

# SEC staff opines on flow testing, PUDs, probables



An assistant director at the U.S. Securities and Exchange Commission said that the agency does not object to the use of seismic and well data in some cases to justify booking proved undeveloped (PUD) reserves from Gulf of Mexico deepwater discoveries that have not been flow tested. "There seems to be a

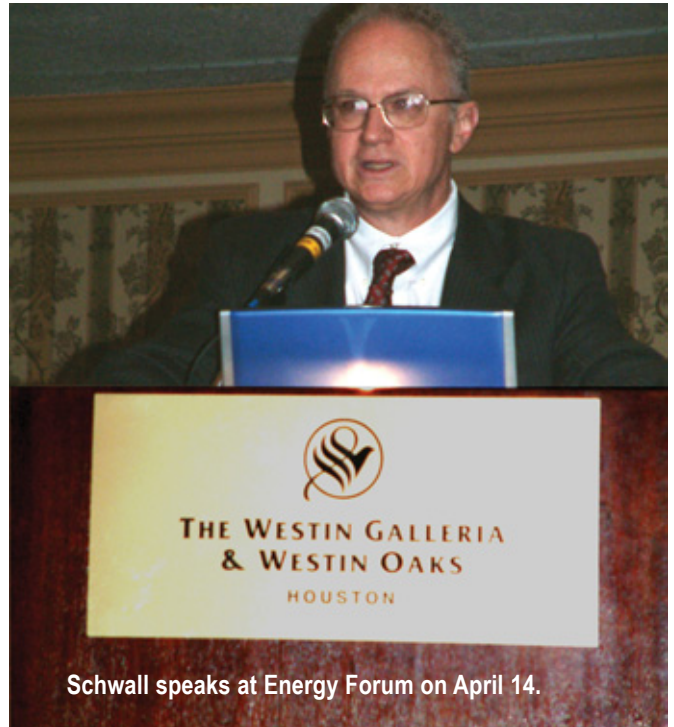
sense out there that we don't feel that technology has any value and that we have a closed mind to its usefulness," said **Roger Schwall**, assistant director of natural resources at the SEC. "Let me assure you that this is absolutely not the case."

He spoke to about 140 attendees on April 14 at the Reserves 2004 Series, a meeting event organized and produced by the Energy Forum. Schwall also said that the current debate on the reserves-reporting process has focused on three areas: PUD and probable reserves and the timing of reserves recognition, all of which he discussed.

## Flow testing in deepwater GOM

The SEC sent comment letters to GOM deepwater operators in 2002 soliciting information on data-acquisition methods and their results. Before the latest announcement, the SEC staff had not made public statements on its investigation into GOM deepwater operations.

Schwall said that respondents stated that they used four procedures in combination to justify booking PUDs — openhole logs, core samples, wireline forma-



Schwall speaks at Energy Forum on April 14.

tion sampling and seismic surveys. "After considering their responses, we were able to reach a position of not objecting to their recognizing proved undeveloped reserves," said Schwall.

His comments put to rest notions that the SEC staff would insist on production flow testing to the surface in the GOM deepwater, which operators say is too costly and environmentally risky. Schwall formalized his comments a day later on an SEC Web site posting, "Letter to Companies with Oil and Gas Operations in the Gulf of Mexico" at [www.sec.gov/divisions/corpfm/guidance/oilgasltr04152004.htm](http://www.sec.gov/divisions/corpfm/guidance/oilgasltr04152004.htm).

## PUD reserves at undrilled locations

Undrilled units more than one unit location (legal spacing) away can be claimed as proved only where it can be demonstrated with certainty that there is continuity of production from the existing productive formation, states an SEC rule. Schwall affirmed the absoluteness of this language while conceding that the definition has caused confusion.

