



February 18, 2008

Securities and Exchange Commission  
100 F Street NE  
Washington, DC 20549-1090

Re: Comments on SEC File No. S7-29-07  
Concept Release on Possible Revisions  
To the Disclosure Requirements Relating  
To Oil and Gas Reserves

Gentlemen:

This letter provides responses to your request for comments to the Concept Release Letter, SEC File N. S7-29-07 as shown in the Federal Register Volume 72, No. 242 dated December 18, 2007.

The responses included within this letter are based upon my 33 years of professional experience as a petroleum engineer, reserve estimator and a registered professional engineer in the State of Texas. My professional experience includes 25 years with Ryder Scott Company where I served as a Senior Vice President prior to my retirement. My experience also includes 8 years with a major oil company and independent oil companies. During the course of my career, I have prepared reserve estimates and conducted reserve audits for various projects located in the USA, the U.K., Central Europe, the FSU, Africa and Asia. I am a member of the SPE, SPWLA, AAPG and ASME.

Subsequent to my retirement from Ryder Scott, my recent experience has also included:

1. Performing ongoing external SEC reserve audits for several major international oil companies, large independent producers and international investment banks.
2. Serving as an instructor in industry classes on the preparation of reserve estimates in compliance with the various reserve standards and definitions utilized throughout the globe including SEC, UKLA, N51-101 and SPE/WPC/AAPG standards and definitions.

3. Preparing estimates of reserves for various projects involving SPE/AAPG/WPC and UKLA reserve definitions and standards.
4. Serving as an adjunct member of corporate committees for a variety of companies for the purpose of formulating internal policies and procedures to be utilized in preparing reserve estimates that would be in compliance with the appropriate regulations and guidelines.

Please note that the opinions that I have expressed herein represent my own professional opinions and do not necessarily represent the opinions of my clients or previous employers. In formulating the opinions herein, I have made use of the wide spectrum of professional experiences and insights that I have gained during the course of my career.

**General:**

In my view, the SEC is to be commended for their initiative in seeking comments from the industry relative to possible revisions to the current disclosure requirements. Further, the SEC technical staff is to be commended for their efforts during the past decades in ensuring SEC compliancy by the upstream sector in reserve reporting. This effort was a formidable task and has occurred during an era of unprecedented advances in the technology, significant volatility in hydrocarbon pricing and the transformation of the geo-political environment in which the upstream sector must now operate.

**Summary of Responses:**

In general, my opinions can be stated as follows. The current rules-based method should be replaced by a policy that will be a principles-based method for the estimation of reserves and a rules-based method for the specification of economic parameters and the resulting economic metrics. My opinions can generally be summarized by the following eight principles that could be utilized as an SEC framework for a principles-based approach for the estimation of reserves.

1. **Strive for Simplification-** The current methods that utilize a “rules-based” approach should be revised to an approach that is “principles-based” in nature for the estimation of reserves. In doing so, the SEC should attempt to simplify the methods to be utilized and the required corporate disclosures in every way possible.
2. **Incorporate New Technology-** Advancements in upstream technology should be incorporated where applicable and where applications of such technology have yielded a high degree of reasonable certainty in their predictive results.
3. **Implement Uniformity-** The current rules-based methods yield ambiguities with respect to project variations regarding reservoir aspects and geo-political environments. A revision to a principles based method and a redefinition of “reasonable certainty” will allow for the implementation of a more uniform approach regardless of the types and locations of the hydrocarbon reserves.

