

# Houston Chapter of SPE Reservoir Study Group

March 25, 2004

Presented by

**Ron Harrell**

Chairman & CEO

Ryder Scott Company, L.P.

[WWW.RYDERSCOTT.COM](http://WWW.RYDERSCOTT.COM)

# DISCLAIMER:

The information presented herein represents informed opinions about U.S. SEC reserves reporting regulations but does not purport to be identical to advice to be obtained from the SEC

# “The SEC and the Reservoir Evaluation Technology Gap”

# SEC Reserves Reporting Guidelines

- Information Sources for presentation
  - developed through study of Rule 4-10 of SEC regulation S-X
  - subsequent Staff Accounting Bulletins (STABs)
  - staff correspondence with RSC clients and
  - information gleaned from 4 years of SPEE-sponsored Forums dedicated to a better understanding of SEC reserves definitions

# SEC Reserves Reporting Guidelines

- Background of SPEE Forums

- Grew out of conversations with SEC staff in early 2000
- Forum designed to have industry personnel present “cases” that would highlight issues related to classification of proved reserves
- Typical topics included in cases

LKH

3-D Seismic

Puds

PSCs

Pricing

Cost

CAPEX, Etc.

HKO

CBM

Simulation

Enhanced Recovery

Abandonment

OPEX

# SEC Reserves Reporting Guidelines

- History of SPEE Forums
  - Year 2000, about 70 attendees, mostly independents and consultants
  - Year 2001, about 120 people including one or two majors
  - Year 2002, 170 attendees, many major oil companies
  - Year 2003, 209 registrants including most of the larger consultants, and reserves managers from most of the integrated oil companies including the UK, France, Italy, Australia, and Canada

# SEC Reserves Reporting Guidelines

- SEC Input into SPEE Forums
  - The two SEC engineers both joined the SEC in early 1999
    - Ron Winfrey is a physics graduate of the University of Oklahoma and worked for about 20 years with Ramsay Engineering Consultants in Oklahoma City
    - Jim Murphy is a Petroleum Engineering graduate of the University of Houston, worked for ARCO, Butler Consultants and DOE
    - Their supervisor is Roger Schwall, Assistant Director of the Office of Corporate Finance of the SEC since 1996
    - Will no longer participate as of notification January 12, 2004

# SEC Reserves Reporting Guidelines

- The Sarbanes-Oxley act of 2002 (SOX) is the most significant securities legislation since the Securities Acts of 1933 and 1934
  - Does not contain the words, oil, gas, hydrocarbons or reserves
  - Terms clearly there by inference
  - Will lead to SEC reserves review of each public oil company at least once every three years
  - Establishes penalties for corporate officers for certain misrepresentations



# SEC Reserves Reporting Guidelines

- Informal Poll from 2003 SPEE Forum
  - 11 of 80 producer (majors and independents) representatives indicated their company had been requested to "de-book" reserves
  - poll not definitive, not scientific, may be distorted by more than one response from some companies

# SEC Reserves Reporting Guidelines

- "De-booking" relates to
  - removal of certain volumes from subsequent SEC reports
- Restatement involves
  - correcting earlier reports to remove known errors
  - may trigger corporate penalties under SOX

# SEC Reserves Reporting Guidelines

- Reserves reviews by SEC may be triggered by
  - the calendar
  - by press releases
  - negative publicity
  - “whistle blowers” or
  - for other reasons

# SEC Reserves Reporting Guidelines

- “Comment letters” from the SEC include:
  - a range of questions posed by accountants, lawyers and engineers designed to test the compliance of the company with SEC regulations
  - The first series of answers are typically followed by a smaller list of questions.
  - Iteration of letters may lead to request to restate previous filings, "de-booking" of reserves in subsequent reports or, simply, no more letters

# SEC Reserves Reporting Guidelines

- Typical SEC Staff question may be:
  - Please inform us of any circumstance where you have reported proved reserves located structurally below the lowest-known hydrocarbons as established through well logs and these additional reserves have not been confirmed through performance history.

# SEC Reserves Reporting Guidelines

- Another question may be:
  - Please inform us of any circumstances where your reported reserves and future income were estimated using prices other than those in effect on the last day of the year.

# SEC Reserves Reporting Guidelines

- A common question asks:
  - Have you reported any undeveloped reserves attributable to well locations more than one offset location (“legal location”) away from a commercial well?

# SEC Reserves Reporting Guidelines

- A recent letter posed the following:
  - Are performance bonuses linked to reserves increases?



# SEC Reserves Reporting Guidelines

- In the same letter:
  - Who has the authority to engage third party engineers and who do they report to?

# SEC Reserves Reporting Guidelines

- Interesting Questions – One recent SEC comment letter asked for the following:
  - Identify all independent engineering firms used over last 5 years.
  - What properties were reviewed?
  - How much the firms were paid for work on projects other than year-end type work?
  - If the firms were discharged, reason(s) why?

## **“WHAT WE KNOW:”**

Registrant shall report only proved reserves according to:

- SEC (1978) Definitions and not
- SPE/WPC (1997) Definitions.

## **“WHAT WE KNOW:”**

Reserves categories of developed and undeveloped only.

