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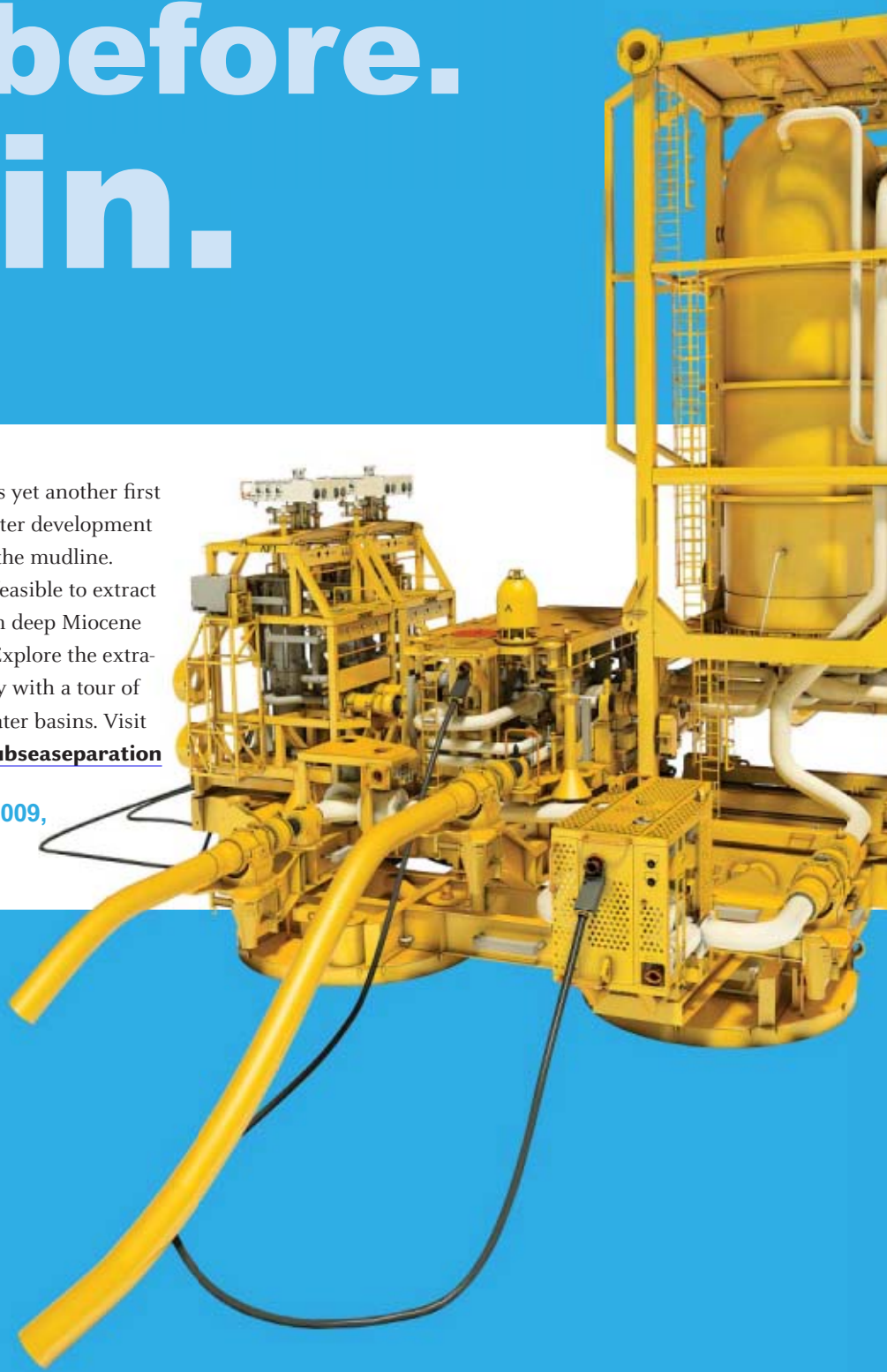

Total's Pazflor project off Angola represents yet another first for FMC Technologies: It's the first deepwater development based on full-field gas/liquid separation at the mudline. Three vertical separation systems make it feasible to extract heavy, highly viscous oil economically from deep Miocene reservoirs. And that's only the beginning. Explore the extraordinary potential of our subsea technology with a tour of four FMC projects in four different deepwater basins. Visit us now at **www.fmctechnologies.com/subseaseparation**

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OIL&GAS JOURNAL®

Aug. 17, 2009
Volume 107.31

OFFSHORE EUROPE

REGULAR FEATURES

COVER

StatoilHydro plans to have close to 20 vessels, among them the Transocean Searcher semisubmersible, in operation this summer as it develops Gjoa oil and gas field in the Sogn area off Norway. Gjoa, in the North Sea, is the year's largest development project off Europe. OGJ's annual Offshore Europe special report starts with an article on the North Sea outlook beginning on p. 20. Photo by Per Sveinung Larsen, courtesy of StatoilHydro.

General Interest

Exploration & Development

Drilling & Production

Processing

Transportation

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General Interest — Quick Takes

Ex-Im Bank to finance subsalt work off Brazil

Acting through the Export-Import Bank, the US agreed to increase financial support by $8 billion to $10 billion for development of subsalt oil reserves off Brazil.

Ex-Im Bank approved in May a $2 billion preliminary commitment to encourage purchase of US goods and services by Petroleo Brasileiro SA (Petrobras), which plans to invest $174 billion in development over the next 5 years. Weeks later, Petrobras completed negotiations with the China Development Bank for a 10-year, $10 billion bilateral credit line.

By the end of this month, Brazilian President Luiz Inacio Lula da Silva is expected to present to congress several bills concerning development of the country's subsalt reserves, after an advisory commission submitted its proposals to the president Aug. 5.

According to Energy Minister Edison Lobao, the report advises designating Petrobras as operator of all new subsalt licenses, which it would develop through partnerships with international oil companies. Another key measure includes formation of a state-run subsalt regulatory body, Petrosal, to manage exploitation of hydrocarbon resources and collect production entitlements from operators.

Injury rates rise for Canadian pipeline workers

More Canadian pipeline workers got hurt on the job during 2007 than in any other year since 2000, when officials started reporting safety performance indicators, Canada's National Energy Board reported Aug. 11.

NEB's annual report, "Focus on Safety and Environment: A Comparative Analysis of Pipeline Performance 2000-07," said nearly 2 out of every 100 pipeline workers suffered a serious workplace injury in 2007. That was nearly double the 7-year average.

The report said possible causes for increased injuries include employee experience levels, increasing pressure to meet deadlines, worker complacency, and increased pipeline construction activity.

NEB said it is working to help improve pipeline worker safety, including hosting safety forums where companies can share best practices with one another. ✦

Exploration & Development — Quick Takes

Shell's plan for Beaufort Sea advances

The US Minerals Management Service has received Shell Offshore Inc.'s plan to explore two Beaufort Sea leases and deemed it complete. The agency now will begin a 30-day review and analysis of the plan.

The review will include an environmental assessment specific to Shell Offshore's exploration plan, the US Department of the Interior agency said. It will decide whether to approve, require modifications, or disapprove the plan once it completes the technical and environmental review. MMS said Shell Offshore proposes activities limited to the far western area of Camden Bay, including use of one drillship with one tending ice-management vessel drilling two wells over the course of 1 year. The two leases are about 16 and 23 miles north of Point Thompson, Alas.

Shell Offshore obtained the two leases in federal Outer Continental Shelf Lease Sale 195 in 2005 and Lease Sale 202 in 2007, according to MMS. It noted that the sales were included in the 2002-07 5-year OCS program and were not affected by the recent court decision on the current leasing program, which sent the 2007-12 program back to MMS for additional environmental reviews.

It noted that Shell Offshore would have to meet Alaska's coastal zone management requirements, the US Environmental Protection Agency's air and water quality rules, and federal Marine Mammal Protection Act requirements of the US Fish and Wildlife Service and National Marine Fisheries Service before MMS would allow activity to proceed.

Gulf Keystone finds oil in Iraq's Kurdish region

Gulf Keystone Petroleum International Ltd. (GKP) reported its Shaikan-1 well in Iraq's Kurdish region on Shaikan Block, 85 km northwest of Erbil, found oil in the Middle Jurassic Sargelu formation at a depth of 1,450-1,510 m.

GKP said preliminary test rates indicate 5,000-8,000 b/d of 21-22° gravity oil with wellhead pressures of 380-295 psi. The company said the oil's properties are comparable to oil produced at Tawke field to the northwest of Shaikan Block.

Exports from Tawke field, operated by DNO, started on June 1 after approval by Iraq's central government. Production in the first quarter averaged 1,908 b/d and 5,965 b/d in the second quarter.

GKP plans to use information from Shaikan-1 along with seismic surveys and geological data to evaluate the formation. The company said its preliminary estimate for the tested interval is "300-500 million bbl of oil in place."

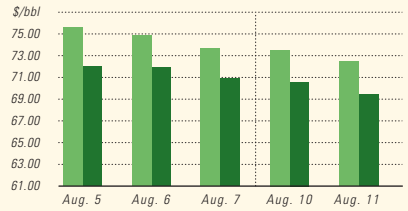
In addition to the well test results, GKP said the primary zones of interest for the Shaikan-1 are the Lower Jurassic Alan and Mus formations.

GKP said indications are that "these formations will yield additional oil-bearing zones as we drill ahead to our next casing point at approximately 2,500 m…before subsequently reaching final target depth at 3,200-3,500 m."

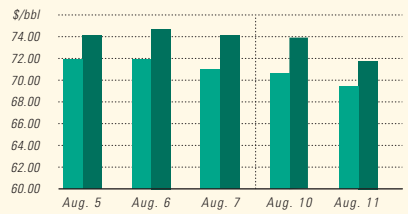
Last month, GKP decided to focus its attention on Kurdistan and announced plans to seek a buyer for its interest in the Hassi Ba Hamou Permit in central Algeria.

Industry Scoreboard

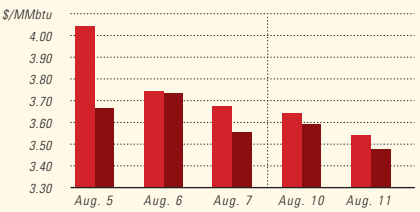
IPE BRENT / NYMEX LIGHT SWEET CRUDE



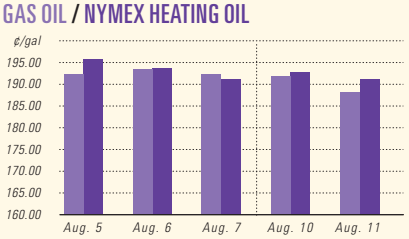
WTI CUSHING / BRENT SPOT



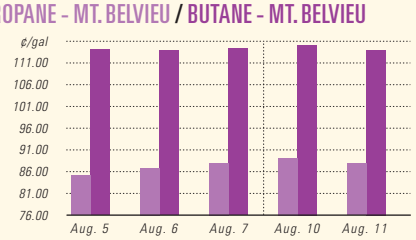
NYMEX NATURAL GAS / SPOT GAS - HENRY HUB



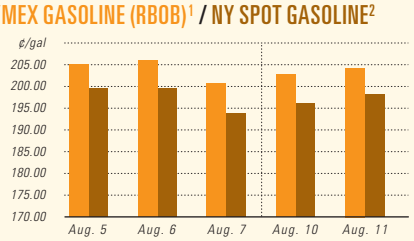
IPE GAS OIL / NYMEX HEATING OIL



PROPANE - MT. BELVIEU / BUTANE - MT. BELVIEU



NYMEX GASOLINE (RBOB)[1] / NY SPOT GASOLINE[2]



[1]Reformulated gasoline blendstock for oxygen blending.
[2]Nonoxygenated regular unleaded.

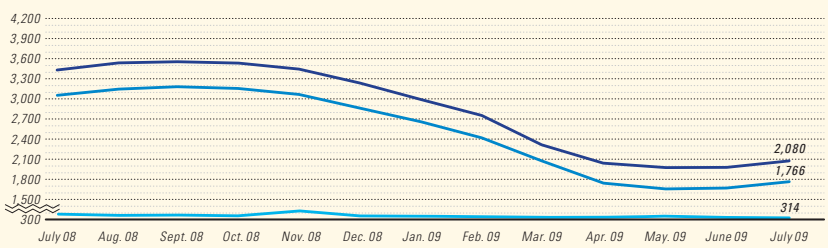
US INDUSTRY SCOREBOARD — 8/17

Latest week 7/31	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	9,197	9,150	0.5	8,970	9,053	–0.9
Distillate	3,396	3,688	–7.9	3,613	4,017	–10.1
Jet fuel	1,386	1,574	–11.9	1,379	1,585	–13.0
Residual	551	684	–19.4	604	652	–7.4
Other products	4,411	4,461	–1.1	4,074	4,544	–10.3
TOTAL DEMAND	18,941	19,557	–3.1	18,640	19,851	–6.1
Supply, 1,000 b/d						
Crude production	5,175	5,133	0.8	5,234	5,118	2.3
NGL production[2]	1,974	2,237	–11.8	1,934	2,142	–9.7
Crude imports	9,516	10,106	–5.8	9,307	9,844	–5.5
Product imports	2,540	2,992	–15.1	2,824	3,206	–11.9
Other supply[3]	1,876	1,529	22.7	1,717	1,549	10.8
TOTAL SUPPLY	21,081	21,997	–4.2	21,016	21,859	–3.9
Refining, 1,000 b/d						
Crude runs to stills	14,454	15,764	–8.3	14,454	14,934	–3.2
Input to crude stills	14,815	15,638	–5.3	14,815	15,266	–3.0
% utilization	83.9	88.8	—	83.9	86.8	—

Latest week 7/31	Latest week	Previous week[1]	Change	Same week year ago[1]	Change	Change, %
Stocks, 1,000 bbl						
Crude oil	349,510	347,840	1,670	296,863	52,647	17.7
Motor gasoline	212,858	213,076	–218	209,216	3,642	1.7
Distillate	161,481	162,617	–1,136	133,346	28,135	21.1
Jet fuel–kerosine	46,613	45,249	1,364	41,429	5,184	12.5
Residual	33,588	34,721	–1,133	36,545	–2,957	–8.1
Stock cover (days)[4]			Change, %		Change, %	
Crude	23.7	23.4	1.3	19.5	21.5	
Motor gasoline	23.1	23.1	0.0	22.2	4.1	
Distillate	47.6	49.3	–3.4	32.2	47.8	
Propane	76.0	75.2	1.1	44.9	69.3	
Futures prices[5] **8/7**			Change		Change	%
Light sweet crude ($/bbl)	71.57	67.07	4.50	124.57	–53.00	–42.5
Natural gas, $/MMbtu	3.90	3.58	0.32	9.23	–5.33	–57.8

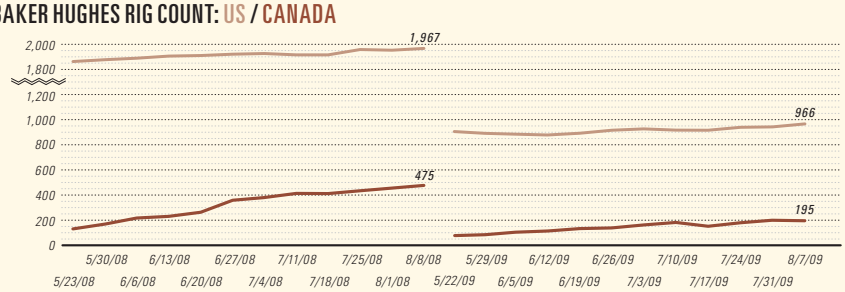
[1]Based on revised figures. [2]Includes adjustments for fuel ethanol and motor gasoline blending components. [3]Includes other hydrocarbons and alcohol, refinery processing gain, and unaccounted for crude oil. [4]Stocks divided by average daily product supplied for the prior 4 weeks. [5]Weekly average 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

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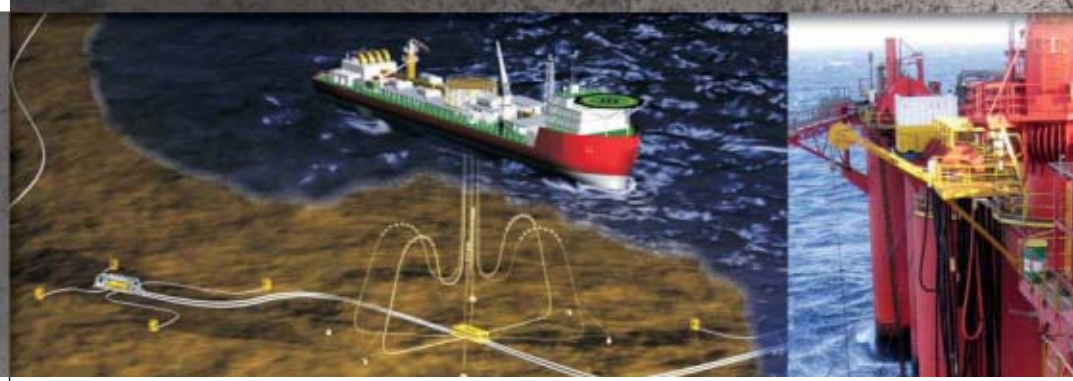

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Weatherford helped StatoilHydro upgrade subsea communications *and increased the number of downhole gauges from the Visund platform. The operator can now monitor performance in wells with more complex reservoir structures and increase the overall speed and reliability of communications.*

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Just days after that announcement, GKP was granted production-sharing contracts by the Kurdish Regional Government (KRG) for Sheikh Adi and Ber Bahr blocks near the city of Dihok in the vicinity of Mosul.

GKP will operate Sheikh Adi with an 80% stake and Ber Bahr with a 40% stake, while the KRG will maintain a 20% stake in both blocks. ✦

Drilling & Production — *Quick Takes*

Jacket, piles finished for Buzzard platform

Nexen Petroleum UK Ltd. is set to receive the jacket and piles for the fourth platform on its Buzzard oil field in the UK North Sea ahead of schedule. Early installation of the substructure components will reduce the installation and hook-up work when the topsides and bridge are installed in 2010.

Heerema Vlissingen, one of the fabrication facilities of Heerema Fabrication Group (HFG), has loaded the jacket and piles onto a barge to sail to the field, which is 30 miles northeast of Peterhead in Scotland.

The company won the engineering, procurement, and construction contract in March 2008 to deliver a 3,500-ton jacket and eight piles that weigh 2,200 tons. The jacket measures 42 x 42 x 124 m and has eight 96-in. piles that weigh a total of 2,200 tons.

Heerema Vlissingen delivered the equipment early because it had lined up timely procurement and there were no changes to the design.

The new installation should be equipped to handle 200,000 b/d of crude with up to 500 ppm of hydrogen sulfide. It will also have facilities for up to three tiebacks.

"In the meantime, HFG's fabrication facility Heerema Hartlepool is fabricating the 6,000-ton process deck and 500-ton bridge, due for load-out in March 2010," said HFG.

Buzzard holds more than 1 billion bbl of oil in place. It is one of the UK's largest new North Sea developments of recent years (OGJ Online, May 1, 2008). Nexen expects that the field will require 27 production wells. Reservoir pressure will be maintained by an active waterflood program using produced water supplemented by treated seawater when necessary.

Murphy Oil brings Azurite field on stream

Murphy Oil Corp. has started oil production from Azurite field off Congo (Brazzaville) through what it says is the industry's first floating drilling, production, storage, and offloading facility (FDPSO).

Azurite is on the Mer Profond Sud (MPS) block in 4,500 ft of water. The FDPSO has storage capacity of 1.3 million bbl of oil and can process 40,000 b/d of oil. Drilling and completion of production and injection wells continue as production ramps up.

Discovered in 2005, Azurite is Murphy Oil's first operated development in West Africa.

Azurite, with about 75 million bbl of gross oil, was scheduled to come on stream in the second quarter of 2009 (OGJ Online, Apr. 28, 2008).

Murphy Oil operates the block with a 50% working interest. Partners are PA Resources with 35% and Ste. Nationale Petroles du Congo with 15%.

Premier Oil brings Shelley field on stream

Premier PLC has begun producing 31° gravity oil at unspecified rates from the Paleocene Forties reservoir at Shelley field in the UK North Sea.

The field has two horizontal production wells completed subsea with downhole electric submersible pumps. The wells are connected via a short flowline and a control umbilical to the Sevan Voyageur floating production, storage, and offloading vessel.

The company acquired a 100% interest in the field through its takeover of Oilexco North Sea Ltd. (ONSL) in May this year.

Simon Lockett, chief executive officer at Premier Oil, said: "Prior to Premier's acquisition of ONSL, the development of the Shelley field had been stopped, and the contract with Sevan had been terminated. I am delighted that we have been able to negotiate a new contract with Sevan and, with the support of our key suppliers, restart the development, achieving first production so soon."

When it reported its new contract for the Sevan Voyageur, Premier said Shelly oil production would exceed 30,000 b/d (OGJ Online, Apr. 21, 2009).

Shelley was discovered in 1984 by the 22/2-2 well. It is in 95 m of water about 40 km south of the Premier-operated Balmoral complex.

Ghana ports authority prepares for oil production

The Ghana Ports and Harbor Authority plans to begin construction of an oil service terminal at the Takoradi Port in September in preparation for the start of oil production next year.

About $50 million is needed for phase one of the project, due for completion in 18 months, which includes pipelay from offshore oil fields to the port. The project also includes construction of a terminal space for the operations of 10-15 supply vessels.

In connection with the development, Takoradi port authorities have put in place what they are calling an "immediate master plan" to reclaim a portion of the sea to serve as a berthing area for the oil service vessels, which have had to berth at a nearby naval base.

The plan also calls for the dredging of channels and berths to accommodate larger vessels, as well as increasing warehouse space, transit sheds, and space for trucks.

Earlier this month, Tullow Ghana Ltd. let a contract for subsea, well test, and data acquisition services to Expro International Group PLC for its deepwater Jubilee oil field offshore Ghana, which is due to start production in 2010 (OGJ Online, Aug. 4, 2009).

DOE-backed Fayetteville shale tool available

A US Department of Energy-sponsored project has led to development of an infrastructure placement analysis system (IPAS) to help producers recover natural gas more effectively from shale formations in environmentally sensitive areas.

DOE's Fossil Fuels Office said that the University of Arkansas

and the Argonne National Laboratory joined the project, managed by DOE's National Energy Technology Laboratory, to develop the software planning tool, which is available on line.

It said that researchers believe the 50-mile wide Fayetteville shale play, underlying numerous central and eastern Arkansas counties with more than 2 million acres leased, could become one of the nation's most active shale gas production areas.

The risk-management tool lets operators evaluate alternative sites, identify sensitive areas, and minimize environmental impacts, according to DOE. It said the IPAS software accomplishes this by providing a map of the intersection of drilling pads, roads, gathering lines, and other proposed features with sensitive water locations, existing transmission lines, soil data, and other features.

Operators who use the software can streamline well placement and infrastructure development permitting, DOE said.

It said researchers estimate that the software can reduce the time required to locate infrastructure elements by a day or more for at least 10% of wellsites. Cost savings could approach $2.25 million/year with a drilling rig day rate of up to $45,000 on 500 wells/year, it indicated. ✦

Processing — *Quick Takes*

Rockies, shale NGLs prompt work at Mont Belvieu

Enterprise Products Partners LP announced recently plans to build a 75,000-b/d NGL fractionator at its Mont Belvieu, Tex., complex east of Houston. The unit will provide additional capacity to accommodate growing NGL volumes from producing areas in the Rockies, the Barnett shale, and the emerging Eagle Ford shale play in South Texas.

When completed in early 2011, the project will increase Enterprise's NGL fractionation capacity at Mont Belvieu to about 300,000 b/d and net system-wide capacity to about 600,000 b/d.

Enterprise said the project is supported by long-term processing contracts and will be based on the design of its 75,000-b/d Hobbs fractionator in Gaines County, Tex., that started up in August 2007 (OGJ, June 18, 2007, p. 50; June 23, 2008, p. 50).

"Over the past 3 years," said Jim Teague, Enterprise executive vice-president, "our NGL fractionation volumes have increased by 46% to a record 449,000 b/d in second-quarter 2009.

"Our NGL fractionators are operating at or near their practical limits and we have consistently contracted with third-party fractionators for additional capacity," he said. With expected growth in NGL production and demand for NGLs by the petrochemical industry, "we have seen strong demand for NGL fractionation, storage, and distribution."

