

## SEC engineer cites red flags in reserves reporting

**Jim Murphy**, a petroleum engineer at the U.S. Securities and Exchange Commission, told industry at a forum hosted by the Society of Petroleum Evaluation Engineers in October that the agency discusses various "red flag" items in reviews of the reserves reporting of oil and gas companies. "Most of the time, these issues are ignored or not addressed by the company," he said.

Murphy cited the following items applicable to public issuers with oil and gas operations outside of the United States:

- Company with foreign interest that claims proved reserves when the host country doesn't participate
- Company reporting reserves based on Society of Petroleum Engineers/World Petroleum Congress guidelines, not SEC regulations
- Company that does not report reserves from production-sharing contracts separately from reserves under direct ownership interests (FASB 69, Paragraph 102)

Other mentioned flagged items included reservoir simulations with no history match, exclusive reliance on reservoir simulation to estimate reported reserves and booking proved reserves based on total recovery estimated from a simulation.

Murphy said that income from non-oil-and-gas activities, such as the production and sale of CO<sub>2</sub> or



Ron Winfrey (left), SEC engineer, makes lighthearted comments at the SPEE forum as Ron Harrell (middle), CEO at Ryder Scott, and Jim Murphy, another SEC engineer, look on. Murphy cited red flag items at the forum.

sulphur, should not be included in the cashflow figures in reserves reports. He told producers to allocate indirect costs, such as overhead and insurance, to proved properties based on reasonable methods.

"Include indirect costs associated with oil and gas production," Murphy said, referring to FASB 69, Paragraph 27 and FASB 19, Paragraph 24, 26.

He also stated that the SEC will compare the proved-developed-producing operating costs in the reserves report's first-year forecast to the opex in the operating results section of the previous 10-K report. Other observations:

- Payment of net profits interest (NPI) should not be handled as an increased operating expense
- Revenues must be net of NPI
- Production must be net of that represented by NPI
- Reserves must be reduced by the NPI amount

Murphy's comments on how to handle NPI do not necessarily reflect industry practice. Oil and gas companies traditionally treat reserves and NPI separately in financial accounting unlike the payment of royalties, which directly involves reserves ownership and affects net reserves quantities.

*Editor's Note: Jim Murphy stated at the forum that he was not speaking on behalf of the SEC and was not in an official capacity for the agency. He also stated that the opinions that he expressed were his own. Ryder Scott and SPEE sincerely thank Mr. Murphy for honestly and candidly discussing these important issues.*

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## RS meets the press, discusses field technology

International press coverage of a recent U.S. Securities and Exchange inquiry into deepwater booking practices featured Ryder Scott personnel as expert interviewees. In separate news articles, three of the firm's engineers opined on the use of industry-wide technologies to quantify reserves.

A *Reuters News Service* article on Nov. 13 stated, "A letter from U.S. securities regulators quizzing Gulf of Mexico oil and gas producers about their accounting for proven reserves is prompting industry fears that the SEC's corporate accountability push is reaching the Oil Patch. The Securities and Exchange Commission's corporation finance division sent the Oct. 1 letter to nearly every oil and gas producer operating in the Gulf of Mexico. It

asks the producers to furnish information about how they assessed their proven reserves before booking them in their financial

statements."

The media focused on the SEC's traditional interpretation vs. industry practice. The SEC has construed a "conclusive formation test" required to book proved reserves to be a production flow test. Currently, industry practice is to use a combination of other tests, some of which are more advanced. **Tom Gardner**, vice president and engineer at Ryder Scott, told *Reuters* that "a combination of data can give you the same information as a flow test."

He added that only 15 percent of deepwater wells have been flow tested in the past five years. The wire-service article was published on the front page of the business section of the *Houston Chronicle* newspaper as well as in other publications worldwide. "The SEC's request caused a number of producers to turn to outside consultants like Ryder Scott to independently evaluate their reserves," the article stated.

