RYDER SCOTT COMPANY
PETROLEUM ENGINEERS

Reservoir Solutions

NEWSLETTER

December—February 1999 Vol. 1, No. 2

Introduction from the CEO

Ray Cruce

I would like to take this opportunity to thank those of you who have expressed a very positive response to the inaugural issue of *Reservoir Solutions*. I have personally received a number of comments, all supportive, about our newsletter.

Perhaps a stronger endorsement of the newsletter is reflected in the daily requests we receive for the password to enable the material-balance freeware download on our web site. Our first newsletter announced the free software release and we noticed requests coinciding with the initial publicity.

Every day the list of users grows. At this writing, we have almost 100 users of the material-balance Excel application. It pleases us that in some small way we can transfer some simple, yet effective technology to others in the industry.

It would have been almost unthinkable 10 years ago that an engineer in India, who we have never met, would be using one of our analytical tools that he acquired on-line in a few short minutes from thousands of miles away.

As engineers, we are conservative by nature, much like lawyers and accountants, and as such, we have never felt the need to launch a major advertising campaign. Something like that just wouldn't fit us or our image.

Please see Introduction on next page

Inside Reservoir Solutions newsletter

Using this template, a user can compute gas flow rate vs. flowing-pressure differentials and graph the relationship in presentation-quality, hard-copy output. The second download from the Ryder Scott web site is free.

Flowing gas-pressure analysis freeware is second download

Flowing pressure analysis program used by Ryder Scott automatically calculates FBHP and AOF for gas wells

PC users can now download a gas well analysis program developed and used by Ryder Scott. They need Windows 95 or later 9x versions, Microsoft Excel 97 software and an Internet connection. The free, self-extracting download is accessible from the Ryder Scott web site at http://www.ryderscott.com and does not require a file-decompression utility to unzip.

With the flowing pressure analysis program, a user can evaluate the performance of producing gas or gas-injection wells. The program enables the user to calculate flowing bottomhole pressures (FBHP) for gas wells based on well-test data, produced fluid and gas properties and wellbore data, such as true vertical depth and tubing inside diameter. The application also automatically computes associated backpressure equation parameters and displays a traditional log-log backpressure curve at the user's option.

For producing wells, absolute open flow (AOF) potential is also calculated. Static bottomhole pressure (SIBHP) can also be determined from shut-in tubing pressure (SITP). As an added feature, the procedures incorporate corrections for the effects of condensate and water production. The application integrates techniques derived from Cullender-Smith (1956) and Turner, Hubbard and Dukler (1969).

James Latham, the Ryder Scott engineer who developed the program, modified those algorithms to incorporate enhanced iterative procedures for today's high-speed computers. "In total, this program eliminates many tedious, time-consuming tasks that confront the petroleum engineer," said Latham.

Those interested in finding out more about the program or in getting the password to enable the program once it is downloaded should contact Latham at 713-651-9191, ext.

Please see Freeware on next page

Introduction—Cont. from Page 1

However, in the last few years, law and accounting firms and even engineering firms have begun marketing their services in understated, yet effective ways. In this vein, we have begun a marketing program with the development of communication tools, our newsletter and web site, that will carry our message to the petroleum industry.

And it is this message that is important. We would hope to impart useful information to you our reader. In this issue, we cite important changes from the MMS that will affect the reporting of production on federal leases.

We have also announced our new FTP site that facilitates data transfer both ways between the client and us. And, of course, we offer information on our newest website download. We hope to have other articles with information you can use in your day-to-day activities.

Please contact me directly if you have ideas as to how we can make this publication more useful to you. And once again, thank you for your kind comments about *Reservoir Solutions.*

Publisher's Statement

Reservoir Solutions newsletter is published quarterly by Ryder Scott Company Petroleum Engineers. Established in 1937, Ryder Scott is one of the largest, oldest and most respected reservoir-evaluation consulting firms in the petroleum industry. The firm performs more than 1,000 consulting 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 110 employees and more than 60 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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Richoux stresses finding hidden value

Fred Richoux

Fred Richoux, manager of the Ryder Scott Calgary office, told attendees of an Oct. 20 Canadian Deal-Makers panel discussion that a second opinion improves the chances of uncovering the hidden upside in sales packages, especially in noncore properties. Richoux made his remarks at the 1998 Canadian Deal-Makers Property & Prospect Exposition at the Calgary Convention Center, an annual event for sourcing potential acquisitions, divestitures and capital in the Canadian oil and gas industry. He was one of four members on the Third Party Engineering panel that commented on evaluation engineering and property trades.

