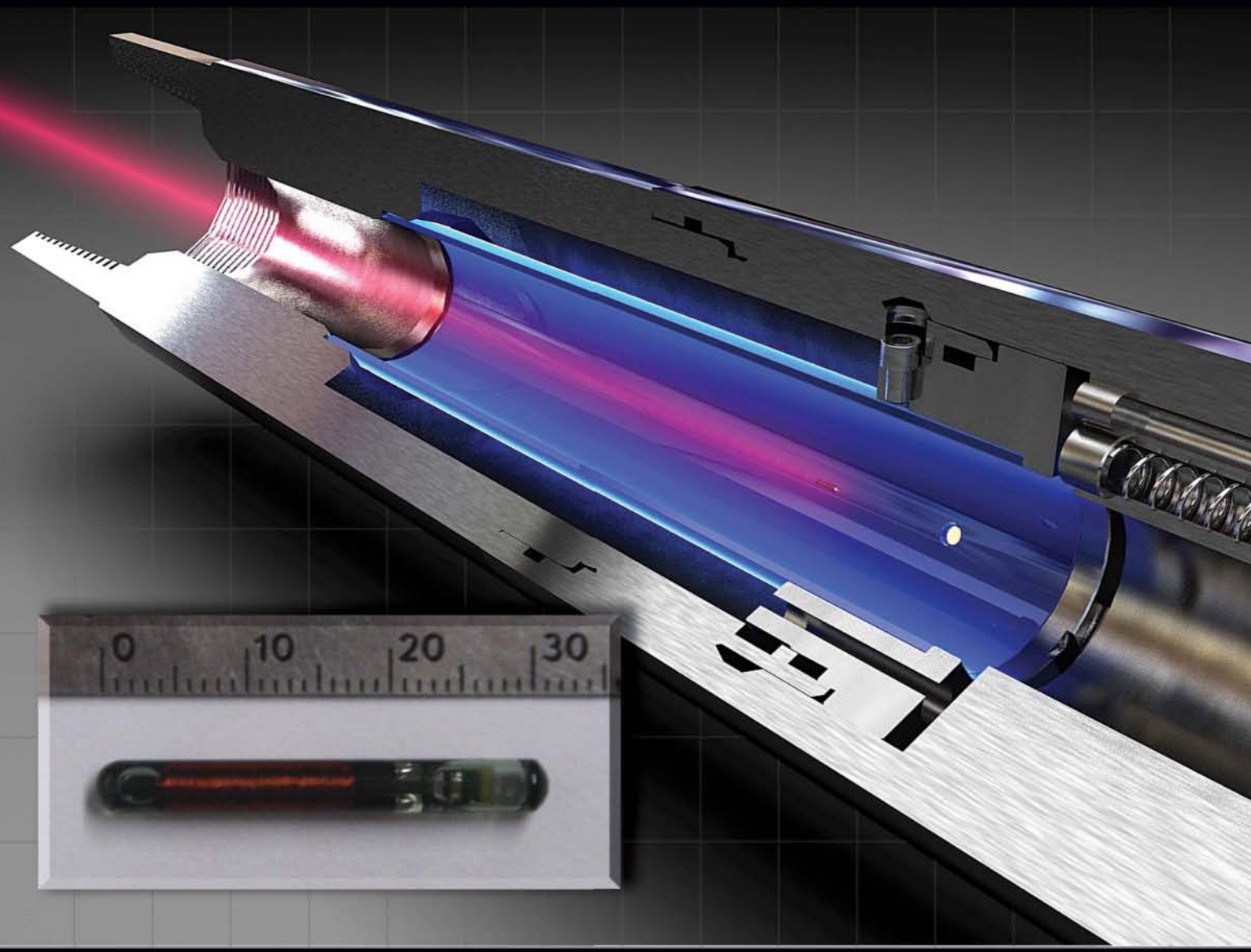
Week of July 21, 2008/US$10.00

PennWell®

OIL&GAS JOURNAL®

International Petroleum News and Technology / www.ogjonline.com



Modern Materials

EITI: Firms can avoid its legal, FCPA pitfalls
Value of gulf production losses tallied for 2004-05 storms
Refinery profits diverging from crude price trends
Balloon network allows remote CP monitoring

OIL&GAS JOURNAL®

July 21, 2008
Volume 106.27

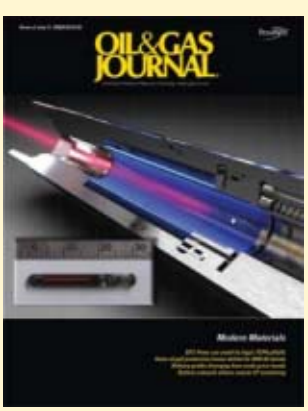
MODERN MATERIALS

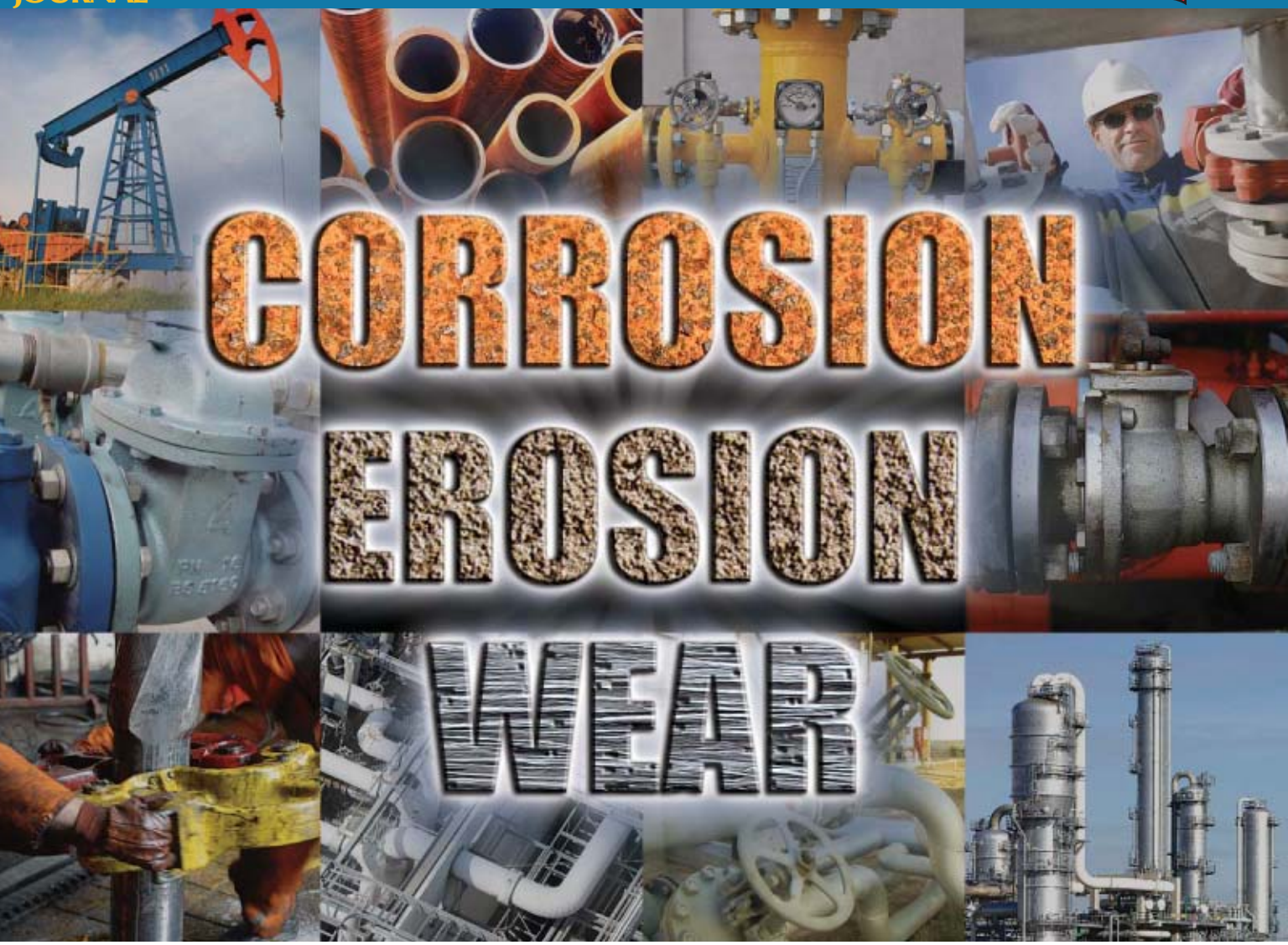
Image from Avery Dennison Corp.

REGULAR FEATURES

COVER

The world's first RFID-actuated, self-powered circulating sub represents a new direction in downhole tool design (cover). It uses a radio frequency ID tag only 3-cm long (cover scale in mm). Canadian Natural Resources Corp. successfully ran this tool in August 2005, in the N46z well from the Ninian North platform in the UK North Sea. Petrowell/iiiTEC designed and built the circulating sub in Aberdeen, under license of patented technology owned by Marathon Oil Co. This week's special report begins on p. 37 with an overview of RFID technology developments in the upstream oil and gas industry. Cover images from Petrowell/iiiTEC.





You've got real problems. InnerArmor has powerful solutions.

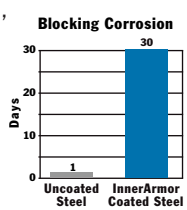
InnerArmor: The world's most advanced coatings for internal surfaces. Check the data...

It's a technological breakthrough...
InnerArmor®is a unique and patented new way to put very hard, smooth, chemically-inert coatings on the *inside* of virtually everything—from small parts to industrial pipe.

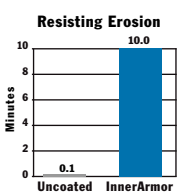
And InnerArmor has no porosity, no pinholes. So it creates a virtually impenetrable barrier against corrosion, erosion and wear.

Stopping corrosion
In NACE-standard TM185 sour autoclave testing, for example, InnerArmor withstood the maximum 30-day test—sustaining *no* attack or undercut.

While uncoated steel only lasted a single day!



Standing up to erosion
In the ASTM-standard G76 abrasive air-jet test, again, InnerArmor was easily able to go the full ten minutes—with *zero* surface damage.



By comparison, on uncoated steel the surface erosion began after only a few seconds.

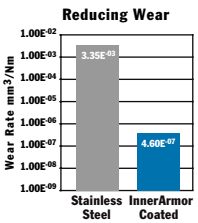
Minimizing wear, extending service life
InnerArmor coatings can be created from a wide range of materials, and also in layers, for unprecedented sliding-wear properties and exceptional wear resistance.

For example, the wear rate on InnerArmor-coated stainless steel (with a 25N load) is less than *half* that of uncoated stainless!

There's never been anything like InnerArmor.

To learn more about it, just check out the Sub-One website.

Or give us a call at (925) 924-1020, ext.132.



sub|one
Sub-One Technology
www.sub-one.com

General Interest

Exploration & Development

Drilling & Production

Processing

Transportation

 Oil & Gas Journal (ISSN 0030-1388) is published 48 times per year by PennWell Corporation, 1421 S. Sheridan Rd., Tulsa, Okla., Box 1260, 74101. Periodicals postage paid at Tulsa, Okla., and at additional mailing offices. Oil & Gas Journal and OGJ are registered trademarks of PennWell Corporation. **POSTMASTER:** send address changes, letters about subscription service, or subscription orders to P.O. Box 3497, Northbrook, IL 60065, or telephone (800) 633-1656. Change of address notices should be sent promptly with old as well as new address and with ZIP code or postal zone. Allow 30 days for change of address. Oil & Gas Journal is available for electronic retrieval on Oil & Gas Journal Online (www.ogjonline.com) or the NEXIS® Service, Box 933, Dayton, Ohio 45401, (937) 865-6800. **SUBSCRIPTION RATES** in the US: 1 yr. $89; Latin America and Canada: 1 yr. $94; Russia and republics of the former USSR, 1 yr. 1,500 rubles; all other countries: 1 yr. $129, 1 yr. premium digital $59 worldwide. These rates apply only to individuals holding responsible positions in the petroleum industry. Single copies are $10 each except for 100th Anniversary issue which is $20. Publisher reserves the right to refuse non-qualified subscriptions. Oil & Gas Journal is available on the Internet at http://www.ogjonline.com. (Vol. 106, No. 27) Printed in the US. GST No. 126813153. Publications Mail Agreement Number 602914. Return Undeliverable Canadian Addresses to: P.O. Box 1632, Windsor, ON N9A 7C9.

PennWell, Houston office

1455 West Loop South, Suite 400, Houston, TX 77027
Telephone 713.621.9720/Fax 713.963.6285/Web site www.ogjonline.com
Editor Bob Tippee, bobt@ogjonline.com
Chief Editor-Exploration G. Alan Petzet, alanp@ogjonline.com
Chief Technology Editor-LNG/Gas Processing Warren R. True, warrent@ogjonline.com
Production Editor Guntis Moritis, guntism@ogjonline.com
Drilling Editor Nina M. Rach, ninar@ogjonline.com
Refining/Petrochemical Editor David N. Nakamura, davidn@ogjonline.com
Pipeline Editor Christopher E. Smith, chriss@ogjonline.com
Senior Editor-Economics Marilyn Radler, marilynr@ogjonline.com
Senior Editor Steven Poruban, stevenp@ogjonline.com
Senior Associate Editor Judy R. Clark, judyrc@ogjonline.com
Senior Writer Sam Fletcher, samf@ogjonline.com
Senior Staff Writer Paula Dittrick, paulad@ogjonline.com
Survey Editor/News Writer Leena Koottungal, lkoottungal@ogjonline.com
Editorial Assistant Linda Barzar, lbarzar@pennwell.com

Petroleum Group President Michael Silber, msilber@pennwell.com
Vice-President/Group Publisher Bill Wageneck, billw@pennwell.com
Vice-President/Custom Publishing Roy Markum, roym@pennwell.com

PennWell, Tulsa office

1421 S. Sheridan Rd., Tulsa, OK 74112
PO Box 1260, Tulsa, OK 74101
Telephone 918.835.3161 / Fax 918.832.9290
Presentation/Equipment Editor Jim Stilwell, jims@ogjonline.com
Associate Presentation Editor Michelle Gourd, michelleg@pennwell.com
Statistics Editor Laura Bell, laurab@ogjonline.com
Illustrators Kermit Mulkins, Mike Reeder, Paul Schmitz, Kay Wayne
Editorial Assistant Donna Barnett, donnab@ogjonline.com
Production Director Charlie Cole

London

Tel +44 (0)20.8884.4246
International Editor Uchenna Izundu, uchennai@pennwell.com

Washington

Tel 703.533.1552
Washington Editor Nick Snow, nicks@pennwell.com

Los Angeles

Tel 310.595.5657
Senior Correspondent Eric Watkins, hippalus@yahoo.com

OGJ News

Please submit press releases via e-mail to: news@ogjonline.com

Subscriber Service

P.O. Box 2002, Tulsa OK 74101
Tel 1.800.633.1656 / 918.831.9423 / Fax 918.831.9482
E-mail ogjsub@pennwell.com
Circulation Manager Tommie Grigg, tommieg@pennwell.com

PennWell Corporate Headquarters

1421 S. Sheridan Rd., Tulsa, OK 74112
P.C. Lauinger, 1900-1988
Chairman Frank T. Lauinger
President/Chief Executive Officer Robert F. Biolchini

Member Audit Bureau of Circulations & American Business Media

OFFSHORE ASIA™
• Incorporating Subsea Technology Asia •

31 March - 2 April 2009
IMPACT Exhibition Centre
Bangkok, Thailand
www.offshoreasiaevent.com

CALL FOR ABSTRACTS OPEN

SUBMIT ONLINE NOW – WWW.OFFSHOREASIAEVENT.COM

www.offshoreasiaevent.com

Owned & Produced by:
PennWell®

Flagship Media Sponsors:
Offshore OIL&GAS JOURNAL

The 2009 Offshore Asia Conference & Exhibition once again will bring together the best and brightest minds in the industry worldwide to take part in the technical program. The conference theme "Solutions for Asia's Offshore Challenges" focuses on the specific technological needs of the Asian offshore arena.

We invite you to submit an abstract for Offshore Asia 2009 and share your knowledge, experience and ideas with technical and strategic decision-makers and strategists.

Abstract Submittal Deadline: 15 August 2008

Sessions Topics include:

Track 1: E&P
Track 2: Multiphase Pumping Technologies
Track 3: Subsea Technology Asia

ABSTRACT SUBMITTAL DEADLINE: 15 AUGUST 2008
SUBMIT ONLINE NOW WWW.OFFSHOREASIAEVENT.COM

OGJ Newsletter

July 21, 2008

International news for oil and gas professionals
For up-to-the-minute news, visit www.ogjonline.com

General Interest — Quick Takes

Energy price hikes are two thirds of CPI's 1% June rise

The Consumer Price Index rose 1% in June as its energy component increased sharply for a second consecutive month, the US Department of Labor's Bureau of Labor Statistics reported July 16.

The energy index's 6.6% increase on a seasonally adjusted basis in June accounted for about two thirds of the overall increase for all items during the month and followed a 4.4% increase in May, it said. "The index for petroleum-based energy advanced 10%, and the index for energy services rose 1.5%," BLS said. The energy index's 29.1% increase during 2008's first 6 months accounted for about half of the overall total growth as energy commodity prices climbed 34.7% and energy services prices rose 20.1%, it indicated.

The latest CPI report to Congress came one day after the Federal Reserve Board said steep increases in commodity prices boosted consumer price inflation in a sluggish US economy during the first half.

A decline in the dollar's foreign exchange value increased import prices, putting upward pressure on inflation, the Fed continued.

El Paso settles SEC reserve reporting charges

El Paso Corp. and five former employees settled federal charges of inflating reported proved oil and gas reserves in violation of federal securities antifraud laws, the US Securities and Exchange Commission said July 11.

The five—Rodney D. Erskine, a former president of El Paso's exploration and production division; Randy L. Bartley, a former El Paso E&P senior vice-president; and Steven L. Hochstein, John D. Perry, and Bryan T. Simmons, former El Paso E&P vice-presidents—agreed to pay fines of $40,000-$75,000 without admitting or denying the allegations.

The complaint charged that during 1998-2003, El Paso and the employees inflated oil and gas reserves, overstated the Houston company's standardized measure of future cash flows, and overstated capitalized costs related to its oil and gas production.

In 2004, El Paso restated its financial statements for 1999-2002 and for the first 9 months of 2003. It reduced its previously reported total proved reserves by 2.2 tcf of natural gas equivalent for the end of 2002; 3.3 tcfe at yearend 2002; and 3.3 tcfe at yearend 2001. It also reduced its previously reported standardized measure of future cash flows.

The restatements reduced El Paso shareholders' equity as of Sept. 30, 2003, by $1.7 billion, according to SEC. Two subsidiaries, El Paso E&P and El Paso CGP Co. LLC, also restated previously issued financial statements to correct material overstatements of proved oil and gas reserves, standardized measures of future cash flows, and capitalized costs relating to oil and gas production activities, it said.

Bingaman urges DOI to push lessee development

Energy and Natural Resources Committee Chairman Jeff Bingaman (D-NM) and 30 other US Senate Democrats urged Interior Secretary Dirk A. Kempthorne to act immediately to encourage development of federal oil and gas leases totaling millions of acres.

"Federal lands both onshore and on the Outer Continental Shelf that are already leased, but not producing, are our biggest opportunity to provide needed oil and gas supply in the near term," the lawmakers said in a July 15 letter to Kempthorne. "We are concerned that policies of the [US Department of the Interior] do not result in the timely production of these resources."

The message reflected congressional Democratic sentiment that access to additional federal acreage should not be granted to oil and gas producers if they are not diligently developing tracts they already have leased. US Minerals Management Service officials and producers have said that this mandate does not recognize the time it takes to evaluate a lease once it has been granted or capital, equipment, and personnel constraints.

Bingaman and the other senators, including Majority Leader Harry M. Reid (D-Nev.), asked Kempthorne to immediately clarify that oil and gas producers holding federal leases are required to diligently develop the tracts and asked him to exercise his full authority for appropriate OCS lease term lengths and lease rates and require lessees to regularly report their progress in diligently developing the tracts.

Recent lease sales failed to generate bids for major OCS tracts that are already available, including about 300 million acres in the Gulf of Mexico, the letter added.

Kazakh sulfur must be stored indoors by 2010

Kazakhstan said Chevron-led Tengizchevroil must store its open-air sulfur stocks indoors by 2010. The company said it is working on ways of storing sulfur indoors and plans to cut stocks significantly by 2017. Last year, a court imposed a 74 billion tenge fine on Tengizchevroil but later reduced it by 50% (OGJ, Oct. 12, 2007, p. 30).

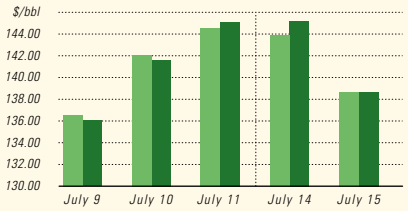
The government reportedly also reversed another earlier decision and could try to impose export duties on Tengizchevroil oil.

Tengizchevroil produces some 300,000 b/d of crude oil, which accounts for 20% of Kazakhstan's total oil production. It plans to increase total capacity to 400,000 b/d following the first phase expansion of 90,000 b/d, while the start-up of full facilities in this year's second half will further increase production capacity to 540,000 b/d (OGJ Feb. 4, 2008, Newsletter).

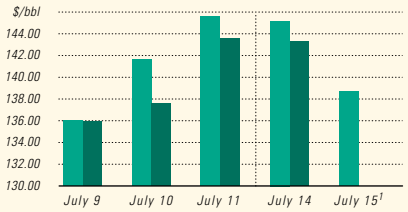
The Tengizchevroil partners include Chevron 50%, KazMunaiGas 20%, ExxonMobil Kazakhstan Ventures Inc. 25%, and LUKArco 5%. ✦

Industry Scoreboard

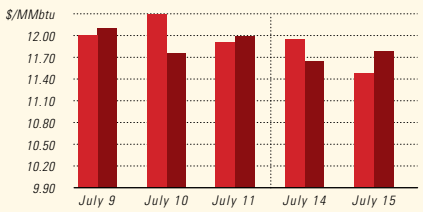
IPE BRENT / NYMEX LIGHT SWEET CRUDE



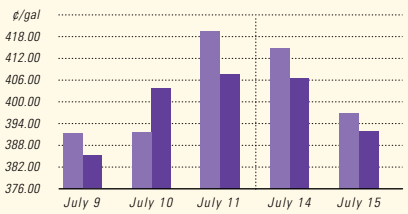
WTI CUSHING / BRENT SPOT



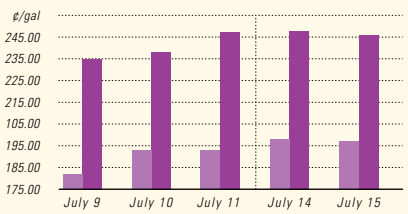
NYMEX NATURAL GAS / SPOT GAS - HENRY HUB



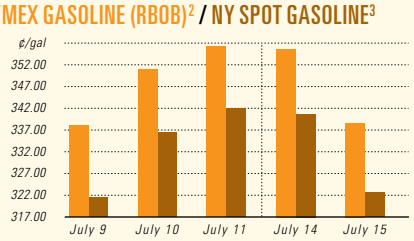
IPE GAS OIL / NYMEX HEATING OIL



PROPANE - MT. BELVIEU / BUTANE - MT. BELVIEU



NYMEX GASOLINE (RBOB)[2] / NY SPOT GASOLINE[3]



[1]Not available [2]Reformulated gasoline blendstock for oxygen blending.
[3]Non-oxygenated regular unleaded.

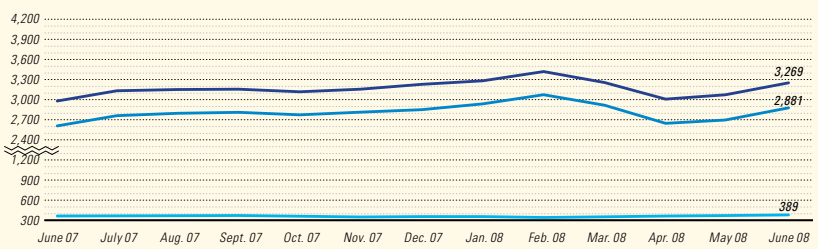
US INDUSTRY SCOREBOARD — 7/21

Latest week 7/4	4 wk. average	4 wk. avg. year ago[1]	Change, %	YTD average[1]	YTD avg. year ago[1]	Change, %
Demand, 1,000 b/d						
Motor gasoline	9,322	9,522	–2.1	9,110	9,217	–1.2
Distillate	4,167	4,115	1.3	4,179	4,257	–1.8
Jet fuel	1,623	1,660	–2.2	1,566	1,622	–3.5
Residual	594	725	–18.1	645	772	–16.5
Other products	4,655	4,705	–1.1	4,818	4,825	–0.1
TOTAL DEMAND	20,361	20,727	–1.8	20,169	20,708	–2.6
Supply, 1,000 b/d						
Crude production	5,087	5,137	–1.0	5,107	5,186	–1.5
NGL production[2]	2,210	2,339	–5.5	2,270	2,351	–3.4
Crude imports	10,056	9,974	0.8	9,760	10,018	–2.6
Product imports	3,235	3,546	–8.8	3,243	3,543	–8.5
Other supply[3]	1,457	1,404	3.8	1,421	986	44.1
TOTAL SUPPLY	22,045	22,400	–1.6	21,801	22,084	–1.3
Refining, 1,000 b/d						
Crude runs to stills	14,865	14,955	–0.6	14,865	15,088	–1.5
Input to crude stills	15,079	15,507	–2.8	15,079	15,393	–2.0
% utilization	86.1	88.9	—	86.1	88.2	–

Latest week 7/4	Latest week	Previous week[1]	Change	Same week year ago[1]	Change	Change, %
Stocks, 1,000 bbl						
Crude oil	293,936	299,776	–5,840	352,580	–58,644	–16.6
Motor gasoline	211,766	210,857	909	205,576	6,190	3.0
Distillate	122,501	120,685	1,816	122,370	131	0.1
Jet fuel-kerosine	38,764	39,633	–869	41,158	–2,394	–5.8
Residual	39,366	40,000	–634	35,499	3,867	10.9
Stock cover (days)[4]			Change, %		Change, %	
Crude	19.1	19.5	–2.1	22.9	–16.6	
Motor gasoline	22.7	22.6	0.4	21.4	6.1	
Distillate	29.4	29.4	0.0	29.6	–0.7	
Propane	45.9	39.8	15.3	50.5	–9.1	
Futures prices[5] **7/11**			Change		Change	%
Light sweet crude ($/bbl)	140.04	142.46	–2.42	72.01	68.03	94.5
Natural gas, $/MMbtu	12.31	13.46	–1.15	6.65	5.67	85.3

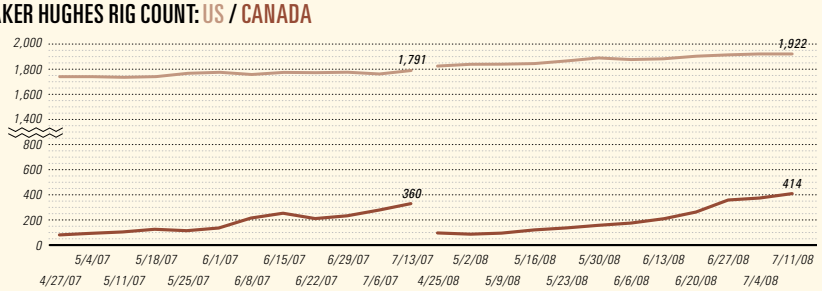
[1]Based on revised figures. [2]Includes adjustments for fuel ethanol and motor gasoline blending components. [3]Includes other hydrocarbons and alcohol, refinery processing gain, and unaccounted for crude oil. [4]Stocks divided by average daily product supplied for the prior 4 weeks. [5]Weekly average of daily closing futures prices.
Sources: Energy Information Administration, Wall Street Journal

BAKER HUGHES INTERNATIONAL RIG COUNT: TOTAL WORLD / TOTAL ONSHORE / TOTAL OFFSHORE



Note: Monthly average count

BAKER HUGHES RIG COUNT: US / CANADA



Note: End of week average count

Exploration & Development — *Quick Takes*

Brazil likely will hold two lease auctions in 2008

Brazil likely will hold two auctions for oil and gas exploration blocks in 2008, but will exclude rights to blocks in the presalt layer until passage of a new regulatory law.

"We are going to promote the resumption of the Eighth Round, and also hold another auction that will involve land areas and the fringes of the presalt area," said Mines and Energy Minister Edison Lobao. "An auction including the presalt area will be held only after a new regulatory law has been passed."

He said 15 exploratory drillings have been made in Brazil's presalt area, but additional wells must be drilled to determine the area's status.

Lobao told the state news agency that the government by early 2009 will have found a solution to the oil sector rule changes planned for exploitation in subsalt areas.

It recently was reported that Lobao plans to propose the creation of a new state-run firm that would manage oil discoveries made in recent months in the subsalt layer of the Santos basin (OGJ Online, July 7, 2008).

GeoPark tests oil from Chile's Fell block wildcat

GeoPark Holdings Ltd. discovered an oil field in Chile's Fell block following drilling and testing at its Aonikenk 1 exploration well.

GeoPark said a production test in the Springhill formation at 2,270 m in a 5-m perforated interval, flowed without stimulation. GeoPark, Hamilton, Bermuda, said the rates were 1,201 b/d of oil, 1.2 MMcfd of gas, and 1,465 b/d of water through a 12-mm choke and with a wellhead pressure of 896 psi.

"These are preliminary results following a 6-day production test, and further production history will be required to determine stabilized flow rates from this well and the extent of the reservoir," GeoPark said.

It said 30° gravity oil is transported via trucks to a tank facility near the Fell Block. Engineering is under way on necessary processing and sales facilities.

GeoPark said geological and geophysical interpretations suggest opportunity for further development drilling in Aonikenk field, and that "a new drilling location has been selected to be drilled in fourth-quarter 2008."

According to CEO James F. Park, "The Aonikenk oil discovery also opens up a new potential oil region in the northeast portion of the Fell Block, which will be further developed and explored with additional drilling this year."

In June, GeoPark discovered two new gas fields, with wells Nika Oeste-3 and Bump Hill-1, on the Fell Block. The Nika Oeste-3 well was drilled to 3,023 m TD, and at 2,960 m, produced test flows of 133,089 cu m/day of gas, 70 b/d of condensate, and 14 b/d of water.

At a different geological structure, GeoPark's Bump Hill-1 well was drilled to 2,979 m TD. This well produced test flow rates of 25,485 cu m/day of gas plus small quantities of condensate and water.

GeoPark said the preliminary results needed further testing to determine stabilized flow rates and the size of the reservoir.

Last December, GeoPark reported success at the San Miguel-1 exploration well on the 440,000-acre Fell Block. The well, on a structure defined in GeoPark's 2006-07 3D seismic program, gauged 3 MMcfd of gas, 65 b/d of condensate, and 35 b/d of water from Cretaceous Springhill at 3,020 m through a 10-mm choke with 980 psi wellhead pressure (OGJ Dec. 21, 2007, p. 34).

Range boosts Marcellus shale high-grade acreage

Range Resources Corp. said it has drilled more than 100 wells in the Marcellus shale play in the Appalachian basin, including 20 horizontal wells, and has increased its high-graded acreage position to 850,000 net acres out of 1.4 million acres total.

