

OTC '05

**"A sea of resources, an
ocean of knowledge"**

*Oil and Gas Reserves Estimates –
"Issues Facing Our Industry"*

***Ron Harrell, Chairman
Ryder Scott Company, L.P.***

May 5, 2005

DISCLAIMER:

The following information represents informed opinions only and should not be interpreted as professional advice for any purpose

WHY ARE RESERVES ESTIMATES IMPORTANT?

- Oil companies exist to return a profit to their investors
- Profits come from the sale of production which is withdrawn from RESERVES
- Reserves discovered or acquired become the measure of a company's success
- Estimates of reserves guide company decisions AND become the yardstick used by investors to assess performance
- Unreliable estimates of reserves lead to poor planning and managerial decisions

SO, WHAT'S THE PROBLEM ?

- Reserves are estimated using scientific data by experienced personnel BUT are subject to specific definitions and conditions.
- Do we not all use the same definitions?
- Why not?

LET'S TALK ABOUT DEFINITIONS

- All producers accessing the US financial markets are required to annually report their PROVED reserves to the U.S. SEC
- These definitions were promulgated in 1978 to apply to North American reserves with the technology, ownership terms and marketing conditions at that time
- Not one word of those definitions has been changed since being first drafted in 1975 and approved in 1976

HOW RELEVANT ARE THE SEC DEFINITIONS TO A PRODUCER TODAY ?

- Most producers will say there is little relevance for the following reasons:
 - (a) Limitation on use of current technology
 - (b) Requirement to use year-end one-day prices to estimate reserves and revenues
 - (c) Prudent reserves management requires recognition of proved, probable and possible reserves plus identifiable resources
 - (d) "Reasonable certainty" in SEC definitions seen as becoming "virtual certainty" in today's environment

WHAT DEFINITIONS SHOULD THE SEC BE USING IF THEIR'S ARE OUT-OF-DATE ?

- Many, perhaps most, producers already employ the 1997 SPE/WPC definitions internally
- The US EIA (DOE) has adopted the SPE/WPC definitions
- The US MMS (DOI) has adopted the SPE/WPC definitions
- The Alberta Securities Commission adopted definitions in 2002 similar to the SPE/WPC
- The United Nations is adopting the SPE/WPC definitions

LET'S TALK A BIT ABOUT THE CANADIAN (ASC) EXPERIENCE

- ASC focus is on Proved + Probable (2P) reserves (similar to industry's focus)
- Producers may further elect to report the sum of Proved, Probable and Possible (3P) reserves
- Producers must project revenues at a year-end price PLUS revenues using a "reasonable" price forecast - thus providing an investor an in-depth view of the volume and value of the reserves from two distinct perspectives
- Most producers are required to have a third-party report
- More about this later from another, more knowledgeable presenter

"FIXING THE PROBLEM" – WHO, HOW, WHEN ?

A SECOND DISCLAIMER:

This is, in my opinion, a matter to be addressed by "the regulated" or the producers. Consultants and others should remain on the sidelines until such time as they may be "invited" to contribute. For this reason, the following comments relate to possibilities only and should not be interpreted as recommendations

