RESERVOIR SOLUTIONS

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SEC urged to clarify new reserves reporting rules soon

Agency reviewing flood of feedback, expected to post clarifications on Web site 3rd or 4th quarter

Don Roesle, CEO at Ryder Scott, told a standing-room-only crowd at the Ryder Scott Reserves Conference that it is critical that the U.S. Securities and Exchange Commission begin clarifying new reserves reporting rules for companies filing year-end disclosures. "The one thing that we can hope for is that this happens much sooner than later, because if it doesn't, we are all going to be in a little bit of a bind in the latter part of the year," he said.

> "It's fairly straightforward maybe as you're looking at it from 10,000 feet." — Roesle

While the rules themselves are understandable, the finer points are not. The SEC's 160-page Modernization of Oil and Gas Reporting allows average oil and gas prices to be used to calculate economic limits on reserves and estimated future production. The SEC will also permit the reporting of unproved reserves and non-traditional reserves, such as mined bitumen, if the end product is petroleum.

The SEC will allow the use of modern technology to justify levels of certainty for categorizing reserves if it produces consistent, repeatable results.

"It's fairly straightforward maybe as you're looking at it from 10,000 feet," said Roesle. "It's not a question of if we can do it. The real question is can we do it in the manner that the SEC intended to be compliant. ….Until we get feedback from the SEC, we won't know their intent."

Ryder Scott has formulated interpretive positions on some of the more complex issues and submitted questions to the SEC for clarification but at press time,

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Roesle at fifth annual reserves conference.

RYDER SCOTT '09

Ryder Scott Reserves Conference

- With 225 attendees, the May 8 conference was arguably the largest, single gathering of senior reserves evaluators ever, eclipsing attendance marks set at the Society of Petroleum Engineers/SEC conferences in 2002-2003.
- The presentation of former SEC fellow Dr. John Lee, who was involved in the rulemaking process, is posted under What's New at ryderscott.com along with seven other ones. A Q&A with Dr. Lee has also been posted.
- Bob Wagner, former senior vice president at Ryder Scott, made a presentation on undeveloped locations. Dan Olds, senior vice president, presented "Cowboy Ethics." Fred Ziehe, managing senior vice president, made a presentation on the SEC rules on pricing. All three will be summarized in the September newsletter.

On a related item, Ziehe posts first-of-the-month benchmark prices on ryderscott.com on a quarterly basis.

Inside Reservoir Solutions newsletter

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the agency had not responded.

"They (SEC) are under a tremendous strain right now with all of the industry throwing questions at them. We understand that they want to formulate a good set of answers and they will supposedly post those answers on their Web site and give us instructions," said Roesle. "We at Ryder Scott are doing everything we can at this time to understand the system. It's what you expect of us as our clients and it's what we should be doing."

