

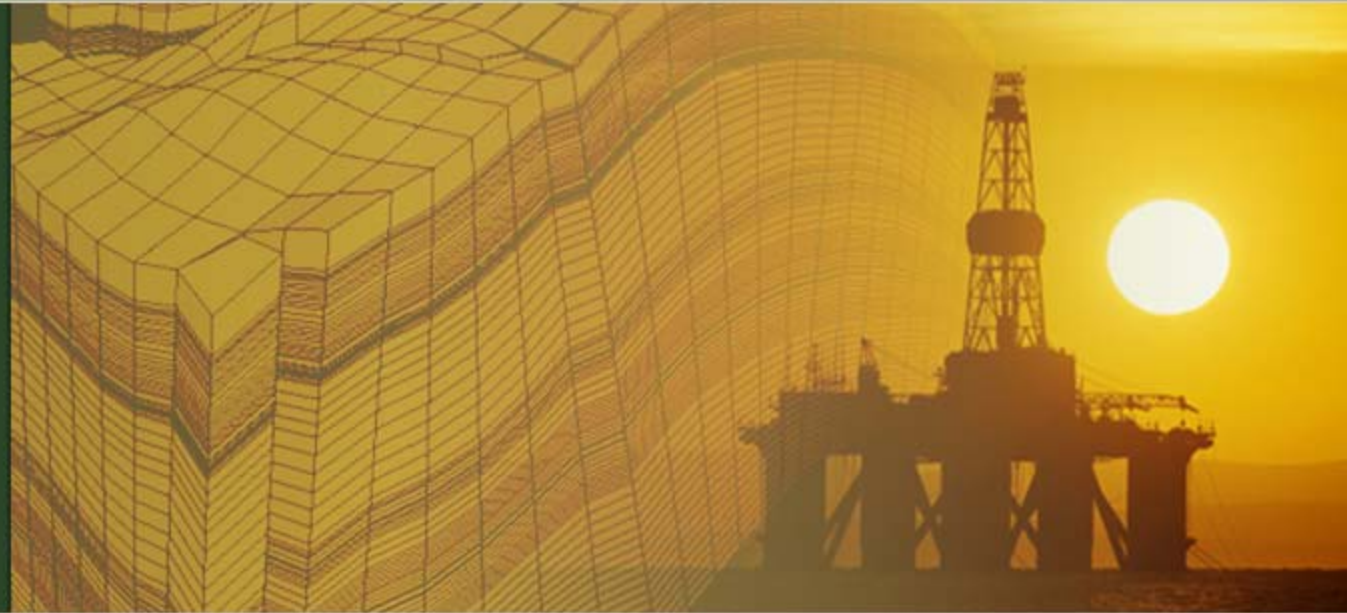


RYDER SCOTT COMPANY
PETROLEUM CONSULTANTS

Houston

Denver

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SPEE Luncheon – September 1, 2010

**Insight to the Industry's SEC Disclosure for
Reporting the Use of Reliable Technology & Probable
and Possible Reserves**

Dan Olds – Sr. Vice President, Ryder Scott Company

DISCLAIMER



The information presented herein represents the results of a survey of publically available documents of certain SEC registrants. The survey does not purport to cover ALL SEC registrants. The resulting conclusions and opinions are based on the sample results and do not purport to cover ALL SEC registrants.

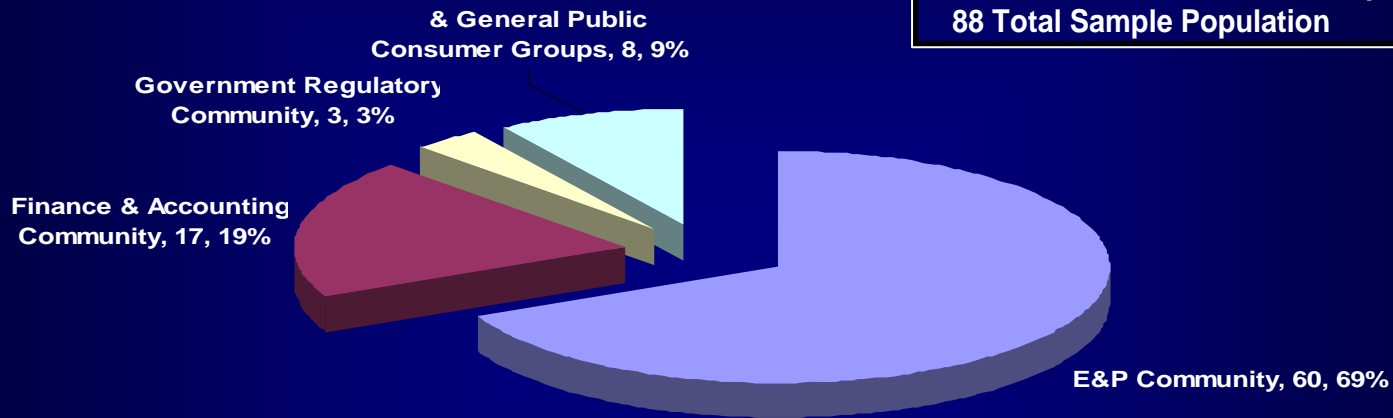
Presentation Outline



- Background to the SEC Rules Change
 - SEC Concept Release
 - SEC Proposing Release
 - Modernization of Oil and Gas Reporting; Final Rule (“SEC Modernization”)
- SEC Guidance for Disclosure Relating to Reliable Technology (“R.T.”)
- Filings Under the New SEC Regulations
 - Survey of 10-K Filings