**Don Roesle**, president and COO at Ryder Scott, told *Platt's*



### 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 more than 1,000 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 117 employees, including 66 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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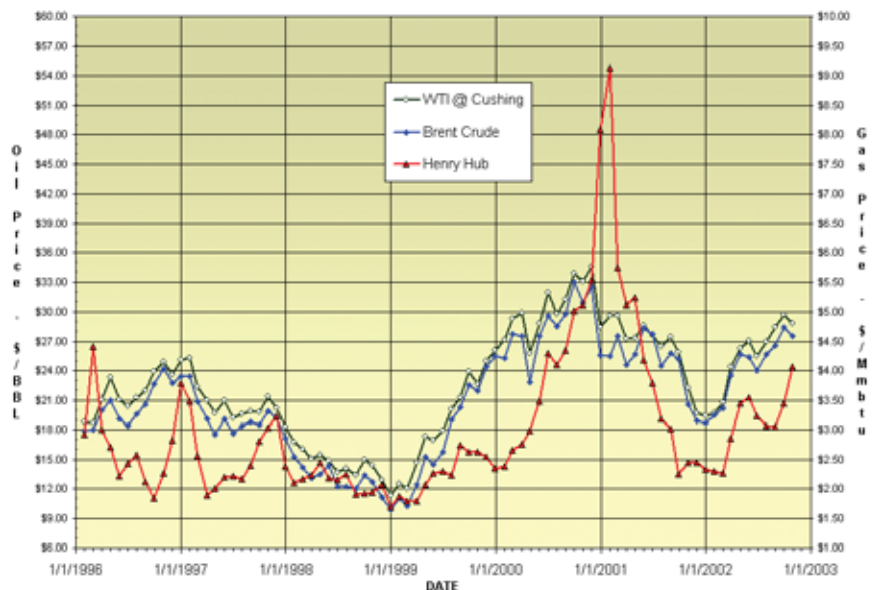
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## Price history of benchmark oil and Henry Hub gas



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

# People



Metz

**Jerry Metz**, a Ryder Scott contract geologist, died unexpectedly on Oct. 12. He had worked at Ryder Scott since 1998 and conducted geological analysis of U.S. and international properties. Metz began his career at Texaco Inc. in 1961 and worked there 14 years before joining Texas Oil & Gas Co. He also worked at Kaneb Operating Co. and Columbia Gas Development Corp. Metz

graduated from Kansas State University with MS and BS degrees in geology. The family requests that memorial donations be made to K-State Foundation for the KSU Geology Department Henry Beck Fund (F52275).

**Donald L. Wait**, a geologist who joined Ryder Scott in 1973 and retired in 1992 as a vice president, died Sept. 2. Before joining the firm, he worked at Amoco Production Co. and Phillips Petroleum Corp. as a geologist. Wait graduated from Oklahoma State University in 1951 with a BS degree in geology.



Wait

**Harry J. Gaston**, a former president of Ryder Scott who retired in 2000, received the Society of Petroleum Engineers Legion of Honor award on Oct. 17. The award is given to recognize 50 years of continuous membership in SPE.



Gaston

**Ron Harrell**, CEO at Ryder Scott, received a Distinguished Alumni award from Louisiana Tech University College of Engineering and Science on Oct. 25 for his "tremendous contributions to the field of engineering." Kyle Edmiston, director of alumni LTU relations, said, "Mr. Harrell has been a truly outstanding representative of the university."

Since the program began in 1986, only 16 from almost 12,000 engineering graduates have received the award.



Harrell



Rietz

**Dean Rietz**, senior managing vice president and manager of reservoir simulation at Ryder Scott, is one of the instructors for the SPE Gulf Coast section short course, "Reservoir Simulation for Practical Decision Making," to be presented at the Omni Houston Hotel at Four Riverway on Saturday, Feb. 1 and Sunday, Feb. 2. SPE is presenting this course with its simulation symposium and the

International Symposium on Oilfield Chemistry. Deadline for signups is Jan. 17. For further information, send an e-mail to dennis.dria@shell.com or call 713-245-7309.

