

**"IN SEARCH OF REASONABLE
CERTAINTY"**

Oil and Gas Reserves Disclosure

A CERA REPORT Dated February 2005

A CONDENSATION BY

Ron Harrell, Chairman

Ryder Scott Company, L.P.

**Ad Hoc Group of Experts on Harmonization of Energy Reserves
and Resources Terminology**

9-11 November 2005

DISCLAIMER

- INFORMATION CONTAINED HEREIN REPRESENT THE OPINIONS OF THE PRESENTATION AUTHOR AND MAY NOT REPRESENT THOSE OF CERA
- ANY SUCH DIFFERENCES THAT MAY EXIST ARE UNINTENTIONAL AND SHOULD NOT BE CONSIDERED AS BEING UNCOMPLIMENTARY TO THE STUDY RESULTS

Participants included:

- Accenture, Akin Gump Strauss Hauer & Feld, Anadarko, Apache, BDO Seidman, BP, Bracewell & Patterson, Chevron Texaco, ConocoPhillips, D&M, Deloitte, Devon, El Paso, ENI, ExxonMobil, Goldman Sachs, Kerr-McGee,
- KPMG, LaRoche, Marathon, NSAI, Occidental, Pioneer, PWC, Ryder Scott, Shearman & Sterling, TNK-BP, Total, RPS Energy, Vinson & Elkins, Wintershall

PRIMARY AUTHORS:

- Dan Yeargin - CERA
- David Hobbs - CERA
- Richard Ward - CERA
- Joseph Pratt - UH

OVERVIEW CONCLUSIONS

- The 27-year old reserves reporting system is no longer keeping pace with industry
- Four fundamental reasons:
 - (a) Globalization of capital markets
 - (b) Technology advances
 - (c) Anatomies of projects – LNG, GTL, etc
 - (d) Commoditization and globalization of oil & gas markets & price volatility

Chapter 1 – Summary Report

- Genesis of 1978 system follows Yom Kippur War and Arab oil embargo (10/73)
- Nixon's Project Independence 1973
- Energy Policy & Conservation Act of 1975
- Creation of Strategic Petroleum Reserve
- Reserves disclosures in US initially more related to national security than to E&P accounting

CHAPTER 1 – cont'd

- FAS 19 (12/77) mandated “successful efforts” and reserves disclosures within financial statements.
- FAS 25 (02/79) suspended “successful efforts” in favor of “full cost”, moved reserves disclosures outside financial statements and adopted reserves definitions in SEC Accounting Series Release No. 253 on August 31, 1978
- FAS 69 (11/82) codified “year-end pricing” for SMOG and terms for disclosure calculations using DCF methodology

CHAPTER 1 – cont'd

- FASB is an independent private-sector accounting organization created to develop financial accounting practices and principles
- FASB has standing committee that issues updates to reserves definitional matters since 1964
- In 1978, 2/3 of reported reserves to SEC were in US; in 2003, 17% of reserves were in US

CHAPTER 2

Anatomy of a reserves estimate

- Three distinct phases:
 - (a) Establish access rights to volume to be booked
 - (b) Estimate volumes and production capacity
 - (c) Assess commerciality

CHAPTER 3

Three Eras of Reserves Disclosure: The History

- 1. World War 1 – NPWSC (National Petroleum War Service Committee) later reformed into the American Petroleum Institute (API)
- 2. Oversupply period after WW1 – prorationing – WW2 created need – 6 of 7 billion barrels used in WW2 came from US – reservoir management came of age
- 3. World energy crises beginning in 1973 – mistrust in E&P companies grew – widespread support in US Congress for government managed centralized energy system

CHAPTER 4

Changing Geography – And Why It Matters

- Rental/Royalty/Tax ownership model most common in US and in 1978 – still used in Europe, Canada, Australia and Argentina – direct alignment with all owners
- Service Agreements – growing interest by NOCs – general inability of operator to book reserves
- Production-sharing Agreements – began in Indonesia in 1960 – hundreds of models – reserves inversely proportional to oil price in most, but not all, cases

CHAPTER 5

TECHNOLOGY: A quarter century of transformation

- In 1978, some considered oil production a “sunset industry”
- 1978 Definitions “best practices” at the time – consistent with 1964 and 1982 SPE definitions, proved reserves only
- 1978 “discipline-based” organizations replaced by “asset-based” multidisciplinary teams with integrated work processes
- Probabilistic versus deterministic methods gain in favor since 1978 in US

CHAPTER 6

Changing Character of Projects

- 1978 definitions created for "Texlahoma"
- 1978 definitions based on "one well at a time" development pattern, not today's long term projects requiring massive capital investment pre-production.
- Most traditional hydrocarbon reserves additions today are in "deep water", in remote regions far from markets and may require conversion into forms such as LNG or GTL
- Today's projects involve fewer wells and more reliance upon technology for reservoir appraisal

CHAPTER 7

GLOBALIZATION AND COMMODITIZATION OF MARKETS

- “Prevailing price” concept of 1970s replaced with spot market – first in US then spreading worldwide
- Rapidly expanding role for LNG creating another global, liquid, traded energy market
- EU shifting from long term gas contract mode to open market concept
- Heavy oil and oil sands virtually an “infinite” resource but with enormous capital requirements

CHAPTER 8

A MODERNIZED REGULATORY FRAMEWORK (SHOULD:)

- Reflect the way a company views its assets and makes their decisions
- Encourage balanced disclosure
- Provide information upon which investors can make informed decisions
- Not undermine the competitive position of the company
- Be principle-based but with specific guidance about implementing the principles

(Cont'd)

CHAPTER 8

A MODERNIZED REGULATORY FRAMEWORK (SHOULD:)

- Create some separation between the functions of principles and rules AND the compliance function to encourage open dialogue on industry developments
- Provide a transparent process for obtaining the regulators' views on best practices to allow adaptation to changes
- Incorporate information that improves understanding and confidence in the disclosures

APPENDIX

- SEC Reserves definitions
- SPE/WPC reserves definitions
- Canadian Oil and Gas Evaluation Handbook (NI 51-101)
- Russian reserves classification system
- The United Nations Framework Classification for solid fuels including petroleum

And in closing, a personal comment
from an industry “veteran”:

The need to establish comprehensive standards to define a “Competent Person” is, in my opinion, critical to the overall UNFC goals and objectives.

Such standards will require modification and adaptation consistent with the nature of the reserves/resources being evaluated.



