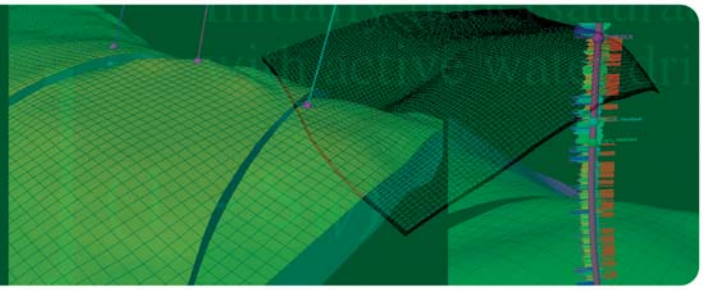
RESERVOIR SOLUTIONS



A quarterly publication of Ryder Scott Petroleum Consultants | September–November 2007/Vol. 10, No. 3

New appointee to advise on SEC reserves disclosures

Lee

The new petroleum engineer at the U.S. Securities and Exchange Commission charged with evaluating oil and gas reserves disclosure requirements is **W. John Lee**, a professor at Texas A&M University. He confirmed his appointment to the 12-month engineering fellowship in late August.

The fellow also will assist the SEC in evaluating technologies used by industry to assess reserves, said **John W. White**, director of the division of corporation finance at the SEC. He added that recommendations, if any, to revise disclosure requirements may be based on the new engineer's evaluation.

White also told *Platts Oilgram News* that the appointee is from academia rather than industry "to emphasize independence in the process."

Lee said that he will begin his research by reviewing published materials. "I will welcome input from interested people, but I am not in a position to receive any information that is not in the public domain. Everything must be open and transparent to all," he remarked.

The fellowship was scheduled to begin September 1. However, at press time, Lee expected that he would start in mid September because of a lengthy clearance process by the U.S. Dept. of Homeland Security.

Lee has been involved in reservoir engineering and production forecasting for decades. He started his career with Exxon Production Research Co. in 1962, in reservoir simulation for six years with a focus on major fields in Saudi Arabia, Venezuela and south Texas. Lee then joined Exxon Co. USA where he supervised integrated field studies of the company's largest U.S. reservoirs for about six years.

He was a reservoir engineer for Exxon's Houston district during 1975-76 shortly before joining TAMU in 1977. Lee also worked at S.A. Holditch & Assocs. Inc. beginning in 1980 and retired as executive vice president in 1999. He has written text books on gas reservoir engineering, pressure transient testing and well testing published by the Society of Petroleum Engineers. Lee has BChE, MS and PhD degrees from Georgia Institute of Technology.

He has received numerous awards from SPE and was a member of the SPE board of directors. SPE and other societies recently approved a new reserves classification and definition system that has been cited as a model for the SEC.

Several industry groups have petitioned the SEC to

Please see New Technology on Page 2

Inside Reservoir Solutions newsletter

SEC to evaluate SPE-PRMS, 2P reporting via XBRL system

XBRL eXtensible Business Reporting Language

Recommendations from a major interdisciplinary reserves conference in June included a call for oil and gas companies to participate in a U.S. Securities and Exchange Commission voluntary program to assess, among other issues, the utility of the new, jointly sanctioned Petroleum Resources Management System.

"It also might offer a means by which proved and probable reserves figures could be introduced into SEC consideration," said organizers of the International Interdisciplinary Conference on Reserves and Resources in Washington, D.C., June 24 to 26.

They also said that besides allowing companies to report parameters not allowed in SEC filings, the data system will track key indicators to analyze and compare company performance. Organizers said that they will contact all reserves officers of companies that

Please see XBRL on Page 2

New Technology—Cont. from Page 1

allow companies to rely on new technologies to identify proved reserves. White said that those groups have not demonstrated to the commission that those technologies are routinely reliable to attribute proved reserves.

"Allowing use of such technologies would likely produce increased levels of proved reserves, but might decrease the reliability of the estimate," said White.

Lee will have to consider the older vintage of SEC rules in his investigation of so-called new technology. "Some people in the industry believe that the guidelines, which were implemented in 1978, might need to be revisited after almost 30 years," he said.