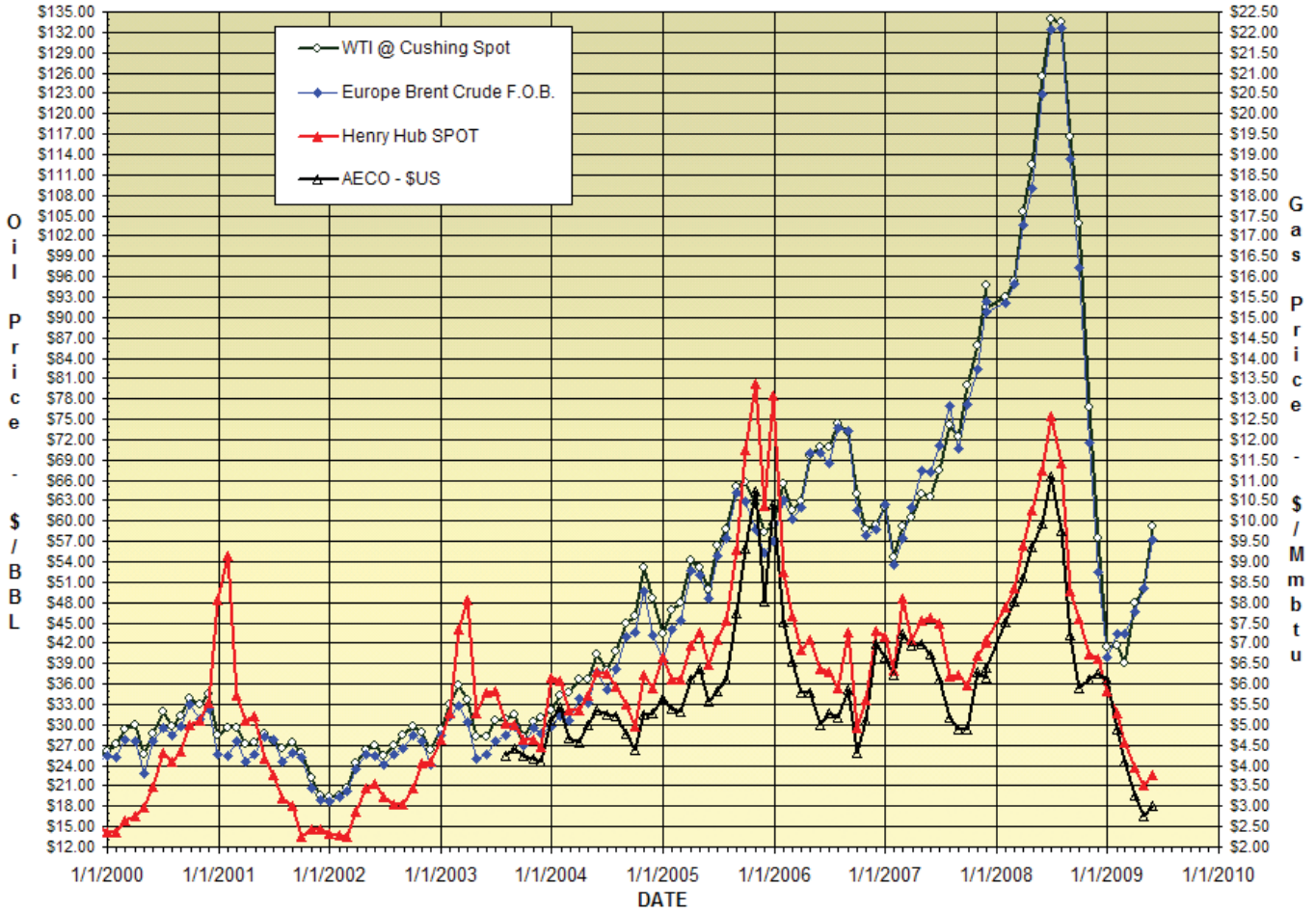
One issue involves the use of technology to justify reserves bookings. The SEC wants reliable technology to have a repeatable, consistent track record and widespread use in a given area. The SEC did not adopt a bright line 90 percent test for that technology as proposed in the concept document.

"So what does that mean to the SEC? Does that now mean that three out of five is OK? Seven out of 10? Again, we don't know what threshold they will set for this until there are some rulings in regard to that," said Roesle. Ultimately, he noted that the SEC will have to deal with each one of the issues on a case-by-case basis.

Don Roesle, CEO, is a co-author of an article published by PricewaterhouseCoopers, "Evolution to principles-based reserves reporting: New SEC rules require strategic direction." The other authors are **John Brady** and **Keith Rowden** at PWC.

