

SEC declares position on reserves reporting

The U.S. Securities and Exchange Commission published its interpretive positions on petroleum reserves definitions in July to dispel "some confusion" in the reporting of reserves. The confusion had arisen, the SEC said, from the growing practice by public issuers of using developing technologies and techniques in estimating proved reserves.

In a document of roughly 3,000 words on reserves definitions prepared by the SEC petroleum engineering staff, the commission discussed the use and limitations of 3D seismic interpretation, reservoir simulation and probabilistic methods. The SEC said that its recent clarifications do not represent a change in regulations, however, the agency broke new ground by disseminating opinions that heretofore had not been widely broadcast. The commission posted its interpretations on its Web site at http://www.sec.gov/ offices/corpfin/acctdisc.htm.

In tempering the new with the old, the SEC stated that "if probabilistic methods are used, the limiting criteria in the SEC definitions, such as lowest known hydrocarbons, are still in effect and shall be honored." The commission's warning still left a crack in the door for the use of statistical analyses.

However, in the same brushstroke, the SEC referred to "past and current practices in the deterministic methodology (that) utilize a median or best estimate for proved reserves." The commission also dissuaded public issuers from using statistical aggregation in probabilistic studies, reinforcing the longestablished accounting practice of summing up field-

Please see SEC on Page 3

Inside Reservoir Solutions newsletter

Historical chart of oil and gas prices Pg. 2
Commentary on SEC guidelines Pg. 2
"Proved" distribution satisfies SEC Pg. 3
A consultant's view of China – Part II Pg. 4
RS finds long-lost innovator, history Pg. 6
Engineers, geologist join RS Pg. 8

OGJ publishes feature article on Ryder Scott freeware



The Oil & Gas Journal, the largest paidcirculation magazine in the petroleum industry,

recently published a full-page article on the Reservoir Solutions freeware. In the article, "Slide rules to freeware," which appeared Aug. 14 in the *Journally Speaking* column on page 17, Guntis Moritis, production editor, writes, "The last 30 years have seen many productivity improvements for doing basic petroleum engineering calculations. ... Freeware on the internet now affords another source for obtaining computer programs that can improve an engineer's productivity."

"Ryder Scott Co. has made available on its website, www.ryderscott.com, six programs that can be downloaded for free. These programs use many of the 'bells and whistles' of newer operating and spreadsheet software," he added.

Ryder Scott offers no-cost CD-ROM to install software



grams available to those who do not use the Internet. Also, the portable disks are easily passed on to others.

"If you plan on getting a new computer or hard drive, these disks make reinstallation of the programs a snap," said Latham. "Installation is fully automated."

To request a CD-ROM, contact Latham at james_latham@ryderscott.com.

How to interpret some SEC guidelines will always be limited by the judgement of the evaluator and interpretations of verbiage



The U.S. SEC's recent comments on the impact of advanced technology on 25-yearold reserves definitions are instructional and helpful. However, the

Ron Harrell, CEO

SEC has identified several definitional matters that may

seriously affect certain small and midsize oil and gas producers.

The SEC states that proved reserves for undrilled units not offsetting productive units can only be claimed by the public issuer when it can demonstrate with "certainty" that there is a continuity of production between the undeveloped location and the existing productive formation.

The word "certainty" as applied

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 fimely manner.

Board of Directors

Ronald Harrell Chairman and CEO Don P. Roesle President and COO Kent A. Williamson Exec. V. President John E. Hodgin Exec. V. President

Joe P. Allen Sr. Vice President John R. Warner Sr. Vice President Fred P. Richoux Sr. Vice President Larry T. Nelms Sr. Vice President

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 Web site: www.ryderscott.com

to continuity of production establishes a standard that may be impossible to attain. The SEC staff emphasized its concept of that word by stating that there is "no mitigating modifier for the word 'certainty."

In whatever way this affects independent producers, the SEC interpretations do not materially change how Ryder Scott has always prepared an SEC-styled report and that is to fully and completely document each case with adequate, high-quality geological and engineering data.

The SEC staff's position on the classification of proved undeveloped reserves, both primary and related to fluid injection, also seems to be at a variance with long-established industry practices. Another area of concern identified through discussions with the SEC is its position that public issuers factor environmental, financial, legal and political risks into a proved reserves estimate. Furthermore, factoring those risks must be done with "reasonable certainty."

