Workshop Introduction and Breakout Sessions
"Geological Aspects of Estimating Resources and Reserves"*

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Workshop Introduction

Petroleum resources and reserves are the most important component of oil and gas company value. Over 150 publically-traded U.S. oil and gas producers file reserves data, and their total reported value exceeds $3 trillion, accounting for over 70 percent of their market value. Resources and reserves estimates are the basis for all major industry activities, including project financing, acquisitions and divestitures, and petroleum sales contracts. The failure to accurately estimate resources and reserves can lead not only to devastating write-downs, but also to poor decisions regarding where and how capital, technology, and human resources should be deployed.

Geoscientists have a critical role to play in the resource and reserves estimation process. Historically, their contribution has been more significant in estimating prospective and contingent resources than reserves, given the relative scarcity of engineering data available for resource estimates. Reserves have largely been the purview of the engineer, but geoscience still has a critical role to play. Geology, geophysics, petrophysics, geochemisty, geological mapping, and geocellular modeling underpin reserves estimates by (1) providing petroleum-in-place volumes, (2) identifying heterogeneities and trends in reservoir quality that impact well placement and performance, and (3) quantifying net pay thickness, fracture distribution, porosity, saturations, etc. for use in reservoir modeling and monitoring activities.

The impact of the geoscientist on the resources and reserves estimation process has been amplified by the creation of the Petroleum Resources Management System (PRMS) and the modernization of the Securities and Exchange Commission (SEC) reporting rules. For example, in PRMS, reserves and contingent resources can be separated due to physical/technical aspects, such as thin pay intervals, structural complexities, or high water saturations, which have to be understood and overcome to progress these contingent resources to reserves. Similarly, for the revised SEC rules, the use of *reliable technology* to increase the areal extent of proven undeveloped reserves is clearly tied to the interpretation of geoscience-related information including cores, logs, and 3-D seismic data.

Given that the geoscientist has such an important role to play in the resources and reserves estimation process, a GTW focusing on the contributions, challenges, and responsibilities of geoscientists is both relevant and timely. Accordingly, the ten technical sessions and breakout sessions scheduled for this GTW will:

- Address practical issues regarding the application of definitions, guidelines, and rules recently formulated by the SEC and PRMS for the reporting of resources and reserves;
- Define the role of geologists, in examining not just the work they do, but also their interactions with other disciplines, including petrophysics, geophysics, reservoir engineering, and economics;
- Focus on important concomitant issues such as common biases, ethical considerations, and qualifications standards;
- Serve as a "seed" workshop, to be followed by documentation of the proceedings in the AAPG *Explorer* and *Search and Discovery*, and the scheduling of successor GTW's designed to disseminate essential recommended practices within the geoscience community.
- We hope you will find the GTW to be both stimulating and useful, and on behalf of the steering committee, session chairs, and speakers, we would like to welcome you and thank you for participating in the GTW!

Breakout Sessions


Recommendations Regards Clarifications/Updates to: (1) PRMS 2007; (2) SEC 2009


How Do We Establish "Reliable Technology"?


Should the AAPG Consider Developing Geological Reserves and Resources Estimating and Auditing Standards?


Reconciling Deterministic and Probabilistic Methods


Credible Lookbacks


Unique Aspects of Unconventional Reservoirs


Ethical Implications in Reporting under New SEC Guidelines


Achieving Full Integration of Engineering and Geoscience Technologies