Background to SEC Rules Change

SEC Concept Release 12/12/2007



Tallying the Responses
81 Total Responses Sent to SEC
+ 11 API Member Companies
- 4 API Individual Member Responses
88 Total Sample Population

“Asked how any revised disclosure rules could be made flexible enough to address future technological innovation and changes within the oil and gas Industry”

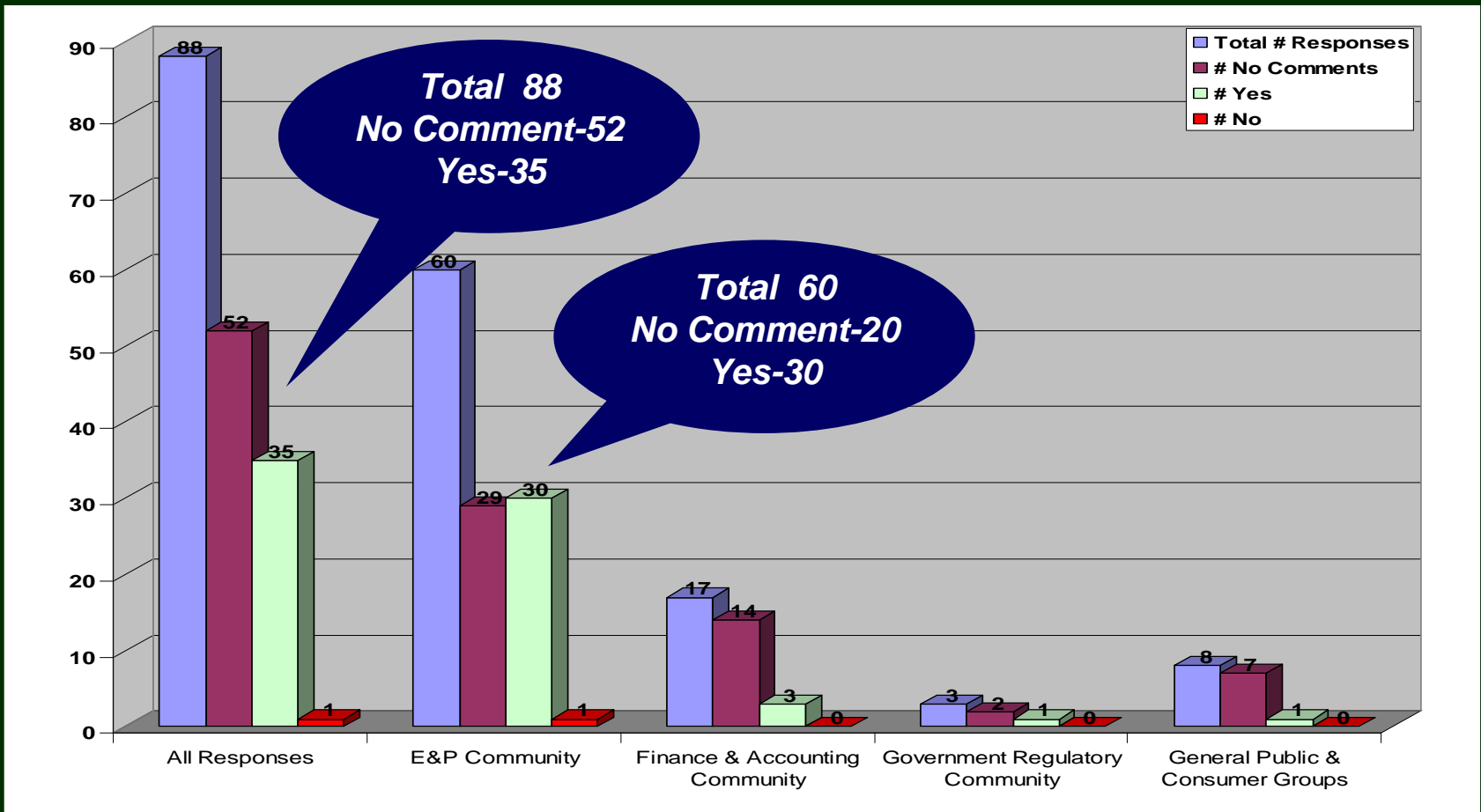
Source: Modernization of Oil and Gas Reporting: Final Rule

