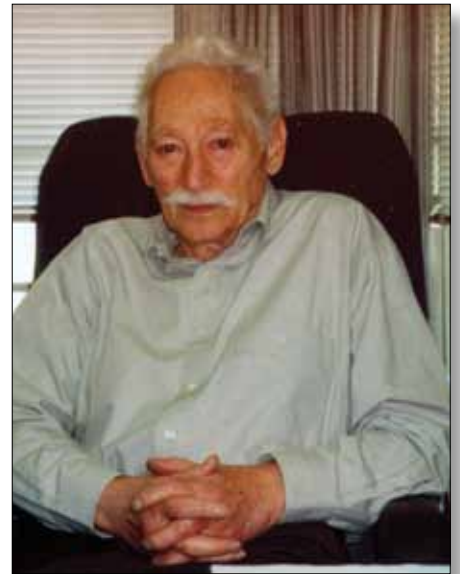
by Curt Robinson
GRC Executive Director

On April 28, 2010, Joe Aidlin will celebrate his 100th birthday. Joe, a pioneer of geothermal development and a founder of the Geothermal Resources Council, has influenced geothermal activities fundamentally, in many ways, for many years. We reprint an interview with Joe from 1998, where he tells his geothermal story in his own words.

Happy 100th Birthday, Joe! We send our best wishes.

The GRC Board of Directors,
The 1,043 GRC Members, Worldwide
And yours truly,
Curt Robinson, Executive Director

*Happy 100th
Birthday, Joe!*



Joe Aidlin in his law offices, December 1998.
PHOTO BY S. HODGSON.

Seeking Basic Concepts, The *Sui Generis* of Joe Aidlin*

by Susan Fox Hodgson

Joe Aidlin, along with his partners B.C. McCabe and Robert Bering, created modern geothermal development at The Geysers Geothermal Field, which is to say geothermal development in California, the United States, and the Americas. In fact when their partnership began in the late 1940s, the world held just two other geothermal electrical-generation projects, one at Larderello in Tuscany, Italy, and one in New Zealand. As the three men developed The Geysers, building on the work of the unsuccessful *The Geysers Development Company* in the 1920s and 30s, they created a template still used in geothermal projects around the world.

To learn the history, I spoke with Joe Aidlin in his law offices in December 1998. Mr. Aidlin was

88 years old and the following is what he said.

"I'm a sort of frustrated farmer. My affinity to land is probably what led to my understanding the complexities of land ownership and use, and probably to my expertise in this field and in minerals.

"I came from Waukegan, Illinois, to California in 1920 with my parents and three sisters when I was ten. Waukegan was an industrial community on Lake Michigan. If we missed school the truant officer came knocking. For sport after school hours, we engaged in informally arranged boxing contests and played baseball at the stadium of the local semi-pro baseball team, using the cast off

*Reprinted from the March 2000 *GRC Bulletin*.

Joe Aidlin

hard balls, bats, and gloves—generally much too large. We generally engaged in rough play.

“We also dug caves on vacant fields overlooking the railroad and industrial plants. The caves were deep enough and large enough to accommodate a number of us at a time. In these caves we would roast potatoes, which we had either dug up from neighboring gardens or obtained from friendly grocers. I was generally second best in our games, but I learned early that it was possible to be friendly and considerate but also tough. Those were the days of my early youth in Waukegan.

“My family landed in the east side of Los Angeles in the late 1920s. In Los Angeles I did credibly well on the City Class C track team. I also became second to the concertmaster, playing violin in the junior symphony orchestra. At age 16, I gave up violin because I knew that my skills were not as a violinist.

“We moved to Long Beach, California, during the time when the Signal Hill oil field was being developed, and our home was close to the base of Signal Hill. It was there—watching wells being drilled, blowing in uncontrolled, and sometimes bursting into flames—that I became fascinated with exploring for oil and subsequently for other minerals, as well. It has been a life-long interest.

