

# PETROLEUM REVIEW



THE INSTITUTE  
OF PETROLEUM

April 1995

## Decommissioning

Views on the decommissioning of UKCS offshore installations

## Financing

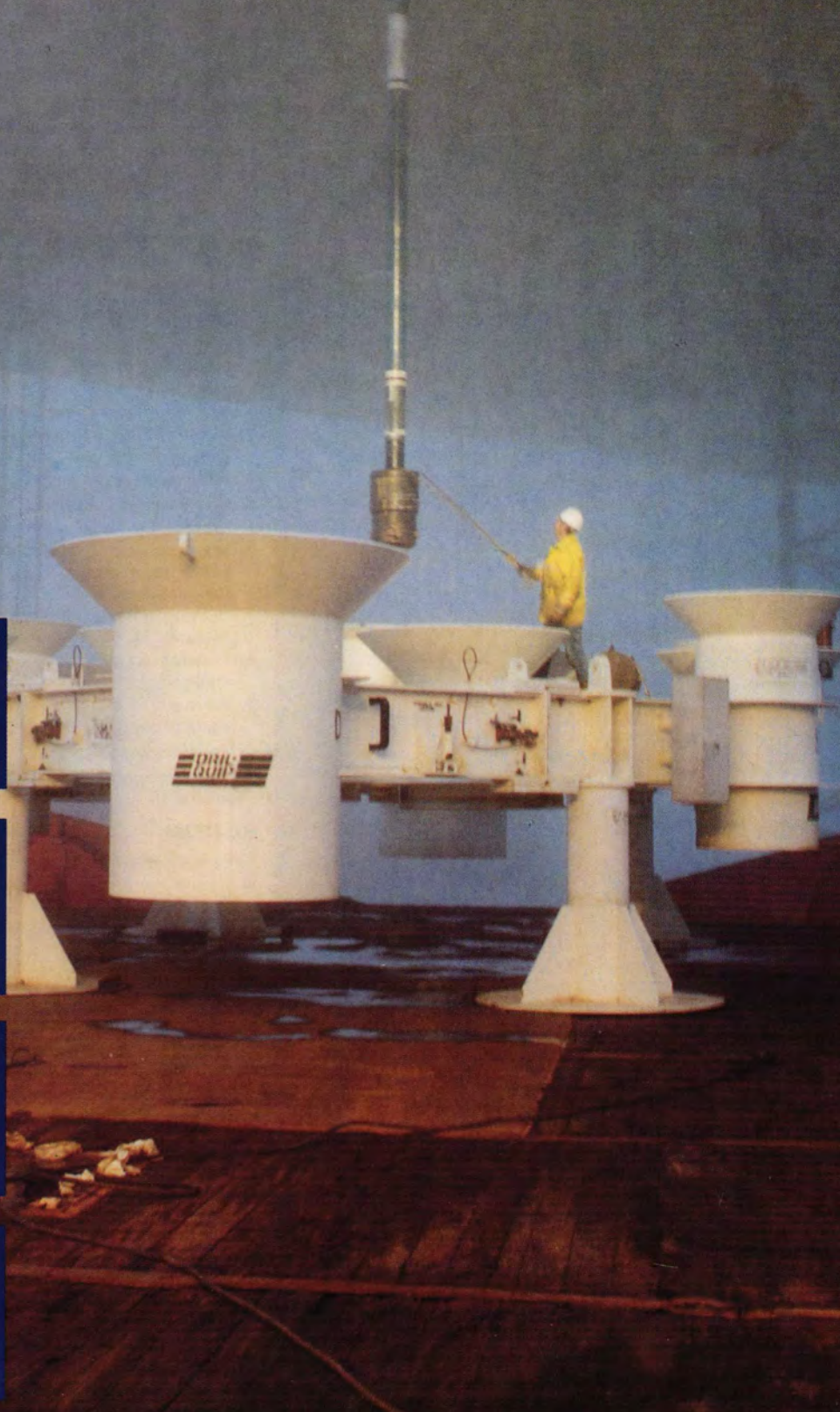
Financing oil industry projects in the former Soviet Union

## Iran

The deal that nearly was

## Phillips

Allyn Risley speaks out





GOVERNMENT OF INDIA

# NOTICE INVITING

# OFFERS FOR

# JOINT VENTURE

# EXPLORATION

# PROGRAMME

# FOR

# OIL AND NATURAL GAS

# 1995

## ANNOUNCEMENT

The Government of India announces the Joint Venture Exploration Programme for oil and natural gas. Companies are invited to bid for the exploration blocks on offer. A total of 28 blocks are on offer (23 of these blocks are under license to ONGC and 5 to OIL), with 18 of them being onshore and 10 offshore. Companies may bid for one or more blocks, singly or in association with other companies. The successful company/ consortium would form an unincorporated Joint Venture with ONGC or OIL.

## CONTRACT FEATURES

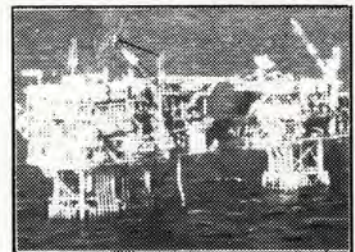
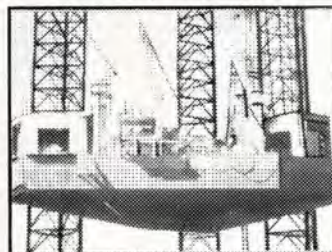
Production-sharing contracts would be entered into by the Joint Venture with the Government of India. Attractive terms are offered under these contracts, including :

- ◆ Sharing of risk by ONGC/OIL in the Joint Venture from the date of signing of the Contract with participating interest of between 25% and 40%.
- ◆ The possibility of a seismic option in the first phase of the exploration period.
- ◆ No minimum expenditure commitment during the exploration period.
- ◆ No signature or production bonus.
- ◆ No royalty/cess payment.
- ◆ Progressive fiscal regime with sharing of profit petroleum being tied to the post-tax profitability of the Joint Venture.
- ◆ No ring fencing of blocks for corporate tax purposes.
- ◆ Freedom to Joint Venture for marketing gas.
- ◆ Purchase of the Joint Venture's share of oil at international price.
- ◆ Provision for assignment.
- ◆ Provision for international arbitration.

## BID ITEMS

Companies would be required to bid for :-

- ◆ Percentage participating interest



Bids should be submitted in sealed envelopes superscribed "Confidential" "Joint Venture Exploration Programme (1995)" not later than 1500 hours IST on Friday, 15th September, 1995, to :

Mr. Najeeb Jung  
Joint Secretary (Exploration)  
Ministry of Petroleum & Natural Gas  
211 'A' Wing, 2nd Floor, Shastri Bhavan, Dr. Rajendra Prasad Road, New Delhi - 110001 (INDIA)

proposed to be held by the company/ companies in each block;

- ◆ Total length of exploration period, number of phases in exploration period and minimum work commitment in each of the phases;
- ◆ Profit petroleum shares expected by the Joint Venture at various levels of rate of return or multiples of investment recovered;
- ◆ Percentage of annual production expected to be allocated towards cost recovery.

## INFORMATION AVAILABILITY

A brochure giving details of the blocks offered, their geographical location on a map of India and the contract terms will be made available free of cost to companies.

To enable companies to assess the geological prospects of the blocks on offer, information docket and data packages are available on sale. Separate information docket on each basin are available, containing information on regional and local geology and the current status of exploratory activities in the blocks in each basin. The data packages contain seismic sections, gravity and magnetic anomaly maps, wireline logs and structure contour maps etc. and have been prepared for most of the blocks. A bid format indicating the information that would need to be provided while submitting the bid will also be made available free of cost to interested companies.

Companies interested in inspection and purchase of information docket and data packages and in obtaining the bid format as also further details may contact :

Mr. R.N. Desai  
Head, EXCOM Group  
Oil and Natural Gas Corporation Ltd.  
Upper Ground Floor, GAIL Building  
16 Bhikaji Cama Place,  
New Delhi-110066 (INDIA)  
Telephone : (91-11) 602703/602351/  
6888405  
Facsimile : (91-11) 6882798/3316413

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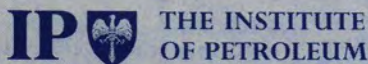
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### COVER PHOTO

Judy template. Photo courtesy of Phillips  
Petroleum Co UK Ltd

23 February

**Cabinda Gulf Oil Company** has been awarded a contract by the Angolan government to explore for oil in Block 14, a deepwater area located off the coast of Cabinda.

24 February

**Chevron has acquired new** exploration acreage in the South China Sea, southwest of Hainan. If commercial volumes of gas are discovered, the find will be developed jointly with the CNOOC.

27 February

**Shell UK has been given the go-ahead** by the DTI to develop three North Sea fields – Teal, Teal South and Guillemot A – using an FPSO facility.

**Development plans for** Phillips' Dawn field in the southern North Sea have been approved by the British government.

**JP Kenny has secured an** alliance agreement with the Chevron/Conoco joint venture, Britannia Operator, to design and construct export pipelines for the Britannia field. It is believed to be the first time the alliancing approach has been applied to trunk pipelines in the North Sea.

28 February

**YPF has secured its first international** foothold with an agreement to buy Maxus Energy, a debt-ridden US exploration and production company, for \$750m.

**The Ivory Coast has announced** a crackdown on oil export fraud, involving spot checks and the centralisation of supplies.

**Iran has deployed Hawk anti-aircraft** missiles on the islands around the mouth of the Gulf, leading to US fears over its ability to continue monitoring oil shipments.

**Conoco has set up a project** team to consider the feasibility of developing the central North Sea MacCulloch field via a floating production system.

1 March

**The IPE re-launched** its unleaded gasoline contract.

**The Civil Aviation Authority** published its review of helicopter offshore safety and survival in the UK following the Cormorant Alpha accident in 1992. The report makes 17 recommendations

**Sweden has imposed a national** ban on leaded petrol. This follows an agreement last year between the Swedish Environmental Protection Agency and the petroleum industry to replace all leaded fuel with petrol containing substitute additives.

**Taiwan has agreed to import** LNG from Malaysia for the next 20 years. Under the agreement, imports will reach 2.25m tonnes per year by the latter half of the decade.

**Lukoil and Socar have agreed to** form a joint venture to explore and develop the Kyapaz and Karabakh fields in the Caspian Sea.

**DeepTech International and** Coflexip Stena Offshore have announced plans to form a joint venture to supply floating production systems in the Gulf of Mexico.

**Lasmo announced the discovery** of a fifth new oilfield in Algeria, bringing total estimated reserves to 1.2bn barrels. The latest find is in block 404 in the Ghadames Basin.

2 March

**British Gas, Agip, Gazprom and** Kazakhstan took a vital step towards full development of the \$8bn Karachaganak oil and gas field when they signed a production-sharing principals agreement. Under the deal, 85 percent of the profits will go to Kazakhstan and the remainder to the three contractors.

**AMEC Process and Energy has** clinched two major contracts worth over £20m. The first, from Single Buoy Moorings, is for an internal turret for an FPSO vessel; the second, from Stork Protech, is for 23 modules totalling over 3,500 tonnes.

**DNV has announced it is to** open an office in Vung Tau, Vietnam, to serve the burgeoning oil and gas industry there.

**Total has won a \$3bn gas export** contract from Yemen. Under the terms of the contract, which covers production, layout and liquefaction, gas will be exported via Salif on the Red Sea and marketed by Total in Europe or India.

**Chevron and CPM Gas have** entered into an agreement to market natural gas in New Jersey.

3 March

**The Spanish government has** agreed to sell a further 15 percent in Repsol, reducing its 40 percent stake down to just 25 percent.

**Russian prime minister Viktor** Chernomyrdin has appealed for foreign investment in two planned export routes to the Baltic and the Black Sea.

5 March

**Australia is to analyse any oil** slicks found in its coastal waters in a bid to crack down on marine polluters.

**The six participants in the** Australian North West Shelf project have announced a major new LNG discovery. The exploration well, Perseus-1, has found 280 feet of gas-bearing sands likely to hold more than 2trn cu ft of recoverable gas.

6 March

**Enterprise Oil has discovered** hydrocarbons in its Norwegian well, 30/8-1. Production-testing is due to take place in November.