The growing demand for fractionation services is indicated, he said, by the fact that Enterprise's Hobbs plant has been operating at capacity since first-quarter 2008. In fact, "we have even been utilizing our fractionators in Louisiana to offload volumes that exceeded our available capacity at Mont Belvieu in order to satisfy customer demands."

Sinopec, KPC select Zhanjiang for complex

China Petroleum & Chemical Corp. (Sinopec) said its joint refining and chemical complex with Kuwait Petroleum Corp (KPC) is to be constructed on Donghai Island in Zhanjiang city, near Hainan.

"From this week, the two sides will start feasibility studies for the new site and an evaluation report on environmental impact," said Sinopec, adding that the new site was chosen after several months of screening by Sinopec and KPC as well as Chinese and international consultants.

Sinopec said the $9 billion complex, which will have an annual capacity of 15 million tonnes, is due for completion by yearend 2013 after it gains approval from the country's National Development and Reform Commission.

The two firms originally chose the Nansha District of Guangdong's capital city Guangzhou as the location for the complex, but local media said they changed plans due to environmental concerns.

Hong Kong's RTHK Radio 3 said Sinopec and KPC agreed to move the refinery project on the mainland further away from Hong Kong after "strong opposition from local green groups and lawmakers."

In May, the Kuwait News Agency reported that the refinery project, which also includes a 1 million tonne/year ethylene cracker unit, will be designed to solely process Kuwaiti crude supplied by KPC.

HF release at Joliet refinery investigated

The US Chemical Safety Board has sent an investigative team to ExxonMobil Corp.'s 240,000-b/d Joliet, Ill., refinery following an Aug. 6 propane and hydrogen fluoride release there. It was the third HF release CSB has investigated this year, CSB Chairman John S. Bresland said.

"We are concerned about the three apparent releases of hydrogen fluoride from refinery alkylation units in Pennsylvania, Texas, and now Illinois that have been reported since March 2009. Because of its high toxicity, any loss of primary containment for hydrogen fluoride is a serious matter," he said.

CSB has investigators examining a July 19 HF release at Citgo Petroleum Corp.'s 156,800 b/d Corpus Christi, Tex., refinery. It said that a similar incident occurred on Mar. 9 at Sunoco Inc.'s 330,000-b/d Philadelphia refinery.

The incident at ExxonMobil's Joliet plant occurred around 12:30 pm CDT when HF and propane suddenly leaked from the refinery's alkylation unit, according to CSB.

It said the leak did not ignite, but one operator was transported to the hospital suffering from what were described as serious, HF-related chemical burns, and was initially reported in critical condition. A second operator was examined at the hospital and released.

CSB said the unit's water deluge system, which is designed to contain airborne HF releases, was activated, and the alkylation unit was shut down as refinery employees sought shelter. ✦

Ras Laffan III LNG Train 6 starts production

Ras Laffan Liquefied Natural Gas Co. Ltd. III has started up Train 6. The project, a joint venture of Qatar Petroleum (70%) and ExxonMobil Ras Laffan (III) Ltd. (30%), expands existing LNG production operated by RasGas Co. Ltd. at Ras Laffan Industrial City, Qatar.

Train 6 can produce 7.8 million tonnes/year, matching the capacity of the largest LNG train in the world, also in Qatar (OGJ Online, Apr. 6, 2009). These plants have "sufficient scale to competitively reach markets all around the globe," said the announcement. In addition, Ras Laffan III is also building its second 7.8-million-tpy train, Train 7, which the company expects to start up later this year. Both trains will be supplied by natural gas from Qatar's giant North field, with estimated reserves of more than 900 tcf.

Ras Laffan III is part of an investment that includes natural gas production and liquefaction facilities in Qatar and investments by affiliates of Qatar Petroleum and ExxonMobil in 12 new Q-Flex LNG carriers (210,000 cu m) and the Golden Pass LNG regasification terminal under construction near Sabine Pass, Tex.

Golden Pass is a joint venture among affiliates of Qatar Petroleum (70%), ExxonMobil (17.6%), and ConocoPhillips (12.4%). Its planned start-up has slipped to 2010 from 2009, partly in response to market conditions and partly the result of damage sustained in September 2008 from Hurricane Ike (OGJ Online, June 18, 2009; July 31, 2009).

Qatar is the world's largest LNG supplier. Through joint ventures with Qatar Petroleum, ExxonMobil has an interest in 12 trains in Qatar to supply LNG to markets in Asia, Europe, and North America.

Ras Laffan III Train 6 is the second 7.8-million-tpy LNG plant brought online by Qatar Petroleum and ExxonMobil joint ventures this year. Last spring, Qatargas inaugurated its two-train Qatargas 2 project (OGJ, Apr. 13, 2009, p. 10).

Gorgon-Jansz LNG project gains approvals

The Chevron Australia-operated Gorgon-Jansz LNG and domestic gas project proposed for Barrow Island off Western Australia has received a double boost by first securing final environmental approval from the Western Australian government and then by receiving confirmation of India's Petronet LNG as a foundation customer.

The project now only needs Australian federal government environmental approval before the Australian consortium of Chevron Corp., ExxonMobil Corp., and Royal Dutch Shell PLC moves to a final investment decision.

Western Australia government approval came after the group agreed that conditions set by State Environment Minister Donna Faragher last month will be met.

Consequently the group has earmarked an additional $30 million (Aus.) to the existing $32.5 million commitment to establish a North West Shelf Flatback Turtle Conservation Program as well as another $20 million to the $40 million Net Conservation Benefits program. This brings the group's total commitment in environmental pledges to $190 million.

This week also saw closure of a deal between ExxonMobil and Petronet announced last May for Petronet to purchase 1.5 million tonnes/year of LNG over 20 years from the project. It marks Australia's first long-term sale of LNG to India.

It could provide impetus for the other partners to finalize their separate agreements that so far are nonbinding.

These include Chevron's agreements with three Japanese utility companies and GS Caltex in South Korea for about 70% of its share of the LNG production, and Shell's reported agreement to sell 2 million tpy over 20 years to PetroChina.

The Greater Gorgon project will produce 15 million tpy of LNG from three trains on Barrow Island as well as 300 terajoules/day from a domestic gas plant connected by pipeline to the mainland.

Kuwait Oil Co. wins approval for port plan

Kuwait City Municipality has agreed to grant Kuwait Oil Co. (KOC) a location in Abu Halifa to establish sea port facilities, according to a senior official.

Municipality administrator Abdullah al-Naumis said the facilities will be built on a 28,300-sq-m area, noting that the request for the port had been denied in May due to environmental concerns.

The municipality's approval came after KOC reevaluated the impact of its port project, taking into account the environmental concerns, which included residential areas as well as a state-run coffee shop.

The Abu Halifa location is east of Kuwait's Al Maqwa oil field, and just north of the country's existing oil export facility at Mina al Ahmadi.

The new port will be built about 300 m from the shore into the sea and will stretch about 140 m along the shore line, according to al-Naumis, who said that KOC will keep a 30 m buffer zone between its facilities and any residential areas.

Adriatic LNG receives first cargo

ExxonMobil Corp. has delivered its first LNG cargo using the Dukhan LNG carrier to the 8 billion cu m/year Adriatic LNG regasification terminal 10 miles off Porto Levante, Italy. Adriatic LNG is the world's first offshore gravity-based structure LNG regasification terminal.

Adriatic LNG is designed around a large concrete structure in 95 ft of water, which houses two LNG storage tanks, a regasification plant, and facilities for mooring and unloading LNG vessels.

ExxonMobil has invested in proprietary technology in this major facility that will meet 10% of Italy's natural gas requirements when it reaches full operational capacity later this year. The terminal will be able to deliver 775 MMcfd of natural gas.

Neil Duffin, president of ExxonMobil Development Co., said, "Through advanced technologies, project execution expertise, and economies of scale, ExxonMobil is extending its ability to bring global LNG supplies to Italy and elsewhere around the world."

The project is jointly owned by Qatar Terminal Ltd., a Qatar Petroleum wholly owned subsidiary, with a 45% stake, ExxonMobil Italiana Gas holds 45%, and Edison SPA holds 10%. ✦

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Letters

Refining capacity needed

After reading the article "Reduction in fuel use puts refiners in bind" referencing a study by Roger Ihne, Deloitte LLP, "A Tsunami of Change Bearing Down on the Refining Industry," one might think that investing in the future of US refining would not be advisable (OGJ Online, July 10, 2009). On the other hand, without investment in US refining now, the possibility of achieving any level of independence from importing foreign oil and finished products is unfeasible. Because the study by Deloitte does not comprehend important global factors affecting the US refining industry, some of its conclusions could be misleading.

We heard much about "stricter fuel economy standards" and more efficient combustion engines in the 1970s and 1980s. Today we have larger family vehicles, the "two SUV's in every driveway" syndrome, cool Hummers, and finally major automobile manufacturers in bankruptcy; so much for "efficiency" reducing gasoline demand. As for federal "mandates for blending ethanol and other biofuels," the sooner we realize that unsubsidized production of these "fuels" is neither efficient nor economical, the sooner we will focus on the critical issue of making every barrel of oil more productive in its yield of transportation fuels.

The US already imports gasoline—a lot of gasoline. To project a reduction in gasoline demand in the US over the next 15-20 years based on assumptions of government-defined stricter fuel economy standards and mandates for the use of ethanol and biofuels lacks global perspective. It should be more evident today than ever before that the economies of the world are deeply intertwined. We must plan for the future not only based on our nation's needs but on those of other economies. If refining capacity is shut down and not replaced by more efficient, complex refineries capable of processing heavy crude oil, tar sands, and oil shale, the global shortage of refined petroleum products, especially transportation fuels, will cause a tsunami of its own.

Today, over 75% of the world's proven recoverable oil reserves are owned by members of OPEC. The vast majority of this oil supply resides in the Middle East. These sources of liquid hydrocarbon are being depleted at astonishing rates.

The next great source of oil is actually in the Western Hemisphere. A recent USGS report estimates that there is 1.085 trillion bbl of recoverable heavy and natural bitumen oil in known basins around the world. According to the same USGS report, over 75% (831.9 billion bbl) of this next generation oil supply is contained in basins of North and South America. This geographic shift in the location of future feedstock is another reason to increase refining capacity in the US.

The importance of reducing greenhouse gas emissions from all sources cannot be overlooked. Routine refinery maintenance and periodic upgrades in both capacity and complexity must include capture and sequestering of harmful emissions. This type of investment is not new to the refining industry and affects both the large, Gulf Coast refiners and smaller boutique operations around the US. Most refiners would agree that process efficiency and a sharp eye on operating costs are more important when trying to maintain or increase margins.

The "golden age" of the modern, highly efficient refinery is just dawning and is an essential part of the recovery from the current global recession. Flexibility and the ability to quickly respond to change are the trademarks of the entire oil and gas industry from the start of wildcat exploration through the marketing and sale of petroleum products. Refinery utilization has been affected more by the increase of heavier, high sulfur crude oils entering refineries than any economic cycle. Since the "oil boom" of the late 1970s through the "bust" and collapse of the industry in the mid-1980s, the oil industry has learned many lessons. The reduction in the number of refineries from 319 in 1980 to 149 in 2000 did not reduce the total refining capacity of the US. Refineries simply became larger. According to a US Energy Information Administration (EIA) report, although the number of refineries in the US dropped from 283 in 1982 to 159 in 2002, the throughput capacity remained over 17 million b/d. In fact, the average refinery capacity increased by over 41,000 b/d.

In a recent Medium-Term Oil Market report by the International Energy Agency (IEA), world oil demand is projected to reach 89 million b/d by 2014. Today, total worldwide refinery capacity is less than 85 million b/d. Clearly, in order to process the additional 4 million b/d of crude oil production, more refining capacity must be added, and because the type of crude oil is shifting from light sweet to heavy sour, refineries will be redesigned and upgraded to process more difficult feedstock. It should also be noted that in 2005, the IEA projected world oil demand to exceed 96 million b/d by 2014—more than 10 million b/d above

Letters

current global production levels. Whatever the number, crude oil consumption will increase, and so too must refining capacity in order to convert black gold into usable consumer products.

Richard D. Chimblo
Chief executive officer
EOR Energy Resources Inc.
Houston

Calendar

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

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2009

AUGUST

ACS Fall National Meeting & Exposition, Washington, (202) 872-4600, e-mail: service@acs.org, website: www.acs.org. 16-20.

Petroleum Association of Wyoming (PAW) Annual Meeting, Casper, (307) 234-5333, (307) 266-2189 (fax), e-mail: suz@pawyo.org, website: www.pawyo.org. 18-19.

Coal-Gen Conference, Charlotte, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.coal-gen.com. 19-21.

✦Oklahoma Geological Survey Unconventional Reservoirs Workshop, Norman, Okla., (405) 325-3031, (405) 325-7069 (fax), website: www.ogs.ou.edu. 20.

IADC Well Control Conference of the Americas & Exhibition, Denver, (713) 292-1945, (713) 292-1946 (fax), e-mail: conferences@iadc.org, website: www.iadc.org. 25-26.

Summer NAPE, Houston, (817) 847-7700, (817) 847-7704 (fax), e-mail: info@napeexpo.com, website: www.napeonline.com. 27-28.

SEPTEMBER

Oil & Gas Maintenance Technology North America Conference, New Orleans, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.ogmtna.com. 1-3.

Coal-Gen Europe Conference, Katowice, Poland, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.coal-gen-europe.com. 1-4.

EAGE Near Surface European Meeting, Dublin, +31 88 995 5055, +31 30 6343524 (fax), e-mail: eage@eage.org, website: www.eage.org. 7-9.

IAEE European Conference, Vienna, (216) 464-5365, e-mail: iaee@iaee.org, website: www.iaee.org. 7-10.

Offshore Europe Conference, Aberdeen, +44 (0) 20 7299 3300, e-mail: nbradbury@spe.org, website: www.offshore-europe.co.uk. 8-11.

GPA Rocky Mountain Annual Meeting, Denver, (918) 493-3872, (918) 493-3875 (fax), e-mail: pmirkin@gpaglobal.org, website: www.gpaglobal.org. 9.

GITA's GIS Annual Oil & Gas Conference, Houston, (303) 337-0513, (303) 337-1001 (fax), e-mail: info@gita.org, website: www.gita.org/ogca. 14-16.

Turbomachinery Symposium, Houston, (979) 845-7417, (979) 847-9500 (fax), e-mail: inquiry@turbo-lab.tamu.edu, website: http://turbolab.tamu.edu. 14-17.

Annual IPLOCA Convention, San Francisco, +41 22 306 02 30, +41 22 306 02 39 (fax), e-mail: info@iploca.com, website: www.iploca.com. 14-18.

Polar Petroleum Potential 3P Conference, Moscow, (918) 584-2555, (918) 560-2665 (fax), website: www.aapg.org. 16-18.

Drilling Engineering Association-Europe: ERD and Associated Technology Meeting, Stavanger, +44 (0) 1483-598000, e-mail: Dawn.Dukes@otmnet.com, website: www.dea-europe.com. 17-18.

Annual Energy Policy Conference, Oklahoma City, (202) 580-6532, (202) 580-6559 (fax), e-mail: info@energyadvocates.org, website: www.energyadvocates.org. 20-22.

✦NPRA Environmental Conference, Denver, (202) 457-0480, (202) 457-0486 (fax), website: www.npra.org. 21-22.

Multiphase User Roundtable-Mexico, Villahermosa, (979) 268-8959, (979) 268-8718 (fax), e-mail: Heather@petroleumetc.com, website: www.mur-mexico.org. 22-23.

IADC Drilling HSE Europe Conference & Exhibition, Amsterdam, (713) 292-1945, (713) 292-1946 (fax), e-mail: conferences@iadc.org, website: www.iadc.org. 23-24.

SPE Eastern Regional Meeting, Charleston, W.Va., (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 23-25.

ERTC Sustainable Refining Conference, Brussels, 44 1737 365100, +44 1737 365101 (fax), e-mail: events@gtforum.com, website: www.gtforum.com. 28-30.

DGMK Production and Use of Light Olefins Conference, Dresden, 040 639004 0, 040 639004 50, website: www.dgmk.de. 28-30.

IADC Advanced Rig Technology Conference, Houston, (713) 292-1945, (713) 292-1946 (fax), e-mail: conferences@iadc.org, website: www.iadc.org. 29.

Unconventional Gas International Conference & Exhibition, Fort Worth, Tex., (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.unconventionalgas.net. Sept. 29-Oct. 1.

ERTC Biofuels+ Conference, Brussels, 44 1737 365100, +44 1737 365101 (fax), e-mail: events@gtforum.com, website: www.gtforum.com. Sept. 30-Oct. 2.

OCTOBER

Interstate Oil and Gas Compact Commission Annual Meeting (IOGCC), Biloxi, Miss., (405) 525-3556, (405) 525-3592 (fax), e-mail: iogcc@iogcc.state.ok.us, website: www.iogcc.state.ok.us. 4-6.

SPE Annual Technical Conference and Exhibition, New Orleans, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 4-7.

World Gas Conference, Buenos Aires, +54 11 5252 9801, e-mail: registration@wgc2009.com, website: www.wgc2009.com. 5-9.

ISA EXPO, Houston, (919) 549-8411, (919) 549-8288 (fax), e-mail: info@isa.org, website: www.isa.org. 6-8.

Kazakhstan International Oil & Gas Exhibition & Conference (KIOGE), Almaty, +44 (0) 207 596 5233, +44 (0) 207 596 5106 (fax), e-mail: oilgas@ite-exhibitions.com, website: www.oilgas-events.com. 6-9.

Power-Gen Asia Conference, Bangkok, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.powergenasia.com. 7-9.

Renewable Energy World Asia Conference & Expo, Bangkok, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.renewableenergyworld-asia.com. 7-9.

NPRA Q&A and Technology Forum, Ft. Worth, Tex., (202) 457-0480, (202) 457-0486 (fax), e-mail: info@npra.org, website: www.npra.org. 11-14.

API Fall Petroleum Measurement Standards Meeting, Calgary, Alta., (202) 682-8000, (202) 682-8222 (fax), website: www.api.org. 12-15.

GPA Houston Annual Meeting, Houston, (918) 493-3872, (918) 493-3875 (fax), e-mail: pmirkin@gpaglobal.org, website: www.gpaglobal.org. 13.

Expandable Technology Forum, Houston, +44 (0) 1483 598000, e-mail: sally.marriage@otmnet.com, website: www.expandableforum.com. 14-15.

International Oil & Gas Exploration, Production & Refining Exhibition, Jakarta, +44 (0)20 7840 2100, +44 (0)20 7840 2111 (fax), e-mail: ogti@oesallworld.com, website: www.allworldexhibitions.com. 14-17.

SPE/EAGE Reservoir Characterization and Simulation Conference and Exhibition, Abu Dhabi, (972) 952-9393, (972) 952-9435 (fax), e-mail: spedal@spe.org, website: www.spe.org. 18-21.

GSA Annual Meeting, Portland, (303) 357-1000, (303) 357-1070 (fax), e-mail: meetings@geosociety.org, website: www.geosociety.org. 18-21.

Oil Shale Symposium, Golden, Colo., (303) 384-2235, e-mail: jboak@mines.edu, website: www.mines.edu/outreach/cont_ed/oilshale/. 19-23.

Oil and Gas Transportation in the CIS and Caspain Region Annual Meeting, Moscow, +44 (0) 20 7067 1800, +44 (0) 20 7242 2673 (fax), website: www.theenergyexchange.co.uk. 20-22.

SEG International Exposition and Annual Meeting, Houston, (918) 497-5500, (918) 497-5557 (fax), e-mail: register@seg.org, website: www.seg.org. 25-30.

SPE/IADC Middle East Drilling Conference & Exhibition, Manama, +971 4 390 3540, +971 4 366 4648 (fax), e-mail: spedal@spe.org, website: www.spe.org. 26-28.

PICT-Passive Inflow Control Technology Meeting, Copenhagen, +44 (0)

1483-598000, e-mail: Dawn.Dukes@otmnet.com, website: www.inflowcontrol.com. 27-28.

Louisiana Gulf Coast Oil Exposition (LAGCOE), Lafayette, (337) 235-4055, (337) 237-1030 (fax), e-mail: lynette@lagcoe.com, website: www.lagcoe.com. 27-29.

North African Oil and Gas Summit, Tunis, +44 (0) 20 7067 1800, +44 (0) 20 7242 2673 (fax), website: www.theenergyexchange.co.uk. 27-29.

Offshore Middle East Conference & Exhibition, Manama, (918) 831-9160, (918) 831-9161 (fax), e-mail: registration@pennwell.com, website: www.offshoremiddleeast.com. 27-29.

NOVEMBER

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

IPAA Annual Meeting, New Orleans, (202) 857-4722, (202) 857-4799 (fax), website: www.ipaa.org. 4-6.

GPA North Texas Annual Meeting, Dallas, (918) 493-3872, (918) 493-3875 (fax), e-mail: pmirkin@gpaglobal.org, website: www.gpaglobal.org. 5.

Capture and Geological Storage of CO_2 Symposium, Paris, +33 1 47 52 67 21, +33 1 47 52 70 96 (fax), e-mail: patricia.fulgoni@ifp.fr, website: www.CO2symposium.com. 5-6.

Sulphur International Conference and Exhibition, Vancouver, +44 20 7903 2058, +44 20 7903 2172 (fax), e-mail: cruevents@crugroup.com, website: www.sulphurconference.com. 8-11.

Gas Turbine Users International (GTUI) Annual Conference, Calgary, Alta., +9714 804 7738, +9714 804 7764 (fax), e-mail: info@gtui.org, website: www.gtui.org. 8-13.

IADC Annual Meeting, Miami, (713) 292-1945, (713) 292-1946 (fax), e-mail: conferences@iadc.org, website: www.iadc.org. 9-10.

Multiphase User Roundtable-South America, Rio de Janeiro, (979) 268-8959, (979) 268-8718 (fax), e-mail: Heather@petroleumetc.com, website: www.mur-sa.org. 9-10.

API Fall Refining and Equipment Standards Meeting, Dallas, (202) 682-8000, (202) 682-8222 (fax), website: www.api.org/events. 9-11.

CFTC dusts up future market

Sam Fletcher
Senior Writer

The US Commodity Futures Trading Commission is kicking up more dust than a calf scramble at the annual Houston Livestock Show and Rodeo, where a large group of teenagers chase a small herd of calves across the arena's dirt floor. Those who can catch and harness a calf, then pull or push it across a goal line, win a heifer to raise for display at a future livestock show.

Having declared in a previous study there was no evidence that speculators in the oil futures market drove up energy prices last year, CFTC under a new chairman appointed by a new president seems now determined to tackle and drag some bawling offenders before an indignant public to be branded as scapegoats for a faulty economy.

In late July and early August, CFTC hosted public hearings to justify its desire to impose position and other limits on participants in the futures markets under its control. Although the commission has no alleged speculators in its cross-hairs yet, still its press office seems to be ramping up news releases on other malefactors.

On Aug. 6, it announced a California court imposed $25 million in fines and sanctions against a limited partnership in that state for ripping off funds it was supposed to invest in commodities. On Aug. 7, the commission issued a notice to suspend or modify the registration of an indicted Illinois broker of treasury note futures.

That same day, CFTC charged a couple with operating a $22.5 million foreign currency Ponzi scheme. On Aug. 10, it obtained an order freezing the assets of the wife of an alleged operator of a $1.3 billion investment scam. Prior to that, CFTC announcements were limited to the three public hearings on the futures market and Chairman Gary Gensler's opening statements.

CFTC's sudden flurry of crime-related releases reminds this reporter of the late 1970s when the Department of Justice unleashed a flood of notices of probable violations (NOPVs) accusing various oil companies of violating the "new" oil-"old" oil price categories imposed to prevent producers from reaping any additional rewards for oil already in production at $5/bbl before the market jumped to $12-14/bbl. Invariably the DOJ releases reached the newsroom at the close of a business day when it would be difficult to get a response from the accused oil company.

Moreover, when contacted, the companies had not yet received copies of the NOPVs; DOJ had leaked those to the media before notifying the companies. NOPVs are not the same as formal charges. And any former police-beat reporter turned business writer knows one never hints at accusations before charges are officially filed. So NOPVs were spiked by this reporter, pending formal charges.

That wait-and-see decision was later justified. Every oil company that negotiated a settlement rather than go to trial ended up paying much less than the billions claimed in the NOPVs. And every company that fought the NOPVs in court won when federal attorneys failed to prove their case.