Richoux said that a Ryder Scott team had recently found behind-pipe zones and proved undeveloped reserves that added several million dollars to a sales package evaluated by the Calgary office. "This made for a great rate of return on the cost of the study," he said.

Richoux cautioned, however, that sellers should not expect consultants to find hidden value every time. From the acquisition side, buyers often find it in their interest to discredit the engineering report in hopes of lowering the price.

"I had a client tell me once that he knew my estimate was too low because he paid more than that for the property," he said. "He should have hired us before he bought it."

Richoux added, "We have one answer for a given well or field regardless of the end use of the estimate and our fee is not contingent on the magnitude of the answer. We call it like we see it."

Using an independent engineer also assures that the reserves being purchased are bookable, he remarked, because engineering firms typically work within Policy 2–B (Canada) or U.S. Securities and Exchange Commission guidelines. That means that proved reserves in a sales package are also proved in a securities filing.

"This is very important for a publicly traded company that needs to show value on the books for money spent," said Richoux.

Other benefits to the seller mentioned by Richoux include the following:

- Report is in a usable format.
- Use of a consultant frees up staff to carry out core responsibilities.
- Knowledgeable buyers and their financial backers trust a report from a recognized consultant.

Please see Richoux on next page

Freeware—Cont. from Page 1

212 or at his e-mail address, james_latham@ryderscott.com. The web site also has a posted form to fill out and submit for the password.

Latham or his designee will promptly e-mail back the password after receiving the form. Also, if a user has a non-English-language version of Excel 97, the specific language can be entered on the form and a Ryder Scott engineer will e-mail back compatible program files. Ryder Scott is collecting submitted e-mail addresses in a separate directory and will periodically send upgrades, enhancements and new program announcements to users.

Ryder Scott offered its first utility-software program last September. That material-balance application, which is also currently posted on the site, automatically calculates original gas in place (OGIP) and estimated ultimate recovery (EUR). Both programs automatically load menus and macros for ease of use and feature override functions so certain calculated results can be changed manually. The applications also feature easy-to-use interfaces and print black-and-white or color, presentation-quality, hard-copy output.

During the initial downloading, installation instructions are received in a separate Excel or Word 97 file that can be opened and printed. Installation is simple and involves loading files in the Excel start directory.

Also, the user will be able to print and read a downloaded document that serves as the user manual. Ryder Scott plans to continue offering freeware on a quarterly basis that can be downloaded from the web site at no cost. The March 1999 *Reservoir Solutions* will announce the third download.

Editor's Note: Ryder Scott does not guarantee or warrant the accuracy or reliability of this software.

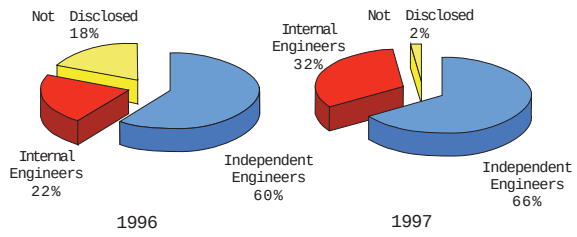
Study: 2 out of 3 producers use consultants for year-end work

Ryder Scott again most listed engineering consultant in the Arthur Andersen survey of latest corporate annual reports

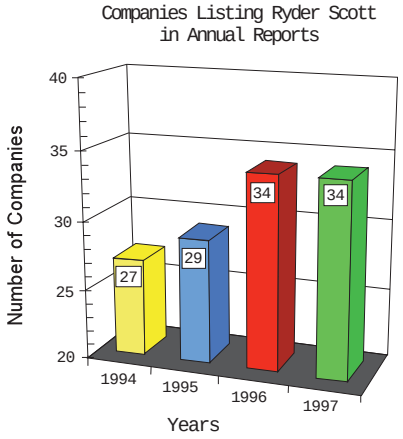
In the recently published Arthur Andersen survey of 1997 annual reports, two out of every three producers used independent engineering consultants to prepare their year-end petroleum-reserves reports. This year, the annual survey compiled information from 213 publicly owned oil and gas companies listed on U.S. stock exchanges. The companies from the United States and various other countries reported their reserves in accordance with U.S. Securities and Exchange Commission guidelines.