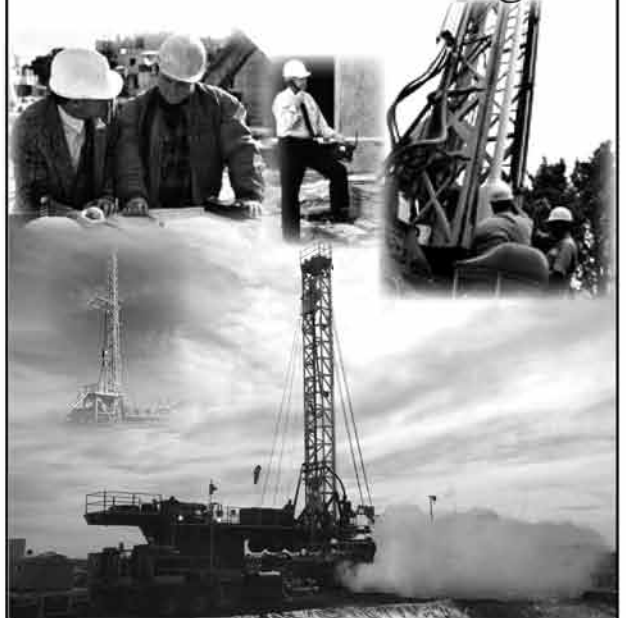
“The family moved to Hollywood in 1925, and I graduated from Hollywood High School in 1926. There I became interested in chemistry. In fact, in 1926 I came in second in a citywide contest in chemistry and qualified for a scholarship to attend the California Institute of Technology. Instead, I went to UCLA (then called the Southern Branch of the University of California) and majored in economics with minors in philosophy and psychology. After UCLA, I attended the University of California Boalt School of Law, at Berkeley, California, and graduated in 1933.

“I always look for basic concepts, basic causes, and basic objectives. Once they are ascertained or agreed to, solutions to problems or differences become less complicated and easier to resolve. Unfortunately, these days there is so much distortion, hype, and self-interest in the information we get from most sources that we are not able to separate the real from the unreal or the true from the false.

“At UCLA, where I majored in economics, I found that the economics I was learning and the economics motivating our society left many questions

BARBOUR CORPORATION

Geothermal Drilling



Minimize Operational Costs

- Fast Mobilization
- Competitive Day Rates
- New Equipment Advantage
- Innovative Drilling Options
- Qualified and Professional Field Supervision

Increase Project Confidence

- Late Model Rigs & Support Equipment
- Large Rotary Tables
- Equipped to Handle Large Casing Sizes
- Custom Subbases for Height Over B.O.P.s
- Tier 3 Engines - Lower Emissions
- Industry Trained and Certified Crews
- Focused on Successful Client Results



For information on rig availability and pricing
call or email.

805-482-4988 x 231
sales@barbourwell.com
www.barbourwell.com

Licensed California & Nevada Drilling Contractor

Joe Aidlin

unanswered. Although I have found some answers, measured by my search for basics, many accepted economic principles do not satisfy me. After graduating from law school, my practice gravitated to matters relating to oil and gas and other minerals and the rights of ownership, and the use of land.

"I met Barkman C. McCabe in an interesting way and worked with him on two projects before we turned to The Geysers. I had become interested in the oil possibilities of the Newhall area in Los Angeles County, and, with a partner, became interested in leasing land and obtaining major oil companies to develop the land. During The Depression, in the mid-30s and early-40s, all the people around there were suffering and the rent we paid for oil leases helped them live. I met the leading people in the area—among them the banker, blacksmith, various landowners, and Mr. Perkins, a substantial property owner—owner of the Newhall Water Company and historian of the Newhall area.

"One day in the late-1940s, I got a call from Mr. Perkins, who said a group wanted to lease some land from him and could he send them to me? Among them was B.C. McCabe, who had some oil interests in Kern County. He was a mining entrepreneur, the owner of valuable timber land and also former part-owner of an investment company. He wanted a lease from Mr. Perkins to drill for oil on some of Perkins' land and had finished the negotiations, but the title report showed various title problems. I started to work on it. In doing so, one day B.C. McCabe and I went to the title examiner's office where we went down the list of title problems, one by one. We cleared up all the problems and McCabe was impressed.

"About a year later, he called and asked if I remembered him, saying 'I'm B.C. McCabe. I liked how you handled the Perkins land title and I have a personal matter I want straightened out. A big law firm has worked on it, but I have less than a month to deliver good title on some land at Elizabeth Lake and an item of title has to be cleared up. Can you help?' I looked at the problem, got a good title in time, and McCabe's problem was solved.