4. **Certify the Reserve Estimator-** The SEC should mandate the training and certification of all reserve estimators whether they be external consultants or the internal staff of upstream companies. The major oil companies, the SPE and the SPEE have provided significant leadership and recent examples of successfully implementing such programs. A conceptually defined status such as the Competent Person as defined by the UKLA should be considered by the SEC for such a designated and qualified individual.
5. **Empower the Reserve Estimator-** Once the reserve assessment methods are simplified, revised to a principles-based method, made more uniform, and the estimators are trained and certified, then the SEC should empower reserve estimators to prepare the most accurate and highest quality of reserve estimates possible. The SEC should mandate that estimators should use multiple reserve estimation methods that yield comparable results prior to concluding that a given reserve estimate is reasonable, nominal in nature and compliant based upon the concept of “reasonable certainty.” By utilizing such a compelling case approach whereby all available data is utilized and various methods of estimation are incorporated that yield similar results, long term excellence in reserve estimation can be achieved.
6. **Implement Corporate Procedures-** The SEC should require within each company’s annual reserve disclosure a more detailed discussion of the corporate policies and procedures utilized in the preparation of the corporate reserve estimate. Such procedural disclosures should be incorporated in conjunction with the filing guidelines required by the Sarbanes-Oxley Act and should include procedural flow charts.
7. **Define Commerciality in a Logical Manner-** The current guidelines defining commerciality are in some cases outdated and as a result illogical. The SEC should revise this segment of reserve estimation activity to a clearly defined rules-based approach for the determination of economic parameters and the resulting economic metrics that must be disclosed.
8. **Redefine the Definition of “Reasonable Certainty”-** The guidelines pertaining to reasonable certainty as originally published in 1978 within the Accounting Release No. 253 should be updated to reflect current conditions. I would recommend that it would be appropriate for the SEC to redefine this guiding principle without utilizing a rules-based approach. Instead, the SEC should require a principles-based standard that requires that reserve estimate be prepared utilizing a compelling case approach incorporating multiple methods of reserve estimation that yield similar results. Such estimates could indeed utilize cutting edge technological methods that have proven track records of success and that also provide collaboration with other more traditional methods of reserve estimation that have been utilized by the industry for decades. The methods to be utilized would vary in accordance with the nature and maturity of the reservoir. This approach would revise the definition of reasonable certainty from a pseudo-quantitative approach (i.e.  $P_s > 90\%$ ) to a more qualitative measure of logical certainty. From my own experience in auditing and judging the work of others,

quantitative measures of certainty such as a  $P_s > 90\%$  can often be readily fabricated and manipulated at will. Whereas a compelling case for a reserve estimate that utilizes multiple methods that yield similar results is much more difficult to fabricate and to manipulate by those with fraudulent intent. A compelling case approach is also much easier to audit and reconfirm in subsequent reviews by others. Hence, the determination of reasonable certainty utilizing a principles-based approach with the creation of a compelling case for the reserve estimate generally yields a higher quality estimate that is less prone to fraudulent manipulation by those with unethical intentions.

**Detailed Responses to Specific Questions:**

- 1. Should we replace our rules-based current oil and gas reserves disclosure requirements, which identify in specific terms which disclosures are required and which are prohibited, with a principles-based rule? If yes, what primary disclosure principles should the Commission consider? If the Commission were to adopt a principles-based reserves disclosure framework, how could it affect disclosure quality, consistency and comparability?***

**Response:** The SEC should replace the current rules-based disclosure requirements with a principles-based approach. The SEC should mandate that proven reserve estimates be prepared utilizing reasonable certainty that results from the preparation of a compelling case as defined previously. Such an approach would improve the quality, consistency and comparability of reserve estimates as compared to those prepared under the current system. This conclusion is based upon the fact that the current rules-based approach may not be fully implemented by all companies due to the associated ambiguities of the current guidelines and regulations.

- 2. Should the Commission consider allowing companies to disclose reserves other than proved reserves in filings with the SEC? If we were to allow companies to include reserves other than proved reserves, what reserve disclosures should we consider? Should we specify categories of reserves? If so, how should we define those categories?***

**Response:** The SEC should allow companies to disclose probable reserves within their filings to the SEC. Probable reserves could either be defined in accordance with the recently published SPE/WPC/AAPG definitions or within a unique set of reserve definitions to be developed by the SEC for probable reserves. The SEC could prepare its own definition of probable reserves by utilizing the SPE/WPC/AAPG or UKLA definitions as a starting point. The inclusion of probable reserves within corporate disclosures to the SEC would be a more realistic total reserve estimate for upstream companies than the current approach utilized by the SEC since few upstream companies base their investment decisions upon proved reserves only. Also, the international financial community routinely depends on the measure of proved and probable reserve volumes when preparing valuation of upstream companies. Finally, the recent experiences of the upstream industry with respect to the inclusion of proved and probable reserves by the UKLA and the Canadian N51-101 guidelines lends credence to the validity and value of this approach to the investor.

- 3. Should the Commission adopt all or part of the Society of Petroleum Engineers-Petroleum Resource Management System? If so, what portions should we consider adopting? Are there other classification frameworks the Commission should consider? If the Commission were to adopt a different classification framework, how should the Commission respond if that framework is later changed?**

**Response:** Based upon my professional experience, the SEC should not adopt the SPE-PRMS. While the SPE-PRMS is an excellent reserve definition system, it was created for different purposes and applications than the intents and purposes required by the SEC's regulatory functions. The SPE-PRMS is however an excellent model for the SEC in creating its own revised definitions and procedures. A future independent reserve system by the SEC will eliminate the need for constant revisions to the SEC system should the other reserve systems be periodically revised. Some would argue that by adopting the SPE-PRMS, the SEC would allow the industry to move toward a more uniform and universal system that incorporates many of the nuances of the current operating environment in the upstream sector. Such reasoning is certainly true. However, the SEC has its own particular charter and functions that must be fulfilled as defined by the U.S. Congress and the incorporation of a standard prepared by those outside of the SEC, while however excellent in its nature, could make the SEC's ultimate fulfillment of its own charter more difficult. Finally, the other dominant reserve standards such as the N51-101 and UKLA are very likely to remain in place for the long term thus negating the industry's vision for a possible universal approach in the near term.

