

# **Improving the Relevance and Reliability of Oil and Gas Reserves Disclosures**

Prepared Testimony

**Bala G. Dharan**

J. Howard Creekmore Professor of Accounting  
Rice University, Houston, TX

**Presented to the US House Committee on Financial Services**

**Hearings “Shell Games: Corporate Governance and Accounting for Oil and Gas Reserves”**

July 21, 2004

Bala G. Dharan, PhD, CPA  
J. Howard Creekmore Professor of Accounting  
Jesse H. Jones Graduate School of Management, MS-531  
Rice University, 6100 Main Street, Houston, TX 77005  
Phone: (713) 348-5382 Fax: (713) 348-6296 E-mail: bala@rice.edu

Prepared Statement of Bala G. Dharan, PhD, CPA, Professor of Accounting, Rice University

## **Improving the Relevance and Reliability of Oil and Gas Reserves Disclosures**

Presented to the US House Committee on Financial Services  
July 21, 2004

Chairman Oxley, Representative Frank, and members of the Committee, I want to thank you for inviting me to present my analysis of the oil and gas industry's accounting and disclosure issues related to reserves. I am honored to be given this opportunity to testify here today.

I am a professor of accounting at the Jesse H. Jones Graduate School of Management, Rice University, Houston, where I have taught since 1982. I have also taught accounting at Northwestern University, the University of California, Berkeley, and the Harvard Business School. I am also a Certified Public Accountant in the state of Texas.

### **Where We are Now**

Having useful and reliable information on oil and gas reserves is enormously important to the US policy makers, managers of the companies, investors, and the public. Over 150 publicly owned U.S. oil and gas producers file reserves data in their 10-K, and their reported total reserves of oil and gas is valued at over \$3 trillion. Financial analysts covering the industry generally find that for energy companies, over 70 percent of the total market value is determined by the amount of proved reserves the company has.

Companies currently are required to provide *unaudited* estimates of proved reserves quantities to the Securities and Exchange Commission (SEC), using strict and conservative definitions provided in the SEC regulations for proved and proved developed reserves. In theory,

given these strict definitions, and in this era of rising oil and gas prices and improving recovery techniques, it is hard to envision scenarios where companies could report significant downward “technical revisions” in proved reserves. In practice, however, recent large downward revisions in proved reserves by Shell (20 percent reduction of proved oil and gas reserves) and El Paso (41 percent reduction of proved gas reserves), and smaller restatements by a handful of other companies such as Forest Oil, Vintage Petroleum, Nexen, Husky Energy, and Western Gas Resources, has shown that the reserves data are indeed vulnerable to disclosure quality risk. These events confirm that despite their overall reliability, the current unaudited reserves data are viewed by investors and analysts as just not reliable enough. In fact, as investors learn more about how reserves are estimated and reported, it might come as surprising to them that items on a company’s balance sheet, such as cash and accounts receivable, which contribute to only a small part of the total value of the company, are subject to far more external audit and internal controls than proved reserves estimates despite the reserves being the main driver of an energy company’s upstream value.

Some in the industry argue that only small fixes are needed to improve the usefulness and reliability of reserves data. Others have called for more disclosures. However, the issue for the industry is really the credibility gap that affects the disclosures of reserves data, and resolving it requires potentially new regulations or at the least new industry action.

The credibility gap is caused by two related factors, quality credibility and reporting credibility. These two terms correspond to two fundamental characteristics of accounting information – relevance and reliability. The “quality credibility,” which affects the relevance of the reserves information for investors and other users, is caused by a lack of common technical standards and lack of training and certification programs to propagate the standards among all

evaluators. The “reporting credibility,” which affects the reliability of the reported information, is caused by the fact that reserves disclosures are not audited by external auditors or by independent reserves evaluators. It is also further affected by the fact that until recently companies had not paid attention to potential financial incentive conflicts for managers who manage the reserve estimation process, such as the effect of the reserves classification on capitalization versus expensing decisions, and other potential effects on managers’ compensation and bonuses. While the Sarbanes-Oxley Act has made companies pay serious attention to these conflicts by requiring companies to have their internal control processes certified, there is still a potential need to require external audits of the reserves estimation process to fully address the reporting credibility.