**Elf Aquitaine is to sell its** Texasgulf phosphates business to the Potash Corporation of Saskatchewan for \$810m.

**South Korea is planning to lift** its ban on new entrants into the country's petrochemical industry, according to *Lloyd's List*. Senior officials in South Korea's trade and industry ministry have indicated that Seoul will scrap the ruling this spring.

**Brown & Root is to partici-** pate in a feasibility study of Russia's Prirazlomnoye field, situated in 60 feet of water in the Arctic Pechora Sea.

**Statoil has awarded contracts** totalling £230m to lay and hook up 2,600 kms of North Sea pipelines between 1996 and 2000. McDermott ETPM West and Allseas Marine Contractors are to lay the pipes, whilst the hook-up contract has gone to Kvaerner.

7 March

**Chevron Corporation has** agreed to pay \$2.2m to settle a sexual harassment case brought against the company by four women from San Francisco. Chevron stressed that the payout, one of the largest pre-trial settlements for sexual harassment in US history, involved no admission of guilt on the part of the company.

**British Gas Chairman Richard** Giordano has admitted that new legislation may be necessary in order to curb excessive salaries amongst top executives. The admission came at the end of a tense question and answer session with the Commons' Employment Select Committee.

**130 workers on Shell Expro's** North Sea oil platform were called to their muster stations when a 'small gas leak' was discovered.

**Amoco unveiled two new North** Sea platforms on the Davy and Bessemer fields, both developed using a new economic 'off-the-shelf' design, known as Amoss.

8 March

**India has called upon the** services of legendary US firefighter Red Adair to quell a gas well fire that has been raging out of control in the southern state of Andhra Pradesh for over two months. US firefighter Neal Adams is reported to have abandoned attempts to cap the fire after differences with the Oil and Natural Gas Corporation.

**Total plans to merge its Euridep** paints business with Yorkshire paints company, Kalon.

**Oil prices are not expected to** rise above \$25 a barrel before the end of the century, according to new downgraded estimates from the UK DTI.

9 March

**Ofgas announced that British** Gas must agree to meet a set of

four different criteria if it wishes to stop pricing according to published schedules in the commercial market.

**The International Energy Agency** has lowered its forecast for world oil demand in the first quarter of 1995 by 100,000b/d.

**Republicans at the US Senate** have warned the Clinton administration that if it doesn't develop a strategy for reducing crude imports and encouraging domestic oil and gas production, they will develop one instead.

**Banco Bilbao Vizcaya and Goldman Sachs** have been appointed as global co-ordinators for Repsol's forthcoming share offering.

**Enterprise Oil revealed that** profits slumped from £95m before tax to £71m last year, as a result of its failed bid for Lasmo.

#### 11 March

**A petrol pump attendant** was shot dead at Stamford Bridge Garage in Shropshire in what police believe was a bungled robbery.

#### 12 March

**Iraqi oil minister Safa Hadi Jawad** has called for £15bn worth of energy aid from the West, in order to open up around 30 oilfields once UN sanctions against the country are lifted. These will include 'super giant' fields in southern Iraq capable of producing 2m b/d each.

**Nabors Drilling and Energy Services** has clinched an \$8m contract to provide drilling, well intervention and rig maintenance services for Oryx's Murchison and Hutton platforms.

**The world's tanker fleet** shrank in the second half of last year for the first time since 1987 and is set to shrink further this year, according to the latest review from shipbroker John I Jacobs.

#### 13 March

**The ARCO-operated Blenheim field** produced first oil, following a fast-track development plan which saw production starting just 10 months after Annex B approval.

**Azeri President Haydar Aliyev** has come out in support of Turkey's bid to increase its stake in the \$7.4bn Caspian Sea oil project. The plan would involve Socar selling five percent of its stake.

#### Ofgas has mounted an inquiry

at the formal request of the Gas Consumers' Council into the legality of discounts for direct debit customers. The regulator must ensure the scheme does not show 'undue preference' to one class of customer.

#### 14 March

**Greenpeace activists** staged a blockade at Rotterdam's First Petroleum Harbour in protest at the alleged discharge of poisonous chlorine waste in the port. The protesters were targeting Shell's Pernis refinery, which utilises the harbour as one of its two principal tanker loading areas.

#### Norsk Hydro and Mobil have

agreed deals on two Norwegian North Sea licences. Hydro sold a five percent stake in the Oseberg South field, reducing its shareholding to 25 percent and Mobil sold 15 percent of its 40 percent stake in Block 35/11, leaving each company with a 25 percent share of the block.

#### Some 691 blocks covering

170,000 sq kms have been nominated for inclusion in Britain's 17th offshore licensing round.

#### Statoil has revealed cost reductions

of £600m on five North Sea pipeline projects scheduled for construction in the second half of this century. Tough negotiations with suppliers and the bringing in of contractors at the earliest stage of planning have helped slash costs from £1.85bn to £1.2bn.

#### The UK speciality chemicals

manufacturer, Inspec, has confirmed plans to purchase BP's chemicals subsidiary, BP Antwerp, for just over £80m.

#### 15 March

**The Australian oil and gas explorer, Santos,** has revealed plans to acquire another UK gas producing asset this year. This follows the acquisition last summer of a 32.8 percent stake in the North Sea Anglia gas field.

**Norsk Hydro has chosen Aker** to construct the Nkr2.8bn floating production platform for the Njord field on the Halten Bank in the Norwegian Sea.

**Mr David Simon, chairman-designate of BP,** received a salary increase of nearly 25 percent last year, from £615,000 to £763,000. Figures released in the company's annual report also revealed that over 100 BP directors are expecting to share in a £29m bonus bonanza, under a controversial new share perk scheme.

#### Last September's multi-billion

pound extraction deal between Azerbaijan and a BP-led consortium of western oil companies was put under threat by serious unrest in Baku. According to reports, an elite police unit had seized several buildings and was threatening to march on the city.

#### 16 March

**The BP Miller platform, situated** 180 miles northeast of Aberdeen, was temporarily shut down after a gas leak was discovered.

#### AMEC Process and Energy has

won a contract to design and fabricate a pipe reel unit for Ugland Offshore AS.

#### Eight exploration licences

covering 32 blocks in the Porcupine Basin have been awarded in the Irish Frontier round.

#### 17 March

**Around 3,500 tonnes of crude oil** leaked from a damaged pipeline near the eastern Siberian town of Tulun. The crude spread over 24,000 square yards, much of it covering the frozen surface of the River Kurzanka.

#### The Gas Consumers' Council

has attacked British Gas once more after a customer allegedly waited 10 days for a repair man to call and was then charged £24 for two metal clips, which retail at just 40p each.

#### Saga Petroleum has claimed it

can reduce drilling costs by more than 50 percent when it begins exploring the deep waters of the Voring plateau next year. The cost cuts will be gained by using second-generation, lighter rigs.

**The US Senate Energy and Natural Resources Committee** has approved repeal of the 22-year ban on Alaskan North Slope crude exports. The next step is for the full Senate to vote on the measure.

**ENI has revealed plans to sell off** the remains of its fertiliser business.

#### Liberal Democrat MP Diana

Maddock has won her fight to gain Commons' approval for her Energy Conservation Bill. The Bill, which imposes a legal duty upon district and municipal councils to promote household energy-savings, gained its third reading in the lower house and now goes to the Lords.

A European institute has been set up with the aim of promoting and developing frontier research and development activities in fossil fuels and related environmental aspects. Mr Bernard Tissot has been elected President of the new body, known as ERIG.

#### 18 March

**1,200 employees from the Kuwaiti Oil Company** went out on strike in protest at their working conditions.

#### 19 March

**The Prudential plans to sue** Powergen over the burning of Orimulsion at Richborough power station in Kent, which the life insurer claims is damaging its nearby crops.

#### 20 March

**The offshore support vessel owner, Seacor Holdings,** has taken 100 percent control of the US marine oil spill responder, NRC.

#### Planned imports from Iran and

Oman are unlikely to meet India's entire gas requirements, according to Minister for Petroleum and Natural Gas Satish Sharma, who revealed that India is also considering the import of gas from Bangladesh, Myanmar and Indonesia.

#### The UK government has

published draft standard conditions for gas suppliers' licences.

#### Monument Oil & Gas has

announced the sale of its Australian subsidiary to Novus Petroleum for \$41.5m.

## New gas report sheds doubt over Britain's pilot scheme

Government plans to test the effects of opening up the British domestic gas market to competition by staging a two-phase pilot scheme are insufficient, says a new report.

Produced by the independent consultancy Gas Strategies, the report claims the pilot is too limited and fails to test certain key issues. 'We do not believe,' say authors James Ball and Harry Caville, 'and several of the companies we interviewed do not believe, that the scheme will necessarily give a reliable pointer to the long-term commercial success of the

opening-up of the domestic market'.

One potential problem is lack of demographic movement within the pilot areas. The initial study, due to begin in April 1996, will cover 500,000 homes in Devon, Cornwall and Somerset – an area with a relatively settled community. The location for the second pilot, which will cover two million homes, has not yet been decided but could well be in the same area of the country.

The pilot is also too small, according to the report, allowing shippers to service customers largely from existing

portfolios of gas purchases. 'As one of the major questions is whether shippers will be able, or have the confidence, to purchase gas for this sector of the market, without reasonable security of offtake, this test is only a first step.'

The upshot may well be that the introduction of full competition to Britain's domestic gas market is delayed beyond 1998, concludes the report. 'This is because the move from the present situation to the pilot scheme is less taxing than the move from the test to full competition.'

## Operators protest at new Dutch proposals

New Dutch proposals which would radically alter the country's exploration and production regime have brought protest from the operators.

Holland's oil and gas operators' association, NOGEP, has written to the country's parliament objecting to certain rule changes put forward by Dutch Economic Affairs Minister Hans Wijers.

In particular, the association is concerned at the minister's proposal that companies should be equally liable for taxation on concessions, irrespective of their involvement. At present, liability is linked to the company's share in a venture. NOGEP's

Secretary Jean Mathey told *Petroleum Review* that such a change would be illegal under European law.

The association has also reacted with disappointment at the minister's decision to preserve the block voting powers of state energy group, Energie Beheer Nederland (EBN).

The fact that plans to make the application process for new concessions more flexible will not be extended to existing concessions has also been criticised.

Nevertheless, these proposals are part of a wider raft of plans designed to alter the country's 9th round of licensing, the majority of which have been welcomed by NOGEP.

They include a proposal to remove royalties on concessions producing less than 800,000 cubic feet of gas a day and a reduction in EBN's involvement offshore. At present, the state company automatically takes a 50 percent stake in all concessions awarded by the Dutch government. Under the new proposals, this stake would be reduced to 40 percent.

BP, Statoil, Mobil and Norsk Hydro have all moved out of active operatorship in Holland in recent months. Mr Mathey said it was too early to say whether these new proposals, which are currently being debated in Parliament, would help reverse that trend.

## Conoco forms new powerhouse

Conoco has ventured into the electrical power market with the formation of a new business unit.

Conoco Power will use the financial backing of the rest of the company, together with its access to low-cost fuels, to 'capture emerging opportunities in the electrical power business'.

The new unit will be headed by Mr Donald Condon, who has managed businesses and major acquisition and disposition negotiations for both the chemicals and petroleum businesses of DuPont.

Based in Houston, the unit will initially focus on opportunities in North America, Europe and Asia/Pacific.

## UKPIA issues oxygenate warning

The UK Petroleum Industry Association (UKPIA) has hit out at an American campaign aimed at encouraging British oil companies to add oxygenates to their petrol.

The association has warned the UK government to be wary of claims made by one particular American chemicals manufacturer, which is seeking tax incentives to encourage the sale of oxygenates in Britain on the grounds that they 'significantly improve air quality'.

The oxygenates do reduce emissions of carbon monoxide, admitted UKPIA,

but they also emit higher levels of aldehydes, which are carcinogenic and very active in promoting ozone.

'In cars with catalytic converters, oxygenates produce higher emissions of NOx and higher fuel consumption,' said a spokesman. 'We are also concerned about US press reports on the harmful side-effects of oxygenates.'

Adding oxygenates to petrol would cost around £400 million a year, according to the association. 'This makes them one of the most expensive ways to make very small reductions in UK emissions of VOCs.'



Racing driver David Coulthard visits Elf HQ in Wembley

## OMV in service station buy-out

OMV is to take over Total's service station network in Austria, consisting of almost 60 forecourts across the country.