- 4. Should we consider revising the current definition of proved reserves, proved developed reserves and proved undeveloped reserves? If so, how? Is there a way to revise the definition or the elements of the definitions to accommodate future technological innovations?**

**Response:** A principles-based method utilizing a revised definition of reasonable certainty and incorporating certified estimators that are well versed in the principles will eliminate the need for issuing specific revised definitions for proved, proved developed and proved undeveloped reserves. Such an approach would also allow for the rapid and appropriate adoption by reserve estimators of new technological developments that have been successfully confirmed by the upstream sector.

- 5. Should we specify the tests companies must undertake to estimate reserves? If so, what tests should we require? Should we specify the data companies must produce to support their reserve conclusions? If so, what data should we require? Should we specify the process a company must follow to assess that data in estimating its reserves?**

**Response:** Under a principles-based system utilizing a compelling case approach to estimate future reserves in a compliant manner, the SEC should not specify the tests companies must undertake to estimate reserves nor should the SEC specify the data companies must produce to support their reserve conclusions. Rather, the SEC should require on an annual basis the full disclosure of remaining proven and probable reserves. This information should be provided in a tabular format by field and by reserve category for the top 80% value fields as determined by the value of the future NPV<sub>10</sub>. A change of status tabulation should also be provided for these

specific fields reflecting the change in proved reserves estimates for the current year's filing versus the previous two years' estimates. The SEC should conduct an audit of any upstream company that indicates a reserve write down in excess of 20% in aggregate over a three year period where such a reserve write down is not attributable to changes in hydrocarbon pricing, divestitures, geopolitical events or other such factors beyond the control of the company. Further, the SEC should require a detailed procedural flow chart indicating the methodology employed by the company in preparing the reserve estimates for the current filing. Such flow charts should properly illustrate the checks and balances built into the system to mitigate and hopefully eliminate the potential for any abuses to the system by senior management or other corporate personnel. From my own professional experience, such documentation procedures work very well when properly designed and implemented and are valuable for identifying the potential for problematic reserve estimates.

**6. *Should we reconsider the concept of reasonable certainty? If we were to replace it, what should we replace it with? How could that affect disclosure quality? Should we consider requiring companies to make certain assumptions? Should we prohibit others?***

**Response:** The SEC should retain the concept of reasonable certainty but should add clarity through the use of a principles-based method. The addition of certain new concepts and information such as (1) the creation of a compelling case in the preparation of reserve estimation, (2) the addition of certain new filing requirements such as 3 year change of status tabulations on a field level and procedural flow charts and (3) the allowance of the utilization of new cutting edge technology with proven track records of success for the estimation of reserves will add such clarity. The definition of reasonable certainty under such a principles-based system should be refocused from a quantitative standard (i.e. Ps>90%) to an approach that attempts to utilize all available reservoir and geological data with a deductive logic thought process in creating a compelling case for the estimate. Some would argue that a Ps>90% implies a very high level of reasonable certainty. However from my own professional experience, I have audited numerous cases whereby the reservoir and geological parameters were intentionally manipulated in order to exceed the quantitative threshold and the reserves were erroneously classified as proven. Such estimates were typically erroneous in being classified as proven because they did not honor all available reservoir and geological data, did not yield similar estimates of reserves utilizing various methods of estimation and utilized faulty logic in their preparation. Hence from my view, the goal of achieving reasonable certainty by exceeding a quantified threshold such as P90 lends itself to the possibility erroneous practices or possible fraudulent manipulation of the available data.