Faulty assumption

Analysts at the Centre for Global Energy Studies (CGES), London, recently reported, "The presumption that there are regular suppliers of oil futures contracts (those oil producers who hedge) and 'investors' who are eager to purchase these contracts, has led the CFTC, under pressure from the politicians to do something, to consider placing position limits on investor-speculators and to review the exemptions from such limits granted to firms specializing in certain hedging operations.

"The hope is that the imposition of such limits on the demand side of the futures market will lead to lower oil prices than otherwise would have been the case—but this is wishful thinking," CGES said.

"Speculators, large and small, are both buyers and sellers of oil futures, as are the hedgers. Restricting the positions speculators can take when they wish to go further short will keep futures prices high. The CFTC's plan to provide information on the open interest positions held by swaps dealers and hedge funds, along with a close examination of the efficacy of existing firewalls between the investment banks' trading floors and research groups, seems to us a more sensible move than interfering with the volumes of contracts held by any specific group of futures players," CGES said.

"The guiding principle should be more transparency and less restraint. As doctors are always taught: whatever you do, first do not harm the patient." ✦

Four 58-MW Rolls-Royce Trent GTGs Available for Immediate Delivery

The Rolls-Royce Trent 60 is an advanced aeroderivative gas turbine that delivers up to 58 MW of electric power in simple cycle service. At 42% efficiency, the Trent 60 is highly fuel efficient. It offers operators fast delivery and installation times, and beneficial environmental performance. All or part of the following is available for immediate sale:

- Four Trent 60 Dual WLE GTGs rated at 58 MW with a gross heat rate of 8,592 BTU/kWe.hr (LHV)
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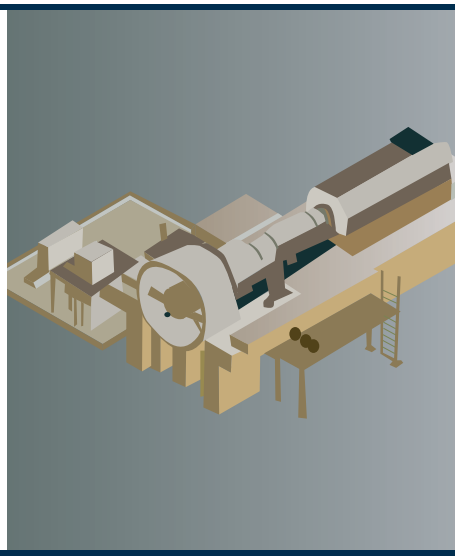
- Acoustic abatement for SCR cladding and silencer
- Water wash system
- Special tools
- GSUs
- Two transformers able to handle two 58-MW units
- GE Prolec 90/120/150 MVA (2 units), with a low voltage 13.8 kV Delta, and a 115 kV Wye HV winding
- Price includes new transformer oil

Two New Alstom 50-Hz Combined Cycle 140-MW Steam Turbine Generators Available for Immediate Shipment

These steam turbine generators (STGs) are new, 140-MW Alstom two-cylinder (HP and IP/LP) reheat condensing steam turbine generator 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 come complete with all normally supplied auxiliaries and include 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.



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Editorial

A new deal for Ukraine

An international agreement to help Ukraine fund its logistically crucial natural gas business is encouraging but probably insufficient as protection against further interruptions of Russian gas deliveries to Europe. Given the agreement's tangled context, encouraging may have to be enough for now.

The European Commission on July 31 reported a package of loans worth as much as $1.7 billion to help Ukraine buy, store, and move gas. The loans would come from the European Bank for Reconstruction and Development, World Bank, and European Investment Bank. EC Pres. Jose Manuel Barroso said the agreement "should provide the stability needed to significantly reduce the risk of a further gas crisis between Ukraine and Russia and therefore provide the security of supply that member states and our consumers expect."

Disrupted shipments

The crisis to which Barroso referred is the repeated disruption to pipeline shipments of Russian gas to Europe during pricing disputes involving Ukraine, across which most westbound gas from Russia must pass. The latest showdown came in June, when Russian Prime Minister Vladimir Putin threatened to suspend deliveries unless Ukraine paid for gas bought for underground storage in May. Although the Ukrainian state oil and gas company, Naftogaz, made the payment to the Russian seller, Gazprom, no one, especially in Europe, considers the problem solved.

The Europeans are losing confidence in Ukraine, where the physical gas system is shaky and the gas business, shady. Their concerns legitimately extend beyond the country's financial ability to meet its obligations to Russia, questionable as that is. The loan package, therefore, comes with a stern set of conditions. Only $300 million of the prospective loans is for gas purchases. The rest is for rehabilitation or expansion of the physical system. The agreement also requires business reform, including segregation of the Naftogaz transmission unit from domestic operations and open access to services.

These are important and necessary steps. But the agreement hardly addresses all problems, beginning with the immediate one: money. The loan total falls well short of the $4.2 billion Ukraine earlier this year said it needs. And the package won't soothe the destabilizing rivalry between President Viktor Yushchenko and Prime Minister Yulia Timoshenko.

Nor will it sweeten the bitter relations between Ukraine and Russia. After the EC's announcement of the funding agreement, in fact, Moscow circulated word that it would not be making a $5 billion loan of its own to Ukraine, which had been under discussion since a request by Tymoshenko in February. The Russian loan was said to be contingent on the availability of funding from Europe, but Russian officials now are reported to be saying it isn't needed.

To a Russian government openly disdainful of the western-leaning Yushchenko, who is seeking reelection in a vote scheduled for January, Gazprom is a useful lever. But Gazprom has its own problems, including the $1.1 billion worth of sales it didn't book during a 20-day suspension of gas shipments through Ukraine last January. With revenue under assault from shrinking sales volumes and falling prices, the company's ability to fund major capital projects has weakened (OGJ, Aug. 3, 2009, p. 25). Among its ambitions are two gas pipelines that would connect Russia directly to Europe, lowering though not eliminating the importance of Ukranian transit.

But a rival project, the Nabucco pipeline to carry Caspian-area gas to Europe without crossing Russia, took an important step last month with the signing of an authorization agreement by the European Union and Turkey. To Gazprom, the agreement cannot have come as welcome news.

Slight comfort

Gas market developments give Europe slight comfort. European gas consumption is down, and LNG backed out of oversupplied Pacific markets is available at distress prices. But those conditions will change when economies recover.

Few Europeans need reminding that, no matter what happens in the gas market or which new westbound pipelines materialize, reliability of Russian gas supply remains crucial. And reliability of Russian gas supply will continue to depend on pipelines crossing a financially struggling country subject to strong pressures within, along, and far beyond its borders. ✦

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Smaller players sustaining Europe's maturing offshore

John Westwood
Douglas-Westwood Ltd.
Canterbury, UK

Europe, despite the growth of other regions, remains one of the world's largest offshore producers. Nearly 600 offshore fields have been developed off Europe, involving a similar number of platforms, about 400 subsea wells, over 200 subsea templates, and some 1,000 pipelines.

During the past decade the corporate scene has changed dramatically as declining production and high costs have forced the original developers, the oil majors, into other regions. That exodus opened the way for a new breed of smaller player better geared to economically extracting the remaining reserves from a multitude of small fields and squeezing the last drop out of massively depleted existing ones.

The different fiscal approaches of the region's governments are having an impact on commercial prospects.

The post-2000 growth in oil prices led to a surge in activity in the period to the end of 2008. Then, after the oil price slump and despite subsequent rises in the first half of 2009, the high costs of exploring and difficulties of raising finance resulted in major activity cuts in the UK sector. Only 15 exploration wells were drilled in the three months to June 2009, 57% fewer than last year, according to Deloitte.

Oil & Gas UK, the industry body, has warned that oil and gas investment could fall dramatically, stunting the supply chain and threatening future expansion. It is calling for a relaxation of "the punitive tax regime" on the sector. Over the same period a different tax regime in Norway has meant that activity has increased by 50%.

This article examines the state of plays and prospects and highlights some challenges ahead.

The global context

Douglas-Westwood expects 2009 global offshore oil and gas production to average 42.3 million b/d of oil equivalent, excluding natural gas liquids, and forecast that by 2013 it will have grown by around 26% to some 53.5 million boe/d.[1]

Growth will occur in varying degrees in all regions, led by the Middle East at 3.5 million boe/d, Africa 2.9 million boe/d, and Asia-Pacific 2.7 million boe/d (Fig. 1). The single exception will be offshore Europe, where we expect production to decline by just under 1 million boe/d from its 2009 forecast level of 8.3 million boe/d. Of the significant European offshore producers and products only Norwegian gas is on the increase.

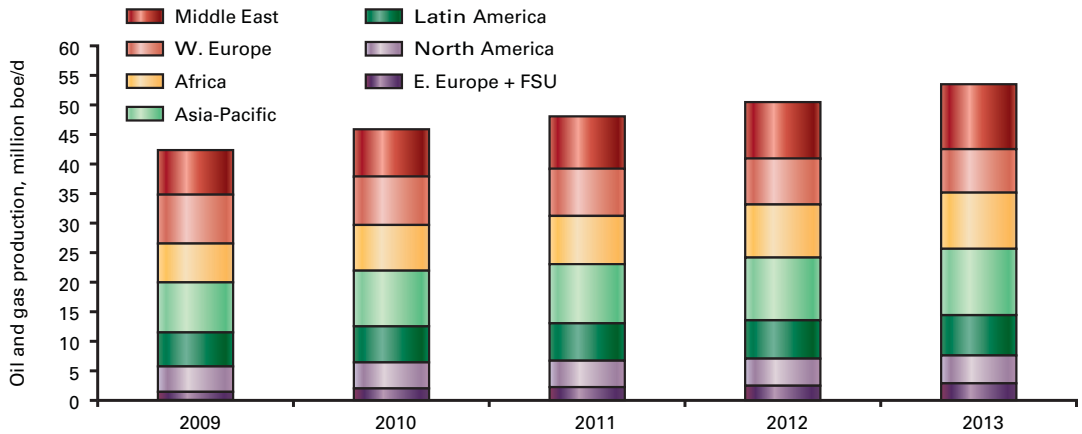
Natural gas is an issue of growing concern in Europe due to its increasing dependence on supplies from Russia, where Gazprom is growing into one of the world's most important energy companies, with ambitions in Algeria, Libya, and Nigeria.

In common with most other shallow-water offshore producing areas, such as the Gulf of Mexico, the North Sea is postmature and now suffering severe production decline—recent analysis suggests the UK average decline

rate is running at 6%. However, the North Sea, unlike the Gulf of Mexico, does not have the major deepwater reserves to offset this. What it does have is considerable remaining reserves, albeit in small reservoirs with numbers of small undeveloped prospects variously reported as being in the hundreds.

Nearly $13 billion was spent on drilling off western Europe in 2008, and we expect this to decline slightly to $11.8 billion in 2013.[2]

THE GLOBAL OIL AND GAS PRODUCTION CONTEXT* Fig. 1



*Excludes natural gas liquids.
Source: The World Offshore Oil & Gas Production and Spend Forecast

National sectors

Although generally referred to as "the North Sea," the offshore play is more correctly the North Western Europe Continental Shelf (NWECS), which includes the waters of five countries (Denmark, Germany, Ireland, the Netherlands, Norway, and the UK).

Environmental conditions range from difficult to severe. However, it is Norway and the UK where most of the action has been.

The Norwegian and the far-north Barents Seas cover a large area of the shelf and continental slope of Norway, while the UK also has production from the Irish Sea and the Atlantic shelf west of Shetland. Ireland has gas production off its southeast coast and developments happening off its environmentally challenging western coast. This Atlantic basin is underexplored and contains a number of proved and emerging play types with potential for field developments in 500-2,500 m of water.

In June, Serica Energy PLC made the first oil discovery in nearly 30 years in the Slyne basin off Ireland's west coast (Fig. 2). Commerciality of the Bandon oil discovery is yet to be established, but the 600 sq km license area is said to contain several prospects that are to be evaluated as potential drilling targets. In the words of the Serica Energy CEO, "this could mark the beginning of an exciting phase of Irish exploration."

Oil production has been declining and, in common with the rest of the world, costs were rising up to mid-2008—the overall outcome is that in 2009 we expect combined capital and operating expenditure offshore Northwest Europe to still be the world's highest at near $38 billion, out of a global total of $233 billion.

Since it is expected to have declined sharply in 2009 it is projected to be slightly higher in 2013. However, as global spend grows to reach $335 billion by 2013 we expect the Northwest Europe share to decline to 12% from 13%.

Turning to drilling, which consumes so much of offshore spend, again the UK and Norway dominate activity in the region. As we show in the 2009-13 forecast, a total of 2,648 wells were drilled off western Europe from 2004 to 2008 with the bulk in these two countries, primarily in the North Sea. A total of 2,290 exploratory and development wells is forecast over the next 5 years for the region with few expected to be located in deep water.

During the last 5 years western Europe attracted the third highest volume of offshore drilling spending in the world behind Asia and North America—almost all in Northwest Europe, primarily in the UK and Norway—but the region will fall to fourth over the next 5 years, surpassed by Africa for the first time.

UK's 'quadruple whammy'

In the words of the House of Commons Energy and Climate Change Committee report on Offshore Oil & Gas of June 17, "the UKCS currently faces a quadruple whammy of high costs, low prices, lack of affordable credit, and a global recession…fiscal and regulatory changes needed to maximize reserve recovery. Ministers need to articulate a strategy setting out how production levels are to be maintained."

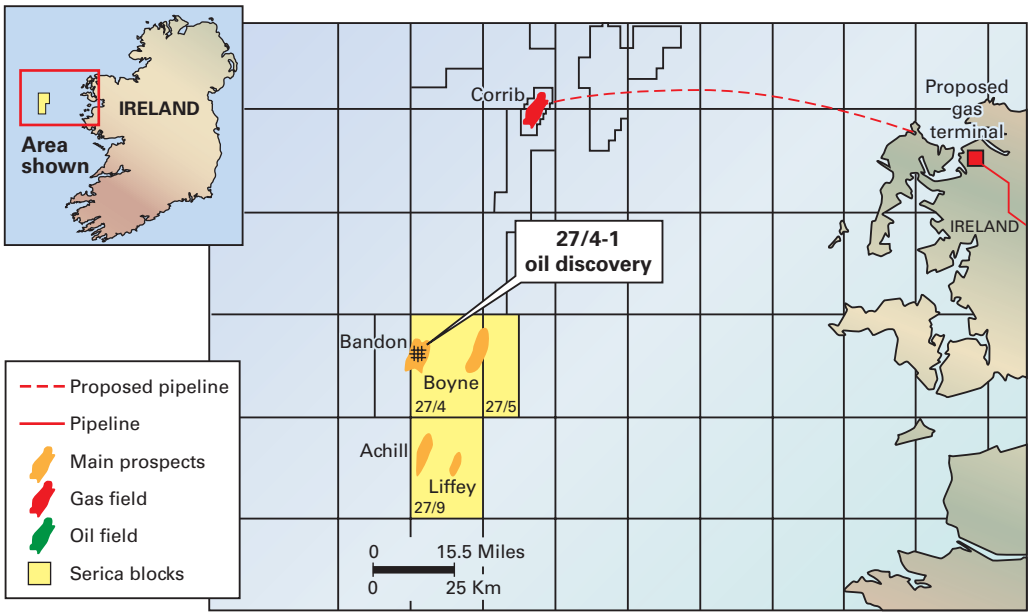
And Oil & Gas UK claims that 50,000 jobs could be at risk.

Behind the rhetoric, what is certain is that the UK is past its production peak in both oil (1999) and gas (2000)—the major fields of the 1970s are now in decline, and the newer, smaller fields that utilize modern extraction technologies are unable to offset this decline.

Offshore oil production is set to decline from 1.6 million b/d in 2008 to less than 1.1 million b/d by 2013—a decline of around 35%. Likewise, offshore gas production is expected to

SERICA/RWE DEA SLYNE TROUGH OIL DISCOVERY

Fig. 2



Source: Serica Energy PLC

decline from 83 bcm/year in 2008 to 65 bcm in 2013.

However, despite decline being severe in UK waters, production is still significant—in 2008 the UK was still the world's 18th largest oil producer and 8th largest gas producer. The high oil prices seen in 2006-08 resulted in drilling activity being the highest since 1997. But some expect that despite the new incentives and tax changes in 2009 drilling may fall by half and drop again in 2010.

Although a steady number of fixed platform installations will be maintained throughout the next 5 years, expenditure relating to the utilization of subsea development techniques will contribute greatly to capital expenditure through to 2013, with annual expenditure relating to the fabrication and installation of subsea hardware forecast to continue recent growth.

Offshore maintenance, modifications, and operations (MMO) is a major area of expenditure. Trends in the UKCS MMO market show that year on year expenditure grew to a peak in 2008 of $8.2 billion. We expect that operational expenditure will fall year on year, reaching a low of $6.6 billion in 2012 before showing signs of growth during 2013.

We expect the next 5 years to see the emergence of a sustained market for the decommissioning of fixed platforms, including Northwest Hutton, Miller, Don, Indefatigable, and Total's initiation of removal activity at Frigg. Costs of this activity are likely to exceed $1 billion in the period to 2013.

The overall decline in total offshore activity and spending has considerable potential impact on the UK government's tax take as oil and gas contributed 28% of corporate tax in 2008-09. Although this is expected to almost halve in 2009-10, it is still predicted by Deloitte to contribute one fifth of UK corporate tax revenues.

Looking to the future, according to government the UK will rely on oil and gas to provide around 80% of primary energy needs in 2020 and the UK continental shelf has the potential to provide 20-25% of UK gas demand and 60-65% of UK oil demand.

UKCS projects

The UKCS floating production system (FPS) market is expected to show strong growth to 2009, reaching a peak of just under $1.2 billion, with a number of high-profile FPSO projects reaching peak construction phases. Forthcoming FPS projects include:

Kraken (2011). Nautical Petroleum, in partnership with South Korea's SK Corp. and UK's Canamens Energy, owns 50 million bbl Kraken field on Block 9/2b in the North Sea. Plans for development of the field include the construction of either a regular FPSO or a Sevan SSP300 (an innovative circular FPSO) which is expected to be completed in 2011. If the Sevan SSP300 is chosen, the expected cost will approximate $250 million.

Cheviot (2012). ATP plans to deploy its Octabuoy floating production vessel on Cheviot field in 2012. The unit is designed by Saipem subsidiary Mos Maritime and is expected to cost around $600 million when completed.

Other fields likely to be tied into a West of Shetland gas export system include Torridon, Tobermory, and Victory. Although FEED contracts have not been issued, Total plans to have the development producing by 2013.

FLNG. The UK currently has one operational floating import terminal, Excelerate Energy's 4 million tpy Teesside GasPort, which came on stream in 2007. Another floating terminal, being developed by Hoegh LNG, is planned for the Irish Sea—the Port Meridian project, off Barrow-in-Furness. This project, which is similar to Hoegh LNG's Port Dolphin project in the US, will comprise two submerged offloading buoys.

The UK's capital expenditure on fixed platforms totaled $1.4 billion in 2004-08. Our 2009-13 forecast for expenditure totals just over $1 billion, and is expected to remain relatively level year on year at around $200 million.

Buzzard (2010). Heerema has been awarded the contracts to build both the deck and jacket for a $925 million fourth platform on Nexen Inc.'s Buzzard oil field. Installation of the platform is likely to take place in the third quarter of 2010, with start-up forecast by the end of that year.

Jasmine (2011). A significant gas-condensate discovery in the Judy area of the central North Sea, Jasmine was previously known as Shoei. Operator ConocoPhillips did not release a reserve estimate, but partner BG suggested the field could contain 100-275 million boe. Development could well take the form of a wellhead platform tied back to Judy. But if Jasmine is large enough, a standalone solution could be justified, perhaps with export through the Judy infrastructure.

LNG fixed platforms. Canatxx plans to build a 3 bcfd terminal in Amlwch on Anglesey, Wales, at the former Great Lakes chemical site. LNG tankers will offload the LNG onto a fixed platform 3 km from the port. The gas will be piped along a 113 km subsea pipeline to Nateby, Lancashire, where it will join the National Grid system. This plant has been criticized by locals who feel that, despite the creation of 60 full time jobs and 300 construction jobs, the project is too much of a safety and environmental risk.

Norway—the long view

Several new fields have begun production off Norway, including Alvheim, Varg, Vilje, Volve, and Tyrihans and the number of exploration wells being drilled has doubled compared with 2005.

However, oil production passed its peak in 2001 and is expected to continue to decline as a result of markedly reduced output from the giant fields. Although the Norwegian Sea, and to a lesser extent the Barents Sea, has some excellent prospects and natural gas liquids output is increasing, we believe that these will be unable to reverse overall oil production decline. It is forecast that Norway will be producing around 1.6 million b/d by 2013.

Conversely to oil, gas production continues to increase. The country is forecast to be producing over 158 bcm/year by 2013, up from around 111 bcm/year currently. The main increases will come from the Norwegian Sea, primarily Ormen Lange, and from the Barents Sea, mainly Snohvit.

MMO in the Norwegian sector has experienced relatively steady growth to date, however, operational expenditure is expected to decline during 2009 and 2010 before recovering towards the end of the forecast. Despite this dip, total opex for 2009-13 is expected to be $59 billion, 16% higher than the $49.1 billion spent during the previous 5 years.

Norway is expected to see an increase in decommissioning expenditure during 2009-13. Total expenditure is expected to be just over $1 billion, a growth of 40%, com-

OFFSHORE EUROPE OIL AND GAS PRODUCTION*

Fig. 3

Fig. 3a

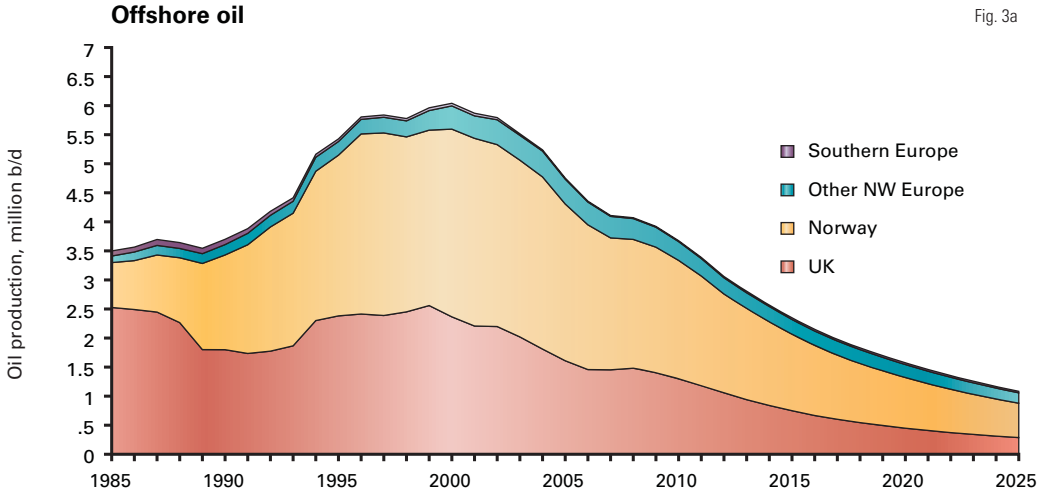
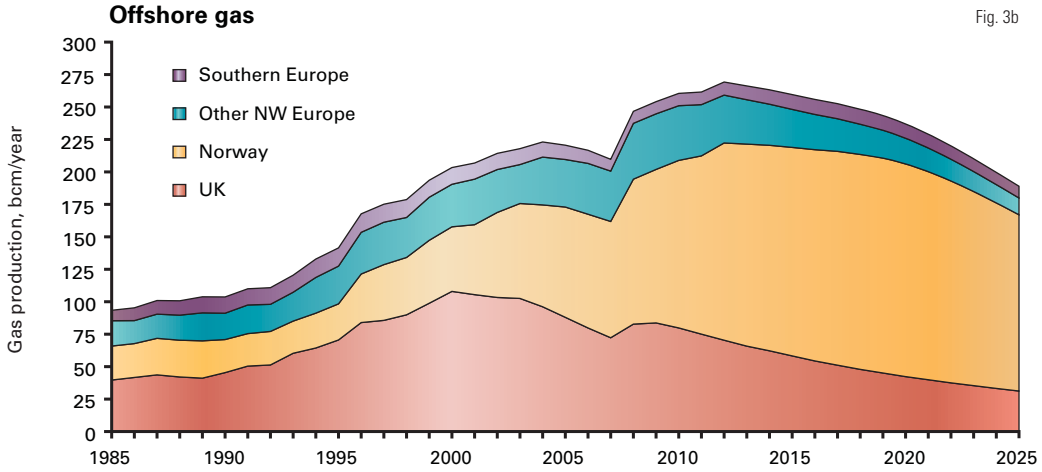


Fig. 3b



*Excludes natural gas liquids.
Source: Energyfiles Ltd.

pared with the 2004-08 period. Two of the most important decommissioning projects are Ekofisk and Frigg.