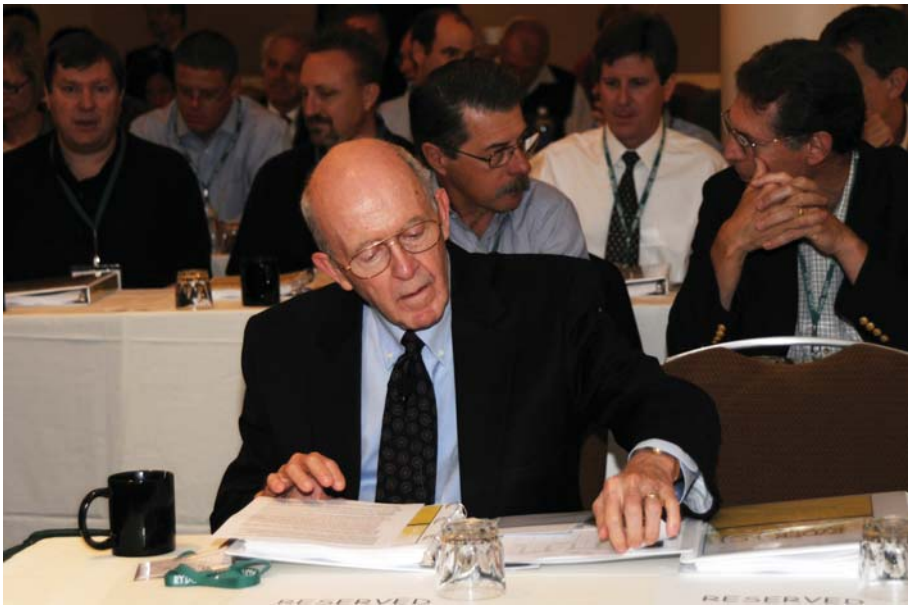
They state that decisions on the new rules "will be influenced by ...a company's unique reserves profile, its interpretation of measurement and reporting principles, consideration of peer group practices and, of course, the needs of its stakeholders."

Price history of benchmark oil and gas in U.S. dollars



Published, monthly-average, cash market prices for WTI crude at Cushing (NYMEX), Brent crude and Henry Hub and AECO gas.

Collect evidence to support technology reliability, says Lee



John Lee, former SEC fellow, prepares for presentation and Q&A at Ryder Scott reserves conference. His presentation and answers are posted at ryderscott.com.

Dr. **John Lee**, an academic fellow at the U.S. Securities and Exchange Commission during the revision process for reserves disclosures, told attendees at the Ryder Scott Reserves Conference that to defend reserves filings, oil and gas companies should begin to collect empirical evidence that field technologies have truly proved to be reliable in subject or analogous reservoirs.

The Texas A&M professor included a disclaimer with his presentation, saying it did not represent the opinions of the SEC. The new rules call for more flexible technologies that support certainty levels without specifying those technologies. That is a departure from previous requirements for rigidly specified technologies, such as flow testing.

"A list (of acceptable technologies) is not going to happen now," said Lee, "There is going to be a list, but that is going to have to come through cooperation from industry and the SEC staff. The bottom line is that those acceptable technologies will have to be proved in practice to lead to correct decisions."

Lee said that companies should bolster their cases that technologies are reliable through empirical observations that constitute an adequate sampling size. He also remarked that the SEC will want evidence of continuity of producibility in all directions and distances from the control point (well bore) where proved undeveloped reserves are claimed.

Lee said that the proposal to use a 12-month average price for booking reserves, which was overwhelmingly supported by industry, was hard fought. "That turned out to be the most difficult change to get through of any that we worked with. There was a lot of resistance among the accountants," he said. "The argument to reduce volatility was not particularly persuasive with accountants. Fortunately, after discussion, some of it heated, the rule was changed."

> "…there will not be too many that may take advantage of it (price/cost sensitivities)." — Lee

He also discussed changes that were advocated by some, tolerated by others. One view was that companies should report proved plus probable reserves for the benefit of investors because the 2P case is the basis for business decisions made by oil and gas operators. However, some companies opposed even optional reporting of unproved reserves, saying that they did not want to be pressured to report those categories by peer companies choosing to do so.

Lee also said that persuasive arguments by the credit ratings agencies influenced the SEC to allow optional disclosure of the sensitivity of reserves to price and cost schedules. However, few plan to file sensitivity cases.