**7. *Should we reconsider the concept of certainty with regard to proved undeveloped reserves? Should we allow companies to indefinitely classify undeveloped reserves as proved?***

**Response:** Concerning a reconsideration of the concept of certainty with regards to proved undeveloped reserves, please see the response to Question #6. The SEC should not allow companies to indefinitely classify undeveloped reserves as proved. A 3-5 year window of required development time would be nominal for a thriving upstream company with typical operations. Under the rules-based section pertaining to economic parameters and their resulting

metrics, the SEC could serve notice that interrogatories will be served for upstream companies indicating specific fields with excessive lead times for development. The 3 year change of status will also be a valuable tool for identifying such properties. Given the geopolitical environment under which many international companies must operate, the sheer size of certain projects such as international LNG projects and the development of large shale gas plays, significant development lead time is often required and should be considered acceptable and appropriate in such cases. However before ruling that such long lead times are acceptable, the SEC should further require and stipulate that proof of management and partner approval of such projects has been obtained prior to booking of the reserves and that the company has the financial and technological wherewithal to proceed with the development of the project within the projected time frame.

**8. *Should we reconsider the concept of economic producibility? If we were to replace it, what would we replace it with? How could that affect disclosure quality? Should we consider requiring companies to make certain assumptions? Should we prohibit others?***

**Response:** Under a principles-based approach, the concept of economic producibility should be retained. However under the rules-based approach pertaining to economic parameters and their resulting metrics, the SEC should issue certain clarifying definitions to insure that the intended purpose of this determination is current and appropriately reflects current conditions in the upstream industry. For example, the SEC should stipulate that economic producibility will be defined as a positive undiscounted cash flow for an individual asset or project and that such a positive cash flow results from utilizing average hydrocarbon pricing and the associated costs for the project. Both economic parameters should be based upon a 12 month average instead of the current "year-end" approach for pricing determination. The SEC should further consider the inclusion of proved and probable reserves in preparing the determination of economic producibility.

**9. *Should we reconsider the concept of existing operating conditions? If we were to replace it, what should we replace it with? How could that affect disclosure quality? Should we consider requiring companies to make certain assumptions? Should we prohibit others?***

**Response:** Please see the response to #8 for recommended revisions. No other revisions are recommended.

**10. *Should we reconsider requiring companies to use a sale price in estimating reserves. If so, how should we establish the framework?***

**Response:** The SEC should mandate through its rules-based approach to economic parameters and the resulting metrics that all hydrocarbon pricing, operating costs, development costs and tax scenario shall be based upon a 12 month average of the year preceding the effective date. (i.e. For a 12/31/07 filing, utilize actual 2007 average values.) The actual time scale could include a 3 month lag in order to ensure the highest quality of data is utilized from

each company's database. For example for a 12/31/07 filing, utilize average values from the 10/1/06-9/30/07).

**11. Should we consider eliminating any of the current exclusions from proved reserves? How could removing these exclusions affect disclosure quality?**

**Response:** The SEC should allow for the immediate inclusion of any upstream operation that produces marketable hydrocarbons from their native state and generates commercial cash flow to the upstream corporation. The exclusion of such operations currently results in the understating of the true enterprise value of the corporate entity and is intentionally conservative. While the SEC was certainly prudent in its initial exercise of caution pertaining to the booking of reserves for certain unconventional resources, these technologies have now been commercially and technologically verified. Hence, they should be included within future reserve disclosures to the SEC. I would recommend the inclusion of all reserves resulting from unconventional resources such as tar sands, oil shale, shale and coal that are produced by any extraction method that meets the SEC's economic standards for commerciality and that has been verified as repeatable technology. As a matter of near term prudence, perhaps the SEC should stipulate that future reserve disclosures require separate summaries of the reserves and future NPV<sub>10</sub> for those assets that are comprised primarily of unconventional resources. The inclusion of these subtotals will provide the investor with the relative composition of a company's assets and cash flow for conventional and unconventional resources. As the unconventional resources become a matter of routine during the next decade, perhaps the SEC could revisit this policy and eliminate the need for separate subtotals. With this future goal in mind, the SEC should stipulate that the fields with proven reserves from unconventional resources must be qualified with the same geological, reservoir and commercial definitions as required for conventional resources. Disclosures to the SEC should continue to exclude all operations associated with mid-stream and down-stream operations.

**12. Should we consider eliminating any of the current exclusions from proved reserves? How could removing these exclusions affect disclosure quality?**

**Response:** The SEC should eliminate the exclusion from proved reserves that currently exists for unconventional resources. Please see the response to #11 for more details.

**13. Should we consider eliminating the current restrictions on including oil and gas reserves from sources that require further processing such as tar sands, etc.?**

**Response:** Please see the responses to #11 and #12. I would recommend that unconventional resources such as tar sands now be included as proved reserves in disclosures to the SEC.