Norway has been able to manage the wealth that has been generated by its oil and gas sector in such a way as to prevent offshore oil and gas, the country's largest industry, from overheating the economy.

In addition to a policy of carefully managed reserve development, it has invested its national oil and gas profits to fund the pensions of this, and perhaps the next, generation. The Government Pension Fund is the largest pension fund in Europe and the second largest in the world. At the end of 2008 its total value was 2.275 trillion kroner ($325 billion).

Norway projects

New field developments using floating production systems in the next few years will include:

Gjoa (2010). StatoilHydro's Gjoa lies on Blocks 35/9 and 36/7, about 60 km northeast of Troll C, in 360-380 m of water. Reserves are estimated to be 60 million bbl of oil and 35 bcf of gas. Gjoa field will be developed with an FPSS built by Aker Solutions in a $1.6 billion contract. Gas from the field will be delivered to the UK Flags pipeline, ending at St. Fergus in Scotland, with oil being delivered down the Troll II pipeline to the Mongstad refinery north of Bergen.

Skarv (2011). The field will be developed by BP in conjunction with adjoining Idun gas field using an FPSO that will pump oil and export gas via an 80-km pipeline to the Aasgard transport system and onward to the Kaarsto terminal. Aker Solutions won a $359 million contract for detailed engineering of the vessel with Samsung Heavy Industries winning the $750 million contract to construct the newbuild vessel. The 40,000-tonne vessel itself will be capable of handling 80,000 b/d of oil and 15 million cu m/day of gas and will be moored in 350-450 m of water.

Goliath (2013). Eni's field will be developed with a Sevan Marine circular FPSO, however construction has been delayed in order to take advantage of reduced construction costs. The entire development is expected to total around $4.4 billion with contracts for the subsea equipment, flowlines, and pipelines expected to be awarded at the end of 2009.

Douglas-Westwood expects some $1.7 billion to be spent on new fixed platforms in the Norwegian sector over

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the next 5 years.

Valhall (2010). BP's Valhall field came on stream in 1982 and existing facilities include five separate bridge-connected steel platforms. In addition the field has two unmanned flank platforms, one in the south and one in the north. A new production and accommodation platform will be installed in 2010, with the field expected to produce until 2050. Power for the new platform and existing infrastructure will be supplied from shore via a $140 million, 292-km cable supplied by Nexans.

Ekofisk 2/4-L NOR (2012). ConocoPhillips Norway and Master Marine ASA have entered into a 3-year contract starting in 2010 to provide a jack up accommodation unit located at Ekofisk field. The unit, to provide 450 beds, is under construction at the DryDock's World Graha shipyard in Indonesia. ConocoPhillips has also called for a FEED contract for possible Greater Ekofisk Area developments that would include a permanent accommodation platform as well as a new wellhead platform with water injection facilities.

Froey (2012). Det Norske Oljeselskap, as Pertra has renamed itself following its merger with former DNO's Norwegian assets, was due to submit a PDO for redeveloping Froey in late February 2009. Approval from the government should come through by midyear. Start-up is now scheduled for the beginning of 2012.

StatoilHydro's Snohvit development is Europe's first LNG export facility. Gas from Snohvit, Albatross, and Askeladd fields in the Barents Sea is fed via a 143-km pipeline to a gas liquefaction plant constructed at Melkoya Island, near Hammerfest. Annual production capacity of the facility is 4.3 million tonnes of LNG, 747,000 tonnes of condensate, and 247,000 tonnes of LPG. This is the largest industrial project in North Norway's history.

Another Norwegian LNG export plant is under construction. The Stavanger-located facility is operated by Nordic LNG, a joint venture between Lyse and IM Skaugen. The 0.3 million tpy terminal is expected to come onstream in 2010 and will serve the Norwegian and Swedish market.

Floating production

Western Europe saw the world's first application of floating production technology. The UK's first offshore oil was produced by the Transworld 58 FPSS on Hamilton Bros.' Argyll field back in 1975. Since then, the region has seen a total of 69 FPS installations to date, with 3 TLPs, 33 FPSOs, and 33 FPSSs, of these, 37 are currently operational.

FPS PROSPECTS OFF WESTERN EUROPE, 2009-13 Table 1

Country	FPSO	FPSS	TLP	Total
Ireland	1			1
Italy	1			1
Norway	2	1		3
UK	11	2	1	14
Total	**15**	**3**	**1**	**19**

Source: World Floating Production Report, 2009-13

By and large, the regional environment is harsh and, in the northern North Sea and the Atlantic margin in particular, vessels can be severely tested by the conditions they encounter. Wave damage has been reported on a number of FPSOs operating in these areas, including BP's Schiehallion which suffered cracks in its bow in the winter of 1999-2000.

However, European waters have seen relatively few little floating production systems installed in recent times, just four in the past 5 years. But looking ahead, in the period to 2013 we expect a surge of activity with 19 units being slated for deployment of which 15 will be FPSOs[3] (Fig. 3 and Table 1).

Deepwater action

Deepwater spending offshore Europe has been modest to date due to a lack of significant deepwater basins off Norway. Three deepwater projects are under consideration:

Aquila (2010). After many years, this Eni SPA development off Italy has been awarded two licenses and may get under way with an FPSO before 2011.

Laggan/Tomore (2013). This Total-operated project off the UK is at the prequalification stage. It will be a subsea tieback development to an onshore processing plant. A total of eight wells is expected to be drilled from 2011, five on Laggan and three on Tomore. Start-up is scheduled for late 2013 or early 2014.

Lochnagar/Rosebank (2013). Intec seems set to land the pre-FEED contract on this Chevron project off the UK. Use of an FPS unit is expected.

In June, A/S Norske Shell, operator of production license 326, completed the drilling of wildcat well 6603/12-1, which found potentially large quantities of recoverable gas. The discovery is located 150 km northwest of the Victoria 6506/6-1 gas discovery in the northern Norwegian Sea. The well was drilled in 1,376 m of water, the greatest water depth of any discovery made on the Norwegian shelf.

The Arctic frontier

The region's Arctic frontier has generated much interest of late.

The Barents Sea is an area above the Arctic Circle whose border between Norway and Russia has been the subject of continual disagreement. Around 80 wells have been drilled in the Norwegian sector of which around 20 have been small discoveries, mostly gas-condensate. The first discovery, Askeladd, was made with the fourth well in 1981 in the Hammerfest basin near the coast, and most of the discoveries are located here.

At the top of the world a big game is in play. Massive reserves estimated at 160-300 billion boe may exist. National borders are still uncertain, but once the international posturing is over Russia may control over 60% of these. Developing them is another matter, and Russia will need many years, very

capable technology partners, and huge investments.

The combination of deep water and the extreme environment result in major technical challenges and very high costs. We have forecast for several years that Russia will eventually work with Norway, and we note that Gazprom and StatoilHydro have recently signed a memorandum of understanding regarding a joint exploration in the region.

The future

In 40 years, offshore Europe has changed dramatically and is now a very different place where even the names of many of the field operators would have been unrecognized only a decade ago.

The changes will continue as the region's governments increasingly perceive the need to attract new players and put in place better deals for existing ones in order to suck the North Sea dry.

In the service and supply sector home-grown contractors now operate worldwide, designing, manufacturing, and operating technology developed in one of the world's most unforgiving oil patches. A recent Scottish Enterprise and Scottish Council for Development and Industry publication said international sales increased by 19.5% to £5.7 billion ($9.2 billion) and now account for more than 40% of revenues. Activity was recorded in more than 100 country markets for the first time.

Across the North Sea, Norwegian trade body INTSOK said that in 2007 Norwegian-based companies had an international turnover of 95 billion kroner ($14.6 billion), and the industry now aims at 120 billion kroner ($18.4 billion) by 2012.

Oil prices have nearly doubled since the depths of the economic winter. However, oil field service company valuations are still depressed and major business opportunities now await those with the term of vision, the cash, and the courage. ✦

References

1. "The World Offshore Oil & Gas Production and Spend Forecast 2009-2013," Douglas-Westwood/Energyfiles.
2. "The World Offshore Drilling Spend Forecast 2009-2013," Douglas-Westwood/Energyfiles.
3. "The World Floating Production Market Report 2009-2013," Douglas-Westwood.

The author

John Westwood (john@dw-1.com) worked for 12 years in the North Sea contracting industry and worldwide and has formed three companies and sold two. He has spent the past 19 years heading industry analysts Douglas-Westwood Ltd., which completed nearly 600 projects since its formation in 1990 and has provided services to clients in some 60 countries. The firm has advised several governments and worked for energy majors and their contractors.

UK North Sea safety at highest level in 18 years

Uchenna Izundu
International Editor

Safety levels in the UK offshore oil and gas industry have substantially improved, according to data published by the Health and Safety Executive (HSE), with both the combined fatal and major injury rate and major hydrocarbon releases at their lowest since the HSE began regulating the industry in 1991.

For 2 years running, there were no fatalities offshore, and the number of major injuries recorded in HSE's 2008-09 reporting period was 30, which was 14 less than the 2007-08 figures.

Because the HSE does not cover air and marine transport activities, its data don't reflect an April helicopter crash in which 16 people died.

"The combined fatal and major injury rate reduced to 106 per 100,000 workers in 2008-09, compared with 156 in 2007-08 and 146 in 2006-07," said the HSE. "The number of major and significant hydrocarbon releases, regarded as potential precursors to an incident, also showed marked improvement with 61 in 2008-09, compared with 74 in 2007-08."

Judith Hackitt, chairwoman of the HSE, urged industry leaders not to "take their eye off the ball" as the industry struggles during the global economic downturn. She called for investment in safety to continue.

The trade association Oil & Gas UK welcomed the improvement in the statistics and stressed that it was committed to operating safely.

Malcolm Webb, chief executive of Oil & Gas UK said: "These reductions demonstrate the efforts that have been made to prevent incidents happening that result in people getting hurt. These include continuing and substantial investment in workforce training, such as the new Minimum Industry Safety Training Standard, and increasing understanding of asset integrity amongst industry leaders through sharing sessions and the new asset integrity workshops."

Over the past 4 years, the offshore industry has invested more than £4 billion on asset integrity. Step Change in Safety, the UK's flagship safety initiative, has created a specific asset integrity work group to support industry-wide engagement on asset integrity issues. The Hydrocarbon Release Reduction Toolkit has also been revised and updated.

Webb stressed the importance of committing the workforce to safety awareness.

"Involving and listening to the people at the sharp end will help us reach our goal of making the UKCS the safest place to work in the world-wide oil and gas industry," he said. "Earlier this year, Step Change in Safety set up a dedicated workforce engagement work group, and its leadership team has been further extended to ensure the needs and concerns of the offshore workforce are heard and addressed." ✦

IEA revises global oil demand forecast

Marilyn Radler
Senior Editor-Economics

The International Energy Agency, in its August Oil Market Report, estimates that global oil demand will contract in 2009 by 2.3 million b/d vs. 2008 and average 83.9 million b/d. In its previous monthly report, the agency called for demand to shrink by 2.5 million b/d this year.

IEA's demand outlook for 2010, nearly unchanged from a month earlier, is expected to climb 1.3 million b/d. The global oil demand forecast for 2010 has been revised up by 70,000 b/d to 85.3 million b/d, given a stronger outlook in Asia among countries outside the Organization for Economic Cooperation and Development.

OECD oil demand in 2010 is pegged at 45.1 million b/d, which is 25,000 b/d lower than IEA previously expected. But the estimate for oil demand in 2009 has been slightly revised up by 20,000 b/d to 45.1 million b/d, following a small adjustment in OECD Pacific demand. The agency commented that the latest data appear to confirm that the US gasoline season failed to materialize for the second year in a row.

IEA has revised up its forecast for non-OECD oil demand for both 2009 and 2010, largely following a reappraisal of Chinese demand prospects. Non-OECD demand in 2010 is now expected to average 40.1 million b/d, up 1.3 million b/d from 2009 and 100,000 b/d higher than the agency's previous assessment.

IEA noted that even though energy-intensive non-OECD countries will largely drive global demand growth, the rise expected next year will nonetheless be below the 2004-08 average of 1.5 million b/d/year.

The Paris-based agency's 2009 forecast of 38.8 million b/d puts non-OECD oil demand up 140,000 b/d vs. 2008. IEA said that this estimate is 170,000 b/d higher than in its previous oil market report due to much stronger direct crude burning for electric power generation in Saudi Arabia and a persistent drought in India. Lack of normal seasonal monsoon rain in India has boosted gas oil use in agricultural activities for irrigation and in power generation, since hydropower output in June was almost 10% lower on an annual basis.

Supply

IEA has raised its forecast for 2009 non-OPEC supply by 160,000 b/d, largely due to stronger than expected Russian output but also due to higher US NGL and Gulf of Mexico production and a rapid ramp-up at new Canadian oil sands mining operations.

IEA raised by 200,000 b/d its 2010 forecast for non-OPEC supply, as many of the same factors are carried forward through the outlook, the agency said.

As a result, total non-OPEC supply is now forecast at 51 million b/d in 2009, and 51.4 million b/d in 2010. IEA's "call on OPEC crude and stock change" now averages 27.7 million b/d in 2009, and 27.8 million b/d in 2010.

Inventories

OECD industry stocks rose counterseasonally by 8.5 million bbl in June to 2,749 million bbl, 5.5% above last year's level, IEA reported, as an increase in gasoline and distillate more than offset declines in crude oil and fuel oil. A North American crude stockdraw outweighed crude gains elsewhere.

The biggest storage additions came in European crude and North American light distillates, while North American crude posted the largest drop, IEA said. At the end of June, forward demand cover was unchanged vs. May at 61.7 days.

Preliminary July data indicate total OECD industry oil inventories fell by 3.6 million bbl, although the movements of crude and products differed. Crude stocks drew by 12.9 million bbl, led by decreases in Japan and the EU-16 countries. Product stocks increased 9.3 million bbl, led by gains in US distillate stocks, IEA said.

Crude in floating storage declined to around 55 million bbl at the end of July, from 70 million bbl at the end of June. Products in floating storage—mostly middle distillates—rose above 60 million bbl from 50 million bbl a month earlier, IEA reported. ✦

Fitch Ratings sees more credit weakening for US companies

Fitch Ratings Ltd., Chicago, expects further credit-quality weakening for US oil and gas companies and service firms as low commodity prices continue to batter industry financial performance.

In a semiannual report, Fitch assumes average prices of $55/bbl this year and $57.50/bbl next year for West Texas Intermediate crude oil and $4.25/Mcf this year and $5/Mcf next year for gas at Henry Hub in its base case.

In a "stress case," the price assumptions are $40/bbl this year and $42.50/bbl next year and $3.50/Mcf and $3.75/Mcf.

For upstream companies, Fitch expects weaker cash flows and declining credit metrics following a period of increased leverage in the first half of 2009. But it expects free cash flows of producers to begin recovering because of declining drilling and service costs, "which should enable upstream companies to return to more reasonable profit and cash flow levels as we move into 2010."

The firm says some companies reduced debt while oil and gas prices were high and thus can manage the downturn "from a position of strength."

Weak product demand, low capacity utilization rates, and compressed crude-quality differentials have hurt refiners, Fitch notes. Collapse of the value spread between low and high-quality crudes has eroded the feedstock-cost advantage of high-conversion refineries.

"Fitch anticipates that overall refining sector credit metrics will remain weak in 2009 and into 2010," the report says. In the first half, it adds, crude prices have become "somewhat decoupled from underlying product demand in North America," increasing enough to represent a "rising threat" to refiners.

Despite the weakening, which Fitch expects to continue until global product demand recovers, the firm calls the credit quality of the US refining industry "reasonable."

Fitch expects service companies and drilling contractors to remain under pressure to lower rates and therefore to have to cut their own costs as contract revenue backlogs shrink.

It expects firms with deepwater drilling operations and international diversification to benefit because margins for these businesses exceed those for companies confined to US markets and drilling contractors with "more commoditized" rigs. ✦

Iran dismisses US plans for gasoline ban

Eric Watkins
Oil Diplomacy Editor

The Iranian government, repeating earlier comments, has dismissed suggestions that the US Congress impose a gasoline embargo as a means of exerting pressure on the Middle Eastern country to end its controversial nuclear program.

Iran's OPEC governor Mohammad Ali Khataibi said his country is too important a market for foreign suppliers to ban gasoline exports. He also said such a ban would cause world prices to fall by creating an oversupply.

Khataibi's comments apparently were in response to reports that Washington is talking with allies and Congress about the possibility of cutting off Iran's im-

WATCHING THE WORLD

Eric Watkins, Oil Diplomacy Editor

Blog at www.ogjonline.com

Al-Qaeda takes on the world

If anyone in the oil and gas industry assumed the al-Qaeda terrorist organization had dried up and blown away, check that assumption.

Just last week, a Kuwaiti security official said detained members of a group linked to al-Qaeda planned to attack Kuwait's 200,000-b/d Shuaiba refinery during the Muslim month of Ramadan, beginning on Aug. 22.

Kuwait's al-Anbaa newspaper reported that the al-Qaeda cell even used Google Earth to acquire images of the refinery, as well as other targets, which included a US military camp and a state security building.

One Kuwaiti official played down the news, saying, "This refinery is very well protected. There is really no way to approach it by land." But there are other ways to approach the facility, and an attack—successful or not—would have been hard on the country.

Three refineries

Kuwait has three refineries with a combined capacity of 936,000 b/d, according to the US Energy Information Administration. The 466,000-b/d Mina al-Ahmadi facility is the largest, followed by the 270,000-b/d Mina Abdullah refinery, and then the 200,000-b/d Shuaiba site.

"High demand over the last 2 years has kept Kuwait's refining sector running at close to full capacity," EIA says, adding, "Kuwait's total oil consumption reached 325,000 b/d in 2007." In a word, knocking out one of the refineries would certainly crimp output.

The foiled plan comes as al-Qaeda appears to be trying to regroup around its Yemeni wing, which announced plans earlier this year to widen the scope of operations to include the rest of what one of its writers called the "agent regimes" on the Arabian Peninsula.

Those plans were summed up in an article by Misha'l al-Shadukhi, entitled "Vision from the Inside: Why do we fight in the Arabian Peninsula?" which predicts that al-Qaeda's "forthcoming fight is with the regime of Al-Sa'ud, which opened the doors of the Arabian Peninsula to the United States."

A 'puny regime'

In particular, al-Shadukhi says that "the Al-Sa'ud regime remaining after the withdrawal of the US is a crazy notion, for they cannot live without worshipping the infidels," adding, "It is a puny regime, for it was not originally built to protect itself."

Al-Shadukhi claims the Saudi regime was "established for the purpose of becoming an agent for the Crusaders in the Arabian Peninsula, for it is considered the first in oil production…."

He also claims that "for this filthy regime, it would not make any difference (after the US fails and abandons the Islamic land) to make an agreement with new occupiers to replace the US," adding, "Thus, we will leave the war with the US and enter a war with Europe, Russia, or China."

No one knows just how successful the terrorist group will be as it takes on the whole world, but some might say that al-Shadukhi just talks all hat and no camels. ✦

ports of gasoline and other refined oil products.

The threat is being considered if Iran fails to respond to President Barack Obama's offer to negotiate on its nuclear program by the opening of the United Nations session in mid-September.

In October 2008, Obama suggested imposing restrictions on Iranian gasoline imports. Iran produces 4.2 million b/d of oil, but it imports about one-third of its gasoline due to a lack of refining capacity.

Khataibi's dismissal of the threat echoes earlier remarks by other Iranian officials, most of them insisting that their country could evade the proposed ban in one way or another.

An analyst comments

Analyst IHS Global Insight said that gasoline import sanctions are unlikely to isolate Iran completely as smuggling from its neighbors will "surely take off."

But it also said that "the vast market would feel the pinch with potentially damaging political fall-out domestically."

Global Insight said Iran's gasoline imports are set to remain steady over August, changing little from the 256,000 b/d imported during July, as inventories are built up ahead of the holy month of Ramadan.

"Iran has already contracted deliveries of 128,000 b/d on average, with the contracting of a number of additional cargoes likely," Global Insight said, citing the Singapore traders. ✦

FTC's final rule prohibits oil market manipulation

Nick Snow
Washington Editor

The US Federal Trade Commission issued a final rule prohibiting oil marketplace manipulation, effective Nov. 4. It will prohibit fraud or deceit in wholesale petroleum markets, and omissions of material information that are likely to distort petroleum markets, FTC said.

FTC said it issued the rule under authority of the 2007 Energy Independence and Security Act. "This new rule will allow us to crack down on fraud and manipulation that can drive up prices at the pump," FTC Chairman Jon Leibowitz said on Aug. 6 as the final rule was issued. "We will police the oil markets, and if we find companies that are manipulating the markets, we will go after them."

US Sen. Maria A. Cantwell (D-Wash.), who wrote the EISA provision authorizing the FTC's action, called it "an historic first." She said, "The US government now has some of the same abilities to police oil markets as it has in electricity, natural gas, and securities markets. We now have the tools to prosecute bad actors who manipulate wholesale oil and gas markets."

US Rep. John B. Larson (D-Conn.), who also has pushed for tougher regulation of alleged oil price gouging, was not able to comment because he was recovering from heart valve replacement surgery.

The American Petroleum Institute, in a statement, warned that "the new rule could lead to a less competitive market that would ultimately not be in the best interest of American consumers of gasoline, diesel and other petroleum products," adding, "It could discourage companies from providing information to the marketplace."

In its announcement, the FTC said that the final rule retained the antifraud approach of the April 2009 revised proposed rule. It prohibits fraudulent or deceptive conduct such as false public announcements of planned pricing or output decisions, false statistical or data reporting, and wash sales intended to disguise the actual liquidity of a market or the price of a particular product. The final rule also prohibits material omissions from a statement that, although true, is misleading under the circumstances.

Strong penalty

Violators face civil penalties of up to $1 million/day/violation. In its statement, API noted that this is nearly 100 times greater than the $11,000 penalty/violation under the FTC Act. "This clearly is an overreaction by the FTC when strong deterrents already are in place," it said.

Cantwell said she was particularly pleased that when the FTC faced a choice between tougher or more permissive language in its rule, it opted for the former. For example, she said that the commission adopted a federal court's application of "extreme recklessness" under US Securities and Exchange Commission law, allowing the FTC to act against reckless market behavior without having to prove market manipulation intent. The new rule also lets the FTC act whether or not a manipulative practice actually affects oil prices, she said.

"Oil supplies are near 20-year highs and demand for oil is at a 10-year low, so why have gasoline prices gone up $1/gal since the beginning of the year?" she said. "With this new rulemaking, the FTC has established a clear, bright line to distinguish healthy market practices from illegal manipulation, which will help restore consumer confidence in the fairness of prices at the pump."

The three-member FTC approved the final rule by two votes to one. "The current rule, as modified, strikes the right balance; it gives the commission the authority to stop fraudulent conduct in energy markets but does not undermine appropriate business activity," said Leibowitz, who supported it.

Commissioner William E. Kovacic, who voted against it, said the rule was flawed because it does not require that an alleged market manipulation violation be intentional and either actually or likely distort markets. Its omissions component also potentially could force oil firms doing business with competitors to either disclose more proprietary information or limit investments in requiring potentially relevant marketplace information "and to reduce the number of encounters that could be examined through the lens of the commission's final rule. Neither alternative is good for consumers," he continued.

'An immense stake'

"When implemented, the final rule will cover a vast number of routine transactions, literally thousands daily, in petroleum products. These transactions are the indispensable means by which gasoline, diesel fuel, and jet fuel move from refineries to end users. Society has an immense stake in avoiding unnecessary disruption to these undertakings," Kovacic said.

Commissioner J. Thomas Rosch, who voted for the final rule, said he shares Kovacic's misgivings concerning proof of an alleged violator's intent and questions whether the conduct in question adversely affects the market.