Previously, Range had high-graded 700,000 acres of the Marcellus. The 850,000 acres includes acquisitions expected to close shortly.

John Pinkerton, Range's chairman and chief executive, said Range continues to accelerate both its drilling and acreage acquisition efforts in the Marcellus shale. Range anticipates that Marcellus production ramp up will begin primarily in the play's southwest region where 60% of its high-graded acreage position lies. Pipelines and processing plants are being built.

Range has three rigs operating and plans to drill 40 horizontal wells in 2008. Wells are being drilled, completed, tested, and shut in awaiting pipeline construction.

Production is expected to reach 30 MMcfd in the first quarter of 2009. The last 10 reported horizontal wells had an average peak initial rate of 4.1 MMcfd equivalent.

Range estimates gross average reserves of 3-4 bcfe/horizontal well. The Fort Worth independent revised upward its estimate of the unrisked reserve potential of its leasehold position to 22 tcf from 15 tcf.

Shell awards Oceaneering Perdido subsea works

Shell Oil Co. recently awarded a contract to Oceaneering International Inc., Houston, for fabrication and installation of subsea equipment on Shell's ultradeepwater Perdido Regional Development project in the Gulf of Mexico.

Engineering and fabrication are under way for 29 flowline and well jumper spools, a pipeline tie-in sled, and related products. Installations are scheduled to begin later this year using Oceaneering's dynamically positioned vessels, including the Olympic Intervention IV (OI IV).

The Perdido development is 200 miles south of Freeport, Tex., in 7,800 ft of water. Some production wells will be in water as deep as 10,000 ft. ✦

Drilling & Production — *Quick Takes*

BP signs contract with Parker

BP Exploration Alaska Inc. (BPXA), a division of BP PLC, has signed a contract with Houston-based Parker Drilling Co. to build, deliver, and commission a new ultraextended-reach drilling rig for

the Alaskan Beaufort Sea that will be able to drill wells nearly 2 miles deep and with offsets as long as 8 miles. Some planned measured depths exceed current records (OGJ, Oct. 2, 2006, p. 37).

BP will own the land-based rig and intends to use it to drill as many as six extended-reach wells into offshore Liberty field beginning in 2010. BPXA expects oil production to begin in 2011, ramping up to 40,000 b/d, with an ultimate recovery of 100 million bbl oil.

The construction and commissioning contract is the second phase of Liberty field's development. Parker anticipates that gross margins through Phase 2 of the drilling rig project will be $14-18 million, about 1% of the overall Liberty development cost, which BPXA anticipates to be about $1.5 billion.

Parker previously completed a 2006-07 front-end engineering and design contract to design the rig (Phase 1) and was authorized to procure long lead items. One of the design requirements was the ability to drill wells out to 8.3 miles (43,824 ft). Liberty field is nearly 6 miles offshore.

BP drilled the Liberty discovery well in 1997 from the Tern gravel and ice island, about 20 miles east of Prudhoe Bay. The company will drill the development wells from an existing satellite pad at its Endicott oil field. The Liberty wells will produce directly into existing facilities.

The new rig features a state-of-the-art automated equipment package and is designed to operate in temperatures as low as -50° F.

Total, Inpex to spend $2 billion for Indonesian EOR

Total SA and its Japanese partner Inpex will invest, together, some $2 billion next year to enhance recovery in the partners' oil and gas fields in Indonesia, both offshore and in the Mahakam River Delta. Total has already invested $11 billion in the fields.

It will use enhanced recovery technology developed elsewhere but not yet applied in Indonesia. The group produces 90,000 b/d of oil and condensates and 2.6 bcfd of gas. High oil prices henceforth make it sensible to increase expenditures, especially in the Mahakam delta, where fracturation in several layers of sand is being attempted in Tambura gas field to reach inaccessible pockets of gas.

Total, which has officially dedicated its Sisi and Nubi gas fields' coming on stream, is eyeing participation in Indonesia's giant offshore Natuna gas field which also requires huge investments to develop because of a strong carbon dioxide concentration.

Bualuang oil field off Thailand set to produce

Soco International PLC, a partner in Bualuang field in the Gulf of Thailand, said oil production from the field would commence this month. Salamander Energy PLC operates the field, which was discovered in 1993 on Block B8/38.

Thai Energy Ministry officials indicated that field output of as much as 10,000 b/d could be expected.

The field's proved oil reserves were recently upgraded to 11 million bbl from 7.2 million bbl, with probable and possible reserves lifted to 20 million bbl (OGJ, June 6, 2008, Newsletter).

Rubicon Vantage, the floating production, storage, and offloading vessel, was being hooked up to the wells.

Six development wells were drilled in the field, encountering 27° oil, a better-quality reservoir than forecast.

Salamander holds a 60% interest in Block B8/38, and Soco has a 40% stake. Both companies are based in the UK.

US drilling activity stabilizes

US drilling activity remained relatively for stable the week ended July 11, with 1,922 rotary rigs working, 1 more than the previous week and up from 1,791 in the same period a year ago, said Baker Hughes Inc.

Land drilling dipped by 4 rigs to 1,832 working the week of July 11. That was offset by a 4-rig increase offshore, with 67 rigs drilling in the Gulf of Mexico—currently the only activity in US waters. Inland waters activity increased by 1 rig to 23.

Of the rigs working, the number drilling for oil dropped by 3 to 370. Units drilling for natural gas increased 5 to 1,544. The rest were unclassified. There were 386 rigs involved in directional drilling, down 1 from last week. There were 560 rigs drilling horizontally, 5 more than previously. ✦

Processing — *Quick Takes*

Petrobras lets refineries engineering, automation

Zurich engineering firm ABB signed a $61-million frame agreement with Petroleo Brasileiro SA to supply process automation systems and related services to eight oil refineries in Brazil over 5 years. The agreement includes $29 million for engineering services.

The Swiss firm said the technology will help produce fuels with lower sulfur content, which have fewer emissions than other fuel blends.

ABB will supply its extended automation System 800xA for process automation with integrated substation automation functions, software and hardware, upgrades of existing installed ABB control systems, along with other project management and engineering services.

The technology, it said, will "help Petrobras expand production at its refineries, maximize energy efficiency, and optimize maintenance and operation costs."

NOC, Star group to upgrade Ras Lanuf refinery

Libya's National Oil Corp. (NOC) signed a 50:50 joint venture agreement with the Star Consortium of TransAsia Gas International and Star Petro Energy covering improvement of the existing 220,000-b/d Ras Lanuf export refinery.

Stage 1 of the refinery upgrade aims at refurbishing the existing plant to increase capacity and improve the ability to market the products.

In stage two, the companies will expand the refinery and add the latest technology for converting fuel oil into high-value products, improve efficiency, and bring overall quality in line with in-

ternational standards.

Work on the upgrade, valued at $2-3 billion, will begin immediately and will take up to 5 years to complete.

The Ras Lanuf facility includes a refining plant that produces naphtha, kerosine, and light and heavy gas oil, and other units that produce ethylene and polyethylene.

Ras Lanuf and its surrounding region have seen increased industry activity in recent months, including refining ventures and new crude oil discoveries.

CSB cites likely cause of 2007 Valero refinery fire

The Feb. 16, 2007, fire at Valero Energy Corp.'s McKee Refinery in Sunray, Tex., likely was caused by water that leaked through a valve, froze, and cracked an out-of-service section of piping, reported the US Chemical Safety Board July 9. The refinery did not have an adequate program to identify and protect from freezing out-of-service or infrequently used piping, it said.

The fire occurred in the refinery's deasphalting unit, which uses high-pressure propane as a solvent to separate gas oil from asphalt. Propane leaked from an ice-damaged piping elbow believed to have been out of service since the early 1990s when Ultramar Diamond Shamrock Corp. owned the refinery.

The piping crack released high-pressure liquid propane that ignited, causing a massive fire that injured four workers and forced Valero to evacuate and shut down the refinery for 2 months (OGJ Online, Feb. 21, 2007).

Ultramar Diamond Shamrock had not identified hazards that could arise from the dead-leg, had not removed the piping, isolated it from the process with blinds, or protected it against freezing temperatures. Nor had officials at the McKee plant applied Valero's policies on emergency isolation valves to control its valves, CSB said.

CSB has asked the American Petroleum Institute to develop a new recommended practice to protect refinery equipment from freezing and to improve existing practices related to fireproofing, emergency isolation valves, and water deluge systems. ✦

Transportation — *Quick Takes*

Pembina completes Horizon pipeline

Pembina Pipeline Corp., Calgary, completed its $400 million Horizon pipeline, which will provide 250,000 b/d of dedicated transportation capacity to Canadian Natural Resources Ltd.'s Horizon oil sands project. Work began in November 2006.

Construction involved laying 73 km of new pipeline following twinning in 2004 of the original Alberta Oilsands pipeline (AOSPL—now called the Syncrude pipeline—which the company acquired in late 2001. It expanded the AOSPL capacity to 389,000 b/d of dedicated synthetic crude oil transportation capacity to Syncrude Canada Ltd. The following year, Pembina completed the 136,000 b/d Cheecham lateral.

Pembina spent over $600 million to expand its service offering in the Athabasca oil sands region and now has 775,000 b/d of fully contracted synthetic crude oil transportation capacity in three distinct pipelines serving customers in this region.

Hungary, Romania to connect gas systems

Hungary and Romania—citing supply security issues—have agreed to connect their natural gas systems. FGSZ Natural Gas Transmission Co., operator of Hungary's gas transmission system signed a joint development agreement with Transgaz, the operator of Romania's gas transmission system in Arad, Romania. The interconnecting pipeline will follow the Arad-Szeged route.

FGSZ will build the 47-km Hungarian section of the gasline, and Transgaz will lay the 67 km Romanian section, of which 36.7 km are already built.

Each side will finance its own section. For Hungary, the investment is 9 billion forints. The interconnection should become operational in mid-2010. For the commercial operation of the gasline, both parties intend to sign an operation agreement and a capacity allocation agreement.

Initially, gas will be transported to Romania from Hungary. At a later stage, if technical conditions are established, gas could be transported to Hungary from Romania. The proposed connection will help develop gas markets in the Eastern EU and diversify supply routes, increasing supply security for Romania and possibly Bulgaria.

Egypt starts natural gas exports to Syria

Egypt has begun sending natural gas to Syria via a pipeline that extends through Jordan as part of a larger project to export Egyptian gas to the Middle East and, eventually, Europe.

Sufian Allaw, Syria's oil minister, said the new line would provide his country with 88.3 MMcfd of gas, eventually rising to 212 MMcfd over the next 9 years.

Egypt has agreed to supply Jordan, Lebanon, and Syria with gas for 30 years under terms of the $2.1 billion, 1,200-km Arab Gas Pipeline Project, which was signed in 2001.

The first phase of the project, linking Egypt with Jordan's Red Sea port of Aqaba, was finished in 2003, with the pipeline passing under the Gulf of Aqaba to avoid crossing Israeli territory.

In 2005, under the second phase of construction, the pipeline was extended to the Jordanian town of Rihab, north of the capital Amman.

Egypt has been exporting nearly 99 bcf/year of gas to Jordan under a 15-year agreement.

The third phase brought the pipeline to Syria's Deir Ali electric power station south of Damascus, according to Allaw. Further extensions are planned to Lebanon and Turkey, where the line will be connected to the planned Nabucco Pipeline for the delivery of gas to Europe.

El Paso moving forward with Ruby pipeline

El Paso Corp. unit Ruby Pipeline LLC has received more than 1.1 bcfd of binding commitments from gas shippers under 10-15 year contracts and is moving forward with the project, subject to regulatory approvals.

The 42-in. Ruby pipeline is a 670-mile interstate gas pipeline that will extend from the Opal Hub in Wyoming to a pipeline interconnect at Malin, in southern Oregon. ✦

Letters

Message for Congress

While our elected leaders on Capitol Hill failed to acknowledge the need for immediate and extensive exploration efforts on both coasts and federal lands, thoughts have come to me from my reading of Oil & Gas Journal issues from the last 4 years:

1. Recent advice from visiting Saudi parliament (Majlis-e-Shura) members could assure US lawmakers that it's time to drill for new oil inside the US—to avoid additional price hikes for US citizens. While praising the realistic view of the Saudi Majlis members, it would be much better to request our two top leaders from the US House and Senate to visit Riyadh for a crash course on energy exploration, production, and usage in the US.

2. Believe it or not, even US government agencies are right sometimes. Just going through 2004 OGJ news, I found ample and convincing predictions by the Energy Information Administration that (a) the world's oil production was declining while demand was increasing faster due to economic growth in Asia but that (b) pricing projections by EIA based on International Energy Agency data were far too low.

Now, in 2008, why is there so much fuss about high oil prices? And why is Congress spending so much time and money to find the "culprits" for high price by questioning the US oil companies repeatedly?

My message for House Speaker Nancy Pelosi and Senate Majority Leader Harry Reid: Both of you missed the boat (not passing smart laws encouraging energy exploration in the US) by 4 years while you sat on the data, creating impressions that we US oil explorers and producers are somehow responsible for $4/gal gasoline! If US oil production disappeared tomorrow your respective constituents in northern California and southern Nevada would have to pay at least $8/gal if not more. So please thank us with rewards, not punish us with proposed new super taxes.

Kumar Bhattacharjee
Houston

Calendar

✦ Denotes new listing or a change in previously published information.

OIL&GAS JOURNAL online

Additional information on upcoming seminars and conferences is available through OGJ Online, Oil & Gas Journal's Internet-based electronic information source at http://www.ogjonline.com.

2008

AUGUST

SPE Nigeria Annual International Conference & Exhibition, Abuja, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 4-6.

ACS National Meeting & Exposition, Philadelphia, 1 (800) 227-5558, e-mail: natlmtgs@acs.org, website: www.acs.org. 17-21.

International Petroleum Petrochemical Natural Gas Technology Equipment Exhibition, Shanghai, +86 21 55611008, +86 21 65282319 (fax), website: postmaster@aiexpo.com.cn, website: www.sippe.org.cn. 20-22.

IADC/SPE Asia Pacific Drilling Technology Conference, Jakarta, (713) 292-1945, (713) 292-1946 (fax); e-mail: conferences@iadc.org, website: www.iadc.org. 25-28.

Deep Water India Summit, New Delhi, +31 (0)26 3653 444, +31 (0)26 3653 446 (fax), e-mail: workshops@energywise.nl, website: www.energywise.nl. 26-27.

Offshore Northern Seas Exhibition & Conference, Stavanger, +47 51 59 81 00, +47 51 55 10 15 (fax), e-mail: info@ons.no, website: www.ons.no. 26-29.

Summer NAPE Expo, Houston, (817) 306-7171, (817) 847-7703 (fax), e-mail: info@napeexpo.com, website: www.napeonline.com. 27-28.

SEPTEMBER

Annual India Oil & Gas Review Symposium & International Exhibition, Mumbai, (0091-22) 40504900, ext. 225, (0091-22) 26367676 (fax), e-mail: oilasia@vsnl.com, website: www.oilasia.com. 1-2.

China Power, Oil & Gas Conference & Exhibition, Guangzhou, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.chinasenergyfuture.com. 2-4.

ECMOR XI-European Mathematics of Oil Recovery Conference, Bergen, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 8-11.

Rice Global Engineering & Construction Forum, Houston, (713) 552-1236, ext. 3, (713) 572-3089 (fax), website: www.forum.rice.edu. 9.

IADC Drilling HSE Europe Conference & Exhibition, Amsterdam, (713) 292-1945, (713) 292-1946 (fax); e-mail: conferences@iadc.org, website: www.iadc.org. 9-10.

Rocky Mountain GPA Annual Meeting, Denver, (918) 493-3872, (918) 493-3875 (fax), email: pmirkin@gasprocessors.com, website: www.gasprocessors.com. 10.

API Fall Refining & Equipment Standards Meeting, Los Angeles, (202) 682-8000, (202) 682-8222 (fax), website: www.api.org/events. 15-17.

Rio Oil & Gas Conference & Expo, Rio de Janeiro, 55 21 2112 9078, 55 21 2220 1596 (fax), e-mail: riooil2008@ibp.org.br, website: www.riooilegas.com.br. 15-18.

API/NPRA Fall Operating Practices Symposium, Los Angeles, (202) 682-8000, (202) 682-8222 (fax), website: www.api.org/events. 16.

GEO India South Asia's Geosciences Conference & Exhibition, New Delhi, +44 (0)20 7840 2100, +44 (0)20 7840 2111 (fax), e-mail: geo@oesallworld.com, website: www.geo-india.com. 17-19.

SPE Annual Technical Conference & Exhibition, Denver, (972) 952-9393, (972)

952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 21-24.

ERTC Petrochemical Conference, Cannes, +44 1737 365100, +44 1737 365101 (fax), e-mail: events@gtforum.com, website: www.gtforum.com. Sept. 29-Oct. 1.

DGMK Future Feedstocks for Fuels & Chemicals Conference, Berlin, 040 639004 0. 040 639004 50 (fax), website: www.dgmk.de. Sept. 29-Oct. 1.

International Pipeline Exposition, Calgary, Alta., 403) 209-3555, (403) 245-8649 (fax), website: www.petroleumshow.com. Sept. 30-Oct. 2.

Unconventional Gas International Conference & Exhibition, Ft. Worth, Tex., (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.unconventionalgas.net. Sept. 30-Oct. 2.

OCTOBER

GPA North Texas/NGS East Texas Red River Conference, Tyler, Tex., (713) 222-0852, (713) 222-0858 (fax), e-mail: tom.rommel@accessed.com, website: www.gasprocessors.com. 1-2.

NPRA Q&A Forum, Orlando, Fla., (202) 457-0480, (202) 457-0486 (fax), e-mail: info@npra.org, website: www.npra.org. 5-8.

GPA Houston Annual Meeting, Kingwood, Tex., (918) 493-3872, (918) 493-3875 (fax), e-mail: pmirkin@gasprocessors.com, website: www.gasprocessor.com. 7.

KIOGE Kazakhstan International Oil & Gas Exhibition & Conference, Almaty, + (44) 020 7596 5000, + (44) 020 7596 5111 (fax), e-mail: oilgas@ite-exhibitions.com, website: www.ite-exhibitions.com/og. 7-10.

IADC Drilling West Africa Conference & Exhibition, Lisbon, (713) 292-1945, (713) 292-1946 (fax); e-mail: conferences@iadc.org, website: www.iadc.org. 8-9.

International Gas Union Research Conference, Paris, +31 50 521 30 78, +31 50 521 19 46 (fax), e-mail: igrc2008@gasunie.nl, website: www.igrc2008.com. 8-10.

ERTC Lubes and Additives Conference, Berlin, +44 1737 365100, +44 1737 365101 (fax), e-mail: events@gtforum.com, website: www.gtforum.com. 13-15.

Middle East Plant Maintenance Conference, Abu Dhabi, +44 207 067 1800, +44 207 430 0552 (fax), e-mail: d.michalski@theenergyexchange.co.uk, website: www.theenergyexchange.co.uk. 13-15.

API Fall Petroleum Measurement Standards Meeting, Long Beach, (202) 682-8000, (202) 682-8222 (fax), website: www.api.org/events. 13-17.

Oil Shale Symposium, Golden, Colo., (303) 384-2235, e-mail: jboak@mines.edu, website: www.mines.edu/outreach/cont_ed/oilshale. 13-17.

Central and Eastern European Refining & Petrochemicals Roundtable, Warsaw, +44 207 067 1800, +44 207 430 0552 (fax), e-mail: c.taylor@theenergyexchange.co.uk, website: www.theenergyexchange.co.uk. 14-16.

ISA EXPO, Houston, (919) 549-8411, (919) 549-8288 (fax) website: www.isa.org. 14-16.

Oil & Gas Transportation in the CIS & Caspian Region Conference, Moscow, +44 (0) 207 067 1800, +44 207 430 0552 (fax), e-mail: j.golodnikova@theenergyexchange.co.uk, website: www.theenergyexchange.co.uk/cispipes10register.html. 14-16.

PIRA New York Annual Conference, New York, (212) 686-6808, (212) 686-6628 (fax), e-mail: sales@pira.com, website: www.pira.com. 16-17.

Petchem Arabia Conference, Abu Dhabi, +44 207 067 1800, +44 207 430 0552 (fax), e-mail: c.verma@theenergyexchange.co.uk, website: www.theenergyexchange.co.uk. 20-22.

SPE Asia Pacific Oil & Gas Conference & Exhibition, Perth, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 20-22.

SPE International Thermal Operations & Heavy Oil Symposium, Calgary, Alta., (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 20-23.

Permian Basin International Oil Show, Odessa, Tex., (432) 367-1112, (432) 367-1113 (fax), e-mail: pbioilshow@pbioilshow.org, website: www.pbioilshow.org. 21-23.

AAPG International Conference & Exhibition, Cape Town, (918) 560-2679, (918) 560-2684 (fax), e-mail: convene@aapg.org, website: www.aapg.org. 26-29.

Biofuels Conference, Berlin, +44 207 067 1800, +44 207 430 0552 (fax), e-mail: c.taylor@theenergyexchange.co.uk, website: www.theenergyexchange.co.uk. 28-30.

SPE Russian Oil & Gas Technical Conference & Exhibition, Moscow, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 28-30.

Arab Oil & Gas Show, Dubai, +971 4 3355001, +971 4 3355141 (fax), e-mail: info@icedxb.com, website: www.ogsonline.com. 28-30.

IADC Contracts & Risk Management Conference, Houston, (713) 292-1945, (713) 292-1946 (fax); e-mail: conferences@iadc.org, website: www.iadc.org. 29-30.

NOVEMBER

ASME International Mechanical Congress & Exposition, Boston, (973) 882-1170, (973) 882-1717 (fax), e-mail: infocentral@asme.org, website: www.asme.org. 2-6.

Abu Dhabi International Petroleum Exhibition & Conference (ADIPEC), Abu Dhabi, +971 (0) 2 4444 909, +971 (0) 2 4444 383 (fax), e-mail: info@adipec.com, website: www.adipec.com. 3-6.

Deepwater Operations Conference & Exhibition, Galveston, Tex., (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.deepwateroperations.com. 4-6.

North African Oil and Gas Summit, Vienna, +44 (0) 207 067 1800, +44 207 430 0552 (fax), e-mail: c.brown@theenergyexchange.co.uk, website: www.theenergyexchange.co.uk/nas3register.html. 4-6.

Mangystau International Oil & Gas Exhibition, Aktau, + (44) 020 7596 5000, + (44) 020 7596 5111 (fax), e-mail: oilgas@ite-exhibitions.com, website: www.ite-exhibitions.com/og. 5-7.

GPA North Texas Annual Meeting, Dallas, (918) 493-3872, (918) 493-3875 (fax), email: pmirkin@gasprocessors.com, website: www.gasprocessors.com. 6.

IADC Annual Meeting, Paradise Valley, Ariz., (713) 292-1945, (713) 292-1946 (fax); e-mail: conferences@iadc.org, website: www.iadc.org. 6-7.

SEG International Exposition and Annual Meeting, Las Vegas, (918) 497-5542, (918) 497-5558 (fax), e-mail: register@seg.org, website: www.seg.org. 9-14.

IPAA Annual Meeting, Houston, (202) 857-4722, (202) 857-4799 (fax), website: www.ipaa.org. 10-12.

Houston Energy Financial Forum, Houston, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.accessanalyst.net. 11-13.

American Institute of Chemical Engineers (AIChE) Annual Meeting, Philadelphia, (212) 591-8100, (212) 591-8888 (fax), website: www.aiche.org. 16-21.

ERTC Annual Meeting, Vienna, +44 1737 365100, +44 1737 365101 (fax), e-mail: events@gtforum.com, website: www.gtforum.com. 17-19.

Annual Houston Energy Financial Forum, Houston, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.accessanalyst.net. 18-20.

IADC Well Control Middle East Conference & Exhibition, Muscat, (713) 292-1945, (713) 292-1946 (fax); e-mail: conferences@iadc.org, website: www.iadc.org. 24-25.

Annual European Autumn Gas Conference (EAGC), Cernobbio, Italy, +44 (0) 1737 855281, +44 (0) 1737 855482 (fax), e-mail: vanessahurrell@dmgworldmedia.com, website: www.theeagc.com. 25-26.

DECEMBER

IADC Well Control Middle East Conference & Exhibition, Muscat, (713) 292-1945, (713) 292-1946 (fax), e-mail: conferences@iadc.org, website: www.iadc.org. 2-3.

Annual Refining & Petrochemicals in Russia and the CIS Countries Roundtable, Prague, +44 207 067 1800, +44 207 430 0552 (fax), e-mail: e.polovinkina@theenergyexchange.co.uk, website: www.theenergyexchange.co.uk. 2-4.

Downstream Asia Refining & Petrochemicals Conference, Singapore, +44 (0) 207 067 1800, +44 207 430 0552 (fax), e-mail: a.ward@theenergyexchange.co.uk, website: www.wraconferences.com/FS1/dalregister.html. 3-4.

IADC Drilling Gulf of Mexico Conference & Exhibition, Galveston, Tex., (713) 292-1945, (713) 292-1946 (fax); e-mail: conferences@iadc.org, website: www.iadc.org. 3-4.

Deep Offshore Technology International Conference & Exhibition, Perth, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.deepoffshoretechnology.com. 3-5.

International Petroleum Technology Conference (IPTC), Kuala Lumpur, +971 (0)4 390 3540, +971 (0)4 366 4648 (fax), e-mail: iptc@iptcnet.org, website: www.iptcnet.org. 3-5.

PIRA Natural Gas Markets Conference, New York, (212) 686-6808, (212) 686-6628 (fax), e-mail: sales@pira.com, website: www.pira.com. 8-9.

PIRA Understanding Global Oil Markets Conference, New York, (212) 686-6808, (212) 686-6628 (fax), e-mail: sales@pira.com, website: www.pira.com. 10-11.

Seatrade Middle East Maritime Conference & Exhibition, Dubai, +44 1206 545121, +44 1206 545190 (fax), e-mail: events@seatrade-global.com, website: www.seatrade-middleeast.com. 14-16.

AAPG Annual Convention & Exhibition, San Antonio, 1 (888) 945 2274, ext. 617, (918) 560-2684 (fax), e-mail: convene@aapg.org, website: www.aapg.org/sanantonio. 20-23.

XSPE Improved Oil Recovery Symposium, Tulsa, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 20-23.

XSPE Progressing Cavity Pumps Conference, Houston, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 27-29.

2009

JANUARY

Oil & Gas Maintenance Technology Conference & Exhibition, Manama, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.oilandgasmaintenance.com. 19-21.

The Next Generation of Deepwater Challenges

Plan now to join industry colleagues and conference host Woodside Petroleum for the 20th Deep Offshore Technology (DOT) International Conference & Exhibition 3 – 5 December 2008 in Perth, Australia.

E&P operations offshore Australia encounter the full scope of technology challenges – deepwater conditions, remote field locations, deep gas development challenges, hostile environments, seafloor issues, difficult currents, flow assurance issues, long distances from infrastructure, logistical challenges, isolation from heavy lift and installation vessels – you name it and Australia has it all.

This year's DOT addresses virtually every technology issue that any deepwater operator will ever have to face. Plan today to exhibit, sponsor and attend this exciting event, along with the industry's leaders and brightest minds in this unique technology showcase.

For more information, please visit our Web site at www.deepoffshoretechnology.com.

DEEP OFFSHORE TECHNOLOGY INTERNATIONAL ASIA / PACIFIC™

20 DEEP OFFSHORE TECHNOLOGY CONFERENCE & EXHIBITION

3 - 5 DECEMBER 2008
PERTH, AUSTRALIA
PERTH CONVENTION EXHIBITION CENTRE

Exhibitor & Sponsorship Sales:
Jane Bailey (UK, Europe, Middle East, Africa & Australia)
Email: janeb@pennwell.com
Phone: +44 (0) 1992 656 651 • *Fax:* +44 (0) 1992 656 700

Sue Neighbors (The Americas & Australia)
Email: sneighbors@pennwell.com
Phone: +1 713 963 6256 • *Fax:* +1 713 963 6212

Michael Yee (Asia Pacific)
Email: yfyee@singnet.com.sg
Phone: +65 9616 8080 • *Fax:* +65 6734 0655

Owned & Produced By: PennWell

Hosted By: Woodside

Sponsored By: Apache Energy, Cameron, Clough, Department of Industry and Resources, Marine Contractors, INTEC WorleyParsons Group

Flagship Media Sponsors: Offshore, Oil&Gas Journal, Oil&Gas Financial Journal, Oil, Gas & Petrochem Equipment

Supporting Organization:

Media Partner: Oil & Gas Australia

Keeping workers safe

Christopher E. Smith
Pipeline Editor

Pipeline safety typically refers to the potential threat, or lack thereof, posed by an existing or proposed oil or natural gas pipeline to the surrounding population and environment. As pipeline plans have increased so has the level of focus on pipeline safety, with the occasional high-profile safety lapse only intensifying the scrutiny.

Another by-product of the increase in pipeline construction, however, has been an increase in demand for qualified labor to build and maintain the proposed lines. This brings with it concerns regarding another form of pipeline safety: the well being of the laborers themselves.

A report issued earlier this month by Canada's National Energy Board states that although pipelines are still operating safely, a spike in pipeline workplace injuries is cause for concern.

The NEB's annual "Focus on Safety and Environment: A Comparative Analysis of Pipeline Performance 2000-2006" notes that for the fourth consecutive year there were no ruptures on NEB-regulated pipelines, and for the ninth year in a row, there were no fatalities on NEB-regulated pipelines. During 1991-2002 roughly 2.5 NEB-regulated pipelines ruptured per year. The Board ascribes the improvement to compulsory integrity management programs that took effect in 1999.

At the same time, however, the rate of injuries suffered by pipeline workers more than doubled during 2005-06, according to the report, moving to 1.5 injuries/100 hr worked from 0.7 injuries/100 hr. The 2006 injury rate was the highest on NEB-regulated pipelines since 2001.

The NEB report pointed to such factors as inadequate training, worker fatigue, and high turnover rates—all factors directly relatable to the current frenetic pace of activity—as possible contributors to the jump in pipeline worker injuries, and it declared the need for increased vigilance on the Board's part through inspections and audits in addressing the situation.

Recent anecdotal evidence in the US, including at least four worker fatalities, is consistent with the tone and concerns of the NEB report:

- In September 2007, an employee of Precision Pipeline working on the Millennium Pipeline 30 miles north of New York City was killed when the heavy machinery he was operating to lift pipe joints rolled over him after he was thrown from the enclosed cab.
- In November 2007, an unexpected release and fire on Line 3 of Enbridge Energy Partners' Lakehead System proved fatal to two Enbridge employees working on the line during planned maintenance near the company's Clearbrook, Minn., terminal.
- In February 2008, an employee of Bechtel Corp. subsidiary Welded Construction of Perrysburg, Ohio, was crushed and killed when the heavy machinery he was operating overturned as he was moving a concrete weight used to stabilize pipelines in wetlands on an Enbridge project in Wisconsin.

Still safe

Alarming as incidents such as these and the increase in injuries seen in Canada might be, however, both the NEB and the US Bureau of Labor Statistics (BLS) make the continued relative safety of working in the pipeline industry explicitly clear. NEB cites statistics published by Human Resources and Social Development Canada showing that among federally regulated industries only the banking industry suffered fewer injuries/100 hr than the pipeline industry.