**14. What aspects of technology should we consider in evaluating a disclosure framework? Is there a way to establish a disclosure framework that accommodates technological advances?**

**Response:** New technology that is utilized by the upstream industry in the estimation of reserves should only be utilized once it has achieved a track history of successful predictive results. Recent technological advances such as the incorporation of 3D seismic interpretations and the use of MDT's in calculating fluid contacts have proved to be excellent collaborative tools when used in the appropriate geological and engineering environments and when utilized within the compelling case approach utilizing a portfolio of different methods as discussed previously. However, for the SEC to universally accept or ban such new technology would not be appropriate. This conclusion is based upon the simple fact that all types of reservoir and geological evaluation technology are not universally applicable and will not always deliver the successful predictive results that are required to achieve reasonable certainty due to variations in the reservoir environment. This statement is true for not just newly developed technology but also for some of the oldest technology now routinely employed by the industry. Examples of the possible unacceptable application of older technology includes well log interpretation in a laminated sand-shale sequence reservoirs with varying values of  $R_w$  and the interpretation of older 2D seismic in a heavily faulted reservoirs. Hence, a principles-based approach is needed to allow for the flexibility to incorporate such technology in the estimation of reserves when appropriate. A certified estimator using a principles-based approach will comprehend that such tools are not appropriate for certain environments and will exclude them from his analysis. This example illustrates the significant advantages of a principles-based approach versus a rules-based approach. The SEC would therefore not be required to legislate or micro-manage which technologies are acceptable or which are banned. The SEC should continue to request frequent input from the industry and the various professional societies so as to stay abreast of recent technological developments. The SEC's technical staff should also seek an observer status on the various technical committees of the SPE, SPEE, and AAPG also for the purpose of staying abreast of new technology. This example further illustrates how the principles-based approach will only be successful if the certified estimator is held accountable not only for the values of the reserve estimates but also the methodology employed in preparing the estimates.

**15. Should we consider requiring companies to engage an independent third party to evaluate their reserve estimates in filings they make to us? If yes, what should that party's role be? Should we specify who would qualify to perform this function? If so, who should be permitted to perform this function and what professional standards should they follow? Are there professional organizations that the Commission can look to set and enforce adherence to those standards?**

**Response:** The SEC should not require the use of an independent third party to estimate the reserves utilized in filings to the SEC. Based upon my professional experience, an upstream company should have the option to engage an independent third party but not be required to do so in preparing their disclosures to the SEC.

There are several reasons for this conclusion. The logistical constraints for the consulting industry to provide the manpower and expertise in short order to staff this effort would be considerable. Another reason would be that the underlying factors that might have caused fraudulent intent and the manipulation of data in the past resulting in erroneous or inappropriate reserve estimates may not necessarily be eliminated by the use of a third party external consultant. To eliminate this problem, a corporate procedure is needed as discussed previously for the estimation of reserves that includes a complete system of checks and balances.

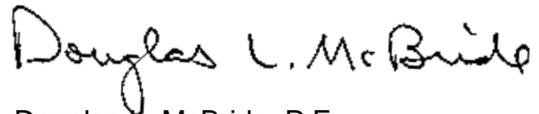
The most important reason for not requiring an independent third party estimate pertains to corporate development. Based upon my professional experience, those clients who maintained the internal technological expertise to properly prepare their own reserve estimates were generally more successful as thriving enterprises than those companies that relied solely upon a third party external consultant for reserve estimates.

Some might argue that such success was more of a function of the size, geological expertise or the available budget and cash flow for such company. Admittedly, there are numerous factors that account for the relative success of a thriving enterprise versus their competition. My experience however would indicate that those who relied solely upon a third party external analysis often did not fully understand their underlying assets of how to optimally exploit their existing reserve asset base.

Realizing that smaller upstream companies may not have the financial, technical or staffing capabilities to prepare their own estimates, the SEC should encourage companies in this situation to seek acceptable training by attending seminars hosted by the SEC and other industry organizations. In this respect, a continuation of the open door policy exhibited in the past by the technical staff of the SEC in such an environment would greatly enhance the industry's understanding of the SEC's expectations and the standards of excellence required. In my opinion, the overall improved quality of reserve estimates resulting from these efforts will yield significant benefit to the individual investor, the upstream sector in general and to the nation's continuing need for a secure energy resource base.

Thank you for the opportunity to provide these comments for the SEC's consideration and review. Please let me know if you should have any questions or if we can ever be of further service in this matter.

Very truly yours,

A handwritten signature in black ink that reads "Douglas L. McBride". The signature is written in a cursive, slightly slanted style.

Douglas L. McBride, P.E.  
Morning Star Consultants, LLC