

RESERVOIR SOLUTIONS

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Oil and gas experts to meet
at May conference on
petroleum reserves
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Ryder Scott Canada Reserves Conference

May 17

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Ryder Scott Canada Reserves Conference

Oil and gas experts to meet at May conference on petroleum reserves

North American experts will share their insights into petroleum reserves and related topics at the Ryder Scott Canada Reserves Conference, Thursday, May 17. Organizers anticipate that more than 150 oil and gas professionals will attend the full-day event at the Calgary TELUS Convention Centre in Calgary. For more information, please send an email to ConferencesCalgary@ryderscott.com.

Speakers and agenda

The resolution of social and environmental issues has become increasingly important in the implementation of resource extraction projects. At year-end 2016, the *Financial Post* newspaper reported that 35 Canadian projects, worth \$129 billion, were stalled or cancelled because of opposition from environmental, aboriginal and community groups.

To address that, **David Elliott**, former chief petroleum advisor at the Alberta Securities Commission, will present, "Socio-Environmental Aspects of Resources Classification."

Evaluation standards — such as the Society of Petroleum Engineers Petroleum Resources Management System (SPE-PRMS) and guidelines in the Canadian Oil & Gas Evaluation Handbook (COGEH) — cite social and environmental factors to be considered when classifying resources.

"However, there is little or no guidance on how to do that," said Elliott. His presentation will report on the work of the United Nations on socio-environmental issues as part of the UN Framework Classification of Resources.

Ian McDonald, vice president – reserves at Nexen Energy ULC, will present, "Contingent Resources – Not All Created Equal." Investors do not understand the "unloved cousin of the resources family" as well as reserves, especially proved reserves.

While some contingent resources have a 90 percent chance of development, others classified as "contingent resources development not viable" have a zero percent chance. Yet a public company can cite contingent resources in a press release with no intention to develop them.

The length of time prior to development is not spelled out, but rather relies on a "reasonable potential

for commerciality," according to the SPE-PRMS or "80 percent chance of development," states COGEH.

Morad Rizkalla, director of A&D advisory and energy at BMO Capital Markets, will present, "Market Perspectives of Resources Assessments." He said, "With the emergence of unconventional plays in the Western Canadian Sedimentary Basin, resource assessments have become an important component in oil and gas transactions and their valuations in the marketplace."

He will discuss the effect of those assessments on acquisitions, joint ventures, initial public offerings and royalty transactions, and will present case studies for each one.

Another conference presentation will feature auto-forecasting (AF) to reliably estimate ultimate recoveries from hundreds, sometimes thousands of wells, within a limited timeframe through type-well (type-curve) analysis. Used properly, AF generates best-fit declines and decline models, including the commonly used two-segment Arps.

Anton Siyatskiy, senior petroleum engineer, plans to provide a general comparison on how blind, black-box AF compares with properly adjusted AF.

"I will demonstrate what key metrics are applied to AF to minimize forecasting errors," said Siyatskiy. He will also show a typical workflow for building proper auto forecasting parameters for most of the asset wells in an unconventional Alberta play.

Craig Burns, manager petroleum at the Alberta Securities Commission, will present an update of the agency's annual report. In that report, the ASC stated that public issuers (PIs) are not always disclosing timing of development for proved undeveloped and probable undeveloped reserves. Discussion of timing is required under Item 5.1 of Form 51-101F1.

The ASC has also "observed an absence of disclosure regarding non-producing wells and wells that do not have reserves assigned to them." The regulator earlier this year reminded PIs that item 6.1(2) requires the disclosure of both producing oil and gas wells and non-producing oil and gas wells, regardless of whether reserves are currently assigned.

The ASC also questioned the methodology used for

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Elliott



McDonald



Siyatskiy



Burns



Ryder Scott Canada Reserves Conference

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type wells when preparing analogous information. The regulator said, "Information prepared and disclosed by PIs sometimes includes only the best wells and excludes dry holes and poor performing wells, while wells with dissimilar reservoir parameters or completion procedures are sometimes included."

Regarding analogous information, Section 5.8 of the 51-101CP states that "it is important to present a factual and balanced view of the information being provided."