Making reserves disclosures more useful to investors would require addressing the credibility gap issue comprehensively, by improving both the relevance and reliability of the disclosures, which in turn requires significant improvements to the processes by which reserves data are currently estimated, audited and reported. Both the industry and the SEC need to take concrete steps that will result in the end-users perceiving the reserves data as reliable and useful for valuation purposes. In my following remarks, I elaborate on this assessment and discuss several proposals and recommendations for improvement.

### **Importance of Reserves Disclosures**

Surveys of investors and petroleum industry managers show that investors *want to* believe the reserves numbers, but *do not*, for the most part, rely on them. A 2002 survey of investors and industry managers conducted by an accounting firm found that most oil and gas company executives thought that their corporations’ share prices were undervalued by investors relative to

the true value of reserves and expected future cash flows from them. At the same time, most analysts interviewed for the survey said that the quality of disclosures of O&G firms were inadequate for use in valuing the companies, even though they agreed that reserves disclosures were important.

Academic research by accounting professors over two decades on the use of reserves disclosures by investors, including early work I have done in this area, has also shown that investors generally find reserves disclosures useful for valuing a company. Academic studies have shown generally that the reserves disclosures, including the standardized measure of cash flows and changes in the standardized measure, do have information value to investors. But the research findings also suggest that investors' reliance on reserves disclosures varies widely with several other factors, including the size of the company and the accounting methods used for exploration costs. Overall, the research findings suggest that the unaudited reserves disclosures of companies are not viewed by investors as adequately reliable for valuation purposes, unless the data are also supported by other audited financial disclosures of the company.

Shell's reserves restatement early this year shocked the markets and the industry for the magnitude of the downward restatement. 3.9 billion barrels of oil equivalent, or about 20 percent of Shell's total proved reserves, were reclassified as a result of the restatement from proved category to other categories. Apart from Shell, however, there have been few reserve restatements by major US companies. As noted, only a handful of other companies have restated their proved reserves estimates this year. Still, many analysts and investors are surprised and confused by the revisions. After all, investors have a right to think that the reported proved reserves numbers are technically determined and should be reliable and not fuzzy. As noted above, the SEC does have a strict and conservative definition of what can be classified as proved

reserves. It is no wonder that investors and regulators are asking whether there may be fundamental estimation and reporting issues related to reserves estimation that need to be addressed.

### **Current Disclosure Requirements**

Given the strategic importance of reliable oil and gas reserves estimates, all major US energy producers with significant oil and gas reserves are currently required by the Securities and Exchange Commission to report their estimates of proved developed reserves and proved undeveloped reserves in their annual filings with the SEC. The SEC disclosure regulations (Reg 210.4-10) on reserves date back to the energy crisis of the late 1970s. Even though the reserves data are disclosed in the annual filings as footnotes to audited financial statements, the footnotes themselves are not audited by the auditing firms and are clearly labeled in the 10-K filings as “unaudited.”

The SEC disclosure rules on reserves are highly respected. The SEC uses strict definitions of the terms “proved” and “proved developed” reserves, and there is general consensus in the industry and among analysts that the SEC’s definitions are quite conservative, if not too restrictive. Under SEC definitions, reserves can only go in the “proved” category reporting if there is “reasonable certainty” that they can be developed at current prices. In Reg. § 210.4-10, the SEC defines proved oil and gas reserves as “the estimated quantities of crude oil, natural gas, and natural gas liquids which geological and engineering data demonstrate with **reasonable certainty** to be **recoverable** in future years from **known reservoirs** under **existing economic and operating conditions.**” (Emphasis added.) As noted, the key highlighted phrase in the above definition is “reasonable certainty.” The SEC has interpreted this phrase especially quite

strictly and appropriately so, and has generally required evidence from test wells, rather than allowing companies to rely on newer technologies for estimating reserves. Specifically, the SEC requires that “Reservoirs are considered proved if economic producibility is supported by either **actual production or conclusive formation test.**”

The SEC’s definition for “proved developed” reserves is even more stringent: “Proved developed oil and gas reserves are reserves that can be expected to be recovered through **existing wells with existing equipment and operating methods.**” (Emphasis added.) A key element of this definition is that capital expenditures for the development of a field should be generally complete or fully committed to, in order to include the field as proved.