A December 2007 BLS Fact Sheet comparing pipeline injuries, illnesses, and fatalities to all other US industries similarly notes that in 2006 the rate of nonfatal injuries and illnesses in pipeline transportation was 2.2/100 full-time workers, one-half the rate for total private industry. The rate of injuries and illnesses resulting in days away from work for all private US industry was 127.8 cases/10,000 workers vs. 60/10,000 in the pipeline transportation segment. Median days away from work as a result of injury or illness were higher for pipeline workers, 25 days vs. 7, according to BLS figures. This is consistent with the scale of the overall endeavor.

These statistics and others like them make it clear that pipeline operators and contractors continue to do a very good job maintaining a safe workplace. The recent upturn in Canadian pipeline worker injuries reported by the NEB, however, should serve to warn that there is a need to redouble efforts during this time of spectacular pipeline growth. ✦




Held under the Patronage of H.E. Dr Abdul Hussain Bin Ali Mirza,
Minister of Oil & Gas Affairs, Chairman-National Oil & Gas Authority, Kingdom of Bahrain

Connecting with Ideas

OIL&GAS OGMT MAINTENANCE TECHNOLOGY
www.oilandgasmaintenance.com

PIPELINE REHABILITATION & MAINTENANCE
www.pipeline-rehab.com

DEADLINE EXTENSION - 11 August 2008

Due to the overwhelming response OGMT / PRM has extended the deadline for abstracts.

Oil & Gas Maintenance Technology and Pipeline Rehabilitation and Maintenance conference and exhibition is the Gulf's premiere forum for oil & gas maintenance and reliability technologies and the latest developments in pipeline rehabilitation and maintenance issues.

CALL FOR ABSTRACTS DEADLINE EXTENSION
Closing Date 11 August 2008

The Advisory Committee of Oil & Gas Maintenance and Pipeline Rehabilitation & Maintenance are now accepting abstracts for the 2009 Conference. We invite you to submit an abstract and share your knowledge, experience and solutions with industry colleagues from around the world.

HOW TO SUBMIT YOUR ABSTRACT

Please submit a 150 – 200 word abstract via www.oilandgasmaintenance.com or www.pipeline-rehab.com by **11 August, 2008**

Oil & Gas Maintenance Technology Track

Scope of Sessions

- Predictive and Preventative Maintenance
- Fundamentals of Best-in-Class Maintenance
- Roadmap to Best-in-Class in Maintenance
- Maintenance Knowledge Management
- Aligning Knowledge/Training Towards Performance Excellence
- Maintenance Best Practices
- Maintenance Risk Management
- Maintenance Change Management
- Maintenance Benchmarking
- Contracting Practices - Outsourcing
- Effective Maintenance KPI's
- State of the Art Maintenance Tools & Equipment
- Industrial Maintenance Solutions
- The Need and the Gain on Asset Management
- Profit Opportunities and Asset Utilization
- Effective Utilization of CMMS

Pipeline Rehabilitation & Maintenance Track

Scope of Sessions

- Pipeline Construction in Challenging Soil Environment
- Pipeline Manufacturing and Metallurgy
- Rehabilitation Methods and Materials Technology
- Risk Assessment and Area Classification
- Hazard and Operability Studies, Security and Integrity
- Leak Detection and Cathodic Protection Systems
- Inspection of CP Systems
- Inline Inspection and Development of Repair Plans
- Risk Assessment and Preventative Measures
- Offshore Pipeline Inspection, Repair and Rehabilitation
- Selection of Valves
- Project Management

For further information please contact:

Frances Webb - Event Director
PennWell Petroleum Group
T: + 44 (0)1628 810562 - **F:** + 44 (0)1628 810762 - **E:** francesw@pennwell.com
www.oilandgasmaintenance.com - www.pipeline-rehab.com

Platinum Sponsors & Co-Hosted by: Saudi Aramco, Bapco, Energy for generations

Supported by: nogaholding

Sponsor: TC GULF, NDT

Flagship Media Sponsors: Offshore, Oil&Gas Journal, Oil, Gas & Petrochem EQUIPMENT

Owned & Produced by: PennWell

Editorial

Learning to cooperate

An important development in the geopolitics of oil has largely escaped notice where it should be big news: in the US. Oil-exporting countries for many years have been calling for cooperation between themselves and major importers. Progress is evident. But little has been said about it in the world's largest energy consumer.

Traditional arguments against cooperation, most of them based on righteous allegiance to market ideology, are losing their bite. Governments own most of the world's oil reserves. National oil companies compete for investment opportunities, in their home countries and abroad, from positions of growing strength and sophistication. Private and political interests thus intertwine as never before. While market forces always prevail, many governments have new financial power with which to press their energy ambitions—and diminishing reluctance to use it.

Straining relationships

In many ways, and in many highly visible cases, this newly complex public-private dynamic strains historic relationships. But forces for cohesion also are at work. Economic development and the attendant social comforts have made major oil exporters as dependent on oil sales as major consumers are on purchases. Economic interdependency creates strong bonds.

And clear-sighted buyers and sellers can see that meeting future energy demand will be difficult. Global energy consumers will require not just more oil but also supplemental supply from other energy sources as well as mitigation of the environmental consequences. The required investments are staggering in size and duration. Timing is crucial. That the capital be committed in required amounts soon enough to make future supply available when it's needed serves the interests as much of consumers as of investors. Like a healthy market accessible by all buyers and sellers of oil, a steady investment climate is a goal in which oil producers and consumers can find common ground.

Indeed, efforts toward cooperation are under way. Last month, a formal "energy dialog" between the European Union and Organization of Petroleum Exporting Countries held its fifth annual ministerial-level meeting. The "dialog" is addressing issues such as refining capacity, the effects of financial markets on oil prices, technology, the effects of biofuels on refining, and carbon capture and storage.

Also in June, international leaders—including US Energy Sec. Samuel Bodman—met in Jeddah, Saudi Arabia, under the auspices of the International Energy Agency, International Energy Forum, and OPEC to discuss the recent surge in oil prices. In a statement after the meeting, participants "recognized the importance" of spare upstream and downstream capacities; transparency and regulation of financial markets; the Joint Oil Data Initiative; cooperation between OPEC, the IEA, and IEF in reporting and analyzing oil market developments; aid to least-developed countries; cooperation in investment, technology, and human resource development; and promotion of energy efficiency.

It's easy to dismiss these efforts as the endless meetings and hollow words of international diplomacy, from which little concrete results are likely. The efforts do, however, highlight tough issues in which producers and consumers share interests. They also represent a new level of cooperation between the governments of producing and consuming nations. Given the new realities of the oil and broader energy markets, that's important.

Confrontational mood

In the US, however, the watchword is not cooperation but confrontation. Political discourse routinely treats OPEC as a demon and imported oil as economic poison rather than the unavoidable yet manageable necessity that it is. Politicians exploit baseless suspicions that all oil exporters harbor hostile intent toward the US. Too many energy discussions center on reminders that most of the US attackers on Sept. 11, 2001, came from Saudi Arabia. A confrontational mood has led the US into a blind rush after impossible energy hopes, such as economic growth without imported oil or, even more ludicrously, without any oil at all.

The US acts determined to sacrifice economic health to unreasonable wishes and thus, ironically, to squander unprecedented opportunities for development of supplemental energy supplies. The irony will be compounded if the country follows energy xenophobia down this desolate path while the rest of the world learns how to make cooperation work. ✦

Firms can avoid EITI, FCPA pitfalls

Mara V.J. Senn
Rachel Frankel
Arnold & Porter LLP
Washington, DC

In May, the Extractive Industries Transparency Initiative (EITI) published the "EITI Business Guide" to encourage oil and gas companies, as well as companies in other extractive industries, to support implementation of the EITI in countries that are developing or operating oil and gas assets.[1]

The purpose of the EITI is to publish government revenues generated by extractive industries and to compare those revenues with payments reported by private companies in order to improve transparency in countries rich in oil, gas, and mineral resources. It is hoped that making this data public will allow in-country civil society organizations to hold their governments accountable for any discrepancies, which in turn should minimize corruption in the countries that adopt the EITI.

Although no country is required to participate in the EITI, once a country adopts the transparency initiative, all companies purchasing that country's extracted resources typically are required to comply with EITI standards regarding transparency unless the individual country makes participation voluntary.

Whether a country chooses to publish its [EITI] data on an aggregated or disaggregated basis ultimately may affect the particular areas of legal liability to which a company is exposed— ***EITI Business Guide***

The EITI seeks to achieve transparency by requiring that government revenues from extraction industries and company payments for those resources be published in independently verified reports. Payments and revenues are then "reconciled by a credible, independent administrator, applying international auditing standards," and the administrator's opinion regarding that reconciliation, including any discrepancies, is published.

Currently, companies in 23 countries are subject to EITI requirements. Of these, 16 are in Africa: Cameroon, Congo, Democratic Republic of the Congo, Cote D'Ivoire, Equatorial Guinea, Gabon, Ghana, Guinea, Liberia, Madagascar, Mali, Mauritania, Niger, Nigeria, Sao Tome and Principe, and Sierra Leone. The remaining countries are Azerbaijan, Kazakhstan, Kyrgyzstan, Mongolia, Peru, Timor-Leste, and Yemen (see map).

In many of these countries, adoption of the EITI is at its initial stages. Active involvement by oil and gas companies in the implementation of the EITI thus may help to decrease the risk of possible liability that can attach to oil and gas companies required to participate in the in-country programs. Although participation in the EITI creates neither legal rights nor obligations, because EITI requirements might result in companies' publicly revealing their payment streams country-by-country, companies may be subject to liability relating to those disclosures, including for breach of existing confidentiality agreements or under the Foreign Corrupt Practices Act (FCPA). Oil and gas companies offering to cooperate in EITI implementation, as the EITI Business Guide encourages, should be aware of both the potential legal risks they face and how to minimize them.

What is the EITI?

The EITI is a global initiative launched in 2002 to promote transparency in governments of countries that are rich in oil, gas, or minerals, which over time, "can assist in minimi[z]ing corruption in extractive industries" and "lead to improved public accountability and political stability." The purpose of the EITI is to hold countries with underdeveloped economies accountable for revenues received from the sale of their countries' natural resources. By ensuring that reported revenues match up with reported payments, the EITI

hopes to prevent corrupt governments from skimming income off the top of these revenues for their own personal gains. However, if a discrepancy is identified, the companies making the payments, not just the countries receiving them, may come under legal scrutiny.

As stated in the EITI Business Guide, "[T]here is no international EITI policy or requirement" on how data on country revenue streams and on company payment streams reported to the independent administrator is to be published. Revenue and payment reporting may be published on an aggregated or disaggregated basis. Aggregated disclosure requires publication of a single number for each benefit stream, while disaggregated disclosure calls for publication of the overall number broken down by company. Whether a country chooses to publish its data on an aggregated or disaggregated basis ultimately may affect the particular areas of legal liability to which a company is exposed.

Avoiding EITI liability

Oil and gas companies participating in the EITI may trigger breaches of confidentiality agreements or FCPA scrutiny:

Breach of Confidentiality Agreements. Companies subject to the EITI may find themselves in breach of contract if the financial information they disclose to the independent administrator for reconciliation is the subject of confidentiality provisions in licenses or agreements with providers of service or goods or with the country itself. A typical confidentiality agreement in the context of the EITI would prevent oil and gas companies from disclosing to third parties any information concerning the terms of a particular arrangement that a company has to develop oil or gas resources in the host country. However, by disclosing payment streams to the independent administrator, oil and gas companies may find themselves in breach of such a confidentiality provision. This potential problem can be remedied if the EITI is implemented in accordance with the EITI Principles, one of which recognizes that "achievement of greater transparency must be set in the context of respect for contracts and laws." As the EITI Business Guide reports, "If confidentiality clauses prevent companies from publishing commercially sensitive information, the government [adopting the EITI] must provide a clear and unambiguous indication to each company...that the clause does not apply in the case of EITI implementation."

Three countries that have adopted the EITI, Nigeria, Kazakhstan, and Azerbaijan, deal with this issue in different ways. In Nigeria, the NEITI Bill "void[s] gagging clauses in license agreements [thereby] enabling disclosure of key disaggregated financial data as is required by law...."[2]

Conversely, in Kazakhstan, a memorandum of understanding (MOU) signed by all stakeholders in the EITI authorizes a company operating in the country's extractive industries to refuse to submit its payment reports under the EITI guidelines unless the company determines "such disclosure will not contravene any of its own or its affiliates', partners', or contractors' obligations to preserve confidentiality or similar obligations."

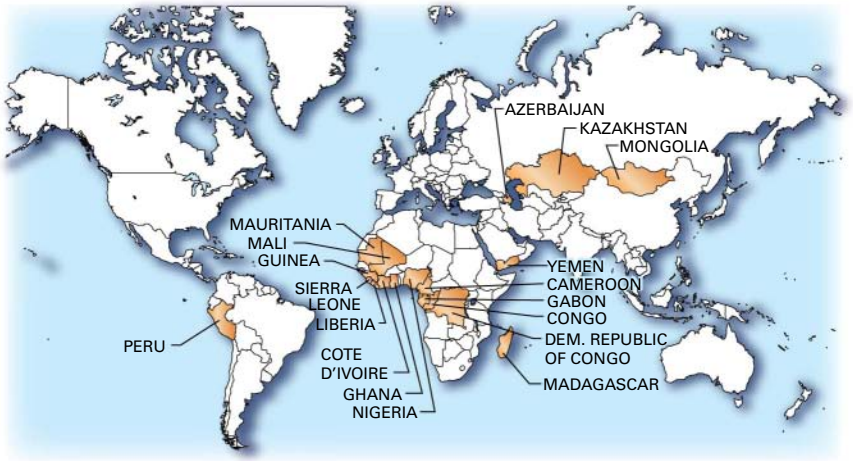
Another approach, different from those of Nigeria and Kazakhstan, is that of Azerbaijan. According to a case study described in the EITI Business Guide, in Azerbaijan, concern about company confidentiality clauses has resulted in data being published on an aggregated basis, so confidential company details cannot be disclosed to the public.

Regardless of which approach is used, prior to disclosing any payment information under the EITI, companies should avoid liability for breach of contract or confidentiality agreements by ensuring that they have written permission to use confidential information covered by existing confidentiality clauses. They also should obtain written permission for EITI disclosures prior to entering any new contracts having confidentiality clauses.

Foreign Corrupt Practices Act. Oil and gas companies also should consider how to minimize their FCPA exposure during participation in the EITI. The FCPA consists of two sets of provisions:

- Antibribery provisions under 15 USC § 78dd-1(a), which prohibit payment of anything of value to a foreign official for purposes of securing business.
- Accounting provisions in 15 USC § 78m(b), which require companies to maintain certain recordkeeping standards and internal accounting controls to allow enforcement when bribes are not disclosed in financial statements and to counteract accounting devices that

Countries implementing the EITI*



*As of June 2008.

hide the existence of bribery payments.

The US Department of Justice (DOJ) has criminal enforcement authority for these provisions, and the US Securities and Exchange Commission (SEC) has civil enforcement authority.

The publication of data under the EITI is not itself a violation of the FCPA. However, information that is published by the independent administrator reporting any discrepancies between company payments and host government revenues may trigger FCPA scrutiny into oil and gas companies that disclose their payment streams through the EITI.

Discrepancies may be a result of accounting conversions (the EITI requires reporting on a cash basis rather than on an accrual basis, which most companies use), or other completely innocent reasons such as differences in international accounting standards. Typically, companies are given an opportunity to address discrepancies, but absent an MOU precluding disclosure of certain discrepancies, the country's EITI report may reveal unexplained discrepancies between company payments and country revenue from that company. For example, in the Nigeria EITI report, discrepancies were reported even when the companies had not signed off on the discrepancy analysis.[3] Although bribes are not always included in financial statements of the company or the country, such discrepancies can be a red flag for agencies investigating bribery under the FCPA. An investigation could be very time consuming, possibly tarnish a company's reputation, and even result in a class-action or derivative lawsuit by the company's shareholders.

The interest of the securities plaintiff's bar may be increased by the recent introduction of a bill in Congress that would require the SEC to impose EITI-like disclosures "for the benefit of shareholders" on all foreign and domestic companies listed by the SEC. Unlike EITI disclosures required by countries selling their natural resource, however, under this bill there would be no reconciliation with revenues reported by countries, since the SEC has no jurisdiction over foreign sovereigns.[4]

Another recently introduced bill would allow a plaintiff to sue a foreign concern for antitrust-type violations, including treble damages, when the company has violated the FCPA and the plaintiff can show that it lost business as a result.[5]

Global cooperation

A recent increase in international cooperation enhances the risk that EITI discrepancies may come to the attention of the DOJ or the SEC. The UN Convention Against Corruption calls for international cooperation to facilitate enforcement of corruption-related offenses, and the Organization for Economic Cooperation and Development (OECD) Convention on Combating Bribery requires developed countries to work in a coordinated manner to criminalize the bribery of foreign public officials.

"Countries will ultimately adopt the level of disclosure with which the majority of stakeholders are comfortable"...if companies are vocal enough, a country may call for publication of only aggregated data.

Although no country currently implementing the EITI has signed onto the OECD convention, all but four EITI countries (the Democratic Republic of the Congo, Equatorial Guinea, Kazakhstan, and Niger) have signed or ratified the UN convention. In addition, many multinational companies may be subject to investigation under these conventions through their international operations. Indeed, recent FCPA cases have involved concurrent bribery investigations by law enforcement agencies in multiple countries.

For example, Shell Oil currently is under investigation by the DOJ and the SEC for its operations in Nigeria, a country that has adopted and implemented the EITI. US investigators are also collaborating with the Economic and Financial Crimes Commission in Nigeria in that investigation. The investigation focuses on Shell Oil's use of Panalpina, a Swiss freight firm that came under scrutiny in connection with Vetco Gray's self-disclosed FCPA issue, which settled in February 2007.

The investigation of Shell Oil is just the latest in a string of FCPA investigations in Nigeria. There is no evidence that the EITI triggered this series of investigations; the Panalpina investigations were most likely triggered by Vetco Gray's self-reporting of FCPA problems relating to bribes paid through "a major international freight forwarding and customs clearance company" thought to be Panalpina. However, payment discrepancies could increase FCPA scrutiny of certain companies or certain countries.

Nigeria was the first country to sign up for the EITI, and the Nigeria Extractive Industries Transparency Initiative (NEITI) is a recognized leader in implementing EITI objectives. The NEITI calls for the publication, on a disaggregated basis, of "any information concerning the revenue of the Federal Government from [all] extractive industry companies, as it may consider necessary." As such, in the audit report for 1999-2004, published in late 2006, the NEITI not only reported that there was a net difference of $7.9 million between payments reported by the extractive industry and revenues reported by the Nigerian government but also broke down the discrepancies by company. In particular, Shell failed to report $1.35 million that the Nigerian government reported it received. In addition to this financial audit of payments made by oil companies and revenues received by the government, to enhance transparency,

the NEITI assessment included a physical audit of oil output, exports, and domestic consumption and a process audit looking at operations and procedures in terms of financial management and joint venture procurement.

Aggregated data best

In order to minimize being subject to an FCPA investigation because of discrepancies in a company's payments and a host government's revenues as published in a country's EITI audit report, when a host government implements the EITI, extractive industry companies should insist that data be published on an aggregated basis.

According to the EITI Business Guide, "[c]ountries will ultimately adopt the level of disclosure with which the majority of stakeholders are comfortable." Therefore, although the host government and civil society may prefer publication of disaggregated data to enhance transparency, if companies are vocal enough, a country may call for publication of only aggregated data.

Of course, even if an oil and gas company is successful in achieving publication of only aggregated data, the publication of aggregated data will not eliminate the risk of an FCPA investigation entirely. Large discrepancies in aggregated data may cause law enforcement to look more closely at international companies operating in those countries.

Even if only aggregated data is to be published, oil and gas companies should try to avoid the possibility that the country will unilaterally disclose disaggregated data. According to the EITI Business Guide, "more data [may] be made publicly available on a disaggregated basis—even if this is not required by the EITI process." Although the EITI Business Guide provides an example of a company's going beyond the EITI requirements and voluntarily publishing information on its payments to the host government on its public website, it is also possible that the host government itself may choose to publish data about specific payments it received from extractive industry companies. In order to avoid the disclosure of such information, when a host government implements the EITI, extractive industry companies should insist on provisions being included in the MOU that prevent the host country from publishing any information that does not appear in the independent administrator's report.

If the EITI is not implemented carefully, oil and gas companies may find themselves facing legal liability for breach of confidentiality agreements or increased scrutiny under the FCPA.

Data protection

In addition, oil and gas companies should take steps to protect the data submitted to the independent administrator. Disaggregated data must be disclosed to the independent auditor to allow for company-by-company reconciliation. Once detailed company data is reported to the independent administrator, there is a possibility that such data may be disclosed if proper precautions are not taken. Companies therefore should take care that the independent administrator himself does not disclose financial data that could trigger an FCPA investigation. Oil and gas companies can do this by insisting on a provision in the MOU that requires the auditing firm responsible for auditing and reconciling the EITI reports to sign confidentiality agreements concerning the detailed reports submitted by the individual extractive industry companies.

For example, although the MOU signed by the government of Nigeria and the oil and gas companies in the country remains secret, a confidentiality agreement between the companies and the independent administrator was signed by each company in 2005. Additionally, the MOU signed by the government of Kazakhstan, the extractive industry companies, and the nongovernmental organizations of civil society includes a provision limiting the auditor's ability to disclose information: "The audit company shall at all times keep the individual reports submitted by the Companies strictly confidential and shall not disclose or divulge these reports in whole or in part to any other Parties to the Memorandum, any third parties, or the public unless authorized by each submitting company." Only by insisting that a similar statement be included in the MOU can extractive industry companies further minimize the risk that information will be disclosed that may trigger an FCPA investigation.

EITI good for business

According to the EITI Business Guide, an individual company may find it beneficial to participate in the EITI in order to demonstrate international credibility, deliver on business principles, and show industry leadership. And eliminating corruption is a laudable goal that will benefit foreign investors in the long run. As the recently proposed Extractive Industries Transparency Disclosure Act puts it, "[t]here is a growing consensus among oil, gas, and mining companies that transparency is good for business since it improves the business climate in which they work and fosters good governance and accountability."

However, if the EITI is not implemented carefully, oil and gas companies may find themselves facing legal liability for breach of confidentiality agreements or increased scrutiny under the FCPA. Only by insisting on the waiver of confidentiality requirements, publication of aggregated revenue and payment streams, and inclusion in the MOU of provisions restricting disclosure of financial data by host governments and the independent administrator can extractive industry companies best minimize the risks of such liability.

The EITI announced in the Spring 2008 EITI Newsletter that the government of Iraq has formally committed itself to implementing the EITI. As the single largest country in terms of proven oil reserves to do so, and with so many companies extracting resources from the country, Iraq provides extractive industry companies with a prime opportunity to ensure that the EITI is implemented in a manner that both enhances transparency and protects the extractive industry companies from liability that may arise because of such transparency. ✦

References

1. The "EITI Business Guide" is available at http://eitransparency.org/document/businessguide.

2. The NEITI's "Handbook on Transparency & Reform in the Oil, Gas, & Solid Minerals Sectors" is available at http://www.neiti.org.ng/files-pdf/NEITI_Handbook4.pdf.

3. The "Nigeria Extractive Industries Transparency Initiative Audit of the Period 1999-2004: Final Report" is available at http://www.neiti.org.ng/files-pdf/ExecutiveSummaryFinal-31Dec06.pdf.

4. H.R. 6066, the Extractive Industries Transparency Disclosure Act, introduced on May 15, 2008, is available at http://www.house.gov/apps/list/press/financialsvcs_dem/frank_144_xml.pdf.

5. H.R. 6188, the Foreign Business Bribery Prohibition Act of 2008, introduced on June 4, 2008, is available at http://www.govtrack.us/congress/billtext.xpd?bill=h110-6188.

The authors

Mara V.J. Senn (Mara.Senn@aporter.com) is a partner with the law firm Arnold & Porter. She is a member of the firm's white collar and international arbitration groups and is the head of the international arbitration group's Energy Committee.

Rachel Frankel (Rachel.Frankel@aporter.com) is a third-year law student at The George Washington University Law School. She also is an articles editor for The George Washington Law Review.

Bush ends presidential OCS lease ban, presses Congress

Nick Snow
Washington Editor

Responding to congressional Republicans' calls that he make the first move, US President George W. Bush has lifted a presidential withholding of oil and gas acreage leasing on the Outer Continental Shelf.

"It's been almost a month since I urged Congress to act, and they've done nothing," Bush said in a July 14 statement. "They've not moved any legislation. And as the Democratically controlled Congress has sat idle, [gasoline] prices have continued to increase," he added.

"Failure to act is unacceptable. It's unacceptable to me and it's unacceptable to the American people. So today, I've issued a memorandum to lift the executive prohibition on oil exploration in the OCS. With this action, the executive branch's restrictions on this exploration have been cleared away. Now the ball is squarely in Congress's court," Bush continued.

Congress still has to repeal moratoriums it has placed on 85% of the OCS before leasing can take place. House and Senate reactions generally followed party lines as most Republicans applauded the president's action and most Democrats condemned it. "The Bush plan is a hoax. It will neither reduce [gasoline] prices nor increase energy independence. It just gives millions more acres to the same companies that are sitting on nearly 68 million acres of public lands and coastal acres," said House Speaker Nancy Pelosi (D-Calif.).

House Majority Leader Steny H. Hoyer (D-Md.) said Bush's announcement simply was another effort to divert attention from 6 years of the administration's failed energy policies. "It isn't about legitimate drilling access; it's about political messaging access," he said. "The president could have chosen to work with congressional leaders to promote responsible oil and gas production. It's clear that he wants political ads, not answers," Hoyer maintained.

Counting on Congress

But Republicans said Bush's action puts more pressure on House and Senate Democratic leaders. "Only Speaker Pelosi and her colleagues in the Democratic leadership stand in the way of responsible deepwater oil and gas exploration to help reduce [gasoline] prices. As American families and small businesses face record prices at the pump, they are counting on their leaders in Congress to work together on reforms to help reduce fuel costs," added House Minority Leader John Boehner (R-Ohio).

"The American economy is being dragged down by high energy prices, and President Bush today is demonstrating that he's serious about fixing the problem. With this announcement, it is now crystal clear that the only thing standing in the way of lower energy prices at the pump through increased production is Democrats in Congress," said Sen. Pete V. Domenici (R-NM), ranking minority member of the Energy and Natural Resources.

Not every congressional Democrat condemned Bush's action. Sen. Mary L. Landrieu (La.) said that she supported it. "I only wish he would have taken this important step earlier, which would have helped to negate these high prices,

www.subseatiebackforum.com

SUBSEA TIEBACK
FORUM & EXHIBITION

SUBSEA TIEBACK FORUM & EXHIBITION
THE DEEPEST SHOW ON EARTH

March 3 - 5, 2009

Henry B. Gonzales Convention Center | San Antonio, TX

PennWell invites you to the 9th annual Subsea Tieback Forum & Exhibition. SSTB has become the premier event for one of the fastest growing field development segments. This year's SSTB is scheduled for March 3 – 5, 2009 in San Antonio, TX at the Henry B. Gonzales Convention Center. Over 2,000 people and 150 exhibitors are expected at this year's conference. You can't afford to miss it.

This year's theme is "The Deepest Show On Earth." As our industry changes, the sharing of knowledge and collective experiences becomes more and more crucial to improving the quality, safety, and economics of the subsea tieback industry.

The conference board will once again solicit a number of key presentations by industry leaders. As in the past, only by participating in this conference will you be able to receive its benefits, as proceedings will not be published and no Press is ever allowed in the conference area. This is truly a closed forum with open discussion, where the information shared inside the conference room stays inside the conference room. We hope you will join us.

Owned & Produced by:	Flagship Media Sponsors:	Supported by:	Hosted by:
PennWell	Offshore · Oil&Gas Journal · Oil, Gas & Petrochem Equipment	SUT Society for Underwater Technology	bhpbilliton

Oil and gas groups applaud Bush's latest OCS order

Nick Snow
Washington Editor

Oil and gas trade associations and other business groups applauded US President George W. Bush's July 14 cancellation of an executive order banning oil and gas leasing on 85% of the Outer Continental Shelf.

"It is now up to Congress to lift the moratoriums," said the American Petroleum Institute in a statement. "Doing so could boost US supplies of oil and natural gas, increase the nation's energy security, add additional, well-paying American jobs, and bring billions of dollars into the Treasury. We encourage Congress to pass a common-sense and effective long-term energy policy."

Independent Petroleum Association of America Pres. Barry Russell commented, "Congress can no longer look the other way on this issue. If we don't take the necessary steps today, America will be in a worse position tomorrow."

Conceding that exploring in areas currently off limits won't produce oil and gas in the near term, Russell urged adoption of a comprehensive long-term energy policy that would include conservation, efficiency, unconventional fuels, "and all forms of American energy, including additional oil and gas resources, for the future."

"While it is true that exploration in areas that are currently off limits will not produce oil and natural gas in the short term, America must endorse solutions today that will produce results tomorrow, Russell said.

R. Skip Horvath, president of the Natural Gas Supply Association, said, "This is a smart decision because natural gas from US shores will add to our security of supply. Natural gas is essential to maintaining a high standard of living.

"Americans have flooded Congress and the White House with their calls and letters on high energy prices, and recent polls indicate that more than 70% favor increased drilling. The people have spoken, the president has acted, and we hope the House and Senate are listening," Horvath said.

A strong signal

Tom Fry, president of the National Ocean Industries Association, said, "While the president's move will not solve all of the nation's energy challenges, it sends a strong signal to Congress that it is time to end the annual congressional moratoriums. We are the only nation in the world that consistently limits access to our own domestic resources, despite a long record of safe and environmentally responsible exploration and production of offshore oil and gas. In light of rapidly growing global demand for hydrocarbons, and the resulting negative impacts on the American economy and overall quality of life, the locking up of US energy resources makes absolutely no sense."

American Gas Association Pres. David N. Parker said, "Because natural gas helps reduce emissions, environmentally conscious Americans are demanding more and more of it to power their homes and offices. Removing the ban on offshore production would go a long way in meeting the American consumer's increasing demand for this clean-burning energy source, as well as our nation's long-term climate-change goals. We are pleased that President Bush understands both the economic and environmental benefits of expanding natural gas production, and we hope that Congress will follow his lead," Parker said.

American Chemistry Council Pres. Jack N. Gerard commented, "Clearly, the ground is shifting on energy policy. As the crisis has grown, as it has become clear to Americans that the United States is jeopardizing our own economy and our ability to compete globally by not moving forward with expanded domestic energy development, and as poll after poll have shown that more than two thirds of Americans support it, we've seen growing interest in this issue among lawmakers of both parties," Gerard said. "We strongly encourage the House and Senate to continue exploring comprehensive energy legislation that includes efficiency; diversity, including renewables and other lower-emission sources and technologies; and expanded domestic energy supply."

National Association of Manufacturers Executive Vice-Pres. Jay Timmons said, "This country is facing an energy crisis. It is imperative that every opportunity to reduce the cost of energy be taken. An appropriate place to start is by increasing our access to domestic resources."

Citing estimates that the OCS contains more than 420 tcf of gas and 86 billion bbl of oil, Timmons said that providing access to these resources would send a signal to the rest of the world that the US is serious about reducing the energy price burden that confronts American consumers and manufacturers.

and had not waited until the waning days of his presidency. Congress should respond by strategically lifting the congressional moratoriums, and providing the option to states to expand drilling off their shores," she continued.