Total has agreed to sell its 70 percent interest in the network, which has a market share of around two percent. This will leave OMV, which already has a 30 percent stake, in full control.

A Total spokeswoman said the company will continue to be active in Austria through its aviation business.

## Amerada meter is 'world's first'

Amerada Hess has unveiled 'the world's first commercial subsea multiphase flow-meter', which it claims will save several million pounds on the North Sea Scott field.

The meter, to be installed on South Scott, will provide simultaneous and continuous measurement of oil, water and gas flowrate, without the need for an additional flowline.

Once production commences, it will provide real-time monitoring of well performance, giving easier identification of shifting trends and allowing remedial action to be taken more quickly.

## Bitor plans metals recovery from power station ash

Bitor Europe, the UK-based marketing company for Orimulsion in Europe, has announced a new joint venture to recover heavy metals from power station ash.

The heavy metals to be recovered are vanadium, nickel and magnesium, present in Orimulsion ash. Previous options were to use the ash for construction purposes or to dispose of it. Now innovative technology has been developed which will 'make a business out of ash disposal', according to Dr Manuel De Oliveira, President of Bitor Europe. At the same time the problem

of disposal will be reduced.

The new joint venture is Orbit Metallurgical Ltd in which Bitor Energy (the parent company of Bitor Europe) will have a 45 percent stake, Reakt Ltd a 10 percent stake and Strategic Minerals Corp of the United States a 45 percent stake.

At this stage three plants are planned. The first will be in east Germany, the second probably in the United Kingdom and the third somewhere in southern Europe.

The first plant, to be commissioned in 1996, will process ash principally from the Asnaes power station in

Denmark, Bitor's largest European customer.

Asnaes power station's unit 5 with a capacity of 700 MW is already operating on Orimulsion, having switched from coal. This is Scandinavia's largest single generating unit, supplying electricity to the domestic market as well as exporting to Sweden. This is an ideal market for Orimulsion since there are good deep water ports to receive the supplies from Venezuela, which has recently opened its own deep water terminal at Jose, accommodating 250,000-tonne tankers.

## Unpopular forecourt safety guidance to be scrapped

Britain's petrol retailers have long complained about HS(G)41 and at last they have got their way. The present guidance, which covers safety at filling stations, is to be scrapped.

The Health and Safety Executive (HSE) has confirmed that it is currently preparing replacement guidance in conjunction with the industry, which it hopes will be simpler, clearer and more effective.

HS(G)41, which was first produced in 1990, has been regularly criticised by the petrol retailers for being open to too much interpretation. The result was that enforcement of construction standards varied considerably across the country. 'Many felt that the guidance simply wasn't clear enough and this led to misunderstanding between the operators and the Petroleum Licensing Authorities,' said an HSE spokesman.

The updated guidance will also be risk assessment-based and will take into account new pump technology, as well as new underground tank designs and tank-testing methods.

The guidance will be split into three parts. The first section, due out this summer, will cover the risk assessment process. The second will provide guidance for licensing authorities, with the specific aim of improving consistency of enforcement, and the third will provide detailed technical guidance on the design and construction of new and re-developed stations.

The technical guidance is being published jointly by the Association for Petroleum and Explosives Administration and the IP. The Institute is also providing secretarial support.

## Britain voted most popular country

Britain is still the most popular country in the world for oil and gas exploration and production, according to a new survey by Simon Petroleum Technology (SPT).

The attractive fiscal regime offered by the UK government, together with the extensive infrastructure of the North Sea and new opportunities West of Shetland, have combined to put Britain at the top of SPT's new ventures survey for the second year running. Prior to that, Indonesia topped the ratings for six consecutive years.

The Far East and Australasia remain the most popular regions in the world, but Latin American countries continue to rise significantly up the rankings. At the other end of the scale, the republics of the former Soviet Union are still plummeting down the list.

Some 60 percent of the 92 companies which responded to the international survey say they are actively seeking new ventures and 62 percent forecast an increase in their total international exploration and production budget compared with last year.

### World's top ten

1995		1994	
1	United Kingdom	1	United Kingdom
2	Venezuela	2=	China/Indonesia
3	Indonesia	3	Venezuela
4	Vietnam	4	Algeria
5	China	5	Argentina
6=	Argentina/Australia	6	Vietnam
7	Colombia	7	Australia
8	Tunisia	8	Yemen
9	Algeria	9	Colombia
10	Peru	10	Libya



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# 'Our goal is to grow our business in the UK'

**A**llyn Risley, recently appointed as Chairman and Managing Director of Phillips Petroleum Co UK Ltd, talks to *Petroleum Review* about his key objectives and the likely challenges for his company in the next few years. In particular, he stressed his intention to increase Phillips' business in the United Kingdom. Referring to operations in the North Sea, he quoted examples of how his company was already showing benefits gained from its early participation in the CRINE movement.

**Carol Reader:** You were appointed to your present position about six months ago. What are your key objectives?

**Allyn Risley:** I have three key goals for Phillips UK:

Firstly, to ensure our facilities are operated consistently and safely.

Secondly, to meet the needs of all our stakeholders - which include the UK government, our customers, our joint venture partners, our employees and the communities in which we operate.

Thirdly, my remit is to rebuild our presence in the UK. My predecessor did a lot of work looking at the different growth opportunities we have, and it is now my job to execute plans which were developed from reviewing those growth opportunities. We now have a strategy which will bring Phillips UK to the position of Phillips in the international oil and gas community where, amongst our peer group private companies, we rank around 9th or 10th. Our goal for Phillips UK is to be in the top dozen oil and gas companies in this country.

These are the key areas. All are important, but safety is number one.

**Do you think there are still attractive opportunities in the North Sea?**

Yes. I would like to talk about that in terms of the UKCS and regional possibilities. Based on existing play concepts we believe it is awfully hard at this mature stage in the life of the North Sea to find fields that are going to make a significant difference to companies the size of Phillips. For example, fields the size of Ekofisk. But we do believe there are good business opportunities in finding and developing smaller discoveries.

We have a strong acreage position and in recent years have acquired 3D seismic surveys on virtually all our blocks, so we're now in a position to explore with better tools in the coming years. This is one of the reasons I believe exploration in the North Sea will definitely contribute to our growth picture. Of course, we also have existing discoveries at various stages of the development process.

Like many other companies we think the Atlantic approaches and West of Shetlands are the big new areas for future years and we're keen to be involved out there too.

**Have you got acreage there?**

We've recently been awarded acreage in the Porcupine Basin, offshore Eire, where we explored and made some discoveries in the 1970s. With regard to West of Shetland, we shall definitely be participating in the 16th UKCS Licence Round for blocks on offer there. At present we don't have a position in the Western Channel, but we're looking closely at that.

**Phillips was an early participant in the CRINE (Cost Reduction in the New Era) initiative. What specific aspects of CRINE are benefiting your company?**

Let me tell you a little bit about our involvement with CRINE. Mike Spaven, who is our Project Development Manager, was the first technical director of CRINE and Brian King, Project Manager of our Dawn development has been involved with the Steering Committee throughout the entire effort. So we have been in there from the very beginning and have worked hard to implement the principles of CRINE into our projects.

Although our Judy/Joanne project technically preceded the CRINE initiative we are running this development as a totally integrated team effort made up of both contractors and Phillips staff. We've concentrated particularly on letting our fabrication contractors get on with their job without the client's staff duplicating their work and looking over their shoulder - as has sometimes happened in the past - and it's worked exceptionally well. There's an excellent atmosphere of teamwork on this project and it's paid us dividends. Judy/Joanne is ahead of schedule and below budget and has been a very successful project in every way from the very beginning.

We've also applied specific aspects of CRINE to our other projects such as Ann, Dawn and Alison.

**Could you give me some details about the Alison and Dawn fields, which were recently approved for development?**

Both Alison and Dawn are subsea developments and are due to come onstream in October 1995.

Alison is a unique development in that it is a co-operative effort with Conoco - a joint development of Alison and Conoco's Kx field. We are drilling a well on Alison and they will drill one on Kx. Both will flow via the Ann pipeline to Conoco's Lincolnshire Offshore Gas Gathering System (LOGGS).

Dawn is also a single well development, close to our Hewett field, which will produce around 30 million cubic feet of gas per day via one of our Hewett platforms. The project has some unusual features - for example we've awarded an EPIC (engineering, procurement, installation and construction) contract for this project which means one contractor will be responsible for the vast majority of the work. This EPIC contract is another example of CRINE in action - working closely with your contractors as a team. When we sent out our invitation to bid we asked bidders for their comments on the approach we were using, and what they thought could be done to improve it. We received a lot of good feedback - including the fact that we were the first people ever to ask this!



Steering Committee is to broaden the initiative internationally. It certainly makes sense to do this - after all the philosophy was originally conceived as a result of practices elsewhere, including the Gulf of Mexico, before being born as CRINE here in the UK and specifically tailored for the UKCS.

Here at Phillips we're ensuring that Brian and Mike communicate with our North American and international colleagues so that they too can benefit from the results of our experience here.

**What technology has made possible some recent North Sea developments?**

The most important is the increasing use of 3D seismic. Our experience is that this, coupled with horizontal drilling, has helped us to improve the economics of previously marginal developments and make them commercially viable. When our Judy/Joanne project started, we did not plan to have any horizontal wells. During the drilling programme we decided we would drill some horizontal wells and by doing so we've reduced the overall well-count whilst still achieving the same resource recovery from the fields. And of course, fewer wells mean less time spent drilling and therefore lower costs. This could be viewed as a negative factor for the drilling contractor but actually the opposite is true. Incentive arrangements resulted in a greater profit for the drilling contractor as a result of the enhanced programme.

**Phillips major R & D centre is based in the United States. In what important areas does it support the work of the UK Division?**

Yes our major research division is based in Oklahoma but the work it does supports all Phillips operations, not just those in the US. Here in the UK it gives us invaluable support in the areas of geophysics and reservoir engineering. The geophysical support is probably the most important - especially with regard to advanced techniques for processing and interpreting 3D seismic.

**In what areas do you consider Phillips to be ahead of other companies?**

I think that if we're not actually ahead in 3D seismic processing and interpretation we're certainly up with the leaders at the front of the pack. And our geophysical specialists believe that we are leading the way in such key areas as post- and pre-stack depth migration and seismic innovation. These techniques have been the key for our subsalt successes in the Gulf of Mexico. Being able to see the structures below the salt is the big issue. To use an everyday comparison: if you look at a goldfish in the water, because of the deflection of the light through the air/water interface the fish isn't exactly straight down your line of sight - the light is bent slightly as it comes through the interface - and the fish is actually somewhere else.

Post and pre-stack depth migration techniques compensate for the way seismic energy rays are bent as they go through various layers. The key objective is to get the feature in which we're interested positioned in the right place in space relative to the sig-

Judy CAD

**So what benefits have the Ann and Alison fields derived from CRINE?**

Ann is a subsea development with two horizontal wells, controlled from our Audrey B platform. When we laid the gas pipeline from Ann to the Lincolnshire Offshore Gas Gathering System (LOGGS) riser platform we made a small diversion in order to run the line past Alison so that when we came to develop the field we just had a simple tie-in. Just a matter of thinking ahead to save us money in the future - one of the things CRINE is about.

And for Alison we used the design and specifications for the Ann well-head structure, control system and umbilical. It isn't 100 percent the same, because the tie-ins are slightly different, but it certainly followed the CRINE philosophy of using standard specifications and 'off-the-shelf' designs wherever possible. And of course we saved a lot of money as we did not need to carry out a redesign.

**Is it possible to put a figure on these savings?**

I think that if we include the Dawn project, savings amount to around 15-30 percent of the capital facilities cost. And we are setting challenging cost reduction targets for 1995 to try to reduce costs even more.

Allyn Risley

**Do you think CRINE will be exported or is it purely a UKCS phenomenon?**

Discussions took place early on in the process between the CRINE secretariat and NORSEK, the Norwegian equivalent. I believe they agreed to exchange information but elected not to combine into one initiative. The intent of the C R I N E



nal recorder so that we can drill our wells accurately. While the main aim is to determine where the reflection occurred in the subsurface, significant advances are also being made in determining the qualities of the layers which cause the reflection.