The August SPE *Reservoir Evaluation & Engineering* journal published a paper, "Adapting Probabilistic Methods to Conform to Regulatory Guidelines," written by Ryder Scott petroleum engineers **Herman Acuña**, vice president, and **Ron Harrell**, CEO. Originally, Acuña presented the paper at the society's 2000 annual conference. The paper details how the U.S. Securities and Exchange Commission and SPE/WPC guidelines affect the implementation of statistical methods.



Acuña



Tink

**Jane Tink**, vice president and petroleum engineer at Ryder Scott-Canada, and partner Brent Coates, a cattle rancher outside of Calgary, raised funds in August to buy hay for drought-stricken ranchers to the north. They asked for donations from those riding in their fall cattle drive on Coates' ranch and collected more than \$3,000 in cash and hay. Tink said the short supply of hay caused the price per ton

to rise from \$100 to more than \$150, which will make the sale of many commercial calves a money-losing proposition in spring 2003.

Slide presentations by CEO **Ron Harrell** have been posted to [www.ryderscott.com/whatsnew.htm](http://www.ryderscott.com/whatsnew.htm). They focus on probabilistic reserves at the September SPE Applied Technology Workshop, reserves definitions at the October SPEE forum and ethics in consulting at the SPE-GCS Emerging Leaders Program in November.

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# Industry argues for booking reserves without flow tests

*SEC takes deepwater industry practices under advisement*



Wagner

Industry experts recently urged representatives of the U.S. Securities and Exchange Commission to allow companies to book proved reserves from deepwater discoveries based on comprehensive formation evaluation that does not include production flow tests. E&P companies have characterized these flow tests as cost prohibitive and unneeded.

**Bob Wagner**, senior vice president and petroleum engineer

at Ryder Scott, said that his experience has shown that a combination of various evaluation tools — including well logs, cores, seismic information, analogy to nearby production and modern wireline formation testers (WFTs) — should be considered a “conclusive formation test” in many cases.

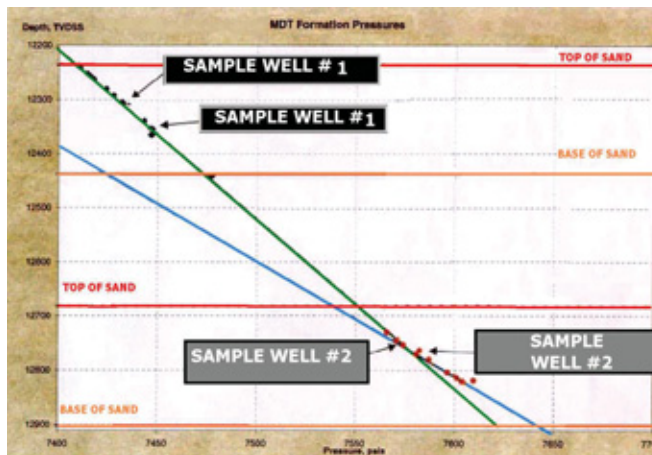
The SEC allows companies to book proved oil and gas reserves that are supported by actual production or “conclusive formation tests.” Based on SEC reserves definitions of 1978, the agency typically interprets conclusive formation testing to be drill stem testing or through-perforation flow testing. The SEC states that a production flow test characterizes an entire pay interval whereas WFTs recover small quantities of fluid from selected intervals.



Jim Murphy and Ron Winfrey (from left), SEC petroleum engineers, listen to SPEE forum participants’ concerns.

**Ron Winfrey**, SEC engineer, said that he might consider a compelling combination of various evaluation tools, without a traditional flow test, to be sufficient for booking proved reserves. However, he cautioned that WFTs alone don’t characterize production capacity in real terms.

“I want more statistical evidence regarding what is industry practice and is it justified. It appears that industry is making a good case, but we are still



These MDT pressure measurements from two samples from each of two wells establish an oil-water contact as a basis for determining the lowest known hydrocarbons, a key parameter for estimating proved reserves under SEC regulations.

gathering information,” he said at the Society of Petroleum Evaluation Engineers forum in October. Forum participants referred to recent SEC inquiries sent to Gulf of Mexico (GOM) producers soliciting information on production flow testing vs. other evaluation methods.