But many Democrats did condemn it. Sen. Dianne Feinstein (D-Calif.) said that Bush's move was "a false promise on which he can't deliver. The fact is this: The president is deluding the public into believing that new offshore drilling is a quick fix to $4/gal gasoline. Nothing could be further from the truth. We cannot drill our way out of this problem."

Another OCS leasing opponent, Sen. Bill Nelson (D-Fla.), said that the president "cruelly is misleading Americans for attempted political gain. He knows ruining our coastlines won't bring down gasoline prices nor solve our energy challenges. In fact, a recent report from inside his administration's own energy office found that increasing offshore drilling will have no impact on [gasoline] prices."

'Lands with a plop'

Republicans clearly relished the change. "A ban on drilling in the same Gulf that's open to Venezuelans, Indians, Vietnamese, and Cubans never made much sense except as a political barricade erected by anti-oil environmentalists in and out of Congress. Now that the president is voiding the old executive order, the issue lands with a plop on Nancy Pelosi and [Senate Majority Leader] Harry Reid's collective lap. I hope they can figure out a way not to automatically talk themselves into a frenzy of opposition that prevents real action to lower gasoline prices," said Rep. Joe Barton (R-Tex.), the Energy and Commerce Committee's ranking minority member.

Rep. John E. Peterson (R-Pa.), who has introduced several bills to repeal congressionally imposed OCS leasing moratoriums, said that Bush's action eliminated one of many hurdles. "Make no mistake: The price at the pump and sky-high natural gas prices are the result of 27 years of failed Washington policies. The politics of fear, implored by 14 consecutive Congresses and three presidents at the behest of radical environmental groups like Greenpeace, Sierra Club, and the Center for Biological Diversity are the reasons Americans are paying record prices for energy," he declared.

Bush's move followed a week of actions by congressional Democrats that suggest they are feeling growing pressure from constituents to increase domestic oil and gas production.

Soon after Congress returned July 7 from its Independence Day recess, Pelosi urged Bush to release crude oil

WATCHING GOVERNMENT

Nick Snow, Washington Editor

Oil state House Dems speak up

Oil state Democrats in the US House seem caught in a dilemma. On one hand, their party leaders advocate energy solutions that do not include oil and gas. On the other, many of their constituents work in that very industry or related businesses.

But three such members say it's easy to resolve that question. Their constituents' interests come first. What's more, they told me, the House's Democratic leadership understands.

"People sometimes ask me why I'm so supportive [of oil and gas]. We have to represent our districts. In mine, we do everything. We still have producing wells. There are several service companies, refineries, and petrochemical plants," explained Gene Green (Tex.).

Soon after Democrats regained control of the House in the 2006 elections, Green and others in the party from producing states began to meet informally. "We're not a large group, so we typically coordinate quickly on the floor and in our committees. But we can come to a decision without taking much time because there aren't that many of us," he said.

Weren't in the room

One problem with H.R. 2615, the so-called "Use it or lose it" bill, was that House Democrats who understand the oil and gas industry weren't in the room when it was being discussed, according to Charlie Melancon (La.). If they had been, they would have mentioned factors ranging from rig availability to the time it takes to examine and evaluate a lease before starting to drill, he said.

The situation has improved recently, Melancon continued. "We've been meeting more with the leadership. They've been asking for more meetings, in fact. Will we move something? I don't know," he said.

"The leadership is always seeking new ideas," said Dan Boren (Okla.). While my vote is not always in line with what it decides, it has been very [open] to listening to new ideas. Frankly, when the Republicans were in control, they governed with more of an iron fist. The Democrats have been more open on these issues."

'A complex question'

Melancon said, "It's a complex question, a worldwide problem with domestic elements. I understand where the leadership is coming from, but we need to get past punitive actions and provide more incentives for increased domestic production, for conservation, and for alternatives," he said.

Oil state Democrats in the House are particularly active in committees, where they also work with leaders. Boren said Jim Costa (Calif.), who heads the Natural Resources Committee's Energy and Minerals Resources Subcommittee, and Rick Boucher (Va.), who chairs the Energy and Commerce Committee's Energy and Air Quality Subcommittee, are particularly knowledgeable.

"The leadership always has met with us and sought our advice. We're obviously in the minority so we've tried to shape policy around the edges by sharing our concerns. I've been in discussions with our entire leadership team on multiple issues. Even though I've voted against several bills, there's always been an open line of communication," he said.✦

from the Strategic Petroleum Reserve to put downward pressure on prices. Hoyer and other House Democratic leaders on July 10 proposed leasing within the National Petroleum Reserve-Alaska instead of the Arctic National Wildlife Refuge (OGJ Online, July 11, 2008). And Reid (D-Nev.) said on July 11 that instead of calling on Congress to open more acreage, Bush should "tell his friends to start drilling in the land they already have."

Meanwhile, Republicans are tying their calls for increased domestic access to oil and gas resources to more aggressive energy consumption and alternative energy research and development. "Lifting the ban is a key part of the House Republicans' 'all of the above' energy plan to lower fuel costs. Enacting this plan, which would increase production of American energy, improve energy efficiency and conservation, and encourage investment in groundbreaking research in advanced alternative and renewable energy technologies, will signal to the rest of the world that America will leave no stone unturned in our efforts to bring down fuel costs," Boehner said.

Peterson and Rep. Neil Abercrombie (D-Ha.) planned are scheduled to announce July 15 the formation of a bipartisan House working group to develop new energy legislation. There also have been reports that politically centrist senators from both parties and their staffs have been meeting for a similar purpose. ✦

OPEC releases World Oil Outlook to 2030

Marilyn Radler
Senior Editor-Economics

The Organization of Petroleum Exporting Countries has released its oil outlook to 2030, citing various challenges to the oil market, including uncertainty of demand, rising costs, and environmental regulations.

The results point to growing energy interdependence, requiring a pragmatic dialogue among all parties, cognizant of the needs and responsibilities of oil producers and consumers, exporters and importers, and developed and developing countries.

OPEC's World Oil Outlook (WOO) says that the low oil prices of the 1980s and 1990s have had a dramatic impact on the oil industry because such low prices discouraged investment. As a result, at the beginning of this century, the world was caught unprepared for the surge in demand when faced with above-trend global economic growth.

OPEC assumes annual growth over the forecast period of 1.7% in its reference case, amounting to a 50% rise in worldwide energy demand during 2006-30. This is based on world economic growth averaging 3.5%/yr and assuming no significant changes in policies and technologies.

Supply, demand

With oil in the lead, fossil fuels will continue to provide more than 85% of the world's energy needs, OPEC says, adding that the total contribution of nonfossil fuels to the mix will grow from a low initial base.

Demand for transportation fuels will propel oil demand to 113 million b/d in 2030, up 29 million b/d during the reference period, and developing countries will account for most of the increase. This projection is down 4 million b/d from OPEC's previous long-term forecast, reflecting greater efficiency improvements because of a higher oil price assumption.

By 2030, total non-OPEC oil supply will reach 60 million b/d, with 11 million b/d being unconventional oil. This suggests that an additional 12-13 million b/d of OPEC crude will be required at that time vs. today's output, according to the WOO, but total demand for conventional crude will not exceed 82 million b/d by 2030.

The level of ultimately recoverable reserves is clearly more than sufficient to supply the amount of crude oil and natural gas liquids that will be needed, OPEC says.

"With a large and increasing resource base, together with the vast amounts of nonconventional oil, availability is not an issue," the report states. "To put it simply: there is enough oil to meet the world's needs for the foreseeable future. What is an issue, however, is the deliverability of the required oil. It is here that the industry faces several key challenges, as well as associated opportunities."

Challenges

Exploration, development, and production cost increases have been a drag on the economics of upstream projects, including the cost of engineering, procurement, and construction services, as have been the costs and availability of skilled labor.

OPEC says that while some of the upward movement in these costs is cyclical, structural changes, such as the continued move toward deeper water and frontier regions, suggest that an element of higher costs is here to stay.

Despite increasing costs, industry players are increasing investments. OPEC forecasts that during 2007-30, in 2007 dollars total upstream investments will be $2.8 trillion.

Another challenge the WOO points out is that the industry faces uncertainties over how much to invest, citing the US Energy Security and Independence Act of 2007 and proposed European Union climate change and renewable energy targets.

These policies could have substantial

IEA rolls out 2009 supply and demand forecast

Marilyn Radler
Senior Editor-Economics

The International Energy Agency has released its outlook for 2009 oil supply and demand.

In its latest monthly Oil Market Report, IEA said worldwide oil demand will increase by 860,000 b/d next year to average 87.7 million b/d. This year's demand growth is forecast at 890,000 b/d.

OECD oil product demand will average 48 million b/d in 2009, down 1.2% from 2008, as rising oil prices continue to take their toll.

The contraction in demand is expected to be particularly marked in North America, down 380,000 b/d, while demand in both Europe and the Pacific falls by roughly 100,000 b/d each.

But growth will be robust in developing economies, IEA said, as 1.4 million b/d of annual growth is expected to match that of 2008. Sustained economic growth in the key regions of Asia, the Middle East, and Latin America will drive most of the increase in demand.

The Paris-based agency sees supply from countries outside the Organization of Petroleum Exporting Countries rising 640,000 b/d to 50.6 million b/d in 2009, following a late-2008 increase, with oil production in Asia, the Caspian, Brazil, Canada, and the US adding to supplies.

Ongoing decline affects supply from the North Sea, Mexico, and non-OPEC Middle East, while Russian production also slips in 2009. Much of a previously expected 2008 surge in OPEC gas liquids has been pushed back into 2009 on project delays. So natural gas liquids production in Saudi Arabia, Qatar, the UAE, Nigeria, and Iran will support an 810,000 b/d expansion in OPEC gas liquids next year.

Looking at recent production levels, IEA said that last month OPEC crude supply increased 350,000 b/d to 32.4 million b/d, as Saudi Arabian supply rose to 9.45 million b/d, and exports from floating storage lifted Iranian supply to 3.8 million b/d.

Although higher supply lowers effective OPEC spare production capacity to 1.7 million b/d, increases from Saudi Arabia, Angola, Iraq, and Nigeria will lift overall capacity by around 1 million b/d by end-2008, IEA reported.

impacts on the amount of oil needed from OPEC. Scenarios show that they could reduce the call on OPEC oil by close to 4 million b/d by 2020, according to the report.

Additional policy measures would further increase the uncertainty over the amount of OPEC oil the market will require by 2020. With a 9 million b/d spread, OPEC places its then-call for oil at 29-38 million b/d. This translates into what the report calls an uncertainty gap of upstream investment needs in OPEC-member countries of over $300 billion.

Downstream demands

OPEC's reference case estimates that by 2015, global refining crude distillation capacity will grow 7.6 million b/d. Adding in the effect of capacity creep, crude distillation capacity could increase 8.8 million b/d from 2007 capacity.

While crude distillation unit additions by 2015 look sufficient in the reference case, those for secondary processing units are not, OPEC warns, saying further additions are needed, especially for hydrocracking and desulfurization.

In particular, the gap between supply and demand for middle distillates will grow, unless more diesel-oriented projects are implemented. This evolving gap likely will drive price differentials towards a premium for diesel and could also have an impact on the absolute level of product and crude prices, according to the WOO.

Another major driver of refining requirements and economics is the level and quality of product demand, OPEC says, particularly the move toward distillates. Especially notable are diesel and low and ultralow-sulfur fuels as OECD regions complete their conversions to these fuels and non-OECD countries increasingly adopt these standards.

To meet product demand in 2030, OPEC says a total of almost 20 million b/d of additional distillation capacity will be required, compared with current capacity, with substantial investments needed in all regions.

WOO estimates that the total investment in refinery processing to 2015 will be more than $320 billion in 2007 dollars in the reference case, while for the entire forecast period to 2030 the figure is close to $800 billion. ✦

FACTS: Mideast trade transformation under way

Marilyn Radler
Senior Editor-Economics

The Middle East will play an increasingly important role in the world oil market as it emerges as a new export force, according to a new report from a prominent energy consulting firm.

In its July energy brief, FACTS Global Energy says that in the Middle East, bumper oil revenues, strong domestic demand growth, an influx of foreign investment, and the launch of a Middle East sour crude futures contract have the oil market evolving rapidly.

The region plays a role as a major

crude supplier with spare capacity and is exporting increasing volumes of oil products as its refining capacity grows. As a result, product-trade patterns in the Middle East will see significant changes, according to the report.

Capacity, demand

The Middle East is projected to add 3.45 million b/d of crude oil production capacity during 2007-12. With actual production expected to increase 2.8 million b/d over the period, FACTS estimates that spare production capacity in the Middle East will rise to 3.2 million b/d by 2012, up from 2.5 million b/d in 2007.

Meanwhile, production of natural gas liquids (NGL) and condensates in the Middle East will rise by about 2 million b/d in the same time frame.

Demand for oil products in the Middle East will grow 7.5% during 2006-10, and 4.3%/year in 2010-20, according to FACTS.

Some key trends driving petroleum-product demand in the region include growing petrochemical activity, strong transportation fuel demand, and rising fuel-oil consumption for power generation.

Middle East oil demand is forecast to grow 2.9 million b/d during 2007-15.

Refining, trade

Meanwhile, Middle East refining capacity is projected to grow by 3.3 million b/d in 2008-15, the FACTS report says, with major projects taking place in Saudi Arabia, Iran, and Qatar. More than 70% of these capacity additions will be export-oriented.

In total, exports of petroleum products from the Middle East will increase to nearly 4.4 million b/d by 2015, up from 2.8 million b/d in 2007.

Currently a net importer of motor gasoline, the region will transform into a major gasoline exporter. With the completion of refining projects in Iran, net exports of gasoline from the Middle East will average 250,000 b/d by 2012, FACTS estimates.

Exports of fuel oil from the Middle East will decline in the near term due to an emphasis on a lighter product slate, and the region will need to import more fuel oil on a net basis in 2012. But fuel-oil exports will resume towards 2015, after key topping refinery projects are completed in Saudi Arabia and Kuwait, according to the report.

FACTS also forecasts an increase in nonrefinery LPG exports from the Middle East as production rises, but strong petrochemical feedstock demand in the region will limit export growth.

The region will continue to be a net exporter of middle distillates. Exports of jet fuel and diesel will increase to more than 1.3 million b/d in 2015, vs. 800,000 b/d last year.

Finally, the FACTS report says that with new gas-to-liquids plants and greater hydrodesulfurization capacity in the region, product quality improvement is underway in most Middle East countries. The region will gradually shift from high-sulfur products to low-sulfur and medium-sulfur products both for domestic use and for exports. ✦

EPA proposes rules covering carbon dioxide storage

Paula Dittrick
Senior Staff Writer

The US Environmental Protection Agency (EPA) released proposals July 15 for a category of injection wells for long-term underground carbon dioxide storage as Congress contemplates carbon capture and storage (CCS) technology.

The proposed rules, which outline storage siting, testing, and monitoring requirements, fall under EPA's existing Underground Injection Control (UIC) program. They would update the 1974 Safe Drinking Water Act.

EPA hopes to ensure that stored CO_2 does not move or leach heavy metals or other contaminants out of surrounding rock into underground water.

Benjamin Grumbles, EPA assistant administrator for water, said a final rule is expected in late 2010-early 2011.

Rules already exist for CO_2 injected for enhanced oil recovery projects. Grumbles said the new rules represent the first federal regulations for long-term CO_2 storage.

EPA will accept public comment on the Advance Notice of Proposed Rulemaking for 120 days following its publication.

CCS, not yet available on a large-scale commercial basis, would contain greenhouse gas (GHG) emissions from power plants and other industrial sources.

EPA working with DOE

EPA worked with the US departments of Energy, Agriculture, and Transportation to develop regulations to cut GHG emissions from motor vehicles and their fuels.

EPA and DOE jointly fund the Lawrence Berkeley National Laboratory (LBNL) to study potential impacts of CO_2 injection on aquifers and drinking water sources. LBNL also assesses potential changes in regional groundwater flow, including displacement of preexisting saline water or hydrocarbons.

Grumbles said EPA tracks the progress of national and international sequestration projects, including DOE's Regional Carbon Sequestration Partnerships.

Under the UIC program, experimental technology permits have been issued for CO_2 injection wells drilled by the partnerships, Grumbles said.

Types of injection wells

EPA proposes a new class of injection wells for carbon sequestration. UIC regulations outline five classes of injection wells. The proposed rules would establish a sixth class specifically for long-term CO_2 storage.

Grumbles said the proposed rules would apply to CO_2 injection wells

onshore and in state territorial waters within 3 miles of the US coast. CO_2 wells drilled beyond the 3-mile limit would fall under the Marine Protection, Research, and Sanctuaries Act.

Many states already have proposed CO_2 storage regulations. Grumbles said the proposed rules would provide a minimum level of safeguards. ✦

API: US exploratory drilling up over 50% in 2Q

Nick Snow
Washington Editor

Oil and gas producers drilled over 50% more US exploratory wells in second-quarter 2008 than a year earlier, reported the American Petroleum Institute in its latest quarterly estimate of domestic well completions.

Exploratory wells, which accounted for nearly 17% of total wells drilled, grew 53% year-to-year, it said. Oil well completions rose 49%, while gas well completions jumped 99% from their level in 2007's second quarter, API said.

API said an estimated 14,289 oil wells, gas wells, and dry holes were drilled domestically during the 3 months ended June 30—8% more than a year earlier.

A resurgence of US oil well completions that began in 2000 has continued. An estimated 5,219 wells were drilled during second-quarter 2008, 17% more than in the comparable 2007 period and the highest second quarter estimated oil activity since 1986, API said.

Gas remains the primary domestic drilling target, with an estimated 7,561 wells completed during the 2008 second quarter, a level 3% higher year-to-year and more than double the level 10 years ago.

API also reported that total estimated footage drilled this past quarter reached 89,947,000 ft, 14% higher than a year earlier and the greatest second-quarter footage drilled ever. ✦

WATCHING THE WORLD

Eric Watkins, Senior Correspondent

Shedding light on a dark market

It should come as no surprise that airlines based in oil-producing nations were the main drivers of new aircraft orders last week at the biannual Farnborough International Air Show.

But if you think that oil producers are the only ones who can afford new jets, then think again. Indeed, according to executives at US aircraft manufacturer Boeing, the continued high price of oil won't dent their business at all.

Boeing executives are genuinely upbeat about their future prospects, forecasting a global marketplace for new aircraft worth $3.2 trillion over the next 2 decades, with China—a net importer of oil—overtaking North America as the main market.

"The Chinese market today is very small but 20 years from now it will be bigger than today's North American market," said Randy Tinseth, vice-president of marketing.

High prices no problem

High oil prices will be no impediment to that growth, according to another Boeing executive. To the contrary, says Boeing CEO James McNerney, soaring oil prices are an "opportunity" that will actually speed up orders for new aircraft that consume less fuel.

"The high price of oil is speeding up the process of the oldest, least efficient planes being taken out of service because they are no longer profitable," McNerney told the weekly Journal du Dimanche.

"We are already seeing it in the US and it's starting to happen in Europe," he said, adding that the phenomenon was "an opportunity" that "will speed up orders for more recent models, which consume 30%-40% less than the oldest planes still in service."

He also told the paper that Boeing planned to launch a successor to its 737 "at the end of the next decade" with the aim of producing a plane "15% more economical" than existing aircraft.

Hardly was the ink dry on those reports when news emerged that Bombardier Inc. was expected to launch its long-awaited 100-130 seat C Series aircraft—which promises to be 20% more fuel efficient than similar aircraft—ahead of the Farnborough Air Show.

Attractive attributes

Why would that happen? According to industry insiders, it's because the dramatic rise in world oil prices has made the aircraft's fuel-saving attributes even more attractive.

Still not everyone in the airline industry sees a silver lining in the apparent gloom of higher oil prices.

While such manufacturers as Boeing and Bombardier see the silver lining, current airline operators in the US are still staring at the black cloud of high oil prices.

Indeed, a coalition of airline industry and other concerns last week called on Congress to stop what it called "rampant speculation" in the oil market. The 38-member group put the blame on institutional investors, such as pension funds, for buying into commodity index funds.

Said James May, head of the Air Transport Association, Congress should pass laws to put tighter limits on oil trading, and "shed light on this dark market." ✦

MODELING GULF OF MEXICO LOST PRODUCTION—3

Value of production losses tallied for 2004-05 storms

Mark J. Kaiser
David E. Dismukes
Yunke Yu
Louisiana State University
Baton Rouge

In extreme weather, damage to offshore facilities is unavoidable and can take many forms. To better understand the scope of weather risk and catastrophic loss in the Gulf of Mexico, and the factors that impact the redevelopment decisions of operators, we quantify the value of lost production associated with the 2004-05 hurricane seasons under various price and model scenarios. We estimate that the value of lost production from the 2004-2005 hurricane seasons range between $1.3 billion to $4.5 billion, depending upon the scenario assumptions employed. For a future average oil and gas price of $100/bbl and $10/Mcf, the total lost production is estimated to be $3.7 billion. We perform sensitivity analysis, describe the maximum redevelopment cost per structure that will yield a specific rate of return, and discuss the limitations of modeling.

Value of lost production

The decision to repair, replace, or abandon damaged and destroyed infrastructure is determined by several factors. The return on investment that an owner would expect to receive depends upon the cost to fabricate/install a new platform, subsea assembly and/or pipeline interconnection/tieback, as well as the cost of removing/repairing the destroyed/damaged structure, plug and abandonment cost, and the cost to renter/redrill wells. All of these costs are weighed against the potential revenue expressed through the remaining reserves, expected future prices, operating cost and strategic considerations. If the estimated value of future production is less than the expected cleanup and redevelopment cost, then the decision to redevelop the field will either be postponed or not undertaken.

The timetable for decommissioning depends on whether the lease is on production. If the structure is on a producing lease, owners have greater flexibility on scheduling cleanup and decommissioning activities. If the structure is not on a producing leasehold, decommissioning must

LOST PRODUCTION, VALUATION—NORMAL PRODUCERS[1] Table 1

Price deck[2]	Lost production: Oil, million bbl	Gas, bcf	BOE, million bbl	Present value,[3] million $
[2]I	19.4	31.8	24.7	231
II	21.1	37.9	27.5	393
III	22.2	41.7	29.1	561
IV	22.9	44.0	30.2	732
V	23.4	45.6	31.0	905

[1]Estimated. Best-fit curves with R^2 ≥0.75, hurricane destroyed structures with ≥7years production. [2]P(I) = {P^o = $40/bbl, P^g = $4/Mcf}; P(II) = {$P^o$ = $60/bbl, P^g = $6/Mcf}; P(III) = {$P^o$ = $80/bbl, P^g = $8/Mcf}; P(IV) = {$P^o$ = $100/bbl, P^g = $10/Mcf}; and P(V) = {$P^o$ = $120/bbl, P^g = $12/Mcf}. [3]Discount rate = 10%.

LOST PRODUCTION, VALUATION—YOUNG PRODUCERS[1] Table 2

Decline rate,[2] %	Price deck[2]	Lost production: Oil, million bbl	Gas, bcf	BOE, million bbl	Present value[3] million $
a = 0.05	I	78.4	279.8	141.7	1,493
	II	79.1	290.4	144.1	2,288
	III	79.4	396.5	145.5	3,086
	IV	79.6	400.0	146.3	3,885
	V	79.8	402.5	146.9	4,684
a = 0.1	I	38.1	184.2	68.8	1,061
	II	38.5	189.4	70.0	1,634
	III	38.6	192.5	70.7	2,209
	IV	38.7	194.1	71.1	2,796
	V	38.8	195.4	71.4	3,363
a = 0.15	I	24.7	118.7	44.5	811
	II	24.9	122.5	45.4	1,252
	III	25.1	124.6	45.8	1,696
	IV	25.1	125.6	46.1	2,141
	V	25.2	126.5	46.3	2,587

1Estimated. Hurricane-destroyed structures with <7 years production, exponential decline curves with assumed decline rate. [2]P(I) = {P^o = $40/bbl, P^g = $4/Mcf}; P(II) = {$P^o$ = $60/bbl, P^g = $6/Mcf}; P(III) = {$P^o$ = $80/bbl, P^g = $8/Mcf}; P(IV) = {$P^o$ = $100/bbl, P^g = $10/Mcf}; and P(V) = {$P^o$ = $120/bbl, P^g = $12/Mcf}. [3]Discount rate = 10%.

LOST PRODUCTION, VALUATION—CHAOTIC PRODUCERS[1]

Table 3

Price deck[2]	Lost production: Oil, million bbl	Lost production: Gas, bcf	Lost production: BOE, million bbl	Present value,[3] million $
I	2.4	21.6	6.0	50
II	2.7	23.2	6.5	85
III	2.8	24.1	6.8	121
IV	2.8	24.4	6.9	157
V	2.9	24.7	7.0	193

[1]Estimated. Best-fit curves with initial R^2 <0.75, half cycle time horizons and exponential decline with historic decline rate. [2]P(I) = {P^o = $40/bbl, P^g = $4/Mcf}; P(II) = {$P^o$ = $60/bbl, P^g = $6/Mcf}; P(III) = {$P^o$ = $80/bbl, P^g = $8/Mcf}; P(IV) = {$P^o$ = $100/bbl, P^g = $10/Mcf}; and P(V) = {$P^o$ = $120/bbl, P^g = $12/Mcf}. [3]Discount rate = 10%.

LOST PRODUCTION, VALUATION—ALL PRODUCERS[1]

Table 4

Price deck[2]	Lost production[3]: Oil, million bbl	Lost production[3]: Gas, bcf	Lost production[3]: BOE, million bbl	Present value,[4] million $
I	59.9	230.5	99.5	1,342
II	62.3	250.5	104	2,012
III	63.6	258.3	106.6	2,891
IV	64.4	262.5	108.2	3,684
V	65.1	265.7	109.4	4,460

[1]Estimated. Normal, young, and chaotic producers (sum of Tables 1, 2, and 3). [2]P(I) = {P^o = $40/bbl, P^g = $4/Mcf}; P(II) = {$P^o$ = $60/bbl, P^g = $6/Mcf}; P(III) = {$P^o$ = $80/bbl, P^g = $8/Mcf}; P(IV) = {$P^o$ = $100/bbl, P^g = $10/Mcf}; and P(V) = {$P^o$ = $120/bbl, P^g = $12/Mcf}. [3]For young producers, we assume the model output for a = 0.1 [4]Discount rate = 10%.

be completed within one year after production stops or the owners must find an interested buyer for the property.

We do not attempt to estimate clean-up and redevelopment cost for the hurricane destroyed structures, since these are site-specific, require specialized knowledge to perform, and are subject to significant uncertainty. Instead, we focus on the potential value of the lost production, since this is more accessible and can be estimated with reasonable certainty. Estimating the value of lost production provides an upper bound for the amount of money an owner would be willing to spend to redevelop an asset on a stand-alone basis.

MAXIMUM TOTAL INVESTMENT[1]

Table 5

Production type	Price deck[2]	IRR = 10%	IRR = 15%	IRR = 20%	IRR = 25%
		Million $			
Normal	I	231	185	155	133
	II	393	313	261	225
	III	561	446	372	320
	IV	732	581	484	416
	V	905	717	598	513
Chaotic	I	50	98	84	74
	II	85	158	136	119
	III	121	218	188	164
	IV	157	280	240	210
	V	193	341	292	255
Young	I	1,342	853	712	611
	II	2,012	1,310	1,093	937
	III	2,891	1,769	1,474	1,263
	IV	3,684	2,228	1,856	1,590
	V	4,460	2,688	2,238	1,917

[1]Yields a specific rate of return (million $). [2]P(I) = {$P^o$ = $40/bbl, P^g = $4/Mcf}; P(II) = {$P^o$ = $60/bbl, P^g = $6/Mcf}; P(III) = {$P^o$ = $80/bbl, P^g = $8/Mcf}; P(IV) = {$P^o$ = $100/bbl, P^g = $10/Mcf}; and P(V) = {$P^o$ = $120/bbl, P^g = $12/Mcf}.

MAXIMUM REDEVELOPMENT COST PER STRUCTURE[1]

Table 6

Production type	Price deck[2]	IRR = 10%	IRR = 15%	IRR = 20%	IRR = 25%
		Million $/structure			
Normal	I	7.4	6.2	5.2	4.4
	II	10.6	8.9	7.5	6.4
	III	13.8	11.4	9.5	8.2
	IV	17.5	14.5	12.1	10.4
	V	21.3	17.9	14.9	12.8
Chaotic	I	12.4	10.8	9.4	8.2
	II	20.3	17.5	15.1	13.2
	III	28.4	24.3	20.8	18.3
	IV	36.5	31.1	26.6	23.3
	V	44.7	37.9	32.4	28.3
Young	I	60.0	50.2	41.9	36.0
	II	92.6	77.1	64.3	55.1
	III	112.5	93.1	77.6	66.5
	IV	140.5	117.3	97.7	83.7
	V	171.3	141.5	117.8	100.9

[1]Yields a specific rate of return (million $/structure). [2]P(I) = {$P^o$ = $40/bbl, P^g = $4/Mcf}; P(II) = {$P^o$ = $60/bbl, P^g = $6/Mcf}; P(III) = {$P^o$ = $80/bbl, P^g = $8/Mcf}; P(IV) = {$P^o$ = $100/bbl, P^g = $10/Mcf}; and P(V) = {$P^o$ = $120/bbl, P^g = $12/Mcf}.

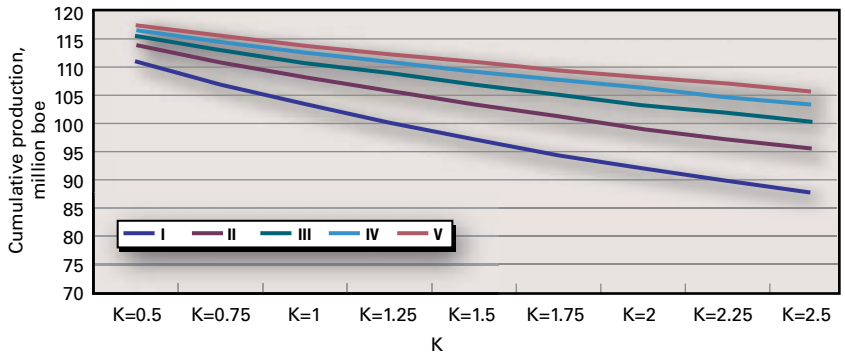
Lost production and valuation

For each destroyed structure, we forecast future production and abandonment according to the model specification described in Part 2. Production is valued at a constant oil and gas price across the life cycle of each asset under five scenarios. We break out the production forecast and valuation for structures that yielded an acceptable initial model fit—normal producers (Table 1); structures with less than 7 years production history—young producers (Table 2); and structures that required additional processing to yield an acceptable decline model—chaotic producers (Table 3). Model results for all three categories are subject to uncertainty, but the later two asset classes—and especially young producers—are considerably more uncertain than normal producers. The aggregate forecast and valuation is summarized in Table 4.