As petroleum consultants, our

role has always been to assess risks related to technical and current economic and operations issues. To account for other risks, we can only inquire of our clients whether they are aware of any legal, environmental, political or financial liabilities that might affect their ability to develop field projects.

Unlike rules, guidelines assist, rather than govern, decisions. Interpretation of the guidelines has been and always will be subject to the judgement of qualified evaluators, who must attempt to understand words and shades of meaning. Guidelines, no matter how carefully worded, are not as precise as the mathematics in which we, as technical professionals, take comfort.

We remain available to discuss the regulatory issues discussed in this newsletter and other matters. Clients and other interested parties can contact us at 713-651-9191. I personally can be contacted through my e-mail address at ron_harrell@ryderscott.com.

Please see related article on next page.



The West Texas Intermediate Crude (WTI) prices are the posted prices of Exxon Co. USA published in the Crude Oil Price Bulletin Summary. Composite spot gas prices are the wellhead prices published in the Natural Gas Week newsletter. Brent oil prices are the published, posted prices available to the general public from commodity quotation services over the internet.

Benchmark oil and U.S. composite gas price history



Acuña

The proved reserves definitions of both the U.S. Securities and Exchange Commission (SEC) and Society of Petroleum Engineers/World Petroleum Congress (SPE/WPC) have several requirements that may conflict with probabilistic analysis, if not properly incorporated, said Herman Acuña, vice president at Ryder Scott. He will present a paper (SPE 63202) on probabilistic methods and regulations on Oct. 4 at the SPE Annual Technical Conference and Exhibition (ATCE).

The paper, "Adapting Probabilistic Methods to Conform to Regulatory Guidelines," was written by Acuña and Ron Harrell, CEO at Ryder Scott. In the paper, they discuss how the SEC and SPE/WPC guidelines affect the implementation of statistical methods.

The authors cited the following two acceptable

SEC—Cont. from Page 1

level reserves through simple addition.

Jim Murphy, a senior petroleum engineer at the SEC, said, "Since this is not really a change in the rulemaking, we are not formally requesting public comments."

For years, Ryder Scott has acted on behalf of its clients and the industry at large to comply with the reporting requirements of the commission. "Because of our position within the industry, we feel that one of our missions is to continually explore reporting issues with the SEC," said Ron Harrell, CEO.

Other statements included the following.

■ The SEC staff emphasizes that proved (undeveloped) reserves cannot be claimed more than one offset location away from a productive well if there are no other wells in the reservoir, even though seismic data may exist.

■ The use of high-quality, well-calibrated seismic data can improve reservoir description for performing volumetrics, e.g., fluid contacts. However, seismic data is not an indicator of continuity of production and,

options to evaluate proved reserves using probabilistic analysis under regulatory guidelines:

■ To account for various reserves guidelines based on deterministic methods, an evaluator should restrict probabilistic distributions. As examples, an evaluator may restrict known reservoirs to structures within the tested fault block and exclude rock volumes below the lowest known hydrocarbons. In addition, Acuña and Harrell propose that after calculating this "proved distribution," the evaluator should select the resulting P-50 value to estimate proved reserves.

■ The second approach is similar except that the evaluator estimates proved reserves deterministically. That value would then be compared to the unrestricted distribution of recoverable hydrocarbons to determine its corresponding percentile.

They also discuss geological, engineering and economic evaluation variables, dry-hole risk factors and aggregation of distributions. "The obvious dilemma becomes how to report individual and total company portfolio reserves calculated statistically," said Acuña.

Simple arithmetic is used to add proved reserves derived from deterministic evaluations. However, the arithmetic of summing P-10 reserves derived probabilistically, for instance, will exaggerate the upside and be much higher than the P-10 from a probabilistically aggregated distribution. The authors' solution is to calculate a proved distribution conforming to regulatory guidelines on a field-by-field basis and then add the P-50 values, which should be very similar to the P-50 of their probabilistically aggregated totals.