"The SEC thought there would be a significant call for this type of disclosure by oil and gas operators," said Lee. "There was not a strong demand. It appears to me, based on comments, that there will not be too many that may take advantage of it."

Lee said that filers should start now to establish uniform standards for likelihoods as they relate to standards for proved, probable and possible reserves. He remarked that the Canadian Oil & Gas Evaluation Handbook offers detailed suggestions and excellent assistance.

"The SEC staff believes COGEH offers good, clear advice," he remarked. Lee cautioned that COGEH deviates from SEC rules in areas such as base-case economics. Canadian filers use reasonable price forecasts while U.S. filers are required to use fixed prices.

He said that the SEC is unlikely to accept an offer from the Society of Petroleum Evaluation Engineers to provide the U.S. equivalent of COGEH. "They (SEC) are not going to do it and that's unfortunate. The guides are helpful but the SEC doesn't want an outside agency to do it," Lee remarked.

His best guess is that the SEC will issue clarifications to the new rules this fall. Lee recommended that companies seeking guidance should send an e-mail request to schwallr@sec.gov.

Lee also answered a series of Ryder Scott-prepared questions. The Q&A is posted on the Web site at www.ryderscott.com under What's New. In addition, his slide presentation, along with others, is posted there.

Cite reliable technology with caution, says Hodgin

Hodgin at fifth annual reserves conference.

John Hodgin, president, told Reserves Conference attendees that nothing has really changed in the foundation of the U.S. SEC definitions on the use of technology to estimate petroleum reserves. "You must follow the rules as previously stated unless you can demonstrate that the technology is reliable and provide clear evidence to support your booking," he said. "Without that, you are limited to the approach of the past."

Hodgin said that industry will have to build strong technology cases based on the old rules and then "complement" those cases with corroborative data from any one of a broad range of "reliable technology" to establish "reasonable certainty."

"You have to look at the base case. What are the basics? The geoscientist wants to add volumes using seismic attributes but he has to look at the underlying physics of the reservoir and technical data and ensure that he has a strong foundation to build on to apply this additional, reliable technology," he said.

New technology, new opportunities

The new SEC regulations afford industry opportunities to examine property portfolios vis-à-vis technology, Hodgin said, but the onus is on industry to prove its cases—not the SEC, which has instituted a principles-based, open-ended approach, not a rules-based system.

The more flexible regulations allow a company to book updip reserves in gas caps or attic areas if the claim is based on sound interpretations from reliable reservoir-measurement data and shows those volumes are reasonably certain to be recovered.

Referring to a "best practice" technical approach, Hodgin asked, "How many of you have been told that in the absence of any data, you are advised that the updip area should be considered to be a gas cap unless you can demonstrate otherwise? Under the new SEC rules, if you can use additional appropriate data that allows you with reasonable certainty to determine the physics of the reservoir to be oil, then you can claim that it is a continuation of a column of oil and there should be no level of criticism."

To determine the type of fluids that extend updip, he suggested a compelling case would include well-log information and wireline formation tests measuring fluid and pressure gradients vs. depth.

Hodgin pointed out that careful, additional data acquisition allows a company to book either gas or oil volumes rather than assume the lower of the two values, which was past guidance from the SEC if the producer had no supporting data.

Hodgin discussed the old regulatory language still in effect and the new language related to reliable technology in determining lowest and highest known fluid contacts, booking incremental reserves from improved recovery and booking proved undeveloped reserves beyond one offset location.

"The use of reliable technology is critical to expanding proven areas whether that is in an updip area or moving laterally within a continuous formation," he remarked.

Beware of culled data

The SEC rules state that reliable technology must provide reasonably certain results with

"consistency and repeatability." Those two terms are not defined by the SEC in its principles-based approach. However, Hodgin said that consistency means there can be no contradictions.

"Multiple technologies to support your case have to be mutually supportive without contradictions so that there are no aspects of using those technologies that contradict other results," Hodgin said.