For the normal producer class, the amount of lost production is reasonably sensitive to the price deck (Table 1), while for the early and chaotic producers, the variation in production output is less sensitive (Tables 2, 3). The likely explanation for this is due to the nature of the models employed in Table 1 (which includes exponential, harmonic, and hyperbolic curves), relative to the assumed (exponential) decline forms employed in Tables 2 and 3. Most of the value of future production is contained with the early producers, both by virtue of their higher production rates and longer anticipated production cycles. It is interesting to note that across all producing structures, the amount of lost production is only slightly sensitive to the price deck, while the valuation estimates are highly sensitive. This is

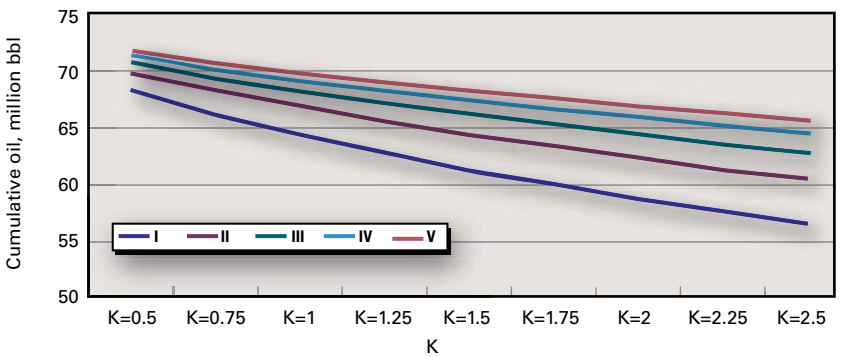
CUMULATIVE PRODUCTION BY THRESHOLD LEVEL AND PRICE SCENARIO

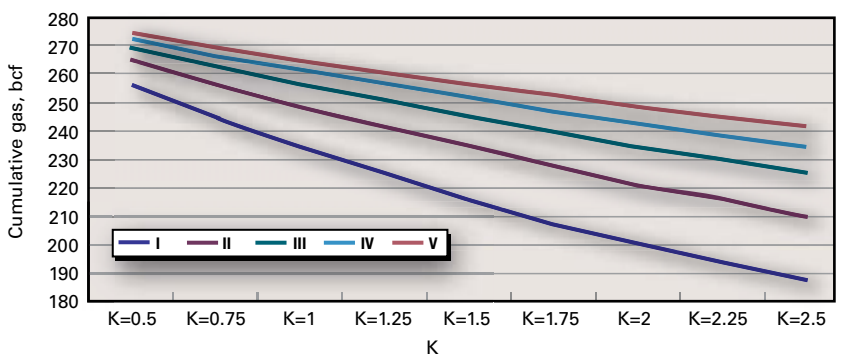
Fig. 1



CUMULATIVE OIL AND GAS PRODUCTION

Fig. 2





primarily due to the mature nature of the producing properties—a high price deck may delay the economic limit, but does not play a significant role in contributing to additional quantities of production because of the high fixed cost associated with offshore operations. In Table 2, as decline rates increase, production drops more quickly, decreasing the reserves estimates.

Rate of return calculation

The aggregate present value of each structure's cash flow stream for each price deck is shown in Table 5 under variable discount rates, extending the valuation estimates provided in Tables 1-4. The values represent the maximum capital investment in total that owners would be able to spend to provide a specified return. For a given price deck, as the rate of return increases, the allowable capital expenditures will necessarily decrease. As the price deck increases, the revenue from production will increase, and with it the total expenditures that can be spent to achieve a given return. Thus, as we proceed down a given column, the maximum allowed investments increase, and as we proceed across a given row, the maximum allowable investment decreases. The redevelopment cost per structure that yields a specific rate of return is shown in Table 6.

Average redevelopment costs

Average redevelopment costs provide insight into the cost equation facing operators. Consider an operator with price deck P(III) = {P^o = $80/bbl, P^g = $8/Mcf} and a desired IRR of 15%. An "average" gulf operator could spend $11.4-24.3 million to achieve a 15% return, while an operator with a young producer could spend as much as $93.1 million on redevelopment and cleanup. An operator that required a 25% return would have a more constrained capital budget, ranging from $8.2-18.3 million (for normal/chaotic producers) to $66.5 million (for young producers). Structures early in their production cycle, by virtue of their reserves potential and expected number of years of remaining production, can spend significantly more capital for redevelopment. The results in Table 6 represent average cost but can, of course, be specialized to individual assets.

Sensitivity analysis

There are many uncertain factors in production and valuation estimation that are not directly amenable to analysis. Commodity price level was considered explicitly by using price deck scenarios, and for early producers, we illustrated the impact of changes in the assumed decline rate (Table 2). Additional parameters that impact the cumulative production and valuation estimate is the threshold used to determine when production will no longer be commercial and the discount factor used in the cash flow analysis. We vary

Model limitations and constraints

Production data are extracted from public domain sources, and so it is not possible to fully identify those factors which make each property unique. We are thus limited in our ability to understand why structures produce in a particular way without detailed, site-specific information.

Our ability to infer production trends from curve fitting exercises is similarly limited, and hence our results are only indicative of general trends, and should only be interpreted in this manner.

Inventory may change

We only considered those structures that were destroyed in the 2004 and 2005 hurricane seasons. An additional 76 structures were severely damaged, and some of these may not return to producing status.

Conversely, early producers and those structures with a sufficient amount of remaining reserves may be redeveloped in the future, which would subsequently reduce the quantity and value of "lost" production reported. We assumed that all idle structures will not return to producing status. This is believed to be a reasonably good assumption, but we recognize that in special cases some idle structures may have returned to production status if they were not destroyed.

The impact of damaged or destroyed infrastructure that served as an active conduit, link, or hub for other producing structures was not assessed.

Stable conditions

Decline curve analysis is an empirical technique that relates production data with one or more attributes, such as time, cumulative production, reservoir pressure, etc. Empirical equations fit data to assumed model forms, and do not include most of the factors that affect past, present, or future performance.

Extrapolating the results of an empirically-derived equation to the future assumes that all the factors affecting performance in the past have exactly the same cumulative effect in the future. This is a strong, and certainly, questionable assumption. The use of decline curves necessitates assumptions regarding operating policy, field investment, mechanical problems, marketing issues, and the occurrence of exogenous events.

The collective set of all these conditions are assumed constant for all future time and are referred to as "stable reservoir and investment conditions." Changes to any of the above-named factors have the potential to dramatically change both the production rate and reserves, which will impact the forecast results.

Decline curve reliability?

The production rate of a well, group of wells, structure, lease, field, or other aggregation unit can be fit to any functional form or curve type. The function may fit the observed data so well that the user may consider it to be an accurate and reliable predictor of the future.

Such a conclusion would, of course, be a serious mistake, since many other factors that we cannot control or directly account for will impact production levels. The ability to forecast is severely restricted by conditions that are both unobservable and unpredictable.

Stage of production

The stage of production of an asset is often used as a rough indication of the amount of uncertainty that can be expected in forecast models, but such indicators are often ambiguous and should be used with caution. Early in the life of a field, little is known about the extent, quality, and drive mechanisms of the reservoir, and at this time, reserves estimates and production forecasting is the most uncertain.

As a field is developed and production performance accumulates, the range of error often decreases, assuming no change in investment strategy. For mature assets, forecasting is considered less uncertain because a smaller number of factors influence production and dwindling remaining reserves are likely to be irreversible.

"Less uncertain" is not certainty, however, and there is still a large degree of unpredictability that can occur near the end of the life cycle of production. Offshore production has different economic characteristics than onshore production, where fixed costs are smaller and production profiles tend to decline at smoother rates.

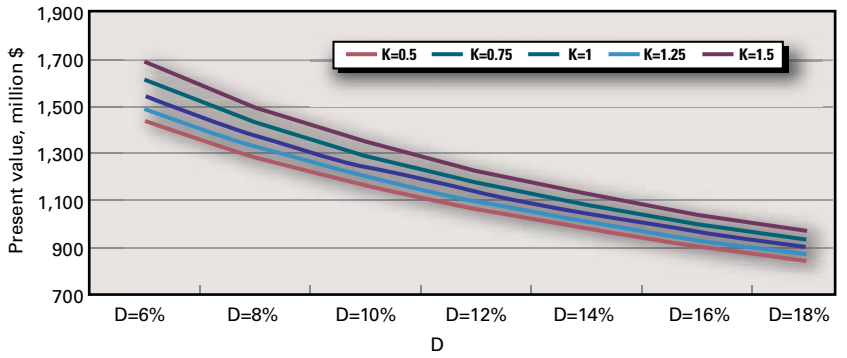
In offshore operations, production levels tend to be chaotic throughout the life of the field, and smoothly declining profiles near the end of production are not common, exacerbating the difficulty associated with forecasting abandonment timing.

the economic limit and the discount rate across all structures to determine the degree to which changes in these factors impact the model output.

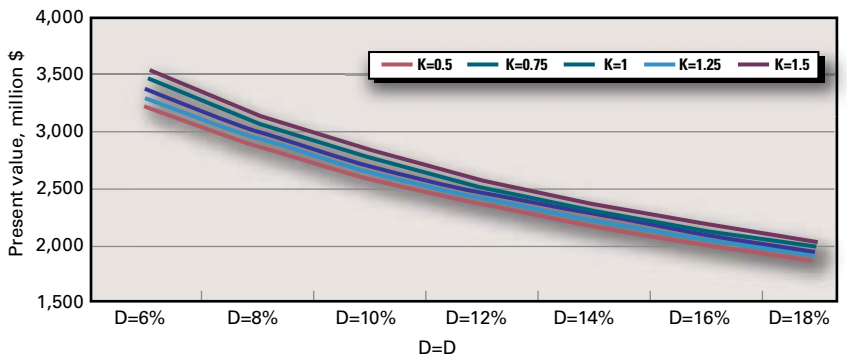
The change in cumulative oil, gas, and barrels of oil equivalent production across five price scenarios as a function of changes in the threshold level are depicted in Figs. 1 and 2. In these illustrations, the economic limit $\tau_a(s)$ is multiplied by the factor k, $k \geq 0$, and as the value of k increases, $k \cdot \tau_a$ will increase, causing the economic limit to occur at an earlier time, reducing cumulative production and valuation estimates. The greatest change in cumulative production occurs at low price decks.

The sensitivity of the present value to changes in the discount rate is shown in Fig. 3 for the price deck P(I) and in Fig. 4 for the price deck P(III). As k and D increase, present value decreases. Similar figures can be broken out for each

PRESENT VALUE AT PRICE DECK P(I) Fig. 3



PRESENT VALUE AT PRICE DECK P(III) Fig. 4



price deck and producer class category.

Next week: The authors describe the use of a more sophisticated, and in many respects, more useful technique to explore sensitivity analysis and the complex interactions of assumptions on model output. ✦

Madagascar

Niko Resources Ltd., Calgary, will take a farmout from private EnerMad Corp. and become operator of the Grand Prix production sharing contract area in the Morondava basin off west-central Madagascar.

Niko is to earn a 75% interest by funding 3,000 sq km of 3D seismic in early 2009 and drilling as many as two exploration wells on the 16,845 sq km block shallow to 1,500 m of water in the Mozambique Channel.

Niko said the block has multiple play types in rocks of Triassic, Jurassic, Cretaceous, and Tertiary age. The companies are reprocessing 7,600 line-km of 2D seismic. The deal is subject to OMNIS approval and the signing of definitive agreements.

Alberta

Advantage Energy Income Fund, Calgary, hiked its 2008 capital budget by $55 million to $200 million, mainly to fund Devonian Montney shale drilling at Glacier in northwestern Alberta.

Advantage drilled five vertical Montney delineation wells in the quarter ended Mar. 31, 2008, in the area, which is adjacent to the Swan Lake and Tupper pools.

The Glacier property is accessible most of the year, and rigs are secured.

The fund plans to spend $39 million at Glacier to drill five gross horizontal wells, five gross vertical delineation wells, and start a gathering system. It averages 93% working interest in 83 sections.

Quebec

Gastem, Montreal, obtained a permit to explore the Magdalen Islands in the Gulf of St. Lawrence north of Canada's Prince Edward Island.

The permit covers 20,000 ha held by Quebec in the Magdalen basin. The area contains saliferous structures similar to those found in the Gulf of Mexico, that originate from evaporates of the Lower Carboniferous Windsor Group, Gastem said.

The Upper Carboniferous rocks, consisting of interbedded sandstones and shales, are cut by these structures, creating a potential combination of traps and reservoir rocks for the natural gas generated in the underlying formations.

Texas

East

Saxon Oil Co. Ltd., Dallas, said it has 18-23% working interest in 1,273 gross acres in Panola and Rusk counties, Tex., in the emerging Lower Bossier/Haynesville shale gas play.

The acreage, operated by Comstock Resources Inc., Frisco, Tex., is held by production from 11 Cotton Valley limestone wells in Oak Hill, North Tatum, and Carthage Northwest gas fields. Comstock has not proposed Haynesville drilling, Saxon said.

The holdings are 15 miles west and southwest of the Penn Virginia Corp. 5H Fogle well in Harrison County, where the initial test rate was 8 MMcfd from Haynesville with 5,000 psi flowing casing pressure (OGJ, June 16, 2008, p. 39).

Saxon noted that 12 rigs are running and at least 10 horizontal wells have been drilled in the Haynesville play in 14 counties in East Texas and North Louisiana. Louisiana has reportedly leased several tracts in DeSoto and Caddo parishes at $27,000-28,000/acre with 27.5-30% royalty.

RFID applications spread in upstream operations

Nina M. Rach
Drilling Editor

Many different industries use radio frequency identification (RFID) technology, but it is a late arrival in the oil field. RFID systems have been incorporated into seismic acquisition systems since the 1990s, but there has been surprisingly little use of this rapidly evolving technology in drilling and production.

RFID systems are wireless and include tags, readers, antennas, and an associated computer network. RFID tags are either passive (no battery) or active (battery-powered). RFID readers must interface with the tags and with the business network.

RFID tags are made of many different materials, are embedded within or attached to components, and can be used for identification, tracking, quality control, or monitoring ambient conditions, alone or in combination with other sensors.

RFID technology allows remote retrieval of information from sensors. It does not require a line-of-sight view and the process can be automated. Tag reading is quick and tags can be rewritten and reused.[1] Tags can store a variety of information, differentiating them from simple barcode systems.

There are applications in manufacturing, supply chain, and field operations:[1]

- Casing and drill pipe quality control and traceability.
- Zonal isolation valve actuation.
- Perforating gun actuation.
- Geospatial fencing (derrick floor, manufacturing yard, refinery).
- Sensor networks (derrick floor, manufacturing, refining, transportation).
- Supply chain visibility (procurement, across-production, transportation).

In the last several years, operators have tested land and offshore RFID applications, and recently, RFID material tolerance to 12,000-ft subsea.[2]

Slow implementation?

Many innovative oil field technologies are first implemented offshore, where incremental improvements in safety and efficiency often have immediate economic payouts, or meet a pressing regulatory need or company mandate. As components become more commonplace, economies of scale in their manufacture often make the components more affordable for land operations.

New technologies need to be easy to use, capable of surviving extreme working conditions (downhole, subsea), cannot interfere with operations, and ultimately, prove cost-effective.

Possible reasons for slow implementation of RFIDs in the oil and gas industry are:

- Inconsistent readability. An RFID tag's placement and ambient environment affects its readability. Metal surfaces interfere with radio signals (detuning); early systems did not always account for this. Newer, successful systems are limited to certain frequencies (e.g. UHF metal-tuned tags).[1] Using tags under water can be problematic because liquids absorb radio-wave energy and decrease read range.
- The return on investment that is not immediately quantifiable.

Mixing RFID and oil creates competitive advantage

Ben Zoghi
Texas A&M University
College Station, Tex.

The RFID Oil & Gas Solution Group, a consortium of industry and universities based in Texas, offers research, study, and pilot deployment services to help improve automation, identify and control equipment, assets, tools, and related processes used in the oil and gas and petrochemical industries. The consortium is organized to help industry analyze how RFID is best deployed to improve visibility and control of assets, equipment, spares, tools, vehicles, and manpower.

RFID technology has a proven track record in many vertical industries, including retail, pharmaceutical, medical, automotive, and security. These industries have a problem in common with the oil and gas sector: asset tracking. A special challenge in oil and gas is that some assets are hard to tag and even harder to track because of their size and geographic placement.

RFID is a technology that can provide the right product at the right place at the right time. In addition to asset tracking, RFID has the potential to improve efficiency and visibility, cut costs, prevent theft and counterfeiting, monitor efficient maintenance scheduling, manage assets, increase security, monitor environmental conditions for health and safety, and maximize productivity with just-in-time spare replacement, while reducing downtime.

Framework

The core of the system is built around RFID tags (transponders), RFID readers, host computer, and software. Each tag sends its data periodically via a radio signal to RFID readers. The transmitters can be placed anywhere that movement-tracking adds value to the commercial process.

An RFID reader cross-references the tag's data within the reader's database. After the reader receives new data, it sends the data to the host. The readers and the host communicate through a secure wireless link. RFID links the physical world to the digital world without any human interaction. Whatever actions are then triggered will depend on the individual application.

RFID is best viewed as part of a broader spectrum of sensor-based technologies, such as barcodes and magnetic striping, as well as integration with sensors for such things as temperature, position, vibration, and moisture. RFID capability must be part of a comprehensive technology and applications infrastructure that can collect events from disparate sources, combine the data into composite transactions, and then automatically trigger the appropriate business process.

RFID technology is at the heart of rapid mustering systems used during safety drills or incidents, as shown here on a Statoil platform in the North Sea (photo from Salem Automation Ltd., Fig. 1).

The cost of RFID tags is based on the read range and storage capacity. Passive tags have a read range up to 40 ft, typically contain 128 bit, and up to 1,024 bit data, and cost $0.05-$5.00, making them both cheap and disposable. Active tags contain batteries and can store megabytes of information.

The battery boosts transmission power and allows active tags to be read from greater distances, hundreds to thousands of feet away. Active RFID tags cost $20-100.[1]

Deep sea test

Houston-based Wescorp Energy Inc. recently announced the results of the first test deployment of RFID tags to 12,000 ft in the Gulf of Mexico.[2]

Working with two US-based engineering companies, Wescorp specially designed, passive, UHF, EPC Gen 2 RFID tags sealed in medical-grade plastic casings, pretested them to 8,000 psi, and attached them to precision sonobuoys. The sonobuoys were sent to the bottom of the gulf, 12,000 ft subsea, and stayed submerged for 4 months while linked to floating radio transmitters.

Wescorp read the tags with a handheld Motorola RFID interrogator before and after the deployment. Scott

There is no doubt that RFID technology presents massive potential for creating competitive advantage. Oil and gas companies will find that incorporating these technologies into their information infrastructure and integrating them into their business processes will provide substantial business benefits.

RFID is being used throughout the distribution network from managing trucks down to actual shipments. RFID is being used to track the movement of trucks to ensure optimum use of expensive capital and labor. Key assets are being tagged and tracked throughout the entire oil and gas distribution supply chain. RFID is also well suited for tagging parts that have to be maintained to predetermined routines. Many fleet operators are turning to RFID to make sure such repairs and maintenance are done on schedule but only when required or specified.

Roadmap

The next step is to develop a roadmap for RFID implementation. This should include RFID pilot projects, which allow companies to capture and analyze data out of the box, test new devices and filters, and perform custom, advanced data analysis. After the pilot project, operators should be ready to integrate with existing enterprise systems and deploy RFID in the field.

From there, the next move is to develop RFID-enabled applications and integrate RFID data into existing applications.

There are several current uses of RFID in the oil and gas industry:

- During the assembly of pipe joints, RFID is proving to be a more reliable way of ensuring the right parts and torque pressures are used, rather than the traditional although bar code system. RFID tags can withstand harsh conditions and remain operable long after bar codes would have been washed or worn away.
- Refinery operators continually look for ways to ensure that their processes meet safety and audit requirements. RFID can assist refinery operators to identify key inspection points and provide the audit trail required to meet audit standards.
- RFID sensors can monitor machines and equipment to detect possible problems and deliver safety features in wells.

RFID technology can also be used to ensure the safe transit of materials, from tracking transfers between authorized handlers, to limiting entry of personnel to specific locations.

The author

Ben Zoghi (zoghi@tamu.edu) is a professor and the director of the Oil and Gas RFID Solution Group Consortium at the Dwight Look College of Engineering at Texas A&M University, College Station. Zoghi holds a BS (1982) in electrical engineering from Seattle University, an MS (1986) in electrical engineering from Ohio State University, and a PhD (1993) in bioengineering and electrical engineering from Texas A&M University. He is a registered professional engineer in Texas.

Shemwell, Wescorp's chief operating officer, said the tags were readable and remained in excellent condition after exposure to salt water, low temperature, and high pressure.[2]

Shemwell told OGJ the RFID tags were circular, about 1.75-in. diameter, and designed to be mounted with a bolt on a hoisting swivel. The RFID components—transducer and antenna—met ISO/IEC 18000-6 industry standards.

The RFID test was part of Wescorp's ongoing development of its intelligent field resource management solution, designed to help companies track industrial and oil field equipment.

Offshore applications

RFID tags have been used for at least a decade in seismic streamers. New tags are about to go to work at depths up to 500 m.

Houston-based Global Geophysical Services Inc. recently purchased an ocean bottom hydrophone cable (OBC) acoustic positioning system from Sonardyne International Ltd.[3] The system includes 1,500 cables, each 75 m long, and 1,650 acoustic transponders, each of which will carry an RFID tag. The RFID system will be used to log

RFIDs are used in wrist tags and neckband tags, as shown here for BP (photo from Salem Automation, Fig. 2).

University researchers track metal oil field products with RFID tags

Thomas C. Chen
University of Houston
Houston

Piping Technology & Products Inc. manufactures various metal piping products, such as pipe shoes, pipe hangers, expansion joints, slide plates, etc. for the oil and gas industry. The Houston-based company, in business since 1975, planned to purchase RFID tags to attach to these metal products shipped to their clients' construction sites. Because the tags would be used in an industrial setting, they needed to be weather resistant and survive harsh environments. In addition, they have to function with large amounts of metal structure surrounding the products. The tags needed to have a long read-range so they could be effectively read when 100 ft above ground, for example.

What type of RFID tag should this company use to fulfill their operational requirements? The RFID and Sensor Research Laboratory at the Industrial Engineering Department, University of Houston, was asked to answer this critical question.

The company had two RFID operational requirements:

1) To track inventory in pallets when products are shipped to customers.

2) To track individual products attached with RFID tags to be stored and located at various areas of a construction site for installation or part replacement.

Researchers in the RFID and sensor research laboratory of the University of Houston's industrial engineering department tested pallet-level tracking of metal oilfield products with a mobile reader (Fig. 1).

Testing

We used two types of RFID tags, passive and active, for testing the two requirements: pallet-level tracking (Fig. 1); and item-level tracking. We conducted the tests at University of Houston's mockup RFID lab as well as at the company's manufacturing floor. In addition, the tests of field movement tracking and monitoring of individual products with RFID tags attached were also conducted at a customer's construction site.

After conducting several tests with different piping products and at various locations, we concluded that:

1. Passive RFID tags with foam back-

the transponders as the cables are deployed from the survey ship.

Global Geophysical is using the new OBC in a 1,000 sq km, shallow-water seismic survey off India for ONGC.[4] Global began the survey in January 2008 after mobilizing two of its transition zone ships from the US—the Vision and the Quest—and six other vessels. The survey is primarily across the Gulf of Khambhat on the western coast of India, southeast of the Kathiawar Peninsula, according to Richard Degner, president of Global. The equipment was designed to withstand 6-m tidal changes and associated 3-4-knot currents.[4]

Sonardyne's streamer asset tracking system uses RFID tags to automatically record the serial number of each section of cable as it passes onto and off a vessel. Passive RFID tags are fitted into the two end terminations of each separate streamer section. RFID readers are installed on fairleads that handle streamers as they are deployed over the stern. The RFID antennas were designed to be small and non-intrusive and are built directly into the fairlead. As each tag passes through the fairlead, the antenna energizes the tag and it responds with the unique serial number of the section.

Individual ID tags containing RFIDs are read at muster stations; example from Statoil (photo from Salem Automation, Fig. 3).

At the Unmanned Undersea Vehicle Showcase, Southampton, November 2006, UK-based CDL Ltd. demonstrated an RFID-based system that could electronically identify valves and other objects on the seafloor (www.uuvs.net). The system included a subsea interrogation antenna moving on a track in seawater, reading passive RFID tags. The company noted that large seafloor installations can contain more than 1,000 individual valves, difficult to distinguish

ing work extremely well for metallic products. Although a 100% reading rate was achieved, the reading range is only about 10-15 ft, which therefore limit its application only to short range reading application, such as pallet level tracking.

2. Active RFID tags work well in harsh environments. The reading range is 100–300 ft depending on product memory size and vendor. In addition to the fast reading speed, data in transit can also be stored on the tag, and uploaded to a computer server whenever a wireless communication is available and established. Active RFID tags are more applicable for long-range reading applications, such as item level tracking (both on the ground and above the ground), field movement tracking and monitoring of individual product.

Opportunities

Throughout the study of this RFID application, we identified many constraints and opportunities. The first requirement is to find a proper location to install and house an RFID reader. While any RFID tag can be enclosed with a temperature and moisture-proof casing, an RFID reader is harder to protect from heavy rain and hot weather.

The second requirement is the need to handle millions of data points from RFID tags. Hundreds or even thousands of products must be tracked, monitored, and managed. Advanced technology, such as real-time data synchronization and a fusion engine under development at the University of Houston, will be a possible solution.

Many field operators expressed the desire to incorporate a GPS chip into an active RFID tag. Although the cost factor might currently prevent this product enhancement to be widely adopted, the time will come when GPS chips become a commodity and then this advanced feature will be integrated into RFID tags.

Another opportunity identified during the study is to use Wi-Fi (IEEE 802.11)-based RFID tags, instead of regular active RFID tags, for item level tracking. Any 802.11-compatible wireless access point or router used for regular PCs with proper adapter can also be used to read this type of RFID tag. A typical outdoor 802.11n-series access point or router might have 5,000 ft or greater coverage, according to some vendors, and is more suitable for reading Wi-Fi-based tags at wide open construction sites.

The author
Thomas C. Chen (tcchen@uh.edu) is a research professor in the department of industrial engineering at the University of Houston and director of the RFID and Sensor Research Laboratory. He holds a BS (1968) in industrial engineering from Tunghai University, Taiwan; an MS (1971) in industrial and systems engineering from the University of Pittsburgh; and a PhD (1976) in industrial engineering and management from Oklahoma State University. Chen is a registered professional engineer in Texas.

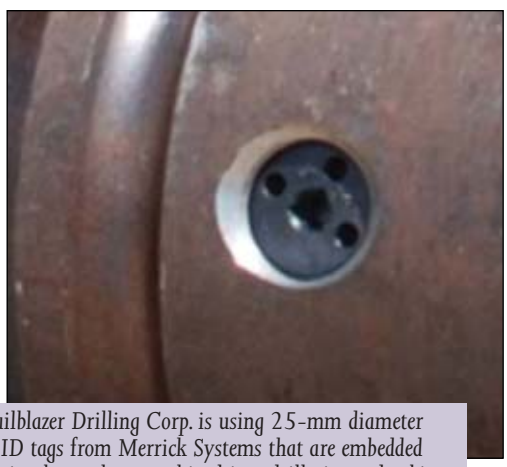
and manipulate remotely in low-visibility conditions.[5]

Rapid mustering

Operators have been using RFID systems for personnel tracking and mustering on offshore platforms in the North Sea, Irish Sea, and the Gulf of Mexico (Figs. 1-3).

Several operators have installed RFID-based personnel tracking and e-mustering systems from UK's Salem Automation Ltd.:

- Statoil ordered the Lifeboat e-muster system for its Statfjord A, B, and C platforms in the Norwegian North Sea.[6]
- BHP Billiton has the RFID-based S3PT personnel tracking and S3MS rapid mustering systems on platforms in the Irish Sea, Gulf of Mexico, and Trinidad and Tobago.
- BP Norge has the systems on its Valhal platform in the North Sea and Forus office, Stavanger, Norway.



Trailblazer Drilling Corp. is using 25-mm diameter RFID tags from Merrick Systems that are embedded in circular pockets machined into drill pipe and tubing strings (photo from Merrick Systems, Fig. 4).

- Elf Norge uses the systems at its Frigg complex in the Norwegian North Sea.

Personnel tracking systems interface with shore-based heliports, platform travel management systems, and with the rapid mustering system, according to Salem Automation.

GoM supply chain

RFID tags are among the supply-chain innovations incorporated by the retail segment, while "the downstream industry's supply-chain capabilities have languished under outdated processes and inadequate technology" (OGJ, June 5, 2006, p. 49).

ChevronTexaco Gulf of Mexico Exploration and Production Co. operates more than 100 drilling or production platforms in the Gulf of Mexico, supplied by three onshore warehousing and shipping terminals. The company wanted to improve the efficiency and accountability of shipping and receiving supplies, and studied the feasibility of RFID technology in a pilot project based at its onshore terminal in Venice, Fla.[7]

ChevronTexaco worked with the

Industry needs to develop RFID interoperability standards

Gary M. Gaukler
Texas A&M University
College Station, Tex.

To date, RFID in the oil and gas industry has not been used as ubiquitously as in other fields. The reason for this lack of adoption is not that there are no good applications here; quite to the contrary, according to results of a detailed mapping of RFID opportunities in the oil and gas industry that we recently performed at the RFID and Supply Chain Systems Lab at Texas A&M University.

What is the reason for this disconnect? Two factors are crucial: a lack of a clear and quantitative understanding of benefits, and a lack of well-defined standards that would make RFID interoperable among the oil and gas industry.

For our analysis, we focused on applications of RFID for drilling equipment such as casing tubing, drill pipe, collars, and couplings. The reason for this choice was that preliminary analysis indicated that a majority of benefits and majority of potential complications would occur in this area.

For drilling equipment, we can roughly classify benefits as traditional asset tracking and industry-unique rig applications. Traditional asset tracking solutions applied to the drilling equipment supply chain mean tagging individual casing, pipe, or collars to achieve visibility across the supply chain from manufacturing to distribution to the rig. Besides the minor complication of having to attach and successfully read RFID tags to metal objects, this is a well-understood process that can be readily adapted from best practices in other industries.

RFID at the rig

First, RFID tags can be used to ensure integrity of the drill string. Tags can monitor workers: using the designated drill pipe in the correct position, using the correct coupling and collars, inserting the right casing, etc. This is accomplished via RFID tag reads of the drill pipe and comparison of that drill pipe's specifications (cross-linked via the tag identifier to a database) before the pipe is connected and run downhole.

Second, using RFID tags can improve the inspection and recertification process of used drill pipe. This is an important aspect because stress cracks may appear suddenly and visual inspection is not a reliable indicator of future pipe performance. A complementary and perhaps better indicator is to use history information on the drill pipe (e.g., hours used, environmental factors, position in drill string) to predict the expected remaining lifetime. Staff can extract this history data on individual drill pipe from RFID data logs.

An industry standard is needed to ensure interoperability of tags (for example, embedded in drill pipe) with the RFID systems along the supply chain and at the rig.

Requirements

Establishing an RFID interoperability standard should address:

- Tag and reader design—casing that can withstand environmental stresses.
- Tag application—where and how to embed the tag.
- Tag data storage—what data need to be stored on a tag. This is not trivial. Problems with network connectivity at rigs in remote locations suggests that a unique identifier cross-referenced to a central database, as in the EPC Global retail standard, may need to be complemented by additional on-tag read and write fields.
- Air interface between tag and reader. This may be different for different applications and dual-mode tags.
- Interface between tag and sensors—temperature, pressure, salinity, etc.

Our study suggests that the business case for RFID in oil and gas is there—in particular in today's environment characterized by a renewed emphasis on process efficiency. Now it's time to launch the discussion about standards.