*Please see Schwall on Page 4*

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# The real reason for reserves evaluators to become certified



Harrell

In asking whether the oil and gas industry should establish a certification program for petroleum reserves evaluators, one must look at the enormous

value that they appraise. Their valuations, both internal and external, are the basis for investment decisions involving billions of dollars every year.

The *Oil & Gas Journal* reported that the 154 publicly owned U.S. oil and gas producers that filed 10-K reports at year-end 2002 reported 37 billion barrels of oil and 187 trillion cubic feet of natural gas. At \$35/Bbl and \$5/Mcf, for example, those reserves represent a total value of more than \$2 trillion.

The *OGJ* reserves quantities for year-end 2003 very likely will be even greater because of higher commodity prices. Furthermore, the \$2 trillion figure is understated because it does not include non-U.S. companies reporting to the U.S. Securities and Exchange Commission and companies reporting in other countries. Even so, this is not a trifling amount, comparable to the gross national product of Germany, the fifth largest domestic economy in the world.

Most of this value has been estimated by competent, well-

trained professionals. In my opinion, it is also fair to say that many other individuals who estimate reserves are not well trained in some of the fundamentals necessary to issue reliable estimates that conform to relevant definitions. This second category of companies and estimators would be the real beneficiaries of a program to certify evaluators.

Certification alone will not necessarily change human behavior, including unethical conduct, but the additional training required for a candidate to pass a meaningful examination will, at least, expose such an individual to a code of ethics as well as to accepted techniques and evaluation practices.

Potential sponsoring organizations AAPG, SPE and SPEE are currently giving serious consideration to the certification proposal. All three organizations are expected to meet in June to form an exploratory committee to research the idea and to draft reports and initial recommendations.

Is this simply a plan to mandate a requirement that all reserves reports be prepared by certified evaluators or to increase

business for engineering and geological consultants? On the contrary, certification will not be a boon for the consulting sector.

Indeed, many E&P companies, both large and small, will be anxious to obtain certification for internal evaluators to reassure investors that their reserves have been properly prepared and meet international standards. This could actually silence those calling for mandated third-party reserves audits. Congress is already considering this. On May 4, U.S. Representative John Dingell, a member of the House Committee on Energy and Commerce, asked the SEC and Financial Accounting Standards Board why they had not adopted a requirement for third-party reserves audits. The committee has jurisdiction over accounting standards set by the FASB.

If we, as an industry, want to set the standards rather than government, then surely certification is a step in that direction and a better step than mandated third-party reserves reviews. Comments, positive or negative, as well as further questions will be welcomed by me at [ron\\_harrell@ryderscott.com](mailto:ron_harrell@ryderscott.com).

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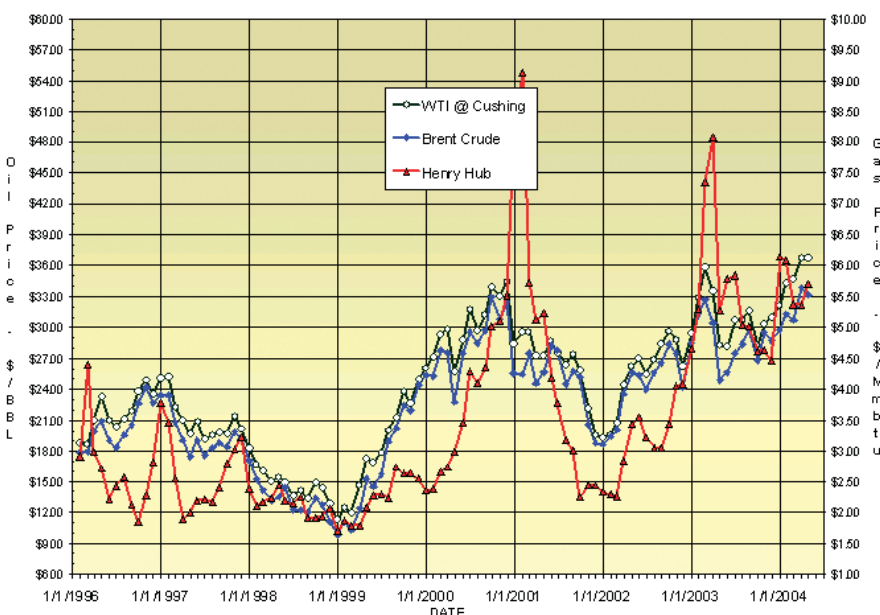
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Price history of benchmark oil and Henry Hub gas