"Satisfying the P-90, P-50 and P-10 from a hydrocarbon resource distribution is not enough to book reserves," cautioned Acuña. The ATCE will be held in Dallas, Oct. 1 to Oct. 4. For more information on the conference, access the SPE Web site at www.spe.org.

therefore, can not be the sole indicator of additional proved reserves beyond the legal and technically justified drainage areas of wells that were drilled. In a new reservoir with only a few wells, reservoir simulation or application of generalized hydrocarbon recovery correlations would not be considered a reliable method to show increased proved undeveloped reserves. With only a few wells as data points from which to build a geologic model and little performance history to validate the results with an acceptable history match, the results of a simulation or material balance model would be speculative in nature. The results of such a simulation or material balance model would not be considered to be reasonably certain to occur in the field to the extent that additional proved undeveloped reserves could be recognized.

The SEC also said that it requires the use of spot market prices as of Dec. 31 on an individual property basis to estimate proved reserves and to calculate future cash flows. "This price is also used in the application of the full-cost ceiling test," the agency stated in its Web site posting.



An engineering consultant's Part ID view of the upstream industry in China

— Ron Harrell, CEO at Ryder Scott Petroleum Consultants

Editor's Note: This article is an updated, second part of a two-part series on upstream China. Part I on CNOOC and CNPC was published in the June Reservoir Solutions newsletter. Also, the entire article appeared in the July issue of the Oil & Gas Executive Report published by the Society of Petroleum Engineers. This article is based on the observations of Ron Harrell, who visited several large, mature onshore oil fields in China and met with various Chinese delegations. In Part I, he remarked that although China is somewhat isolated from the rest of the world because of politics, the oil and gas industry has managed to stay abreast of Western technology quite well since the Cultural Revolution ended in 1976.

Sinopec—Quick to adapt

China Petrochemical Corp. (Sinopec) is on track to launch China's second multibillion-dollar global oil company IPO around this September, reported Reuters in August. Sinopec saw its path to the world equity market cleared after China's largest offshore oil producer, CNOOC Ltd., announced in August that its IPO would be postponed until the first quarter of 2001. The Sinopec issue size is expected to be similar to the \$3.1 billion raised in early April by China's largest oil company, PetroChina. BP Amoco plc. said in June that it planned to buy a stake in Sinopec. The IPO team is led by Morgan Stanley and CICC as financial advisors, KPMG as the accounting firm and Ryder Scott Co. L.P. as the independent reserves evaluator.

Sinopec is the second largest oil company in China with about 1.2 million employees, most of whom work in the downstream part



From left, Ron Harrell, CEO of Ryder Scott; Li Gansheng, director at Sinopec; and John Warner, director-international operations at Ryder Scott, stand beside the Monument au Phantome sculpture in front of the 1100 Louisiana building, which houses the Ryder Scott Houston office. Sinopec is a client of Ryder Scott and visited late last year.

of the company. Most of Sinopec's current production is onshore and a majority of that comes from relatively mature fields. Despite a lack of desirable data, Sinopec's reserves evaluators have done a credible job in their evaluation of remaining reserves as of Dec. 31, 1999. They are academically well qualified and are eager and quick to learn the requirements of the financial community and securities regulators, particularly the U.S. Securities and Exchange Commission.

Reservoir Solutions

Sinopec's reservoir engineers have had little exposure to the economics side of reservoir engineering and reserves quantification but have adapted rapidly to the concept of economic limits and the limitations imposed by international reserves definitions and standards.

China New Star Petroleum Co. (CNSPC) is being merged into Sinopec. CNSPC is the smallest of the four recognized oil

companies in China and was formed out of the Exploration Ministry of the government. This company will strengthen Sinopec with the addition of proved explorationists using advanced technology and expanded access to several underexplored geologic basins in China. CNSPC is also staffed with technically competent evaluators who have done creditable studies of their oil and gas reserves.

CUCBM — Poised for Growth

China United Coal Bed Methane Corporation Ltd. (CUCBM) is a relatively new company formed in 1996 to assess and develop the vast coalbed methane resources within China. CUCBM has had numerous contacts with several large, international, publicly owned, integrated oil companies, research institutions and consultants, seeking to gain as much knowledge about CBM as possible.

As of this writing, CUCBM has no significant proved reserves of coalbed methane as drilling has been limited to the gathering of data required for resource assessment, infrastructure design and pipeline construction. CUCBM believes that the coalbed methane resources of

China are at least equal to the resources and reserves of natural gas. CUCBM has the aggressive support of the Chinese government, as the need for clean

burning fuels to replace coal intensifies. To date, four U.S. companies have signed production-sharing contracts, committing \$60 million to exploration and dozens more indicate an interest.