The author
Gary M. Gaukler (gaukler@tamu.edu) is an assistant professor in the Department of Industrial and Systems Engineering at Texas A&M University and is the director of TAMU's RFID and supply chain systems lab. He is a supporting member of the oil and gas RFID solution group standards development board and has published in academic and business journals on the topics of RFID in retail, inventory control, supply chain management, and manufacturing. Gaukler holds a BSc (1998) in engineering and management science from Universität Karlsruhe, an MS (2000) in industrial and systems engineering from Georgia Institute of Technology, an MS (2003) in operations research from Stanford University, and a PhD (2005) in management science and engineering from Stanford.

Fiatech consortium and Boulder, Colo.-based Phase IV Engineering on the pilot. In March-April 2004, the pilot tracked nine deliveries containing a total of 136 tagged items. The pilot used Phase IV Engineering's CargoWatch battery-powered (active) RFID tags. These operate at 433.92 Mhz, have a read range of 60-150 ft, and 500 kb of memory.[7]

To read the tags, ChevronTexaco staff used Intermec's 740A handheld computers, retrofitted with Phase IV's own customized reader. Data from the tags was read three times: on the shipping dock, after loading on the vessel, and after unloading on the platform, and then incorporated into three corresponding manifests; a shorebase dock roll call, shipped boat roll call, and received platform roll call. All roll calls were compared automatically on the handheld computers and downloaded to PCs.

PennWell

Are you prepared? Don't miss Offshore's Hurricane Preparedness Webcast

Hurricane preparedness: The latest guidelines and lessons learned

On July 23rd, Offshore Magazine will again host a webcast of interest to any company with offshore operations. A number of API recommended practices have been or are being revised to reflect insights gained from review of operational practices, experiences, and lessons learned from recent hurricanes. The webcast and article (to be published in the August issue of Offshore) will summarize the progress and current status of these initiatives, with a focus on:

MODU Moorings	Production Systems	Metocean Conditions
API RP2 SK	Tension Leg Platforms (API RP 2T)	Bulletin 2INT-MET 1st Edition, Addendum 1
API RP2I	Floating Production Systems (API RP 2FPS)	API RP2 MET

Webcast panel of industry experts, includes:

David J. Wisch, Chevron Fellow, Chevron Energy Technology Co.
James D. Stear, Ph.D., Staff Research Scientist, Chevron Energy Technology Co.
Dave Petruska, D.Sc., Technical Authority, BP
W. R. (Bob) Wolfram, Floating Structures and Marine Terminals, ExxonMobil Development Co.
Steve Leverette, Ph.D., Manager of R&D, SBM - Atlantia

SPONSORS INCLUDE:

INTERMOOR

Versabar

HALLIBURTON

Wednesday July 23rd Noon (CST)

Register today to participate in this timely and informative live webcast at:
www.iian.ibeam.com/events/penn001/27020 **or:** ***www.offshore-mag.com*** (webcast section).

Offshore

Fiatech summarized the results of the pilot in a 35-page report, "Materials and Asset Tracking Using RFID," in which it stated that RFID technology was "relatively easy to implement and functioned well, even in harsh marine conditions."

Drilling

Trailblazer Drilling Corp., a division of Savannah Energy Services, is using new RFID tags from Merrick Systems to track drill pipe and other surface and subsea equipment. Trailblazer can tell where and when each joint has been used. When this information is combined with operational data, the pressure, temperature, depth, mechanical stresses, and chemicals to which it has been it has been exposed.[8]

Houston-based Merrick embeds its RFID tags in circular pockets machined into drill pipe and tubing strings (Fig. 4). Each joint of pipe has three RFID tags embedded in the shoulders of the tool joints—two at the pin end and one at the box end (Fig. 5). Three tags allow for equipment reads in a variety of physical situations and each tag contains a unique ID number associated with a particular joint of pipe. Drillers capture the tag ID number with a handheld reader on the drill floor.

The Merrick tags are about 25 mm in diameter, encased in Victrex PLC's PEEK (polyetheretherketone) polymer to provide a reliable installation form and to protect them from chemical exposure.[8]

Merrick entered the drilling market in 2005 and developed its own passive RFID tag with a 125 khz chip, compliant with ISO standard 18000-2. Merrick has tested the tags to 22,500 psi at Mohr Labs; they are continuously rated to 20,000 psi and 360° F. and are readable through a heavy coating of drilling mud, grease, cuttings, and other materials.

A small, circular pocket containing an RFID tag is visible on the left side of the tool joint shoulder, coated with drilling mud (photo from Merrick Systems, Fig. 5).

In 2007, Merrick began offering a full RFID system, which includes HP IPAQ-based handheld computers with RFID readers and operations software with WITSML integration, to third-party system integrators. By the end of this year, Merrick plans to install fixed readers below the drill floor that will automatically read RFID tags and eliminate or reduce the dependency on handheld readers.

Tubular manufacturing

In 2007, Houston-based Tejas Tubular Products Inc. implemented a closed-loop asset management system that allows it to manage the entire RFID process from start to finish, while keeping accurate records.[9]

In 2008, affiliate Tejas Casing set up an RFID tag system focused on production tracking after heat-treatment. This system was designed and installed by Merlin Concepts & Technology. It uses passive 915-Mhz (UHF Class1 Gen 2) tags embedded within rugged collars. These collars are attached to the product after heat-treatment and follow it through manufacturing. The RFID system uses strategically positioned Motorola XR440 readers and MC9090 handhelds that record data about each product as it passes. The scanners have the capacity to both read and write to the onboard tag memory and communicate to Merlin Concepts' dynamic recording inspection platform. This platform provides a real-time dashboard showing analytics of operations and a variety of reports.

Konrad Konarski, vice-president of Merlin Concepts, said that although the system itself is closed-loop, the benefits extend to oilfield product consumers who are receiving manufactured goods with a superior level of quality control".

Texas consortium

Testing new technologies is more cost effective when companies share costs and testing opportunities. Industry has joined with several Texas universities to study RFID applications, forming the RFID Oil & Gas Solution Group Consortium. Under the auspices of this group, several professors directing RFID and sensor laboratories contributed sidebars to this article:

- Ben Zoghi, professor in the Department of Engineering Technology and Industrial Distribution at Texas A&M University.
- Thomas Chen, research professor in the Department of Industrial Engineering, University of Houston.
- Gary Gaukler, assistant professor in the Department of Industrial Engineering at Texas A&M University.

Smart chips

Another consortium project is underway in the US. Operators, service and technology providers, and users across several industries and academia have been participating in the smart chips project since Fall 2003. The project is managed by Fiatech, a nonprofit consortium focused on deployment of

new technologies in the construction industry.[10]

The smart chips project "investigates commercial-ready and near-ready" RFID technologies that can be "easily adapted for field construction, operations, and maintenance applications."

Oil field sector participants in this project include: BP North America, Chevron, Jacobs Engineering Group Inc., KBR Inc., Fluor Corp., and Zachry Construction Corp.

Looking ahead

Industry demand will drive design innovations in RFIDs to lower costs and provide increasingly efficient and reliable components:

- Ultralow-power components and multi-sensing tags. Research continues on passive tag systems that incorporate physical sensors for light, temperature, humidity, and chemicals. Texas Instruments, for instance, has developed an ultralow-power microcontroller.[11]
- RFID antennas. Tags and receivers both depend on antennas to send and receive data. Passive RFID tags are especially dependent on antenna design because they have to collect energy to power the tag and radiate signal back to the readers.[12]
- Long-range active tags. 2.45 GHz active tags and readers are currently available, but development will continue to extend the readable range.

Establishing standards for RFID components and engaging in multiple proof-of-concept projects through cost-effective consortia will probably increase the pace of RFID technology adoption in the upstream oil and gas industry.

Sam Falsafi, senior director of business solutions at Houston-based Shipcom Wireless, told OGJ, "RFID is not only about trying to gain efficiencies and extract additional value from core assets, it's about enabling process intelligence." ✦

References

1. Konarski, Konrad, and Falsafi, Sam, "RFID Oil and Gas White Paper," July 10, 2008.
2. Bacheldor, Beth, "Rugged Tags Survive Deep-Sea Test," RFID Journal, May 29, 2008, www.rfidjournal.com.
3. "Update on Sonardyne Projects," Oceanology International 2008 Show Daily, Mar. 13, 2008, p. 14.
4. Durham, Louise S., "Global Business has Local Hurdles," AAPG Explorer, March 2008.
5. "Subsea RFID," Hydro International Product News, Nov. 27, 2006, www.hydro-international.com/news.
6. Johansen, Rune, "Elektronisk monstring pa Statfjord," http://www.salemauto.adsl24.co.uk/pts/images/Aktuelt%209%2016-17a.pdf.
7. O'Connor, Mary Catherine, "ChevronTexaco takes RFID offshore," RFID Journal, Jan. 17, 2004, www.rfidjournal.com.
8. Swedberg, Claire, "Tough RFID Tag Strikes Oil," RFID Journal, May 23, 2008, www.rfidjournal.com.
9. McCabe, Kelly, "'Pioneering' RFID Systems Take on the Oil Field," Nov. 9, 2007, www.manufacturing.net/RFID-In-The-Oil-Field.aspx
10. Fiatech's "Smart Chips Project," www.fiatech.org/projects/ijs/schips.htm.
11. Zampolli, Stefano, Elmi, Ivan, et al., "Ultra-low-power components for an RFID Tag with physical and chemical sensors," Berlin: Springer-Verlag, Microsystem Technologies, Vol. 14, Issue 4, March 2008, pp. 581-88.
12. Banks, Jerry, and Thompson, Les G., "Understanding RFID part 4: The black art of RFID antennas," RFID News, July 31, 2007, www.rfidnews.org/library.

Refinery profits diverging from crude price trends

Robert Neumuller
Consultant
Plano, Tex.

A recent examination of cash margins showed how refinery profits have changed since 2002.

The results indicated a divergence between crude price trends (resulting in increasing profits to producers) and refinery profit trends. Refinery profits were in a decline after rising between 2002 and the middle of 2006 while crude oil prices continued to rise. Crude oil prices and petroleum product prices are currently at record levels.

This study used Muse, Stancil & Co. refinery margins as an indicator of refinery profit trends. Representative crude prices were used to indicate crude price trends.

If product markets and crude oil markets were both truly global, margins would remain constant with respect to crude prices; the only variations would be due to transportation costs. The product markets are not, however, as fluid worldwide as are crude markets.

Part of the issue is that product specifications differ in various parts of the world. Another factor is differing relationships between crude prices and petroleum product prices in different regions of the world. Petroleum product markets are heavily influenced by taxes and government policies.

Derived demand for crude was growing faster outside of the US during the period of this study. This situation resulted in the rise in crude oil prices that was faster than the rise in product prices within the US. Refining margins declined becuase product price increases reduced domestic demand growth.

Muse, Stancil margins

The Muse, Stancil refining margins were designed to compare relative refining profitability of six refining centers including the US Gulf Coast (USGC) and US West Coast (USWC). Muse, Stancil began publishing these indicators in 2001, which are currently published monthly in the Oil & Gas Journal.

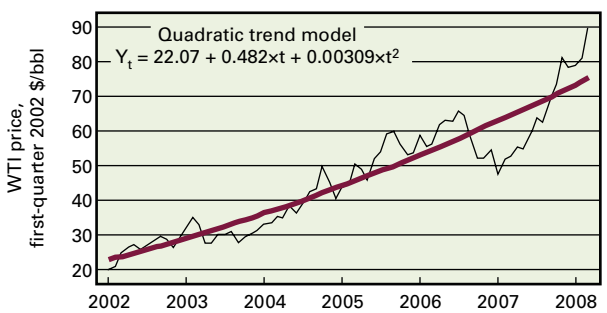
Refining margins are cash operating margins. Fixed and variable operating cost estimates are subtracted from the gross margin to arrive at a cash operating margin for a typical refinery in each region.

The Muse, Stancil margins are on a per barrel basis. If there is a reduction or increase in total barrels sold, therefore, this indicator will not account for the volume effect on total profits. This becomes relevant because higher product prices induce a reduction in the growth rate of products consumed.

Muse, Stancil estimates feedstock and product slates along with operating costs for the typical refinery in each region. A problem with this measure is that fixed costs in the typical refinery may need to be revised more frequently. As the cost of energy increases, the cost of many other factors of production including those deemed to be fixed may increase.

Rising petroleum prices indirectly affect a refinery's infrastructure costs, including labor costs. Actual cash margins of typical refineries may therefore actually decrease to a greater extent

WTI CRUDE TREND ANALYSIS Fig. 1



than indicated by the Muse, Stancil margins.

Also, the typical refinery may change over time. The typical refinery chosen to represent the refining center which includes PADD II may cease to be typical when refineries are configured to handle Canadian heavy and synthetic crudes.

Margins are not strictly comparable when one is interested in the differences in profitability of the region as a whole as compared with another region. A better indicator of regional margins is a weighted average of the refineries in each region. Examining the patterns over time, however, can indicate relative changes in refinery profitability within and between regions.

This study used USGC and USWC margins and crude wellhead prices to illustrate how profitability varied between regions and how rising crude prices influenced refinery profitability. These were chosen because refinery configurations since 2002 have not changed and to illustrate the difference in margins between regions which are "open" and a region which is isolated. This latter distinction is not treated in detail in this article.

Modifying 'constant' dollars

Cash margins and crude wellhead prices, beginning in January 2002 and ending in March 2008, were used in this analysis. To view the margins and crude oil prices over time in a meaningful way, they were adjusted for general price inflation using a GDP price deflator. For this study, all values were adjusted to first-quarter 2002 prices.

Crude price history

Fig. 1 shows a trend analysis of the price of West Texas Intermediate (WTI) crude. A quadratic trend line does a better job of capturing an increasing or decreasing rate of change. If the trend is really a linear trend, the quadratic term automatically would become insignificant, both in magnitude and statistical significance. Inclusion decreases the possible bias in the trend estimate as long as the actual trend conforms to a quadratic form.

Changes in this price as well as the trend should mirror the crude price paths of most crude supplies in the USGC region. The trend is clearly upward.

Fig. 2 shows the trend for Alaskan North Slope (ANS) crude prices, which represent crude costs in the USWC region.

As a comparison, Fig. 3 shows the Muse refinery margins for the USGC and USWC regions plotted with crude prices. The WTI and ANS trend upward while the two margins are now trending downward.

Effect of rising oil prices

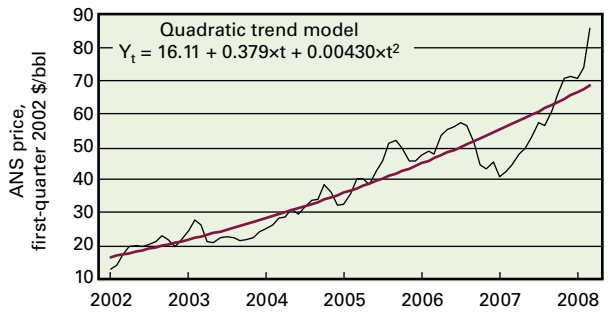
The analyses showed that, after a point, rising oil prices began to erode refining profits. This occurred because crude prices were rising faster than product prices. The problem was and is that, while the crude market is worldwide, product markets are more regional. If products moved around the world as easily as crude does, prices would track each other and margins would not be influenced directly by increasing crude prices except for time lags in response.

Demand for crude worldwide was and is growing faster than demand for products in the US. This is a problem for refining companies because the result of these trends is an eventual profit squeeze.

Fig. 4 shows USGC margin trends. The trend turned downward around October 2006. Fig. 5 shows a regres-

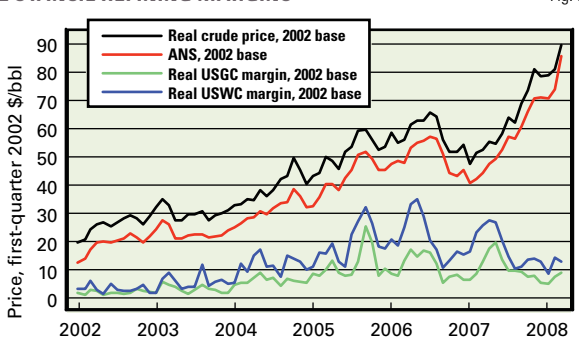
ANS CRUDE TREND ANALYSIS

Fig. 2



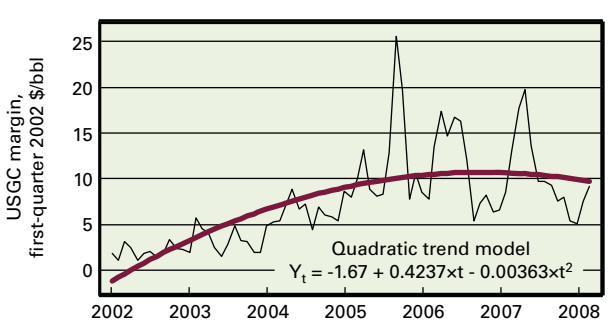
MUSE STANCIL REFINING MARGINS

Fig. 3



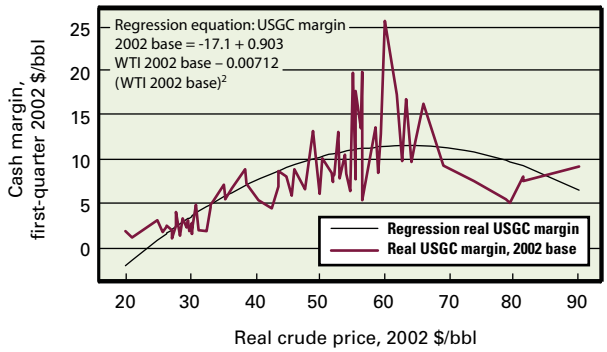
REAL USGC MARGINS

Fig. 4



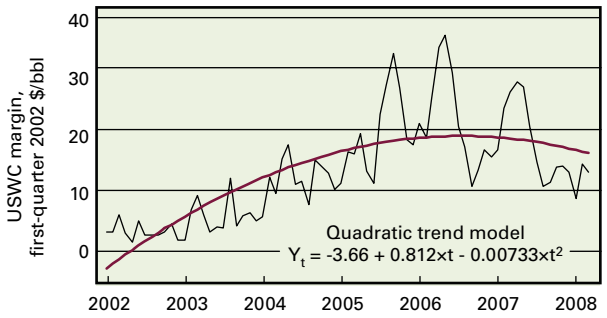
USGC MARGIN, WTI PRICE

Fig. 5



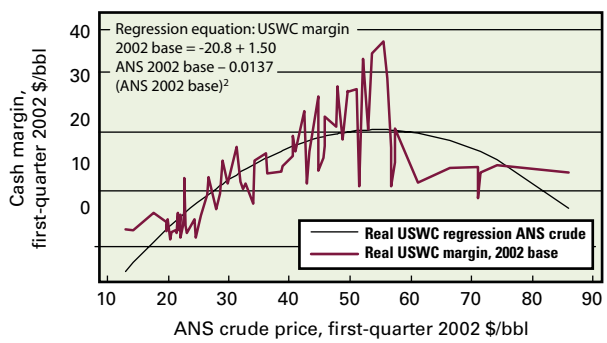
USWC MARGIN ANALYSIS

Fig. 6



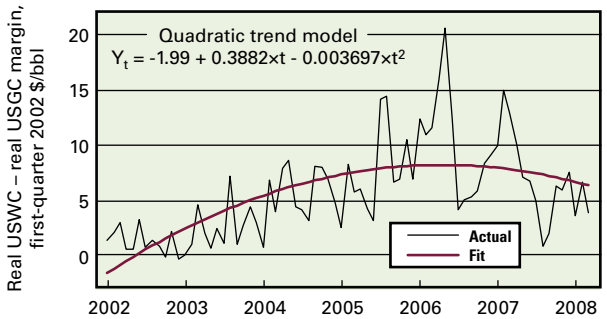
USWC MARGIN, ANS PRICE

Fig. 7



DIFFERENCE IN MARGINS

Fig. 8



sion line linking USGC margin and WTI prices. The margin began to decline after $63.41/bbl based on the regression equation. First derivative of the regression equation set to zero yields the peak margin.

Figs. 6 and 7 show a similar analysis for USWC. Fig. 6 indicates how the cash margin began to decline in July 2006. Fig. 7 shows the correlation of the margin with ANS prices.

The USWC margin began to decline after the ANS price reached $54.74/bbl, based on the regression equation. Although the cash margin is not completely dependent on crude oil prices, it highly correlates with these prices.

USGC vs. USWC margins

Fig. 8 shows how the difference between the USWC and USGC margin has changed since 2002. The spread between USWC and USGC cash margins began to decrease after April 2006, based on the trend line. Although the profitability of USWC refineries was greater than those on the USGC, this difference is eroding and will eventually disappear if the trend continues.

Two major forces that determine the price of any product are supply and demand. If one grows faster than the other or shrinks faster than the other, the price will change to adjust for the imbalance.

For gasoline, for instance, demand growth increased faster than the supply resulting in a rise in the price relative to production costs in the US. Production costs began to increase faster than product prices in the US, as the growth in world demand for crude oil exceeded the growth in demand for petroleum products in the US.

Demand for gasoline in the world continued to grow at a rate greater than that in the US as developing countries like China restricted petroleum product price increases to below market-clearing prices. The result was a higher derived demand for crude globally vs. the US. Production cost increases were therefore not wholly covered by product price increases as evidenced by the problems that companies in China have experienced during the last year.

In the US, refining companies may see profits turn to losses soon. Companies with crude production of significance may be able to cover refining losses with crude profits. World economic growth and US policies cause product prices to rise while refining profitability is declining.

Politicians who want to impose taxes on the oil industry because profits have been high, miss the point of supply-demand forces and how these are integrated into the world economy. Cycles in refinery profits occur and when profits are high, politicians seem to ignore the times when profits are actually negative

or, at best result, yielding rates of return on investment below reasonable levels.

Two factors that contribute to the problem's severity, given the growth in world demand for petroleum, are restrictions placed on exploration and development of domestic crude oil supplies, including shale, and barriers to building new refinery capacity. Refineries expand, but the configurations are not optimal.

There is functional obsolescence because refineries that are expanded cannot be made to be as efficient as a new refinery could be. This generally results in higher production costs and lower production levels than if new refineries were built. ✦

The author

Robert Neumuller (Rneu349@aol.com) is an independent consultant, Plano, Tex. He has 30 years' experience in the refining and energy industries and has also served as a consultant for Muse Stancil & Co., Arthur Consulting Group Inc., and CPN Consultants Inc. He previously held positions with Southern California Gas Co. and Phillips Petroleum Co. Neumuller holds a BS in chemical engineering from the University of Maryland, an MA in economics from Ohio State University, and an MBA from the University of Southern California. He is a member of the American Society of Appraisers and the National Association for Business Economics.

Balloon network allows remote CP monitoring

Christopher E. Smith
Pipeline Editor

Automated near-space monitoring of pipeline rectifiers offers a means of maintaining cathodic protection of pipeline networks without travelling to remote locations. Space Data Corp. uses standard weather balloons and a patented GPS navigation system to maintain a continuous monitoring presence above the Southwest US and northwestern Gulf of Mexico (Fig. 1).

In addition to remotely monitoring cathodic protection, SkySite enables general supervisory control and data acquisition host polling; pump-off controller monitoring; alarm monitoring of storage tanks, compressor stations, and transmission lines; field communications; and flow monitoring.

System overview

Located about 20 miles above the earth, Space Data's SkySite platforms operate above flight paths, the jet stream, and weather systems, but below satellites (Fig. 2). The system already monitors wells and storage facilities in the region; it operated without interruption across its entire coverage area, including much of Louisiana, during Hurricane Katrina.[1]

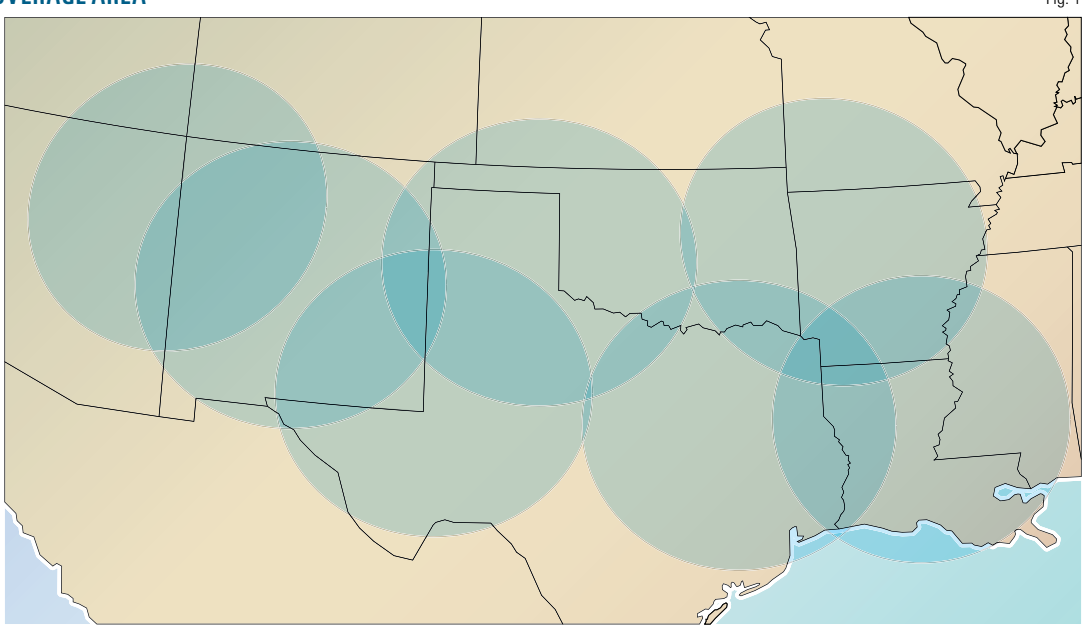
Launches of new balloons carrying SkySite platforms occur every 8-12 hrs. Each platform covers more than 400 sq miles of earth and stays aloft for about 24 hrs,[2] enabling wireless data communication in areas not served or poorly served by existing wireless technologies. Launch typically takes 20 min. and occurs without US Federal Aviation Administration restriction because the platforms are light enough to not pose a threat to aircraft safety, according to Space Data.

Communication occurs on Space Data's own narrowband frequency spectrum (1.7 Mhz of the 901-940 Mhz band), minimizing interference, and uses fixed IP addresses required by SCADA systems.

Space Data's SkySite network consists of three primary components. The SkySite platform itself uses a standard Motorola ReFLEX 2.7, 2-way packet data communications protocol and includes communications, control

COVERAGE AREA

Fig. 1



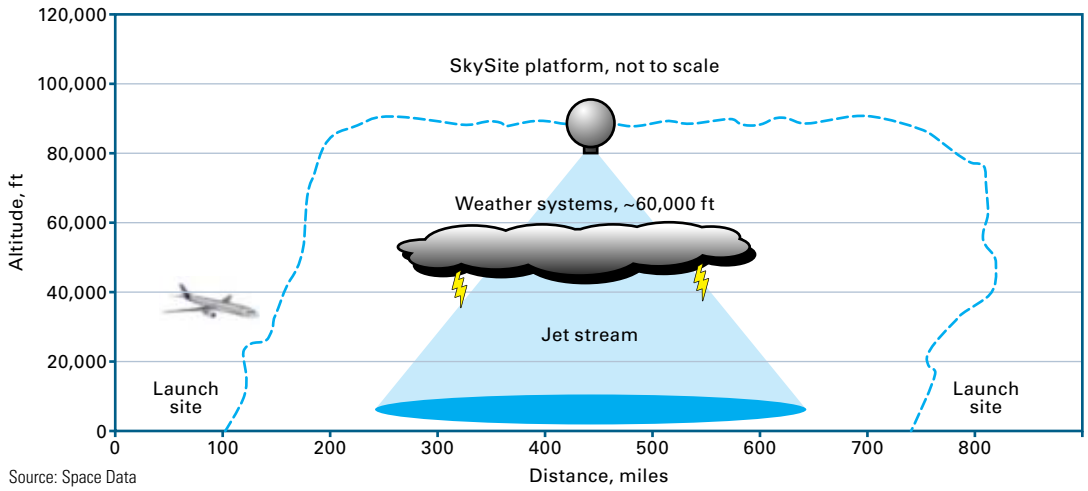
Source: Space Data

electronics, power, and other components needed to provide wireless data services. Use of this protocol also allows use of other 2.7-compliant devices such as two-way pagers.

Ground facilities, spaced at roughly 400-mile intervals, include remote tracking stations, launch sites, and associated telecommunications links between the balloon transmitters and network operations center. Among these links is an API 21.1-compliant wireless modem located between the monitored asset and SkySite platform and used with remote telemetry units and electronic flow meters communicating via a serial interface.

Platform location

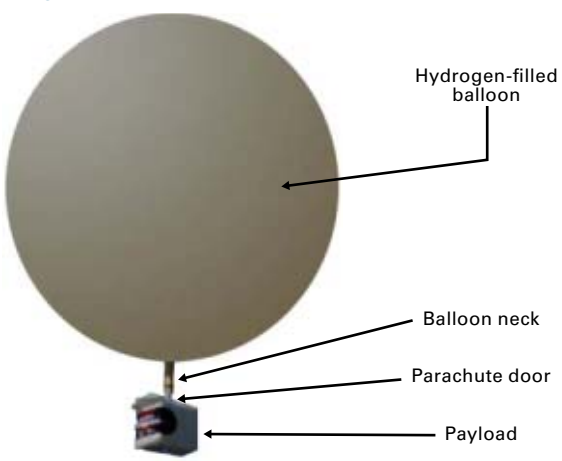
Fig. 2



Source: Space Data

Platform

Fig. 3



Source: Space Data

The Arizona-based network operations center connects Space Data monitoring equipment with its subscribers. Space Data contracts with property owners in favorable locations to conduct launches.

Fig. 3 shows the SkySite platform. A 1.5-kg biodegradable latex balloon (about 25 ft in diameter, inflated) uses hydrogen to lift the monitoring payload. An o-ring holds the balloon neck to a tube on top of the payload. The Styrofoam-enclosed payload weighs less than 6 lbs and has a target weight of 3.5 lbs. When the balloon has exhausted its ballast, reached the outside edge of its service area, or the payload's power source has depleted, the payload releases and returns to earth by parachute.

Space Data tracks the payload during both operation and descent through GPS, recovering the majority of the payloads, which it then refurbishes and reuses. It includes contact information on each of the payloads to help ensure this occurs and is developing a steerable parachute for the system in hopes of making payload recovery even easier.[3]

Cathodic protection

The SkySite system remotely monitors a wide variety of rectifier applications, including pipe-to-soil measurements and critical bond reading. The system also automates weekly-monthly rectifier runtime reports, including notification of minimum-maximum anomalies and power outages.

The system's fully 2-way communication link allows control as well as monitoring. The control center can remotely change monitoring parameters or exception alarm programming on either a device-by-device basis or across the entire system.

Field testing

Space Data placed monitors on a crude pipeline in West Texas at four locations, using off-the-shelf electronics and enclosures as part of a 60-day trial beginning June 15, 2006.

The system monitored pipeline rectifiers to the operator's satisfaction, but need for improvement was noted regarding the ground unit's scale, cost, and user interface (which was deemed overly complex).

A second multi-client round of trials began in August 2007, with equipment installed at a variety of locations including a standard AC rectifier, a DC-powered rectifier, and a gas-fuelled generator. Devices responded at a 98% rate during the trials and customers reported satisfaction that initial shortcomings had been addressed.[2] ✦

References

1. Statement of Jerry Knoblach, Chairman and CEO, Space Data Corp., before the Federal Communication Commission's Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, Washington, D.C., Mar. 7, 2006.