Two SEC engineers — Winfrey and **Jim Murphy**, their division supervisor **Roger Schwall**, assistant director of natural resources, and approximately 160 reserves evaluators and financial experts discussed interpretational issues at the forum.

**Thomas Harris**, president at PetroSolutions Ltd., presented a GOM deepwater study showing that only six of 45 fields were flow tested to the surface before first production. Of those six, only two occurred after 1996. “MDTs (Modular Formation Dynamics Testers, a Schlumberger product) have replaced expensive production tests,” he said, citing the costly flow test of Ram Powell field in 1989 that took two years to set up. Harris also pointed out safety and environmental concerns in flow testing.

To support his case, Wagner presented three deepwater field examples that were recently developed without production flow tests. All three discoveries were drilled using 3D seismic information. In each case, the discovery well exhibited favorable log characteristics, including both high porosity and low water saturation. Two of the discoveries had both sidewall core analysis and WFT evaluations that supported log calculations. In the third example, the operator developed the field with only log analysis, 3D seismic and analogy to nearby production.

Wagner’s primary case study focused on a new

*Please see Flow Test on Next Page*

## RS deepwater survey confirms booking practices

E&P companies with discoveries in the deepwater Gulf of Mexico are eschewing flow tests in favor of other methods to quantify proved reserves, indicates a recent survey conducted by Ryder Scott. The firm conducted the research in September to better understand industry practices vis-à-vis U.S. Security and Exchange Commission regulations and to share the aggregate results with respondents.

Eight out of 10 responding companies indicated that they normally book reserves from deepwater discoveries without conducting drill-stem tests (DSTs) or production-flow tests.

In contrast, 100 percent of the respondents indicated that they analyze fluid samples and pressures from wireline formation tests (WFTs) as a prerequisite for booking. Seventy percent consider WFTs to be sufficient replacements for DSTs/flow tests.

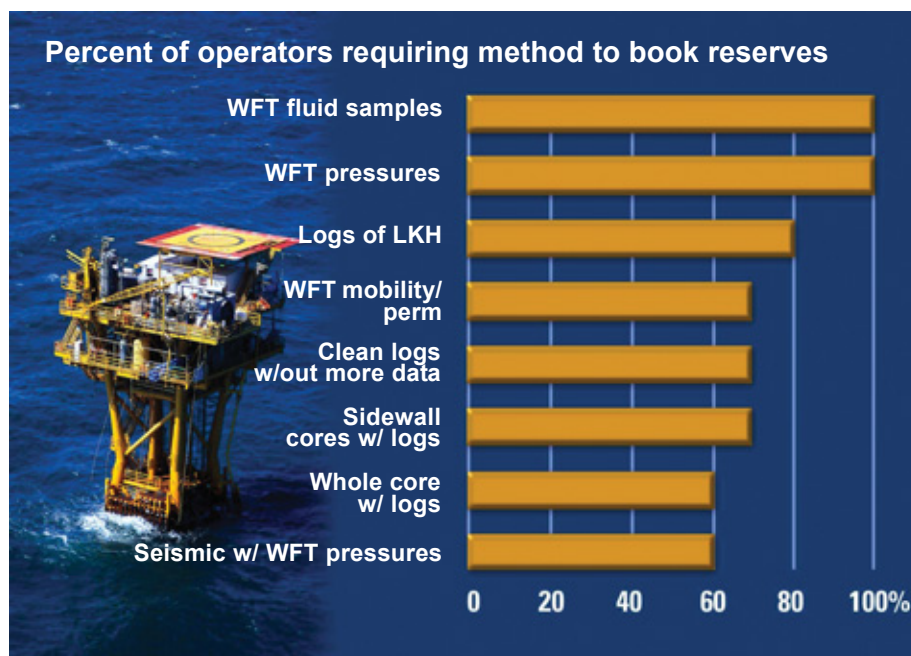
The following percentage of survey respondents indicated that they require these analysis methods before booking deepwater reserves:

- WFT fluid samples — 100 percent
- WFT pressure measurements — 100 percent
- Log measurements of lowest known hydrocarbons — 80 percent

- WFT mobility perm tests — 70 percent
  - Definitive well logs without more data — 70 percent
  - Sidewall core data with logs — 70 percent
  - Whole core data with logs — 60 percent
  - Seismic amplitudes with WFT pressures — 60 percent
- Other findings: Seventy percent use reservoir simulation to determine recovery factors. Of those

using WFT gradients, only two of 10 also required an aquifer gradient from the same fault block.