National Reserves Committee

The Petroleum Ministry has maintained a standing committee for some time that consists of 14 members chosen on the basis of their training expertise and rec

the basis of their training, expertise and recognition within the Chinese oil community. This committee, soon to be realigned under the Land Resource Ministry, is charged with maintaining consistent, reliable reserves estimates for all significant fields owned by Chinese oil companies.

The Reserves Committee is further charged with reviewing estimates of oil and gas in place for new fields proposed for commercialization. Before the ministry approves funds for development, the applicant company must submit a detailed geological study of in-place hydrocarbons and a comprehensive development plan. As each company competes for its share of a finite, Vol. 3, No. 3 / 5 September—November 2000 / 5

annual, countrywide budget, great care is

taken by the companies and the committee to consistently estimate the oil and gas quantities, both in place and recoverable. The committee is charged with maintaining an awareness of international reserves definitions and reporting standards. Committee membership is an honored,

respected position and attracts top-quality reserves evaluators as candidates for nomination to membership.

Deterministic only

The Reserves Committee has developed a comprehensive, detailed manuscript over time that describes procedures for defining and classifying reserves. This document contains definitions for proved, probable and possible reserves – all deterministically derived. No mention of

From a technical standpoint, the Chinese reserves definitions are sound and do not significantly disagree with the widely accepted SPE/WPC definitions adopted and approved in 1997, except for certain economic parameters that may vary depending upon application. The Chinese reserves definitions are quite detailed in describing each and every step in the determination of reservoir size, both area and thick-

ness, pore space, saturations and recovery efficiencies. All reserves evaluators at the various oil companies in China are carefully schooled in these definitions and their applications.

What the future holds

The oil companies in China are not lacking in rigs, wireline units, seismic crews, computing hardware and software and cheap labor. They do need capital funds, however, to purchase certain services and supplies from foreign companies. They will need pipe, compressors, mud and evolving technology for continuous exploration and development operations. CNOOC could put lots of rigs to work immediately while the other companies do not seem to have nearly as large an inventory of reserves or prospects ready for development or exploratory drilling.

Companies in China have an abundance of qualified, motivated young professionals to maintain a quality oil and gas exploration and production program, but ironically China still has numerous inadequately developed basins, mostly in the southwest and northwest. Overall, the companies in China are strongly encouraging their technical people to assimilate Western systems.

We and others continue to spend a great deal of the consultant's "data gathering and review time" mentoring their young, eager staffs. The oil companies in China are on a steep learning curve and are predicted to make great strides in training and equipping their personnel. They will be able to operate successfully in the new "market economy" providing that they receive the capital to do so.

the need for clean burning fuels to replace coal intensifies.

CUCBM has the

aggressive support of the

Chinese government, as

e Explora-Sinopec's reservoir engineers . . . have adapted rapidly to the concept of economic limits and the limitations imposed by international reserves definitions and standards.







Ryder Scott's earliest history detailed by long-lost technical innovator of the 1930s

Ryder Scott reconnects with its past

yder Scott recently found out that an engineer's mistake cutting well cores 65 years ago led directly to the birth of the firm in 1936. The former Ryder Scott engineer, 89-year-old Donald T. May, recently discussed the firm's early history with *Reservoir Solutions*. The upshot of his mistake propelled Ryder Scott to the top of the consulting pack in the mid-1930s.

That Ryder Scott ever reconnected with its past in such detail is a blessed fluke facilitated by the Internet. One recent night around dinner, May and his grandson Scott Campbell were discussing May's work for Ryder Scott. That prompted Campbell to "surf" the Internet to find any information on the firm. They not only found the Ryder Scott Web site, but a history stating that company founders Harry M. Ryder and David Scott Jr. originated chip-coring analysis, a technique developed by May.

The historical account was based on archived company documents. A more accurate statement would have been that Ryder Scott, the company, originated chip coring and Ryder and Scott bankrolled its development. In any event, the Web site made no



Don May takes a pause from reviewing archived artifacts.



Don May sketches a diagram of the selective-shooting openhole completion technique that Ryder developed.

reference to May, who was hired by Scott in 1935 as the first employee.