"Robert Bering had worked extensively in oil in Southern California in the 1930s and 1940s. He knew that in the 1920s John Grant and The Geysers Development Company—the company Grant had organized—had used natural steam produced from a shallow well to turn a small turbine generator to generate electricity at The Geysers Resort. The Geysers fascinated Bering. He would tell his associates that The Geysers was not only a source of energy but also a treasure house of minerals. He knew McCabe, whose investment company had financed some of Bering's enterprises.

"Over a period of years Bering bought out John Grant's interest at The Geysers and acquired other land there. McCabe was aware of that. Bering had acquired as much as he could of the preferred and common stock of The Geysers Development Company. Among the shareholders was Luther Burbank, whose widow subsequently sold the shares much later at a profit. During World War II, Bering tried to get Pacific Gas & Electric Company (PG&E), the local utility, to develop The Geysers, but the company wasn't interested at that time.

"Thus McCabe knew of The Geysers, which he had visited. He had also visited geothermal development in New Zealand and Italy. He called me and said, in essence, 'You know Bob Bering. He has an interest at The Geysers and the time is coming very soon when generating electricity from the natural-steam resource there will be economically feasible. If you can get Bering to join me, and if you can straighten out and handle the

Mark your calendar!

**GRC's 34th Annual Meeting &
Geothermal Energy Expo 2010**

October 24-27, 2010

Sacramento, California

*Celebrating 50 Years
of Clean, Renewable Power*

Joe Aidlin

land holdings, titles, tax, and various corporate matters—and work on the legal, legislative, and other problems involved in creating a new industry—I will provide the initial financing to begin a project to develop the natural steam at The Geysers and generate electricity using the steam.

“McCabe proposed to organize a corporation, and that the initial shares would be issued 50% to him, 40% to Bering, and 10% to me. I accepted McCabe’s offer to join with him and Bering.

“As I began the job I had undertaken, I learned that The Geysers Development Company required a lot of straightening out. It hadn’t held a stockholders meeting since 1935 and had a poor record of its holdings and the titles to its various properties. I became secretary of the corporation and began to work things out. We eventually cleared up the legal and other tangles, and The Geysers Development Company entered into a lease with Magma Power Company to develop the geothermal resource on its properties on a royalty basis.

“McCabe and I had attempted to organize Magma Power Company as a California corporation, but the Commissioner of Corporations had asked us, ‘What is geothermal energy?’ On hearing our response, he refused to give us a permit to issue and sell shares to the public on the grounds that the development of geothermal resources and utilizing the resources for generating electricity was not a viable enterprise.

“So Magma Power Company was incorporated as a Nevada corporation. After the incorporation, McCabe, Bering, his wife, Lynn, and I met in motel rooms in Las Vegas in 1954 and using ordinary stock certificates from a stock certificate book purchased from a corporate stationery store, we issued the shares in the proportions we had agreed to. We fixed a purchase price of 1/20th of a cent per share and issued a total of 5 million shares. We opened a bank account and deposited the share purchase money that very day, and Magma was ready to do business.

“Magma took its first lease in Nevada from a Mrs. Towne, on her property known as Steamboat Springs, a small health spa on the road from Reno to Carson City, Nevada. A geothermal power plant operates there today. Our second lease was on The

Geysers Development Company land in Sonoma and Lake Counties in California.

“Framing these first geothermal resource leases was a great challenge. I had to describe a resource that we knew little about and we had to determine how to pay royalties to landowners. It is a source of pride to me that what we did still remains basic in the industry.

“A critical hurdle for Magma Power at The Geysers was talking with PG&E, trying to convince the utility to build a power plant in the field. Before this could happen, we knew we needed money to drill confirmation wells to demonstrate the resource. The only way we could figure how to do this was to organize another company, a subsidiary to get money to drill test wells. This company became Thermal Power Company.

“We assigned to Thermal Power an undivided half interest in our leases subject to its investing necessary money to drill two test wells. A structure for joint operation was created that subsequently took the form of a partnership, but there never was a formal partnership agreement between Thermal and Magma Power.