Once again this year, Ryder Scott retained its top position as the most listed independent engineer of record for preparing year-end reports. In the Reserve Engineer section of the independent survey, Ryder Scott was listed in 34 annual reports, followed by 21 listings for the No. 2 consultant and 10 listings each for the Nos. 3, 4 and 5 firms.

This year, 209 of the 213 producers indicated they used either independent or internal engineers while four did not disclose that information. Of those 209 companies, 140 used engineering firms (67 percent). Last year, 136 of 186 companies used independent engineers (73 percent).



In the latest Arthur Andersen survey, independent engineers were listed in 66 percent of the annual reports vs. 60 percent in the prior year's study. However, the difference is statistically insignificant because of the large "not disclosed" category in 1996 annual reports.



The 6 percent drop in the use of engineering firms is not statistically significant because of the large "unknown" factor for last year's survey when 42 companies or 18 percent did not disclose that information. In comparison, this year's results may be more accurate because a much smaller number of producers, less than 2 percent, failed to publish reserve-engineer information.

Generally, the largest companies in terms of total assets, such as Exxon, Mobil and Chevron, used internal engineering staffs for annual reporting. However, Ryder Scott did year-end work for three of the largest 25 companies as ranked by total assets in the latest "OGJ200," an *Oil & Gas Journal* list of the largest 200 publicly traded U.S. oil and gas producers.

Those Ryder Scott clients are Union Pacific Resources Group Inc. (No. 20), Pennzoil Co. (No. 22) and Apache Corp. (No. 23). Ryder Scott's number of listings held level from the prior year when it was also listed in 34 annual reports. In year-end 1995 and 1994, the firm was listed 29 times and 27 times, respectively.

Each of those years, Ryder Scott led the rest of the field as measured by the number of public companies that published reserves estimates attributed to independent evaluations. In summary, as the best available marketplace barometer, the Arthur Andersen survey indicates that Ryder Scott is used more often than any other consulting firm in the world for preparing year-end reserve estimates in accordance with U.S. SEC guidelines.

U.S. MMS changes reporting standards

The U.S. Dept. of the Interior Minerals Management Service has revised the standards for reporting gas production volumes from leases on federal and Indian properties. The agency has changed the standard pressure base from 15.025 psia to 14.73 psia for reporting gas production volumes and Btu heating values in the Gulf of Mexico while keeping the standard temperature base of 60° F the same. This reporting standard applies to production on federal leases, on- and offshore, beginning with the sales/production month of September 1998.

"Reporting under this revised standard should not affect the total royalty due," said Vernon B. Ingraham, chief of accounting and reports division of the MMS. If you have questions, call Lawrence Barker at the MMS Production Accountability Branch at 1-800-634-6423, ext. 3157.

Richoux—Cont. from Page 2

- A consultant may have prior knowledge of the same or analogous properties. Sharing that insight benefits a minor interest holder.
- Using a consultant keeps a proposed divestiture confidential from seller's staff.

Other benefits to the buyer include the following:

- A third-party report helps alleviate buyers' fears that marketed reserves are inflated.
- An in-place, current report enables a buyer to move faster to meet lending requirements. Deals are often killed during the time it takes to scramble to get a report in a very short time.

Richoux discussed other benefits to both buyers and sellers and provided tips on how to work with a consulting firm. For a copy of Richoux's presentation, contact him at 403-262-2799 or at his e-mail address, fpr@ryders-calgary.com.

Ryder Scott Canadian office is based in Calgary, but evaluates properties locally and around the world

Ryder Scott signed a five-year lease for offices on the 37th floor of the Scotia Center last year.