The massive amount of data acquired in 3D programmes permits detailed investigation of rock and fluid properties, not only along the lines of acquisition but at nearly any point within the subsurface survey.

#### **Tell me about the world drilling records set last year by Phillips on the Judy/Joanne development.**

When we started our Judy development programme, Norm Omsberg, who heads up our drilling group in Aberdeen, and our drilling superintendent John Willis, sat down with Santa Fe, our drilling contractor and together they set out their intentions of improving the programme as it progressed by setting specific goals for improvement.

Their initial challenge was to try to drill 4,000 feet per day. What they wanted to do was establish this level of performance then achieve repeatability in the drilling process. In other words, to run their drilling operations like a factory that runs on an optimum continuous basis.

On the P2 well (the second well we drilled) they achieved 5,104 feet per day. Then on the next well they managed to get 5,696 feet in a 24-hour period and with the P4 well they got 6,290. All three of these distances were North Sea records. Then there was no stopping them - the next three wells produced not just North Sea but world records with an incredible 8,631 feet drilled in 24 hours on the P11 well.

The drilling team - not just out on the *Galaxy 1* rig but in the Phillips and Santa Fe offices - looked at how they did every single operation and explored how they could do it better. They eliminated practices and parts of the programme which were not contributing to the overall results and in the process more than doubled their original 4,000 feet per day target. And, very importantly, they also maintained an excellent safety record while carrying out these operations.

These excellent drilling results are an important factor in the success of the Judy/Joanne project. We had planned to drill eight Judy wells in the period up to the middle of this year and in fact we managed to drill 12 in that time. And the credit should go to the people who made it work. Granted, with *Galaxy 1* they had some of the best equipment around but at the end of the day it's the people working together who figured out how to get it done - a real example of teamwork.

#### **Has the number of people Phillips employs offshore in the UK sector decreased?**

We have two operational facilities where we have people offshore at the moment: our Maureen field in the northern sector and our Hewett field in the Southern Gas Basin. Since 1990 numbers have decreased by around 25 percent in terms of Phillips personnel employed offshore.

At Hewett, three platforms have been converted for use as not-normally-manned facilities and a number of former Hewett-based employees have moved to the Judy/Joanne project.

Although Hewett and Maureen are mature fields we have been successful in maintaining production from them beyond the expected life of the fields, although we have to continually track our costs to maintain their profitability.

When I was in the UK during the mid-1980s we were looking at abandoning Hewett by the mid-1990s

but we are now confident of another ten years of field life. We've done this by adding new reserves and controlling our costs. What we've done with Hewett is to de-man existing satellite facilities and go to remotely controlled and monitored operations as a response to the present economic climate and the decline in volume of production we have from these fields.

#### **But overall this does mean fewer jobs?**

In the long run yes - but it's important to remember that there is also a safety factor here. Fewer people offshore means fewer people exposed to the risks that an offshore environment inevitably carries.

As a result of CRINE and other cost-cutting initiatives the North Sea continues to be a very viable oil and gas province, where producers are able to compete with other worldwide suppliers of crude oil. However, the nature of the type of projects now being undertaken means that throughout the industry there will certainly be fewer jobs.

But there are other opportunities that did not exist a few years ago - for example the Interconnector, where UK suppliers will be able to compete effectively in gas markets on the Continent. Introduction of competition in the gas market has broader opportunities as well. It's obviously a healthy development to have more than one customer. Nowadays, if we have reserves to develop we have more opportunities, which help us not only with the timing of our developments but also because we can now sell the gas to a third party or develop the field, take the risk and sell direct into the market ourselves.

Overall, some jobs will be lost but many will continue and some different types of jobs will emerge.

#### **Many oil companies have established gas marketing companies with various partners. Has Phillips done this?**

Yes, we have a 50/50 joint venture company with Southern Electric plc called Southern & Phillips Gas. Phillips and SE bring different skills and organisational expertise to the partnership and the synergies are excellent. Right now we are selling to commercial and industrial customers who comprise the present deregulated sector of the market. But of course we still continue to sell gas from our fields to other buyers.

We are also actively positioning ourselves to be there when the remainder of the market (customers who use less than 2,500 therms per year) is deregulated. Naturally we are keen to see the Gas Bill progress and are very involved with other producers and shippers working on network code activities and trying to make sure this deregulation is a great success for all concerned - the companies and also the customers.

Southern & Phillips is already an established business, effectively competing in the deregulated market and we have every expectation of doing even better when deregulation is complete.

#### **In conclusion, would you say the key challenges for the future of the oil and gas business are safety and the environment?**

Safety and the environment are extremely important and I believe our industry has demonstrated many times over its ability and commitment to operate safely and in an environmentally responsible manner.

Of course we will continue to ensure we focus on safety - in our business, we must. And we'll also work toward sensible environmental solutions that are beneficial for both industry and society.

**W**orldwide, oil and gas reserves are in decline, and independents own relatively little of them. Say 13 percent of the oil reserves and 22 percent of the gas reserves. Over the five years 1989-93, the oil reserves of majors declined by 4.5 percent, while those of independents rose 17 percent; each experienced a rise in gas reserves of 6-7 percent.

## Field development finance for independents

By AS Whyatt, Finance Director, Hardy Oil & Gas plc

Partly because of this gentle decline in world reserves, but much more because of the decline in oil and gas commodity prices, the value of the reserves, expressed in terms of future production, has been declining substantially. In 1993, when these data were last recorded, the

1989-93	Oil Production % Increase	Gas Production % Increase
Majors	2.2	19.5
Independents	30.4	26.5

discounted future net cash flows in the United States were 40 percent below their 1990 peak of \$135 billion, and foreign net cash flows were 35 percent lower than the 1990 peak of \$140 billion.

However, the independents have more than held their own in this game, and their 1993 discounted after tax net cash flows declined only 24 percent from the 1990 peak, while the net cash flows of the majors declined 45 percent, so that in the United States there is now only a small gap between the discounted flows of majors and the independents. This may be because independents operate in a much more competitive environment, and unless they are effective, they get swallowed up. JS Herold has published that of the 87 largest US independents in 1970, only 12 survived in 1994. In the United Kingdom over 200 companies

applied for North Sea acreage in the 7th Round, the overwhelming majority being independent, and those now surviving are a small band.

### Effectiveness of independents

The results of this competitive environment are that independents are, as might be expected, more effective than majors at the task of finding and producing oil. US statistics show that the production costs of independents are 20 percent or more lower than those of majors, which becomes increasingly important in a tight pricing environment. The production volumes of independents have also been markedly more buoyant than those of the majors.

The effectiveness of independents is also evident in their production replacement rates. In the recent past, in all areas save in the discovery of gas outside the USA, independents have had a significant edge.

It is, or should be, the prime task of an oil company to replace its reserves. The majors have had difficulties in doing this because the volume of their production requires a large volume of discoveries. The roll-call of major oil companies that failed to replace their reserves in 1993, the last year for which statistics are available, is an impressive one; Amerada Hess, Arco, BHP, Chevron, Conoco, Exxon, Mobil, Norsk Hydro, Oryx, Royal Dutch Shell, Texaco, Unocal, and USX. Enterprise and Lasmo likewise failed to replace their reserves in 1993, which perhaps explains the bid which occurred in 1994.

### The search for reserves

Although 40 percent of the world's reserves are in the United States, they are declining, and the search has turned increasingly abroad. Up to two-thirds of total exploration and development expenditures are now being spent outside the United States. The total expenditures on exploration and development worldwide by independents is \$10-15 billion a year, of which about half is spent outside the United States. The total

1989-93	OIL Reserve Increase as % of Production	GAS Reserve Increase as % of Production
<b>Majors:</b>		
USA	51	53
Foreign	67	109
<b>Independents:</b>		
USA	75	86
Foreign	91	82

expenditure by majors is \$30-\$35 billion, of which about three-quarters is spent outside the United States.

### **Funding requirements of independents**

It is important to note the relatively small proportion of the total which the exploration and development expenditures of independents represent (about \$11.6 billion out of \$45 billion), a relevant consideration when enquiring whether there will be sufficient finance, particularly when it is recognised that about a third of these expenditures by independents will be for exploration, and two-thirds for the portion which can be called eligible for field finance, namely that spent on development.

### **Availability of funds**

One indicator of the availability of funds is the figures for syndicated lending to the oil and gas sector, which have risen since 1986 from \$25 billion to \$60 billion. Another indicator is the statistics for oil and gas borrowing by region, since the majority of the capital expenditure of oil and gas companies now occurs outside the United States. It is interesting to see what may be the size of the funding for oil and gas projects outside the United States over recent years. Figures are available from 1990 to June 1994 which show that regional energy borrowing is quite substantial, from \$38 billion in Western Europe, \$25 billion in South East Asia sloping down to \$2 billion in the Caribbean. This does not necessarily tell the whole story since significant funding has been raised in the United States by foreign oil and gas companies.

Hardy has raised about 30 percent of its funding in the past five years from US lenders in the United States. This reflects a very important trend – that foreigners are raising increasing volumes of funds in the United States. From 1991 to 1994, figures solely for new equity raised by foreigners in the United States doubled to \$15 billion. The biggest equity fund-raising was \$2 billion for YPF. It has been estimated that up to 35 percent of private placement and 144A debt placed in the United States is now placed for foreign borrowers. In effect, the United States is becoming more accustomed to and more accepting of providing funds to foreign borrowers. Major oil companies are broadly speaking not in the business of raising funds and certainly not in the business of raising funds for particular field developments. Shell and BP quite rationally state that they are not interested in 'straight bank money' or in paying a premium for risk. Put simply, their problem is not so much finding the money as finding the oil, and they have focused increasingly on making money downstream.

### **Requirements of independents**

A comparison of E&P production profiles with those of mature companies will illustrate this. A typical E&P company has a rising profile of production reflecting a rising acquisition of reserves. This can be seen in the production profiles of Premier and of Hardy, and particularly in that of Monument which shows a very steep climb as it enters the period when the Liverpool Bay fields enter production. The financing burden upon such companies is epitomised by Monument, which borrowed to more than

110 percent of its equity in order to finance these developments, which have transformed the company. Enterprise and Lasmo have entered the mature phase and even in combination show slight near-term growth, after which they show a classic decline curve. Their production profile has in effect become that of a major oil company. Similarly they do not have requirements for new field financing to compare with that of growing independents.

Hardy has a growing production profile to the millennium, which results in a substantial capex profile, not untypical of a growing independent. Only development expenditures fall to be considered for financing but they are a substantial portion of the forecast capex. An E&P company can, and they sometimes do, sell or trade out of a major discovery before the development burdens and consequent significant requirements for finance arrive. They can alternatively finance each large field development on a limited recourse basis. This makes the cash flows more manageable.

The financing burden which Hardy contemplated for four North Sea developments, expressed a year ago, peaked at a cumulative cost of £145 million in 1997/98, sizeable in relation to the market capitalisation of the company. If however it is assumed that 70 percent of the development capex of these fields is financed on a limited recourse basis, these cumulative cash flows are transformed into a much more manageable number, peaking at £40 million.

Limited or non-recourse finance is far from being the only method of financing field developments. It is only appropriate where the fields and their development costs are large, and their productive lives are relatively long. Since over half of Hardy's current production is in the United States and Canada where field size and life is shorter, much of the financing which goes to support development has to be couched in other terms, and it is essentially derived from the US private placement debt market and from the use of a syndicated revolver. Non-recourse financing is used in the United Kingdom and Australia, while the other two types of instrument help to support developments in North America and elsewhere in the world. Equity and operating cash flow go to finance exploration and of course a portion of development expenditure.

### **History of limited recourse financing**

Limited recourse financing is the type of finance which comes most readily to mind in connection with the title of this talk. It is something with which independents are very familiar and which, as I have mentioned, major oil companies see no sense in using, because the costs are higher. For the independent it has the benefit of linking directly to the hydrocarbons, the capital expenditures and the cash flows of the fields concerned. Having obtained commitments to an appropriate quantity of non-recourse or limited recourse financing, the independent has the confidence to proceed with a major development, which might otherwise be too great a burden upon its balance sheet and assets. Fortunately the access to such project financing has greatly improved over time, with the benefits of knowledge, experience and much greater appetite for the analysis and devolution of risk.