“McCabe appointed the board of directors of Thermal Power Company, which sold shares to raise the funds to drill the test wells. McCabe rallied the mayors and leading citizens of towns and cities around The Geysers to try to convince PG&E to agree to buy the steam to be produced and to install the first power plant. Often his ideas were met skeptically, and one utility official said he would ‘... drink all the energy that could be produced from The Geysers.’ However, McCabe persevered through a friendship he had with a company vice president, who finally convinced PG&E management to move the project ahead. As equals in his and all future Geysers operations, Magma Power Company and Thermal Power Company finally signed an agreement for the sale to PG&E of the geothermal energy to be produced at The Geysers. Framing the agreement was a real challenge for all parties.

“We had to answer the questions: ‘How do you sell hot water and steam?’ and ‘How much are they to be sold for?’ We knew the characteristics of the resources varied greatly within and among geothermal fields, which made it hard to measure a way to sell the resource. Ultimately we agreed that PG&E would pay for the steam they took on a basis of the price per kilowatt-hour generated by the power plant. This price was based on what the utility paid for fossil fuel. PG&E constructed

Joe Aidlin

Power Plant Unit 1 at The Geysers and the plant began operating in September 1960.

“We also knew that sooner or later we had to resolve the issue of whether steam was a *water* or a *mineral* resource. You know, in our political and economic system, we often don’t take time to clearly define what it is we are dealing with. We often include something in a broad category and this causes a lot of problems. I made speeches and wrote papers proposing that the resource be defined as neither water nor steam—in other words, *sui generis* (as something separate, distinct, of its own special nature)—and that any regulations or legislation be tailored to fit the resource, but this was not to be.

“Some people wanted the resource characterized as water and treated as such. This would have killed the geothermal industry because you can’t base capital investment or rely as a user on an uncertain resource. We had to decide how to define the resource in both state and federal legislation. The definition I worked out was included in the first leases we wrote and remains substantially the same.

“Well, we got through that hurdle and then needed to test whether the State of California and the federal government considered the geothermal resource to be a mineral or a water resource. It was decided that the resource is a mineral, which is probably just as well. I proposed that *sui generis* would have been a more proper classification, but I could not put that over. Some states used my definition of the resource almost *verbatim*.

“After Oregon passed a geothermal law, the issue arose of who has jurisdiction over a geothermal well being drilled before the resource is known. Members of the Oregon legislature called me for a suggestion, and I suggested that jurisdiction be given to the Bureau of Mines during the course of drilling until the resource is reached and the temperature measured. At this point, if the temperature was below a certain temperature, it would be *water*. Above this, it would be *geothermal*. Utah, on the other hand, insisted geothermal resources were water, which by their law is property of the state.

“We created the Geothermal Resources



GEOTHERMAL RESOURCE ASSESSMENT

EGS Services

- Remote Sensing Interpretation
- Geological & Structural Mapping
- MT, Electrical, & Gravity Surveys
- Geochemistry
- Drill Target Selection
- Drill Logging Interpretation
- Regulatory Compliance
- EIS/EIR Preparation
- Permitting

A large graphic of a stylized blue 'E' is overlaid on a collage of images. The images include: field workers in a geothermal area, a person in a lab coat working in a laboratory with a microscope, and a close-up of a geothermal well. The 'E' graphic is positioned vertically, with the top part of the 'E' at the top of the page and the bottom part at the bottom.

For more information on EGS, Inc.:
P: 707-544-0955 - F: 707-480-1733
E: pbrophy@envgeo.com

Joe Aidlin

Council (GRC) in the early 1970s. I wanted it to be a broad public organization, including everyone involved in geothermal energy, such as local environmental groups, the Sierra Club, governmental and university personnel, bankers, and utility representatives, as well as entities involved in developing and using the resource. I felt that would facilitate developing the industry. McCabe went along with this idea. The organization, as you know, still exists with this eclectic membership. The GRC was an instrument we used to help work out the regulations because it involved everyone, and all points of view were welcomed and considered.

“For over three and a half decades, other companies have come to The Geysers—leasing land, drilling wells, and building power plants in the field that for years was

PG&E’s least-expensive energy source, next to hydroelectric power. Through time, mergers and sales have occurred. Eventually Thermal Power was bought by Natomas, and today Magma is part of Cal Energy.