He warned against culling data sets to attempt to create a non-contradictory set of data. Hodgin said that third-party evaluators should not only look at the interpretive results, which can be culled information, but also the raw data set.

"You may review a cross plot of MDT data and other information that represent a trend but where is the raw data," he asked.

Also, selective data has to be viewed in the context of its sample size. "You can cull data to three or four points to form a .99 best fit trend, but that sample size may not be significant. This goes to back to culling data to get consistency," said Hodgin.

He remarked that the term "repeatability" establishes a standard by which the SEC will ask a filer to show its track record of using technology within a narrow level of variability. Hodgin said, "You must demonstrate that the technology leads to similar or the same results on a repetitive basis."

John Lee, who wrote the new language for various aspects of reliable technology as an engineering fellow at the SEC, told Hodgin, "I want to really congratulate you on the way you've captured exactly the intent that the SEC had in describing reliable technology and how it is to be applied in different areas. I would urge everyone in the audience to study this set of slides very carefully."

Lee said that his opinions were not necessarily those of the SEC.

Hodgin's slides and all other conference presentations are posted under What's New at the Ryder Scott Web site at www.ryderscott.com. Ryder Scott is currently seeking clarification on the SEC interpretation of its rules on reliable technology and expects clarification by the third or fourth quarter.

SEC to scrutinize PUDs despite nixing tabular tracking

Wilson at fifth annual reserves conference.

Last year, the U.S. SEC proposed that companies annually file tables disclosing proved undeveloped reserves converted to proved developed over five years and the net investment for the conversion. However, the agency scrapped the detailed tabular format in favor of the following filing requirements:

- Disclose total quantity of PUDs at year end.
- Disclose material changes in PUDs during the year, including those converted to proved developed.
- Discuss investments, including capital expenditures, and progress during the year for the conversion.
- Explain why material amounts of PUDs remain undeveloped for five years or more.

Ryan Wilson, petroleum engineer at Ryder Scott, told the audience at the Ryder Scott Reserves Conference that despite the SEC dropping the requirement, companies "should have the ability to build those tables, considering the new rules and past SEC comment letters."

He examined PUD booking methodologies by year taking into account the timing of development plans and how those reserves categories change. Wilson said that Ryder Scott recommends that companies

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Reporting 2P reserves if 1P is not economic may be OK


Fitzgerald at fifth annual reserves conference.

Now that filers have the option to report unproved reserves, the SEC has defined regulations for probable and possible reserves. For issues not addressed in the new rules, the SEC advises companies to refer to industry reserves standards. At the Ryder Scott Reserves Conference, **Jennifer Fitzgerald**, senior petroleum engineer, presented two examples involving those standards: booking probable reserves downdip of proved reserves and booking 2P reserves where proved alone is not economically producible.

The SEC deferred to industry standards without identifying them as SPE-PRMS guidelines, but industry equates the two.

"Our opinion is that a case can be made to book those reserves with compelling evidence to reach the necessary level of certainty," Fitzgerald remarked. She said that in most cases, a company has to have proved reserves to book probable and possible categories. However, if 2P reserves are economically producible and 1P alone is not, then definitions in the SPE-PRMS allow an entity to "record 2P and 3P estimates without separately recording proved."

Reviews of the SEC regulations also indicate that probable and possible reserves cannot be booked in an unpenetrated fault block unless adjacent portions are in communication with the known (proved) reservoir.

Fitzgerald presented three methods of forecasting net income and incremental probable and possible reserves relative to their timing and the timing of proved reserves. She showed strengths and weaknesses of each method.

The most reasonable future net income estimate was generated by adjusting the timing of 2P and 3P with a shift to proved timing for subtraction in incremental probable and possible reserves. "One negative is that you have a lot of manual, time-consuming changes to make to the database," said Fitzgerald.