Companies also provide additional reserves-related data to other federal agencies, including the Energy Information Administration’s Financial Reporting System. Finally, the Financial Accounting Standards Board (FASB), in its Statement No. 69, “Disclosures about Oil and Gas Producing Activities,” requires extensive unaudited footnote disclosures related to a “standardized measure of discounted future net cash flows relating to proved oil and gas reserve quantities,” and of annual changes in this standardized measure.

A checklist of all the items that are required to be disclosed by an SEC Registrant with significant oil and gas reserves as a result of the current SEC regulations and FASB Statement No. 69 would run to several pages. Significant financial and non-financial items in such a checklist would include:

- Accounting Policies (audited):
  - Method of accounting for costs incurred in oil and gas producing activities and the manner of disposing of capitalized costs related to those activities.
  - Accounting policy for capitalizing internal costs associated with oil and gas producing activities and amount capitalized during the current year.
- Capitalized Costs and Other Costs (audited):

- Aggregate capitalized costs relating to oil and gas producing activities and the amount of the related accumulated depreciation, depletion, amortization, and valuation allowances.
- Aggregate capitalized costs of unproved properties
- Capitalized costs of support equipment and facilities
- For each significant geographic area, total costs (both capitalized and expensed) of property acquisition, exploration, and development.
- Acquisition costs of proved properties
  
- Financial results of operations of oil and gas producing properties (audited)
  
- Proved oil and gas reserve quantities (unaudited)
  - Proved reserves, beginning and ending
  - Proved developed reserves, beginning and ending
  - Important economic factors or significant uncertainties affecting components of proved reserves
  
- Standardized measure of discounted future net cash flows (unaudited)
  
- Changes in the standardized measure of discounted future net cash flows (unaudited)
  
- Other disclosures related to full cost accounting (audited)
  
- Production-related by geographic areas (audited)
  - Average sales price per unit of oil produced and of gas produced
  - Average production cost (lifting cost) per unit of production
  - Productive wells and acreage
  
- Other data (audited)
  - Undeveloped acreage
  - Drilling activities

As can be seen from this incomplete list, US energy companies are already required to provide a considerable amount of disclosures covering both financial and non-financial aspects of their business. However, the list also indicates that all disclosures related reserves (quantity as well as the standardized measure of cash flows) are unaudited. Therefore, investors and regulators looking to find the cause of the credibility gap in reserves disclosures should naturally focus first on the quality of data and reporting standards of current disclosures rather than on potential additional disclosures.



Taken together, the strict and conservative definitions and interpretations used by the SEC for proved and proved developed reserves should, in theory, lead to highly reliable estimates of oil and gas reserves. Assuming the SEC's strict definition of "reasonable certainty" is correctly applied at the field level, it is hard to envision scenarios where there could be significant downward "technical revisions" in proved reserves in this era of rising oil and gas prices and improving recovery techniques. In fact, as new recovery technologies are developed by the industry, the recoverable quantities of reserves can only go up, except for reductions due to actual production. In practice, as mentioned earlier, we find that reserves disclosures suffer from several problems of consistency in estimation and a lack of audit. As a result, investors and analysts do not find the unaudited reserves data as credible enough. The reason for this credibility gap is a combination of lack of external audit of the reserves disclosures, industry-wide certification program, structured companywide monitoring and training programs, and peer review programs. These issues are addressed next.