Doug Wright, who led the steering committee of the Calgary chapter of the Society of Petroleum Evaluation Engineers in updating and completing draft versions of COGEH sections, will provide an update on that work. At its annual meeting, SPEE said it anticipates publishing the handbook by the end of the second quarter.



Wright

Ryder Scott Canada will provide space for an SPEE table at the conference. The society plans to sell monographs 3 and 4.

Jean Liu Halfe, vice president – project coordinator, will make a presentation on using the Spotfire analytics platform in evaluation work. She will show the power of using this tool to put together an analysis of where a firm's value lies and what assets hold the key to its future growth based on the firm's reserves valuation database.



Liu Halfe

"Used properly, Spotfire can provide a quick, efficient and cost-effective way to do this," said Liu Halfe.

She also will demonstrate how tools like Spotfire can be used to "tease out" key technical performance outcomes on new plays from public databases.

Organizers also are planning to present a panel discussion, "Goldilocks Question: NI 51-101 – Too Much, Too Little or Just Right."

Ryder Scott reserves conference in downtown Houston slated for Thursday, Sept. 13

Organizers of the 14th Annual Ryder Scott Reserves Conference were beginning to slot speakers and agenda in April, months before the event, which is expected to draw more than 350 attendees. The one-day session is at the Hyatt Regency hotel in downtown Houston, Thursday, Sept. 13.

Marc Falladori, senior counsel at Haynes and Boone LLP, is a perennial speaker at the conference. His presentation this year is on comment letters from the U.S. Securities and Exchange Commission, also a perennial topic that he updates annually while providing critical analysis.

Tom Gardner, CEO at Millennium Energy Advisors LLC, plans to present the A&D landscape and activity over the past year. **John Lee**, a Texas A&M University professor and member of the National Academy of Engineering, is also a perennial speaker and plans to present again this year.

Dan Olds, managing senior vice president at Ryder Scott, plans to present updates to the 2017 SPE-PRMS, which is at the draft stage.

Lance S. Kinney, executive director at the Texas Board of Professional Engineers, will make a presentation on professional qualifications during the ethics hour.

The previously mentioned speakers and topics may change because at press time, the event was a full five months away. Conference organizers are developing other speakers and topics to be announced.

Email requests, questions or comments to RSCConfHouston@ryderscott.com. Attendance is mostly by invitation only, with priority given to clients. However, closer to the event date, a limited number of reservations will be available to non-invitees depending on availability of seating.

Details at a glance:

What: Ryder Scott Canada Reserves Conference

When: Thursday, May 17, 7:30 a.m. to 7 p.m.

Where: Calgary TELUS Convention Centre, 120 9 Ave SE, Calgary, AB T2G 0P3, Macleod Hall BC

Who: Conference agenda is targeted to an audience with at least a "big picture view" of petroleum reserves. For a wider appeal, presentations on other oil-and-gas-related subjects are scheduled.

CPD hours: APEGA-licensed geologists and engineers will earn up to eight Continuing Professional Development hours.

Costs: No cost for the event. Complimentary food and beverage will be catered.

Schedule of Events

"Evaluation Challenges in a Changing North America"