White provided a clue to one of the technology issues that Lee most likely will have to tackle, saying that the SEC allowed the "use of … (new) technologies in calculating proved reserves in the Gulf of Mexico."

His reference was to the agency's statement in 2004 that in the absence of a flow test, GOM deepwater operators would be allowed to use four procedures—openhole logs, core samples, wireline formation sampling and seismic surveys—in combination to justify booking proved undeveloped reserves.

> "…new (SEC) guidelines could take more than two years."
> —Dow Jones

After the 2004 announcement, the SEC immediately drew fire from GOM shelf operators and U.K. North Sea producers, including BP, for not extending the ruling beyond the deepwater GOM. Some critics remarked that the laws of physics are not suspended outside the deepwater GOM.

It is impossible to say how long it would take the commission to approve new recommendations, if any, SEC spokesman **John Heine** told *Dow Jones* news service. "Given that the fellowship is expected to last 12 to 18 months and that officials would need to write new proposals, offer them out for public comment and then require a commission vote, new guidelines could take more than two years," *DJ* stated.

XBRL—Cont. from Page 1

participated in the conference to encourage formation of such a consortium.

The system uses XBRL, extensible business reporting language, which enables financial data transfer between users using an open standard developed by a non-profit consortium of companies, organizations and agencies.

"The U.S. SEC seems to be encouraging subject firms to expand their reporting of pertinent data with a view towards enhanced communication and transparency," organizers stated. "They also may be considering … (allowing) companies to utilize International Financial Reporting Standards rather than the U.S. Generally Accepted Accounting Principles."

Conference participants formally urged the International Accounting Standards Board and its sponsors to revise global accounting standards for mineral reserves and resources from their stated target year of 2012 to no later than 2010.

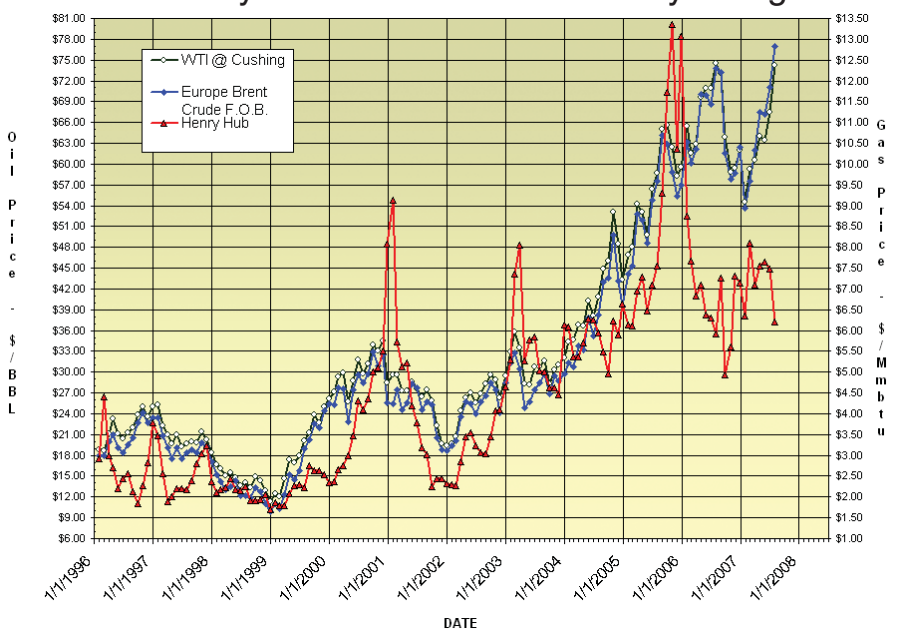
Mike Black and **Pete Rose** were co-chairmen representing the Society of Petroleum Engineers and the American Association of Petroleum Geologists, respectively. A four-page executive summary cites conference recommendations.

Publisher's Statement

Reservoir Solutions newsletter is published quarterly by Ryder Scott Company 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 80 engineers and geoscientists, Ryder Scott has the capability to complete the largest, most complex reservoir-evaluation projects in a timely manner.