### **Verifiable Reserves Data: Lack of Audit and Certification**

Given the importance of the reserves disclosures for investors and regulators, it is surprising that there has been very little focus in the financial media on how the reserves data are prepared and reported by companies. Currently, reserves disclosures in the financial statements are not audited by independent public accountants, nor are they audited by any petroleum industry-designated independent evaluators. Performing the critical "reserves evaluator" function currently does not also require any recognized certification program or other mandatory industry-wide training requirements. There is also no industry-wide peer review or monitoring program of the work.

An industry standard approved by the Society of Petroleum Engineers (SPE), titled “Standards Pertaining to the Estimating and Auditing of Oil and Gas Reserves Information,” provides guidance to reserves evaluators. However, there is no industry-wide system to enforce the standards.

A recent industry conference attended by both petroleum evaluators and representatives from the SEC also revealed that many industry evaluators are not in agreement with the implementation details of the SEC regulations.

The Sarbanes-Oxley Act’s requirement for internal control certification has recently made oil and gas companies in the US to reevaluate the internal control processes used to determine and document the reserves data. I expect that the main benefit of the changes being introduced as a result of the implementation of Sarbanes-Oxley Act is the avoidance of obvious conflicts situations, such as tying the compensation of an evaluator with the reserves estimation. It is possible that such financial incentives and bonuses led to some of the overvaluations by companies reported earlier this year. Another type of conflict that a strong internal control would prevent is the effect of reserves classification on the capitalization or expensing of certain drilling costs. For example, for companies following the successful effort accounting, classifying a field as proved undeveloped would allow the capitalization of the subsequent costs of drilling and development of the field. (Until such a classification, the drilling costs are considered to be exploratory costs and are expensed under that accounting procedure.) The capitalization would, in the short-term, lead to less expenses and larger reported income. If a division’s manager is compensated based on the income measure, then the manager would benefit from having the field classified as proved. As a result of the increased responsibilities placed on management by Sarbanes-Oxley Act’s internal control requirements, many companies should be able to identify

and correct such potential conflict situations that affect either financial incentives or reported earnings numbers. These are important benefits that would ultimately improve the overall credibility of reserves numbers. However, the Sarbanes-Oxley Act would not be sufficient to address other reserves estimation issues, such as who should do the reserve evaluation, what they should do, and how they should do it.

Despite this lack of any auditing requirement or training standards, it is indeed a credit to the hard work and dedication of the industry's engineers and evaluators that the reserves numbers they produce are generally stable and are subject to very few downward adjustments. Among the restatement cases this year, Shell's internal investigations have shown so far that the problem of overvaluation of proved reserves was limited to just two or three geographic areas. The other cases of reserves restatements this year, including that of El Paso Corp., may well have been exposed from the process of implementing the Sarbanes-Oxley Act's internal control certification requirement.

Nevertheless, rather than relying on continued luck, it is preferable for the SEC and the industry to seriously consider proposals for certification and external reserves audit, and other proposals affecting the quality of reserves disclosures and regulations. The five proposals discussed below, if implemented, would make reserves data more reliable and subject to the same level of auditing standards and reliability as key other items on the company's financial reports.

## **Recommendations for Actions by the SEC and the Industry**

### 1. Certification Program

The above discussion of the current state of reserves disclosures and the potential problems of reliability and audit of the reserves data lead to several possible action items for the industry and the SEC. The industry does have strong and well-functioning independent groups, to some of which reserves evaluators usually belong. They include the Society of Petroleum Engineers (SPE), Society of Petroleum Evaluation Engineers (SPEE), and the American Association of Petroleum Geologists (AAPG). The idea of developing and implementing an industry-wide certification program for petroleum reserves evaluators has been explored and discussed by all these groups. Several industry leaders have also called for a certification requirement, and I endorse the idea as well.