"The net result is that the rule may chill oil companies from, among other things, voluntarily providing their data to independent data-reporting firms, as they do now, for fear that they may be held liable for an inadvertent omission. That would be unfortunate because at least in some circumstances, having abundant data of that sort can be pro-competitive. It would be especially unfortunate if the rule were interpreted or applied so as to permit follow-on

private actions," he said.

"All of this said, however, Congress apparently intended that the commission fashion a rule that goes beyond the Sherman Act and that resembles SEC Rule 10b-5. In exercising prosecutorial discretion, however, I, for one, intend to keep these misgivings in mind," Rosch said.

Liebowitz acknowledged that oil industry trade associations have expressed concerns about the new rule. "They argue that it will chill business conduct in the service of stopping something that they don't believe is happening in the first place. These industry advocates have proposed several specific changes that would weaken the rule, requiring a higher scienter standard under the general liability provision, requiring an explicit market distortion element for the entire rule, and entirely eliminating liability for omissions," he said.

Opposes suggestions

The FTC chairman said that he opposed such proposals because they would effectively neuter the rule and undermine congressional intent.

"For example, the proposed changes would make it harder, if not impossible, to prosecute those who manipulate the market by intentionally omitting critical information from their communications, even when those omissions distort market conditions and raise gasoline prices for all Americans," Leibowitz said. "Such omissions can be every bit as deceptive as any other type of fraudulent conduct, so it is crucial that we have the ability to prevent and prosecute them. A rule that does not allow us to go after such conduct would limit our ability to protect consumers."

He said that the rule, as proposed, already takes legitimate oil industry concerns into account. "In fact, we responded directly to those concerns by modifying the more expansive proposal in the draft rule we released last summer, originally based on SEC Rule 10b-5, to accommodate industry worries," he said.

"It is only the fact that [gasoline]

WATCHING GOVERNMENT

Nick Snow, Washington Editor

Blog at www.ogjonline.com

US reactions to Cuba action

Could Russian plans to help Cuba produce oil off its coast make the US reconsider its Outer Continental Shelf leasing policy? US independent producers and others hope so.

"More than anything, this agreement must not go unnoticed in Washington," Independent Petroleum Association of America Pres. Barry Russell said on Aug 4. "Both in the long and short term, our energy priorities must focus on safely expanding American energy production, especially from the nation's federal onshore and offshore lands that are owned by all Americans."

Russell said IPAA strongly urges US Interior Secretary Ken Salazar to move forward with a 5-year OCS plan that opens deep oceans to responsible development. "Doing otherwise would be a blow to our struggling economy and a poor decision for our national security," he warned.

Michael Whatley, vice-president of the Consumer Energy Alliance, also said it's vital for Salazar's new 5-year OCS plan to open more US offshore tracts for responsible development, especially off Alaska's coast.

Resources 'padlocked'

"As officials in Moscow and Havana work to expand energy production just miles from the Florida Keys, vast amounts of American energy resources, both onshore and offshore, remain padlocked by the federal government," he noted.

Thomas J. Pyle, president of the Institute for Energy Research, suggested on Aug. 5 that Washington policymakers have focused more on governmental economic intervention, such as the cash-for-clunkers program, than sensible energy policies.

"Washington must get back to the basics, and focus on expanding freedoms and prosperity, not the size of government and our debt. This agreement between Russia and Cuba should serve as a wake-up call to Congress and this administration, especially Secretary Salazar, who is slow-walking a new offshore energy blueprint for the nation," he said.

In at least one instance, two federal lawmakers may have anticipated the Russian-Cuban agreement. S. 1517, the OCS revenue-sharing bill introduced on July 27 by US Sens. Mary L. Landrieu (D-La.) and Lisa Murkowski (R-Alas.), contains two sections that neither senator emphasized at the time.

Contiguous zones

Section 6 would allow Americans to explore for oil, extract oil, and sell equipment for those activities in "any portion of any foreign exclusive economic zone that is contiguous to the exclusive economic zone" of the US.

Section 7 mentions travel to, from, and within Cuba "in connection with exploration for and the extraction of hydrocarbon resources in any part of a foreign maritime exclusive economic zone" contiguous to the US EEZ.

A US Senate Energy and Natural Resources Committee source confirmed that the provisions are designed to let US companies compete as Cuba tries to develop its offshore resources.

That would require US recognition of the island nation's government after more than 40 years. ✦

prices were over $4/gal a year ago that keeps us from thinking that prices are too high today. If we water down this rule as suggested by the industry, it would hinder our ability to stop manipulation of wholesale petroleum markets. That would undermine the intent of Congress, and undermine the efforts of the commission to protect consumers and do our job," Leibowitz maintained.

In its statement, API noted that earlier, extensive FTC investigations of the petroleum industry did not uncover evidence that market manipulation distorted markets or harmed consumers. "In fact, these investigations found that prices are primarily determined by supply and demand fundamentals. Last summer's $4 a gallon gasoline price was essentially the result of higher costs to produce gasoline. Higher crude prices as a result of a tight global supply and demand situation led to higher prices at the pump," it said. ✦

US Treasury sends derivatives proposal to Congress

Nick Snow
Washington Editor

The US Department of the Treasury sent legislative language to Congress on Aug. 11 that would institute regulation of all over-the-counter derivatives.

The proposal targets widely used, yet largely unregulated, credit default swaps and other OTC derivatives. Several federal lawmakers have suggested that speculators used these unregulated instruments to take major commodity positions and push crude oil prices to record peaks in 2008's first half. Independent oil and gas producers and others that take commodity positions as price hedges have warned that too much regulation could harm their operations.

In its announcement, Treasury said, "The legislation will provide for regulation and transparency for all OTC derivative transactions; strong prudential and business conduct regulation of all OTC derivative dealers and other major participants in the OTC derivative markets; and improved regulatory and enforcement tools to prevent manipulation, fraud, and other abuses in these markets."

The proposal generally followed ideas US Treasury Secretary Timothy F. Geithner described when he testified on July 10 before a joint hearing of two US House committees. Rep. Collin E. Peterson (D-Minn.), who chairs the Agriculture Committee, and Rep. Barney Frank (D-Mass.), who chairs the Financial Services Committee, jointly outlined their proposal to regulate OTC derivatives on July 31.

"Treasury's legislative proposal is a very important step toward much-needed reform to protect the American people by lowering risk, promoting transparency, and protecting market integrity," US Commodity Futures Trading Commission Chairman Gary G. Gensler said on Aug. 11.

"I believe that all over-the-counter derivatives and dealers should be brought under comprehensive regulation. I look forward to working with Congress to make sure that the law covers the entire marketplace without exception," he said. ✦

Appeals court clarifies Alaska OCS decision

Nick Snow
Washington Editor

Alaska state officials and environmental organizations each claimed victory following a federal appeals court's clarification in late July that its earlier order vacating the current federal offshore oil and gas leasing program applies only to the Alaska portion of the plan.

A second clarification allows for continued data gathering for oil and gas development in the Chukchi Sea while the US Minerals Management Service conducts more comprehensive environmental impact studies there and in the Beaufort and Bering Seas, Alaska Atty. Gen. Dan Sullivan said.

Sullivan said the ruling followed one on July 14 by another federal court that refused to rescind dozens of Chukchi Sea oil and gas leases. "We will vigorously defend Alaska's interests in ensuring that oil and gas developments continue both in the state and in the federal outer continental shelf," Sullivan said. "Recent federal court rulings, while not definitive, are encouraging."

Environmental organizations portrayed the US District Court of Appeals for the District of Columbia July 28 clarifications as a warning to the US Department of the Interior to rewrite the Alaska portions of the current federal Outer Continental Shelf leasing program or risk seeing the entire plan thrown out.

"The court has told industry and Interior that they will be watching to ensure that the environmental sensitivity to this massive leasing program is brought to light," said David Dickson, Western Arctic and Oceans Program Director for the Alaska Wilderness League, on July 29. "Interior Sec. Ken Salazar has pledged to do just that. The court's ruling yesterday holds Secretary Salazar to his word while rejecting attempts by Big Oil to get around the fact that the current data about how oil and gas development will impact the fragile Arctic ecosystem is sorely inadequate."

US Sen. Lisa Murkowski (R-Alas.) urged Salazar to complete the new environmental analysis as soon as possible. "As I understand it, Interior started the environmental analysis almost immediately after the court's initial ruling this spring, which halted the leasing plan," she said. ✦

Pressure mounts on UK government to improve UKCS operating conditions

Uchenna Izundu
International Editor

Exploration activity in the UK North Sea has dropped by more than 50% compared with last year, holding serious implications for the nation's energy security in 2010, according to trade association Oil & Gas UK.

The group warned in its economic report published last month that decommissioning of oil and gas facilities could start soon, signaling an early end to the industry. Companies are canceling or delaying projects due to high costs and scarce funding amid the drying up of money markets.

Investment in the industry fell to £4.8 billion last year, down £1.2 billion from the last 2 years. The group warned that investment could dip below £3 billion in 2010. Around £5 billion/year is required to keep exploration going, it advised. Production from the UK North Sea was 2.64 million boe/d, a decline of 5% from 2007, and in 2009 production is projected at 2.5 million boe/d.

"The decline rate has slowed from the 7.5% a year seen in the period 2002-07," said the report. Total expenditure reached £13 billion on exploration, development, and operations.

Operators started production from 17 new fields in 2008, bringing 475 million boe into the market. In the next 2 years, another 20 fields are slated to come on stream, and Oil & Gas UK said that another 30 fields are competing to attract investment.

If the trend of falling activity continues, the UK continental shelf will supply only 20% of Britain's energy needs by 2020, compared with up to 50% if investment is maintained. The association's analysis may increase pressure on the government to address the exploration and investment challenge and the potential loss of 50,000 jobs. It has urged Chancellor Alistair Darling to change the tax regime to make it more favorable for companies to invest in this mature basin (OGJ Online, May 11, 2009). Particular areas that could yield substantial reserves would be the Central North Sea and the area west of the Shetland Islands.

UKCS FIELD DEVELOPMENTS 2009-10

Table 1

Field name	Sector	Field type	Operator	Development status	Development type	Production start date	Total recoverable reserves, MMboe
Affleck	Central North Sea	Oil and gas	Maersk	Under development	Subsea	2009	21
Shelley	Central North Sea	Oil	Oilexco	Under development	FPSO	2009	18
Lybster	Central North Sea	Oil	Caithness Pet.	Under development	Ext. rch drlg	2009	3
Rita	Southern Gas basin	Gas	E.ON Ruhrgas	Under development	Subsea	2009	7
Ettrick	Central North Sea	Oil	Nexen	Under development	FPSO	2009	41
Jacky	Central North Sea	Oil	Ithaca	Under development	Subsea	2009	5
Don area	Northern North Sea	Oil and gas		Under development	Subsea	2009	52
Care and Es	Southern Gas basin	Gas		Under development	Subsea	2009	20
Bardolino	Central North Sea	Oil and gas	Shell	Probable development	Subsea	2009	12
Ptarmigan	Central North Sea	Oil	Oilexco	Probable development	Subsea	2009	7
Topaz	Southern Gas basin	Gas	RWE Dea	Probable development	Subsea	2009	4
Athena	Central North Sea	Oil	Ithaca	Probable development	Subsea	2010	29
Babbage	Southern Gas basin	Gas	E.ON Ruhrgas	Probable development	Subsea	2010	32
Ensign	Southern Gas basin	Gas	Venture	Probable development	Fixed platform	2010	14
Rochelle	Central North Sea	Oil	Endeavor	Probable development	Subsea	2010	5
Huntington	Central North Sea	Oil	E.ON Ruhrgas	Probable development	Subsea	2010	114
Fiddich	Central North Sea	Gas-condensate	Talisman	Probable development	Subsea	2010	19
Jacqui	Central North Sea	Oil and gas	ConocoPhillips	Probable development	Subsea	2010	13
Loirston	Northern North Sea	Oil and gas	ExxonMobil	Under development	Ext. rch drlg	2010	3
Cygnus	Southern Gas basin	Gas	GDF Suez	Probable development	Subsea	2010	9

Source: Wood Mackenzie

Rescue package

Darling introduced incentives in April 2009 that focused on small and marginal fields, but Oil & Gas UK described this as a "modest step." Operators are demanding tax breaks for existing fields.

With so many UKCS operators being small and independent companies, finding a suitable rescue package for them is difficult as the government rescue needs to consider their long-term viability. Too many of the smaller players have no producing assets, and it is questionable as to whether they can emerge from the crisis considering the problems with raising finance.

Richard Cliff, partner at international law firm Eversheds LLP, said, "Rescue funds should be directed at those players which have a chance to survive and thrive once the current crisis is over. These are likely to be those companies that have a mix of producing assets as well as developmental assets. The remainder should be encouraged either to consolidate or to fade away."

DECC data

According to figures published in July by the Department for Energy and Climate Change (DECC), indigenous energy production decreased by 5% in 2008 compared with 2007.

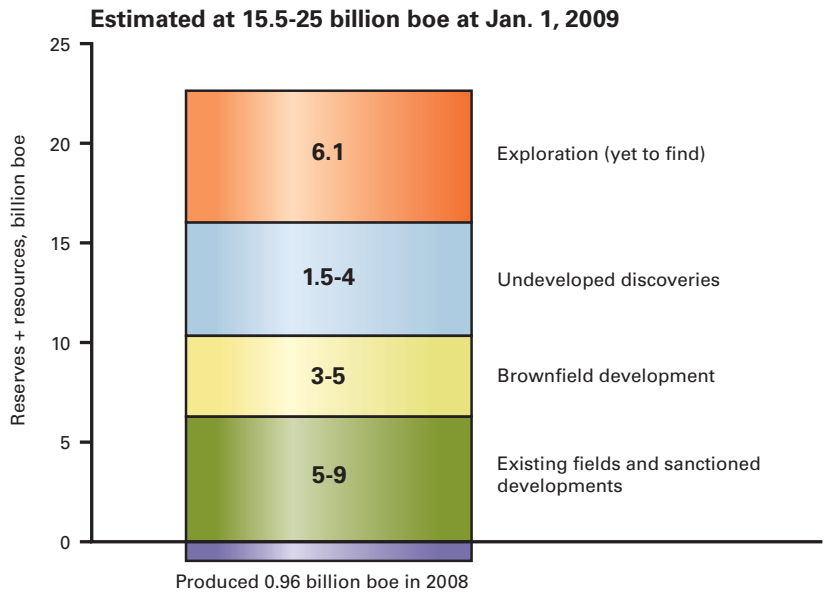
Gross natural gas production fell 3.4% in 2008, and net gas imports accounted for 28% of input into the transmission system. There was a 6.4% reduction in crude oil (including natural gas liquids) production in 2008, which stood at 72 million tonnes, and now constitutes 44% of domestic energy production.

Deloitte analysis

The bleak picture for the UK continental shelf was also recently highlighted by Deloitte LLP, which said oil and gas drilling operations have been more than halved in the past year, while activity in the equivalent sector in Norwegian waters has increased.

The Norwegian authorities offer better tax incentives, which the UK government needs to emulate, Deloitte urged. Its North West Europe Review, published in July, showed that only 15 exploration wells were drilled in the 3 months to June, 57% lower than last year. In contrast, activity in Norwegian waters leapt by 50%. In the second quarter, 18 new wells were drilled in the Norwegian North Sea, which was 29% higher than in the first quarter.

UKCS PROJECTED RESERVES/RESOURCES



Source: Oil & Gas UK

Costs, government cooperation

Oil & Gas UK has recommended that operators reduce their costs and improve efficiency in this difficult period.

"This is not an easy process; some costs will come out of the system as demand falls, but many companies are still having to make difficult choices, particularly when it comes to the size and capacity of their work forces," the group added.

Cooperation with DECC and the Treasury is crucial to reverse the pressures on the industry as 20-25 billion bbl of oil and gas equivalent could be produced, but these projects are more expensive and technically challenging.

Energy committee

The Energy and Climate Change Committee has also suggested that the Chancellor offers operators incentives to encourage exploration and production.

After listening to the evidence of operators at a hearing in June, the committee said that effective tax, regulation, and licensing policy were needed to govern the sector.

It is not confident that the field allowance tax will stimulate the predicted extra 2 billion bbl of oil because it does not address existing sites or the west of Shetland.

"Qualification criteria are too stringent and unless its scale can be extended, the allowance will provide no significant incentive for investment even in new fields. When reviewing the operation of this allowance the government must reconsider the merits of more wide-ranging and generous reforms of the fiscal regime such as a capital uplift or a reduction in the supplementary charge, calculating and setting out the predicted effects on tax revenues and on investment in the industry," the committee said.

Malcolm Webb, chief executive of-

ficer of Oil & Gas UK, welcomed the recommendations, arguing that there was urgent need for government to give the right fiscal and regulatory signals to attract more investment to the UK.

"We are encouraged by the committee's recognition that the measures announced in the last budget don't go far enough," Webb said.

Energy security policy

Although the oil industry is important, the UK will best enhance its energy security through a variety of sources including wind and other renewables, nuclear, gas, and clean coal, according to a report by former energy secretary Malcolm Wicks.

Wicks has been appointed the Prime Minister's Special Representative on International Energy. His analysis concluded that an "interventionist" approach by the government will be needed to ensure security of energy supplies, a move that was criticized by business lobby group, the Confederation of Business Industry.

"The government is already shaping the market through various low-carbon targets and incentives, and more intervention is not necessarily the answer," said Dr. Neil Bentley, the CBI's director of business environment. "The role of government should be to provide the right policy and planning frameworks to encourage the £150 billion of private sector investment needed to bolster energy security, cut emissions and keep prices affordable."

Wicks said the UK needs to foster tight relationships with gas exporters, Norway, Qatar, and Saudi Arabia, while tripling nuclear capacity and pushing for renewable energy. He also suggested strategic storage to stop companies from diverting gas supplies to other countries if there were a shortage.

Energy and Climate Change Sec. Ed Miliband said that maximizing North Sea production was a priority as well as energy diversification.

The government is to consider carefully the report's recommendations and publish a formal response. ✦

MEOR APPLICATIONS—1

Microbes enhance oil recovery through various mechanisms

Chang Hong Gao
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Microbial enhanced oil recovery (MEOR) methods rely on microorganisms and their metabolic products to mobilize residual oil in several different ways.

MEOR mechanisms include interfacial tension reduction, selective plugging, gas production, biodegradation, and wettability alteration.

The process is environmentally friendly and easy to operate.

This first of a two-part series summarizes the mechanisms, while the concluding part will discuss 10 field cases involving 221 producing wells in Malaysia, US, Argentina, and China.

Enhanced oil production

Oil and gas exist in porous rocks at depths from several hundred to several thousand meters. In the early life of an oil field, the reservoir pressure is high and oil and gas flow to the wellbore naturally. When reservoir pressure declines, field operators often inject water or gas into reservoirs to maintain pressure and sweep oil and gas to wellbores.

Even after secondary recovery with water or gas flooding, the reservoir rocks because of capillary forces hold large amounts of residual oil. One estimate is that more than 50% of original oil remains underground at field abandonment.

Operators employ tertiary recovery or enhanced oil recovery methods to produce residual oil. Most common EOR methods include surfactant flooding, polymer flooding, CO_2 flooding, and thermal recovery.

MEOR is different from traditional EOR methods. The method injects live microorganisms and nutrients into the reservoir so that bacteria and their metabolic products mobilize the residual oil. If favorable bacteria already reside in the reservoirs, it is feasible to inject nutrients only.

MEOR methods have many distinguishable advantages. It is environmentally friendly because it does not involve toxic chemicals. It is easy to carry out in the field because it does not require modification of existing water-injection facilities.

MEOR is not a new concept, but field applications have become more common in the past 10 years.

Certain bacteria can produce surfactants, polymers, gases, and solvents that contribute to mobilizing residual oil in a reservoir.

IFT reduction

Certain bacteria produce biosurfactants that reduce oil-water interfacial tension (IFT). Capillary pressure, which is proportional to the IFT between oil and water, holds the residual oil in porous rocks.

Residual oil starts to flow with the reduction of IFT to a lower value. Table 1 lists published values for IFT with several biosurfactants.[1-3]

The IFT between hydrocarbon and water is typically about 30-40 mN/m (milli-Newton/m).

The biosurfactants must reduce IFT at least to below 0.4 mN/m to have any effect on oil recovery. Table 1 lists such biosurfactants.

Most IFT measurements with existing biosurfactants, however, are above 1 mN/m.[4] Moreover, laboratory measurements, such as the spinning drop method, require high concentrations of biosurfactant.

The expected concentration of biosurfactants in real reservoirs is lower because of dilution. As such, this may limit in practice the effectiveness of IFT reduction.

REPORTED IFT MEASUREMENTS Table 1

Biosurfactant	IFT, mN/m	Reference
Mixed culture	0.006	1
Rhamnolipid	0.080	2
Lipopeptide surfactin	0.200	3

Selective plugging

A porous rock contains pores of various sizes. When undergoing waterflooding, larger pores receive most of the injected water, while residual oil remains in unswept small pores.

When bacteria flow in reservoir

MEOR literature survey

The survey of the literature provided the following points regarding MEOR:

- *MEOR methods active during the past 10 years are environmentally safe, easy to operate, and economical.*
- *Among the proposed MEOR mechanisms, field observations indicate that selective plugging may be the main contributor for better recovery. In practice, IFT reduction may be less effective than shown in laboratory tests.*
- *For the selected MEOR field cases in the past 10 years, more than 60% of wells treated by bacteria increased oil production rates. Most treated reservoirs had temperatures below 85° C. Moreover, most successful cases were for reservoirs below 55° C.*
- *The survey provided no clear relationship between the success of MEOR projects and reservoir permeability.*
- *Many field cases indicate that MEOR reduced IFT, crude oil viscosity, and paraffin content, as well as modified the injection profile.*
- *MEOR methods are more suitable for low temperature, low production rate, and high water cut wells.*
- *A better practice is to inject both bacteria and nutrient into the reservoir. Injection of nutrient only is not very effective because the favorable indigenous bacteria may not compete effectively for the nutrients with other existing bacteria colonies.*
- *The current MEOR success rate is not very satisfactory. Developments in biotechnology and petroleum technology will, however, deepen the understanding of MEOR methods to lower project costs and improve success rates.*

rocks, they also tend to enter large pores. Certain bacteria can generate biopolymers that plug the high-permeability zones with large pores, thus forcing injected water to sweep the oil in low-permeability zones.

One study injected pseudomonas aeruginosa strain into glass-bead packs and Berea sandstone cores to investigate the permeability reduction by bacteria and their metabolic products.[5]

For the three bead packs with high permeability about 1,400 md, the permeability reductions ranged from 20% to 54% of the original permeabilities. For the cores with low permeabilities about 13 md, the reduction ranged from 45% to 72%.

Another test injected bacteria solution into sandstone core and reduced by 80% the observed permeability.[6]

Most MEOR laboratory tests have been in sandstone cores. Very few experiments involved fractured system.

One investigation etched fractures inside a glass to imitate a fractured rock and then injected leuconostoc mesenteroides and bacillus subtilis into this micromodel to investigate their effects in MEOR.[7]

Leuconostoc mesenteroides is a biopolymer producer, while bacillus subtilis produces biosurfactant. The results showed that bacillus subtilis improved recovery in a fractured system, while leuconostoc mesenteroides was not as effective.

This indicates that reduction in IFT is more effective than selective plugging in enhancing recovery for a fractured system.

Viscosity reduction

Certain bacteria produce gas and solvents in the reservoir, such as CO_2. Gas and solvents can dissolve in crude oil and reduce crude oil viscosity, leading to an improved mobility ratio and oil recovery.

The produced gas can also increase reservoir pressure, which leads to higher producing rates.

One test involved the mixing of clostridium acetobutylicum with crude oil in a sealed cell.[8] The observed pressure in the cell started to rise because the culture generated CO_2. The measured crude oil viscosity after shut-in tests indicated that the culture reduced crude viscosity to less than 50 cp from about 80 cp before the test.

Clostridium acetobutylicum also effectively improved oil recovery in the flooding test. The bacteria's ability to produce gas, however, is limited as tested in laboratory. It is unlikely that bacteria can generate large quantities of gas in underground reservoirs.

Biodegradation

Certain bacteria can degrade crude oil, especially the paraffin contents in crude oil.

