



Fairchild and Wells, Inc.
PETROLEUM AND ENVIRONMENTAL CONSULTANTS

JAMES W. FAIRCHILD

Fairchild and Wells, Inc.
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EDUCATION

M.S., Mechanical Engineering
University of Florida
August 1965

B.S., Mechanical Engineering
University of Florida
April 1963

EXPERIENCE

1982-Present

President, Fairchild and Wells, Inc. dba. Fairchild & Stan

- Co-founded company in January 1982
- Conduct reservoir characterization and management studies related to the production of oil and gas reservoirs during primary, secondary (waterflood and gas injection) and tertiary (CO₂/hydrocarbon gas injection) operations
- Specialize in the application of reservoir simulation to optimize reservoir development
- Conduct major simulation studies of oil and gas reservoirs including the integration of the surface facilities
- Provide technical support to clients in the use of reservoir simulation
- Conduct gas storage screening studies

- Conduct gas storage evaluations to optimize top/base ratios, maximize rate of withdrawal/injection and inventory verification
- Provide economic evaluations for determining market value of clients interest in oil and gas properties
- Managed and conducted research projects related to the co-production of gas and water under contract to the Gas Research Institute
- Conduct engineering evaluations of geothermal operations
- Prepare and teach industry schools in the areas of gas storage, co-production of gas and water and the development of volatile oil reservoirs
- Provide expert witness testimony related to engineering, economic evaluation of oil and gas developments, gas storage designs and geothermal operations

1980-1981

Senior Vice President, International and Domestic Operations

INTERCOMP

- Responsible for the marketing and execution of all International and Domestic consulting projects performed from INTERCOMP's corporate office
- Conducted reservoir characterization and management studies for many of the world's largest oil and gas reservoirs

1979-1980

Vice President, International Consulting,

INTERCOMP

- Responsible for all international projects performed in the Houston office
- Conducted and presented study results to INTERCOMP's international clients

1976-1979

General Manager, Energy Resources Division

INTERCOMP

- Responsible for marketing, coordination, supervision, and execution of underground gas storage studies
- Conducted storage projects including aquifer storage, depleted oil and/or gas reservoir storage and major international gas utilization studies
- Conducted reservoir characterization and simulation studies of large Mid-East reservoirs, including technical participation, project planning, and staff coordination
- Responsible for the development of coalbed methane reserves

1971-1976

Project Manager

INTERCOMP Houston

- Taught the practical application of reservoir simulation to the petroleum industry

1965-1971

Senior Research Engineer

Esso Production Research Company

- Performed research in thermal recovery schemes and in situ recovery of shale oil
- Developed field test design, implementation and interpretation of test results of new recovery schemes
- Conducted reservoir engineering studies using numerical simulation
- Performed well test (PTA) design and analysis, including on site supervision, of exploration wells
- Company schools attended: Reservoir Engineering, Production Engineering, Well Testing, Fracturing, Reservoir Simulation, and Technical Writing

1963-1964

*Research Engineer
University of Florida*

- Performed environmental studies of fallout shelters under simulated occupancy conditions - Contract from Office of Civil Defense, Washington, D.C.

UNDERGROUND GAS STORAGE EXPERIENCE

I have had considerable experience working with the gas storage companies and all different types of storage facilities and geologic environments throughout the United States including aquifer storage, depleted oil reservoirs and producing or depleted gas/gas condensate reservoirs. Studies have included screening and preliminary design for new storage development, and inventory verification, deliverability, working/base gas ratios and gas migration studies for current operating storage facilities. I am currently involved in providing reservoir engineering support to numerous gas storage companies as a result of the renewed interest in expanding existing storage facility capacity and deliverability.

The American Gas Association, in a 2004 publication, reports that there are 429 reservoir and salt dome gas storage projects in the United States. Of these, I have reviewed or performed studies on about 25 % of the reported projects.

I have also performed gas storage screening studies in California, Texas, Louisiana, Mississippi, Alabama, Colorado, Pennsylvania, New York and Florida. Other operating gas storage projects where I have performed studies and were not listed in the AGA tabulation of projects is Lodi in California and Caledonia in Mississippi. In the past year, I have completed reservoir design studies for the proposed Whitetail and Wise Gap projects in Mississippi, the Blue Sky project in Colorado, and the Princeton and Gill Ranch projects in California.

SELECTED LITIGATION EXPERIENCE

1. Arbitration for Resolution of Purchase Price Dispute between PacifiCorp Power Marketing, Inc. and Aquila Storage and Transmission LP and Aquila Merchant Services, Inc.

Retained as an expert in reservoir engineering by PacifiCorp. Developed well and total field deliverabilities for the Katy Gas Storage. Presented testimony at the arbitration hearings.

Attorney: Joel A. Mullin
Stoel Rives Boley Jones & Grey
900 SW Fifth Avenue
Portland, Oregon 97204

2. Cause No. E-162,088; Louisiana Gas Development Corp. & Aspect Resources, L.L.P. v Shine & Johnston, Inc. & Gilbert Johnson; In the 172nd Judicial District Court of Jefferson County, Texas

Retained as an expert in reservoir engineering to support defendant. Participated in Mediation Proceedings, attended depositions of Plaintiff's experts and have performed an assessment of the lease (gas reserves/wells) in question.