The historical price chart shows published, monthly-average, cash market prices for WTI crude at Cushing (NYMEX), Brent crude and Henry Hub gas.

# Industry Updates



Deutsche Bank global oil & gas research group published a letter to the U.S. SEC earlier this year warning that outmoded SEC reserves definitions will force companies to write down reserves, ultimately making it harder to raise funds.

"We see the SEC guidelines as outdated with respect to technology trends, and the burden of compliance as an unnecessary cost," the letter stated. "The discrepancy between these guidelines and industrial reality, and the market climate following the Enron affair, is generating an unwarranted external push on the oil companies to underbook reserves, and therefore overamplify costs. This has the knock-on effect of reducing market values and negative implications for oil companies' ability to raise finance."

Deutsche bank commented on reserves bookings in remote areas, reserves booked on seismic data, secondary recovery programs, probabilistic reserves estimates, reserves of interest holders and the purpose of reserves bookings. The regulatory commission has maintained that SEC-compliant proved reserves are not meant to be a market-value measure, but rather a "standardized measure" that investors can use to compare public companies.



The multinational oil and gas companies are questioning a decision by the U.S. SEC to restrict its latest reserves-reporting ruling to the deepwater Gulf of Mexico rather than include analogs. The SEC stated that on a

case basis, it has not objected to the use of data from seismic, logs, cores and wireline formation tests to prove up reserves in lieu of flow testing in the GOM only. (See article on Page 1, "SEC opines on flow testing.")

**John Browne**, BP CEO, criticized the SEC in late April for excluding other areas. "It's not logical to apply this to one geographic area of the world. If it's good for the deepwater Gulf of Mexico, is it not good elsewhere," he said as quoted in the *London Times*.

Arguably, some of the deepwater turbidite sandstone fields in west Africa share enough geological characteristics with the GOM fields to be considered analogs and therefore candidates for SEC consideration. A counter argument says, though, that the SEC has much more historical data on the GOM so that it is better able to consider and decide on industry cases.



■ An industry update in April from CIBC World Markets Corp. stated that this year's reserves revisions may prompt a return to core analysis as a way of improving the accuracy of reserves estimates. The update stated that core analysis had declined industry wide and about 60 percent in the U.S. gulf coast since the 1970s as E&P companies began to favor more cost-effective wireline logging.

CIBC said logging is prone to possible error in measuring rock characteristics, including porosity and water saturation. In the support of coring, the update states, "Nothing really compares to having the actual rock in your hand."

Handling the rock, though, can be part of the problem. Cutting, retrieval, drilling-mud contamination, transportation, storage and lab processing can damage and alter cores, said **Steve Phillips**, a geoscientist and vice president at Ryder Scott, who cautioned that many steps are involved in turning an in-situ sample of rock into porosity and saturation data. Some of these steps can introduce errors.

Measurements of rock properties are method dependent, which can introduce variances among techniques. "Core measurements typically are considered more direct and log measurements indirect," said Phillips. "However, in both cases, devices operated by humans measure rock properties. Then those measurements are used to calculate the pore volume and fluid content of a sample of the reservoir."

Most geologists agree that the best solution is to use a combination of log and core data to characterize a reservoir. Both have advantages. Core data can be more accurate, but vertical sampling is limited and the volume described per sample is only about the size of one's thumb. Logging provides a nearly continuous record of a much larger volume around the well bore, but numerous factors must be considered to correctly interpret the results.