Country risk not in scope, rule to be tested, says Acuna

Registrants relying on third parties for filing petroleum reserves estimates are now required by the U.S. SEC to include third-party "discussion on the possible effects of regulation on the ability …to recover the estimated reserves," which is not a core competency of independent petroleum reserves auditors, said **Herman Acuna**, managing senior vice president, at the Ryder Scott Reserves Conference in referring to Regulation S-K, Item 1202, Sect. 8

"That one is a little hairy," he remarked. "A third party like Ryder Scott cannot render an opinion on issues such as in-country risk and political risk. That is not part of our (technical) audit. We are not in a position to assess that risk and we would hate to be put in that position."

Acuna added that the scope needs to be tested. He cited consultant tasks related to assessing fiscal and contractual conditions in assessing reserves for international operating companies.

"It is our responsibility to review contracts to see when they expire and verify, for instance, the volumes of gas under a marketing contract. We review fiscal terms. If a contract has been cancelled or the terms have been changed, then we have to address that," said Acuna, adding that third parties consider such factors as political obstacles to be contingencies, so by definition, reserves sometimes are downgraded to contingent resources.

"In that case, you don't have enough of a contractual framework to be booking reserves," he said. "That is very different than rendering an opinion on geographical or political risk."

Item 1202 also requires that the registrant file "a brief summary of the third party's conclusions with respect to the reserves estimates." Acuna said that he does not think that the SEC is "necessarily requesting the figures and numbers" while conceding that the rule "is not exactly clear and is still open to interpretation as to what is exactly required."

Acuna also made the following observations:

- Under Item 1202, companies will have to provide the consultant with the proportion of the total reserves covered by the third-party report. The consultant will not be responsible for verifying that percentage.


Acuna at fifth annual reserves conference.

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Wilson new director, engineer hired, others promoted

Wilson

Jeffrey D. Wilson, senior vice president, was elected to the board of directors. He has been a petroleum engineer since 1991. Wilson joined Ryder Scott in 1998. He began his career at Exxon Corp. as a petroleum engineer in the reservoir studies group specializing in economic modeling and later in full field development and production optimization.

Wilson has a BS degree in mechanical engineering from the University of Houston, magna cum laude. He is a member of the Society of Petroleum Engineers and Tau Beta Pi, an honorary engineering society. Wilson is a registered professional engineer in the state of Texas.

Gabrielle Guerre, petroleum engineer, joined Ryder Scott recently from ExxonMobil Production Co., where she began her career in 2006. Guerre most recently was a reservoir engineer in charge of Exxon's California assets, where she managed a steamflood and waterflood project.

She was lead coordinator for annual budget proposals and economic reviews. Guerre was also a technical lead for drillwell assessments and proposals.

Guerre

She started at Exxon conducting reservoir engineering studies of south Texas properties. Guerre has a BS degree in mechanical engineering from Kansas State University. She is a member of the Society of Petroleum Engineers and recently won the SPE Gulf Coast section Young Engineer of the Year award.

The following engineers and geologists were promoted by Ryder Scott to the following positions: **Dick Savoie** and **Ed Gibbon** to senior vice president–group coordinator.

Raymond Yee and **Rob Walters** were promoted to vice president–technical specialist and **Tom Tally** to vice president—project coordinator.

Also promoted to senior petroleum engineer were **Teddy Oetama**, **Steve Gardner**, **Mario Ballesteros**, **Martin Cocco**, **Rick Robinson**, **Tom Venglar**, **Daniel Guzman** and **Tosin Famurewa**.

Lehi Woodrome was promoted to petroleum engineer.

Subpart 1202, 1203 disclosures will involve close cooperation

— Dan Olds, senior vice president

The new SEC regulations include a more extensive list of disclosure items that are part of the registrant's filing. Although Subpart 1200 of Regulation S-K is outside the responsibility of the reserves engineer, some of the new disclosure items will require prior planning and close cooperation between the engineer and the finance and accounting groups.

Compliance with sections 1202 and 1203 may take a significant amount of time at year end. Adequate planning now will make the year-end process much smoother.