Time	Speaker	Affiliation	Topic
7:30 a.m. – 8:10 a.m.			Conference Check In and Light Breakfast
8:10 a.m. – 8:30 a.m.	Dave Haugen Senior Vice President	Ryder Scott Canada	Welcome and Introduction
8:30 a.m. – 9:15 a.m.	David Elliott Former ASC Chief Pet. Advisor	Independent	Socio-Environmental Aspects of Resources Classification
9:15 a.m. – 10:00 a.m.	Ian McDonald Vice President – Reserves	Nexen Energy ULC	Contingent Resources – Not All Created Equal
10:00 a.m. – 10:30 a.m.			Break
10:30 a.m. – 11:15 a.m.	Morad Rizkalla Dir. of A&D Advisory & Energy	BMO	Market Perspectives on Resources
11:15 a.m. – 12:00 p.m.	Anton Siyatskiy Senior Petroleum Engineer	Ryder Scott Canada	Auto Forecasting – Its Current Reliability and Uses
12:00 p.m. – 1:00 p.m.			Buffet Luncheon
1:00 p.m. – 1:45 p.m.	Craig Burns Manager Petroleum	Alberta Securities Comm.	ASC Update
1:45 p.m. – 2:30 p.m.	Jean Liu Halfe Vice Pres. – Proj. Coordinator	Ryder Scott Canada	Using Spotfire in Evaluation Work
2:30 p.m. – 3:00 p.m.			Break
3:00 p.m. – 3:45 p.m.	Doug Wright	SPEE Calgary	Update on COGEH Changes
3:45 p.m. – 4:45 p.m.	Panel TBA		Panel Discussion on NI 51-101
4:45 p.m. – 5:00 p.m.	Dave Haugen Senior Vice President	Ryder Scott Canada	Concluding Statements
5:00 p.m. – 7:00 p.m.			Cocktail Reception

Ryder Scott and Millennium agree to alliance to serve acquisition side of A&D

Ryder Scott has always offered third-party oil and gas property appraisals to both buy and sell sides of A&D transactions, and nothing has changed. A new wrinkle is that now Ryder Scott offers to bundle its technical and economic due-diligence services with those of a registered investment banking representative/transaction advisor for clients wanting full buy-side representation.

Ryder Scott kicked off the alliance in January with buy-side investment advisor, **Tom Gardner**, owner of Millennium Energy Advisors LLC in Houston. Millennium and Ryder Scott together are able to form a complete advisory team for property acquisitions.

"Millennium's investment valuation analyses includes placing proper context around Ryder Scott technical and economic forecasts vis-à-vis other aspects of the potential deal," said Gardner.

Value side of the proposition

With a new business model, Millennium is able to defray the costs of third-party technical due diligence. A client that closes on a sales transaction pays a commission fee to Millennium. The fee is discounted by up to 50 percent as reimbursement for the cost of Ryder Scott independent due-diligence services. The client always pays Ryder Scott directly and in full, and its fees are never contingent on outcomes. The discount is usually sufficient enough to fully reimburse the client.

"Most importantly, Millennium clients reduce their risks through the reliability of an independent Ryder Scott evaluation," said Gardner.

- Determine fair, reasonable transaction price based on recent market activity and current macro-economic and commodity trends. Assures that buyer does not overvalue and overpay or undervalue upside and lose the deal.
- Source private capital through proprietary network of energy bankers, investors and management teams. Find joint-venture opportunities with potential partners.
- Coordinate with experts in banking, legal, tax, land, environmental, safety, marketing and operations.
- Leverage extensive experience of Ryder Scott in key geographical areas. The firm has in-house databases for all major unconventional plays in North America. Information includes thousands of data points on geology, well performance and drilling and completions.



"Finding advisory services for asset acquisitions is difficult," said Gardner. "Investment bankers see greater opportunity in representing the sell side, where success fees are all but assured."

On the other hand, the buy side is underserved, Gardner explained.

"They face the challenge of

sourcing ad-hoc banking and advisory services from short lists under time constraints. That, of course, distracts from focus on the potential deal," he said.

Gardner's 30 years of experience include both financial and technical roles. He has conducted \$13 billion in energy-related transactions as a licensed financial advisor. He has also performed technical due diligence as a licensed petroleum engineer, some of it with four international E&P companies.



Buyer services

The following services are offered by the alliance:

- Assist client in analyzing, structuring, negotiating and effecting a desired transaction.
- Identify target properties best suited to meet overall client objectives.
- Coordinate Ryder Scott data-room collection, technical evaluation and due-diligence.
- Analyze asset portfolios and potential synergies in property acquisitions.
- Provide competitive market analysis.

For more information, contact Tom Gardner at tom.gardner@millnrg.com, or via phone at 713-518-3623 or 281-367-7948. Also contact Mike Wysatta, business development manager, at mike_wysatta@ryderscott.com or at 713-751-5557.