SEC Concept Release

Question #14 Responses

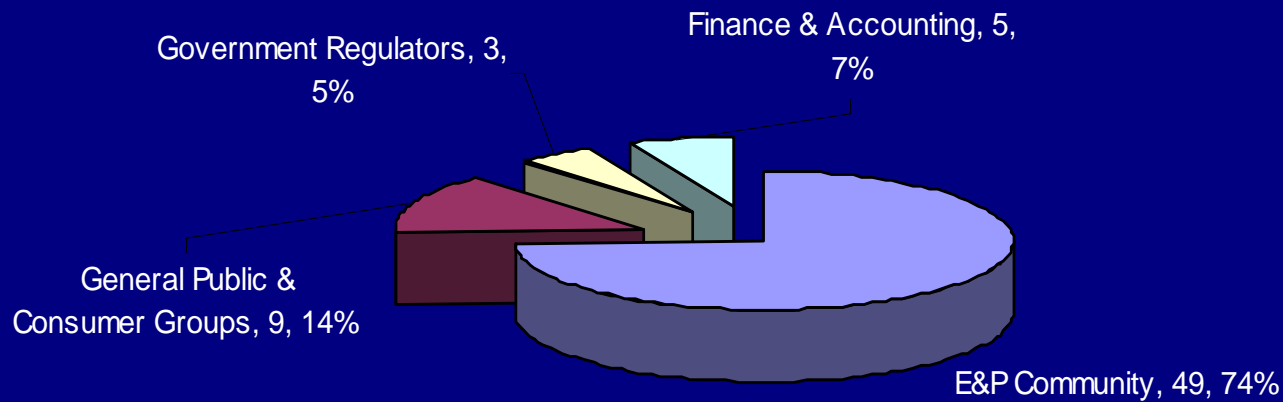


SEC- "Is there a way to establish a disclosure framework that accommodates technological advances?"



Background to SEC Rules Change

SEC Proposing Release 6/26/2008



“Included the proposed provision to broaden the types of technology that a company may use to establish reserves estimates and categories”

Source: Modernization of Oil and Gas Reporting: Final Rule

- E&P Community, 49, 74%
- General Public & Consumer Groups, 9, 14%
- Government Regulators, 3, 5%
- Finance & Accounting, 5, 7%

II.D.1. New technology

Request for Comment

- *Is our proposed definition of “reliable technology” appropriate? Should we change any of its proposed criteria, such as widespread acceptance, consistency, or 90% reliability?*
- *Is the open-ended type of definition of “reliable technology” that we propose appropriate?*
- *Would permitting the company to determine which technologies to use to determine their reserves estimates be subject to abuse?*
- *Do investors have the capacity to distinguish whether a particular technology is reasonable for use in a particular situation?*

II.D.1. New technology Request for Comment

- *What are the risks associated with adoption of such a definition?*
- *Is the proposed disclosure of the technology used to establish the appropriate level of certainty for material properties in a company's first filing with the Commission and for material additions to reserves estimates in subsequent filings appropriate?*
- *Should we require disclosure of the technology used for all properties?*
- *Should we require companies currently filing reports with the Commission to disclose the technology used to establish appropriate levels of certainty regarding their currently disclosed reserves estimates?*

SEC Modernization

Discussion of Reliable Technology



- Adopted new principles based definition of reliable technology
- Will permit the use of a new technology or a combination of technologies once a company can establish and document the reliability of that technology or combination of technologies
- Revised the proposal that would have required reliable technology to be “widely accepted” to allow for use of proprietary technologies
- Did not adopt a bright line test based on a probabilistic threshold where the technology would lead to correct conclusions in 90% or more of its applications

SEC Modernization

Discussion on Disclosure



- Required disclosure would be limited to a concise summary of the technology or technologies used to create the estimate.
 - For example a company may disclose that it used a combination of seismic data and interpretation, wireline formation tests, logs and core data to calculate the reserves estimate
- Not required to disclose proprietary technologies or a mix of proprietary technologies at a level of specificity that would cause competitive harm
- May request companies as part of SEC review and comment process to provide supplemental information sufficient to support a company's conclusion that a technology or mix of technologies used to establish reserves meets the definition of reliable technology



- Section V. Guidance for MD&A
 - Fundamental premise of MD&A is that the information provided should be related to issues that are material to a company including
 - Technologies used to establish the appropriate level of certainty for any material additions to, or increases in, reserves estimates, including any material additions or increases to reserves estimates that are the result of any of the final rules adopted in this release.



- Subpart 229.1202(a)(6)
 - If the registrant has not previously disclosed reserves estimates in a filing with the Commission or is disclosing material additions to its reserves estimates, the registrant shall provide a general discussion of the technologies used to establish the appropriate level of certainty for reserves estimates from material properties included in the total reserves disclosed. The particular properties do not need to be identified.