No requirement to report on production, shut-in, behind pipe or other description of production status.

# “WHAT WE KNOW:”

- Hydrocarbon prices shall be those prices
  - in effect on the last day of the respondents fiscal year, December 31 in most cases
    - For the US, this typically means the wellhead price that would have been received if a company sold its production into the spot market “on that day”
    - it is usually not the price actually received – prices are adjusted for quality and transportation costs (differentials)
    - If contract fixed and determinable prices are to be used for the remaining contract term, reverting to prevailing spot prices thereafter
    - such fixed prices to be used for all purposes including cash flows and economic limits and PSC / PSA reserves

# “WHAT WE KNOW:”

## Economic Feasibility

- Net positive cash flow (undiscounted) required as basis of proved reserves
- as little as \$1 "profit" is adequate

## “WHAT WE KNOW:”

- Prices received through hedge transactions are to be ignored unless the hedge is property specific (rare)
- Company should report significant differences, positive or negative, resulting from hedging activities in the Disclosures Section of the 10-K filing

# “WHAT WE KNOW:”

- Report only revenues received from the sale of hydrocarbons (oil, gas, condensate, ngl) owned by the company
- excludes revenues from sulphur, CO<sub>2</sub>, helium, platform rentals and third-party processing
- Non-hydrocarbon revenues cannot be used to offset OPEX
  - such revenues may be reported as a Disclosure



# “WHAT WE KNOW:”

- Lowest known hydrocarbons
  - in the absence of a hydrocarbon/water contact observed in a wellbore, the lowest known subsea depth recorded in a well shall become the LKH
  - SEC will not allow reliance on seismic or pressure gradient data
  - 2003 reversal of position adopted earlier for “compelling cases” incorporating MDT data and seismic.

## Definition:

“... in the absence of information on fluid contacts, the lowest known structural occurrence of hydrocarbons ...”

# “WHAT WE KNOW:”

- Proved Undeveloped Locations (PUDs)
  - Limited to one “legal” location away from a commercial well without a “certainty of continuity of production” beyond
  - “there is no mitigating modifier for the word ***certainty***” as explained in a 2001 website release by the SEC
  - may use pressure communication as evidence of certainty
  - confirmed presence of coal not ample evidence for CBM PUDs
  - No reliance upon 3-D seismic to support continuity

# “WHAT WE KNOW:”

- PUDs (continued)
  - “legal” location denotes all regulatory requirements have been met or assured.
    - Example: cannot assume increased density locations (downspacing) without confirmation of regulatory permission

## “WHAT WE KNOW:”

- Data obtained after December 31 may NOT be given consideration
- If material, the effect of such post-year-end information should be reported in the Disclosure section of the 10-K report

## “WHAT WE KNOW:”

- Company may use Disclosure section to report alternate cash flows using “reasonable” pricing assumptions above and below those in place on December 31
- The assumption of a higher price cannot result in increased production forecasts or reserves
- The assumption of a lower price should result in reduced production projections and reserves

# “WHAT WE KNOW:”

- Fuel Gas May Be Reported As Reserves
  - OPEX will need to reflect equal amount of gas “purchased” for fuel at the same price gas is sold as an economic offset
  - no requirement that an alternate fuel supply be physically available.
  - Flared Gas cannot qualify as reserves

# “WHAT WE KNOW:”

- Natural gas in storage is not considered reserves
  - Gas once removed from its native reservoir and injected into another for any purpose can not be considered reserves
  - gas re-injected into its native reservoir can be considered reserves until produced and sold

# “WHAT WE KNOW:”

- Operating Costs
  - must include appropriate overhead charges
  - not defined by statute but must make reasonable attempt to capture all costs related to production
  - non-operators must include COPAS as cost
  - operators cannot include COPAS as revenue or offset to OPEX



# “WHAT WE KNOW:”

- Enhanced recovery
  - may use successful projects in same formation in the same area as analogs for defining proved ER reserves
  - rock and fluid properties in subject project must be at least as favorable as those of analogs

# “WHAT WE KNOW:”

- Production Sharing Contracts (PSCs)
  - report total company PSC reserves separately from total mineral-interest reserves
  - calculate reserves using "economic interest method"
  - must involve capital at risk
  - does not require right to take-in-kind
  - must have right to extract oil and/or gas

# “WHAT WE KNOW:”

- Net Profits Interests (NPI)
  - typically considered by industry as financial transaction
  - SEC requires assignment of reserves to NPI

# “WHAT WE KNOW:”

- Statistical Aggregation of Reserves
  - The SEC will accept statistical aggregation within a field but not above the field level

# “WHAT WE DO NOT KNOW (FOR SURE):”

- Probabilistic Reserves Estimates
  - SEC will accept if “professionally prepared”
  - will acknowledge no SEC verbiage relating P90 to reasonable certainty

# “WHAT WE DO NOT KNOW (FOR SURE):”

- Requirement for “Conclusive Formation Test” in a Discovery Situation. Interpreted as surface flow test
  - Question arises from deep water exploration
  - subject of SEC “Comment Letter” survey of industry begun in October 2002
  - letters to 55-60 producers
  - no SEC decision as of 2003 SPEE Forum
  - aware of testing costs and liability