Reserves audit standards unchanged for more than a decade

Ron Harrell, chairman emeritus, will present a “Refresher on 2007 Principle-Based Reserves Estimating and Auditing Standards,” at the 8th Annual Reserves Estimation Unconventionals (REU) conference on Wednesday June 20 in Houston. REU is a Hanson Wade Ltd. event.

Harrell is chairing the meeting with opening remarks to kick off Day 1 of the two-day conference at the Hilton Houston Post Oak by the Galleria.

Harrell plans to present the following agenda items:

- Standards for estimating and auditing of reserves information
- Professional qualifications for preparers of petroleum reserves estimates or audits
- Recognition of qualifications established by other professional organizations
- Recognition of “Competent Persons” standards and regulations outside the U.S.

Harrell was a principal contributor to changes in reserves audit standards approved by the Society of Petroleum Engineers in 2007. After more than 10 years, the guidelines are still current, and used by industry.

“I urge you to read the entire document and to incorporate these principles in your reserves estimation and auditing processes,” he said. “This is an evergreen document that can and will be reviewed and updated by the SPE OGRC (Oil & Gas Reserves Committee).”

The SPE audit standards are posted at http://www.spe.org/industry/docs/Reserves_Audit_Standards_2007.pdf

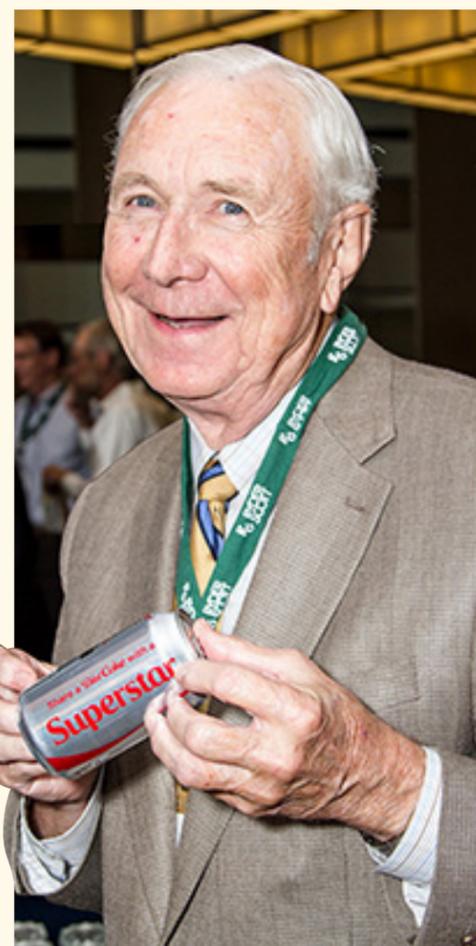
Harrell also wrote a comprehensive SPE technical paper on reserves auditing standards, “The Growing Importance of Petroleum Reserves Estimating and Auditing Standards,” SPE Paper No. 124260, 2009. The paper is available at <https://www.onepetro.org/>

Reservoir Solutions newsletter published “Auditing Tolerances: How close is close enough?” in September 2009 at <https://www.ryderscott.com/wp-content/uploads/news-2009-sep.pdf>

The article cited a standard currently in place that “to pass a petroleum reserves audit, total proved reserves estimates cannot vary more than 10 percent from those of the outside auditor. That tolerance level was ‘blessed’ by SPE ... in its ‘Standards Pertaining to the Estimating and Auditing of Oil and Gas Reserves Information.’ ... Ultimately, tolerance levels may not be as important as reasonableness as determined by a qualified auditor.”

A reserves auditor is usually a licensed, degreed petroleum engineer with at least 10 years of professional experience, including at least five years in estimating reserves.

For more information on the REU conference, send an email to info@hansonwade.com or call +1-713-554 8380 or +44 (0)20-3141-8700.



Ron Harrell taking a playful break at the 2015 Ryder Scott reserves conference in Houston, an event he started 15 years ago. Harrell was a principal contributor to changes in reserves audit standards used today.

Nelson is new Ryder Scott board member



Eric Nelson

Eric Nelson, managing senior vice president, is a newly elected board member at Ryder Scott, increasing the board to eight members. He has more than 13 years of reservoir engineering experience at ExxonMobil Corp. and Ryder Scott.