"FIXING THE PROBLEM" – cont'd

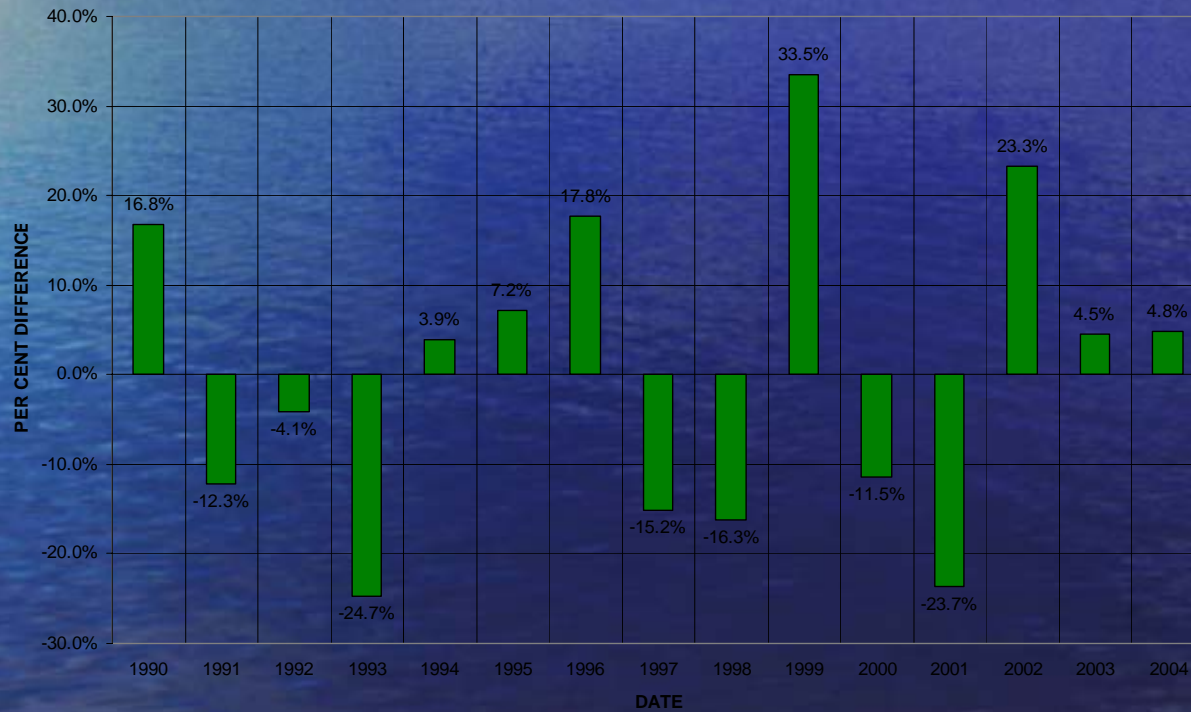
- Option 1 is to continue the "status quo" to comply with all current reporting regulations with no changes and assume investors will not be misled or misinformed
- Option 2 is to "tweak" the reporting requirements, perhaps administratively, by the SEC to mitigate some of the more egregious concerns
- Option 3 is to seek and undergo a complete revision of the process – an effort that may not result in the intended objective

HOW COULD THE RULES BE "TWEAKED" ? WHICH "RULES" ARE YOU REFERRING TO ?

- The requirement (by FASB) to use the December 31 price in the estimation of reserves and revenues is universally disliked and objected to
- The historical wide variations in year-end price fluctuations have led to significant misrepresentations of reserves volumes and revenues.
- See following charts that illustrate this ----