The history of project financing in the North Sea

*'The history of project financing in the North Sea has been of a steady decline in the risk aversion of the lenders'*

has been of a steady decline in the risk aversion of the lenders, as they became more familiar with the risks to be financed. In early North Sea financing cover ratios of 2:1 or greater were expected, completion risk lay with the borrower and quite often the reservoir risk did as well, until after completion. The lending margins over LIBOR were high, as were dedicated percentages, and consequently repayment horizons were short. The highest lending margin of all was of course the Thomson Royalty on the Piper financing, which represented 2.5 percent on the realisations of 128 million barrels from Piper followed by 5 percent on 80 million barrels from Claymore. Though it could be argued that this was equitable in view of the fact that Thomson took no equity risk, the return to the financing banks was immense – and has never been repeated.

In the 1980s, with increasing experience, banks dropped their cover ratios to as low as 1.4:1 and were prepared to take reservoir risk given the protection of a suitable reserve tail. Completion risk was capped and lending margins reduced to a premium of as little as 75 basis points.

In the 1990s covers remained static but there has been an increasing segmentation of risk, with cover ratios dropping to as low as 1.2:1 if the commodity risk is capped. Reservoir risk goes increasingly to lenders, who are prepared, given their greater knowledge, to allocate more elastic probabilities to reserves such as lending on reserves which have a 50 percent probability factor. Reserve tails have diminished and lending margins remain low. Front-end fees, even those to lawyers, are frequently capped.

### **Commodity risk**

The oil risk can be hedged substantially for the pay-back life of a financing, although this can be burdensome as an opportunity cost in terms of the future realisations foregone. The burden can be modified by the derivatives used, and participating swaps can capture upside, for a price. Gas in the UKCS used not to require hedging, nor was there a market for it. The hedge was provided by the British public which enabled British Gas to give firm life-of-field contracts with resilient price formulae for the gas which it bought. Gas marketing is now much more competitive and the expected horizon of gas contracts is shorter but a forward market is developing. An important criterion expressed by lending banks is that there should be demonstrable clear access to a market for the gas from a field, in which circumstances they are prepared even to lend – or to put a value on – uncontracted gas.

In the United States and Canada gas can be sold forward in an active market, for terms of up to 10 years; this is by no means desirable for the

independent, since the pricing of these longer contracts is understandably conservative but useful in financing field development.

### **Hedging**

Recent examples of hedging include the Andrew and Welton fields. The Andrew financing hedged 100 percent of proved oil production for three years, which was almost a pay-back. The onshore Welton field financing two years ago was 100 percent hedged to pay-back at \$17.70 a barrel, which was resented by the borrower at the time but turned out to generate better realisations than the spot market would have done. An important caveat on forward hedge or swap transactions over a significant period of time is that these should be done in-house with the lending bank or banks to avoid counter-party problems.

### **Reservoir risk**

Reservoir risk is perhaps the risk which has changed least over the last 20 years and is still handled by the careful professional evaluation of reservoirs by reservoir engineers paid by the lender. Independents can undoubtedly help by having extensive and accurate knowledge of the reservoir and guiding the lender's reservoir engineers. The devices for sharing and managing the risk have not changed much. They consist of increasing the interest premium during the development period, of recourse to the borrower which declines and eventually falls away during the development period, or after a period of production, or upon the introduction of a source of long-term finance which provides a take-out for lending banks once reservoir performance is established. In one Norwegian financing the operator guaranteed reservoir risk in exchange for being relieved of sovereign risk.

### **Completion risk**

Completion risk is the area in which an independent can find itself at a disadvantage because of the lender's need for certainty that, come what may, the funds will be available to complete the development. Various devices are used, such as a commitment of equity and the establishment of an overrun portion in the financing. An attractive recently developed alternative is the sharing of completion risk with contractors through partnering and other such arrangements, which enables development finance to come closer to the desirable concept of a turnkey.

### **Currency risk**

It is always optimal for independents to engage in strategic hedging, that is to say in funding developments in the currency of the expected revenues, where this is possible. This may result in a mismatch during the development period, as for instance when North Sea capex is expended in sterling but field revenues are expected to be in dollars. Mismatches of this nature can be controlled by the appropriate use of derivatives, or even by the forward sale of production in the development currencies. Exchange control can sometimes bite on gas developments, or on oil developments which are sold for local currency within the country where they are produced.

Satisfactory exchange control approval is of course necessary for repatriation of debt proceeds – including if necessary the use of offshore escrow accounts – if no effective forward market exists. Export credit agencies and indeed OPIC can provide insurance. One of the attractive broadenings of the scope of field development risk management is that US banks can now lend to foreign companies using OPIC cover for the repatriation and exchange risk on their loans.

### Political risk

Political risk is the area in which the greatest progress has been made in recent years. Multilateral agencies which have long been in the business of political risk are increasingly prepared to take commercial risk and project risk. Acceptance of political risk by the IFC has been central to success in major oil financing in Nigeria and Gabon. Export credit agencies have likewise broadened from taking political risk to taking what is described as project risk but is in fact some of the commercial risk of a project. A significant improvement is the introduction of the concept of ECA lending to the company rather than on the hardware, since the historic insistence on hardware has resulted in sub-optimisation of procurement.

### Finance in the developing world

In Africa, finance with political cover is a difficult proposition, except in South Africa. The growing instability of the Mahgreb has generated an understandable increase in caution about political risk finance; there are however two gas field financings in operation in Algeria at present. Political risk financing is theoretically possible in Central Africa but it is difficult, requires much time and patience, hence a large project, and careful scoping. It generally entails the involvement of multilateral agencies for additional protection, hence it is not attractive to independents.

Latin America has opened up in a very wide sense to the possibility of financing field developments, mainly through export credit agencies, but increasingly through Rule 144A offerings and through naked bank finance. The problems with the Mexican economy over the last three months, and with the peso, are undoubtedly a set-back but the inclination to finance in Latin America is unlikely to be dampened for long. An interesting and perhaps extreme example was the \$170 million naked financing of the Colombia Centragas pipeline, with a 16-year term, which was rated BBB-.

Throughout Asia and the Pacific, the perception of political risk is declining and therefore the possibility of finance with or without ECA support is growing. Virtually all countries from the Peoples Republic of China through Indonesia to Pakistan have become financeable, generally with ECA/MLA support, but increasingly without it. The sovereign debt of Malaysia was recently updated to A+ and that of Thailand to A. India, Pakistan, Malaysia and Thailand have increasingly strong domestic financing markets and in general the currencies of Asia/Pacific are considered more resilient than Latin America because current account deficits are less.

### Trends

Commodity prices apart, the trends affecting field development finance for independents generally appear to be favourable. There is a growing and almost universal familiarity with project financing amongst financial institutions, with a concomitant growth of institutional interest in participating in project finance. This is particularly noticeable in multilateral agencies and in export credit agencies. There has been a significant reduction in perceived sovereign risk, with a much broader ability to contemplate handling currency, project and repatriation risk either with country risk cover, or increasingly on a naked basis. There is a growing availability of local financing in certain developing countries. Projects can be financed in markets, such as the US 144A market, which were previously not open to them, granted project rating and similar support. Importantly, there is a growing international ability to handle commodity risk over a term which is relevant to project financing. Although there has been a reduction in the interest costs of non-recourse field financing, the returns still seem to attract a large number of sophisticated energy lenders.

### Conclusion

There does not really seem to be a significant shortage of financing for oil and gas, nor indeed of finance for field development by independents even, given patience, in the unfamiliar parts of the world.

Debt finance is being made available by a group of increasingly sophisticated and interested banks and financial institutions. Very importantly, the multi-national agencies and the export credit agencies have been developing an interest, and some skills, in project financing. There is also the fact that US financial markets are exporting capital to the far quarters of the globe in a way which has not happened before. This could cease but by paradox the fact that these capital exports have driven down the price of the dollar makes the investments more interesting. It is estimated that during 1993 \$9 billion was raised domestically for energy in the United States, of which \$3 billion was raised for exploration and production companies. In the 18 months to October 1994, it is estimated that \$4.5 billion was raised, generally speaking for equity investments, by Canadian E&P companies. That bubble has now burst but the performance was impressive while it lasted.

Independents need be under no illusion that they must continue to be effective and that they must maintain broad contact with skilled banks and financial institutions; they must be prepared to be patient. However, given these requirements, it seems that the capacity for field development finance by independents has not diminished.

**This paper was first given at an IP conference, 'Financing the International Oil Industry', held in February.**

*'It seems that the capacity for field development finance by independents has not diminished'*

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# Financing the international oil industry – problems and risks in the Commonwealth of Independent States

By ML Kingston, Morgan Grenfell & Co Ltd

**F**or many, the former Soviet Union represents the best example of an oil and gas market. Its natural resource base, its geographical location, highly skilled workforce and its potential to raise significant amounts of capital all point to its future position. However, it is a market which is bedevilled with problems and uncertainties. Thus far, failures have been much more prevalent than successes. Whether it be the Russian Federation, or some of the key Central Asian states such as Kazakhstan, Uzbekistan or Azerbaijan in the Trans-Caucasus, a lack of stable government, an absence of a regulatory framework, a relative immaturity of domestic financial markets and overarching ideological views which may not be consistent with market economies, all complicate prospects.

Against this, is the fact that economic opportunities exist to participate in greenfield or brownfield prospects at relatively low prices. In Russia, assets are traded at a significant discount to net asset value, a discount no doubt enhanced by prevailing political uncertainty. Different companies have sought a number of opportunities across primary sectors including oil and gas and petrochemicals. Many of these sectors represent key resources of national strategic importance to the governments concerned. On the one hand, this creates obstacles for many of the Western companies, on the other the governments are all the more ready to take the necessary steps to attract foreign capital.

## Yamal development

It might be useful to look at the Yamal development currently being undertaken by Gazprom. The capacity for gas production in Western Siberia should peak at between 690 to 730 billion cubic metres (Bcm) by 1997. Any further growth in gas production not created by efficiency savings brought about by Gazprom's refurbishment programme or by the development of incremental production capacity in

major fields in Western Siberia will have to come from the Yamal Peninsula. Twenty-five fields have been discovered, with proven gas reserve estimates ranging between 9 and 11 trillion cubic metres. Four fields have already been designated for commercial operation: Kharasavei, Bovanenko, Kruzenshtern and NovoGortovskoe. Gazprom plans to put the largest, the Bovanenko field, with proven gas reserves stated as between 3.6 and 4.3 trillion cubic metres, into development first. The timing of the Yamal development is unclear; Gazprom envisages the first phase of exports to Western Europe commencing from 1997. However, best estimates from western experts suggest that a delay of up to two years would be more realistic.

The development of these fields and the construction of compressor stations and pipelines from the region represent some of the most challenging undertakings in Gazprom's capital investment programme and in the former Soviet Union as a whole. Factors such as the permafrost, underground water streams with a high degree of salinity, sensitivities to the local environment and the protection of the way of life of the indigenous population make the Yamal Peninsula gas development an exceptionally complicated logistical exercise.

Commercial production of Yamal's gas fields is targeted to reach a peak level of 170 Bcm per annum by early next century. Approximately 50 Bcm per annum is to be transported to Western Europe from the Yamal Peninsula (via Belarus and Poland to Germany) with, approximately, a further 120 Bcm per annum to the FSU and Poland. Gas would be transported through six new sections of gas pipelines. Estimates of the cost of this part of the development vary enormously. However, based on Western pricing, estimates put the total cost for the initial phase at up to \$12 billion.

It is critical to recognise that major upstream projects in the region cannot be implemented, either in isolation from one another, or by ignoring their physical and geographical context. The importance of establishing reliable, long-term export capacity to take the products to markets is a crucial factor in their development. It is dangerous to underestimate or ignore the impact of failing to secure a satisfactory solution to transportation of the gas whilst committing to upstream expenditure.

## Dynamic change

The break up of the Soviet Union has precipitated dynamic change – geopolitically, socially and economically, with attendant implications for the oil

and gas sectors. This has presented enormous opportunities as well as tremendous challenges. Whereas, previously, we found it necessary to deal with a limited number of individuals and entities at the centre, there has now been a strong centrifugal force which has created quasi-autonomous entities, regions and governments which only tentatively report to ministries and government agencies in Moscow. At the same time, there has been spontaneous 'privatisation' of many of the big concerns across industrial sectors, including particularly the oil and gas sphere.