For reserves evaluation, which is basically a science and technology-driven area, a certification program would be relatively easy to conceptualize and implement. This is because the main focus of certification in such a highly technical area, where most industry participants already have highly specialized education and training in engineering or geology, is to standardize practices rather than invent new practices. In addition, the program would need to focus on educating the evaluators about the disclosure regulations of the SEC. Also, as in accounting, auditing, law, medicine and other professions where members have public responsibilities, ethics education needs be a necessary part of the training. Once again, these programs should be easy to implement given the highly talented work pool that constitutes this respected technical field and the technical nature of the reserves estimation process.

Under some certification options discussed by industry, the reserves estimation for SEC reporting purposes would still be done certified petroleum reserves evaluators who are

employees of the companies they are evaluating, rather than by outside or so-called third-party evaluators. Some companies now voluntarily use third-party evaluators for preparing SEC-reported reserves data. These tend to be small companies and their motivation seems to be related to having better access to credit markets. The decision to use outside or third-party evaluators is currently left to the companies. However, other industry leaders, especially consulting firms, have said such an approach would not result in increased credibility of reserves data, which is the main objective everyone is seeking. They have called for either regulation or industry agreement to take this function outside the company. Of course, even under such a scenario, most large companies would continue to employ internal staff of evaluators for purposes other than SEC reporting.

In the end, the use of internal versus external evaluators is a business process outsourcing issue and has no direct relevance to the quality of reported reserves data. However, what is much more important is whether the resulting reserves data are audited by independent auditors. This is addressed next.

## 2. Reserves Audit

Related to the certification program, a second proposal from some industry leaders to improve the reliability of reserves data is to require a so-called “reserves audit”. It is important to note that not all industry observers agree on what the term reserves audit means, or on who should do it. There is also some debate as to what the role of independent external auditing firms should be in this audit function. A common use of the term reserves audit refers to the use of independent external evaluators to “audit” the “reserves report” prepared for the company. (The “reserves report” is usually the basis for a company’s reserves data reported to the SEC.) This type of audit

of reserves reports is currently not performed by the independent external auditors of a company's financial reports. Hence, reserves audit refers to a new audit function that needs to be developed by the petroleum industry, with the help of the auditing industry. The AICPA Audit and Accounting Guide, "Audits of Entities with Oil and Gas Producing Activities," provides overall guidance for independent external auditors on auditing the companies' financial statements and footnotes. However, there is no industry auditing standard pertaining to the auditing of reserves report since the disclosures are presented as unaudited in the financial reports filed with the SEC. If a reserves audit requirement is to be adopted, the SEC would need to work with the new auditing regulator, PCAOB, and with the petroleum industry to develop technical auditing standards for auditing the reserves reports and consider implementing them.

An immediate benefit of developing and implementing a reserves audit system will be to use them as a basis for SEC's own internal reserves review process. The Sarbanes-Oxley Act, which requires the SEC to review public company financial filings at least once every three years, will likely impose new burdens on the SEC to review the reserves disclosures. The reserves audit process, if implemented by all SEC registrants who report reserves data, would greatly reduce the SEC's own resource requirements under the Act for reserves review.

A new auditing requirement for reserves report might also provide the SEC with the flexibility it would need to handle industry demands for relaxing its 25-year old definition of proved and proved developed reserves. Many industry observers, including leading financial analysts covering the industry, claim that the SEC's standards are too rigid and that they have not kept pace with the technological advances in the industry on measuring reserves. On the contrary, in the absence of an external auditing requirement and in the absence of industry standardization of practices through certification, regulators and financial statement users are

forced to demand strict and unchanging criteria. For example, the SEC requires the use of oil and gas prices as of the last day of fiscal year rather than permit the use of an average price for the quarter or the year. Similarly, the FASB has adopted a very highly specified and restrictive “rule-based” procedure for its disclosure requirement concerning the standardized measure of cash flows. These restrictions are most likely a result of the existing credibility gap in reserves data and a desire on the part of regulators and standard-setters not to worsen the credibility gap. Implementing a rigorous reserves audit requirement, along with standardization of measurement practices, would allow the SEC and the FASB to favorably consider several industry proposals to modify their regulations concerning the definition of reserves or the calculation of the standardized measure of cash flows.