Ideally, a prudent evaluator will use all available core data to calibrate log response while building a reliable model of the reservoir, said Phillips.



*Schwall—Cont. from Page 1*

"First is the concept of offsetting productive units. We at the SEC take that to mean one offset location. Some feel that a more generous, liberal reading of the language is acceptable and have booked reserves accordingly. We see no basis for such a reading and we have objected in the comments process when we have detected that methodology," he said.

Because there is no mitigating modifier for the word "certainty" in demonstrating continuity of production, "some in the industry feel that the term 'reasonable' must have been left out of the definition due to oversight," said Schwall, remarking that the Society of Petroleum Engineers uses the term "reasonable certainty" in its definition. "We have no basis to believe that may be the case and feel that requiring a higher level of certainty, higher than reasonable, seems appropriate where the data cannot be as reliable."

**Timing for recognition of proved reserves**

Schwall said that in addition to having the necessary technical supporting data, a company must also have a plan to complete whatever infrastructure is necessary. That includes a firm commitment to act upon that plan and to secure the necessary funding and the requisite government approvals. "Remember legal feasibility is part of the SEC definitions of proved reserves," he remarked.

Without a reliable track record of approvals from the government, a company cannot book proved reserves, Schwall said. "We take a comparable position regarding reporting reserves beyond the life of a license in a developing nation if there is no reliable track record indicating the renewal of such licenses is essentially automatic," he remarked.

**Probable reserves**

The SEC definitions do not recognize probable reserves or permit their disclosure in filings. Schwall indicated that industry has approached the SEC about changing this rule.

"We are aware of the concerns that are expressed in this matter and we are taking it under advisement. I am not suggesting that we are getting ready to change any of our rules but we hear what people are saying and we certainly are analyzing it and considering it," he said.

**Other issues**

Schwall addressed the following issues:

■ **Sarbanes-Oxley Act**—Schwall said, "What (SOX) means is management is not just responsible for the numbers themselves, but to ensure that the process by which the numbers are calculated is accurate and complete and that there is a clear assignment of

responsibility in that process."

■ **Third-party consultants**—Schwall said that the SEC has no position on requiring companies to use third-party consultants for reserves evaluations. "We often disagree with estimates supported by outside consulting firms, so the use of an outside firm would not necessarily mean that we would not raise concerns about such estimates," he remarked.

■ **Certification of reserves evaluators**—The SEC takes no position on a structured certification process for reserves evaluators that would be as rigorous as the CPA process, said Schwall.

■ **SPE assistance**—Schwall said, "I have been disturbed by headlines in the press to the effect that the SEC is avoiding dealing with the industry, suggesting that we have gone into seclusion. One headline said, 'SEC spurns help in oil reserves squabble.' The story indicated that we had rebuffed an overture from the SPE to set up a regular mechanism for dialogue with them. In fact, we responded to their offer and will be exploring the possibility with them."

■ **Skipping the SPEE forum**—Schwall said that the press had reported that the SEC had decided to skip the Society of Petroleum Evaluation Engineers forum in October. "That is not correct. We did advise the Houston chapter of the SPEE that we would not participate in