The international oil and gas industry has viewed the former Soviet Union as both a threat and an opportunity. The existing companies are inefficient, environmentally unacceptable and in need of total reconstruction and rehabilitation. Many of these companies have pursued reconstruction and modernisation programmes in their own rights. Others have been approached by Western companies to carry out modernisations as well as greenfield operations. In many cases, it will be the manner in which finance can be procured to implement such reconstruction programmes, that will determine the route down which these companies and individual projects will pass.

Although the lure of the reserves is, undoubtedly, most attractive, its conversion into real, tangible, economic benefit will only be achieved when all associated factors have been addressed and satisfactorily resolved. Recent experiences in Russia, as well as in Kazakhstan, Azerbaijan and Turkmenistan, have all served to highlight the fact that these projects, whether they be located within a single country or cross borders, need to be approached in a regional context for a resolution of the transportation issues.

Just as a satisfactory accommodation needs to be found between host government and private sector investors for such projects, so a degree of mutual interest needs to be identified for those sovereign nations whose support is critical if the major pipeline projects necessary to transport these hydrocarbons are to be implemented.

### **No quick fix**

It is common ground by now that there is no quick-fix solution to the implementation of these capital intensive projects with regional importance. When finance is raised as an issue, it serves only to further complicate matters. Although the government and its international partners are able to identify suitable prospects for co-operation and then to negotiate, over time, a mutually acceptable set of commercial arrangements, both look to third-party sources of finance to provide funding support and to share in certain of the risks. This extends to the oil and gas majors who may be prepared to assume financial as well as commercial risks for ring-fenced upstream developments but are not prepared to do so for cross-border pipelines in the region.

It is perhaps here that the greatest scope for confusion and misunderstanding exists. We are aware of many projects in the CIS that have been promoted and developed on the basis that 'limited recourse finance' exists, at no cost to the sponsors, with total transfer of risk and responsibility, whilst promoters retain the reward. Time and time again, we have had to explain that the route to obtaining third-party

financial support and risk sharing is long and tortuous. It is never easy and in many cases not reliable. It is often held up as a solution at a point when indeed it is little more than a mirage.

That is not to suggest that external sources of finance do not have a significant role to play for large capital intensive projects in the gas sector in the CIS. Many of the project promoters will not provide unlimited undertakings without the security of having one or more of these external agencies by their side, providing comfort and reassurance as well as actual financial support.

### **External finance sources**

Potential sources of external finance include multilateral and bilateral organisations.

At present there is no significant uninsured foreign commercial bank credit available for Russia, Kazakhstan or Turkmenistan on a medium- or long-term basis. The rescheduling of the former Soviet Union's debt, the reinstatement of sovereign guarantee programmes and the demonstration of a stable political and economic track record, are all necessary pre-conditions for the creation of substantial commercial banking interest for such projects.

That is not to suggest that they will not consider co-financing opportunities with multilateral and bilateral agencies. Co-financings with the IFC and the EBRD, and taking commercial risk under political risk cover from export credit and insurance agencies, can facilitate the entry of commercial banks into this market. The recent announcement by the World Bank to relax their guarantee programme and apply it to suitable opportunities in the former Soviet Union may further spur the interest of commercial banks.

### **Domestic banking**

I should like to briefly touch on the domestic banking community in the region. There is a growing competence among local financial institutions who can play a role in the funding of major initiatives. However, the limited degree of support they can provide and the level of sophistication they have been able to obtain thus far, by definition means that they will, effectively, be restricted with respect to quantum and risk-taking ability. This has to be balanced against increasing pressure from the host governments to utilise local goods and services, the prices for which are approaching Western levels, often for foreign exchange.

At the end of last year there was foreign investment in the shares of privatised companies in Russia running at an estimated \$500 million per month. Anatoly Chubais, the Deputy Prime Minister and Chairman of the State Property Commission, said 'institutional investors have arrived.' He estimated that investors buying shares in Russia's aluminium, electricity, telecommunications and oil industries were forcing upward movements in share prices in those sectors as fast as 30 percent per day.

This is against a background where Russia had demonstrated a relatively stable political environment, based upon increasing co-operation between the democratically elected Parliament and government. Prime Minister Victor Chernomyrdin, under the leadership of President Boris Yeltsin, had proved

to be a supporter of economic reform and market-related policies. There has been a continuing programme of financial instruments being developed to support the drive towards a market economy. This progress has, of course, been undermined by the war in Chechnya and concern that there has been political polarisation in Moscow, indeed more widely in Russia, which might reverse the prospects for economic progress.

In the oil, gas and major industrial sectors, the successor companies to state ownership and control have identified roles for themselves on a global basis, rather than simply supplying a local market. This will require access to commercial and financial technology as well as full information on the operation of international markets. Many of the Russian integrated oil and gas companies, such as Gazprom and Lukoil, are seeking to raise international capital and are pursuing opportunities well beyond the Russian borders.

### Project finance

There are a variety of definitions of project finance. The definition which I think is most appropriate to the circumstances in the CIS is where material project risks, which might jeopardise the reliability of adequate project revenues, are allocated to those most suited to bearing these risks, under a framework of potential arrangements, insurance policies and performance warranties called a security package.

### Project risk

The identification of key project risks in the context of the construction and operating phases for major cross-border gas projects are a critical first step in developing a satisfactory project financing structure. The very nature of doing business in the CIS serves to complicate this task and highlights the risks, which are as follows:

#### Construction phase:

- Material construction cost overrun;
- Delay in physical completion;
- Failure of project facilities to reach performance specifications as a result of technical, engineering, construction or other difficulties;
- Political or other force majeure events.

#### Operating phase:

- Reduced availability of e.g. gas throughput due to upstream problems;
- Operating cost overruns;
- Inadequate plant performance, e.g. reduced pipeline capacity available;
- Reduced availability of critical, non-project infrastructure.
- Reduced demand for pipeline capacity;
- Political or other force majeure events;
- Currency and interest rate exposure, where applicable.

The primary objective of a security package is to insulate lenders from the financial effects of perceived risks, in circumstances where inadequate financial support is available from project sponsors. A security package will need to be developed which is consistent with the objectives of the project sponsors and addresses the likely requirements of exter-

nal sources of finance.

The main elements of a security package for these projects tend to include:

- Foundation documents for the borrowing entity;
- Implementation agreement between the borrowing entity, the host government and, potentially, the governments of other countries through which the pipeline is to pass;
- Construction and procurement contracts, paying particular regard to the terms and conditions of the contracts, including the nature and level of completion undertakings and related liquidated damages provisions;
- Sponsor's financial or performance guarantees and other undertakings;
- Third-party completion guarantees, financial guarantees and other undertakings as applicable;
- Offtake agreement for sales of oil and gas;
- Transportation agreement for shipment of oil and gas;
- Tariff charges regime;
- Right way of agreements;
- Operatorship agreements;
- Other management undertakings;
- Central Bank licence for offshore accounts;
- Loan and other financing agreements, including those relating to the offshore collection and debt servicing accounts;
- Inter creditor relationships and security sharing arrangements;
- Liens on project company's assets and contracts, and consents thereto from appropriate government agencies;
- Comprehensive insurance programme, including political risk cover where required by any foreign investors or lenders.

A key element of the security package will be the nature and extent of credit support available to the project pre- and post-completion from the government of the country with the hydrocarbon reserves and other parties (including other host countries).

The nature of contractual transportation arrangements in particular is a crucial issue for potential lenders and can be a limiting factor on the level of any borrowings. Prior to drawdown under any loan facility, lenders will require that binding arrangements for the transport of the projected volumes of production are in place. Prior to commitment of finance for any proposed new pipeline or other transportation infrastructure, this means contracting for space in the existing systems.

Lenders will need to be reassured in respect of, inter alia:

- (i) the terms of pricing;
- (ii) the consequences of interruption;
- (iii) the force majeure provisions;
- (iv) the interaction with governments through whose territories the pipelines pass; and
- (v) the quality of operation and maintenance of transportation equipment.

To the extent that repayment of project debt is dependent on the proceeds of sales of gas rather than pipeline tariff receipts, lenders will require long-term sales agreements ('Offtake Contracts') to be in place before drawdown of project debt.

The key issues in such an agreement from the point of view of lenders will be pricing, payment terms, penalties and assignment.

## Assignment

It is essential to stress that lenders will normally look to the sponsors of the project, and to the main suppliers and contractors, to bear responsibility for those risks where the lenders are not covered by direct, adequate support from the host government or by insurance. Under all possible circumstances, the lenders will seek to be reassured that, should any risk crystallise, they have recourse to either the private sector promoters or host government and its agencies. In general, lenders will only be prepared to accept residual risks where they can be persuaded that the prospects of those risks arising will not significantly jeopardise the reliability of their debt being serviced.

However, the participation of such institutions can often make the difference between the success and failure of large oil and gas project financings. Particularly for large projects, let alone those which cross borders, the political risks which such institutions are prepared to bear may not be acceptable to any other party. The EBRD and the World Bank Group, as well as the bilateral agencies which I have mentioned, recognise that they have a catalytic and additive role to play in stimulating capital flow to countries such as Russia and the other hydrocarbon producing territories of the former Soviet Union for such initiatives.

There are a variety of views expounded as to the structural requirements that lenders will impose for project financing in this sector. Conventionally, for project financings, lenders look to a reliable revenue stream, usually secured by contractual offtake obligations. Where this is the case, the amount of equity that is required to be contributed by the project promoter can be directly correlated to the economic viability of the project and its ability to withstand adverse circumstances. The debt cover ratio, calculated on a loan life and project life basis and the project return compared to the cost of debt finance will govern the level of equity. In certain circumstances, where debt is secured directly or indirectly by financial guarantees from creditworthy sponsors, the level of equity is of limited relevance. However, most of the institutions have standard minimum requirements. Although one hears of debt:equity ratios of 75:25, a more appropriate rule of thumb might be 2/3 debt to 1/3 equity.

Work on the financing plan should bear in mind competing projects in both the country and in the region and the most suitable blend of sources of finance required for the project. Given the estimated cost of the projects and the probability that the host government will both wish to, and have to, limit their own financial obligations to the projects, without reducing influence and control, a number of diverse sources of finance shall need to be accessed and brought together. This is a complicated and time-consuming task which requires critical co-ordination.

A number of very significant oil and gas, natural resource and process projects are being considered in the region, as well as the related infrastructural

media (pipelines, roads etc). Given the economies of the member states of the former Soviet Union in general, limited finance will be available and it must be recognised that certain projects will be delayed due to a shortfall in funding capacity in the markets.

## Gazprom problems

If we return to the Yamal project we can find a strong example. Although Gazprom has talked of raising all the finance itself, the gravity of its current financial situation is emphasised by its marked failure to achieve its targets for reconstruction and development. For instance, in 1993 only 600 kilometres of the scheduled 6,400 kilometres of pipelines were built. It is also well behind its planned field developments in Western Siberia.

Gazprom has a number of major planned capital commitments. The total cost of preparing the pipeline and turbines grid, initial Yamal developments and the new export pipelines are estimated to cost \$24-28 billion. In addition to the above, the consortium Rosshelf (majority owned by Gazprom) is planning to undertake the Prirazlomnoye and Shtockman oil and gas projects in the Arctic Circle. Both of these projects, entailing multi-billion dollar expenditure, are unlikely to advance to a stage of significant financial commitment until at least the beginning of the next century.

There are a number of sources of funding for Gazprom's planned capital commitments, (publicly announced or under consideration) amounting to some \$6 billion including:

	\$ million
SACE guaranteed loans for SNAM deal	1,900
Japan Exim	700
German credit lines backed by gas contracts	1,000-1,500
US Exim (under consideration)	500-1,000
ECGD (under consideration)	300-400
Total	<b>4,400-5,500</b>

The total funding requirements far outstrip published and existent funding facilities or credit lines under consideration. This, however, does not take into account ECAs which are currently considering the implementation of new cover for Russia which would include Gazprom, and particularly does not include the ability to raise funds on a project or quasi project finance basis which can often fall outside the normal restrictions proposed by ECAs. The latter ability will, of course, be dependent on the hard currency reserves earned by Gazprom's export contracts in Western and Eastern Europe. Although Gazprom is an impressive and substantial entity, certain sources of finance will seek additional undertakings from the host governments, namely Russia and other states across whose territory the pipelines will pass.