"The name of the firm could have very well have been Ryder Scott May, because if it wouldn't have been for the lab work, Ryder Scott would never have become an engineering firm," said May, who lives in Muleshoe, TX. To set the record straight, he wrote a letter to Ryder Scott CEO Ron Harrell narrating the genesis of the coring technique. That procedure, a selective shot method for open-hole completions developed by Ryder and a modified five-spot well pattern were responsible for the uncanny success of Ryder Scott-engineered waterfloods in the Bradford field in the mid 1930s.

Back then, Ryder Scott was a producing company and so successful that other Bradford operators began asking for technical assistance. "Oil was only a couple of dollars a barrel, so Ryder and Scott figured that they could be more profitable as consultants rather than as producers," said May.

A silk purse from a sow's ear

May's story begins in 1936 when he took core samples of a third sand in the Bradford lease at a Ryder Scott cable-tool drill site. To cut away cores for lab analysis, the company used a Baker core barrel designed to hold a six-foot stack of biscuitshaped formation pieces.

"The only instruction I received was to take a sample every foot and seal it in a tin can to prevent air exposure," said May, a chemical engineer by training. He should have filled the can with a stack of biscuits, but instead placed only one



An early photo (circa early 1940s) of Don May from Ryder Scott archives.

biscuit in each container at every foot interval of the core.

After coring 60 feet of the formation, May delivered the samples to the Tory, Frelick and Simmons core lab just down the hall from the Ryder Scott office. Art Simmons told May that he did not have enough biscuits for a complete analysis of permeability, porosity and saturations of oil and water.

"I thought I might lose my job for not taking proper samples," said May. "Then, as I walked down the hall with the one sand biscuit in my hand, an idea came to me."

May walked into Ryder's office and told him about the mistake. May said, "While standing in front of Mr. Ryder with the biscuit, I said, 'Mr. Ryder, I believe a procedure can be found wherein all measurements can be made on this one piece of sand.' Mr. Ryder got a big smile and said, 'Don, get with it.' This made me feel like jumping to the ceiling."

May immediately changed the lab setup to begin his research. In less than a year, he figured out how to completely analyze a piece of sand the size of the end of one's little finger. Chip coring used with cable-tool drilling enabled a complete analysis to be made on a single plug of sand, providing engineers with accurate data to do their jobs.

As a result, oil recoveries were increased several fold by proper engineering of the Bradford water floods. Ryder Scott sold its oil properties by 1937 and became a consulting firm with about 40 employees almost overnight.

Cheating time, the great destroyer of history

May's revelations helped fill in some missing pieces of the early chronologies. The most senior employees at Ryder Scott joined the firm in 1967 when it moved to Houston. No one had any direct knowledge of the firm's late founders or Bradford operations.

"During a recent meeting, May pointed to Ryder in a couple of photos. In that instant, if even through mere photos, the company was reunited with its primary founder after decades of estrangement."

A 1947 newspaper clipping from the *Bradford Era* identified Scott in a photo. Using that as a reference, two pictures of him were identified in a boxed-up stack of archived historical photos, some of which were from the 1930s. However, a photo of Ryder was not published in the article. So no one even knew if the company possessed a photo of the person whose name is the Ryder in Ryder Scott.

To effectively trace its roots, Ryder Scott had the almost impossible task of finding firsthand information on its patriarch by delving into a distant past — a past with contemporaries who might be able to visually identify Ryder from a photo, but who had almost certainly all died. Then Harrell received May's improbable letter.

During a recent meeting, May pointed to Ryder in



Don May shares colorful oilfield stories of the 1930s.

a couple of photos. In that instant, if even through mere photos, the company was reunited with its primary founder after decades of estrangement.

Details on Ryder are still sketchy. He did write two technical papers, one on decline curves and the other on waterflood evaluations, for the *Producers Monthly* periodical as well as a manuscript on the character of pores in oil sands. May said that Ryder had a fine scientific mind and was a good mathematician.

"Mr. Ryder liked to isolate himself and work that way. He didn't like to work with people. Scott kind of mingled, but Mr. Ryder was always thinking, thinking of something all the time," said May.

He sketched a diagram of the selective-shooting technique that Ryder developed whereby a smaller shot size was used on open sands and vice versa for tight formations. "Mr. Ryder and I were just about the only ones who could handle the selective shooting real well. We worked together on some of it," said May.