**“The firm conducted the research in September to better understand industry practices...”**



### Flow Test—Cont. from Page 4

deepwater discovery now under development. In the new field, the operator had drilled two wells, both with favorable logs, cores and WFTs. The operator is proceeding without production flow tests.

“The projected production rates calculated from log, core and WFT data have been shown to be very close to the actual rates,” he said. “In many circumstances, the ability to test multiple points with a WFT is superior to a full production test over a long interval, because it provides specific information about the pressure and producibility of individual layers as opposed to average properties of the entire section.”

Wagner also said that individual pressures may help to determine reservoir continuity and to establish fluid contacts. “A conventional production test may actually commingle different reservoirs and give a misleading assessment of reservoir continuity or individual layers’ contributions,” he remarked.

For further clarification of this issue as discussed at the forum, contact Wagner at [bob\\_wagner@ryderscott.com](mailto:bob_wagner@ryderscott.com).

*Editor’s Note: The SEC representatives stated at the forum that they were not speaking on behalf of the agency or in an official capacity for the agency. They also stated that the opinions expressed were their own. Ryder Scott and SPEE sincerely thank the SEC participants for their willingness to attend the forum and to honestly and candidly discuss these important issues.*

*The intent of this article is not to offer advice on accounting issues or SEC regulations but rather to bring to the forefront important issues affecting reserves reporting. Please contact an independent auditor or the SEC to seek clarification of accounting issues or SEC regulations.*

*As a reservoir evaluation consultant, Ryder Scott will make every effort to clarify technical issues and SEC reserves reporting issues within our area of expertise, independent reserves certifications.*

# O'Shea sees more audits of engineering work



Mike O'Shea at the SPEE forum

## Ryder Scott again most listed consultant in survey

A recently published John S. Herold survey indicates that Ryder Scott has retained its top position as the most listed independent consultant of record for preparing year-end reports. This year's annual survey compiled 2001 year-end petroleum-reserves information from 200 publicly owned oil and gas companies listed on U.S. stock exchanges. The surveyed companies from the United States and various other countries reported their reserves under U.S. Securities and Exchange Commission guidelines.

Since Ryder Scott has followed the survey for the past eight years, the firm has consistently led the rest of the field as measured by the number of public companies publishing reserves estimates attributed to independent consultants and the size of the reporting companies using independent consultants.

**Mike O'Shea**, a partner at PricewaterhouseCoopers LLP, recently said that his firm and others are expanding auditing activities to include more work with petroleum engineers involved in year-end reserves reporting. "You will see independent accounting firms reviewing and testing data under Section 404 (of the Sarbanes-Oxley Act). A new term is out called 'disclosure controls' and this will impact how we work with reservoir engineers."

He said PWC is increasingly performing judgmental sampling in audits tests. In addition, O'Shea said that auditors will increasingly opine on controls behind accounting under standardized measures. This includes the standardized measure of discounted future net cash flows from proved oil and gas reserves, which is supplementary information to the financial statements.

He added that auditors will work with reservoir engineers to ensure that the processes used in reserves reporting are documented, including those related to pricing, historical information, capture and classification of incurred costs and revisions of estimates. "We will question the data provided to the (independent) engineering firm. If the company calculates reserves internally, we will review the extent of disclosures," he said.

O'Shea made his remarks at the SPEE Forum on U.S. Security and Exchange Commission reserves reporting definitions in October.