The basic 1202 disclosure section will be a table of reserves by category (developed and undeveloped) and by product (oil, gas, synthetic oil or gas or other such products) with subtotals by continent and/or country to the extent the volumes are 15 percent or more of the total barrel oil equivalent. The impact of 1202 on the reserves engineer will not be overly burdensome unless a registrant chooses to present pricing sensitivity information.

That option may create considerable additional work for the reserves staff at year end. It sounds simple enough – just change the price deck in the reserves software, re-run the database and it's done.

However, different price assumptions change the producing life of the wells. Those changes may affect the timing of recompletions, plugging and abandonment timing, reversionary interests or other less obvious situations.

If probable and/or possible reserves have been reported, the different producing life and economic limits will likely affect non-proved volumes and timing. Additional time will be required to review the reserves runs to ensure that those changes have been handled correctly.

Under section 1203, Undeveloped Reserves, the registrant will take into account that the new regulations have replaced "certainty" of production for PUD offsets more than a single spacing unit away from production to "reasonable certainty." Also, the registrant can use new technology that can be demonstrated as reasonably certain.

As a result, some companies will focus on how many additional PUD locations may be booked under the new guidelines. Registrants should consider the potential outcomes of their PUD programs and what their PUD disclosure section may look like in future years under various outcomes.

For some registrants, it will likely take a lot of detailed identification and tracking efforts to comply with section 1203. While some companies may already track PUDs at this level, many will have to adopt new practices and procedures to clearly identify and track them.

PUDs—Cont. from Page 5

track the following at project and well-location levels:

- Date location was initially booked as undeveloped
- Capital cost estimate for prior and current year
- Actual capital cost when converted to developed
- Pre-drill reserves estimate vs. post-drill estimate with supporting documentation by well
- Reserves-category and volume changes annually
- Number of wells drilled per field vs. prior year plan documenting a verifiable, established track record.

Ryder Scott is seeking clarity from the SEC as to what constitutes materiality under the rules on a range of issues. Wilson showed an SEC comment letter requesting an explanation for any variance of more than 1 percent between predrill and actual drilling costs.

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Zabrodin article published in Neftyanoye Khozyaistvo, a leading Russian magazine

Zabrodin

Dmitri P. Zabrodin, vice president at FDP Engineering LLP, a Moscow-based alliance partner of Ryder Scott, wrote "Estimation of Hydrocarbon Reserves in Accordance with International Standards: Distinctive Features," which was published in the May issue of Neftyanoye Khozyaistvo (Oil Industry), a leading industry magazine in Russia. The Web version in Russian is posted at www.oil-industry.ru.

Dr. Zabrodin notes major differences between the SPE-PRMS classification system and the "Soviet" system still used in Russia.

"According to the SPE-PRMS, classification of recoverable hydrocarbon volumes as recoverable reserves depends on a number of legal, contractual, marketing and infrastructural conditions," he said.

"The amount of recoverable reserves is a function of not only geological and technical parameters of a development project but also of the economic parameters of its implementation."

Understanding these particularities is necessary while analyzing and comparing amounts of recoverable reserves under both international and Russian booking standards. FDP and Ryder Scott have conducted more than 100 joint evaluations in the FSU.

Third Parties—Cont. from Page 5

- Disclose the qualifications of the auditing or certifying firm, not necessarily the individuals that participated in the evaluations.
- The third-party disclosure exhibit required to be filed is not the same as a full reserves audit or certification report. The exhibit appears to be aimed at providing assurances that competent evaluators issued the reports rather than disclosing actual figures or results.

"When you disclose that you are using a third party (under the new rules), you are providing assurance that the third party is an effective part of your controls," said Acuna.

Publisher's Statement
Reservoir Solutions newsletter is published quarterly by Ryder Scott Co. LP. Established in 1937, the reservoir evaluation consulting firm performs hundreds of studies a year. Ryder Scott multidisciplinary studies incorporate geophysics, petrophysics, geology, petroleum engineering, reservoir simulation and economics. With 115 employees, including 81 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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