Nelson leads an engineering group, oversees reserves determinations and works with geoscientists in integrated

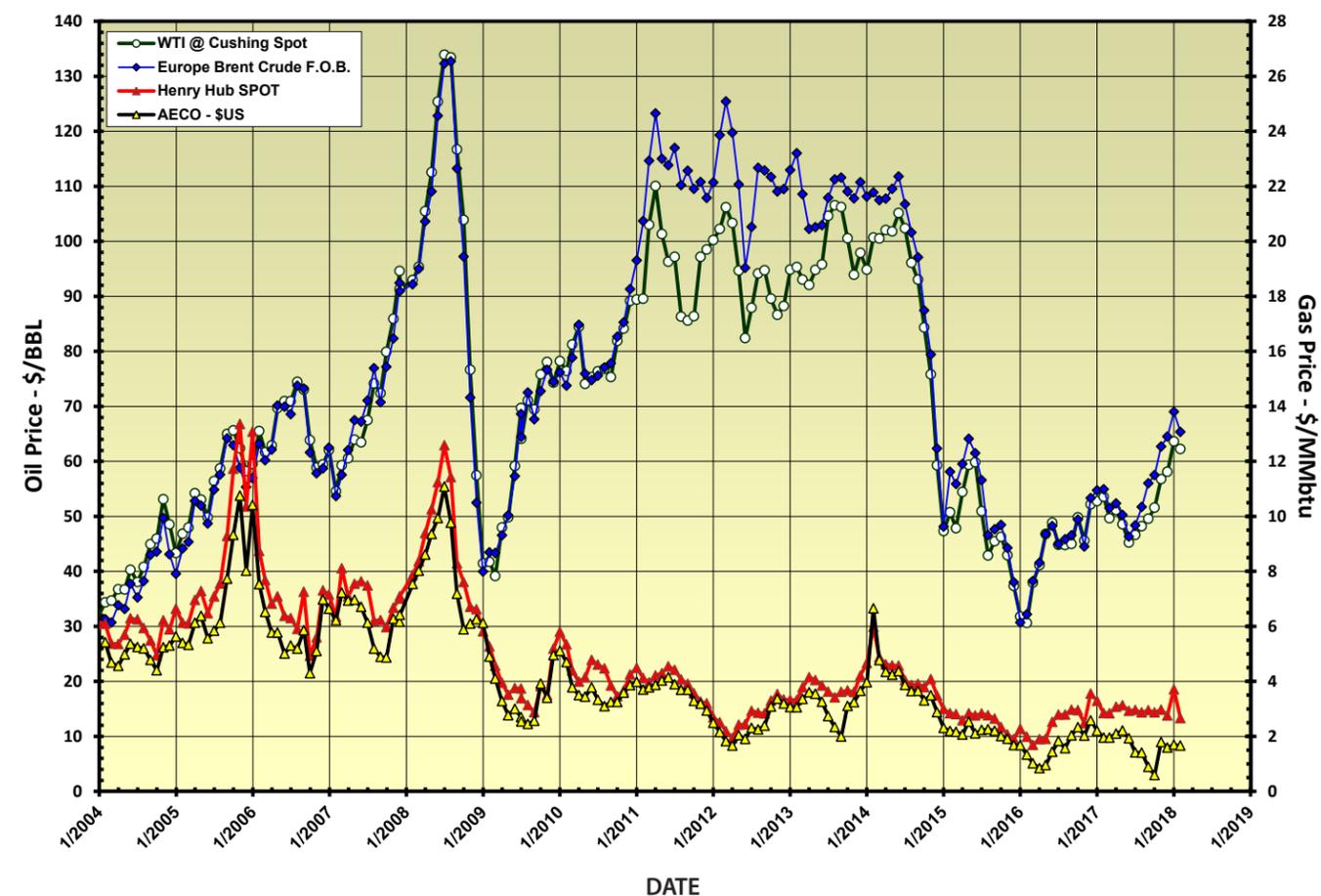
reservoir studies. He conducts economic evaluations for use in U.S. SEC reports, IPO filings, bank reports and acquisition and divestiture transactions.