In 1995, Ryder Scott opened an office in Calgary to better serve an expanding Canadian clientele and to position the company to be more active in the dynamic oil and gas province. Before that, Ryder Scott had evaluated Canadian reservoirs for many years from the Houston and Denver offices.

But the branch opening was dictated by the logistical advantages of being better able to meet client needs in a timely manner and being close to the 800 oil and gas companies in Calgary. Ryder Scott also realized that Calgary was home to a talented group of Canadian engineers and geologists who were highly experienced in the area. So the company transferred one officer to open the branch and he began a recruitment program.

Initially, he hired a small staff of experienced engineers and geoscientists. By the end of 1996, the office had grown to a dozen staff members who were involved in year-end evaluations, acquisitions and divestitures.

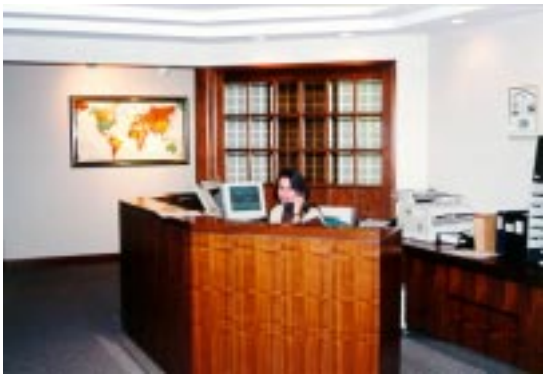
The Calgary branch now has 24 staff members with wide-ranging backgrounds in the petroleum sciences. The office has been very active not only in the western basin but throughout Canada from offshore east coast to British Columbia.

"Several substantial acquisitions and divestments have been completed based on Ryder Scott reports," said Fred Richoux, manager. "In addition to the extensive reservoir evaluations in Canada and the United States prepared by our office, we have been very active outside of North America."

Larry Connor (right), assistant manager of the Calgary office, and John Hanko, geology team leader, consult reference materials at the office.

Canadian oil companies are increasingly looking outside the country for E&P opportunities. Because the Calgary office personnel are familiar with properties in most major petroleum basins worldwide, several of Canada's international producers have commissioned the office to conduct appraisals of overseas interests.

This year alone, the Calgary staff has evaluated reservoirs in Azerbaijan, Ecuador, Egypt, Poland, Russia and the Ukraine. Canadian companies with global interests are also turning to simulation experts to model reservoirs to more accurately predict production streams.



The lobby of the Calgary office.

This is especially vital in analyzing how projects pay out under various production-sharing, concession and service agreements. On projects requiring modeling work, the Canadian branch works closely with the Ryder Scott simulation group in Houston as well as with local simulation contractors.

"Because of the broad base of experience that our Calgary office offers, we have been requested to help our clients in many unconventional ways," said Richoux.

For instance, the office is currently working with a client to set up an asset evaluation team and establish procedures to maintain a working reserves data base. That arrangement frees up the client's engineers to pursue other profit-making opportunities.

"In other cases, we have worked with our clients to supplement their staff with manpower and a fresh viewpoint," said Richoux.

Since 1982, engineer Doug Meiklejohn has evaluated areas in the Western Canadian Sedimentary Basin, Williston Basin and offshore East Coast. He joined the Calgary office in 1997 and is one of 13 Canadian engineers and geoscientists on staff.

Sandercock: world champ Canadian skier

Ryder Scott petroleum engineer Cheryl Sandercock is not your typical white-collar professional. For most of us, fighting traffic is about as close to living dangerously as it gets. However, for Sandercock, skiing down a radically contoured, ice-covered mountain slope at more than 100 miles per hour is what gets her adrenaline pumping.

She's so good at it that Sandercock was the 1995-97 World Champion in speed skiing. The pursuit of peak terminal velocity (in speed skiing) is the most intense and thrilling of all skiing disciplines, writes Charles Plueddeman in *Popular Mechanics* magazine.

"The wind tears at your body and the skis flop wildly as you fight to maintain a tuck position on the radically contoured mountain. You feel a strong surge of acceleration as you hurtle down the steepest portion of the course. Passing through the timing lights, your body punches a hole in the atmosphere that rips the air with a jet-engine roar. … Any faster and you'd need a parachute," he wrote.