Filings Under New SEC Regulations

Disclosure by Industry



- Survey of 111 10-K Filers
 - List Compiled from 12/31/2008 Oil & Gas Journal Top 150 with 10-Ks Released 12/31/2009 Or Later
 - Most Companies (87 Of 111) Did Not Discuss R.T. Or Provided Only General Discussion With No Indication of Impact on Year End Proved Reserves

Filings Under New SEC Regulations Disclosure by Industry



Description of Reliable Technology Disclosure	No. Instances
Not Discussed	40
General Discussion/No Est of Impact	47
General Discussion/Stated No Impact	6
Stated Minimal Impact/No Est of Impact	9
Quantified Adds for New Regs/No Est Specific to R.T.	4
Quantified Adds for R.T.*	5
Total	111

*Anadarko, Devon, Pioneer Natural Resources, Petrohawk, NGAS Resources



- Survey of 111 10-K Filers
 - 15 Of 111 Companies Stated R.T. Had No or a Minimal Impact on Year End Proved Reserves
 - **Exxon (2009 10-K)** : “The estimated impact of changing to an average....price and the use of reliable technology was deminimus”.
 - **Chevron (2009 10-K)**: “the ability to use new technologies in reserves determination did not impact reserves significantly, as most reserve additions and revisions were based on conventional technologies”

Filings Under New SEC Regulations

Disclosure by Industry



- Survey of 111 10-K Filers
 - 5 Of 111 Companies Made Specific Mention of the Magnitude of the Impact of R.T. on Year End Pv Reserves
 - Three Companies of This Group (Anadarko, Devon and Pioneer Natural Resources) Indicated R.T. Did Not Have a Material Impact on Year End Pv Reserves

Anadarko

“Less than 1% of... total proved reserves.. were added as a result of pressure gradient analyses, well control or seismic reliable technologies. The effect of applying the 12 month average price... decreased the net remaining reserve volumes by less than 3% of total proved reserves”



Devon

“The revised rules amend the definition of proved reserves to permit the use of reliable technologies to establish the reasonable certainty of proved reserves. This revision includes provisions for establishing levels of lowest known hydrocarbons and highest known oil through reliable technology other than well penetrations. **This revision also allows proved reserves to be claimed beyond development spacing areas that are immediately adjacent to developed spacing areas if economic producibility can be established with reasonable certainty based on reliable technologies. As a result of adopting these provisions of the new rules, Devon’s 2009 reserves increased approximately 65 MMBoe, or 2%.** This increase is included in the 2009 extensions and discoveries total.”



Pioneer Natural Resources

“The adoption of the Reserve Ruling reduced the Company’s total proved, proved developed and proved undeveloped oil and gas reserves by ten percent, 11 percent and nine percent, respectively, as of December 31, 2009, from what they would have been estimated under the previous definition of proved reserves. The ten percent reduction in total proved reserves that resulted from the adoption of the Reserve Ruling occurred as a result of 101 MMBOE of negative reserve revisions, primarily attributable to first-of-the-month average commodity prices during 2009 (used to measure proved reserves under the Reserve Ruling) being less than commodity prices at the end of 2009 (used to measure proved reserves prior to the Reserve Ruling), partially offset by **2 MMBOE of discoveries and extensions recorded using reliable technology and reasonable certainty provisions of the Reserve Ruling.**” (Note 2 MMBOE out of Total Pv of 7152 MMBOE)

Filings Under New SEC Regulations

Disclosure by Industry



- Survey of 111 10-K Filers
 - 5 Of 111 Companies Made Specific Mention of the Magnitude of the Impact of R.T. on Year End Pv Reserves
 - Only 2 Companies, NGAS Resources and Petrohawk, Indicated R.T. Had a Material Impact on Year End Pv Reserves



NGAS Resources

“Under the current reserve rules, proved undeveloped reserves are estimated volumes expected with reasonable certainty to be recovered from new wells on undrilled acreage within a reasonable time horizon, generally limited to five years from the date of the estimate, based on reliable technology that has demonstrated by field testing to provide reasonably certain results with consistency and repeatability in the formation being evaluated or in an analogous formation. **This modification of the prior reserve rules enabled us to add 15.9 Bcfe in new horizontal PUD locations supported by reliable technology.**”
(Note Total Pv 78.4 BCFE)

Petrohawk Energy

“The Company recognized additional proved undeveloped reserves totaling 1,771 Mbbbls of oil and 1,115,334 Mmcf of natural gas resulting from the application of reliable technologies in determining reserves.” (Note Total Pv 8,348 MBbls and 2,700,042 MMCF)



Companies with significant shale gas programs were expected to be the most likely to embrace R.T. Here are two major players that we have not discussed yet.

- **Chesapeake:** indicated they developed and used R.T, but did not indicate the impact
- **Southwestern Energy:** acknowledged the new regulations but did not disclose the impact, if any.