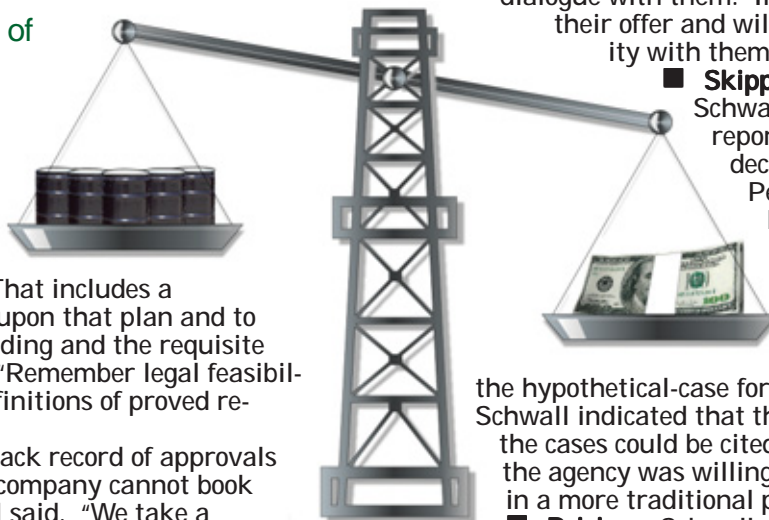
the hypothetical-case format," he remarked. Schwall indicated that the SEC had concerns that the cases could be cited as precedents. He said the agency was willing to participate with SPEE in a more traditional panel approach.

■ **Pricing**—Schwall said that the SEC engineering staff has had lots of discussion about alternative methods to a FASB requirement that December 31 oil and gas prices be used in reporting reserves. He added though that this is a financial accounting regulation based on FASB standards "and that's what the rule is."

■ **Transparency**—Schwall said that investors want more specifics about the following:

- Where company reserves are located?
- What is the process by which reserves are determined and by whom?
- What is the company's track record in finding new reserves and converting them into production?
- How is management's compensation tied to booking reserves?
- If the company uses a third-party engineer, what role does that third party play in the reserves process?
- If a company changes from using a third-party firm, should the company disclose why and are there any disagreements with the prior firm?

The Energy Forum plans to host a private roundtable on yet-to-be-determined reserves issues on Thursday, June 24, in Houston. For registration information, send an e-mail to david@theenergyforum.com.



# ASC: No negative technical revisions

**Glenn Robinson**, senior petroleum evaluation engineer, at the Alberta Securities Commission, reaffirmed the commission's expectations that companies report no negative technical revisions to proved reserves—a goal that critics contend will force evaluators in Canada to be unjustifiably conservative. (See "ASC, critics debate whether Canadian reporting regulations undervalue juniors," *Reservoir Solutions* newsletter, March-May 2004, Page 6.)

"You should never have negative technical revisions to proved reserves estimates. You should have minimal positive or negative revisions to proved plus probable reserves and only negative revisions for 3P reserves," he said. "If you use a conservative P90 for proved reserves at the property level, you will find that out."

Robinson recommended that fixed statistical confidence levels should be set for all reserves classifications at the entity, property and total levels. For proved reserves, he suggested P75, P90 and P90 or greater at entity, property and total levels, respectively.

Robinson also discouraged lowering confidence limits at entity and property levels by citing the portfolio effect of aggregation. "You cannot change entity confidence limits as a function of the number of entities," he remarked.

Robinson made his remarks at the Reserves 2004 Series, an April 14 meeting event organized and produced by the Energy Forum.

He said that even though the SEC does not have a definition for probable reserves, stockholders would have a better idea about the future profitability of a company if they knew more about unproved reserves. He criticized the improper use of material-balance analysis and reservoir simulation to estimate proved reserves.

"One of the gripes I have is material balance printouts that look like shotgun splatters. We just throw them in a basket and send out a letter," Robinson said. "To me, that is just poor reservoir engineering."

He characterized faulty simulation as expensive and invalid. "Three different companies evaluated this one reservoir and they said that it was going to produce for 400 years. And each one of those (simulation) studies cost \$1.5 million to do and I get the same answer each time that I talk to them," Robinson said. "Beware of mathematical calculations."

He said that the Canadian Oil & Gas Evaluation Handbook Vol. 2 will be published this summer in Canada and that Vol. 3 is in the works. Robinson said that COGEH establishes qualifications for reserves evaluators and auditors that include sufficient educational background and membership in a professional organization.

Evaluators must have five years in petroleum engineering and three years in reserves evaluations. Auditors must have 10 years in petroleum engineering and five years in reserves evaluations.