When applied to reservoir, bacteria can remove the paraffin deposit in the near wellbore region, thus improving permeability and production rate.[9]

Wettability alteration

Rock wettability greatly influences the distribution of residual oil. In water-wet sandstones, water is in contact with sand grains, and oil droplets are in the center of the pore space. On the other hand, for oil-wet rocks, oil is in contact with grain surfaces and remains in the small pores. In other words, water wettability is better for oil recovery.

The research on bacteria-induced wettability change is limited. One study treated Berea sandstone cores with rhodococcus sp. 094 solution.[10] The study used the Amott method[11] to evaluate the rock wettability before and after microbial treatments.

The study showed that after injection of bacteria solution the originally water-wet cores became more water

wet, while mixed-wet cores had insignificant changes in wettability.

Another test measured the contact angle of water-wet limestone cores submerged in bacillus solution.[12] Observed was a reduction in contact angle, indicating wettability alteration towards water wettability. In practice, the concentration of bacteria in a reservoir is low. Therefore, MEOR is unlikely to alter significantly rock wettability.

Bacteria delivery

Reference 13 provides a more detailed description of MEOR mechanisms than in the previous paragraphs and Table 2 summarizes some bacteria for MEOR projects. Because reservoirs contain very little oxygen, these bacteria have to function in an anaerobic environment.

Operators can inject bacteria into the reservoir through the tubing and annulus of oil and gas producing wells as well as water injection wells.

One can classify most MEOR projects as huff and puff or bacteria flooding.

Huff and puff

Operators often inject bacteria solution into the reservoir through production tubing in a producing well. They can inject nutrient after or simultaneously with the bacteria. The common nutrient used in practice is molasses, an inexpensive by-product of sugar refining.

After the bacteria injection, the well remains shut in for a period, usually from several days to weeks. Some bacteria can produce acid, solvent, or surfactant that helps to eliminate debris in the near-wellbore region. Other bacteria can generate polymers that seal high-permeability channels in porous media.

After the operator puts the well back into production, the well may produce at higher rates.

The huff-and-puff process repeats the injection and production cycle several times to maximize the gain.

BACTERIA FUNCTIONS IN MEOR

Table 2

Microbes	Product	Application
Acinetobacter, arthrobacter, bacillus, pseudomonas	Surfactant	IFT reducer
Bacillus, leuconostoc, xanthomonas	Polymer	Selective plugging
Clostridium, enterobacter, desulfovibrio	Gas	Crude viscosity reducer
Clostridium, zymomonas, klebsiella	Solvent	Crude viscosity reducer
Clostridium, enterobacter	Acid	Permeability increaser
Pseudomonas, arthrobacter		Paraffin deposition reducer

Source: Reference 13

Bacteria flooding

Operators can also inject bacteria and nutrient into a reservoir from an injector and then continue normal waterflooding operations. The injected water carries the bacteria deep into the reservoir.

In many field cases, tests can detect bacteria at remote producers. While being transported inside the reservoir, bacteria can produce surfactants that improve oil recovery.

Microbes can also plug the zones with high permeability and force water to sweep the low-permeability zones.

In the more common huff-and-puff operations, bacteria only treat the near-wellbore region of producers, while bacteria flooding transports bacteria deep into the reservoir.

Feeding existing bacteria

In the third scenario, certain bacteria that can enhance oil recovery may exist already in the reservoir but not as the dominant bacteria colony. As such, operators only have to inject nutrition into reservoir to activate the bacteria.

This operation is rare compared with bacteria flooding and huff-and-puff operations because the favorable strains may be unable to compete for the nutrition supplied with the other colonies.

In some cases, operators may inject the favorable microbe to maximize their chance of dominating the underground environment. ✦

References

1. Kowalewski, E., et al., "Analyzing microbial improved oil recovery processes from core floods," Paper No. IPTC 10924, International Petroleum Technology Conference, Doha, Qatar Nov. 21-23, 2005.

2. Hung, H.C., and Shreve, G.S., "Effect of the hydrocarbon phase on interfacial and thermodynamic properties of two anionic glycolipid biosurfactants in hydrocarbon/water systems," J. Physical Chemistry B, Vol. 105, 2001, pp. 12596-600.

3. Makkar, R.S., and Cameotra, S.S., "Structural characterization of a biosurfactant produced by Bacillus subtilis at 45 degrees C." J. Surf. Deter., Vol. 2, 1999, pp. 367-72.

4. Gray, M.R., et al., "Potential microbial enhanced oil recovery processes: a critical analysis," Paper No. SPE 114676, SPE ATCE, Denver, Sept. 21-24, 2008.

5. Gandler, G.L., et al., "Mechanistic understanding of microbial plugging for improved sweep efficiency," Paper No. SPE 100048, SPE/DOE Symposium on Improved Oil Recovery, Tulsa, Apr. 22-26, 2006.

6. Cheng, J., et al., "Studies on the pilot test with microbial profile modification after polymer flooding in Daqing oil field," Paper No. IPTC 11227, International Petroleum Technology Conference, Dubai, Dec. 3-6 2007.

7. Soudmand-asli, A., et al., "The in situ microbial enhanced oil recovery in fractured porous media," Journal of Petroleum Science and Engineering, Vol. 58, 2007, pp. 161-72.

8. Behlulgil, K., and Mehmetoglu, M.T., "Bacteria for improvement of oil recovery: a laboratory study," Energy Sources, Vol. 24, 202, pp. 413-21.

9. Bailey, S.A., et al., "Microbial enhanced oil recovery: diverse successful applications of biotechnology in the oil field," Paper No. SPE 72129, SPE Asia Pacific Improved Oil Recovery Confer-

ence, Kuala Lumpur, Oct. 6-9, 2001.

10. Shabani, M., et al., "The effect of bacterial solution on the wettability index and residual oil saturation in sandstone," 10th International Symposium on Evaluation of Wettability and Its Effect on Oil Recovery, Abu Dhabi, Oct. 26-28. 2008.

11. Amott, E., "Observation relating to the wettability of porous rock," Trans. AIME, Vol. 216, 1959, pp. 156-62.

12. Zekri, A., et al., "Carbonate rocks wettability changes induced by microbial solution." Paper No. SPE 80527, SPE Asia Pacific Oil and Gas Conference and Exhibition, Jakarta, Sept. 9-11, 2003.

13. Sen, R., "Biotechnology in petroleum recovery: the microbial EOR," Progress in energy and combustion science, Vol. 34, 2008, pp. 714-24.

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Middle East gas plant doubles mol sieve desiccant service life

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The Uthmaniyah gas plant has achieved 100% additional service life of the gas molecular sieve desiccants.

This new record in gas desiccants service life was a result of modifications in the bed configuration and the regeneration process. Careful data monitoring and online sampling were also used to gain confidence to continue using the desiccant despite the vendor's recommendation of changing it.

This article will focus on the performance of the subject desiccant over the 7 years in the gas dehydrators at the gas plant, historical data and results, loading plan, and the factors helped in increasing the desiccant service life.

The Uthmaniyah gas plant uses a molecular sieve (desiccant) to remove water from sweet gas feeding the NGL-recovery area. NGL is recovered by cooling the sweet gas to a cryogenic –140° F. At this low temperature, no water is in the sweet gas. Otherwise, hydration will form blockage in the downstream equipment. The water content allowed to NGL recovery area is 10 ppm or less.

The molecular sieve material consists of zeolite and binders. The zeolite is the active material on which the water is adsorbed. Usually, the service life of the desiccant is 750 regeneration cycles, which is equal to almost 3 years at normal loading of gas. Uthmaniyah has successfully achieved 1,380 cycles (7 years) with no decline in the desiccant. This article discusses the factors in achieving this and the effects on the market.

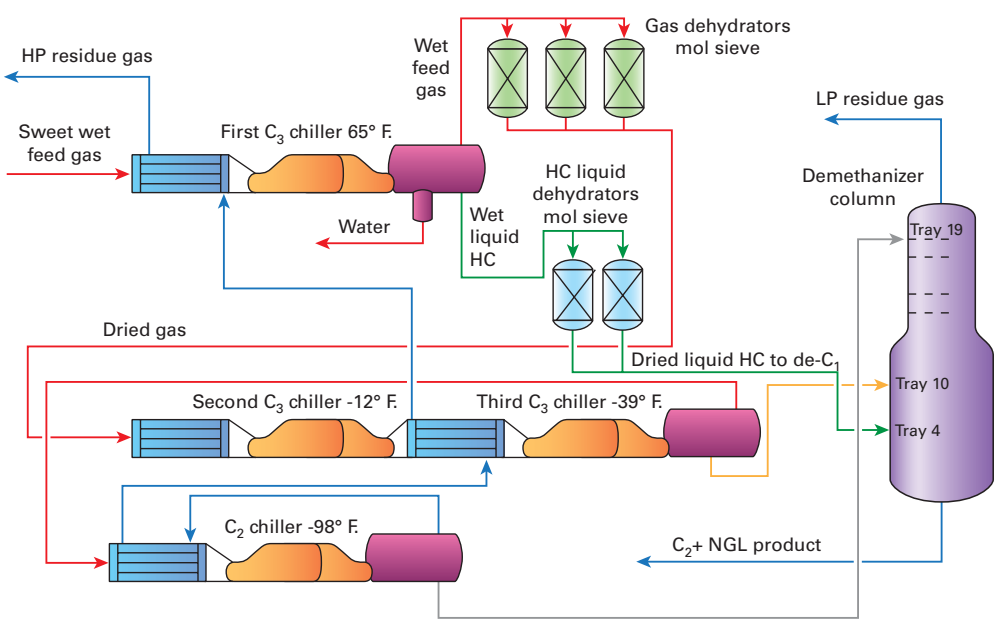
Based on a presentation to the 88th Annual GPA Convention, Mar. 8-11, 2009, San Antonio.

NGL-recovery area

The Uthmaniyah gas plant has four identical NGL-recovery modules. The main objective of each module is to recover NGL from the sweetened gas through a cascaded refrigeration process that uses ethane and propane as refrigerants. Each module consists of three chill trains, which are basically a

RECOVERY AREA AT UTHMANIYAH GAS PLANT

Fig. 1



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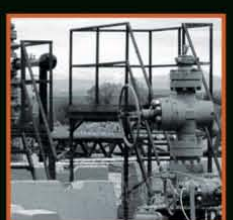

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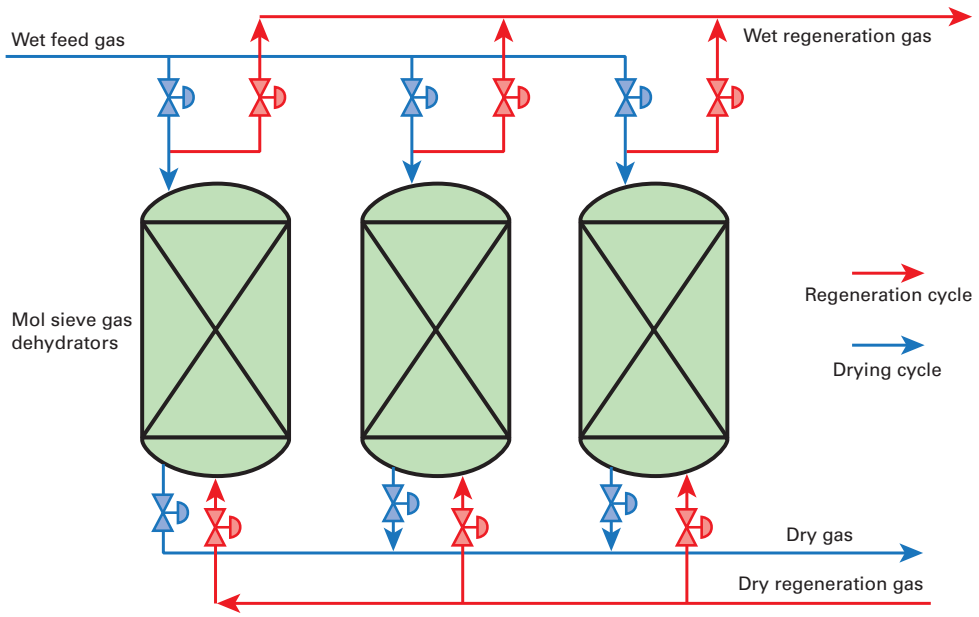
DEHYDRATORS AT UTHMANIYAH GAS PLANT

Fig. 2



series of chillers and heat exchangers.

The sweet wet gas is fed to the module at 140° F. and 450 psig (Fig. 1). The gas is cooled at the first chill train to 65° F. After that, the feed is taken to a three-phase separator to remove liquid hydrocarbon and water from the feed gas.

The separated gas is saturated with water and fed to the gas dehydrators to remove moisture and avoid hydrate formation in the downstream equipment. At the same time the liquid hydrocarbon is sent to the liquid dehydrator to remove the moisture from it. The dry liquid hydrocarbon is sent to Tray 4 at the demethanizer. The dry gas leaves the dehydrators and continues to the second chill train where it is cooled to –35° F. At the end of the train the liquids are separated from the gas in a two-phase separator. The liquid hydrocarbon is sent to Tray 10 and the gas continues to the third train for further cooling.

The gas is cooled at the third chill train to –98° F. and the liquid is separated from the gas in a two-phase separator. The liquid is fed to Tray 19 and the gas is used to cool the feed in the upstream heat exchangers. The demethanizer stabilizes the NGL and removes the light ends. Then the product is drawn from the bottom of the column and sent to the shipping pumps.

Dehydration

The main objective of dehydration is to remove water from the gas:

- To meet sales-gas pipeline specification. This does not require deep dehydration. It can be achieved through glycol dehydration process. An example of this is Uthmaniyah and Shedgum gas plants' triethylene glycol units, where TEG is used to dehydrate the sweetened high-pressure gas and lower its water content to meet Saudi Aramco Standard A-120 of less than 7 lb/MMscfd water specification in the sales gas.
- To prevent hydrate formation under cryogenic conditions. This requires deep dehydration in which gas is dried up to 1-ppm water content.

Hydrate is an ice shape substance that forms under certain conditions in the presence of hydrocarbon mixed with free water. Hydrate formation depends on the pressure, temperature, and composition of the mixture. The temperatures at the Uthmaniyah liquid recovery units reach as low as –140 °F. This leaves no room to tolerate having undried gas.

At the Uthmaniyah gas plant, wet feed gas enters the dehydrators from the top and flows down the dehydrator where all the water in the gas is adsorbed and the gas leaves as dry gas from the bottom of the dehydrator (Fig. 2).

After some time, the gas dehydrator becomes saturated with water and regeneration of the dehydrator is required to remove the adsorbed water by the desiccant. The dry regeneration gas enters the dehydrator from the bottom to remove water and dry the desiccant. During normal operations, two dehydrators would be online and a third is under regeneration.

Desiccant performance

The first performance parameter is water adsorption capacity of the desiccant. The capacity started at about 19 lb H_2O/100 lb of desiccant and stabilized after 400 regeneration cycles to around 10 lb H_2O, which was above the minimum threshold of 8 lb H_2O (Fig. 3). The minimum capacity the desiccant reached was 9.8 lb.

The second performance parameter is the pressure drop across the dehydrator. The pressure drop started at about 9 psi and gradually increased to a maximum of 13 psi, which was significantly below the maximum threshold of 25 psi.

Extending mol sieve life

Several factors helped extend desiccant service.

Special loading

The description of the loading plan will be from the bottom to top of the dehydrator (Fig. 5). Typically the dehydrator has 6 in. of supporting balls, between 0.5 in. and 0.25 in. in size. Support balls help hold the desiccant and avoid lifting it during the regeneration cycle.

At the same time, these balls even out distribution of the regeneration gas to the dehydrator. Support balls are inert; therefore, they do not have any water-adsorbing characteristics. After that, there is a 3-in. layer of desiccant sized of 2.5 mm to 5 mm. On top of it, there is a 60-in. layer of smaller size desiccant, 1.6 mm to 2.5 mm.

The fourth layer is the largest and has a height of 149 in. of large desiccant, 2.5 mm to 5 mm. On top of the molecular sieve, there is a 16-in. layer of activated aluminum.

It is believed that the activated alumina layer is one of the most important layers in the dehydrator as it acts as a sacrificial layer. This layer removes any contaminants in the gas and avoids poisoning the desiccant. Furthermore, because of its strength characteristics compared to the desiccant, it has higher resistance to the thermal degradation that takes place during the regen cycle.

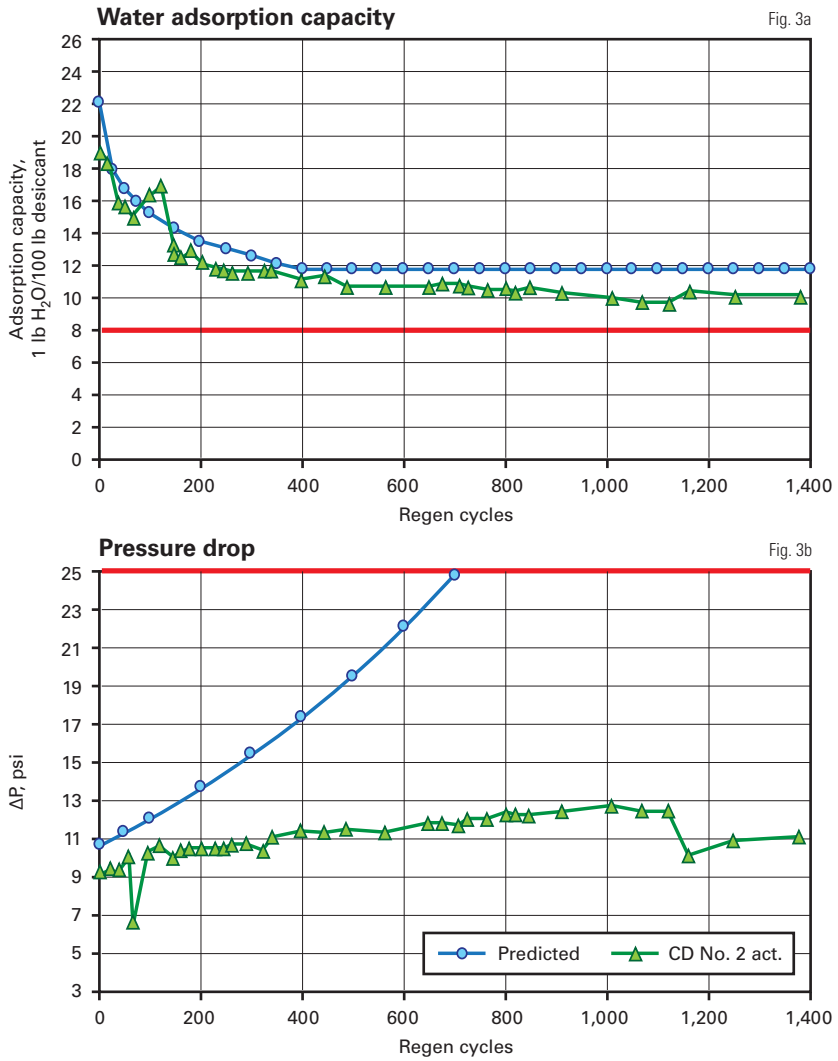
Finally, there is a 6-in. layer of supporting balls. This layer evens out the distribution of the inlet wet gas and prevents desiccant migration during regeneration. This loading plan also reduces the pressure drop as the large desiccant is loaded at the top of the dehydrator.

Two-step regeneration

The regeneration process removes the water from the desiccant after it has been online for some time. After this process, the dehydrator is ready to receive the gas again.

GAS DEHYDRATORS

Fig. 3



In the past, the regeneration process occurred in one step and the regen inlet-gas temperature was heated to 500° F. (Fig. 6). In 1998, however, research conducted by the laboratory at the Research and Development Center at Saudi Aramco and work with the desiccant vendors indicated that the desiccant bed's service life could be extended if two stages of regeneration process were used.

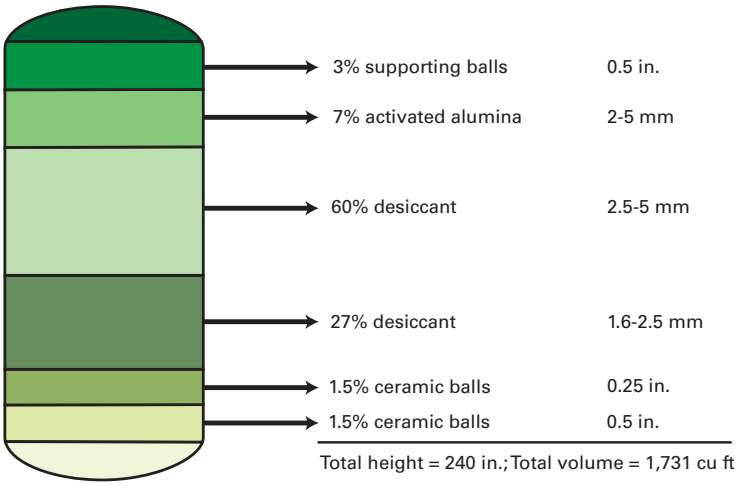
In addition, several molecular sieve vendors recommended the two-stage regeneration in order to minimize the internal water-vapor condensation that occurs during the regeneration cycle.

The process calls for regenerating the desiccant in two stages. The first involves preheating the bed at a higher temperature, 250° F. for 90 min, while the second involves heating the bed at a higher temperature, 500° F. (Fig. 7).

The former drives off the adsorbed hydrocarbons before they coke and will prevent most of water from condensing. Water condensation causes sieve particles to breakdown and clog the desiccant bed leading to increased pressure drop across the gas dehydrators. The latter drives off the adsorbed water. Figs. 6 and 7 compare the two regeneration processes.

LOADING PLAN FOR DEHYDRATOR

Fig. 4



Risk taking, monitoring

The Uthmaniyah gas plant challenged the status quo for desiccant service life. Also, it has closely monitored the desiccant performance and went for risk taking in leaving the desiccant in the dehydrators.

The established recommended practice is that desiccant service life is around 3 years, which is almost equivalent to the vendor's warranty of 750 adsorption cycles. Extending the service life beyond that could result in unexpected failure, as reported by the vendor.

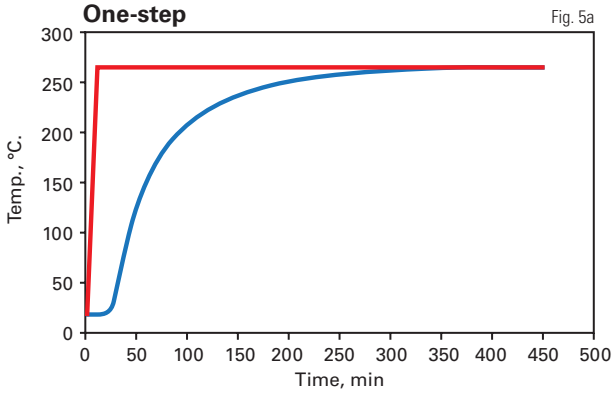
Although all of data indicated that the desiccant was very stable, there was no reason for not trusting the results and the confidence in the product. It was decided to keep it and at the same time increase the monitoring.

REGENERATION PROCESSES

Fig. 5

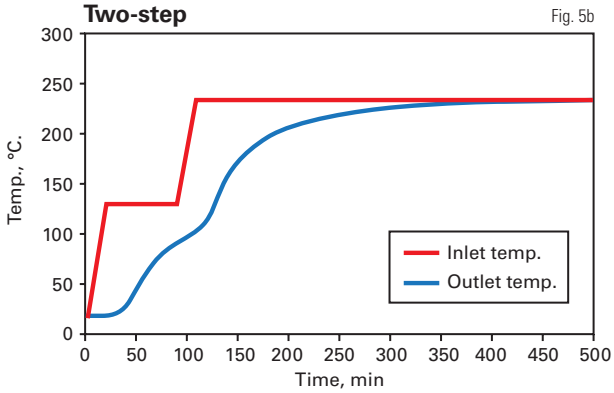
One-step

Fig. 5a



Two-step

Fig. 5b



On line sampling

Finally, to reduce the risk associated with the decision to extend the service life for the desiccant, it was decided to take a sample from the desiccant and compare it to fresh desiccant. One dehydrator was isolated; a sample was taken and sent to the Research and Development Center at Dhahran for full integrity and adsorption analysis.

The results supported the conclusion. The desiccant was left for another 3 years, and the close monitoring for the desiccant was continued as well.