“Years ago, Magma Power Company—before it was purchased by CalEnergy—sold its assets at The Geysers to concentrate on its other extensive geothermal projects in the US and abroad. As you may know, however, I continue my attachment to The Geysers through my interest in the Aidlin Power Plant, which is on land that I own, and my interest as a partner in the Geysers Development Partnership, which is the large landowner at The Geysers.

“I believe that geothermal resources for generating electricity can and should be developed in substantial volumes in the western part of the US. There is also a great potential for using lower-temperature resources for electrical-generation projects in areas where large power plants aren’t practical and for various industrial uses. A tremendous potential exists for geothermal development in South and Central America and Africa, which will outstrip the US in developing geothermal resources over the next generation. In fact, if it hadn’t been for wind power, geothermal development might have been more extensive, but geothermal never received the promotion that wind did.

“I am very interested in CalEnergy’s project to extract minerals from geothermal brines in the Imperial Valley. Currently the company is building a plant to recover zinc. I believe that ultimately other minerals will be recoverable commercially from these brines.

“I have watched geothermal projects grow in countries around the world. In the 1970s, I spoke with representatives of the Japanese Government about high-temperature resource development. Their situation is very interesting. The government is committed to nuclear energy, but a vast geothermal resource exists. One problem is the obligations to historic owners of hot springs. There are other structural problems. In fact, the chairman of a Japanese Diet committee invited me to discuss how to address the relationships of the historic owners of hot springs and other structural problems in connection with geothermal development. I suggested some ways to approach this, and ways to enhance the hot springs themselves. The progress of geothermal resource development and utilization in Japan has



Geothermal Resource Group

TAPPING THE EARTH'S ENERGY

Bill Rickard, PE
Consulting Engineer

BUS: 760.341.0186

FAX: 760.341.9673

CELL: 760.413.2082

EMAIL: billrickard@geothermalresourcegroup.com

P.O. Box 11898 • Palm Desert, CA 92255

www.geothermalresourcegroup.com

- DRILLING ENGINEERING
- DRILLING SUPERVISION
- DRILLING TRAINING
- RESERVOIR ENGINEERING
- WELL TESTING

Joe Aidlin

been very slow, although the interest is high.

“The immediate goals of the geothermal community should be to try to develop geothermal energy in smaller increments, principally in Central and South America, the Caribbean countries, India, China, and Africa. In the competitive society in which we live, I believe that large-scale geothermal energy development will have a place in the western US, where there are serious environmental concerns. Also there are many areas in the US and in other areas of the world where geothermal heat pumps and installations using lower-temperature resources could be successfully and usefully utilized where local power is not economically available.

“We are all so dependent on electricity today, and small geothermal power plants can give communities real security. Mammoth is an example of such a place, lucky to have electrical generation right there. San Francisco could be a

lot more secure buying its electricity from The Geysers.

“I never had the ambition to be rich or famous. I’ve seen that it doesn’t mean anything real. I have had the ambition to do things of value. If you want to have an interesting life, you try to do the things that are really creative and worthwhile. I have no idols and I don’t envy anyone. I know I can get along with anyone if we can talk to each other. Circumstances can give persons the opportunity to be creative and to accomplish worthwhile things.

“My most creative efforts in geothermal were helping to frame the structure of the industry, writing the description of the resource, creating the nature and content of the leases and sales agreements, and writing and influencing legislation. I consider that my efforts with Magma Power Company, from its founding, were a worthwhile contribution to others. In 1987, I stepped down from the Magma Board of Directors and as general counsel.

This is my geothermal story. I hope geothermal energy, wherever it may be found, will be used to make life better for us all.” ■



Volcán de Pacaya, Guatemala

Providing Confidence At Your Wellsite.

Geothermal wellsite geologists &
mudlogging worldwide.

- Wellsite & Website Data Services
- Advanced Rig Instrumentation & EDR
- H₂S Safety Equipment
- Decades of Geothermal Wellsite Experience

Doug Milham, President
California Office: +1.805.733.0972
Central America Office: +501.667.2790
www.horizon-well-logging.com

HORIZON
WELL LOGGING, INC.