Glenn Robinson tells Energy Forum audience that companies reporting under NI 51-101 should not have negative revisions.

## ASC answers FAQs

**Q.** Is it appropriate to reduce entity confidence levels with increasing number of properties in light of the portfolio effect?

**A.** No. The uncertainty on an entity reserve estimate does not decrease because it is in a large mix of properties. The industry needs to accept the process of using fixed certainty levels at the entity level and the effects of statistical aggregation (portfolio effect). Remember the best estimate of reserves and values is represented by the proved + probable numbers. The proved and proved + probable + possible numbers are included to provide the degree of uncertainty.

**Q.** Does a company have to have funding available before reserves can be assigned to an undeveloped property?

**A.** No. The undeveloped property maintains value whether or not the company has funds to develop the asset. However, the issuer must disclose the source of the funds necessary for the development.

**Q.** Is it acceptable to defer proved undeveloped reserves until such time as the capital is spent to develop these reserves in order to manage F&D costs?

**A.** No. Failure to disclose all material reserves could trigger "insider trading". If a company knows of a material reserve addition, but does not disclose this information to the public, then insiders within the company could be charged with insider trading activities, if they trade their shares in the capital market.



## Simmons calls for more transparency in data disclosure



Simmons

**Matthew R. Simmons**, chairman and CEO at Simmons & Co. International, said that the latest petroleum reserves impairments could trigger reforms in industry data disclosure. A subsequent boost in investor confidence, he believes, would heighten the chances that the oil and gas industry can raise a needed \$18 trillion to \$30 trillion, by his estimates, from capital markets

during the next 25 years.

"We let a (reserves) system so important become so murky and so misunderstood. Yet this might actually be the change agent to literally open the door for a totally new era of reform in energy data," said Simmons. "Reserves totals with no third-party review and no field data breakout are really fuzzy data."

He explained that as the economies of oil worsened during the 1980s and 1990s, classifying new projects as proved reserves helped ensure E&P project viability. "Fifteen-dollar to \$18-a-barrel oil made it hard to justify most any project and so almost every producible barrel was needed basically to get the AFE (authorization for expenditure) proof to go ahead," said Simmons, citing this as a cause for inflated reserves numbers and saying that most E&P companies may have overbooked reserves. "Proved reserves status became the literal holy grail."

He criticized GAAP accounting for creating fuzzy numbers by allowing for the capitalization of all development costs once proved reserves status is reached. "Proved reserves took all of the pressure off the project because then the remaining 90 to 99 percent of the development costs were capitalized," said Simmons.

He also remarked that expensing DD&A (depreciation, depletion and amortization) over the life of a field is also fuzzy and not meaningful. To illustrate this point, he showed that a building that cost \$300 a square foot would result in a 3-cent-a-square-foot, per-day capitalized cost over a 25-year life.

"It's a real number and it doesn't mean anything," Simmons said.

He also showed the difficulty in estimating recovery through the factoring of vertical sweep efficiency, areal sweep efficiency and movable oil

saturations, which he stressed are estimates. "The only factual analysis is how to accurately multiply these three estimates," said Simmons. "This is a tougher business than people think. The bottom line is that it is very hard to figure exact numbers."

He questioned reserves estimates from OPEC, saying that the cartel's reserves have grown every year from 1981 to 2002 while it produced 175 billion BOE. Simmons said, "Isn't it amazing that the more they produce, the faster they grow?"

He added that most large gains seem to be merely "paper barrel" changes while drill-bit additions have been small. During that period worldwide, approximately 6 percent of proved reserve gains came from exploring new fields and 108 percent came from paper barrels.