Market effects

Considering the current shortage in the desiccant market and the long lead-time—6 months—needed to receive a shipment, this experience has created the following effects:

- Improving desiccant quality by increasing competition among manufacturers. The competition to develop and optimize loading plans and manufacturing processes has become more intense than ever. The Uthmaniyah experience was shared with different vendors, who expressed amazement. Uthmaniyah informed vendors that the loading plan was a major contributor in extending desiccant life, and all vendors were trying to improve their loading plan to achieve a similarly long service life.
- Made more desiccant production available in the market. As the desiccant replacement period was extended, Uthmaniyah demand was cut by half. This made more desiccant available to the market and reduced the shortage. ✦

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Low-carbon power requires broader CCS

Froydis Eldevik
Det Norske Veritas
Hovik, Norway

The transition to low-carbon power generation requires near-term broader-scale deployment of carbon capture, transport, and geological storage (CCS) as a bridging technology. CCS is technically feasible. But industry and government need to ensure a high level of protection to the environment and human health from CCS risks. This in turn requires a sound and accepted risk management approach.

Det Norske Veritas has taken on the task of developing a standardized risk management approach for CCS. This article outlines this work and some of the factors influencing it.

Background

Governments and the energy industry have for many years put effort into developing a portfolio of solutions to mitigate climate change. One promising solution is CCS.

Large-scale CCS technology remains immature for both coal and oil-based energy generation. CCS has the potential to become a preferred solution to climate problems but will not be a quick fix. CCS entails a number of risks and dilemmas and involves a number of stakeholders with potentially conflicting goals.

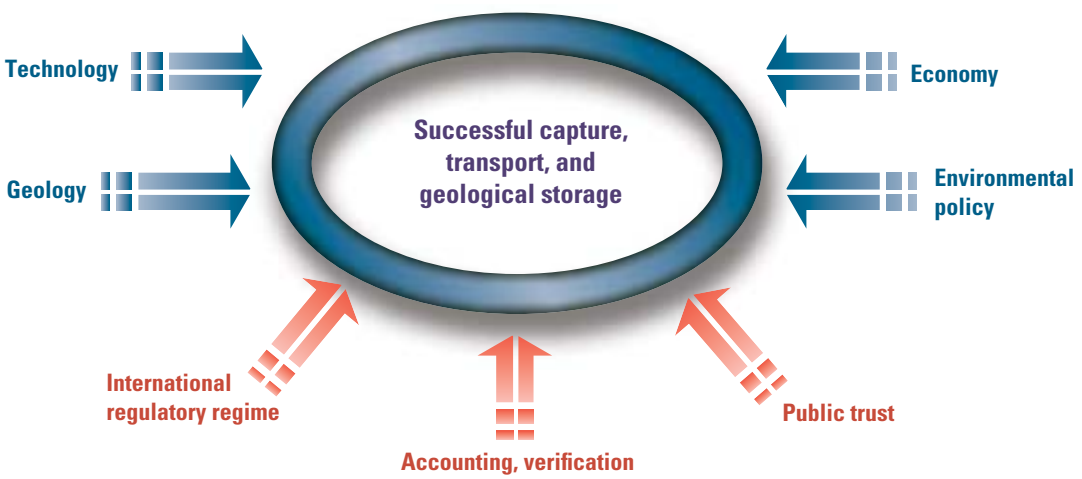
The energy industries in many countries face the political risk of not having long-term solutions for how to incentivize emissions reduction. The framework conditions for CCS are not yet defined. But European Union member countries have progressed over the last few years with, for example, the EU geological storage directive and amendments to existing legislation. Such developments will help reduce long-term political unpredictability when huge CCS investment decisions are made in the near future in Europe, North America, and Australia.

Besides political risk, CCS as a concept has other aspects requiring safe and responsible management. Health, safety, and environmental risks need to be acceptably managed across the entire carbon value chain; both for society at large and for the communities surrounding CCS infrastructure.

CCS logistical risks range from capture and transportation to storage, and involve the commercial risks related to building a completely new value chain capable of establishing the appropriate risk-reward relationships for a variety of stakeholders with different backgrounds, objectives, and appetites for risk. The new CCS market must provide predictable long-term conditions for everyone, including a transparent decision basis and interfaces yet to be defined.

MAIN CCS ISSUES

Fig. 1



Positive developments

DNV notes positive developments in several places around the world.

Norway plans to build its first full-scale CCS plant as early as 2012. Europe hopes to develop demonstration projects by 2015, followed by large-scale industry plants by 2020. North America and Australia are also active, and the global community is discussing how to incorporate CCS in a possible global greenhouse gas emission trading scheme, based on the goal of having a strong, global CO_2 price as one important incentive for the industry.

DNV is working together with industry participants and governments in developing CCS as a safe and reliable means of reducing CO_2 emissions by developing industry guidelines and international regulations; qualifying new capture technologies, pipelines and storage sites; verifying new and retrofitted CCS installations; certifying CO_2 credits; and helping industry and authorities manage their increasingly complex risk exposure.

In November 2008 DNV began developing a standard methodology for characterizing, selecting, and qualifying proper sites for geological storage of CO_2—both offshore and onshore—working with Norwegian authorities and more than 10 oil, gas, and coal industry participants.

Many pilot-scale and demo-scale projects are under way around the world, and project developers are considering taking the next step and implementing large-scale CCS projects. But for CCS to have a real effect on the carbon balance, more than a thousand large-scale projects must be implemented over the next couple of decades, making speed of the essence.

DNV's work addresses the lack of publicly available and recognized best-practice guidelines. Such guidelines should explain how to efficiently implement legal and regulatory frameworks, adopt concurrent best engineering practices, and how to manage the risks and uncertainties throughout the storage cycle.

Establishing a common practice acceptable to stakeholders will ensure geological storage of CO_2 takes place in a transparent and straightforward manner and present benefits and risks in a balanced and well communicated manner. Current knowledge and experience gained from research and development and pilots must be converted into recommended practices and guidelines, making it possible to identify knowledge gaps and help prioritize further research and development, providing guidance on how to establish permanent, safe, and cost-efficient CO_2 storage.

DNV's joint-industry project includes Gassnova SF (responsible for managing the Norwegian state's involvement in CCS activities), Gassco AS, IEA Greenhouse Gas R&D Programme, Statoil-Hydro, BP, Shell, Petrobras, RWE Dea, Schlumberger, Vattenfall AB, BG Group, and DONG Energy.

Barriers

The science and technology behind CCS are known but have never been implemented to reduce CO_2 emissions. Further development, particularly on storage, is needed and several problems must be overcome if CCS is to be a sound mitigation solution.

Demonstration projects are at various stages of development worldwide. The International Energy Agency says if these demonstration projects deliver good results, CCS technology could be deployed on a broader scale by 2015.

Major problems facing CCS implementation include:

- *Technology.* The technologies for carbon capture, transport, and storage are known and are often used under different operating conditions and on smaller scales. Developing full-scale, commercially viable CCS solutions based on current experience poses considerable technological problems.
- *Geology.* One of the biggest questions is whether stored CO_2 can be retained for long periods. Current storage projects such as the Statoil Sleipner project have only stored CO_2 since 1996, a period too short to prove long-term safety. Careful site selection with optimal verification procedures and monitoring instruments will be essential.
- *International regulatory framework.* International legislation related to marine pollution and marine protection (the London Protocol, the Convention for the Protection of the Marine Environment of the Northeast Atlantic (OSPAR), the Kyoto Protocol, and others) posed major legal problems for CCS a few years ago. Issues related to property rights and liability will also likely be difficult to overcome.

  Amendments under the OSPAR Convention and the London Protocol allow and regulate the storage of CO_2 streams from capture processes in subseabed geological formations. The EU geological storage directive addresses liability issues by giving provisions for liability for environmental damage, and provisions for liability for climate change as a result of leakage, but these issues require further clarification.
- *Accounting, verification.* In Europe, CCS in now included as an activity under the scheme for greenhouse gas emissions allowance trading within the European Community, implying requirements to surrender emissions trading allowances for any leaked emissions.
- *Public trust.* Public support and acceptance for CCS is essential. The public is poorly informed on the topic and therefore skeptical. When presented with options for combating climate change, the public finds wind, wave, tidal, and solar energy to be more attractive than CSS, preferring it only to nuclear power.
- *Environmental policy.* More research is needed on the potential environmental effects of CO_2 retention.
- *Economy.* CCS still costs too much. The major cost elements relate to investment costs and operational costs of the capture plant. The broad, ongoing technology development aims to reduce these costs.
- *Risk management.* While geological storage of CO_2 has little track record in

Europe, related industrial experience and scientific knowledge serve as a sound basis for appropriate risk management, including remediation.

The oil and gas industry has extensive experience with management of uncertainties subsurface. Several relevant industrial activities exist worldwide, such as natural gas storage and acid gas disposal, providing a basis for proper management of risks and uncertainties related to geological storage of CO_2.

A new problem posed by geological storage of CO_2, however, is subjecting the results of site assessment and associated risk evaluations to scrutiny by regulators and other stakeholders as part of the storage permit application process.

It will also be important to document and communicate how individual risks evolve and are effectively reduced through the project lifecycle with proper risk-based monitoring and verification programs. ✦

The author

Froydis Eldevik (Froydis.eldevik@dnv.com) is head of section for carbon capture and storage at DNV, Norway. This includes responsibility for several of DNV's international CCS projects. She has also served as head of department in the ministry of petroleum and energy in Norway, where she worked with framework conditions for the oil and gas sector, especially related to climate change issues and discharges to sea. In this position she was, among others, involved with development of the government's policy and regulatory framework regarding CCS. Eldevik holds a degree in political science from University of Oslo.

Equipment/Software/Literature

New user adds trading, risk management system

Symphony ETRM, an integrated liquid hydrocarbons trading and risk management system, has added Sinclair Oil Corp., Salt Lake City, Utah, as one of its most recent users.

Symphony's straight-through-processing functionality helps improve work flow within an organization, enabling traders and risk managers to make better-informed decisions faster, says the developer of the system. The software pinpoints the value of a position in real time, tracks the total risk position under any given set of transaction variables, and manages all paper and physical transactions in one system while eliminating data entry duplication.

Source: **Amphora Inc.,** 2500 CityWest Blvd., Suite 750, Houston, TX 77042.

Underwater receiver helps detect hydrocarbons

This new ocean-bottom electromagnetic (EM) receiver is designed to detect underwater oil and gas deposits with improved operational efficiency, safety, and more comprehensive data quality.

The QMax EM3 receiver is 1 m tall and 1 m wide and measures all six components of the EM tensor. Each unit weighs about 150 kg in air (without an anchor), and power consumption is about 1 w. The sensors, capable of 30-day deployments, may be used at depths as great as 4,000 m. Long electric-field arms are not required for industry standard signal-to-noise performance, but arms can be added for enhanced sensitivity.

The compact unit receives increased safety, reliability, and operational efficiencies in a new commercial-grade turnkey form designed for maximum deployment and recovery speed, minimal redundancy and redeployments, and more dense array surveys with larger numbers of instrument deployments than is now possible, the company says. The firm says its system achieves data quality with a combination of sensitivity, vertical axis data acquisition for electric and magnetic fields, and survey sampling enabled through denser surveys and fewer missed data points-redrops.

The system features:

- Electrodes that are permanently connected to and stored within the instrument and are not affected by sunlight or water chemistry (fresh, brackish, or salt water), yet are up to10 times smaller than other electrodes, the firm points out.
- Electrodes that do not need to be stored in water and have no assembly required, thus eliminating deckside assembly processes and associated potential failure points.
- Receiver size that makes units more hydrodynamic, shortening the drop time and leading to more accurate placement.

Source: **Quasar Geophysical Technology Div., Quasar Federal Systems Inc.,** 5754 Pacific Center Blvd., Suite 203, San Diego, CA 92121.

Services/Suppliers

Baker Hughes Inc.,

Houston, has completed a major expansion of its clear brine fluids infrastructure with the start-up of full-service completion fluids plants at Fourchon, La., and Galveston, Tex. With a combined operating capacity of more than 89,000 b/d, these plants will serve Gulf of Mexico operations. Both facilities include significant storage for clear brine fluids, as well as efficient brine recycling processes and equipment, field brine laboratory capabilities, and specialty product tanks for delivering pre-mixed additives such as wellbore displacement products. To complement the plant infrastructure, Baker Hughes has also invested in a fleet of high flow-capacity brine filtration equipment for Gulf of Mexico operations.

Baker Hughes provides reservoir consulting, drilling, formation evaluation, completion, and production products and services to the worldwide oil and gas industry.

Fluor Corp.,

Irving, Tex., has formed a consortium with Global Industries Ltd., Houston, to pursue offshore oil and gas projects in the Middle East and North Africa region. The consortium will leverage the combined strengths of Fluor Offshore Solutions and Global Industries in the areas of engineering, project management, procurement, construction, construction management, transportation, and installation and commissioning services for offshore oil and gas projects. Global Industries has offices and port facilities in Sharjah, UAE, and Dammam, Saudi Arabia, and continues to expand its offshore construction activity in the region, building on the foundation created by its diving operations business.

Fluor provides engineering, procurement, construction, commissioning, operations, maintenance, and project management services.

Global Industries is a leading offshore solutions provider of offshore construction, engineering, project management and support services, including pipeline construction, platform installation and removal, deepwater/SURF (subsea umbilicals, risers, and flowlines) installations, IRM (inspection, repair, and maintenance), and diving to the oil and gas industry worldwide.

KEMA,

Arnhem, Netherlands, has agreed to acquire the Gasunie Engineering & Technology unit of Gasunie, Groningen, Netherlands. KEMA will integrate the Gasunie unit into its existing gas activities, resulting in a new business unit focused on gas consultancy, engineering services and research and development for the national and international energy sectors. The acquisition also marks the beginning of a strategic collaboration between KEMA and Gasunie focusing on synergies between their respective electricity and gas fields of expertise.

KEMA is an independent knowledge provider operating globally in the energy value chain and specializing in high-quality services in the field of business and

technical consultancy, operational support, measurements and inspections, and testing and certification.

Gasunie is a European gas infrastructure company, offering transportation, gas storage, and LNG services.

Wirth Maschinen & Bohrgerate Fabrik GmbH,

Erkelenz, Germany, has changed its name to Aker Wirth GmbH, reflecting its acquisition by Oslo-based Aker Solutions earlier this year. Wirth subsidiaries Wirth SCS Singapore Pty., Wirth Mgt. Inc., Wirth International LLP, and Wirth Australia Pty. will also assume the Aker Wirth name.

Wirth was a privately held supplier of complete drilling equipment packages to the oil and gas, mining, and construction industries.

Aker Solutions is a unit of Aker Solutions ASA, a leading global provider of engineering and construction services, technology products, and integrated solutions to the oil and gas, refining and chemicals, mining and metals, and power generation industries.

SSP Offshore Inc.,

Houston, has entered into an agreement with Dubai-based Global Process Systems Inc. (GPS) to form a 50-50 joint venture operating under the name Global SSP. The new JV will focus on commercializing the proprietary SSP platform, a region-specific, economically focused, round floater that provides the flexibility and deck space required for storage, processing, offloading, and drilling in a wide range of applications and working environments. The patented SSP hull does not require a turret or CALM (catenary anchor leg mooring) buoy. Global SSP will have exclusive rights under license to market, build, lease, and sell the SSP platform in Southeast Asia, the Middle East, Australia/New Zealand, and the Caspian offshore areas. The new JV will be jointly managed by SSP Offshore and GPS, and will be based in Singapore.

SSP Offshore's principal technology is the patented SSP platform.

Global Process Systems provides upstream process facilities services and equipment ranging from small, skid-mounted units for onshore early production facilities to full topsides for offshore platforms and floating production, storage, and offloading units.

Promotora Valle Hermoso,

Orlando, Fla., has announced that its 494 UNR subsidiary was named the official supplier of slope reinforcement road base material for Gazprom Corp.'s $1.7 billion, 1,264-mile Sakhalin-Khabarovsk-Vladivostok natural gas pipeline. The project is slated for completion in 2012.

Promotora Valle Hermoso is a holding company with a 68% ownership in 494 UNR, a diverse construction company with more than 40 years of serving the Russian construction market, specializing in general and infrastructure construction services.

Gulf Marine Services,

Abu Dhabi, and Saudi Arabia's Shoaibi Group have created a joint venture to provide offshore barge operation services. The new company, named Gulf Maritime Services Saudi Arabia Ltd. (GMSSA), will be based in Al Khobar, Saudi Arabia, and will allow the JV partners to expand their offshore operations of barge charters in the Persian Gulf region. GMSSA will provide floating or self-elevating offshore platforms for offshore well maintenance, construction, and accommodation in well interventions, workovers, completions, and well testing; offshore cranage and heavy lifting services; diving operations; topside construction and maintenance activities; and temporary offshore accommodation, including hotel services.

Gulf Marine Services is the largest elevating support vessel operator in the Middle East, supplying self-propelled service and support barges to the oil and gas market.

Shoaibi Group is an engineering consultancy with expertise in oil and gas, power, and telecommunications focused on strategic partnerships with international companies operating in Saudi Arabia.

ABS,

Houston, has announced new senior management in its Europe and Pacific divisions. William J. Sember, currently president and COO, ABS Europe Ltd., based in London, will return to Houston as vice-president, global marketing. Replacing him at ABS Europe is Todd Grove, president and COO of the Pacific division, who will move from Singapore to London. Grove has previously served as president of the Americas division of ABS and, prior to that, vice-president, Western Europe, based in London. Mark McGrath will be promoted to replace Grove at the Pacific division helm in Singapore. McGrath has been serving as senior vice-president, operations, for the Pacific division. Previous appointments have included vice-president, Northern Pacific Region, country manager, South Korea, and country manager, Philippines. Taking over from McGrath will be Eric Kleess, currently vice-president, Northern Pacific region, who will move to Singapore from the regional headquarters in South Korea. Replacing Kleess will be Stephen Auger, who will move to South Korea from Qatar, where he is currently serving as vice-president, Middle East region, within ABS Europe. Auger served as country manager, Taiwan, prior to moving to the Middle East. Rick Pride, ABS country manager, Denmark, will be promoted to regional vice-president, Middle East, to replace Auger and he, in turn, will be replaced by Brad Achorn, who will move from his current position as country manager, Malaysia. Christopher Perrocco, currently principal surveyor, Abu Dhabi, will be promoted to country manager, Malaysia, and will move to Kuala Lumpur. Steve Hryshchyshyn will be promoted to the newly created position of vice-president, quality, and will move to Houston. Hryshchyshyn previously served as ABS quality manager before taking on his current position as country manager, Taiwan. Mark Corsetti, currently principal surveyor in charge, Shanghai, will be promoted to country manager, Taiwan.

ABS is a leading international classification society devoted to promoting the security of life, property, and the marine environment through the development and verification of standards for the design, construction, and operational maintenance of marine-related facilities.

Honeywell,

Morris Township, NJ, has completed the expansion of its Houston Customer Solutions Center, which serves as the company's main North American hub for its customers in the process manufacturing industries. The 76,000 sq ft center houses technicians, project managers, and senior engineers who assemble and test complex automation systems destined for US and international locations. It also supports the company's corrosion research team, which works with customers to address corrosion issues in the hydrocarbon industries. Additionally, the center includes a Honeywell Automation College training center, which offers courses that help plant operators, maintenance technicians, engineers, system administrators, and plant managers use their Honeywell systems to maximize productivity and plant performance. The Houston facility is one of 10 global centers that serve as central locations where customers can perform final testing of their customized systems before they are installed in their plants.

Honeywell provides an extensive portfolio of plant control systems and associated software, equipment and services for clients such as refiners, power generators, pharmaceutical manufacturers, and chemical and paper producers.

Jee Ltd.,

Tonbridge, Kent, UK, has made its suite of training courses available online for distance learning. Courses range from comprehensive overviews of subsea pipelines, risers, and control systems to practitioner level courses addressing the design, construction, and integrity management issues of subsea pipelines and risers. Each course will take 12 weeks to complete, and delegates will learn from interactive, tailored content designed for the online learning environment. The first courses going online in September are at a foundation level—overview of subsea pipelines and overview of risers, umbilicals, and flexible—with more being scheduled beginning in January 2010.

Jee is an international, independent company of engineers providing consulting services to the subsea and offshore oil, gas, and renewables industries.

Subsea 7,

George Town, Cayman Islands, has opened a new pipeline fabrication spoolbase at Port Isabel, Tex. The $30 million spoolbase allows the company to expand its presence and capabilities in North America to serve the increasing deepwater pipeline and steel catenary risers market. The spoolbase will fabricate and store oil and gas pipelines of up to 20-in. diameter (16-in. steel plus 2-in. insulation coatings) in lengths of up to 4,000 ft for spooling onto reeled pipelay vessels. When in full production, the base will be able to hold about 18,000 tonnes of pipe stalks.

Subsea 7 is one of the world's leading subsea engineering and construction companies, offering all the expertise and assets that make SURF field development possible.

Data Enhancement Services,

Frederick, Md., has named Rich Freedland president. Freedland will focus DES's initiatives on strategic planning and marketing of the company's specialized mapping software services. Company founder Bernard Catalinotto has redirected his activities to lead the company's technology and market development as director of geospatial services. Previously, Freedland led areas of marketing, business development, and strategic planning for Laser Research, Katsina Optics, HDI Instrumentation, and Clean Power Markets. From 1987 to 1998, he was president of Helios Inc. Prior to that, he held senior management positions at Konica Technology, Shugart Corp., Epelo Corp., Ampex Corp., and Eastman Kodak Co. Freedland has an MBA from Golden Gate University and a BS in electrical engineering from Syracuse University.

DES provides highly automated geographic information systems data conflation and feature-extraction services designed to streamline GIS data used for hydrology and mapping application and enhance internet map data for government and commercial entities.

Insight Management Corp.,

Orcutt, Calif., has completed its acquisition of Rebel Testing Inc., Gillette, Wyo., as a wholly owned subsidiary. Insight also recently completed a merger with Microresearch Corp.

Insight is a public holding company focused on acquisitions of engineering firms in the oil and gas industry.

Rebel Testing maintains a fleet of pump hoist trucks to service natural gas wells and services and pressure-tests blowout preventers.

Aker Solutions,

Oslo, has agreed to sell its 33% stake in Odim to Rolls Royce Marine for 700 million kroner (Nor.). Aker acquired the stake from parent Aker ASA in April 2009.

Norway-based Odim develops and sells automated cable-handling systems and winches for offshore and naval vessels, notably in the seismic, subsea, and offshore supply markets.

Aker Solutions provides engineering and construction services, technology products, and integrated solutions to the oil and gas, refining and chemicals, mining and metals, and power generation industries.

GE Oil & Gas,

Florence, Italy, has entered into a joint venture with SapuraCrest Petroleum Bhd. to further expand the latter's regional service center at Kuala Lumpur. The service center will use the most advanced service and repair technologies from GE Oil & Gas to maintain, repair, and refurbish heavy industrial gas turbines and components for the region's upstream, downstream, and LNG industries. Malaysian state oil company Petronas has signed a letter of intent to use the facility, which will be operational by yearend.

SapuraCrest is Malaysia's leading integrated oil and gas service provider, involved in marine installation and construction, drilling of offshore oil wells, management of drilling rigs, oil field production, and provision of offshore geotechnical and geophysical services.

GE Oil & Gas provides advanced technology equipment and services for drilling and production, LNG, pipelines, storage, industrial power generation, refining, and petrochemicals.