Before committing, lenders will analyse:

- The nature of laws regarding foreign ownership of major resource projects in the relevant jurisdiction;
- The nature of the ownership of pipelines in the jurisdictions through which they pass and the extent to which security can practically be maintained over oil or gas passing through any pipeline;

*'the international oil and gas industry has viewed the former Soviet Union as both a threat and an opportunity'*

- The quality and suitability of enabling legislation and inter-governmental agreements;
- The availability of governmental consents including those relating to construction, importation materials, employment of personnel, repatriation of profits and operation of the pipeline;
- The implications of taxation, licence fees, rentals, compensation, royalty payments and other governmental charges;
- The impact of environmental laws and issues relating thereto.

Lenders will seek to ensure that the obligations of the parties under the security arrangements to which I have referred are evidenced by bankable, credit-worthy guarantees. These requirements should not

be misunderstood or underestimated. Lenders may seek to have the obligations cash collateralised or secured by way of first-class bank guarantees. When obligations such as those in respect of completion risks are analysed, they can be substantial. In the former Soviet Union, the difficulty in explaining and extracting such undertakings, not only from central government and agencies but also from regional and local bodies can often prevent the implementation of the project.

Although I have identified a number of potential sources of finance, the greater the number of institutions involved in a project, the greater the difficulty in finding a commonly accepted financing solution. Many of the institutions concerned have only worked in the region or with one another in a limited number of cases. A number of the export credit agencies are inexperienced in assessing and assuming project risk. The role of the promoter is, in part, to define and present a financing plan which is likely to be acceptable in principle to external sources of finance and where the details can subsequently be negotiated. Raising unrealistic expectations with regard to terms and conditions under which the sources of finance may provide assistance can undermine the chances of successful implementation.

This co-ordination process is arduous and time-consuming. There are a number of transactions under development in the CIS with, relatively speaking, limited sources and amounts of external finance available. A carefully co-ordinated approach to appropriate institutions is key. The time-frame for devising and then implementing the financing will probably be in excess of 12-18 months from basic commercial agreement having been reached between the parties.

Our work involves intimate liaison with the relevant government ministries and parastatals, funding agencies and the international companies, who will generally put forward significant amounts of risk capital necessary for the development of the project. Capital which is at risk, not only until financial close has been achieved but construction completed and successful operations commenced.

The need for the transactions to be seen by

investors and lenders alike to be inherently economically viable is self-evident. We are all familiar with the outturn capital costs being higher than forecasted, with operating costs having increased and with project revenues being lower than expected. A multitude of reasons are cited, with the responsibility always being attributed to another party, force majeure, government action or inaction, or changes in market conditions. In the former Soviet Union, Western companies have extremely limited experience of cost and operations. There will be genuine and understandable pressure to utilise local goods and services and to rely upon domestic labour. This all increases the uncertainty that the project economics will prove to be as initially forecast and that the level of returns may be lower than expected.

All of the sources of finance mentioned have their own terms and conditions attaching to the availability of finance. They demonstrate particular and, sometimes, peculiar predilections and phobias. Some of these institutions require international competitive bidding, some require the equipment to be tied to the country of finance, others need to be reassured that equipment was obtained with due regard to economy and efficiency. All will need to be persuaded, if they are taking project risk, that their funds are being applied to projects which are inherently and intrinsically economically viable. In addition, they need to be persuaded that the national, regional and, sometimes even local government structures are supportive of, and committed to, the project.

### Key criteria

In summary, the key criteria for successful project financings in the oil and gas sector in the CIS are:

- (i) Economic, not only political or commercial, viability;
- (ii) A properly structured and suitably tailored financing plan;
- (iii) A security package which properly identifies and allocates risk and reward;
- (iv) Credible and experienced project parties and contractual counterparties;
- (v) The support and involvement of multilateral and bilateral institutions; and
- (vi) The overt commitment of the host government at national, regional and local levels.

It is clear that the former Soviet Union will be an increasingly critical factor as a source of hydrocarbons. Since the dissolution of the Soviet Union, there have been several attempts to implement major projects. This is evidenced, not only by the commitment on the part of the governments but also the international oil and gas industry, to develop these hydrocarbon resources and integrate them into the global market-place. Although thus far there has been much frustration, and a greater number of failures than successes, there is also little doubt that, provided there is a full acceptance and realisation of the constraints and conditions, external sources of finance can be mobilised to provide much-needed assistance and support.

This paper was given at an IP conference, 'Financing the International Oil Industry'.

## 'Change Management – The Business Challenge of the 21st Century'

By Mr D R Varney, Managing  
Director, Shell UK Ltd Downstream  
Oil and IP President

Tuesday 25 April 1995, 18.00 at the  
Institute of Petroleum

Managing change is a commonplace of business discussions. But does it mean reducing the inefficiencies of existing structures in order to meet today's competitive challenges? Or does it mean changing the basis of enterprises to fit them for fundamentally different business conditions? Our economic world is in upheaval. The information revolution, increasing liberalisation, industrialisation and globalisation, and measures to safeguard our natural environment are transforming the global economy. The petroleum industry faces challenges and opportunities, at least as great as any other sector.

*Tea and biscuits will be served at 17.15.  
Light refreshments will be available afterwards,  
kindly sponsored by Dewco Oil Services.  
Enquiries: Mrs E Walker, Hon Secretary, London  
Branch, Tel 01926 404768, or Mr J M Wood at  
the IP. Tel: 0171 467 7123*

## 'The Hedging Efficiency of Crude Oil Markets'

By Paul Horsnell, Associate  
Director, Oxford Institute of Energy  
Studies  
Alban Brindle, Marketing Manager,  
Trafalgar Commodities

Chairman: Walter Greaves

Wednesday 10 May 1995, 17.00 for  
17.30 – 19.00 at the Institute of  
Petroleum

*If you plan to attend, please advise Jenny  
Sandrock at the IP. Tel: 0171 467 7104*

## 'Growing a New Exploration & Production Company with Assets in Russia'

Speaker: Mr Tom Cross,  
Commercial Director,  
Dana Exploration plc

Wednesday 19 April 1995, starting at  
17.30. Tea will be served at 17.00.

*Enquiries: Mr Sjoerd Schuyleman, The  
Institute of Petroleum, 61 New Cavendish  
Street, London W1M 8AR  
Tel: 0171 467 7132 Fax 0171 255 1472*

## 'Vehicle Pollution – Gas Turns on the Heat in the Political and Pollution Debate'

By Tom Fiddell, Director General,  
LP Gas Association  
Fred Parker, Executive Director,  
Natural Gas Vehicle Association

Wednesday 5 April 1995, 17.00 for  
17.30 -19.00 at the Institute of  
Petroleum

*If you plan to attend, please advise Jenny  
Sandrock at the IP. Tel: 0171 467 7104  
(direct line) Fax: 0171 255 1472*

# Caucasian circles

By John Roberts

**T**here is plenty of oil in Central Asia, and plenty of companies have signed agreements to extract that oil. Now the focus is on finding secure and financially viable export routes. And it looks increasingly as if a route through the Caucasus to a Turkish terminal on the Mediterranean will be favoured for Azerbaijani crude, and perhaps also for exports from Chevron's giant venture at Tengiz in Kazakhstan.

In February, companies engaged in developing Caspian Sea oil resources received presentations from three major proponents of pipeline schemes to the Black Sea and beyond. Discussions on all three approaches are continuing, and in the next few months, perhaps as early as June, the intention is to have a contract in place for the first oil export pipeline from the Caspian to the Black Sea.

## Pipeline options

The proposal comes from Brown & Root and concerns a strictly limited plan to provide an outlet for early oil production from Azerbaijan's offshore fields: Azeri, Chirag and Guneshli. By a mixture of rehabilitating old lines and constructing new small-scale links, Brown & Root envisage being able to open a through pipeline from Baku in Azerbaijan to Batumi in Georgia within a year of signing a contract. The capacity would be limited to between 100,000 b/d and 140,000 b/d. The assumption is that this would constitute no more than the first part of a two-phase project, with the second phase being the construction of a full-scale 40-42 inch pipeline system between both the Azerbaijani and Kazakh oilfields in the Caspian and a terminal at Ceyhan on the Turkish Mediterranean coast.

Brown & Root believe that their programme will prove that the Caucasus is a viable route for Caspian Sea exports. There will, of course, be some initial concern that this will increase tanker traffic through the Bosphorus. Since most tankers using the Straits carry no more than 25,000 tonnes of crude, in effect, were initial Azerbaijani exports to be oriented to Mediterranean markets it would, on average, raise tanker traffic through the Bosphorus from around five to six passages per day. This is no small increase, given the fact that all traffic in the opposite direction has to be stopped when a tanker transits the winding 28 kilometre Strait. For once, however, Turkish government and oil company sources are not worried about the possible impact on the environment. They accept that this would prove a temporary phenomenon that would disappear with the creation of a full-scale pipeline system to Ceyhan. Indeed, the Turks' own approach to the problem of bringing Caspian crude oil to market very closely mirrors the approach taken by Brown & Root in its phase two proposals.

Both Brown & Root and Turkish Petroleum, the latter generally known by its Turkish acronym TPAO, believe

that what is required is a network of lines that would bring crude from both Tengiz and the offshore fields being developed by the Azerbaijan International Operating Company (AIOC) together in the Caucasus where they would combine to form a single onward line to Ceyhan. Both consider various alternative routes. Both also make the point that they are not seeking to convey all the crude oil available for export through this system.

## Turkish option

In general, Brown & Root's favoured option is for a line from Tengiz to Kazakhstan's Caspian Sea port of Aktau and thence by sub-sea pipe to Makhachkali in the Russian autonomous republic of Daghestan. It would then cross Daghestan (skirting Chechenya) and head for the Georgian capital of Tblisi and thence pass through northern and central Turkey to Ceyhan. At the same time, a new pipeline would be constructed from Baku to Tblisi. Brown & Root estimate the cost of constructing such a system to amount to \$1,435 million for the Tengiz to Tblisi section and \$1,163 million for a new pipeline from Tblisi to Ceyhan.

TPAO's proposal adopts the same approach for the preferred route for Kazakh crude as far as Makhachkala, but once on the Azerbaijani side of the Caucasus Turkey generally favours a route along the simplest geographical line: the Araks Valley which passes from Azerbaijan to Turkey, transiting both Armenia and the Azerbaijani enclave of Nakhichevan en route.

This is one of the more politically tendentious routes, although from a Turkish perspective it is eminently logical. The aim is to entice Azerbaijan and Armenia to conclude a peace treaty that would initially consolidate the existing truce in the war between Azerbaijan and secessionist Armenian forces in Nagorno-Karabakh and ultimately resolve that crisis, thus stabilising a volatile stretch of Turkey's northern border.

The most important area of coincidence between the Brown & Root and Turkish proposals concerns the volume of crude oil to be conveyed through the system. Both envisage exporting around 20 million tons a year (mty) equivalent to 400,000 b/d of crude oil from Kazakhstan and a further 25 mty (500,000 b/d) from Azerbaijan through the system. This is what TPAO officials term the 'excess crude' to be produced by the two major potential Caspian region oil producers. All told, by the early years of the next century, overall Caspian region production is likely to total around 80-100 mty or 1.6-2.0 million b/d.

Dr Emre Gonensoy, Chief Adviser to Turkish Prime Minister Tansu Ciller, told *Petroleum Review* in March that Turkey was not seeking to become the sole outlet for Central Asian crude. Ankara expected that much of the crude would reach European markets via systems that transited Russia, notably the Drouzhba (friendship) pipeline system. The view is echoed by TPAO itself. 'We are not against any outside role,' says Necdet Pamir, TPAO's transportation manager. 'It is quite acceptable to us that part of this 80 mty output will go in the ex-FSU system. Some will be required in Azerbaijan and Kazakhstan itself, some will go out through existing export systems via Ventspils, Novorossiysk, Odessa and Drouzhba. We are not opposing anything like this. But for the rest - 45 million tonnes a year - we believe this should be exported through alternative pipelines.'

Turkish estimates for constructing the system are somewhat smaller than those proposed by Brown & Root. The cheapest Turkish option, which would bring

crude oil to the Turkmen port of Krasnovodsk before crossing the Caspian to Baku, is put at \$2,158 million. This would follow the Araks River route from Baku. The most expensive option, a line from Kazakhstan via Makhachkala and Tblisi, with a Baku connection only linking up with this line in Turkey itself, is costed at \$2,380 million.