Sandercock's top speed is 113 miles per hour (182 km/hr). To put that 166 feet-per-second velocity into perspective, Sandercock could ski the length of a football field in well under two seconds. The sport is obviously not for those who enjoy leisurely strolls through the park.

As a member of the Canadian team,

> "Sandercock could ski the length of a football field in well under two seconds."

Sandercock hoists World Cup trophy with coach Jim Fong.

she won a World Championship race in Ylläs, Finland, almost four years ago with a 104-mile-per-hour (168 km/hr) pace through the speed trap. At that speed, as she skimmed over the tiny moguls, Sandercock's legs bounced and stuttered like shock absorbers over Baja-rough terrain. Bent at the knees in an aerodynamic crouch, "the bumps are magnified when you're going that fast," she said.

It all takes place in a blur of color, faster than the eye can see up close, with ultimate speed attained in a mere 10 to 15 seconds and about 400 meters from the start line—proof that natural inertia is quicker than a fuel-injected Ford Mustang, but much less noisy.

Following her first win, during that same week, Sandercock put together back-to-back World Cup victories at Hundfjallet, Sweden, where she skied down the 606-meter groomed course at 175 km/hr. Although she was world ranked at the time, no one expected her to dominate the women's circuit so thoroughly. "In my wildest dreams, I never would have thought this was possible," Sandercock told a reporter from the *Calgary Sun* newspaper.

The Calgarian's improbable week-long blitz through northern Europe was even more astounding considering that leading up to the tour, she worked full time as an engineer and could only devote about two hours a day to training.

Sandercock's practice was also limited because she said it was hard to get ski time at the speed-ski track. Add to this the difficulty of obtaining sponsorships to fund the athletes, especially women, for this nontraditional sport and the obstacles to success seem formidable.

Sandercock credits her success to the right mental preparation, equipment selection, skiing techniques and coaching. Before the races, she would use visualization as a "mental training" technique. Sandercock also anticipated race-time conditions and selected, fine-tuned and waxed her skis.

To gain an advantage, she even borrowed some skis from a "mentor" before winning the World Championship. "His skis were faster than mine," Sandercock said.

Please see Sandercock on Page 8

Energy 2000 seminar to focus on deepwater technology in February

The next topic for the Energy 2000 presentation in February will be deepwater technology. A speaker, exact topic and time were yet to be announced by program sponsors at press time.

Energy 2000 is a quarterly breakfast seminar series where CEOs, CFOs, general counsel and other key management personnel are introduced to emerging, fundamental financial and technical issues vital to the petroleum and petroleum-services industries. Since 1995, the forum has been underwritten by sponsors Ryder Scott, Deloitte & Touche LLP financial services, Porter & Hedges LLP attorneys at law and Stephens Inc. investment bankers.

The free breakfast sessions typically are held at the Four Seasons Hotel, 1300 Lamar St. in downtown Houston from 7 a.m. to 9 a.m. Recent presentation topics include "Oil and Gas Financing in Today's Environment," "The Productivity Race: Integrating People, Processes and Technology" and "Current Opportunities in the Canadian E&P Industry."

Presenters are typically top managers and recognized experts within their fields. Robert Rose, CEO of Diamond Offshore Drilling Inc., Robert Peebler, CEO of Landmark Graphics Corp. and J.P. Bryan, then CEO of Gulf Canada Resources Ltd., are past presenters.

Attendees have a chance to ask questions after the presentations. Attendance is by invitation only. For more information, contact Mike Wysatta, business development manager, at Ryder Scott at 713-751-5557; e-mail: mike_wysatta@ryderscott.com.

Ryder Scott grows, adds 10 professionals in '98


Bausch


Basanko


Golas


MacFarlane


Meador


Palke


Phillips


Vance


Wilson


Williams

To meet the demands of its growing business, Ryder Scott hired the following 10 engineers and geoscientists in 1998.

