

Where Are We Headed in Reserves Reporting?*

John Lee¹

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¹Texas A&M University, College Station, Texas (john.lee@pe.tamu.edu)

Abstract

The Petroleum Resources Management System (PRMS), adopted in early 2007 by SPE, WPC, AAPG, and SPEE, provides a rigorous system for classifying resources and for categorizing resources of various classifications, notably reserves. Then, in December 2008, the U.S. Securities and Exchange Commission adopted modified definitions and disclosure requirements for reserves. Many of the SEC’s definitions are consistent with PRMS and the new disclosure requirements reflect the SEC staff’s conclusions about information investors and analysts require in light of the new definitions.

While the new rules create opportunities for more complete reserves disclosures, many questions remain about what the results of the rules will be. The questions include the following:

- Given the opportunity to disclose proved, probable, and possible reserves in filings with the SEC, will filers take advantage of this opportunity to reveal more completely to investors the details of company assets? Further, will reserves in these categories be based on standards applied consistently by different filers?
- Given the opportunity to use technologies that have proved in practice to lead to appropriate levels of certainty for reserves disclosures (much more likely than not for proved reserves, as likely as not for proved plus probable reserves, possible but not likely for proved plus probable plus possible reserves), what technologies will filers actually use as the basis for their reserves estimations? Also, how persuasive will the arguments for use of these specific technologies be to the SEC staff?
- Given the opportunity to make much greater use of probabilistic methods for estimating proved, probable and possible reserves, how much will use of these methods in filings with the SEC increase? Also, will probabilistic methods be used extensively for reserves estimations based on methods other than the volumetric method? If so, what will the nature of these other methods be?
- Given the opportunity to disclose undeveloped reserves (both proved and unproved) for drilling locations beyond immediate offsets, what methods will filers use to estimate these reserves? What is the result of this change in rules likely to be?

- Given the flexibility in the new rules, what new ethical problems in reserves estimation and disclosure are likely to arise?

This presentation provides insight into questions like those above, but it rarely attempts to predict what the answers will be. The petroleum industry will find the answers during the interesting times that await us in the next few years.



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AAPG GTW on Estimating Resources
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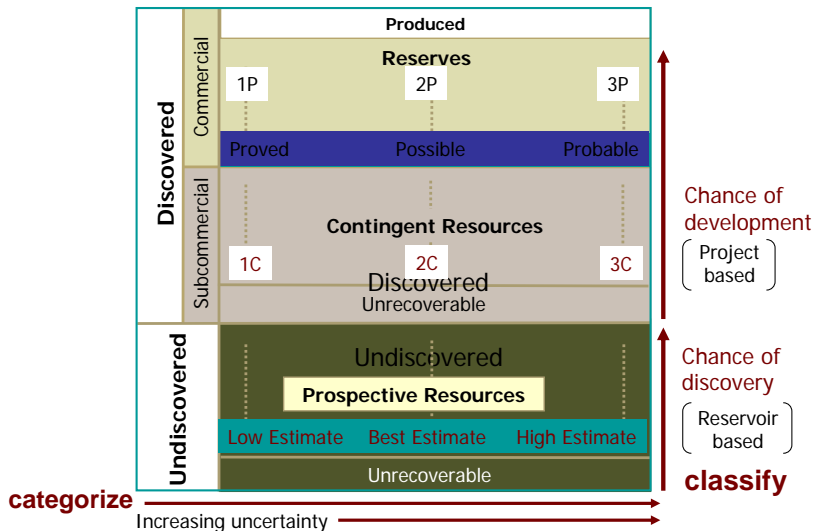
John Lee
Texas A&M University

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Recent Events Will Lead to Major Changes in Resources Estimating

- PRMS provides rigorous, logical system to classify resources and categorize reserves (2007)
- SEC's modernization of disclosure requirements for reserves provides opportunities for increased reserves recognition (2009-2010)

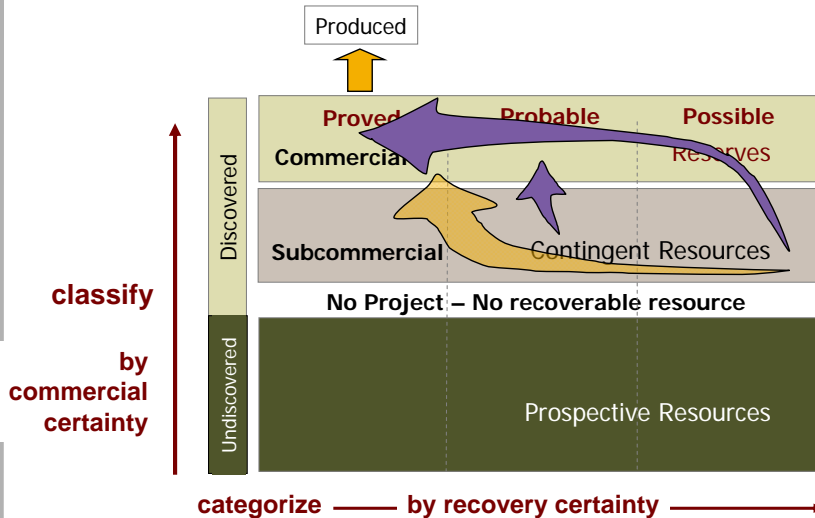
PRMS Classifies and Categorizes Hydrocarbons in Place



Presenter's Notes: The OGRC perceived that the current system could be clarified by more clearly separating classification and categorization.