**Roger Schwall**, assistant director of

the SEC Corporate Finance Department, participated in the exchange and said, "We hope that auditors will not just accept third-party (reserves) reports. We have no plans to address a requirement for third-party (reserves) audits or appraisals."

O'Shea said that the Sarbanes-Oxley Act was "very significant" and the most important federal securities legislation since the Securities Act of 1933 and the Securities Exchange Act of 1934. Section 404 of Sarbanes-Oxley requires that the annual report state the responsibility of management for establishing and maintaining an adequate internal control structure and procedures for financial reporting. Management is also required to assess the effectiveness of these internal controls.

O'Shea said, "Companies will have to have systems in place that will be evaluated for operability." For more information on this subject, please see *Reservoir Solutions* newsletter, September 2002.

*Editor's Note: Roger Schwall stated at the forum that he was not speaking on behalf of the SEC and was not in an official capacity for the agency. He also stated that the opinions that he expressed were his own. Ryder Scott and SPEE sincerely thank Mr. Schwall for honestly and candidly discussing these important issues.*

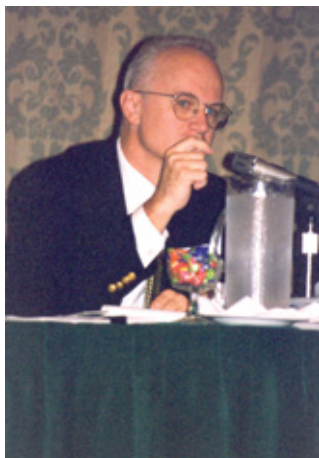
## Accountants to shift "reserves" liability, says Harrell

Accounting firms have said that the Sarbanes-Oxley Act will prompt them to recommend that knowledgeable, respected, independent reservoir engineering firms "sign off" on petroleum reserves quantities cited in 10-Qs (quarterly reports) and 10-Ks (annual reports), said Ryder Scott CEO **Ron Harrell** in December. "Directors, particularly those on audit committees,

company managers and auditors are all seeking to shift the "reserves" liability to third parties," Harrell remarked.

At press time, Ryder Scott was planning to write a white paper on the implications of Sarbanes-Oxley to reserves reporting. Top accounting and law firms were also to co-write it. Details will be forthcoming in the February *Reservoir Solutions*.

## More regulatory reporting analysis on Web site



Schwall at SPEE forum

Two detailed summaries on compliance with regulatory requirements for petroleum reserves reporting are posted in the What's New section of the Web site at [www.ryderscott.com](http://www.ryderscott.com).

They are the following:

- 1,000-word synopsis of the presentation of Roger Schwall, assistant director of the Corporate Finance Dept. of the SEC, at the recent SPEE forum. Schwall discussed the SEC reserves review process and the screening it uses to select companies for review.

Also, he discussed the steps involved in a challenge to an SEC determination that certain reserves do not meet SEC definitions. The Ryder Scott staff collectively wrote the summary and offers a brief analysis.

- Detailed discussion of the reserves audit and how it can be used as a tool to ensure that public companies that internally estimate reserves comply with regulatory requirements. The term "audit" has different meanings for different companies. This posted review, written by **John Warner**, executive vice president — international at Ryder Scott, clarifies the use of the term, cites technical "mini-case studies" and discusses external reserves audit and evaluation options for companies.

Those options range upward in cost and complexity — from training courses for internal staff to outsourcing of outside expertise to benefit internal asset review teams to three-year rotating audits to annual audits to full-scale evaluations.

## Ryder Scott at NAPE in January



Ryder Scott invites you to join us at NAPE Expo 2003 at the George R. Brown Convention Center in Houston, Jan. 28-30. Professional staff will be

on hand to demonstrate some of our property evaluation capabilities at booth 1008/909 on the main aisle close to the entrance. Co-exhibitors will be TRC Consultants LC and OilExchange Inc.

At NAPE Expo, oil and gas companies will introduce their domestic and international petroleum properties to an estimated 8,000 attendees. Marketed properties include prospects, producing properties, U.S. onshore and offshore plays and international opportunities. Capital providers and consultants also exhibit. For further information, go to [www.napeonline.com](http://www.napeonline.com).