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DW10

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Imports of crude and products

	Districts 1–4		District 5		Total US		
	7-31 2009	7-24 2009	7-31 2009	7-24 2009	7-31 2009	7-24 2009	*8-1 2008
	1,000 b/d						
Total motor gasoline	985	963	36	28	1,021	991	864
Mo. gas. blending comp.	709	657	36	9	745	666	749
Distillate	141	254	0	0	141	254	292
Residual	77	118	0	44	77	162	341
Jet fuel–kerosine	39	48	122	20	161	68	59
Propane–propylene	83	156	3	6	86	162	190
Other	87	103	25	(13)	112	90	645
Total products	**2,121**	**2,299**	**222**	**94**	**2,343**	**2,393**	**3,140**
Total crude	**8,166**	**8,672**	**1,121**	**1,352**	**9,287**	**10,024**	**10,193**
Total imports	**10,287**	**10,971**	**1,343**	**1,446**	**11,630**	**12,417**	**13,333**

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

Purvin & Gertz LNG netbacks—Aug. 7, 2009

Receiving terminal	Liquefaction plant					
	Algeria	Malaysia	Nigeria	Austr. NW Shelf	Qatar	Trinidad
	$/MMbtu					
Barcelona	6.04	3.84	5.05	3.74	4.39	4.97
Everett	3.11	1.17	2.77	1.27	1.67	3.37
Isle of Grain	2.36	0.52	1.80	0.48	0.95	1.82
Lake Charles	1.26	–0.27	1.05	–0.16	–0.06	1.81
Sodegaura	4.17	5.87	4.42	5.59	5.32	3.56
Zeebrugge	4.81	2.88	4.28	2.77	3.40	4.34

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	12,109	56,163	37,515	12,314	67,192	13,590	4,742
PADD 2	86,082	52,953	25,608	8,123	33,535	1,173	28,770
PADD 3	182,348	70,365	40,037	16,224	44,636	14,684	33,873
PADD 4	16,006	5,845	1,873	495	3,483	228	[1]1,673
PADD 5	52,965	27,532	22,203	9,457	12,635	3,913	—
July 31, 2009	**349,510**	**212,858**	**127,236**	**46,613**	**161,481**	**33,588**	**69,058**
July 24, 2009	**347,840**	**213,076**	**127,432**	**45,249**	**162,617**	**34,721**	**68,368**
Aug. 1, 2008[2]	**296,863**	**209,216**	**106,616**	**41,429**	**133,346**	**36,545**	**47,196**

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

Refinery report—July 31, 2009

District	REFINERY OPERATIONS		REFINERY OUTPUT				
	Gross inputs	Crude oil inputs	Total motor gasoline	Jet fuel, kerosine	Fuel oils: Distillate	Fuel oils: Residual	Propane–propylene
	1,000 b/d						
PADD 1	1,381	1,349	2,388	110	408	120	50
PADD 2	3,278	3,259	2,061	222	826	36	245
PADD 3	7,370	7,136	2,796	749	1,924	314	667
PADD 4	550	543	331	27	185	9	[1]57
PADD 5	2,361	2,147	1,499	365	455	86	—
July 31, 2009	**14,940**	**14,434**	**9,075**	**1,473**	**3,798**	**565**	**1,019**
July 24, 2009	**14,946**	**14,608**	**8,977**	**1,490**	**3,987**	**590**	**1,067**
Aug. 1, 2008[2]	**15,311**	**15,039**	**9,061**	**1,559**	**4,630**	**536**	**1,052**
	17,672 Operable capacity		**84.5% 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.

OIL&GAS JOURNAL online research center

OGJ crack spread

	*8-7-09	*8-8-08	Change	Change, %
	$/bbl			
SPOT PRICES				
Product value	81.95	127.74	–45.79	–35.8
Brent crude	73.78	119.64	–45.86	–38.3
Crack spread	8.17	8.10	0.06	0.8
FUTURES MARKET PRICES				
One month				
Product value	83.82	129.11	–45.29	–35.1
Light sweet crude	71.57	118.88	–47.31	–39.8
Crack spread	12.26	10.23	2.02	19.8
Six month				
Product value	84.18	131.00	–46.82	–35.7
Light sweet crude	77.02	119.59	–42.57	–35.6
Crack spread	7.16	11.41	–4.25	–37.2

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

OGJ GASOLINE PRICES

	Price ex tax 8-5-09	Pump price* 8-5-09	Pump price 8-7-08
	¢/gal		
(Approx. prices for self-service unleaded gasoline)			
Atlanta	194.8	241.3	388.4
Baltimore	197.2	239.1	384.0
Boston	201.7	243.6	386.4
Buffalo	193.5	254.4	386.2
Miami	207.7	259.3	386.5
Newark	197.7	230.3	375.7
New York	187.7	248.6	383.9
Norfolk	196.9	235.3	377.4
Philadelphia	199.6	250.3	384.5
Pittsburgh	198.2	248.9	382.4
Wash., DC	212.2	250.6	385.9
PAD I avg	198.8	245.6	383.8
Chicago	211.0	275.4	407.3
Cleveland	211.8	258.2	373.0
Des Moines	209.1	249.5	367.3
Detroit	215.1	274.5	382.9
Indianapolis	201.8	261.2	372.9
Kansas City	195.2	231.2	366.0
Louisville	215.9	256.8	376.9
Memphis	195.0	234.8	365.7
Milwaukee	210.8	262.1	382.2
Minn.-St. Paul	209.8	253.8	373.9
Oklahoma City	188.8	224.2	360.7
Omaha	184.9	230.2	374.9
St. Louis	192.2	228.2	367.8
Tulsa	185.1	220.5	358.8
Wichita	190.8	234.2	361.9
PAD II avg	201.1	246.3	372.8
Albuquerque	196.5	232.9	367.3
Birmingham	197.5	236.8	373.8
Dallas-Fort Worth	200.8	239.2	373.5
Houston	196.4	234.8	371.2
Little Rock	192.6	232.8	373.7
New Orleans	199.4	237.8	373.7
San Antonio	203.3	241.7	372.0
PAD III avg	198.1	236.6	372.2
Cheyenne	214.0	246.4	375.2
Denver	214.3	254.7	402.0
Salt Lake City	206.5	249.4	400.4
PAD IV avg	211.6	250.1	392.5
Los Angeles	221.0	288.1	417.7
Phoenix	211.0	248.4	384.7
Portland	226.7	270.1	392.7
San Diego	223.0	290.1	415.8
San Francisco	230.6	297.7	426.3
Seattle	228.2	284.1	401.7
PAD V avg	223.4	279.7	406.5
Week's avg.	**204.0**	**249.6**	**381.8**
July avg.	**205.6**	**251.2**	**405.7**
June avg.	**214.6**	**260.2**	**404.2**
2009 to date	**170.4**	**216.0**	—
2008 to date	**307.2**	**351.0**	—

*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

	7-31-09 ¢/gal		7-31-09 ¢/gal
Spot market product prices			
Motor gasoline (Conventional-regular)		Heating oil No. 2	
New York Harbor	196.69	New York Harbor	179.32
Gulf Coast	192.56	Gulf Coast	177.07
Los Angeles	205.56	Gas oil	
Amsterdam-Rotterdam-Antwerp (ARA)	191.21	ARA	182.01
Singapore	191.90	Singapore	179.05
Motor gasoline (Reformulated-regular)		Residual fuel oil	
New York Harbor	204.06	New York Harbor	151.71
Gulf Coast	197.56	Gulf Coast	152.10
Los Angeles	220.56	Los Angeles	171.49
		ARA	152.04
		Singapore	155.11

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

BAKER HUGHES RIG COUNT

	8-7-09	8-8-08
Alabama	2	5
Alaska	8	5
Arkansas	45	56
California	20	45
Land	20	45
Offshore	0	0
Colorado	45	112
Florida	1	2
Illinois	2	1
Indiana	1	2
Kansas	23	12
Kentucky	10	12
Louisiana	135	187
N. Land	88	75
S. Inland waters	8	29
S. Land	14	27
Offshore	25	56
Maryland	0	0
Michigan	0	2
Mississippi	15	11
Montana	1	11
Nebraska	0	0
New Mexico	42	88
New York	2	7
North Dakota	40	73
Ohio	8	12
Oklahoma	79	208
Pennsylvania	49	25
South Dakota	1	2
Texas	361	932
Offshore	3	7
Inland waters	0	2
Dist. 1	16	21
Dist. 2	15	39
Dist. 3	31	62
Dist. 4	28	94
Dist. 5	74	181
Dist. 6	46	121
Dist. 7B	15	29
Dist. 7C	16	70
Dist. 8	58	138
Dist. 8A	11	30
Dist. 9	18	42
Dist. 10	30	96
Utah	15	46
West Virginia	20	26
Wyoming	34	73
Others—HI-1; NV-1; VA-5;	7	12
Total US	**966**	**1,967**
Total Canada	**195**	**475**
Grand total	**1,161**	**2,442**
US Oil rigs	277	387
US Gas rigs	681	1,571
Total US offshore	30	66
Total US cum. avg. YTD	**1,101**	**1,840**

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	Rig count	8-7-09 Percent footage*	Rig count	8-8-08 Percent footage*
0–2,500	41	9.7	87	3.4
2,501-5,000	71	66.1	132	46.9
5,001-7,500	121	24.7	255	15.2
7,501-10,000	197	4.5	470	3.4
10,001-12,500	188	13.2	483	2.2
12,501-15,000	136	—	341	—
15,001-17,500	131	—	145	—
17,501-20,000	48	—	93	—
20,001-over	36	—	33	—
Total	**969**	**11.8**	**2,039**	**6.4**
INLAND	13		33	
LAND	917		1,953	
OFFSHORE	39		53	

*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]8-7-09	[2]8-8-08
	1,000 b/d	
(Crude oil and lease condensate)		
Alabama	19	20
Alaska	651	602
California	645	652
Colorado	62	66
Florida	6	6
Illinois	28	27
Kansas	104	106
Louisiana	1,419	1,297
Michigan	15	16
Mississippi	60	60
Montana	89	84
New Mexico	164	163
North Dakota	183	175
Oklahoma	179	161
Texas	1,322	1,323
Utah	59	61
Wyoming	149	144
All others	66	74
Total	**5,220**	**5,037**

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

US CRUDE PRICES

	8-7-09 $/bbl*
Alaska-North Slope 27°	40.78
South Louisiana Sweet	71.50
California-Kern River 13°	62.40
Lost Hills 30°	70.80
Wyoming Sweet	60.43
East Texas Sweet	67.00
West Texas Sour 34°	61.50
West Texas Intermediate	67.50
Oklahoma Sweet	67.50
Texas Upper Gulf Coast	60.50
Michigan Sour	59.50
Kansas Common	66.25
North Dakota Sweet	57.00

*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]	7-31-09
United Kingdom-Brent 38°	68.59
Russia-Urals 32°	67.98
Saudi Light 34°	67.64
Dubai Fateh 32°	67.20
Algeria Saharan 44°	68.37
Nigeria-Bonny Light 37°	69.96
Indonesia-Minas 34°	70.04
Venezuela-Tia Juana Light 31°	67.14
Mexico-Isthmus 33°	67.03
OPEC basket	68.06
Total OPEC[2]	68.01
Total non-OPEC[2]	66.84
Total world[2]	67.50
US imports[3]	65.42

[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]

	7-31-09	7-24-09	7-31-08	Change, %
	bcf			
Producing region	1,068	1,059	746	**43.2**
Consuming region east	1,579	1,523	1,410	**12.0**
Consuming region west	442	441	353	**25.2**
Total US	**3,089**	**3,023**	**2,509**	**23.1**
	May 09	**May 08**	**Change, %**	
Total US[2]	**2,367**	**1,836**	**28.9**	

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

Statistics

International rig count

Region	July 2009 Land	July 2009 Off.	July 2009 Total	July 08 Total
WESTERN HEMISPHERE				
Argentina	46	1	47	74
Bolivia	4	—	4	3
Brazil	29	34	63	53
Canada	174	1	175	412
Chile	2	—	2	2
Colombia	28	—	28	41
Ecuador	10	—	10	10
Mexico	100	35	135	102
Peru	5	1	6	7
Trinidad	—	1	1	3
United States	894	37	931	1,932
Venezuela	43	11	54	83
Other	1	—	1	1
Subtotal	**1,335**	**122**	**1,457**	**2,723**
ASIA-PACIFIC				
Australia	8	10	18	27
Brunei	—	5	5	2
China-offshore	—	26	26	22
India	58	27	85	79
Indonesia	48	14	62	71
Japan	6	—	6	4
Malaysia	—	12	12	15
Myanmar	3	1	4	3
New Zealand	3	1	4	7
Papua New Guinea	1	—	1	3
Philippines	3	—	3	4
Taiwan	—	—	—	—
Thailand	5	9	14	13
Vietnam	—	4	4	9
Other	—	—	—	4
Subtotal	**135**	**109**	**244**	**263**
AFRICA				
Algeria	28	—	28	23
Angola	—	3	3	5
Congo	—	—	—	1
Gabon	—	—	—	2
Kenya	—	—	—	—
Libya	12	2	14	15
Nigeria	1	4	5	8
South Africa	—	—	—	1
Tunisia	2	2	4	5
Other	2	1	3	3
Subtotal	**45**	**12**	**57**	**63**
MIDDLE EAST				
Abu Dhabi	8	4	12	11
Dubai	—	1	1	1
Egypt	32	9	41	53
Iran	—	—	—	—
Iraq	—	—	—	—
Jordan	—	—	—	2
Kuwait	17	—	17	11
Oman	47	—	47	54
Pakistan	21	—	21	23
Qatar	1	8	9	12
Saudi Arabia	57	10	67	76
Sudan	—	—	—	—
Syria	24	—	24	21
Yemen	8	—	8	15
Other	2	—	2	1
Subtotal	**217**	**32**	**249**	**280**
EUROPE				
Croatia	—	—	—	—
Denmark	—	2	2	3
France	—	—	—	1
Germany	6	—	6	8
Hungary	3	2	5	5
Italy	2	—	2	5
Netherlands	1	3	4	2
Norway	—	17	17	25
Poland	3	—	3	1
Romania	5	—	5	18
Turkey	5	—	5	6
UK	1	15	16	26
Other	8	—	8	7
Subtotal	**34**	**39**	**73**	**107**
Total	**1,766**	**314**	**2,080**	**3,436**

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	—	—
Caribbean	Houston	Resid.	380	63	0.81
Caribbean	Houston	Resid.	500	63	0.81
N. Europe	New York	Dist.	200	120	2.22
N. Europe	Houston	Crude	400	77	2.06
W. Africa	Houston	Crude	910	47	1.45
Persian Gulf	Houston	Crude	1,900	26	1.51
W. Africa	N. Europe	Crude	910	52	1.18
Persian Gulf	N. Europe	Crude	1,900	29	1.20
Persian Gulf	Japan	Crude	1,750	46	1.55

*July 2009 average.
Source: Drewry Shipping Consultants Ltd. Data available in OGJ Online Research Center.

Waterborne energy inc. US LNG imports

Country	June 2009	May 2009	June 2008	Change from a year ago, %
	MMcf			
Algeria	0	0	6,300	—
Egypt	17,300	17,200	3,170	445.7
Equatorial Guinea	—	—	—	—
Nigeria	—	—	—	—
Norway	2,900	2,910	—	—
Qatar	—	—	2,930	—
Trinidad and Tobago	33,940	30,990	20,540	65.2
Total	**54,140**	**51,100**	**32,940**	**64.4**

Source: Waterborne Energy Inc.
Data available in OGJ Online Research Center.
Data not available at press time.

Propane prices

	June 2009	July 2009	June 2008	July 2008
	¢/gal			
Mont Belvieu	84.64	75.15	181.29	186.15
Conway	78.81	62.85	174.59	176.36
Northwest Europe	73.63	78.67	178.32	186.84

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					
July 2009						
Product revenues	77.53	71.60	75.35	75.55	71.58	69.36
Feedstock costs	–70.43	–66.51	–64.69	–60.62	–66.82	–68.23
Gross margin	7.10	5.09	10.66	14.93	4.76	1.13
Fixed costs	–2.14	–2.47	–2.40	–2.81	–2.40	–1.87
Variable costs	–1.34	–1.04	–1.22	–2.16	–2.95	–0.92
Cash operating margin	**3.62**	**1.58**	**7.04**	**9.96**	**–0.59**	**–1.66**
June 2009	4.58	2.10	10.12	10.12	–0.06	–2.82
YTD avg.	4.07	–0.25	6.60	9.31	2.75	0.27
2008 avg.	9.09	–22.64	11.53	–19.93	6.35	3.07
2007 avg.	12.60	–14.84	18.66	–8.05	5.75	2.25
2006 avg.	12.54	–2.86	14.97	11.32	5.88	0.90

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

Muse, Stancil & Co. gasoline marketing margins

June 2009	Chicago*	Houston	Los Angeles	New York
	¢/gal			
Retail price	284.97	249.52	293.84	272.78
Taxes	55.77	38.40	59.08	50.16
Wholesale price	215.45	199.87	219.92	206.88
Spot price	201.60	188.50	205.78	195.20
Retail margin	13.74	11.25	14.84	15.74
Wholesale margin	13.85	11.37	14.14	11.68
Gross marketing margin	**27.59**	**22.62**	**28.98**	**27.42**
May 2009	14.06	10.33	9.82	13.26
YTD avg.	20.77	19.09	14.56	25.35
2008 avg.	33.11	32.15	27.22	41.81
2007 avg.	26.96	23.12	19.05	31.10
2006 avg.	19.74	19.94	18.03	27.90

*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		
July 2009			
Product revenues	39.04	65.28	82.90
Feedstock costs	–20.91	–48.37	–97.55
Gross margin	18.13	16.91	–14.65
Fixed costs	–5.38	–6.36	–7.19
Variable costs	–3.04	–3.51	–4.59
Cash operating margin	**9.71**	**7.04**	**–26.43**
June 2009	12.68	7.88	–25.39
YTD avg.	14.06	10.70	–13.96
2008 avg.	21.00	22.89	–5.91
2007 avg.	14.41	14.14	–7.42
2006 avg.	19.54	22.45	1.36

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

July 2009	Gulf Coast	Mid-continent
	$/Mcf	
Gross revenue		
Gas	3.26	2.75
Liquids	0.84	1.99
Gas purchase cost	3.63	3.69
Operating costs	0.07	0.15
Cash operating margin	**0.41**	**0.90**
June 2009	0.46	1.28
YTD avg.	0.26	0.84
2008 avg.	0.45	1.61
2007 avg.	0.44	1.47
2006 avg.	0.26	0.97
Breakeven producer payment, % of liquids	48%	52%

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

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FTC oil market rule will restrict market activity

The US Federal Trade Commission's rule prohibiting oil-market manipulation culminates a witch hunt in a land of no witches.

It manages to be silly and dangerous at the same time—silly because it bans nonexistent behavior and dangerous because it subjects honest business people to whimsical enforcement.

The rule subjects manipulation of the wholesale oil market through "fraud or deceit" to stiff penalties. Except in rare cases involving obvious crooks, such manipulation doesn't exist.

The Editor's Perspective

by Bob Tippee, Editor

Lawmakers and regulators ceremoniously launch investigations whenever oil prices stirred political passions. They've never found evidence of widespread manipulation or anything hinting of systemic chicanery.

Oil, in fact, changes hands in the most aggressively monitored market in the country. Yet the juvenile supposition persists that when consumers feel stressed by oil prices the reason must be that oil companies, contrary to overwhelming evidence, are cheating them.

So the FTC will, according to Chairman Jon Leibowitz, "police the oil markets—and if we find companies that are manipulating the markets, we will go after them."

It would seem that all anyone has to do to elude civil penalties of up to $1 million/day/violation is to continue not manipulating the oil market.

But to show its heroic determination to crush soap bubbles, FTC includes in its list of potential offenses "omissions of material information that are likely to distort petroleum markets."

A refiner or jobber thus faces trouble for "making an untrue statement of material fact" that deceives someone as well as for not making any statement at all. Furthermore, the commission excused itself from having to prove that an enforcement target intended manipulation or that the alleged misbehavior affected prices.

Logical responses to these traps are to limit commerce to transactions with trusted customers unlikely to be—or claim to have been—deceived and to communicate as little as possible.

The effect can only be to limit market activity. This is no way to protect oil consumers.

The new rule plays to the political exploitation of American suspicion repeatedly shown by FTC and other investigatory agencies to be unfounded. It's more than dangerous silliness. It's hypocrisy.

(Online Aug. 7, 2009; author's e-mail: bobt@ogjonline.com)

Market Journal

by Sam Fletcher, Senior Writer

EIA: US gas storage tops 3 tcf

The US Energy Information Administration reported natural gas in underground storage topped 3 tcf with a 66 bcf injection in the week ended July 31. That was up 580 bcf from a year ago and 496 bcf above the 5-year level, with still time to reach maximum capacity well ahead of the Nov. 1 start of the winter heating season.

Bearish gas market fundamentals and record-high storage are "why it is so difficult to explain the quick and significant price move Aug. 3 that occurred in just 10 min," said analysts at Energy Solutions Inc., Verona, Wis. On that date, at 9-9:10 a.m. EST, the September gas contract jumped to $4.162/MMbtu from $3.708/MMbtu on the New York Mercantile Exchange, eventually closing at $4.03/MMbtu, up 37.8¢ for the day. "The rally has been chalked up to being a major play by a larger player who either decided to get into the market quickly or get out quickly. There is also 'speculation' that this price move may have been caused by a player who decided to exit the market rather than risk being subjected to potentially new contract limitation restrictions that are being discussed by the government," said Energy Solutions analysts.

Either way, they said, the price jump was "a subtle reminder that no matter how bearish things may be, the market can sometimes move in the opposite direction for no reason at all."

Analysts at Pritchard Capital Partners LLC, New Orleans, noted at the time, "Natural gas has bounced off the $3.20/MMbtu level three times now, but always failed at $4.30/MMbtu. The contract is inching towards the $4.30/MMbtu level but will need to decisively break the $4.30/MMbtu level to sustain the current rally."

Gulf of Mexico platform fire

The gas contract declined 3¢ in the next session but rebounded 4.1¢ on Aug. 5 after Enterprise Products Partners LP shut in its 42-in. Gulf of Mexico pipeline due to an explosion and fire at a compressor plant on Platform 264 B of the High Island Offshore System. The connecting pipeline was not damaged, but there was damage to Platform B, which houses compressors used to boost throughput on the line. Platform A, which houses operational personnel, was not affected.

The system has the capacity to transport 1.8 bcfd of gas from the gulf to pipelines off the Louisiana coast such as ANR Pipeline Co., Tennessee Gas Transmission Corp., and the UT Offshore System. But initial reports said it was transporting only 200-300 MMcfd recently due to last year's hurricane damage.

Meanwhile, the Independence Hub platform in the gulf is expected to operate at 700-800 MMcfd vs. recent trends of 900 MMcfd through the rest of the third quarter due to maintenance on separators. Each of the seven separators will require 1-2 weeks work, or 50-55 days of aggregate repair downtime.

However, traders shrugged off those disruptions, and the front-month gas contract plummeted 29.9¢ when the EIA reported the latest build in gas storage Aug. 6. It dropped another 6.9¢ to $3.67/MMbtu on Aug. 7, up a minimal 0.43% for the week.

Upbeat US economic data on Aug. 7 helped strengthen the US dollar and undermined crude prices, "but provided no support for natural gas, which is surprising since unlike oil the natural gas price is primarily driven by the US economy and not the global one, " said Pritchard Partners. "The worst of the economic downturn is behind us, but there is an abundance of natural gas as evidenced by most [exploration and production companies] delivering higher production than anticipated."

In recent telephone briefings with analysts, they said, "Price-driven shut-ins were mentioned as likely by XTO Energy Inc., Chesapeake Energy Corp., and EOG Resources Inc." However, they reported, "Each company said it would exceed previous production guidance. Signs that the consumer is strengthening will be the precursor to higher industrial production numbers, which will drive higher industrial demand for natural gas, the weakest element of demand year-to-date."

Chesapeake earlier said it would shut in 400 MMcfd because of low prices and large storage. However, the company apparently will now resume production.

Meanwhile, weather forecasters look for El Nino conditions to continue to develop and to last through the Northern Hemisphere into winter 2009-10. "It is well accepted that El Nino reduces hurricane activity in the Atlantic Basin, so the possibility of a hurricane cutting off [gulf] natural gas production seems a less likely event as hurricane season approaches," Pritchard Capital analysts said.

(Online Aug. 10, 2009; author's e-mail: samf@ogjonline.com)

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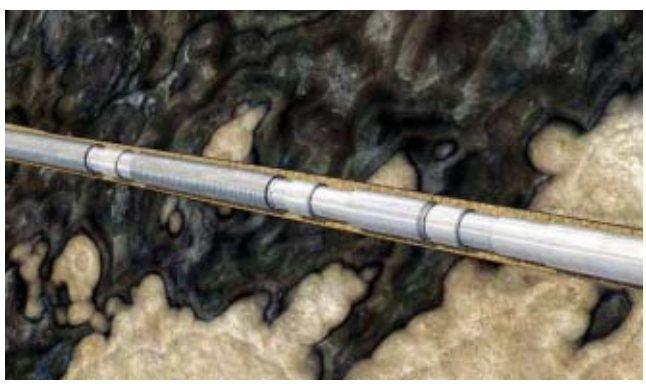

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