J. Stephen Bausch joined the Ryder Scott Denver office as a petroleum engineer. Previously, he was manager of acquisitions for the Rim Cos. Before that, he held various reservoir engineering positions with TCPL Resources, AA Production Inc., Hallwood Energy Cos. and Consolidated Oil & Gas Inc.

Olga Basanko was hired as a petroleum engineer. Previously, she was a reservoir engineer in the production department at Exxon Co. U.S.A. for two years. A native of the Ukraine, Basanko is fluent in Russian.

Stephen M. Golas joined as a geophysicist. Previously, he worked at Foster & Assocs. in geological and geophysical interpretation for four years. Golas began his career in 1980 at Schlumberger Well Service before joining Pend Oreille Oil & Gas Co. in 1981 where he worked eight years. He was also a consultant at Nicor from 1989 to 1993.

Derry G. MacFarlane joined the Ryder Scott Calgary office as a certified geological technician. Previously, he worked at Sproule & Assocs. Ltd. for 18 years.

Samantha (Sam) Meador was hired as a petroleum engineer. Previously, she worked at Domain Energy for three years as a petroleum engineer. Meador also worked as a contractor during 1993-1994 at Ryder Scott before joining The Offshore Group as a reservoir and production engineer. She began her career at Atlantic Richfield Co. in 1991 as an operations and analytical engineer for two years.

Miles R. Palke joined as a petroleum reservoir engineer specializing in simulation, characterization and well-test and material-balance analyses. Previously, he worked at Arco Exploration & Production Technology in the reservoir studies group.

Stephen Phillips was hired as an exploration and development geologist/geophysicist. Previously, he was a geologist/geophysicist and geochemical consultant at Chevron Corp. for 17 years. Phillips applies workstation technology to integrated regional and field studies.

George F. Vance Jr. joined as a geologist. He provides geological and geophysical analysis of domestic and international properties. Previously, he was a contractor and before that a consultant at Petrolog Ltd. for two years. Vance was the general manager of exploration and development at Ultramar Oil & Gas Ltd. from 1985 to 1993. He also was a vice president at Enstar Petroleum Co. from 1986 to 1992. Vance worked as a senior development geologist from 1975 to 1985 at Phillips Petroleum Co.

Jeffrey D. Wilson was hired as a petroleum reservoir engineer specializing in complex computer and database applications. Previously, he worked at Exxon Co. U.S.A. as a reservoir and project engineer for seven years.

John Williams joined as a petroleum engineer. Previously, he was a petroleum engineer at Ken E. Andrews & Co. for two years where he performed economic evaluations and reserves determinations.

Ryder Scott assisted by experts in CIS

Since 1992, Ryder Scott has relied upon a Moscow-based company to assist in reservoir evaluations of fields in the Commonwealth of Independent States.

Russian Petroleum Consultants Corp./RPC Overseas Inc**. (**RPC), under the direction of Ryder Scott, assists in gathering data and performing geological and reservoir-engineering evaluations. RPC has 10 engineers and geoscientists with either PhD or masters degrees from Russian universities and their region-specific experience ranges from 10 to 35 years.

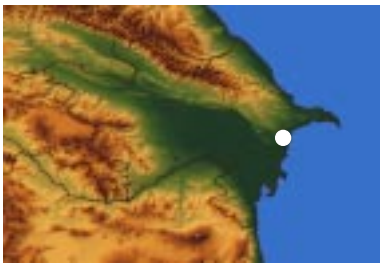
"They have quite an understanding of the geology and performance issues in wide-ranging areas of the CIS," said Douglas McBride, a Ryder Scott vice president and engineer who specializes in evaluating CIS reservoirs. The CIS spans Asia across 11 time zones with a multitude of different geological basins and reservoir types with which RPC is familiar.

"This is where RPC's expertise is so valuable," said McBride. "They perform a top-rate professional service priced somewhat below what a Western firm would charge. That translates into a savings that we pass on to our clients."

Working with a local firm has significantly reduced data-gathering costs in the CIS by eliminating the high costs of travel and other expenses typically billed to clients. Ryder Scott and RPC have worked together on almost 50 engineering projects in the CIS during more than six years, completing projects for Yukos Oil Co., Sidanco, Nobel Oil, European Bank for Reconstruction, EximBank, Hungarian Finance and Trade and other E&P companies and financial institutions.