Reservoir Solutions
Editor: Mike Wysatta
Business Development Manager

Ryder Scott Company LP
1100 Louisiana, Suite 3800
Houston, Texas 77002-5218
Phone: 713-651-9191; Fax: 713-651-0849
Denver, Colorado; Phone: 303-623-9147
Calgary, AB, Canada; Phone: 403-262-2799
E-mail: info@ryderscott.com



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

Final reserves definitions need further clarification

David Elliot from file photo, 2004

The new jointly approved Petroleum Resources Management System, which offers the latest guidance for estimating petroleum resources and reserves, may be final but continuing industry feedback underscores a need for further clarification.

For example, **David Elliot**, chief petroleum advisor at the Alberta Securities Commission, recently said, "The current PRMS definition for a known accumulation doesn't make an allowance for analogs. We have a definition in Canada that does. That may be an area that needs some attention."

Elliot made his remarks at a multidisciplinary conference sponsored by the American Association of Petroleum Geologists and Society of Petroleum Engineers in June. The PRMS states that a known accumulation must be discovered and therefore "penetrated by a well that has established through testing, sampling or logging, the existence of a significant quantity of recoverable hydrocarbons."

The Canadian Oil and Gas Evaluation Handbook Vol. 1 glossary states that a known accumulation is discovered by drilling and flow to the surface, which is similar to the PRMS requirement for penetration by a well with testing. However, COGEH also states that "where good log and/or core data exist, this may suffice, provided there is a good analogy to a nearby and geologically comparable pool that has recovered hydrocarbons at the surface."

The PRMS also does not refer to analogs in its definition for "discovered," but offers guidance in Section 4.1.1 and states that "review of analog reservoir performance is useful in quality assurance of

Please see PRMS on Page 4

Mitvol urges reserves auditors to verify data with state

Mitvol

The deputy director of the Russian environmental agency Rosprirodnadzor criticized North American petroleum reserves auditors in late August for not verifying client-provided reserves data with Russian regulators, *The Guardian* newspaper in London reported.

"The explanation is easy. Most of the reserves data does not correspond with GKZ (state reserves committee) numbers. Those auditors … retain very significant fees for the work they do. They will lose all of their clients if they start to check for accurate data," said **Oleg Mitvol**. "When a proprietor-licensee has data that is different from the state data, this is firstly, abnormal and secondly, a fraud.

Earlier in April, he accused a reserves auditor and its client of reserves manipulation, calling for a countrywide reserves review. For that story, please see June 2007 *Reservoir Solutions* newsletter, Page 5.

Russian Interfax news agency reported that Rosprirodnadzor was looking into the activities of some small London-listed companies. However, Natural Resources Minister Yury Trutnev announced in July that the problems were confined to the one case.

Thus far, the government has not carried out Mitvol's sweeping recommendations for reserves reporting reform. Mitvol said, "I can add that soon the results of our work with one company will be announced and it will significantly reduce reserves."

He most recently has alleged that some U.K.-listed companies are "cheating" investors by exaggerating their reserves and he has called on the London Stock Exchange and other authorities in the U.K. to stamp out the alleged abuses, the *Guardian* reported.

"We will be working on all companies to implement certain arrangements to bring data into compliance with the state's certified reserves figures," said Mitvol. "In general, the problem companies are those that grow from zero and reach a valuation of hundreds of millions of pounds in two to three years."

The deputy head would like closer cooperation between Russian and British market regulators in examining reserves disclosures for compliance. "We are speaking here only about cooperation for the exchange of information, which is not complicated at all. I don't see any harm for the London regulator to ask the Russian peers and we will be more than happy to help," Mitvol told the *Guardian*.

Both financial and reserves auditors perform data integrity checks and review information for validity, questioning clients during the audit process when appropriate. However, traditionally professional firms have not been responsible for the completeness or accuracy of the client-provided data beyond what would be uncovered through a rigorous audit process.

Mitvol's appeal for consultants to confirm client data with the state comes on the heels of a press report in April quoting a reserves consultant under investigation as saying that "the audit is only as good as the geological data provided by the client."

Evaluators responsible for reserves training, says Harrell

Harrell

Ron Harrell, chairman emeritus at Ryder Scott, told attendees at a major reserves conference in late June that petroleum geologists and engineers, not their companies, bear the responsibility for bridging a knowledge gap to improve their reserves auditing and estimating skills. "Some oil and gas companies have good internal training programs for reserves evaluators, but most do not."