Chesapeake:

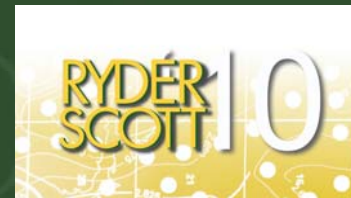
Our December 31, 2008 proved undeveloped (PUD) reserve volume was 3.960 tcf and our December 31, 2009 PUD reserve volume was 5.923 tcf. This increase is partially attributable to the modernized rules, which allow for the reporting of PUD reserves more than one direct spacing area offsetting producing wells if reasonable certainty can be shown using reliable technology. **Chesapeake has utilized and developed reliable geologic and engineering technology to book PUD reserves more than one location offsetting production in the Barnett Shale and Fayetteville Shale.**

con't

Other Companies of Interest: Chesapeake, continued



Within the Barnett and Fayetteville Shale plays, we used both public and proprietary geologic data to establish continuity of the formation and its producing properties. This included seismic data and interpretations (2-D, 3-D and micro seismic); open hole log information (both vertical and horizontally collected) and petrophysical analysis of the log data; mud logs; gas sample analysis; drill cutting samples; measurements of total organic content; thermal maturity; sidewall cores; whole cores and data measured from internal core analysis facility. Once the continuous geologic area was established, statistical analysis of established producing wells was used to generate reasonable certainty (defined as 90% probability aggregated to the field level). The analysis required a statistically significant number of producing wells within the defined geologic area and then tested for confidence by insuring the variance in results over time, area and distance was evaluated. Proper development spacing was also statistically analyzed.



Southwestern Energy

On December 31, 2009, the Company implemented certain provisions of FASB ASC 932, “Extractive Activities-Oil and Gas,” as updated by Accounting Standards Update No. 2010-03, “Extractive Activities-Oil and Gas (Topic 932)” (“FASB ASC 932”), which (a) expand the definition of oil- and gas-producing activities; (b) require energy companies to value their proved reserves by averaging the price from the first day of each month from the previous 12 months instead of using a year-end price; and (c) **allow for additional drilling locations to be classified as proved undeveloped reserves assuming such locations are supported by reliable technologies.** The Company accounted for the FASB ASC 932 changes as a change in accounting principle that is inseparable from a change in accounting estimate and will account for the change prospectively. The Company is not able to disclose the effects resulting from the implementation of these changes on the amount of proved reserves and disclosed quantities because personnel and time constraints made it infeasible for the Company to perform a second internal reserve estimation process under the prior standards on its approximately 4,850 properties.

Our Survey was based on 10-K filings. A cursory review of some 20-F filings showed similar results to what we have seen for the 10-K filers.

BP (20-F)

These revised rules form the basis of the 2009 year-end estimation of proved reserves and the application of the technical aspects **resulted in an immaterial increase of less than 1% to BP's total proved reserves.** The reasons for the increase are primarily due to the application of reliable technologies and inclusion of proved reserves more than one spacing away from existing penetrations...

ENI (20-F)

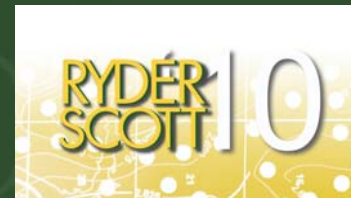
The new SEC rules allow the use of reliable technology (i.e. seismic, wireline formation test, logs and core) to justify the reserves estimate if it produces consistent and repeatable results. **We did not have any material additions of proved reserves due to application of new reliable technologies.**

Shell (20-F)

In 2009, Shell added 4,417 million boe of proved oil and gas reserves before accounting for production, of which 3,632 million boe comes from Shell subsidiaries and 785 million boe is associated with Shell's share of equity-accounted investments. Included in the 4,417 million boe is 1,630 million boe of synthetic crude oil reserves that, as a result of SEC rule changes, can now be considered proved oil and gas reserves **as well as approximately 270 million boe associated with other SEC rule changes pertaining to the use of reliable technologies and the use of analogues. The application of reliable technologies contributed approximately 150 million boe of the 270 million boe. The most significant increases related to the use of wireline pressure gradients and wireline testing.**

Petrobras (20-F)

...the Company effectively adopted (*the new SEC requirements*) in December 31, 2009. Adoption of these requirements did not significantly impact the Company's reported reserves or our consolidated financial statements.



TOTAL (20-F)

The revised rules form the basis of the 2009 year-end estimation of proved reserves and their application resulted in an immaterial increase in TOTAL's proved reserves. **In particular, positive revisions were made possible in 2009 on a limited number of proved properties due to the integration of reliable technologies such as seismic and wireline pressure data in the proved reserves evaluation workflow. These revisions represent less than 2% of the Group's proved reserves portfolio.** Bitumen was included in 2008 and 2007 in the crude oil reserves and is disclosed separately for 2009 pursuant to the SEC requirements, as amended.