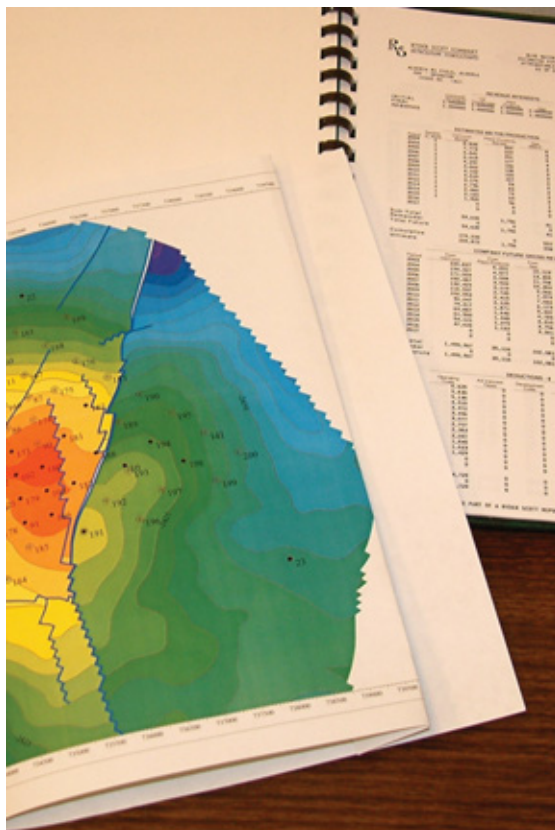
"If any national oil company ever tried to go public, would the SEC allow such skimpy disclosure," Simmons asked. "I would hope that the obvious answer is 'no' and so it should be."

He remarked that the argument that OPEC's reserves are "conservative" hinges on the notion that modern technology enables far greater recovery of original oil in place—a notion that has not been supported elsewhere, except for some "exceptions."

He said that many current oil producers are now in irreversible decline, finding-and-development costs have doubled, daily BOE production is flattening out and the world's oil supply is now extremely mature. "The trust-me era is over," he said, "Most of the world's proved reserves are simply statements and some of those statements have to be wrong."

Simmons proposed "13 points of data" for public disclosure and called for third-party verification, saying that any E&P company not doing that is exactly the same as General Electric announcing to the financial community that, "We no longer use outside CPAs. We know our own numbers better than they do. For competitive reasons, we no longer provide any business segment breakout of our financial data."

Simmons proposed that companies report reserves-related information on a field-by-field basis for OOIP, ultimate recovery and cumulative production. "Without that data, we are flying blind. Everybody wins if we reform. There are no losers," he concluded.



# A look at credit rating agencies and reserves: Part II

## Reputable reserves consultants provide comfort, agencies say

*Editor's Note: Part I was published in March-May 2004 on Page 6. It examines how analysts determine E&P companies' credit status based on reserves and reserves-related metrics. Part II here focuses on what analysts say about reserves consultants and ratings.*



Credit rating agencies acquire information on reserves engineering from required disclosures under FAS 69, other information and third-party reserves reports, whether full-scale evaluations, audits or reviews.

**Mike Hyland**, a senior associate at Moody's Investors Service, said that the agency requests confidential information from companies, including reserves reports. This information is not provided to the public under the fair disclosure (FD) regulation. "We take third-party reserve reports into consideration as well as the reputation of the consultant. This does influence our comfort level, though we recognize that all proved reserves are only best estimates," he said.

"It helps to see a report by a known third-party engineering firm with a long history in the sector — a firm making reasonable reserves estimates with a lot to lose if it ever succumbed to 'clientitis'," **Andrew Oram**, vice president at Moody's, said, referring to "clientitis" as a malady in which the consultant defers to the client to keep the business.

The executive summary portion of an E&P company's reserves report has been a basic part of Moody's review package for years. "This private information is held in strictest confidence," said Oram. "The summary can greatly fill in the information we need that might not be included in public FAS 69 disclosures."

**Bruce Schwartz**, director of Standard & Poor's utilities, energy and project finance, said, "An outside

consultant such as Ryder Scott does provide comfort as far as the veracity of reserves. The opportunity for manipulation though is much higher when a company uses a weak outside engineer or none altogether. There can be conflicts when a small consultant serves a large client."