# “WHAT WE DO NOT KNOW (FOR SURE):”

- Reasonable Certainty
  - variously defined as leading to “positive revisions far more often than negative revisions” or as evidenced as occurring “at least 75 percent of the time” (Winfrey 10/28/03)
  - Does not equate to P90

# “WHAT WE DO NOT KNOW (FOR SURE):”

- Simulation Derived Reserves Estimates
  - SEC will accept but will require “good history match”



# “WHAT WE DO NOT KNOW (FOR SURE):”

- Recovery factors
  - respondents to use volumetric recovery efficiencies assuming most inefficient drive mechanism until drive mechanism becomes known
  - Use of analogs OK? Same field, area, basin?

# “WHAT WE DO NOT KNOW (FOR SURE):”

- Confirmed Access to Market
  - Typically applies to areas outside North America
  - SEC may not always require signed contract
  - may rely upon MOU that contains all relevant commercial terms (prices, rates, term)
  - entirely case specific

# “WHAT WE DO NOT KNOW (FOR SURE):”

- Gas-To-Liquids (GTL) Projects
  - Assume SEC will accept viability of project if sanctioned and approved by all parties but will allow reporting of only gas, condensate and NGLs and not liquid products (naphtha and diesel)
  - Further assume feedstock reserves must meet commerciality hurdle based on an internal transfer price

# “WHAT WE DO NOT KNOW (FOR SURE):”

- Contract License Terms
  - Should not project reserves beyond remaining term of a contract or license unless the issuing body (country) has established a track record of doing so
  - Project Sanctioning
  - Internal / External approved plan of development

**Presentation Posted**

at

[www.ryderscott.com](http://www.ryderscott.com)

under

**"Presentations"**

Questions

&

Comments

# Comparison of Various Reserves Definitions

	<b>CIM (Petroleum Society) (2002)</b>	<b>SPEIWPC (1997)</b>	<b>Canadian NP 2-B</b>	<b>US. SEC. Reg. S-X</b>
<b>Intended purpose</b>	General application and securities reporting	General application	Securities reporting	Securities reporting
<b>Qualitative description of certainty-proved</b>	High degree of certainty	Reasonable certainty to be commercially recoverable	Reasonably evaluated as economically productive	Reasonable certainty to be recoverable
<b>Qualitative description of certainty-probable</b>	Not proved, but equally likely that remaining reserves will be higher or lower than P+P	Not proved, but more likely than not to be recoverable	Not proved, but likelihood of existence and future recovery - probable reserves presented on a risked basis	Not defined
<b>Qualitative description of certainty-possible</b>	Less likely to be recovered than probable reserves	Less likely to be recovered than probable reserves	Not defined	Not defined
<b>Quantification of probability associated with estimates</b>	Proved→P <sub>90</sub> P+P→P <sub>50</sub> P+P+P→P <sub>10</sub>	Proved→P <sub>90</sub> P+P→P <sub>50</sub> P+P+P→P <sub>10</sub>	Not addressed	Not addressed
<b>Application of probability criteria and aggregation</b>	Recognized that proved entity level deterministic estimates are commonly not P <sub>90</sub> . The probability criteria are targeted at the aggregate level reported.	Clear distinction that the numerical probabilities are meant to apply to probabilistic estimates only. Implied that probabilistic estimates can be aggregated probabilistically - no clarification on summing deterministic estimates.	Not addressed	Not addressed

# Comparison of Various Reserves Definitions

	<b>CIM (Petroleum Society) (2002)</b>	<b>SPEIWPC (1997)</b>	<b>Canadian NP 2-B</b>	<b>US. SEC. Reg. S-X</b>
<b>Pricing</b>	Specified economic conditions; generally accepted as reasonable	Proved: Existing economic conditions, Unproved: reserves may be based on escalated	conditions: escalated conditions: escalated prices can also be used	Prices and costs as of date of estimate
<b>Classification of enhanced recovery mechanism as proved</b>	Successful pilot or existing project in subject or analogous reservoir	Successful pilot or existing project in subject or analogous reservoir	Demonstrated to be successful in the subject reservoir	Successful pilot or project in the reservoir
<b>Proved reserves relative to lowest known hydrocarbons (LKH)</b>	No proved reserves below LKH	No proved reserves below LKH	Not specifically addressed	No proved reserves
<b>Proved reserves extensions on undrilled acreage</b>	Generally limited to directly offsetting drilling spacing units (DSUs) within good geological control	Directly offsetting DSUs or where reasonable certainty of lateral continuity and commercial recovery	Not specifically addressed	Limited to directly offsetting DSUs except where continuity demonstrated with certainty
<b>Proved reserves - requirements for testing</b>	Must be tested in subject accumulation to qualify as proved	Proved reserves based on logs or core if analogous to producing or tested reservoir	Not specifically addressed	Reservoirs require actual production or a conclusive formation test for classification as proved
<b>Development and production status categories</b>	Developed producing Developed non-producing Undeveloped	Developed producing Developed non-producing Undeveloped	Producing Non-producing	Developed Undeveloped