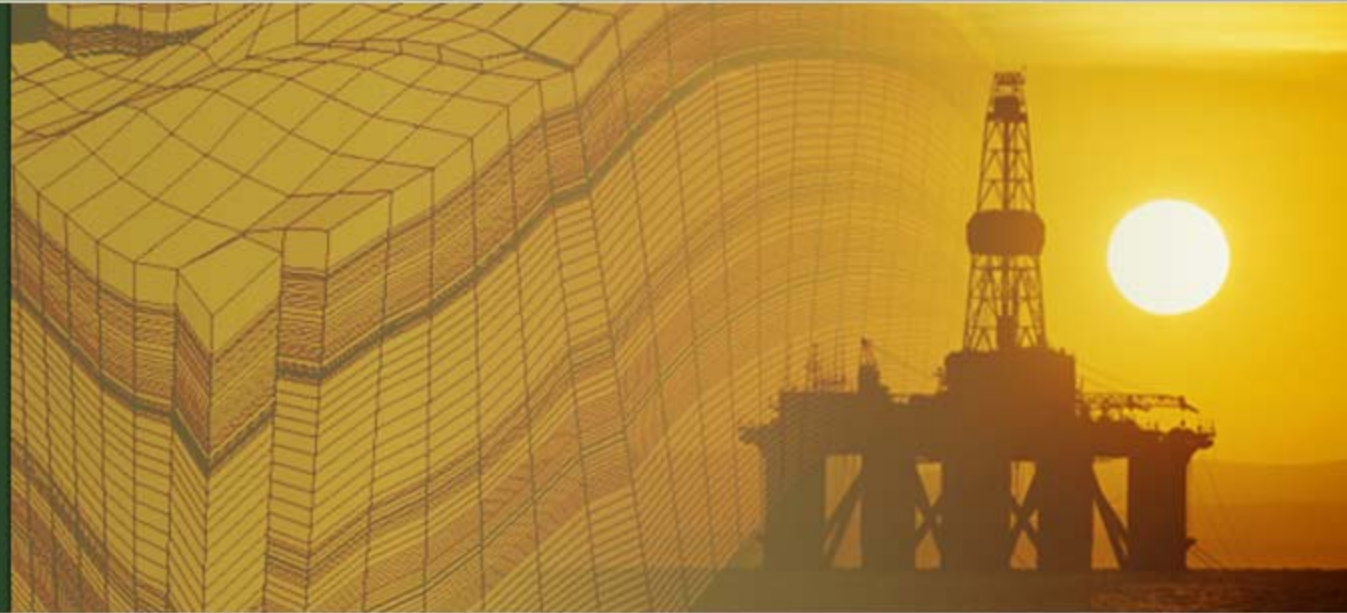


- Only a Few 10-K Filers of Those Reviewed (20 Out of 111 Companies Reviewed) Provided Any Specific Discussion of the Impact, If Any, of R.T. on The Estimation of Their Year End Pv Reserves
- Only 2 Out of 111 Companies Disclosed that R.T. had a Material Impact on Their Year End Pv Reserves
- Has the Industry Failed to Embraced the Use of R.T. or Simply Chosen Not to Discuss R.T. Unless There Was a Material Impact to Their 12/31/2009 Year End Proved Reserves?



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Part 2 - Insight to the Industry's SEC Disclosure for
Reporting Probable and Possible Reserves

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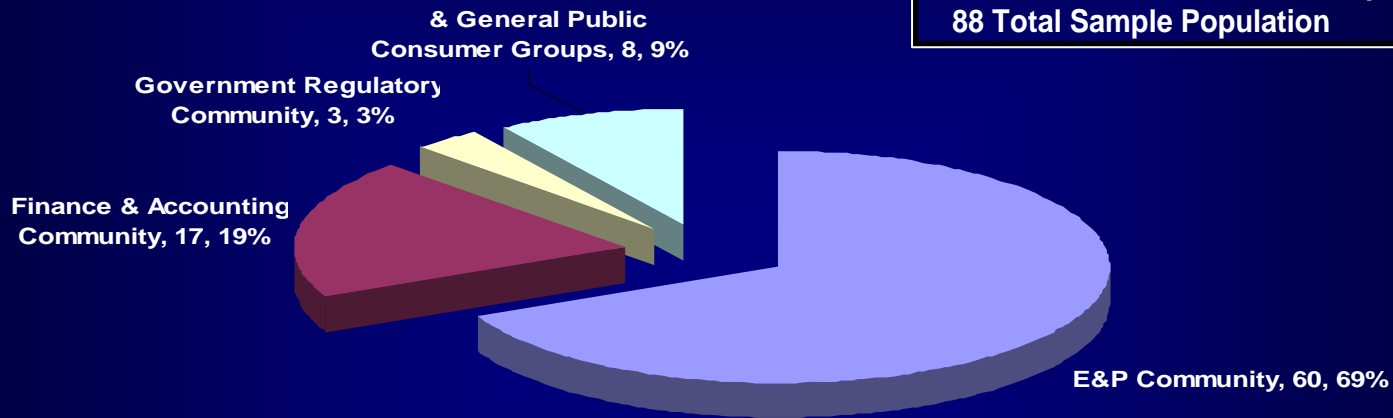
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Background to SEC Rules Change