He added that Ryder was an electrical engineer from Westinghouse who left the company to get into the oil business. He formed Ryder Richmond and later Ryder Scott. He had been a wrestler at Pennsylvania State University and an injury to his back caused him to limp. He eventually retired because of his back problem and moved to Washington, D.C., where he took up navigating a 39-foot cabin cruiser on the eastern seaboard.

May said that Scott came from an oilfield-equipment background and was more of a people person than Ryder. "Mr. Scott was a good judge of people. He knew who to hire for a given job. He was just natural that way, whether it was a lead man, lab man or office man, whichever, he did all the hiring," he said. May, who retired from Ryder Scott in 1967, also provided insights into the characters of other early Ryder Scott personnel, including John Buckwalter, and recalled major projects, all of which Ryder Scott documented for inclusion in a corporate history.

One percent inspiration

In 1937, Ryder gave May some unconsolidated sand samples from Trinidad and asked him to devise *Please see May on next page.*



Two engineers, geologist join Ryder Scott

Robert Bailey, reservoir engineer, and **Hugh Loney**, geologist, recently joined Ryder Scott Canada, as the company expands to meet a growing demand for evaluation services. Also, the Houston office recently hired **Scott Wilson**, an engineer.

Before joining Ryder Scott, Bailey was a project director at John R. Lacey International Ltd. for two years. Also, he was president at Yugraneft Corp. and a vice president at Neutrino Resources Inc., where he started in 1994. From 1985 to 1994, Bailey worked at Wascana Energy Inc., where he was a manager of planning and development. He has a B.Sc. degree in chemical engineering from the University of Calgary.

Before joining Ryder Scott, Loney worked as a contract geologist at Encounter Energy starting in

May—Cont. from Page 7

an analysis method. Unconsolidated sand has a tendency to fall apart during laboratory analysis. Without any precedents on which to rely, he intuitively solved the problem. May had observed while at the Piper Aircraft Corp. factory in Bradford that the canvas-covered portions of the wings and body of the Piper Cub airplane were coated with a compound that he felt might solidify the sand.

"I think the compound was amyl acetate," said May, trying to remember the specifics of 65 years ago. He said that he hand carved a plug of sand from the sample, coated the plug with the compound, let it dry, placed gauze over each end of the plug and reapplied the compound. "This resulted in a plug that could be handled like a solid piece of sand so all fluid could be extracted, allowing all lab measurements to be made for a complete analysis," said May.

Not just another day at the office

Using the newfangled technique, May successfully analyzed unconsolidated core plugs from the Neinhaggen field for a German oil company around 1939 when the United States was neutral before

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 1999. Before that, he worked at Altana Energy doing mapping and cross-sectional work. Loney has a B.Sc. degree in geology from the University of Calgary.

Before joining Ryder Scott, Wilson worked at Atlantic Richfield Corp. for 15 years where he assumed senior engineering positions in consulting and operations. He evaluated international properties for bids, acquisitions, commerciality, etc.

Wilson also developed production forecasting tools and technologies for tight gas reservoirs, horizontal well applications, multiphase flow and dynamic kill design. He has a B.S. degree in petroleum engineering and an M.B.A degree, both from the Colorado School of Mines and both with High Honors. He has written several papers and conducted various seminars.

entering WWII. "They were just tickled to death. The Germans were going to send every core over to us and we could have charged anything we wanted," said May, who added that when the U.S. joined the Allies, the FBI stopped the German shipments and Ryder Scott turned the core reports over to the agency.

May recalled the oilfield service company worker who, during a break from drilling in a Colombian field for Forest Oil Corp., wandered off to shoot blow darts at exotic birds, which he mounted. "The Indians thought he was a government man and chopped off his head with a machete," said May. He said he lost his left index finger at a drill site in Texas when some chain tongs came loose and the plunger severed the digit, which plunged a couple of thousand feet down the well. "Part of me is already in hell," he chuckled.

The colorful stories along with the technical discourses were transcribed and will become an important, permanent part of Ryder Scott's corporate history. When asked what he would like to be remembered for, May responded, "I just want the best for Ryder Scott. I'm not looking for anything for myself."

Editor's Note: Ryder Scott has changed its Web site history to include the contributions of Mr. May.

> Bulk Rate U.S. Postage Paid Permit #11296 Houston, TX