### 3. Separation of Reserves Auditing from Reserves Consulting

As the SEC pursues the feasibility and implementation issues of the reserves audit proposal, it should keep in mind several lessons learned from the recent corporate scandals involving the mixing of auditing and consulting. In particular, the scandals and subsequent investigations have shown the need to exclude external auditors from performing any advisory roles for the same company in potential conflict with their auditing role. A similar strict separation should be required between reserves auditing and reserves consulting.

### 4. Principles Based Approach to Disclosure Regulations

As noted above, many industry analysts have called for the SEC to consider recent technological advances in the industry and modify its definition of proved and proved developed reserves accordingly. However, financial analysts and others covering the industry have also argued that

the current definitions used by the SEC to define proved reserves are often loosely interpreted by industry, especially with respect to determining the economic feasibility of a field, and should be made more strict as part of the move to require standardization and external audit. The SEC's definition of proved reserves requires "reasonable certainty" that the products can be "recoverable in future years" under "existing economic and operating conditions." These are often interpreted in practice to mean net undiscounted positive cash flows, even if it is just a dollar. No minimum rate of return is required to justify the classification of a field as proved or proved developed. These procedures suggest a tendency by the SEC and the industry to choose "rules-based" rather than a "principles-based" approach whenever the regulations about reserves disclosures are interpreted. Instead, it would make more sense for the SEC and the FASB to allow companies to use more flexible economic and technological criteria for classifying the reserves as proved, while at the same time imposing strict internal control and external audit requirements to prevent potential abuse of the flexibility.

Another result of the current rules-based approach to estimating reserves is that many oil and gas companies preface their disclosures of the FASB's standardized measures with boiler-plate disclaimers that raise serious questions in investors' minds about the credibility gap discussed earlier. These strongly-worded disclaimers end up mostly scaring off investors who want to rely on the disclosures and thus reduce the usefulness of reserves disclosures. The standardized measures, of course, are fundamentally based on the proved reserved data, and hence any language used by the company that raises questions about the usefulness of these FASB disclosures also questions investors' reliance on the proved reserves disclosures, even though companies typically do not preface the reserves disclosures with similar remarks. An example of



a disclaimer that might precede the standardized measure disclosures is the following from ChevronTexaco's 2002 Form 10-K:

“The information provided does not represent management’s estimate of the company’s expected future cash flows or value of proved oil and gas reserves. Estimates of proved reserve quantities are imprecise and change over time as new information becomes available. Moreover, probable and possible reserves, which may become proved in the future, are excluded from the calculations. The arbitrary valuation prescribed under FAS No. 69 requires assumptions as to the timing and amount of future development and production costs. The calculations are made as of December 31 each year and should not be relied upon as an indication of the company’s future cash flows or value of its oil and gas reserves.”

It is expected that such disclaimers would be less frequent, and firms could be required to stop using them in the 10-K, if the proposals for a principles-based approach to estimating and disclosing reserves and the standardized measure are adopted along with effective certification and audit requirements.

##### 5. Common International Standards

The disclosure problems of Shell highlighted the differences in financial reporting standards between the US and several other major economies. The International Accounting Standards Board (IASB), whose International Financial Reporting Standards (IFRS) have been adopted by over 35 countries worldwide and are also required to be followed by all public companies in the European Union starting next year, has been working for several years to develop accounting and reporting standards for extractive industries, starting with a detailed Issues Paper in 2000. In January 2004, the IASB released its proposed standards in Exposure Draft ED 6, “Exploration for and Evaluation of Mineral Resources.” The proposal in ED 6 is very limited in scope and it is clear that the IASB would need more time to develop more comprehensive standards covering reserves quantities and standardized measure of cash flows. This time period provides the SEC

and the FASB to work with the IASB and international securities regulators to develop consistent disclosure provisions.