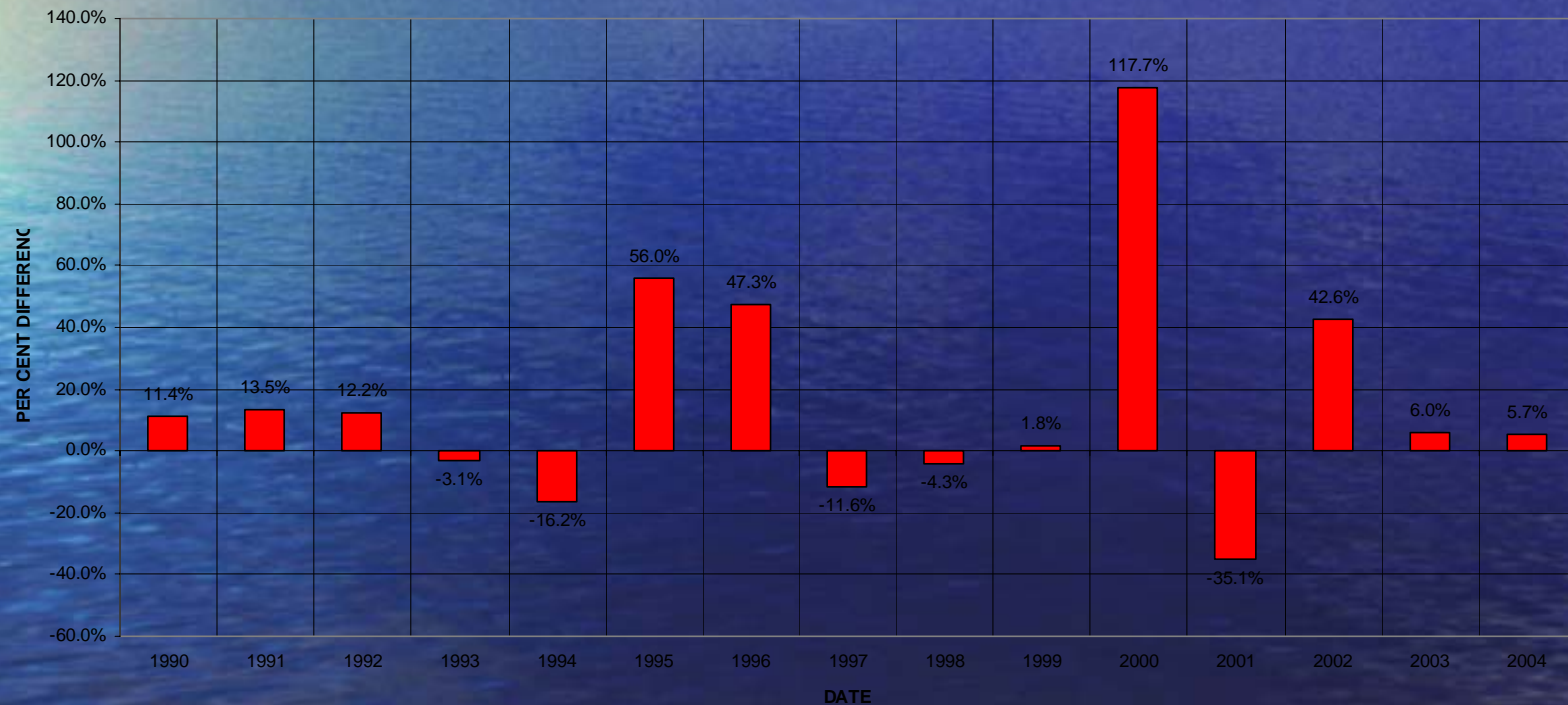
Impact of year-end pricing-OIL

WTI OIL PRICES
COMPARISON OF YEAREND PRICE TO ANNUAL AVERAGE PRICE



Impact of year-end pricing - GAS

HENRY HUB GAS PRICE
COMPARISON OF YEAREND PRICE TO ANNUAL AVERAGE PRICE



MORE THOUGHTS ABOUT YEAR-END PRICING

- Registrants are required to wait until early January to receive December 31 prices actually received and adjusted for price differentials related to quality, location and other factors to be able to estimate reserves and revenues
- The 10-K report is due in 60 days
- The one-day price volatility results in high anxiety about its effect on reserves
- An October declaration by the SEC of a “reasonable” year-end price would remove the uncertainty about extreme volatility, would still provide for a “standardized measure” and allow more time for reserves estimation.

A COMMENT ABOUT "STANDARDIZED MEASURE"

- When FAS 69 introduced the concept in 1982, most registrants were generally affected the same way. i.e., wide daily price swings were uncommon and a high 12/31 price resulted in somewhat higher reserves.
- Now, a significant percentage of reserves controlled by many large producers result from PSCs, the terms of which create a reduction in reserves as prices increase.

NEXT, THE "ONE-OFFSET" RULE

- The SEC reserves definitions were written solely from a North American perspective where state or province regulators determined appropriate well spacing metrics to optimize recovery and to protect competing mineral rights.
- This often was carried out as 1 oil well/40 acres and from 160 up to 640 acres per gas well.
- An offset was one well location away – a direct function of the spacing rules
- This concept is virtually unknown today outside NA and, coupled with today's technology, is seen as a severe limitation in the recognition of proved undeveloped reserves located more than an arbitrary distance from a commercial well.
- An administrative relaxation of this "one-offset" rule with good evidence in "compelling cases" by the SEC staff would be well received by industry

AND NOW, USE OF PRESSURE GRADIENT DATA TO ESTIMATE HYDROCARBON/WATER CONTACTS (WITH EXCELLENT DATA)

- There are increasing circumstances where producers (and consultants) are relying upon the use of pressure gradient information measured in more than one well bore in a common reservoir to calculate a water contact
- The SEC engineers consider this methodology unreliable at this time, reversing a previously held position
- Most evaluators consider this technique to be “good science” with adequate data and would urge a reconsideration by the SEC, again in compelling cases with good data

RELIANCE UPON ANALOGS TO SUPPORT ENHANCED RECOVERY

- Most evaluators agree that reliance upon a near-by successful analog for many predictive purposes is prudent
- The SEC engineers will not accept the booking of improved recovery reserves, including from pressure maintenance, without a nearby (25-50 miles) analog
- Most evaluators would conclude that some reservoirs have sufficiently positive parameters of porosity, permeability, saturations, fluid characteristics and reservoir geometry to declare some measure of improved recovery to be “reasonably certain” – and would ask the SEC engineers’ consideration of such.

WHAT ABOUT REPORTING PROBABLE AND POSSIBLE RESERVES?

- Most would agree that investors would be better informed if all categories of reserves were reported
- An initiative to initiate this will, in my opinion, need to come from industry.
- It is not clear that a mandate exists today to accomplish this

IMPROVING THE QUALITY OF RESERVES REPORTING THROUGH TRAINING

- Joint program of AAPG and SPEE to develop web-based training leading to “Certification of Petroleum Reserves Evaluators” consisting of:
 - Recommended Practices – Engr/Geo
 - Reserves Definitions – SPE/WPC, SEC, ASC, etc
 - Ethics Training – website and/or classroom
 - Examination to confirm understanding
 - Certificate Issued
 - Periodic recertification required
 - Program is optional, not a form of licensing

AND IN CONCLUSION.....

Thank you for listening

I will be pleased to answer your questions to the best of my ability