Classification refers to the chance that a project will result in a discovery and thereafter the chance of that project being developed through to "on production" status. It is the project risk. There is a range of potential recovery when a project is applied to a reservoir. We **categorize** these estimates based on technical uncertainty where this is a function both of the estimated petroleum initially-in-place and the recovery efficiency of the development project.

SEC Allows Only Reserves Disclosures But Implicitly Includes Reclassification Results



Presenter's Notes: Probably the major change is the increases emphasis on a project-based system.

Projects are classified according to their chance of reaching producing status.

Quantities associated with each project are categorized based on their uncertainty of recovery and sales.

Such a system supports tracking projects throughout the E&P life cycle.

Many New SEC Definitions Consistent with PRMS



- PRMS starting point for new SEC definitions
- Modifications reflect intent in disclosure requirements
 - Analyst, investor needs perceived to require some deviation from PRMS
 - Resources definitions, disclosures notably absent from SEC rules



Broad Summary of New SEC Rules

- Create many opportunities for filers to disclose reserves more completely
- Provide broad guidelines for disclosures rather than specific requirements dominating past rules
- Inherent flexibility introduces strong possibility of alternative interpretations, questions about acceptable and unacceptable estimation and disclosure practices



Examples of Unclear Outcomes

- Probable and possible reserves disclosures
- Technologies used to establish certainty levels for different categories
- Applications of probabilistic estimation methods
- Volumes of proved undeveloped reserves beyond immediate offset locations
- New ethical problems in reserves estimation and disclosure



Opportunities to Disclose Probable, Possible Reserves: Curse or Blessing?

- Possible benefits
 - Increase investor awareness of company assets, potential for future growth
- Possible downside
 - Increased possibility of litigation when volumes disclosed aren't ultimately produced
 - Increased exposure of asset base to taxing authorities



New Technologies: Helpful or Confusing?

- New SEC rules allow use of technologies proved in practice to lead to reliable levels of certainty to be basis for reserves categorization
 - Proved (P1): much more likely than not
 - Proved plus probable (P2): as likely as not
 - Proved plus probable plus possible (P3): possible, but not likely

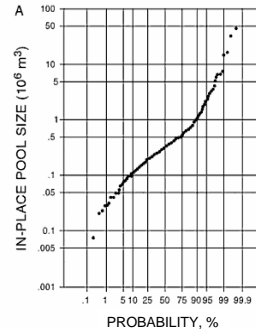


New Technologies: Questions

- What technologies will filers actually use?
- What evidence must filers provide to SEC to support claims for reliability of technologies?
- How can filers support use of proprietary technologies?
- Will “lists” of acceptable, unacceptable technologies become available to public?

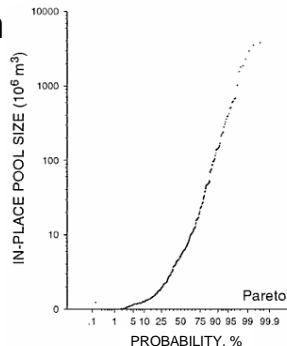
Increased Use of Probabilistic Estimation Methodology?

- New SEC rules at least allow, if not promote, use of probabilistic estimation techniques
- Will interest grow in use of these methods?
- Will probabilistic aggregation be allowed in near future?



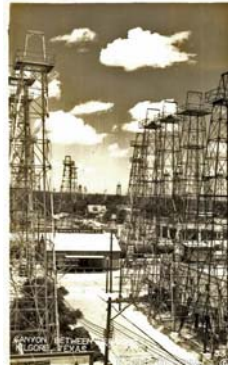
Other Probabilistic Techniques

- Most probabilistic methodologies used with volumetric reserves estimation
- Will probabilistic techniques be used with other estimation methods?
 - Decline curves: Can we find P90, P50, P10 values to use for reserves disclosures?
 - Type curves: Same question
 - Improved recovery projects: What about quantifying uncertainty?



Undeveloped Reserves: Opportunity or Nightmare?

- New rules allow proved, probable, possible undeveloped reserves more than one offset location from economic production
- Empirical evidence required that additional disclosed reserves satisfy certainty requirements



Undeveloped Reserves: How Shall We Proceed?

- If we believe proved undeveloped reserves are 10 times developed reserves, can we argue our case persuasively?
- Will the “five-year” rule limit disclosures significantly?
- What evidence is required for unproved, undeveloped reserves volumes?



New Ethical Challenges Ahead?

- New rules provide enhanced flexibility, increased opportunities for disclosure
- Some difficult areas
 - Technologies: What's reliable?
 - Unproved reserves: What are the standards?
 - Undeveloped reserves: Where do we draw the line?
 - Timing: What can we reasonably expect to develop in five years or other reasonable time periods? How far in the future can we go – seven years? Ten years? Twenty years?



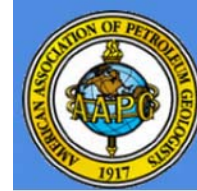
Answers to Questions



- Many have opinions but ... no one, including SEC staff, really knows
- Guidelines will emerge in early years of new rules applications

And What Can We Do?

- Professional societies, such as AAPG, can help develop guidance that is reasonable, ethical, and appropriate
 - Failure to participate in developing appropriate guidance likely to make situation more chaotic, guidelines less flexible
 - Evidence indicates that SEC listens to, responds to well-reasoned opinions
- Our job: observe, analyze, advise – act!





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