2. Decker, L.N., Knoblach, J., and Kitchin, J.C., "Trials and Tribulations in Wireless Automated Pipeline Rectifier Monitoring," NACE Corrosion 2008, New Orleans, La., Mar. 16-20, 2008.

3. Drucker, E. "Wireless Balloons," WirelessWeek, Apr. 1, 2008.

Equipment/Software/Literature

Lightweight modular mat system suited for oil field

New composite matting systems are suited for oil field use.

The company says its lightweight mats are strong, rigid, and rugged, which means users are able to readily access otherwise difficult to get to remote locations with speed and ease.

The proprietary curved interlocking design promises simple and quick assembly. The nonabsorbent nature of composite surfacing materials provide an easy to clean surface and eliminate the possibility of vegetative and chemical site cross-contamination. Light weight and resulting buoyant characteristics of the mat help reduce the need for multiple layers, increase the probability of 100% mat recovery, and as a result keep reclamation costs to a minimum, the firm points out.

Source: **TerraPro,** Box 79027, Sherwood Park, Alta. T8A 5S3.

System helps speed up seismic processing

A new parallel storage system addresses the exploration and production segment's need for technologies to process seismic data more quickly.

The system is the result of a preferred-reseller and strategic-development agreement between Landmark, a product service line of Halliburton Co.'s drilling and evaluation division, Houston, and Panasas Inc., Fremont, Calif.

The agreement adds Panasas' ActiveStor storage clusters to Landmark's portfolio of optimized computing solutions for seismic processing.

ActiveStor parallel storage clusters, which include the PanFST parallel file system, are designed to eliminate input-output bottlenecks, leading to improved application performance, linear scalability, and higher overall utilization of compute clusters.

Source: **Landmark,** 2107 CityWest Blvd., Bldg. 2, Houston, TX 77042-3051.

New toxic gas monitor for confined-space entry

The new QRAE II pump, which joins the QRAE II diffusion introduced last year, offers fast response times required for safe confined-space entry. The QRAE II is a full-featured, compact, one- to four-sensor toxic gas detector for oxygen, combustibles, hydrogen sulfide, carbon monoxide, or sulfur dioxide.

Features include an easy-to-change battery pack, a water-resistant case, and a new state-of-the-art, solid-polymer electrochemical, lead-free oxygen sensor. The QRAE II pump has international certifications for use in hazardous environments including refineries and petrochemical plants.

The instrument can be powered by either rechargeable lithium-ion batteries or standard alkaline batteries. The large display on the QRAE II can be flipped to the orientation of the worker for either hand held or belt mounted operation. The tool also includes a new visual graph display in addition to the sensor readings.

Source: **RAE Systems Inc.,** 3775 N. First St., San Jose, CA 95134.

recovering
THE REMAINDER

UNCONVENTIONAL GAS™ INTERNATIONAL CONFERENCE & EXHIBITION

September 30 – October 2, 2008
Hilton Fort Worth
Fort Worth, Texas USA

UNCONVENTIONAL GAS EXTRACTION BECOMING VIABLE

Production from unconventional reservoirs — tight gas sands, shales, and coalbeds--accounts for a large and growing share of total gas supply. But the reservoirs are complex. The costs of drilling into and completing wells in them are continually rising while presenting unique environmental problems. Producing gas from unconventional reserves profitably, safely, and in amounts demanded by the market requires increasingly sophisticated recovery methods.

Gas recovery from unconventional reserves will be explored on September 30 – October 2, 2008 at the Unconventional Gas International Conference & Exhibition to be held at the Hilton Fort Worth, in Fort Worth, Texas. Planned by the editors of *Oil & Gas Journal* and an Advisory Board of industry experts, the event will highlight innovation from unconventional gas plays around the world.

Wood Group Pressure Control signs on as Platinum Sponsor!
Join Wood Group Pressure Control as one of those companies who understands the economic realities associated with unconventional gas extractions and who support this growing market segment. For more information about this conference and Wood Group Pressure Control, go to www.unconventionalgas.net and click on the Wood Group Pressure Control logo.

This will be your company's chance to exhibit to professionals in the fastest-growing sector of the gas-producing industry.

www.unconventionalgas.net

For more information about sponsoring or exhibiting, contact:

Exhibitor and Sponsorship Sales:

Kristin Stavinoha
Phone: +1 713 963 6283
Fax : +1 713 963 6201
Email: kristins@pennwell.com

Sue Neighbors
Phone: +1 713 963 6256
Fax: +1 713 963 6212
Email: sneighbors@pennwell.com

Owned & Produced by: PennWell

Flagship Media Sponsors: Oil & Gas Journal, Oil & Gas Financial Journal, Offshore, Oil, Gas & Petrochem Equipment

Platinum Sponsor: Wood Group Pressure Control

Sponsors: Baker, Halliburton

Enventure International LLC,

Houston, has added Richard Craig and Mervyn Newberry as senior technical sales advisors to its European sales team in Aberdeen. Craig brings more than 20 years of oil and gas industry experience and will be responsible for optimizing solid expandable technology (SET) applications in Denmark and Norway. With a background focused primarily within the drilling sector with Noble Drilling Corp., Craig most recently held managerial and business development positions for a service company in its Scandinavia, Middle East, and Caspian regions. Newberry will help expand SET system applications in continental Europe and the UK. He joins Enventure from a drilling and cementing company, where he served as sales manager. With a career spanning more than 20 years, Newberry has held roles within the manufacturing and quality assurance/quality control sectors.

Craig

Newberry

Enventure is the leading provider of SET solutions for the energy industry, with operations in North America, the Middle East, Asia Pacific, South America, Europe, and the Far East.

ISS Group,

Perth, has signed an agreement with Schlumberger, granting the latter exclusive rights to market ISS's BabelFish™ product integration software to the upstream oil and gas industry for $17 million (Aus.). The agreement will leverage BabelFish alongside Schlumberger's current technology for upstream production data management, surveillance, analysis, and modeling.

ISS Group delivers software solutions to the global energy, minerals, and manufacturing industries. Schlumberger is the world's leading oil field services company, supplying technology, information solutions, and integrated project management to optimize reservoir performance.

Setaram Instrumentation,

Caluire, France, has appointed Gary Etherington vice-president, international sales, and marketing director. Etherington has managed Setaram Inc., the company's US division, since July 2006, where his team has tripled North American sales. He has almost 20 years of experience in laboratory instrumentation, starting in technical support and then sales with a British analytical instrument distributor. Etherington started with Setaram in the UK as product manager, then worked in sales in the US and Britain for HEL, a manufacturer of adiabatic and reaction calorimeters. He then worked as US sales and marketing manager for Julabo, a distributor of chemical temperature control solutions, before returning to Setaram.

Setaram is a leading manufacturer and supplier of high-performance thermal analyzers, calorimeters, gas sorption, and high-pressure mass spectroscopy instruments.

Stallion Oilfield Services Ltd.,

Houston, has entered into a letter of intent to acquire the international risk management and loss prevention business of the Stirling Group, headquartered in Malta. Stirling, owned and managed by Mike Lord, is a provider of risk and facilities management solutions to the hydrocarbon industry in Africa and the Middle East. Lord, Stirling's CEO and founder, will remain with the company as a Stallion senior vice-president.

Stallion provides wellsite support services and production and logistics services to the oil field with 2,700 employees in 57 locations.

Halliburton,

Houston, has acquired all the intellectual property and assets of Protech Centerform in Houston, Aberdeen, and Ravenna, Italy. Protech Centerform is the world's only provider of casing centralization that uses a carbon fiber and ceramic composite compound applied directly to the casing, allowing for an enhanced cementing solution that can be engineered to any wellbore configuration.

Halliburton is one of the world's largest providers of products and services to the energy industry.

Wright Tool Co.,

Barberton, Ohio, has appointed Ty Smith director of business development. He will be responsible for developing and executing a structured marketing plan that connects with Wright Tool users through print media and internet marketing. Prior to joining Wright Tool, Smith served in sales and marketing in the heavy-duty truck and construction industries. Smith graduated from Walsh University in Canton, Ohio, in 2003. He is currently working towards his MBA.

Smith

Wright Tool manufactures a complete line of more than 4,000 professional-grade hand tools for the industrial, contractor, and MRO (maintenance, repair, and overhaul) markets.

Geotrace,

Houston, has appointed Darko Tufekcic geoscientific advisor to promote the company's reservoir services in Eastern Europe. With more than 35 years of experience, he began his career with a 15-year stint at INA, an oil company based in the former Yugoslavia. Tufekcic then managed a special projects division at Western Geophysical before working as an independent consultant.

Geotrace is a leading reservoir services company providing integrated solutions to the oil and gas industry worldwide.

InterMoor Inc,

Lafayette, La., has named Lonnie Olds subsea services operations manager in its Lafayette office, where he will manage all activities related to operations and development of company products. With more than 15 years of operations experience in the oil and gas industry, Olds joins

InterMoor from Expro, where he was a cased-hole operations supervisor. He also has previous operations experience with Halliburton and Schlumberger and studied electronics at Young Memorial Vocational School.

InterMoor, an Acteon company, is a leading supplier of mooring technology, providing innovative solutions for rig moves and mooring services, including engineering and design, fabrication, and subsea installation.

Hercules Offshore Inc.,

Houston, has appointed John T. Rynd CEO, president, and a director, succeeding Randall D. Stilley, who recently resigned from the same three positions. Previously, Rynd had served as executive vice-president of Hercules Offshore since July 2007. He joined the company in September 2005, serving as senior vice-president of Hercules Offshore and president of Hercules Drilling Co. LLC. Prior to that, Rynd spent 15 years at Noble Drilling Services Inc. and 10 years with Rowan Cos. Inc.

Hercules Offshore operates a fleet of 35 jack ups, 27 barge rigs, 65 liftboats, three submersible rigs, 1 platform rig, and a fleet of marine support vessels and has operations in nine countries on four continents. The company offers a range of services to oil and gas producers to meet their needs during drilling, well service, platform inspection, maintenance, and decommissioning operations in shallow waters.

Spectraseis,

Zurich, named Ian Vann and Bjarte Fageras to its board of directors. Vann is the former BP Group vice-president for exploration and business renewal, and Fageras is chairman of Octio Geophysical AS and CEO of Technocean AS. In November 2007, Spectraseis secured a $32.2 million investment from Warburg Pincus. Both Jeffrey Harris, a Warburg Pincus managing director, and Henry Makansi, head of Warburg Pincus's European energy activities, sit on the Spectraseis board.

Established in 2003 in partnership with leading European universities, Spectraseis is the principal technology and service provider in the fast-emerging field of low-frequency passive seismic geophysical surveys.

Sagent Advisors Inc.,

New York, has appointed Thomas R. Rosén managing director for the firm's energy and power team in New York. Previously, Rosén served as managing director and head of natural resources M&A at Banc of America Securities since 2000. Prior to that, he worked at Chase Securities from 1987 to 2000, where he founded and served as head of the firm's utility and power M&A area as a managing director. Rosén received a master's in management from the Sloan School of Management, Massachusetts Institute of Technology, and was recipient of the Hill Fellowship. He received a BS from the University of Minnesota.

Sagent Advisors is an independent, privately owned investment bank that provides advice on mergers and acquisitions, corporate financial strategy, and the raising of debt and equity capital

Halliburton,

Houston, has closed the previously announced acquisition of the 49% equity of Shell Technology Ventures Fund 1 BV in WellDynamics BV. With this transaction complete, Halliburton owns 100 percent of WellDynamics.

Founded in 2001, WellDynamics is the world's leading provider of intelligent well completion technology. Halliburton is one of the world's largest providers of products and services to the energy industry.

IDS,

Kuala Lumpur, has signed a pioneering agreement with Completion Services to enable the Completion String Design package to exchange data bilaterally across the web with the IDS ProNet completions reporting database. The successful data exchange and signing of the agreement means that licensed users, in any part of the world, will now be able to build, store and recall the entire completions and interventions history of their wells, from anywhere at anytime. Under the agreement, IDS and Completion Services will collaborate to provide a new release of Completion Services' drawing package, which is embedded in the IDS ProNet web-based completions reporting service. ProNet handles both the onsite and back-end reporting requirements.

IDS provides intuitive end-to-end, web-delivered, upstream reporting services, with full support 24 hours a day, 365 days a year.

Flow-Cal Inc.,

Houston, has opened a new office in Denver. The new office is located in the downtown energy corridor and is anchored by George Barnes and Michael Perez. The Denver office will allow Flow-Cal to better support existing customers while also positioning resources for additional growth opportunities within the US Midwest and Western Canada. The focus of the new office will be to provide measurement related consulting services that are associated with implementing and operating a "corporate level" measurement application suite.

Flow-Cal is a developer of software for measurement data management for natural gas and petroleum liquids.

ARKeX,

Cambridge, UK, has raised $30 million in the largest venture capital round in its sector in the past 5 years. The investment was led by Ferd Venture of Oslo and included existing investors Energy Ventures of Stavanger, Scottish Equity Partners of Glasgow, and members of ARKeX senior management.

Hall

This is the third round of funding raised by ARKeX since 2004 and the largest venture round for a service company supplying the onshore and offshore oil and gas E&P sector since 2003. The company, led by Chief Executive Kitty Hall, will use the funds to expand the operational capabilities of its airborne BlueQube™ imaging service and to accelerate production of its proprietary technology, the Exploration Gravity Gradiometer.

ARKeX provides geophysical surveys for the oil, gas, and mineral exploration industry, using BlueQube™ gravity gradiometry technology.

Imports of crude and products

	Districts 1-4		District 5		Total US		
	7-4 2008	6-27 2008	7-4 2008	6-27 2008	7-4 2008	6-27 2008	*7-6 2007
	1,000 b/d						
Total motor gasoline	1,116	1,356	47	—	1,163	1,356	1,423
Mo. gas. blending comp.	580	857	47	—	627	857	909
Distillate	142	149	—	—	142	149	278
Residual	257	357	—	12	257	369	428
Jet fuel-kerosine	34	66	—	—	34	66	305
Propane-propylene	74	105	1	2	75	107	224
Other	629	544	64	131	693	675	427
Total products	**2,832**	**3,434**	**159**	**145**	**2,991**	**3,579**	**3,994**
Total crude	**8,435**	**8,605**	**1,112**	**1,563**	**9,547**	**10,168**	**10,025**
Total imports	**11,267**	**12,039**	**1,271**	**1,708**	**12,538**	**13,747**	**14,019**

*Revised.
Source: US Energy Information Administration
Data available in OGJ Online Research Center.

Purvin & Gertz LNG netbacks—July 11, 2008

Receiving terminal	Liquefaction plant					
	Algeria	Malaysia	Nigeria	Austr. NW Shelf	Qatar	Trinidad
	$/MMbtu					
Barcelona	9.27	6.58	8.19	6.44	7.40	8.09
Everett	10.49	7.57	9.96	7.58	8.40	10.91
Isle of Grain	11.77	8.92	10.84	8.80	9.63	10.88
Lake Charles	8.46	6.24	8.13	6.41	6.71	9.36
Sodegaura	7.39	10.34	7.63	9.92	8.96	6.39
Zeebrugge	9.97	7.33	9.10	7.21	7.96	9.11

Definitions, see OGJ Apr. 9, 2007, p. 57.
Source: Purvin & Gertz Inc.
Data available in OGJ Online Research Center.

Crude and product stocks

District	Crude oil	Motor gasoline		Jet fuel, kerosine	Fuel oils		Propane-propylene
		Total	Blending comp.[1]		Distillate	Residual	
	1,000 bbl						
PADD 1	15,461	59,141	31,697	9,397	42,904	15,558	3,889
PADD 2	64,438	50,512	17,951	7,468	30,453	1,202	18,207
PADD 3	146,704	67,720	31,831	12,429	32,406	16,858	20,365
PADD 4	13,728	5,951	1,847	521	3,122	301	[1]1,303
PADD 5	53,605	28,442	21,758	8,949	13,616	5,447	—
July 4, 2008	**293,936**	**211,766**	**105,084**	**38,764**	**122,501**	**39,366**	**43,764**
June 27, 2008	**299,776**	**210,857**	**104,150**	**39,633**	**120,685**	**40,000**	**41,358**
July 6, 2007[2]	**352,580**	**205,576**	**91,892**	**41,158**	**122,370**	**35,499**	**46,280**

[1]Includes PADD 5. [2]Revised.
Source: US Energy Information Administration
Data available in OGJ Online Research Center.

Refinery report—July 4, 2008

District	REFINERY OPERATIONS		REFINERY OUTPUT				
	Gross inputs	Crude oil inputs	Total motor gasoline	Jet fuel, kerosine	Fuel oils		Propane-propylene
					Distillate	Residual	
	1,000 b/d						
PADD 1	1,492	1,498	2,058	110	508	97	64
PADD 2	3,338	3,300	2,256	196	1,051	42	210
PADD 3	7,477	7,418	3,020	726	2,315	286	728
PADD 4	534	532	274	24	162	11	[1]158
PADD 5	2,845	2,740	1,321	470	605	199	—
July 4, 2008	**15,686**	**15,488**	**8,929**	**1,526**	**4,641**	**635**	**1,160**
June 27, 2008	**15,699**	**15,413**	**9,039**	**1,564**	**4,571**	**679**	**1,117**
July 6, 2007[2]	**15,729**	**15,561**	**9,229**	**1,477**	**4,010**	**681**	**1,139**
	17,594 operable capacity		**89.2% utilization rate**				

[1]Includes PADD 5. [2]Revised.
Source: US Energy Information Administration
Data available in OGJ Online Research Center.

Additional analysis of market trends is available through **OGJ Online**, *Oil & Gas Journal's* electronic information source, at http://www.ogjonline.com.

OGJ crack spread

	*7-11-08	*7-13-07	Change	Change, %
	$/bbl			
SPOT PRICES				
Product value	148.95	92.25	56.70	61.5
Brent crude	138.95	77.29	61.66	79.8
Crack spread	9.99	14.96	–4.97	–33.2
FUTURES MARKET PRICES				
One month				
Product value	153.57	93.38	60.20	64.5
Light sweet crude	140.04	72.80	67.24	92.4
Crack spread	13.54	20.58	–7.04	–34.2
Six month				
Product value	155.39	87.66	67.73	77.3
Light sweet crude	142.03	73.40	68.63	93.5
Crack spread	13.37	14.26	–0.89	–6.2

*Average for week ending.
Source: Oil & Gas Journal
Data available in OGJ Online Research Center.

OGJ GASOLINE PRICES

	Price ex tax 7-9-08	Pump price* 7-9-08	Pump price 7-11-07
	¢/gal		
(Approx. prices for self-service unleaded gasoline)			
Atlanta	368.3	412.7	298.6
Baltimore	361.6	403.5	295.6
Boston	364.6	406.5	289.3
Buffalo	361.9	421.5	299.4
Miami	371.9	423.5	300.5
Newark	363.0	395.9	284.3
New York	354.3	413.9	300.3
Norfolk	357.5	395.5	288.5
Philadelphia	361.9	412.6	301.7
Pittsburgh	352.3	403.0	290.6
Wash., DC	374.3	412.7	298.4
PAD I avg	362.9	409.2	295.2
Chicago	386.8	444.7	312.0
Cleveland	355.0	401.4	266.9
Des Moines	359.6	399.7	290.6
Detroit	356.3	410.7	311.9
Indianapolis	350.6	400.7	299.6
Kansas City	360.7	396.7	285.2
Louisville	366.9	403.8	298.0
Memphis	350.7	390.5	291.8
Milwaukee	361.5	412.8	297.5
Minn.-St. Paul	361.3	401.7	279.7
Oklahoma City	352.6	388.0	280.9
Omaha	356.6	398.9	315.6
St. Louis	357.8	393.8	298.9
Tulsa	352.0	387.4	281.9
Wichita	333.4	376.8	291.5
PAD II avg	357.5	400.5	293.5
Albuquerque	353.3	389.7	292.7
Birmingham	359.1	397.7	284.8
Dallas-Fort Worth	364.3	402.7	285.4
Houston	356.3	394.7	283.8
Little Rock	356.4	396.6	285.6
New Orleans	361.3	399.7	289.4
San Antonio	354.3	392.7	281.7
PAD III avg	357.9	396.3	286.2
Cheyenne	362.4	394.8	291.1
Denver	370.0	410.4	311.2
Salt Lake City	360.0	402.9	313.1
PAD IV avg	364.1	402.7	305.1
Los Angeles	394.8	458.7	312.3
Phoenix	388.3	425.7	302.1
Portland	390.3	433.7	310.2
San Diego	403.8	467.7	323.5
San Francisco	398.8	462.7	320.6
Seattle	388.3	442.7	301.3
PAD V avg	394.1	448.5	311.7
Week's avg.	**364.6**	**409.1**	**296.1**
June avg.	**360.2**	**404.2**	**309.4**
May avg.	**329.3**	**372.9**	**307.6**
2008 to date	**300.6**	**344.3**	—
2007 to date	**225.6**	**269.2**	—

*Includes state and federal motor fuel taxes and state sales tax. Local governments may impose additional taxes.
Source: Oil & Gas Journal.
Data available in OGJ Online Research Center.

REFINED PRODUCT PRICES

	7-4-08 ¢/gal		7-4-08 ¢/gal
Spot market product prices			
Motor gasoline (Conventional-regular)		Heating oil No. 2	
New York Harbor	339.10	New York Harbor	408.33
Gulf Coast	339.60	Gulf Coast	404.70
Los Angeles	350.35	Gas oil	
Amsterdam-Rotterdam-Antwerp (ARA)	342.48	ARA	421.21
Singapore	351.19	Singapore	430.48
Motor gasoline (Reformulated-regular)		Residual fuel oil	
New York Harbor	353.35	New York Harbor	281.02
Gulf Coast	361.10	Gulf Coast	285.43
Los Angeles	355.35	Los Angeles	282.68
		ARA	302.40
		Singapore	273.21

Source: DOE Weekly Petroleum Status Report.
Data available in OGJ Online Research Center.

BAKER HUGHES RIG COUNT

	7-11-08	7-13-07
Alabama	5	5
Alaska	6	8
Arkansas	60	50
California	42	38
Land	42	37
Offshore	0	1
Colorado	109	112
Florida	2	1
Illinois	1	0
Indiana	2	4
Kansas	11	15
Kentucky	12	11
Louisiana	182	194
N. Land	76	60
S. Inland waters	22	23
S. Land	27	46
Offshore	57	65
Maryland	1	1
Michigan	1	1
Mississippi	11	15
Montana	12	20
Nebraska	0	0
New Mexico	84	85
New York	5	5
North Dakota	69	36
Ohio	13	13
Oklahoma	200	186
Pennsylvania	24	11
South Dakota	2	4
Texas	908	837
Offshore	7	9
Inland waters	1	0
Dist. 1	21	23
Dist. 2	30	26
Dist. 3	61	66
Dist. 4	95	89
Dist. 5	183	176
Dist. 6	120	126
Dist. 7B	31	36
Dist. 7C	70	55
Dist. 8	139	110
Dist. 8A	25	27
Dist. 9	43	35
Dist. 10	82	59
Utah	44	38
West Virginia	26	32
Wyoming	76	69
Others—NV-2; OR-1; TN-2; VA-8; WA-1	14	12
Total US	**1,922**	**1,791**
Total Canada	**414**	**360**
Grand total	**2,336**	**2,151**
Oil rigs	370	284
Gas rigs	1,544	1,501
Total offshore	67	76
Total cum. avg. YTD	**1,824**	**1,748**

Rotary rigs from spudding in to total depth.
Definitions, see OGJ Sept. 18, 2006, p. 42.

Source: Baker Hughes Inc.
Data available in OGJ Online Research Center.

SMITH RIG COUNT

Proposed depth, ft	7-11-08 Rig count	7-11-08 Percent footage*	7-13-07 Rig count	7-13-07 Percent footage*
0-2,500	80	3.7	56	7.1
2,501-5,000	138	48.5	103	53.3
5,001-7,500	258	14.7	247	24.2
7,501-10,000	476	3.5	419	3.1
10,001-12,500	488	2.6	458	1.9
12,501-15,000	324	--	272	--
15,001-17,500	146	--	107	--
17,501-20,000	86	--	67	--
20,001-over	38	--	38	--
Total	**2,034**	**6.7**	**1,767**	**7.9**
INLAND	31		42	
LAND	1,940		1,660	
OFFSHORE	63		65	

*Rigs employed under footage contracts.
Definitions, see OGJ Sept. 18, 2006, p. 42.

Source: Smith International Inc.
Data available in OGJ Online Research Center.

OGJ PRODUCTION REPORT

	[1]7-11-08	[2]7-13-07
	1,000 b/d	
(Crude oil and lease condensate)		
Alabama	14	20
Alaska	692	715
California	652	667
Colorado	42	38
Florida	5	5
Illinois	25	27
Kansas	94	101
Louisiana	1,320	1,304
Michigan	14	16
Mississippi	53	56
Montana	91	94
New Mexico	161	162
North Dakota	115	123
Oklahoma	168	170
Texas	1,339	1,344
Utah	44	51
Wyoming	147	149
All others	60	93
Total	**5,036**	**5,135**

[1]OGJ estimate. [2]Revised.
Source: Oil & Gas Journal.
Data available in OGJ Online Research Center.

US CRUDE PRICES

	7-11-08 $/bbl*
Alaska-North Slope 27°	120.20
South Louisiana Sweet	148.50
California-Midway Sunset 13°	130.85
Lost Hills 30°	138.80
Wyoming Sweet	135.08
East Texas Sweet	141.00
West Texas Sour 34°	134.00
West Texas Intermediate	141.50
Oklahoma Sweet	141.50
Texas Upper Gulf Coast	138.00
Michigan Sour	134.50
Kansas Common	140.50
North Dakota Sweet	135.25

*Current major refiner's posted prices except North Slope lags 2 months. 40° gravity crude unless differing gravity is shown.
Source: Oil & Gas Journal.
Data available in OGJ Online Research Center.

WORLD CRUDE PRICES

$/bbl[1]	7-4-08
United Kingdom-Brent 38°	142.45
Russia-Urals 32°	137.61
Saudi Light 34°	136.02
Dubai Fateh 32°	136.17
Algeria Saharan 44°	142.51
Nigeria-Bonny Light 37°	146.15
Indonesia-Minas 34°	144.32
Venezuela-Tia Juana Light 31°	137.98
Mexico-Isthmus 33°	137.87
OPEC basket	140.15
Total OPEC[2]	137.18
Total non-OPEC[2]	137.03
Total world[2]	137.11
US imports[3]	133.60

[1]Estimated contract prices. [2]Average price (FOB) weighted by estimated export volume. [3]Average price (FOB) weighted by estimated import volume.
Source: DOE Weekly Petroleum Status Report.
Data available in OGJ Online Research Center.

US NATURAL GAS STORAGE[1]

	7-4-08	7-6-08	7-4-07	Change, %
	bcf			
Producing region	717	703	888	–19.3
Consuming region east	1,177	1,116	1,328	–11.4
Consuming region west	314	299	381	–17.6
Total US	**2,208**	**2,118**	**2,597**	**–15.0**
	Apr. 08	**Apr. 07**	**Change, %**	
Total US[2]	**1,436**	**1,720**	**–16.5**	

[1]Working gas. [2]At end of period.
Source: Energy Information Administration
Data available in OGJ Online Research Center.

Statistics

International rig count

Region	June 2008 Land	June 2008 Off.	June 2008 Total	June 07 Total
WESTERN HEMISPHERE				
Argentina	79	—	79	86
Bolivia	3	—	3	3
Brazil	24	28	52	41
Canada	266	—	266	210
Chile	1	—	1	1
Colombia	43	—	43	38
Ecuador	10	—	10	12
Mexico	71	41	112	90
Peru	5	2	7	6
Trinidad	2	3	5	5
United States	1834	67	1902	1771
Venezuela	69	15	84	82
Other	2	—	2	2
Subtotal	**2,409**	**157**	**2,565**	**2,346**
ASIA-PACIFIC				
Australia	13	15	28	22
Brunei	1	3	4	4
China-offshore	—	21	21	19
India	54	26	80	86
Indonesia	43	25	68	60
Japan	4	2	6	2
Malaysia	—	17	17	18
Myanmar	3	—	3	8
New Zealand	4	1	5	5
Papua New Guinea	4	—	4	3
Philippines	3	—	3	—
Taiwan	—	—	—	—
Thailand	3	11	14	8
Vietnam	—	9	9	9
Other	1	2	3	5
Subtotal	**133**	**132**	**265**	**249**
AFRICA				
Algeria	24	—	24	28
Angola	—	7	7	4
Congo	2	1	3	2
Gabon	1	1	2	2
Kenya	1	1	1	1
Libya	15	—	15	13
Nigeria	3	2	5	7
South Africa	—	—	—	—
Tunisia	3	2	5	4
Other	2	2	4	5
Subtotal	**50**	**15**	**65**	**65**
MIDDLE EAST				
Abu Dhabi	9	2	11	14
Dubai	1	—	1	2
Egypt	42	9	51	46
Iran	—	—	—	—
Iraq	—	—	—	—
Jordan	1	—	1	1
Kuwait	11	—	11	15
Oman	54	1	55	46
Pakistan	22	—	22	17
Qatar	2	9	11	14
Saudi Arabia	65	12	77	76
Sudan	—	—	—	—
Syria	21	—	21	21
Yemen	15	—	15	16
Other	1	—	1	1
Subtotal	**244**	**33**	**277**	**269**
EUROPE				
Croatia	—	—	—	—
Denmark	0	3	3	3
France	—	—	—	1
Germany	8	—	8	4
Hungary	5	—	5	2
Italy	3	1	4	2
Netherlands	—	1	1	4
Norway	—	23	23	13
Poland	1	—	1	2
Romania	15	3	18	2
Turkey	5	—	5	5
UK	2	21	23	23
Other	6	—	6	5
Subtotal	**45**	**52**	**97**	**66**
Total	**2,881**	**389**	**3,269**	**2,995**

Definitions, see OGJ Sept. 18, 2006, p. 42.
Source: Baker Hughes Inc.
Data available in OGJ Online Research Center.

Oil import freight costs*

Source	Discharge	Cargo	Cargo size, 1,000 bbl	Freight (Spot rate) worldscale	$/bbl
Caribbean	New York	Dist.	200	374	3.17
Caribbean	Houston	Resid.	380	308	2.93
Caribbean	Houston	Resid.	500	288	2.74
N. Europe	New York	Dist.	200	399	5.45
N. Europe	Houston	Crude	400	296	5.98
W. Africa	Houston	Crude	910	198	4.38
Persian Gulf	Houston	Crude	1,900	152	6.25
W. Africa	N. Europe	Crude	910	207	3.40
Persian Gulf	N. Europe	Crude	1,900	157	4.71
Persian Gulf	Japan	Crude	1,750	224	5.44

*June 2008 average.
Source: Drewry Shipping Consultants Ltd. Data available in OGJ Online Research Center.

Waterborne energy inc. US LNG imports

Country	Apr. 2008	Mar. 2008	Apr. 2007	Change from a year ago, %
	MMcf			
Algeria	—	—	—	—
Egypt	3,080	9,060	8,910	–65.4
Equatorial Guinea	—	—	8,980	—
Nigeria	—	3,170	15,290	—
Norway	—	—	—	—
Qatar	3,080	2,930	6,120	–49.7
Trinidad and Tobago	33,860	22,820	59,210	–42.8
Total	**40,020**	**37,980**	**98,510**	**–59.4**

Source: Waterborne Energy Inc.
Data available in OGJ Online Research Center.