He made his remarks in a presentation, "Qualifications and Standards for Reserves Evaluators," June 25 at the International Interdisciplinary Conference on Reserves and Resources in Washington, D.C. "The continuous training necessary to be a qualified, independent professional reserves estimator or auditor is the responsibility of the individual," said Harrell.

He recommended that evaluators access information important to professionalism through their employers, industry organizations and programs offered by the Joint Committee on Reserves Evaluator Training. "A reservoir engineer or geologist is not automatically a reserves engineer or geologist," said Harrell, who helped revise the Society of Petroleum Engineers reserves and auditing standards that were jointly approved last March.

He urged evaluation professionals, as a start, to comply with the new definitions. Those include establishment of a 10 percent maximum tolerance between the internal reserves evaluation and external audit for proved reserves in the aggregate.

Ron Harrell's Top Ten List
Why Some Estimates Are Not Reliable

10. I did not actually see the log and core analysis, but I was told . . . .
9. I didn't actually study the definitions, but believe...
8. I relied on a 25-million-cell reservoir simulation model.
7. We used our partner's estimate.
6. I based my recovery factor on an analog 500 miles away.
5. I relied upon a best fit exponential decline using top-rated economic software.
4. My technician did most of the work, but I looked it over.
3. I know my development plan looks aggressive, but I believe we can get it done with a little luck.
2. I used a high proved oil recovery factor because many reservoirs in the area have strong water drives.
1. I thought the SEC had changed that one-offset rule.

"Some companies may choose to set a higher standard of achieving a 10 percent maximum difference for a region or area. Some boards might opt for a 5 percent tolerance level without comprehending the effort and expense to attain this," said Harrell.

The new 2007 industry definitions also stipulate that an entity reserves report includes at least 80 percent of an owner's properties at a given date.

PRMS—Cont. from Page 3

resource assessments at all stages of development." The PRMS is less inclusive and more flexible by design, perhaps lessening the need to include all conceivable definitional elements, some argue.

While remarking that Elliot has a valid point, **John Etherington**, chairman of the SPE Oil and Gas Reserves Definitions Sub-Committee, said, "The PRMS was designed as technical guidelines and includes several options to accommodate adaptation by oil and gas companies. COGEH has less flexibility, as it is being directly referenced by NI 51-101." NI 51-101 is Canada's national instrument for standards of disclosure for oil and gas activities.

Elliot, at the center of oil and gas regulatory issues in Canada, remarked, "Lawyers don't worry about what a definition should say. They say, 'This is what it says.'" The PRMS language may be subject to less legal scrutiny though because it is not a disclosure document like COGEH. No market regulators have adopted the PRMS as the sole, acceptable standard for disclosure.

"Lawyers pick apart COGEH because it is a disclosure document as well as a set of technical guidelines," said Etherington.

John Ritter, chairman of the SPE Oil and Gas Reserves Committee, said that one avenue to clarify the definitions lies in the impending development of an applications document to support PRMS. The SPE reserves education committee and OGRC are currently determining the best way to produce this document, which may be modeled after Canada's handbook.

The differences in the PRMS and COGEH definitions of known accumulation, discovery and other terms may disappear in the future. The SPE Canadian Section is involved with discussions with the Petroleum Society of CIM and the SPE on the formation of a new, singular petroleum industry society for Canada under the SPE banner.

"I think over time the two systems will come closer together through the implementation guidelines. They are already very close. There may always be local variations," said Etherington. "It doesn't make sense to have two sets of definitions in North America."

Correction to news reports on audit of T&T gas reserves

Patrick Manning, prime minister of T&T

News reports in late August quoted sources who said that a recently completed Ryder Scott reserves audit of the offshore gas reserves of Trinidad and Tobago showed that the country has 12 years of remaining gas reserves.

To the contrary, the two-year, countrywide audit found that T&T's risked 3P reserves are adequate to supply the demand for gas through 2016 before declining off plateau. The audit also concluded that T&T has 17.05 Tcf proved gas reserves, 7.76 Tcf probable reserves and 6.23 Tcf of possible reserves.