Attorney: Scot G. Doyen
Orgain, Bell & Tucker, L.L.P.
470 Orleans St.
Beaumont, Texas 7704-1751

Mr. Robert P. Gaddis
Gaddis & Associates
5177 Richmond, Suite 640
Houston, Texas 77056

3. Cause No. 91640; Geothermal Energy and Mineral Corporation v. Magma Land Company, CALENERGY Company, et al.

Appeared as an expert witness for Plaintiff in both depositions (2000 and 2001) and trial (April 2001) in El Centro, California. This was a leasehold dispute. Provided reservoir engineering calculations to support the energy loss created by the over-injection of spent fluid on the leasehold.

Attorney: Mr. Robert H. Tourtelot
Tourtelot & Butler
11835 West Olympic Blvd., Suite 1090
Los Angeles, California 90064

4. Cause No. 17746; R-Don Investments, L. L. C. v. Certain Underwriters at Lloyds and Certain London Market Insurance Companies; Paul Bennett; and London American Risk Specialists, Inc.

Appeared as an expert witness for Defendant. Deposition was given. An out of court settlement was reached. Plaintiff was suing various insurance companies for failure to settle un-supported claims. Gas reserve(s) and field development studies were performed.

Attorney: Mr. Robert P. Gaddis
Gaddis & Associates
5177 Richmond, Suite 640
Houston, Texas 77056

5. Case No. CV97-00203 in the Second Judicial District Court, County of Washoe, State of Nevada; Gilroy, et al. v. Brady Power Partners, et al.

The dispute did not reach the deposition or trial phase. An agreement was reached between the parties in May 2002. The dispute resulted from the over production of the Brady Geothermal Resource when the Brady geothermal power plant went on line in 1992. Reservoir engineering support was provided to develop an operating plan to manage the withdrawal of the Geothermal Substances from the Brady Resource.

Attorney: Mr. Robert J. Bothe
McGrath, North, Mullin & Kratz, P.C.
222 South Fifteenth St., Suite 1400
Omaha, Nebraska 68102

Michael R. Kealy
Marshall Hill Cassas & deLipkau
333 Holcomb Avenue, Suite 300
Reno, Nevada 89502

6. Michael McKenzie Harven v. Kukui, Inc and W. Steve Smith, Trustee

Appeared as an expert witness in the motion submitted by Harven Michael McKenzie's motion for relief from judgment and memorandum in support of motion for relief from judgment. A deposition was given relating to the development and reserves of certain coalbed methane gas properties in Colorado, New Mexico and Alabama.

H. Michael McKenzie
Houston, Texas

7. Cause No. A-152,977; Midwest Gas Storage, Inc., et al. v. Panhandle Eastern Corporation, et al; In the 58th District Court, Jefferson County, Texas

Retained as an expert to perform reservoir engineering calculations relating to the operating performance of the Carbon Gas Storage Field in Indiana. Deposition was given. Out of court settlement was reached.

Attorney: Mr. Russell W. Heald
Hilliard & Heald, L.L.P.
550 Fannin, Suite 111
Beaumont, Texas 77701

8. National Fuel Gas Supply Corp. v. Insurance Company of North America, Employers Insurance of Wausau and American Home

Retained as an expert in reservoir engineering to support Plaintiff's claim of gas losses from certain underground gas storage fields operated by Plaintiff. Participated in settlement meetings with various insurance carriers. In all cases (three insurance companies) a settlement was reached.

Attorneys: Mr. Richard F. Griffin
Mr. Edward S. Bloomberg
Phillips, Lytle, Hitchcock, Blaine & Huber
3400 Marine Midland Center
Buffalo, New York 14203

9. Pacific Enterprises and Subsidiaries v. Commissioner of Internal Revenue United States Tax Court – Docket No. 5295-91

Provided expert testimony relating to cushion gas and working gas for Honor Rancho and Playa del Rey Gas Storage Fields.

Attorneys: Mr. Charles W. Hall
Fulbright & Jaworski
1301 McKinney, Suite 5100

PROFESSIONAL MEMBERSHIPS AND REGISTRATIONS

- Registered Professional Engineer, Texas
- Society of Petroleum Engineers
- Geothermal Resources Council
- National Energy Services Association

PUBLICATIONS

- Fairchild, J. W., and E. G. Woods. *"Pulse Test Method for Measuring Thermal Properties of Solids,"* presented at the Annual SPE Meeting in New Orleans, October 1971.
- Litvak, M. L., Clark, A. J., Fairchild, J. W., Fossum, M. P., MacDonald, C. J., and Wood, A. R. SPE Paper #38885, *"Integration of Prudhoe Bay Surface Pipeline Network and Full Field Reservoir Models,"* presented at the Annual SPE Technical Conference, October 1997.
- Fairchild, J.W., Ball, B., and Kuramshina, N., *"The Importance of Geology in Reservoir Simulation - An Engineer's Perspective,"* presented at the Second International Conference of Azerbaijan Association of Geologists, Azerbaijan, June 8, 1995.

- Presentations at technical seminars relating to reservoir simulation and economic development of underground gas storage.
- Numerous technical reports and documents prepared for FAW clients on all aspects of reservoir engineering and/or reservoir development..