GeoConvention 2015
GEOSCIENCE
new horizons
Telus Convention Centre • 4-8 May 2015 • Calgary, AB Canada

Production and Reserves Reporting

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Summary

The primary role of the Professional Geoscientist within an energy corporate context is to discover and assist in the recovery of resources, evaluate and classify them with respect to risk and uncertainty, and to report on petroleum and natural gas reservoirs on company-held land. Growing in importance is the Professional Geoscientist's role of assisting completion and production engineers with a cost-effective drainage plan for the discovered resources and also in defining the company's reserves.

Introduction

In this paper, we discuss how reservoir modelling can be used to develop drainage patterns that are both economical and compliant with current reporting requirements. We then explain the corporate responsibility relating to the public release of reservoir information, in compliance with the National Instrument 51-101, to ensure the disclosure of public information adheres to both the professional code of ethics and publishing standards established by the Canadian Securities Administrators.

Theory and Method

In Canada, four commonly used terms require precise definitions :

- Resource classification
- Discovery
- Reserves
- Resources

Resource classification is the systematic assignment of a discovery within the context of an accepted standard. The authors of the Canadian Oil and Gas Evaluation Handbook (COGEH) use the Petroleum

Resources Management System (PRMS) of classification, although the COGEH guidelines pre-date and are more extensive than those of the PRMS.

Discovery is an inadequately defined term that implies the presence of hydrocarbons without reference to their recoverability. There is another interpretation that requires some indication of recoverability. The jury is still out on this.

A *discovery* must demonstrate direct proof of a previously unknown hydrocarbon accumulation. A new pool *discovery* may occur within a known accumulation that has at least one tested well or uses an acceptable, though usually imperfect analogue. Much useful information can be derived from the latter approach. Perhaps this hypothesis can be tested using multidimensional dynamic modelling technology. We encourage those who are experts in that technology to attempt matching suitable analogues with a known accumulation that has yet to be developed and report the results to practitioners.

The term *reserves* implies a hydrocarbon resource that can be recovered commercially using an Established Technology.

Between a discovery and a reserve are two types of resources: a body of potentially recoverable hydrocarbons known as *contingent resources,* for which the requirements for commerciality have not yet been established, and *prospective resources,* which may or may not exist or, if they exist, be recoverable at all.

Definition and classification of *resources* that highlight future economical areas of exploitation through the application of new technology.

New technologies are introduced first as *Experimental Technology* until they pass the two fold test of *technical viability* and *commerciality*, whereupon it may be declared an *Established Technology*. An experimental technology is one that is being field tested to determine the technical viability of applying a recovery process to unrecoverable discovered petroleum initially-in-place in a subject reservoir. Production cannot be used to assign any class of recoverable resources

- *Technical viability* entails a continuous period of operation that demonstrates technical success
- *Commerciality* is defined in COGEH as a project that is economically viable, has a market, has transportation facilities in place, has no legal, regulatory or social impediments, has a reasonable expectation of external approvals, and has a reasonable time table for development.

We then present the process stages for experimental technology into established technology in a format appropriate to the oil and gas industry.

Examples

An example focused on reservoir geomodeling will be used as a technology challenge.

Over the past decade, a new technology has emerged. This technology uses multidimensional reservoir models and related workflow techniques to effectively evaluate and exploit a reservoir. It is entirely consistent with COGEH, although issues around professional authentication and its limitations and ethical use have emerged. Auditing such models presents a challenge to be undertaken by industry professionals to create standards of ethical practice as well as oil and gas to fuel Canada's economy.

Conclusions

While the role of explorationists is essential to the financial health of the petroleum industry, geoscientists must adapt their skills to a growing need for expertise in reservoir management. Better communication with engineering colleagues is necessary, as is acquiring skills in numerical modeling and production technology.

References

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