Also, the audit shows a 3.83 Tcf decline in gas reserves since January 2005 but a potential for an additional 37 Tcf of gas awaiting discovery.

An LNG ship docked at Point Fortin in T&T where future gas production looms large. Photograph by Barry Lewis.

Patrick Manning, prime minister, said that the country is stimulating exploration activity in the various provinces in Trinidad and Tobago. "As a result, a lot of exploration is now taking place both on land and in marine areas," he remarked.

SNAP software upgraded to metric units, on Web site

Ryder Scott recently released a SNAP well-performance and nodal analysis package to accommodate metric units. **Scott Wilson**, co-developer and vice president at Ryder Scott, recently posted a test version on the Ryder Scott Web site at www.ryderscott.com. He continues to tweak it as he receives user feedback.

That version of the SNAP program is available to all licensed SOS users. The option for metric inputs is in the units preferences dialog under the inputs menu.

SNAP users have commissioned Wilson to customize the package for specific applications. This is a fee-based service with clients having proprietary rights to those custom features.

Recently, Wilson developed a SNAP version that incorporated code from the Valve Performance Clearinghouse, a consortium that includes major oil companies that establishes accurate gas lift valve performance correlations. That SNAP version is optimized to better predict gas passage rates through commercial gas-lift valves.

In another project, Wilson customized SNAP to optimize a tubing tail location in long well completions, such as those in the Pinedale field and other U.S. Rockies tight gas plays. "Before using the application-specific version of SNAP, most operators had no idea how much production they were losing by misplacement of the tubing tails," said Wilson.

Ryder Scott made SNAP available more than seven years ago after the firm became the SOS software licensor. SNAP continues to be the standard gas-lift package for engineers working both the giant Prudhoe Bay and Kuparuk oil fields.

Ryder Scott offers five SOS programs, including SNAP, and 10 Reservoir Solutions Excel-based programs, to the worldwide oil and gas industry. The most recent versions of all programs are maintained on the Web site at ryderscott.com.

> "Before using the application-specific version of SNAP, most operators had no idea how much production they were losing by misplacement of the tubing tails."
> —Wilson

Ryder Scott also distributes Reservoir Solutions install disks at the SPE Annual Technical Conference and at the North American Prospect Expo. SOS programs are available only to clients and potential clients. Ryder Scott qualifies SOS users by reviewing Web-based submission forms received from applicants.

Editor's Note: Ryder Scott does not guarantee or warranty the accuracy or reliability of its software and disclaims its fitness for any particular purpose.

SPE-ATCE paper analyzes above-ground factors

McLaughlin

Gouge

"Methods for Incorporating Costs, Pricing, Gas Shrinkage and Transport Tariffs, NGL and Inert Revenues, and Working Interest in Gas Plants and LNG Projects into Reserve Estimates," will be presented at the SPE annual technical conference, Monday, Nov. 12. The paper was written by **John McLaughlin** and **Brad Gouge**, both petroleum engineers at Ryder Scott.

The presentation, scheduled for 2:50 p.m. in Room 203 A&B, is one of several in the three-hour session, "Relationships: Reserves, Price, Supply and Demand," which starts at 2 p.m. at the Anaheim Convention Center.

The authors contrast and compare the ways that commercial and non-reservoir factors are treated under reserves reporting systems of both the U.S. Securities and Exchange Commission and jointly adopted Petroleum Resources Management System (SPE-PRMS). The paper also highlights areas where the industry does not always interpret those definitions consistently.

The authors primarily focus on proved definitions in five areas: pricing and costs, gas composition and usage, entitlement interests, project approvals and reserves aggregation.

The following points summarize many of the key similarities and differences between the SPE-PRMS and SEC reserve systems view of above-ground issues.

- The SEC requires year-end (December 31) pricing held constant for the project life under 10-K reporting rules. This daily posted oil or gas sales price, referred to as spot price, is adjusted for oilfield or gas gathering hub and wellhead price differences in grade, transportation, gravity, sulfur and basic sediment and water. The only exception is for properties with contracts in place before year end that dictate future changes.
- The SPE-PRMS recommends pricing based on a reasonable forecast of future conditions as well as flat pricing to satisfy regulatory requirements.
- The SEC requires year-end costs held constant throughout the project life as the basis for future expenses. The SPE-PRMS provides guidance of a "reasonable forecast" for future costs of projects.
- SEC and SPE-PRMS require that producers calculate reserves at a reference point and that price, costs, shrinkage and hydrocarbon states are consistent with that point. Often this point is the point of sale, but in some integrated projects a net-back price may be calculated to shift the reference point to a marine terminal or trunk line.