## **Conclusion**

Despite the highly technical nature of the reserves estimation process, both preparers and users of the reserves information know that reserves estimation is not an exact science. Estimates are based on limited data obtained from small regions, which are then extrapolated to the whole field. Reserves estimations are also based on expected production paths over long periods of time. Many alternative procedures are often available and widely used for making similar technical or economic determinations. These factors make reserves disclosures inherently subject to information quality problems.

Yet we know that reserves data are extremely important to investors to value and assess the performance of energy companies, and are equally important to regulators and the public given the critical role of the energy sector in the economy. It is clear, then, that reserves data should be disclosed in a way that minimizes the credibility gap that afflicts the current disclosures. The current credibility gap is a product of a quality gap, which affects the relevance of the disclosed information to users, and a reporting gap, which affects the reliability of the information. In this report, I have discussed five specific proposals for actions available to regulators for closing the credibility gap of the disclosed reserves data.

The first element of these proposals is a certification program to standardize and regulate the “who-what-how-when” of reserves evaluators’ function (who will do the evaluations, what will they do, how will they do it, and when will they do it), along with training requirements, including ethics requirements and knowledge of SEC regulations. The certification program will

address the quality or relevance issue. The second major element in improving the credibility of reserves data is to for the SEC to work with the PCAOB to develop procedures for an external audit of reserves and to require an external reserves audit of the disclosures for all SEC registrants. The third proposal is to require the strict separation of reserves evaluation function from the reserves audit function, similar to the way audit and consulting functions are currently handled by the Sarbanes-Oxley Act and other SEC regulations. Fourth, the SEC and the industry should move toward a principles-based approach in regulations and accounting standards for both reserves quantity and the standardized measure of cash flows. Finally, the SEC and the industry should work toward convergence in international standards for reserves estimation and disclosures. These five changes, which I support, will lead to a significant improvement in the quality and reliability of reserves data for all users, including the management of energy companies, their investors, and the public.

The technical expertise and overall quality of personnel in the petroleum reserves industry is already very high. Thanks to the work done by these highly trained and dedicated personnel, reserves disclosures have the potential to be very reliable and useful when disclosed. The proposals discussed here will help close the credibility gap currently perceived by investors and users, and will result in increased use of the reserves information by managers, regulators and the investor community.

**BIOGRAPHICAL PROFILE OF**  
**BALA G. DHARAN, Ph.D., CPA**

Bala Dharan is the J. Howard Creekmore Professor of Management at the Jones Graduate School of Management, Rice University, Houston. He is also an Adjunct Professor of Management at Baylor College of Medicine, Houston. He has extensive research and consulting experience in financial reporting and accounting issues in the energy industry, as well as investment analysis and business valuation, and is frequently cited by media on accounting issues. He has also been invited twice to testify before Congress on financial reporting scandals and accounting standard-setting process.

Bala received a PhD in management from Carnegie Mellon University, Pittsburgh, in 1981, following an MS. His previous education includes a B.Tech in chemical engineering from Indian Institute of Technology, Madras, and an MBA from Indian Institute of Management, Ahmedabad. He is a Registered Investment Advisor and a Certified Public Accountant in Texas.

Bala has been on the Rice University faculty since 1982. He has also been a visiting professor at the Harvard Business School and at University of California, Berkeley, and a faculty member at the Kellogg Graduate School of Management at Northwestern University. At Rice, Bala teaches management courses for MBA students, as well as popular courses on finance, accounting and valuation for executives. He has published widely in major U.S. and international journals. His research centers on the use of financial information by investors, and in particular on the effect of accounting changes on the quality of information reported to investors. He has also held research seminars in over forty universities, and has served on the editorial boards of *The Accounting Review*, *Accounting Horizons* and *The Asia-Pacific Journal of Accounting*. He is co-author of the books *Readings and Notes on Financial Accounting* and *Enron: Corporate Fiascos and Legal Implications*.

Bala is a member of the American Institute of Certified Public Accountants, American Accounting Association, Canadian Academic Accounting Association, Financial Executives International, and American Finance Association.