Ryder Scott will have a booth at NAPE similar to this one. At NAPE, attendees will learn more about the company's property evaluation services.

### People—Cont. from Page 3

Ryder Scott engineer **Scott Wilson** recently conducted production forecasting and nodal analysis classes in Saudi Arabia, Calgary and Denver. "I'm always amazed that the same concepts used to understand the best wells also make the difference between economic and uneconomic (operations) for the toughest wells," said Wilson, who has taught working professionals for 15 years.

He added that it was a "shock" going straight from training how to predict the water cut at which a 12,000-BOPD oil well would die to identifying the

optimal completion to keep liquids loading from killing a 150 MCF/D tight-gas well. Next year, Wilson will teach a class for Saudi Aramco with classes in Houston, London, Calgary and Denver to follow.

The classes are offered through OGCI/Petroskills and are sanctioned by Shell Oil Co. and BP for their internal training. Please go to [http://www.ogci.com/course\\_info.asp?courseID=229](http://www.ogci.com/course_info.asp?courseID=229) to sign up for classes.

"I always learn something new from a class, whether it is current designs for long completion fractured gas wells or cultural nuances around the world," he said.

Press—Cont. from Page 2

*Oilgram News* that "he is confident the agency is merely looking to refine its definitions and clarify reporting rules, rather than launch an enforcement crusade." This article was also published Nov. 13. "You need adequate justification to call something proved, but that can be done without a production flow test," said Roesle, as quoted in the article.

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**"The SEC's request caused a number of producers to turn to outside consultants like Ryder Scott to independently evaluate their reserves."**  
— Reuters

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The *Houston Business Journal* broke the news in a front-page, banner-headline article published Nov. 8. It featured **Ron Harrell**, CEO at Ryder Scott, who said, "... contrary to industry fears, the SEC letter could be interpreted as a sign of enlightenment. This appears to be a fairly significant step. It appears they are doing their homework."

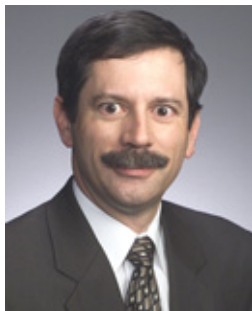
Harrell also interviewed with *The Wall Street Journal*, *Energy News Live* and *Petroleum Intelligence Weekly*, which published its article Nov. 25. The ENL broadcast is posted at [www.ryderscott.com](http://www.ryderscott.com) in the What's new section.

Also in November, the *Oil and Gas Journal* asked Ryder Scott to write an article on the SPEE forum with the U.S. SEC. The firm plans to summarize key points, offer analysis and include graphs and charts. The article was planned to be published the first quarter of 2003.

"Little effort has gone into organizing information like this in a logical fashion so far," said **Tom Gardner**, vice president at Ryder Scott.

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## Tax-credit expirations driving valuations



Olds

After Section 29 tax credits expire Dec. 31, some producers are expected to buy back interests in coalbed, shale and tight-gas properties that were sold to institutional investors during early to mid 1990s, said **Dan Olds**, petroleum engineer at Ryder Scott. "Most of the original deals call for independent fair market valuations as part of the unwinding process," he said.

Olds was heavily involved in structuring such deals at PriceWaterhouseCoopers before joining Ryder Scott and plans to conduct FMVs and after-tax valuations for involved parties.

Originally, the owners of these nonconventional properties could not use the Section 29 tax credits because of tax-loss carryforwards or alternative minimum tax. So they sold majority interests in the properties to institutional investors — such as insurance companies, banks and pension funds — that could use the credits while retaining operatorship. When the federal program expires, the producer typically has an opportunity to repurchase the interests.

Some U.S. producers are calling for a permanent extension of the Section 29 tax credit. However, the Senate Finance Committee has not granted an extension, even though some committee members are reportedly in favor of an extension.

To contact Olds, send an e-mail to [dan\\_olds@ryderscott.com](mailto:dan_olds@ryderscott.com).

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