Propane prices

	May 2008	June 2008	May 2007	June 2007
	¢/gal			
Mont Belvieu	170.01	181.29	114.91	113.90
Conway	169.06	174.59	112.52	113.34
Northwest Europe	177.58	178.32	105.29	112.44

Source: EIA Weekly Petroleum Status Report
Data available in OGJ Online Research Center.

Muse, Stancil & Co. refining margins

	US Gulf Coast	US East Coast	US Mid-west	US West Coast	North-west Europe	South-east Asia
	$/bbl					
June 2008						
Product revenues	156.26	144.31	147.48	154.00	147.76	144.56
Feedstock costs	–142.48	–136.91	–132.93	–127.16	–133.69	–141.40
Gross margin	13.78	7.40	14.55	26.84	14.07	3.16
Fixed costs	–2.09	–2.42	–2.35	–2.75	–2.35	–1.83
Variable costs	–3.17	–2.02	–2.78	–5.30	–4.56	–1.26
Cash operating margin	**8.52**	**2.96**	**9.42**	**18.79**	**7.16**	**0.07**
May 2008	9.82	4.34	14.45	16.43	9.39	3.09
YTD avg.	9.31	2.30	9.95	15.62	6.41	2.82
2007 avg.	12.36	6.36	18.60	20.89	5.75	2.26
2006 avg.	12.39	6.13	14.91	23.69	5.88	1.06
2005 avg.	12.53	6.98	12.31	20.55	5.51	1.52

Source: Muse, Stancil & Co. See OGJ, Jan. 15, 2001, p. 46
Data available in OGJ Online Research Center.

Muse, Stancil & Co. gasoline marketing margins

May 2008	Chicago*	Houston	Los Angeles	New York
	¢/gal			
Retail price	395.37	366.80	393.69	393.40
Taxes	63.31	38.40	66.38	55.52
Wholesale price	331.48	321.84	328.76	330.96
Spot price	320.44	312.44	326.41	315.45
Retail margin	0.73	6.56	–1.45	6.92
Wholesale margin	11.04	9.40	2.35	15.51
Gross marketing margin	**11.77**	**15.96**	**0.90**	**22.43**
Apr. 2008	14.32	14.26	12.32	18.79
YTD avg.	20.52	18.51	10.79	27.71
2007 avg.	26.96	23.12	19.05	31.10
2006 avg.	19.74	20.34	18.03	27.90
2005 avg.	19.77	16.26	20.39	27.13

*The wholesale price shown for Chicago is the RFG price utilized for the wholesale margin. The Chicago retail margin includes a weighted average of RFG and conventional wholesale purchases.
Source: Muse, Stancil & Co. See OGJ, Oct. 15, 2001, p. 46.
Data available in OGJ Online Research Center.
Note: Margins include ethanol blending in all markets.

Muse, Stancil & Co. ethylene margins

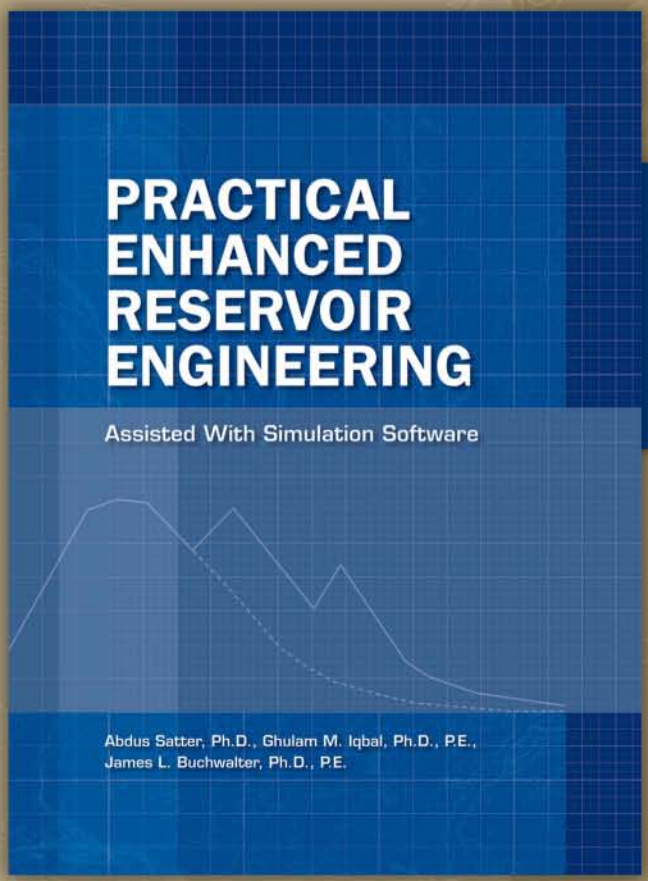
	Ethane	Propane	Naphtha
	¢/lb ethylene		
June 2008			
Product revenues	78.51	137.36	169.38
Feedstock costs	–50.95	–103.35	–176.99
Gross margin	27.56	34.01	–7.61
Fixed costs	–5.38	–6.36	–7.19
Variable costs	–8.32	–9.92	–13.54
Cash operating margin	**13.86**	**17.73**	**–28.34**
May 2008	20.58	17.33	–29.99
YTD avg.	18.02	17.84	–16.91
2007 avg.	14.41	14.14	–7.42
2006 avg.	19.53	22.44	1.34
2005 avg.	14.43	20.68	1.28

Source: Muse, Stancil & Co. See OGJ, Sept. 16, 2002, p. 46.
Data available in OGJ Online Research Center.

Muse, Stancil & Co. US gas processing margins

June 2008	Gulf Coast	Mid-continent
	$/Mcf	
Gross revenue		
Gas	12.09	9.41
Liquids	1.98	5.21
Gas purchase cost	13.46	12.63
Operating costs	0.07	0.15
Cash operating margin	**0.55**	**1.84**
May 2008	0.47	1.86
YTD avg.	0.54	1.78
2007 avg.	0.44	1.47
2006 avg.	0.26	0.97
2005 avg.	–0.06	0.25
Breakeven producer payment % of liquids	71%	64%

Source: Muse, Stancil & Co. See OGJ, May 21, 2001, p. 54.
Data available in OGJ Online Research Center.



NEW!

706 Pages
8.5x11 · Hardcover
March 2008

ISBN: 978-159370-056-0
Price: $125.00 US

REAL-WORLD LESSONS ON RESERVOIR ENGINEERING

Experts in their fields, Drs. Abdus Satter, Ghulam Iqbal and Jim Buchwalter bring to this new book their life-long experience and expertise in reservoir engineering and simulation techniques and practice.

Starting from basic principles and leading to real-life reservoir management aided by simulation software, this comprehensive modern guide offers:

- reservoir engineering fundamentals
- advanced reservoir related topics
- reservoir simulation software models and techniques
- problems and case studies from around the world

Practical Enhanced Reservoir Engineering covers all phases of the reservoir life cycle and will serve as an essential resource for both students and industry professionals.

ORDER YOUR COPY TODAY!
800-752-9764 | www.PennWellBooks.com

PennWell®

Classified Advertising

Your marketplace for the oil and gas industry

DEADLINE for CLASSIFIED ADVERTISING is 10 A.M. Tuesday preceding date of publication. Address advertising inquiries to CLASSIFIED SALES, 1-800-331-4463 ext. 6301, 918-832-9301, fax 918-831-9776, email: glendah@pennwell.com.

- *DISPLAY CLASSIFIED: $375 per column inch, one issue. 10% discount three or more CONSECUTIVE issues. No extra charge for blind box in care. Subject to agency commission. No 2% cash discount.*
- *UNDISPLAYED CLASSIFIED: $4.00 per word per issue. 10% discount for three or more CONSECUTIVE issues. $80.00 minimum charge per insertion. Charge for blind box service is $54.00 No agency commission, no 2% cash discount. Centered/Bold heading, $9.00 extra.*
- *COMPANY LOGO: Available with undisplayed ad for $80.00. Logo will be centered above copy with a maximum height of 3/8 inch.*
- *NO SPECIAL POSITION AVAILABLE IN CLASSIFIED SECTION.*
- *PAYMENT MUST ACCOMPANY ORDER FOR CLASSIFIED AD.*

EMPLOYMENT

WORK FROM HOME ACCOUNT MANAGERS AND SALES REPRESENTATIVES

As part of our expansion program, our company is looking for part time work from home account managers and sales representatives. It pays a minimum of $3000 a month plus benefits and takes only little of your time. Please contact us for more details. Requirements - Should be a computer Literate. 2-3 hours access to the internet weekly. Must be Honest and Loyal. Must be Efficient and Dedicated. If you are interested and need more information,
Contact Michael J Sloan, Email: mjsloan01@aol.com

Oil Field Chemical Sales – ground-floor career opportunities:

Omni Industries, a well established independent blender/marketer of lubricants and chemicals, is expanding into oil field chemicals – demulsifiers, corrosion inhibitors, etal.

Attractive opportunities for the right people. Currently, sales people and field technicians. First wave: Regional coverage 500 mile radius of Shreveport, LA - via local distribution points. Grow beyond that over time.

Applicants must have proven track record with industry majors or leading independents. Able to pursue sales in LA, TX, OK, AR, MS, AL. Proactive, team players, interpersonal skills, computer literate. Could lead to management positions. Negotiable key-man packages including profit sharing, with this fast growing and highly proactive family owned company. A fun place to work and build a career.

Reply in confidence to spalombo@osp.cc
Stafford Palombo @ 225-261-6559 x 105

As part of our expansion program,our company is looking for part time Account Manager and sales representatives, it pays $3500 monthly plus benefits and takes only little of your time. Please contact us for more details. Requirements - Should be a computer Literate. 2-3 hours access to the internet weekly. Must be over 20yrs of age. Must be Efficient and Dedicated.If you are interested and need more information,Contact KIMBERLY JAMES (kimberlyjames745@gmail.com)

PART TIME JOB OFFER @ GEO WORLD GROUP OF COMPANY !!! Description: As part of our expansion programme, we are a new and small company looking for home account managers and sales representatives on a part-time job basis, you can earn about $2550 a month and an extra fee weekly. Requirements - Should be a computer literate. 6-12 hours access to the internet weekly. Must be over 18 yrs of age. Must be Efficient and Dedicated. If you are interested and need more information. Contact us via Email Address at: geoworldinc@gmail.com

M-I LLC aka M-I SWACO in Houston, TX seeks Performance Evaluation Engineer to aid in performance of customer-acceptance tests for new equipment and processes developed by research, design and engineering. Maintain water-base and oil-base drilling fluid batches utilized for full-scale centrifuge reliability testing and performance evaluation. Bachelors in Engineering or Science plus experience. Mail resume to: P. Shah – Sr. HR Rep., at M-I LLC, 5950 North Course Dr., Houston, TX 77072. Equal employment opportunity employer: M/F/V/D. Must put job code AARPEE on resume.

ConocoPhillips Company in Houston, TX seeks Manager, Latin American Legal Affairs. Qualified applicants will possess a law degree and at least seven years experience in oil and gas exploration and production legal matters in Latin America. To submit resume please visit www.conocophillips.com/careers. Put job code 00512 on resume.

EQUIPMENT FOR SALE

20,000 BBL Crude Topping Unit
2,000 BBL Maxium DFS
4,958 SCFM H2 Offgas Compressor Skid
Viewpoint Energy
Please Call: 409-945-4897
Tiffany Brasher
tbrasher@viewpointenergy.com
www.viewpointenergy.com

Nitrogen Rejection Unit
Skid mounted N2 removal system. 6000 MCFPD capacity w/up to 20% nitrogen.
New, never used. $750,000 OBO.
Call for photos and info.
(805) 686-5622 bwolf@hwy246.net

EQUIPMENT FOR SALE

REFRIGERATION AND J.T. PLANTS

7.5 MMSCFD, 1000 PSI, NATCO

4.0 MMSCFD, 1000 PSI, NATCO

6.5 MMSCFD, 1250 PSI X 400 PSI, H&H J.T.

2.0 MMSCFD, 1000 PSI, PROCESS EQPT.

OTHERS AVAILABLE

PLEASE CALL 318-425-2533, 318-458-1874

regardres@aol.com

Process Units

Condensate Stabilizer
6,500 BPSD

200 T/D Methanol Plant

FCCU UOP
17,000 – 22,000 BPSD

BASIC Engineering, Inc.
Please Call: 713-674-7171
Tommy Balke
tbalkebasic1@aol.com
www.basicengineeringinc.com

EQUIPMENT FOR SALE

FOR SALE / RENT

5.2 MW MOBILE GEN SETS
CALL: 800-704-2002

SOLAR TAURUS 60

- GAS - LOW NOx (OIL)
- 60 Hz - 13.8KV or 50 Hz - 11KV
- LOW HOUR - SOLAR SERVICED

DIESELS • TURBINES • BOILERS

24/7 EMERGENCY SERVICE
IMMEDIATE DELIVERY

www.wabashpower.com | info@wabashpower.com
Phone: 847-541-5600 Fax: 847-541-1279

wabash POWER EQUIPMENT CO.
444 Carpenter Avenue, Wheeling, IL 60090

Solar Taurus 60

MOBILE GEN SETS
5.2 MW
Solar Maintained
Low Time

- 7 Units (Gen 1) & (Gen 2)
- All Natural Gas
- Low Nox 25 ppm
- Mobile PCR U.G. Switch gear
- 60 Hz • 13.8 kV
- 50 Hz Conversion Available

Mid America Engine, Inc.
662-895-8444 · Fax: 662-895-8228
205-590-3505 · Fax: 205-590-3885
Keith: kcoleman@maegen.com
Art: asigler@maegen.com
Greg: gposey@maegen.com
Wesley: wtuggle@maegen.com

NATCO

Water, Oil and Gas
Treatment/Conditioning Equipment
For Sale, Lease, Contract Service

Separators, Hydrocyclones, Float Cells,
Filtration, Desalters, Electrostatic Oil Treaters,
Amine Units, Glycol Units, CO2 Membranes,
JT-Plants, Refrigeration Units, Measurement & Controls
For Information Call 713-895-1744
www.natcogroup.com

SURPLUS GAS PROCESSING/REFINING EQUIPMENT

NGL/LPG PLANTS: 10 - 600 MMCFD

AMINE PLANTS: 120 – 1,000 GPM

SULFUR PLANTS: 10 - 180 TPD

FRACTIONATION: 1000 – 25,000 BPD

HELIUM RECOVERY: 75 & 80 MMCFD

NITROGEN REJECTION: 25 – 80 MMCFD

ALSO OTHER REFINING UNITS

We offer engineered surplus equipment solutions.

Bexar Energy Holdings, Inc.
Phone 210 342-7106
Fax 210 223-0018
www.bexarenergy.com
Email: info@bexarenergy.com

DRILLING PROSPECTS

WANTED

Oil Drilling prospects. Less than 3,000 ft.
Southwest Minerals, Inc.
Harvey Estes, Pres.
813-376-4075
Harveylv@aol.com

Hiring?
Selling Equipment?
Need Equipment?
New Business Opportunity?

Contact: Glenda Harp
+1-918-832-9301 or
1-800-331-4463, ext. 6301
Fax: +1-918-831-9776

OGJ Classifieds Get Results!

EXPLORATION

Experienced operator wishes to work with fundraiser. 817-797-6719.

CONSULTANTS

Brazil: EXPETRO can be your guide into this new investment frontier.
Effective strategic analysis, quality technical services, compelling economic/regulatory advice, and realistic approach regarding Brazilian business environment-120 specialists upstream, downstream gas and biofuels.
Email: contato@expetro.com.br
Web: www.expetro.com.br-Rio de Janeiro, Brazil

BUSINESS OPPORTUNITY

Thinking about selling or buying an energy-related business?
Rely on professionals - Experienced Petroleum Engineers and Business Intermediaries.
Call 713-680-1200. Ask for Frank or Pete.
www.certifiedbb.com Certified Business Brokers

Want to purchase minerals and other oil/gas interests. Send details to: P.O. Box 13557, Denver, CO 80201.

Intermediate depth – ready to drill – multi pay wildcat oil prospect. Permian Basin. Excellent geology. 5,000,000 Bbl potential. Seeking funding, call 972-822-7110.

Oil & Gas Drilling Company
Long-time SW U.S contractor, Strong Mgt.
$15mm Gross, $5mm EBITDA.
303-785-0525 IBGBusiness.com

MINERALS/ROYALTIES

WANTED TO PURCHASE PRODUCING MINERALS / ROYALTIES
CONTACT:
Earl Hollingshead
164 St. Francis Street
Suite 205
Mobile, AL 36602
251-432-3500 office
251-432-3552 fax
251-656-1001 cell
earl@ngtg.net email

ECLIPSE INTERNATIONAL
OILFIELD MANUFACTURING

PennEnergy
New & Used Equipment
WWW.PENNENERGY.COM

Drillmaster EZ Mover™ Drilling Rig

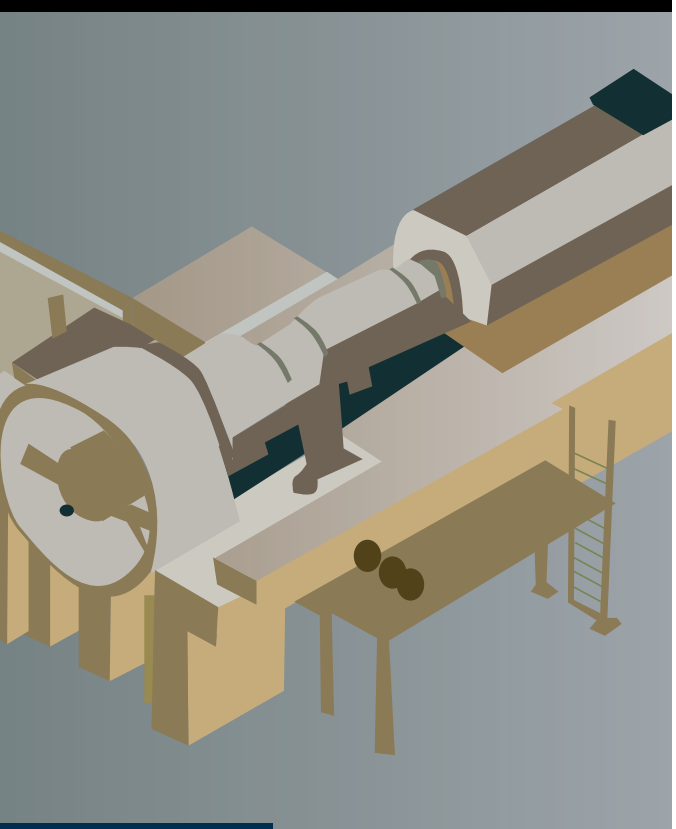
- Move entire rig in < 20 truck loads – not 40
- Innovative rig technology: EZ Flow oilfield skid; EZ Pac solids control elevator skid
- 100% US content
- 1000- and 1500-hp, and T-600 trailer-mounted versions available
- 1500-hp version can drill to 18,000 ft
- Top drive capable
- API standards and certifications
- Five to six month delivery
- Priced at $13 million

Newly remanufactured drilling rigs complete and ready to drill

- Four (4) Eclipse Drillmaster™ 2000-hp National model 1320-UE drawworks drilling rigs with two Branham and two Pyramid manufactured masts and substructures
- One (1) Eclipse Drillmaster 1500-hp National model 110-UE drawworks drilling rig with Branham manufactured mast and substructure

All components will be remanufactured to original manufacturers' specs and factory settings. All rigs are 100% US content and include new Ellis Williams triplex mud pumps, Eclipse EZ-Flo™ mud tank systems, EZ-Flo oilfield skid system and OEM SCR house designed to your specs.

Two New Alstom 50-Hz Reheat Condensing STGs Now Available



Offered by Thomassen Amcot International and available exclusively through PennEnergy

Two 50-Hz Combined Cycle 140-MW Steam Turbine Generators available for Q4-2008 delivery. These steam turbine generators (STGs) are new, 140-MW Alstom two-cylinder (HP and IP/LP) reheat condensing steam turbine generators sets suitable for combined cycle outdoor operation with axial exhaust and air-cooled (TEWAC) generator. Initial steam conditions 1900 psia/1050°F/1050°F reheat. Units include manufacturer's performance guarantees and warranties. Units may be shipped directly to your site from Alstom's European manufacturing facility.

- Units comes complete with all normally supplied auxiliaries and includes factory warranties covering manufacturing defects and performance guarantees.
- Configured as a two-cylinder machine with an HP turbine and a combined IP/LP turbine with an axial exhaust.
- Steam inlet conditions are 1900 psia (nominal)/ 1050°F/1050°F.
- Air-cooled TEWAC generator rated 165 MVA, 15.75 kV, 3 phase, 50 Hz, 3000 rpm.

THOMASSEN AMCOT INTERNATIONAL LLC

Contact

Advertising Sales / Advertisers Index

Houston
Regional Sales Managers. Marlene Breedlove; Tel: (713) 963-6293, Fax: (713) 963-6228, E-mail: marleneb@pennwell.com. Charlene Burman; Tel: (713) 963-6274, Fax: (713) 963-6228; E-mail: cburman@pennwell.com. Mike Moss; Tel: (713) 963-6221, Fax: (713) 963-6228: E-mail: mikem@pennwell.com. PennWell - Houston, 1455 West Loop South, Suite 400, Houston, TX 77027.

Southwest / South Texas/Western States/ Gulf States/Mid-Atlantic
Marlene Breedlove, 1455 West Loop South, Suite 400, Houston, TX 77027; P.O. Box 1941 Houston, TX 77251; Tel: (713) 963-6293, Fax: (713) 963-6228; E-mail: marleneb@pennwell.com.

Northeast/New England/Midwest/North Texas/ Oklahoma/Alaska/Canada
Charlene Burman, 1455 West Loop South, Suite 400, Houston, TX 77027; Tel: (713) 963-6274, Fax: (713) 963-6228; E-mail: cburman@pennwell.com.

Scandinavia/The Netherlands/Middle East/Africa
David Betham-Rogers, 11 Avenue du Marechal Leclerc, 61320 Carrouges, France; Tel: 33 2 33 282584, Fax: 33 2 33 274491; E-mail: davidbr@pennwell.com.

United Kingdom
Linda Fransson, Warlies Park House, Horseshoe Hill Upshire, Essex EN9 3SR, UNITED KINGDOM Tel: +44 (0) 1992 656 665; Fax: +44 (0) 1992 656 700; E-mail: lindaf@pennwell.com.

France/Belgium/Spain/Portugal/Southern Switzerland/Monaco
Daniel Bernard, 8 allee des Herons, 78400 Chatou, France; Tel: 33 (0)1 3071 1224, Fax: 33 (0)1 3071 1119; E-mail: danielb@pennwell.com, France, Belgium, Spain, Portugal, Southern Switzerland, Monaco.

Germany/Austria/Denmark/Northern Switzerland/Eastern Europe/Russia
Verlagsburo Sicking, Emmastrasse 44, 45130, Essen, Germany. Tel: 49 0201 77 98 61, Fax: 49 0201 781 741; E-mail: wilhelms@pennwell.com. Wilhelm F. Sicking, Germany, Austria, Denmark, Northern Switzerland, Eastern Europe, Russia, Former Soviet Union.

Japan
e. x. press Co., Ltd., Hirakawacho TEC Building, 2-11-11, Hirakawa-cho, Chiyoda-ku, Tokyo 102-0093, Japan, Tel: 81 3 3556 1575, Fax: 81 3 3556 1576; E-mail: manami.konishi@ex-press.jp; Manami Konishi.

Brazil
Grupo Expetro/Smartpetro, Att: Jean-Paul Prates and Bernardo Grunewald, Directors, Ave. Erasmo Braga 22710th and 11th floors Rio de Janeiro RJ 20024-900 BRAZIL; Tel: (55-21) 3084 5384, Fax: (55-21) 2533 4593; E-mail: jpprates@pennwell.com.br and bernardo@pennwell.com.br.

Singapore/Australia/Asia-Pacific
Michael Yee, 19 Tanglin Road #09-07, Tanglin Shopping Center, Singapore 247909, Republic of Singapore; Tel: (65) 6 737-2356, Fax: (65) 6 734-0655; E-mail: yfyee@singnet.com.sg. Singapore, Australia, Asia Pacific.

India
Rajan Sharma, Interads Limited, 2, Padmini Enclave, Hauz Khas, New Delhi-110 016, India; Tel: +91-11-6283018/19, Fax: +91-11-6228928; E-mail: rajan@interadsindia.com.

Italy
Vittorio Rossi Prudente, UNIWORLD MARKETING, Via Sorio 47, 35141 PADOVA - Italy; Tel:+39049723548, Fax: +390498560792; E-mail: vrossiprudente@hotmail.com.

House leaders press national drilling program

House Democrats are pressing a national drilling program for the US.

They want the oil and gas industry to drill up existing leaseholds before they'll allow leasing in highly prospective but controversial areas such as the Arctic National Wildlife Refuge coastal plain in Alaska.

They tried to advance their national drilling program first through the use-it-or-lose-it approach to leasing.

The Editor's Perspective

by Bob Tippee, Editor

A House bill introduced last month would have accelerated relinquishment of unproductive leases and prevented the issuance of new leases to companies not developing existing leasehold diligently enough.

The Interior secretary would have received authority to decide what constitutes diligent development. Several antileasing Interior secretaries of the past would have relished the power.

HR 6251 failed. House leaders now propose annual lease sales for the National Petroleum Reserve-Alaska to show, according to Majority Leader Steny H. Hoyer of Maryland, that "Democrats support increasing the domestic production of petroleum and our other energy resources."

They just support production where they support it and not where they don't—such as in ANWR or off the East and West Coasts.

They seem to think the problem is reluctance to drill acreage already leased—notwithstanding contrary evidence such as briskly rising completion totals and rig counts. Hoyer took pains to point out that operators hold leases (he mistakenly said drilling permits) covering 68 million acres and that NPR-A covers 20 million acres.

Naming states whose combined areas represent 88 million acres, he called the total "an enormous amount of land on which drilling could take place."

See? The Democratic leaders don't oppose drilling—at least not now that strenuously high oil prices have made consumers ask why so much federal acreage hasn't been leased.

The Democrats just want Americans to think they know better than oil companies do where drilling should occur. And if they get their way it will occur there or not at all.

It's a national drilling program, the essence of which are drilling decisions made by people who don't have to place capital at risk or know anything about play development.

National drilling programs don't produce much oil or gas.

(Online July 11, 2008; author's e-mail: bobt@ogjonline.com)

Market Journal

by Sam Fletcher, Senior Writer

Crude fluctuates in $12/bbl range

Crude prices fluctuated in a $12/bbl range July 7-11 on the New York Mercantile Exchange, falling sharply in the first two sessions as the US dollar strengthened then rebounding in the last two sessions to almost make up that loss.

The front-month crude contract lost $9.29/ bbl through July 7-8 as the US dollar strengthened, then inched up just 1¢/bbl on July 9 before climbing $9.03/bbl over the July 10-11 sessions amid worries of possible supply disruptions. The August contract for benchmark US light, sweet crudes fell July 7 for the first time in four sessions after Iran's foreign minister hinted at conciliation over that country's nuclear program. It then dropped $5.37 to $136.04/bbl July 8, the biggest 1-day loss since Mar. 19, as the strengthening dollar and other economic factors triggered a sell-off of commodities.

However, losses stopped July 9 as Iran test-fired nine medium and long-range missiles in the Persian Gulf. A June exercise by Israel's air force earlier had triggered speculation of a possible attack on Iran's nuclear sites. The crude contract escalated $5.60 to $141.65/bbl July 10 on the New York Mercantile Exchange when Iran test-fired more missiles apparently in response to a warning from Secretary of State Condoleezza Rice that the US will defend Israel and other allies if attacked. A flurry of trading hiked the contract's price by $4/bbl in the last 30 minutes of the open session. The Organization of Petroleum Exporting Countries has warned it cannot replace the crude shortfall if Iran is attacked and its production and exports are disrupted.

Crude futures jumped to a record $147.27/bbl in intraday trading July 11, before closing at $145.08/bbl, up $3.43 for the day but down 21¢ for the week. It appeared headed for another loss in early trading July 14 as the dollar appreciated vs. the euro after the US Treasury revealed plans to provide direct loans to the Federal Home Loan Mortgage Corp. and Federal National Mortgage Assoc. to shore up the value of home loans they hold.

Factors affecting prices

Workers went on strike July 14 at 33 of Petroleo Brasileiro SA's 42 offshore platforms in Brazil's Campos basin. That accounts for more than 80% of Brazil's total output of 1.8 million b/d. Workers vowed to resist Petrobras' contingency plan to maintain production. At issue is a 10-year quest by workers for Petrobras to count the day that crews leave the offshore platforms as a working day.

Analysts in the Houston office of Raymond James & Associates Inc. said, "The stronger dollar has offset the added geopolitical risk premium related to the 5-day strike of Petrobras employees in Brazil. We expect that this prospective supply disruption, as well as ongoing instability in Nigeria and Iran, will continue to add volatility to short-term oil prices."

Olivier Jakob at Petromatrix, Zug, Switzerland, said, "Iran has been trying to do as good a public relations exercise as Israel and its 'Glorious Spartan' military exercise early in June." Jakob said: "Israel has been telling the world that maybe it has the logistical capacity of hitting Iran, and Iran has been telling the world that maybe it has the capacity to hit Israel." Discussions continued over a prenegotiation freeze period on the nuclear issue. "If it was not for the missile test, then any advance in the negotiations would have looked like Iran was giving in due to the Israeli threat," said Jakob. Meanwhile, photography experts said one photo of four Iranian missiles being fired was faked. There is speculation that Iran doctored the photo to cover up its failure to launch one of the missiles in that group.

In other news, President Hugo Chavez of Venezuela said oil prices could hit $300/bbl if ExxonMobil Corp. were to freeze Venezuelan assets again in the dispute over a nationalized oil project in that country. ExxonMobil earlier won a temporary court injunction freezing $12 billion in assets held by Petroleos de Venezuela SA. A London court later overturned that injunction, but Chavez said the US firm could seek further action against Venezuela.

Nigerian rebels ended a 2-week ceasefire July 12. Gunmen kidnapped two employees of Julius Berger Nigeria PLC, a unit of Bilfinger Berger AG, Germany's second largest builder, in Port Harcourt July 11.

Adam Sieminski, chief energy economist, Deutsche Bank, Washington, said, "Falling oil demand in the US and Europe is offsetting strength in China. But the continuing impact of economic gains in the other non-OECD Asian countries as well as the Middle East, and the 'rest of the world,' mean that oil demand remains strong."

(Online July 14, 2008; author's e-mail: samf@ogjonline.com)

When you need answers right now...

Objective: Use wired-pipe telemetry to obtain high-resolution data for better, more-informed decisions

Environment: Wyoming, USA, horizontal well, anisotropic stress fields and hard formations

Technology: **INTEQ aXcelerate™ Wired-Pipe Telemetry**, utilizing the IntelliServ® network

Answers: Real-time MWD/LWD data and images for rapid geomechanical analysis of potential borehole breakout, better formation evaluation, full visualization of downhole conditions, proactive drilling dynamics management, and improved, more confident decision making.

INTELLISERV®

aXcelerate High-Speed Telemetry

Get immediate answers at www.AnswersWhileDrilling.com/aXcelerate

BAKER HUGHES INTEQ