Nelson has conducted appraisals of oil and gas properties in Africa, Middle East, North and South America and the Far East. At Exxon, he performed reservoir surveillance and reservoir simulation for three years starting in 2002.

Nelson has a BS degree in chemical engineering from the University of Tulsa and an MBA degree from the University of Texas.

He is a registered professional engineer in Texas and member of the Society of Petroleum Engineers.

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.

Ethics presentation resonates with audience, spurs more speaking requests

Jorge Faz delivered an ethics presentation for reserves evaluators that exceeded expectations last September at the Ryder Scott reserves conference in Houston. The hour lecture racked up nearly 100 written evaluations from the audience and averaged a 4.8-out-of-5 score.

Dean Rietz, president, wrote a letter of appreciation to Faz, and said that the Society of Petroleum Engineers and Society of Petroleum Evaluation Engineers were interested in Faz making the presentation at future assemblies.

Faz, a senior geological consultant at Occidental Petroleum Corp., said the presentation is based, in part, on the company's ethics training from its reserves group.

He illustrated common motifs among professional codes of ethics, balance between technical and human elements and impact of individual choices.

Faz distilled ethics codes from three oil and gas professional societies — American Association of Petroleum Geologists, SPE and SPEE, and underscored their distinct similarities.

"Even though engineers and geoscientists are often characterized as being from 'two very different tribes' in thought and approach, their professional ethics codes have near-identical themes," he said.

The guidance to help us distinguish good from bad often has its roots in how we were raised. Faz said, "Ethical conundrums can generally be distilled down by asking, 'What would Grandma say?'"



Jorge Faz

To pick the best choice to an ethical problem, one must often consider the consequences from multiple viewpoints, Faz added.

He explained that over his professional career he has attempted to solve geoscience problems complicated by messy or incomplete data sets.

"Ideally, a geoscientist desires a clear picture of the pluses and minuses of a problem, but that does not always happen," he said. "So the geoscientist has to examine the components at different scales — from the micro to the mega — to recognize potentially hidden patterns among scattered, diverse components."

Similarly, ethical problems should be considered from a variety of scales and perspectives, and examined through different lenses. "One indispensable lens to examine the problem should be our professional codes of ethics," said Faz.

To illustrate that, he enhanced his presentation with several plausible case examples and asked the audience to vote on options for ethical resolutions.

The talk concluded by examining the roles of professional geoscientists and engineers as responsible trustees at various scales of potential influence — from self to peers and mentors and to employers, professional associations, public and the environment.

SEC clarifies how to treat DUCs for reserves disclosures

Excerpted and reprinted with permission from Haynes and Boone LLP

Increase in companies' DUC wells

The depressed commodity price environment that began in the second half of 2014 not only caused many companies' properties to no longer be economical to develop, but also created constraints on development capital availability. Because of these conditions, many companies' plans to develop their PUDs had to be substantially curtailed, leaving substantial volumes of PUDs associated with wells drilled, but then suspended, shut-in or otherwise not completed. In 2017, the staff of the U.S. Securities and Exchange Commission raised numerous questions about PUDs associated with these DUC (drilled uncompleted) wells, particularly whether those PUDs were still scheduled to be converted to proved developed status within five years from the dates of their initial disclosure.

Examples of comments related to how companies characterize their DUC wells include:

- Disclose the reserve quantities associated with your wells awaiting completion or resumption of drilling; identify whether they are classified as developed or undeveloped
- Quantify the reserve volumes of the PUDs associated with your DUC wells that will not be completed within five years of their initial disclosure
- If your capital expenditure budget was reduced assuming that prices would not improve, confirm that your development plan will still result in all PUDs relating to your DUC wells being converted to developed reserves within five years of their initial disclosure
- Provide additional detail regarding the planned timing and expected capital expenditures required to complete your DUC wells
- Disclose the number of gross and net DUC wells, associated reserve quantities and costs remaining for their completion; explain why their completion has been deferred
- If completion of any currently shut-in wells is dependent on forecasted future price improvements, quantify the volumes involved and address important economic factors or significant uncertainties regarding their completion schedule