Please see RPC on Page 8

First onshore contract area for Westerners in Azerbaijan evaluated by Ryder Scott Calgary team



Gobustan

The Ryder Scott Calgary office recently assisted in estimating the resource base for the Southwest Gobustan region, which is the first onshore oil and gas contract area for Western companies in Azerbaijan. "The Ryder Scott study was done to satisfy the company's internal needs and the needs of shareholders," said Desmond Smith, COO of Commonwealth Oil & Gas Co. Ltd.

His Anguilla, British West Indies-based company expects that the Azerbaijan Republic parliament will soon ratify the production-sharing agreement for Southwest Gobustan project. Changes in tax law have required the Azerbaijan parliament to approve the signed agreement, which was awarded June 2.

Commonwealth, a subsidiary of A&B Geoscience Corp., has a 40-percent interest and is responsible for the geology, geophysics and well-data activity. Operator Union Texas Petroleum Holdings, a subsidiary of Atlantic Richfield Co., also owns 40 percent and the State Oil Co. of the Azerbaijan Republic (SOCAR) has a 20-percent interest. Signing of the PSA was the culmination of 3-1/2 years work between SOCAR and Commonwealth to identify, study and delineate an onshore concession suitable for development under an offshore-modeled PSA.

The parties plan to produce approximately 40,000 barrels of oil and 100 million cubic feet of gas per day within five years by reworking existing wells and drilling development wells beginning in 1999. Smith said that under the agreement, the joint venture is obligated to shoot 150 km of 2D seismic, recomplete seven wells and drill seven wells within a three-year period in Southwest Gobustan.

"The process of evaluating the economics of this project was different than in the West, because documentation of Russian data is problematic," said Smith. "Under the centralized Soviet government, costs were not tracked, so no economic parameters exist to use in a project assessment. Because of that, Ryder Scott worked with us in developing an approach to evaluating the resource potential within a range of recoveries."

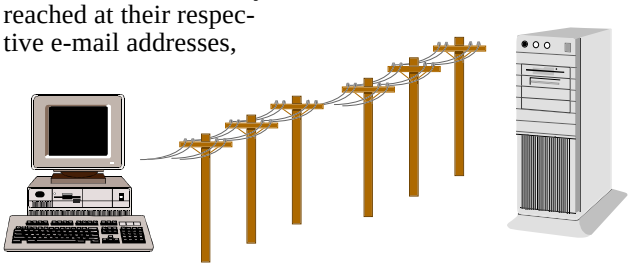
To work within these constraints, Ryder Scott estimated the in-place hydrocarbon volumes through volumetric and decline-curve analysis and then conducted sensitivity studies using a range of possible recovery efficiencies,

Please see Commonwealth on next page

FTP site facilitates data transmission for clients

The new Ryder Scott FTP (File Transfer Protocol) site is now available to clients to speed up the transmission (upload) and receipt (download) of reservoir and economic data over the Internet. The address is ftp.RyderScott.com.

To request a log-on identification and password, so you can access the FTP server, call computer-group representatives Bob Ambrocik at 713-651-9191, ext. 251 or Jim Brown at ext. 235. They can also be reached at their respective e-mail addresses,



Bob_Ambrocik@RyderScott.com or Jim_Brown@RyderScott.com. Also, the engineer in charge of your project can place the request for you.

The password protection is part of the permissions system on the file server that restricts access to confidential directories and files as well as the ability to read, delete or alter files. Typically, clients transfer seismic data, log data (such as a LAS file), production data in Excel, economic data in Aries or a variety of other data in analog and digital file formats.

Those same types of data can be posted by Ryder Scott to a password-protected archive on the FTP server for access by the client. Typically the data files are compressed. A user opens the files by unzipping with a decompression program such as Winzip.

Internet network providers discourage transferring 2-megabyte or larger e-mail attachments over a client-server environment because it slows down user traffic and connectivity. Also, many companies have internal policies regarding the maximum file sizes that they can handle for e-mail exchanges.