He likes to see more disclosure and details in independent reports, preferring full-scale evaluations or audits compared to rolling audits, for instance, where one-third of properties are reviewed every three years.

He also limits his reliance on third-party reports. "We view reserves estimating as a science and art. There is inherent risk in reserves estimates and we know that from the outset so we discount what is in the reserves report so a margin of error is embedded, particularly for proved undeveloped reserves and properties in frontier regions."

**Kenneth Austin**, assistant vice president—analyst at Moody's, said that ratings agencies prefer to review third-party reserves reports with field-life information plus public information on year-end results, finding-and-development costs, locations of properties, etc. Moody's also asks for *other* non-public information, such as comment letters from the U.S. Securities and Exchange Commission.

Austin said that third-party evaluation reports will factor into the ratings as a check-and-balance mechanism. "The rating committee's confidence in an E&P's property base might be boosted by recognized third-party engineering reports."

Schwartz said that he looks at the ratings of independents quarterly and reviews their annual or semiannual reserves reports. He examines the operational performances of major integrated companies as well as their year-end reserves reports and SEC disclosures. (The majors generally do not perform midyear reviews of their reserves.)

Even though majors have other assets besides reserves, such as chemical and refining businesses, Schwartz still believes that petroleum reserves are the most critical component.

"E&P is a big driver, representing 70 percent or more of cash flow and earnings for a major. Replacing reserves is critical in sustaining a company's cash flow, earnings power and equity growth, which drive the credit status," he said.







CEO **Ron Harrell** was recently interviewed by *Bloomberg TV* and *Report on Business TV*, a national broadcast in Canada. He discussed reserves impairments and the U.S. SEC.

**Allan Dodds Frank** with Bloomberg interviewed Harrell. Part of the

exchange was as follows:

*Frank:* What do you expect the Securities and Exchange Commission to do next?

*Harrell:* I expect the Securities and Exchange Commission to do what they have been doing in the past and, that is, ask the appropriate questions.

*Frank:* They only have two guys specializing in oil. Do you think they'll add emphasis on this?

*Harrell:* I would say I know those two guys. I know them as competent, capable, hard-working people and they're doing their job. They're asking hard questions. They're eliciting the answers they need to determine whether reserves have been reported in compliance or not.

*Frank:* Is the SEC going to change the rules?

*Harrell:* I think it is unlikely that the rules will be changed. We have lived with these rules since 1978.



**Jane Tink, a Ryder Scott Canada vice president and petroleum engineer, recently won a council seat on the Association of Professional Engineers, Geologists, Geophysicists of Alberta.**



Broome



Dames



Thompson



Gangluff



Meador



Nowicki



Phillips



Vance



Wagenhofer



Whaley

Ryder Scott promoted the following from vice president to senior vice president: Geologists **George Dames** and **Jim Broome**; petroleum engineer **Andy Thompson**.

Ryder Scott promoted the following to vice president: petroleum engineers **Thomas Wagenhofer**, **Samantha Meador** and **Kevin Gangluff**; geoscientists **Mike Nowicki**, **Steve Phillips**, **George Vance** and **Ken Whaley**.

**Publisher's Statement**

*Reservoir Solutions* newsletter is published quarterly by Ryder Scott Company LP Petroleum Consultants. Established in 1937, the reservoir evaluation consulting firm performs hundreds of studies a year. Ryder Scott has issued reports on more than 200,000 wells or producing entities in North America.

The firm has also evaluated hundreds of international oil and gas properties involving thousands of wells. Ryder Scott multidisciplinary studies incorporate geophysics, petrophysics, geology, petroleum engineering, reservoir simulation and economics. With 100 employees, including 60 engineers and geoscientists, Ryder Scott has the capability to complete the largest, most complex reservoir-evaluation projects in a timely manner.

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