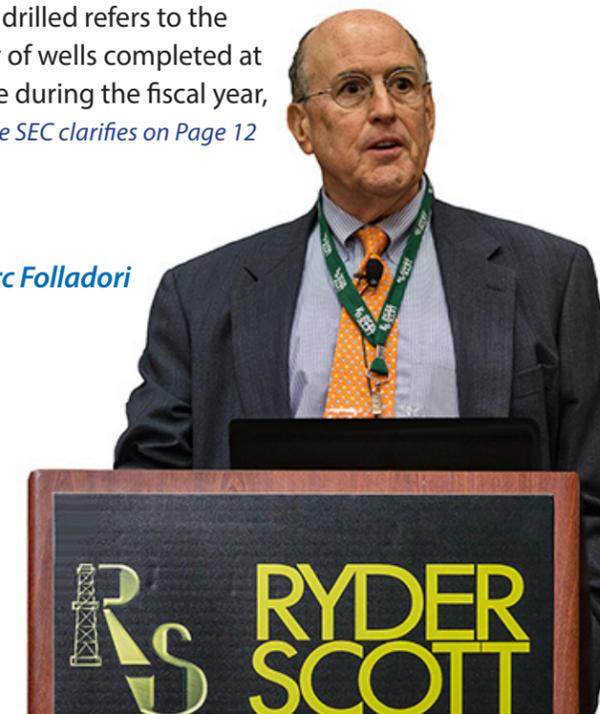
PUDs associated with DUCs and the five-year rule

One company stated that it expected to develop approximately 60 to 70 percent of its total PUDs over the next three years, and that about 27.9 percent of its total PUDs were associated with DUC wells. The staff asked why the company had intentionally deferred completion of those wells, and whether any PUDs associated with the wells would not be converted to developed status within five years of their initial disclosure.

The company replied that completion of the DUC wells had been delayed due to cutbacks in its capital development program resulting from then-prevailing lower commodity prices. However, it contended that continued booking of the associated PUDs had been appropriate since all the DUC wells in question had been drilled within their respective five-year development windows, as the definition of "undeveloped reserves" under Regulation S-X Rule 4-10(a)(31)(ii) would appear to indicate.

The staff responded that activities limited solely to drilling a well were not sufficient to fulfill the five-year timing requirement under the SEC's definition of undeveloped reserves. Because these drilled wells had not yet been completed, they did not satisfy the definition of "wells drilled" under Item 1205 of Regulation S-K, which requires disclosure of the net productive and dry exploratory and development wells drilled in each of the prior three fiscal years. Sub-section (b)(4) of Item 1205 provides, in relevant part, that "for purposes of this Item 1205 ... [t]he number of wells drilled refers to the number of wells completed at any time during the fiscal year, *Please see SEC clarifies on Page 12*

Marc Folladori



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regardless of when drilling was initiated.”

The staff also noted that the term “productive wells” was defined in Item 1208 of Regulation S-K (requiring disclosure of total gross and net productive wells as of year-end), as being “producing wells and wells mechanically capable of production.”

In the staff’s view, the company’s development efforts had been insufficient to bring the DUC wells’ associated PUDs to the status of being “economically producible,” and that they therefore failed to qualify as proved oil and gas reserves under Rule 4-10(a)(22) of Regulation S-X.

Editor’s Note: This article was excerpted from a Haynes & Boone white paper, “Changing Outlook, Same Concerns: Key SEC Disclosure Topics in 2018 for E&P Companies,” Bill Nelson, Kristina Trauger, Judithe Little and Marc Folladori, Jan. 12, 2018.

The full paper is at http://www.haynesboone.com/~media/files/alert%20pdfs/2018/012018_changing_outlook_same_concerns.ashx

Mr. Folladori is scheduled to present at the Ryder Scott Reserves Conference in Houston on Sept. 13.

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 oil and gas reserves studies a year. Ryder Scott multi-disciplinary studies incorporate geophysics, petrophysics, geology, petroleum engineering, reservoir simulation and economics. With 120 employees, including 80 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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