SEC Concept Release 12/12/2007



Tallying the Responses
81 Total Responses Sent to SEC
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88 Total Sample Population

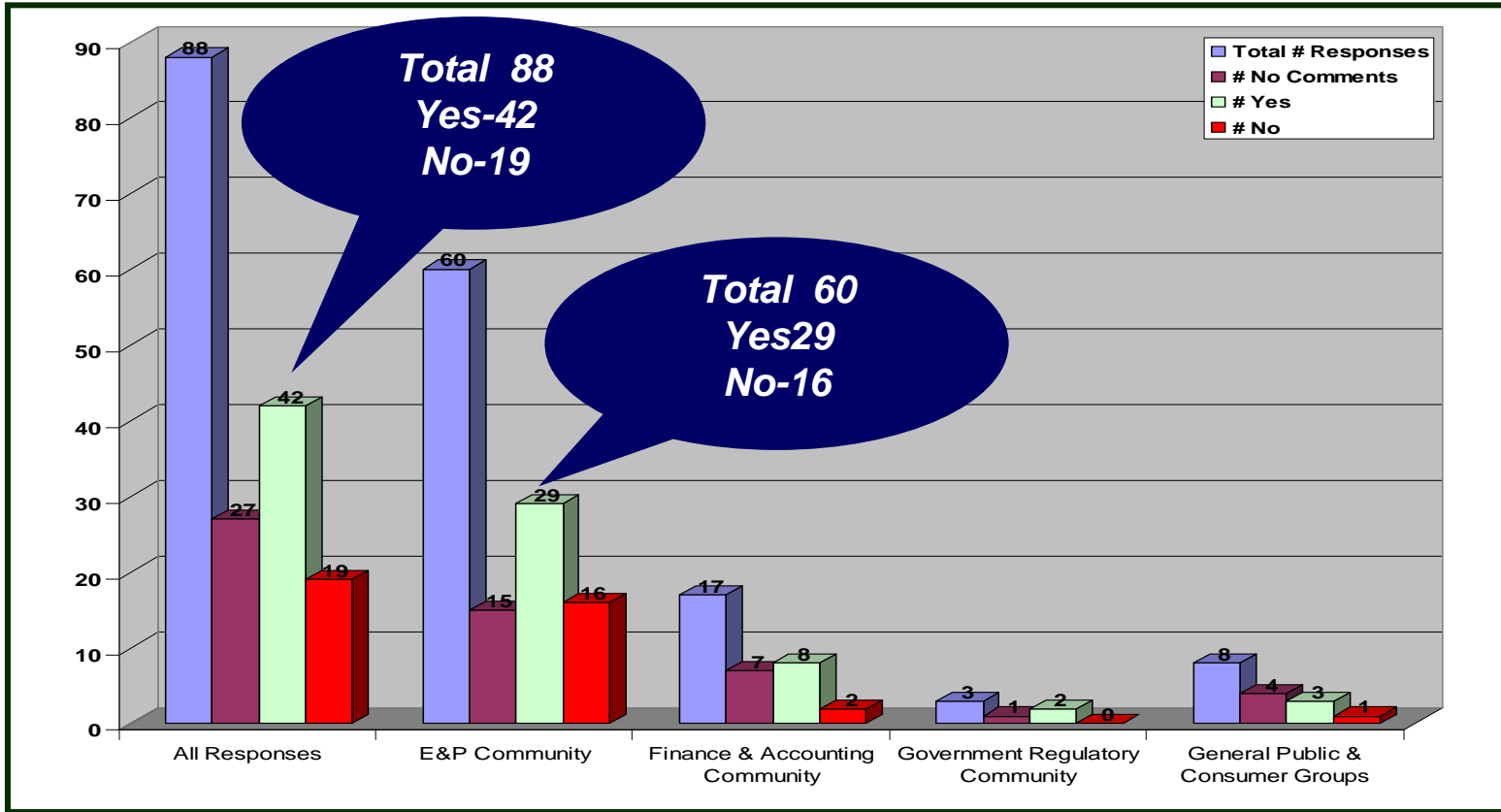
“Questioned whether to expand the categories of resources that may be disclosed in Commission filings to include resources other than proved reserves”