The location of the reference point in the system generally determines whether the study should report wet gas or dry gas plus natural gas liquids. If a reference point is before non-hydrocarbon separation, the SEC recommends that the non-hydrocarbons be excluded from reserves quantities. The SPE-PRMS allows non-hydrocarbons to be included where the stream is sold before separation.

- The SEC does not allow non-hydrocarbon revenue to be included in reserves cash flows. SPE-PRMS definitions do allow it. If this additional revenue extends the producing life of a field, the additional oil and gas volumes produced during the extension may be included as reserves.
- The SEC does not allow hydrocarbons recovered through mining to be booked as oil or gas reserves. The SPE-PRMS does allow mined volumes, including shales and tar sands, to be classified as reserves.
- Under specific circumstances, the SEC and SPE-PRMS allow fuel gas to be included as reserves. However, SEC staff guidance prohibits fuel inclusion in the SMOG or sales gas and prohibits companies from assigning revenue to the fuel stream. In cases where SPE-PRMS guidance allows fuel-gas volumes to be booked, revenue may be associated with the fuel volumes when an equal and offsetting value is added to the operating expenses. Evaluators frequently do not include fuel gas volumes in SEC and SPE-PRMS reserves studies if those volumes are included as a component of shrinkage.
- Both the SEC and SPE-PRMS differentiate between injected and re-injected volumes. Neither allows injected volumes to be included as reserves, but the SPE-PRMS framework allows unsold, injected gas

from nearby reservoirs to be classified as re-injected gas. The SEC requires injected gas to be returned to the reservoir to be classified as re-injected.

■ Reserves entitlement interests for production-sharing agreements are calculated using the economic interest method under both SEC and SPE-PRMS definitions. That method ensures that net barrels correspond with net oil and gas financial results.

■ The SEC, in practice, stipulates that funding and approvals be "in hand" for booking of proved reserves. The SPE-PRMS suggests the need for confirmation of funding for booking of proved reserves. Non-proved reserves may be booked using SPE-PRMS guidance if project funding is reasonably expected.

■ In the determination of reserves and value, the SPE-PRMS suggests the use of statistical aggregation only to the field, property or project level and arithmetic summation above those levels. The SEC, in practice, recommends using arithmetic summation at the lowest level in which the entity is analyzed, whether it is field, reservoir or well. Aggregation should not make allowances for the portfolio effect.

Reserves validation techniques part of ERM system

A poster-session paper at the upcoming SPE annual conference will show how petroleum reserves evaluation techniques can be combined with operational risk-management and strategic-planning tools to support an enterprise risk management process. "Oil and gas companies have not integrated reserves estimation methods with broader fields to manage companywide enterprise risk," said **Scott W. Randall**, principal consultant at the enterprise risk management (ERM) services of Det Norske Veritas USA Ltd.

"Enterprise Risk Management in the Petroleum Industry Using Qualitative and Quantitative Techniques to Validate Information," (SPE No. 109822) presents a framework for achieving reasonable assurance of the reliability of information to support risk management. That reliability in reserves estimates is crucial because those metrics feed forecasts of earnings, cash flows and asset valuations, said Randall.

Don Griffin, senior vice president at Ryder Scott,

Randall

Griffin

and **Ron Harrell**, chairman emeritus at the firm, co-wrote the paper, which will be featured at the Management Practice at Home and Abroad session on Monday, Nov. 12, Room 203 A&B, 8:30 to 9:45 a.m.

The authors state that the jointly approved 2007 Petroleum Resource Management System and the accompanying Guidelines for the Evaluation of Petroleum Reserves and Resources provide common guidance for reserves and economic analysis. "However, a framework for information validation, for instance to verify raw data, would be useful to provide assurances to internal and external stakeholders alike," said Randall.