Use of the FTP site can eliminate bottlenecks associated with e-mail data transfers over the Internet. The T-1 connection at Ryder Scott also maximizes the data-transmission speed that is so critical in transferring large electronic files between two client computers linked by the host server.

What is FTP?

An FTP (File Transfer Protocol) is a network program that allows users to send (upload) or receive (download) large files quickly between two client computers over the Internet. The FTP site is a server or "host" computer that responds to client requests. The server has an address on the Internet and is set up to store files, so users can transfer files to and from the site. FTP is a basic service on the Internet that is not new. In fact, until 1995, FTP transmissions accounted for more traffic on the Internet than any other service, says America Online. Users can access FTP servers with a Web browser or FTP client program.

Commonwealth—Cont. from Page 7

which corresponded to the range of production in similar Azeri fields. Smith said that investors reviewing the Ryder Scott report examined data sets and methodologies rather than the usual cash flows seen in reports on most Western projects.

In another related project, the Ryder Scott Calgary office recently completed a full-scale evaluation to be used in a resource analysis of a property in the Autonomous Republic of Crimea in the Ukraine. Commonwealth is currently evaluating the licensing agreement, using the Ryder Scott report as one of several supporting documents. Again, Commonwealth faced the question of how to book in-place hydrocarbon volumes as economically viable.

"For this property in Crimea, we have no history of operating, drilling, transportation and ultimate lifting costs to compare to the value of the commodity," said Smith.

Commonwealth required a fast-track approach so Ryder Scott completed the Ukraine assignment in seven weeks. The Calgary office of Ryder Scott assembled an international team made up of its Calgary and Houston personnel as well as personnel from Russian Petroleum Consultants (see page 6).

Then the team was dispatched to the host production unit and retrieved the necessary data. "The evaluation team has to be familiar not only with the data, but with the people who put together the data. That's why it was important for the team to travel to Crimea," said Smith.

Ryder Scott, as it did in the Southwest Gobustan project, estimated the in-place hydrocarbons and prepared sensitivity studies to generate a range of recoveries. The firm, on behalf of Commonwealth, then presented its findings to potential investors.

"The investors applied different dollar-per-barrel values to produce a range of potential values," said Smith. "On projects like these, sophisticated investors are more accepting of resource potential rather than economic potential, which is hard to calculate for emerging markets."

He added that Ryder Scott realized and understood the consequences in dealing with Russian data and the limited economics and case histories associated with properties in Azerbaijan and the Ukraine.

Sandercock—Cont. from Page 5

In her late twenties when she should be peaking, Sandercock chose to retire from competition last year. She made the decision after suffering the disappointment of not being able to compete for a spot in the 1998 Winter Olympics because the Olympic committee excluded speed skiing from the sanctioned medal events.

"The decision took the wind out of my sails," Sandercock said. She has not ruled out "unretiring" if the sport is elevated by such events as inclusion in the 2002 Winter Games. "I'm still in touch with European racers and local skiers. It's not like I don't train or ski anymore," Sandercock said.

And one gets the feeling if speed skiing ever gets the attention it deserves, Sandercock, with her grit, will emerge as one of the champions of the sport. Without question, her accomplishments as a world champion skier and successful female petroleum engineer should inspire young women everywhere to pursue what they want to in life, regardless of how atypical those pursuits may seem to others.

RPC—Cont. from Page 6

The business connections cultivated by RPC have resulted in smoother, more efficient working relationships between Ryder Scott and the various parties in the CIS, McBride said. "They speak the Russian language and understand the Soviet system and local operating conditions which helps immensely," remarked McBride, who has studied the Russian language.

RPC exclusively refers companies to Ryder Scott that are seeking an internationally recognized engineering company to prepare independent reserves certifications to be presented to Western financial institutions. Ryder Scott similarly refers companies to RPC that require feasibility, field-development and other studies prepared in accordance with the regulations of the Russian Federation.

RPC, with offices in Houston and Moscow, also develops software and provides management services. RPC Overseas is licensed by the state of Russia. McBride can be contacted at 713-651-9191, ext. 214 or at his e-mail Doug_McBride@RyderScott.com.

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