Source: Modernization of Oil and Gas Reporting: Final Rule

SEC Concept Release Question #2 Responses

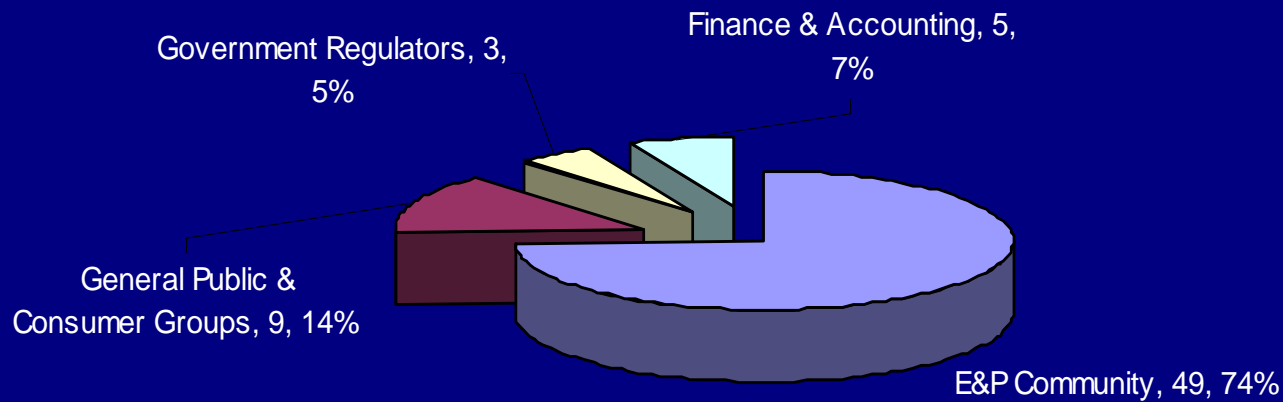


SEC-"Should the Commission consider allowing companies to disclose reserves other than proved reserves in filings with the SEC?"



Background to SEC Rules Change

SEC Proposing Release 6/26/2008



“Included the proposal to permit disclosure of probable and possible reserves”

Source: Modernization of Oil and Gas Reporting: Final Rule

- E&P Community, 49, 74%
- General Public & Consumer Groups, 9, 14%
- Government Regulators, 3, 5%
- Finance & Accounting, 5, 7%

II.E. Unproved Reserves—“Probable Reserves” and “Possible Reserves” Request for Comment

- *Should we permit a company to disclose its probable or possible reserves, as proposed?*
- *If so, why?*
- *Should we require, rather than permit, disclosure of probable or possible reserves? If so why?*

II.E. Unproved Reserves—“Probable Reserves” and “Possible Reserves” Request for Comment

- *Should we adopt the proposed definitions of probable reserves and possible reserves? Should we make any revisions to those proposed definitions? If so, how should we revise them?*
- *Are the proposed 50% and 10% probability thresholds appropriate for estimating probable and possible reserves quantities when a company uses probabilistic methods?*
- *Should probable reserves have a 60% or 70% probability threshold? Should possible reserves have a 15% or 20% probability threshold? If not, how should we modify them?*

SEC Modernization

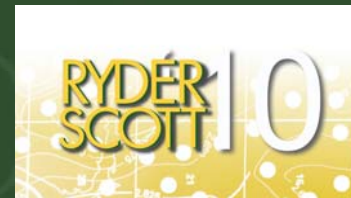
Discussion of Probable and Possible Reserves



- Adopted definitions of probable and possible reserves roughly consistent with the PRMS
- Definitions provide guidance for the use of both deterministic and probabilistic methods

SEC Modernization

Discussion on Disclosure



- Allows optional disclosure of probable and possible reserves
- New item 1202 requires disclosure in the aggregate (to the company total level) and by geographic area
 - Company may, but is not required to, disclose probable or possible reserves
 - 229.1202(a)(2) If a company discloses probable and possible reserves, it must provide the same level of geographic detail as it must with proved reserves and must state whether the reserves are developed or undeveloped
 - 229.1202(a)(5) Company must disclose the relative uncertainty associated with these classifications of reserves estimates



- Section V. Guidance for MD&A
 - Fundamental premise of MD&A is that the information provided should be related to issues that are material to a company including
 - Changes in proved reserves and, if disclosed, probable and possible reserves, and the sources to which such changes are attributable

Filings Under New SEC Regulations

Disclosure by Industry



- Survey of 111 10-K Filers
 - List Compiled from 12/31/2008 Oil & Gas Journal Top 150 with 10-Ks Released 12/31/2009 Or Later
 - A Very Limited Number of Companies Filed Probable and/or Possible Reserves

Filings Under New SEC Regulations Disclosure by Industry



Type of Non-Proved Disclosure	No. Instances	Companies
Probable Reserves Only	2	Newfield, FX Energy
Probable and Possible Reserves	4	Abraxas, Dune Energy, Tri-Valley, Whiting Petroleum
Total	6	

Filings Under New SEC Regulations Disclosure by Industry



Company	Total Pv Reserves	Total Pb Reserves	Total Ps Reserves
Abraxas	149.5 BCFE	44.3 BCFE	30.6 BCFE
Dune Energy	105.5 BCFE	6.6 BCFE	7.0 BCFE
FX Energy	50.4 BCFE	42.3 BCFE	
Newfield Exploration	3.6 TCFE	1.9 TCFE	
Tri-Valley	3.1 MMBOE	0.8 MMBOE	6.1 MMBOE
Whiting Petroleum	275.0 MMBOE	89.1 MMBOE	197.5 MMBOE

- To Date the Industry Appears Reluctant or Does Not See the Need to Formally Disclose Their Probable and/or Possible Reserves