ERM is especially critical now because performance and compliance expectations are coming from a wider group of stakeholders that include stock analysts, regulators, institutional investors, bond rating agencies and environmental non-governmental organizations.

Randall has developed a three-stage validation process with steps for initial data screening and basic and advanced validation of secondary information. He said that an example of secondary information is the data reviewed by a stock analyst while primary information might be data gathered by a field technician.

Griffin and Harrell provided a couple of examples to support at least two steps in the secondary data validation process. One case involved the use of a scatter-plot tool to reveal overly optimistic production projections and invalid geological analysis. The other involved an abuse of variable costs in lease operating statements to accelerate cost projections, lower economic limits and extend field production life to inflate reserves.

Upcoming Events

Nov. 11-14—SPE ATCE, Anaheim Convention Center, Ryder Scott Booth No. 1656

- Nov. 12—ATCE poster presentation on ERM. See details in article on this page.
- Nov. 12—ATCE presentation on above-ground issues. See article on Page 6.
- Nov. 14—ATCE poster presentation on reservoir simulation in reserves estimation by Dean Rietz and Adnan Usmani, both with Ryder Scott, at Field Case Histories session, Room 202 A&B, 2 to 4:30 p.m.

Oct. 8-Dec. 12—SPE distinguished lecturer Ron Harrell, chairman emeritus, presents history, current status and future of reserves estimates at SPE sections: Oct. 8, New York Petroleum Section; Oct. 9, National Capitol Section; Oct. 10, Appalachian Petroleum Section; Oct. 11, Northern W. Virginia Section; Dec. 3, Swiss Section; Dec. 4, Vienna Basin Section; Dec. 5, Croation Section; Dec. 6, Copenhagen Section; Dec. 10, Netherlands Section; Dec. 11, Oslo Section; Dec. 12, Stavanger Section

RS hires associate geologists, engineer

Four recent geology graduates have joined Ryder Scott as associate geologists. They will assist in volumetric evaluations of reserves under senior supervision.

This is a new model for recruitment and mentoring of geoscience professionals at Ryder Scott. "In the past, the talent pool of experienced geoscientists was sufficient to satisfy our staffing needs," said **George Dames**, manager of the G&G group. "Now, however, to meet increased service demands, we recruited top geology graduates."

He added that Ryder Scott would provide in-house training and mentoring programs in reserves definitions, petrophysics and volumetric reserves-estimation methods. "We will focus on reservoir geology training not generally offered by the industry at large," said Dames.

Brett Gray, **Philip Jankowski**, **Tiffany Katerndahl** and **Michael Michaelides** are the new associate geologists. Gray graduated this year with a BS degree in engineering geology from Texas A&M University. Jankowski also graduated this year from A&M with a BA degree in geology. Katerndahl graduated this year with a BS degree in geology from the University of Texas at Austin.

Michaelides

Woodrome

From left, Brett Gray, Tiffany Katerndahl and Philip Jankowski work at a light table.

Michaelides' work was responsible for decreasing the operating costs of a dewatering plant at a DeBeers diamond mine. During 2005-07, he became a lab teacher and teaching assistant at the UT Jackson School of Geosciences.

Keith L. Woodrome has joined Ryder Scott as a petroleum engineer. He previously worked at ExxonMobil Development Co. for six years starting in 2001. He most recently was a project cost and controls engineer and team leader.

Before that Woodrome was project controls leader and lead estimator for offshore developments in Ras Laffan, Qatar and Dubai, UAE. Woodrome was also a cost engineer for development concepts in Japan, South Korea, Malaysia, Indonesia, Azerbaijan, Qatar and the U.A.E.

He began his career at Exxon as a project controls engineer for developments in Angola and Nigeria. Woodrome has a BS degree in chemical engineering from Texas A&M University.

Ryder Scott Co. LP
1100 Louisiana, Suite 3800
Houston, Texas 77002-5218
Phone: 713-651-9191; Fax: 713-651-0849
Denver, Colorado; Phone: 303-623-9147
Calgary, AB, Canada; Phone: 403-262-2799
E-mail: info@ryderscott.com
Web site: www.ryderscott.com

PRSRT STD
US POSTAGE
PAID
HOUSTON TX
PERMIT NO 11296