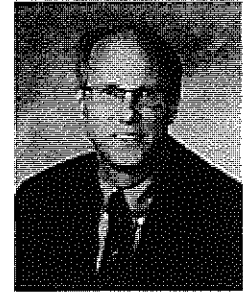


Senior Petroleum Engineer

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Frank has been a Sproule professional since 2012. He brings 30 years of experience in domestic and international oil and gas exploration and development, carrying out reservoir engineering studies and performing gas and oil reservoir simulations. With PHH Petroleum Consultants Ltd. since 1986 and President since 2006, he supervised and participated in many of the studies performed by PHH. In addition, he contributed to software development. Frank has worked on projects in Algeria, Brazil, Canada, Kazakhstan, Libya, the United States and Yemen.

Diplomas and Degrees

- ❖ B.A.Sc. Mechanical Engineering (1982), University of British Columbia

Memberships

- ❖ Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA)
- ❖ Society of Petroleum Engineers (SPE)

Work Responsibilities

- ❖ Conduct reservoir simulation studies.
- ❖ Maintain reservoir and surface network models of gas storage projects and assist
- ❖ clients in optimization and regulatory reporting.
- ❖ Prepare oral and written reports on reservoir study results.
- ❖ Oversee Libyan reservoir studies, prepare progress reports, maintain client contact.

Previous Employers

- ❖ 1982-1983 **Petro-Canada Inc.**, Calgary, Alberta — Junior Engineer
 - ❖ Worked in Operations Engineering group of Heavy Oil Division. Investigated solutions to sand-oil-water separation problems, performed feasibility studies on projects such as supplying steam generation fuel from local gas reservoirs, prepared comprehensive monthly pilot plant operations reports.
- ❖ 1984-1985 **University of Calgary**, Calgary, Alberta — Research Engineer
 - ❖ Documented discoveries regarding the effects of viscosity ratios, viscous instabilities and connate water saturation on residual oil saturation and trapping mechanisms. Compiled semi-annual technical reports based on experimental data and literature studies.
- ❖ 1986-2012 **PHH Petroleum Consultants Ltd.**, Calgary, Alberta — Reservoir Engineer
 - ❖ Participated in well over 150 Canadian and International reservoir engineering studies involving the use of black-oil, fully compositional, pseudo-miscible and chemical reservoir simulators along with gas reservoir/surface network models. Performed several follow-up studies, which proved a good success rate in generating accurate performance forecasts. Trained and assisted clients and junior engineers in performing gas and oil reservoir simulations. Developed/maintained in-house graphics applications.
 - ❖ Developed modelling techniques and visualization/design software to streamline the optimization of large gas fields with very complex surface networks. The main objectives of the many large studies performed were to de-bottleneck, optimize compression and/or identify infill drilling opportunities.
 - ❖ Conducted, supervised or assisted in ongoing reservoir management of ten gas storage projects. Performed scoping studies for several other potential storage projects.
 - ❖ Many additional engineering studies were conducted on oil fields with varied GOR and watercut histories, the usual objectives being waterflood optimization or waterflood evaluations. Several fully compositional studies evaluated or optimized gas cycling and blowdown.

Publications

- ❖ Sorensen, Frank, A 3-Dimensional Approach to the Modelling of the Hoadley–Westeros Gas Reservoir / Surface Pipeline Network, presented at the SPE Gas Technology Symposium in Calgary, Alberta, Canada, June 28-30, 1993.
- ❖ Scholz, Jason; Sorensen, Frank; Hamp, Tom, Evaluating Crossflow Migration Drainage, presented at the CIPC/SPE Gas Technology Symposium 2008 Joint Conference held in Calgary, Alberta, Canada, June 16-19, 2008.

Expert Witness Testimony

- ❖ Texas Railway Commission Hearing, PacifiCorp Power Marketing vs Western Gas Resources, 2002.