However, speaking at the Institute of Petroleum last month, Mr M Townsend of BP Exploration confirmed that it was not essential to settle on just one pipeline option for the 'early oil' phase. He thought it likely that more than one variant would be used. In any case during this stage, a further option was to refine the AIOC crude at Baku and other refineries where there was spare capacity.

### Tengiz pipeline

There is, of course, a third major scheme currently in progress. This is the Caspian Pipeline Consortium's proposal for a pipeline system from Tengiz around the north of the Caspian to Astrakhan and Komsomolskaya to Novorossiysk. CPC's option, in terms of initial capital expended, is the cheapest. The Omani-led group estimated the cost of some 930 miles of pipeline renovation and construction at \$1,100 million. One main problem is that such a line would only take Tengiz crude as far as the Bosphorus. CPC, in presentations to Western companies operating in the Caspian, considers that the Bosphorus does not pose a problem. 'The Bosphorus shipping issue does not present a significant obstacle to CPC's Black Sea export route.' In technical terms this may be true. In theory, if tankers were allowed to transit the Straits in convoy for up to 12 hours per day, this would make it possible for the number of tankers using the Bosphorus to rise from four or five at present to around 25. The extra 20 tankers would be capable of carrying some 250,000 tonnes or 1.8 million barrels of crude oil per day through the Straits. But this is to ignore the fact that Novorossiysk is closed from 30 to 40 days each season so the build-up of tanker traffic could often be much heavier.

The Bosphorus is already dead water. Sea birds are routinely covered with oil leaking from tankers transiting the narrow Straits, which at certain points are only 700 metres wide. Moreover, the Straits pass through Istanbul which, at 11 million people, is one Europe's largest cities.

In practice, one of the Oman Oil Company's main partners in CPC, the Russian government, has recognised that the Bosphorus is not a viable option for large-scale tanker traffic since it has formally backed the idea of a by-pass pipeline to run from Bourgas in Bulgaria to Alexandroupoulos in northern Greece. Brown & Root have estimated the cost of such a pipeline at \$550 million for a 36 inch line.

The other main problem confronting the CPC project is that it is essentially targeted at the export of Tengiz crude, yet the Western partner at Tengiz, Chevron, has failed to back the CPC proposal. Indeed, for the last three years, one of the key aspects of the pipeline controversy has been Chevron's battle to secure an ownership stake in CPC that in some way reflected the investment Chevron was expected to make or to guarantee in order to get the pipeline built.

### CPC moves

Even though Chevron is still on the sidelines, CPC announced in January the start of the first phase of

actual pipeline work, thus putting it in the lead in terms of actual activity. It stated that it was to build the first 250 kilometre section of the line from the city of Kropotkin, 50 kilometre south of Tikhoretsk, to a new marine terminal just north of Novorossiysk. It is also declared that the transfer of existing pipelines between Russia's Kazakh border and Komsomolskaya to CPC ownership is underway. The key point about the first phase is that it is a comparatively modest proposal to carry some 280,000 b/d of crude oil to Novorossiysk from Russia's existing pipeline system. It is second phase activity, notably construction of a new 500 kilometre line from Kropotkin to Komsomolskaya that is the most expensive single element in the project. It must be doubtful whether CPC will go ahead with this in the absence of any formal transportation agreement with Tengizchevroil, the consortium formed between Chevron and the Kazakh oil authorities.

For the production companies, there is always the increasing pressure of time. The \$8 billion agreement signed by AIOC with the State Oil Company of Azerbaijan last September sets out a strict timetable for both development and export of oil. Early oil production must be attained within 18 months — in other words, by March 1996. Full-scale production must be possible by September 1998 and a Main Export Pipeline must be capable of handling large-scale export volumes by March 1999. Under Article 10.4 of the contract, AIOC's members are committed to 'reaching agreement on financing, construction and operation of the Main Export Pipeline.'

### Wait-and-see

In Kazakhstan, Chevron is facing somewhat different pressures. For the moment it can adopt a wait-and-see approach. CPC is after all, starting to construct its system and may yet manage to convince not only the Russian and Kazakh governments but also international financial sources to renovate/construct the necessary pipelines to bring Tengiz crude to market at Novorossiysk. And Chevron can also wait to see whether plans for a Caucasus pipeline make progress. But it has already sunk considerable sums into Tengiz — some estimates place the figure as high as \$700 million and it will be looking for a return once the pipeline terms are right, either in terms of its involvement in co-owning or co-financing the line, or in terms of the transit costs for crude oil through the system.

Turkish officials believe that there will have to be several more rounds of formal and informal discussions between AIOC, Brown & Root and TPAO before any firm agreement on routes can be achieved. Some of the possible routes have only been lightly studied, at least from an engineering perspective. But there is an increasing expectation that Ceyhan will be the terminal and that both Brown & Root and Turkish Petroleum will be deeply involved not only in planning the line, but in its actual construction.

Meanwhile much will depend on whether the Caucasus stays sufficiently stable for Brown & Root to be able not only to secure a firm contract to establish a working pipeline system between Baku and Batumi to handle early Azerbaijani oil output, but also to complete actual construction and renovation work on the system. For if this project goes wrong, then both the production companies and a cluster of governments from Washington to Almaty will have to reconsider the Caucasus option.

**L**ast month, Tesco launched a new grade of unleaded petrol guaranteed to contain no more than one percent benzene. The claims surrounding this new product were far-reaching: Tesco insisted it was the first petrol retailer in the UK to offer motorists low benzene unleaded petrol and the only one to guarantee a fuel meeting this specification. But has Tesco really pulled off a major coup or are the oil companies right to dismiss the launch as a clever marketing ploy? In an exclusive interview with Tesco, Petroleum Review put Britain's newest supermarket fuel to the test.



## Exactly how good is Tesco's new fuel?

By Susannah Cardy

**Susannah Cardy:** I would like to clarify certain statements made at the launch of this new fuel. Tesco stated that it was 'the first petrol retailer to offer motorists low benzene unleaded petrol' and that 'no other petrol retailer currently guarantees to supply a fuel meeting this specification'. But is this really true? Shell, for example, has produced low benzene fuel for the past 20 years. Last year, the average level of benzene in petrol manufactured by Shell was less than one percent, while Jet claimed an average level for last year of just 0.5 percent.

**Tesco:** Unlike other fuel retailers, Tesco is the first company to tell customers what they are getting and where they can get it. By launching Tesco low benzene as a separate grade, with distinctive hose colouring, pump marking and point-of-sale information, customers can readily identify the product and know that wherever they see the livery in a Tesco filling station, they are guaranteed to get a petrol that has no more than one percent benzene.

From the articles we have seen in the press, oil companies claiming to have low levels of benzene in their fuel talk in terms of average levels in petrol manufactured, not in petrol available at their forecourts.

We would suggest that you pose the question to the companies concerned as to which of their sites can guarantee to customers the benzene level of their petrol, and which they have obviously neglected to tell their customers.

**I understand that your supplier is Neste but that, so far, they have only supplied one test batch to you**

**and no long-term contract has been agreed. How, therefore, can you guarantee supply?**

Details of our supply arrangements are commercially sensitive.

**Tesco guarantees that this new petrol consists of no more than one percent benzene, but what is the average amount of benzene in the product estimated to be?**

In practice, benzene levels will be well below the one percent specified. However, in order to maintain flexibility in terms of product sourcing and production we have set a maximum level of one percent which we can guarantee to meet consistently.

**Some oil companies have accused Tesco of producing a special niche product, whilst they have switched to low benzene on all grades. What percentage of UK cars can use this new premium unleaded petrol and what is the level of benzene in the rest of your grades?**

Tesco low benzene is a premium unleaded 95 octane petrol meeting British Standard BSEN228. It is therefore suitable for use by all vehicles capable of using this grade, sales of which currently account for over 50 percent of our total fuel sales. This is in line with the industry norm.

**You say you expect the major oil companies to follow your 'lead'. If this does happen (and incidentally the oil companies insist that Tesco is in fact following behind their lead), will the petrol become cheaper?**

Yes. We are aware that there are refineries operating in the United Kingdom that have the capability to produce similar products, a fact apparently borne

out by claims in the press. Having brought the subject to the attention of the people outside of the oil industry, we expect other fuel retailers to follow our lead and actively market similar grades and we would expect that wider availability would equate to better prices.

**You claim the refinery process reduces benzene, nitrogen oxides, VOCs and sulphur? How does it do this?**

The fuel has been purchased from a leading refinery in the production and supply of this type of fuel. The refinery operates a benzene extraction process which, combined with the use of components with no or very little benzene, enables the production of fuel with a benzene content of less than one percent.

**In order to guarantee no more than one percent benzene, aren't you prevented from utilising Britain's pipeline distribution system and forced into using segregated storage? Is this the reason for the extra 2p a litre?**

A shortage of supply of this quality fuel, combined with the additional costs for importing, storage and distribution, mean that a premium price is demanded. However, this is still below the average price for unleaded petrol at a garage forecourt, according to the AA Fuel Price Report.

**Does Tesco normally deal in exchanges? And, if so, presumably you can no longer deal in exchanges for this new type of fuel?**

Tesco does not participate in exchange agreements.

**How long will it take before low benzene unleaded is available at all Tesco sites?**

We operate a chain of 222 petrol filling stations nationwide and we aim to complete the roll-out of low benzene unleaded at all of these sites by the end of the year.

**A recent survey of British motorists showed that drivers are unwilling to pay extra for green products. How are you going to persuade customers to pay 2p a litre more for this new fuel?**

It is important to remember that the fuel is only two pence per litre dearer than Tesco premium unleaded. This is still below the average price for unleaded on a garage forecourt, according to the AA's Fuel Price Report. We believe that many customers will be prepared to pay a little extra for a cleaner, more environmentally-friendly fuel.

**How can you be sure that this new fuel is reducing the overall impact on the environment? What about environmental trade-offs? If you can't utilise exchanges or the general pipeline system, you may be increasing transportation pollution.**

We have not made any wild environmental claims about low benzene unleaded. It is just one initiative among others which we hope will have a positive effect on the environment. We will obviously plan our distribution network to minimise any environmental effects.

**What about the refinery process? Have you simply substituted one harmful element for another.**

The benzene and other aromatics have not been



replaced by other harmful components. The refining of low benzene unleaded petrol does not lead to an increase in other harmful chemicals.

**Do you think there is any truth in the argument that the dangers of aromatics and particularly benzene have been over-emphasised of late, at the expense of other dangerous fuel elements?**

We are responding to the concerns expressed by both the Royal Commission on Environmental Pollution and the House of Commons' Transport Select Committee as to the dangers of benzene in petrol. Judging by the reaction of other companies, it would appear that they also consider the reduction of benzene an important issue.

**Overall, why is this fuel such a major breakthrough? What makes Tesco think it is the first UK petrol retailer to guarantee benzene levels of one percent or less?**

Tesco is the first company to actively market a low benzene fuel and bring the subject of fuel and air quality to the top of the industry's agenda. If by doing this it stimulates producers and retailers to follow, this will add to the improvements in air quality for all.

**Transport Secretary Dr Brian Mawhinney samples Tesco's newest fuel**

# Formation of the Meter Proving Contractors Association

An Association of Meter Proving Contractors has been formed with an initial membership comprising the principal contractors who offer a meter proving service to industry. The specific aims of the association are:

- to adopt common standards of safety, training and operating procedures for this specialised measurement and calibration service in the downstream sector, in order to provide a guaranteed minimum level of safety and competence.
- to develop a National Vocational Qualification (NVQ) for meter proving operators to ensure that minimum standards of safe working practice and competence are achieved and can be demonstrated.

Recent incidents within the downstream oil industry involving meter proving have highlighted concerns regarding the safety of equipment and procedures, knowledge of the products being handled and the competence of personnel involved in this operation.

The initial proposal to form this Association had the support of major oil companies, the Institute of Petroleum and the Health and Safety Executive. Notice formally announcing the intention was made at the

one-day Meter Proving Safety Forum held at the Institute last November.

Meetings have since been held with the Petroleum Employers Skills Council, following which a project proposal was drawn up for the development of an NVQ for meter proving. Final approval is expected this month.

Progress on the formation of the Association has been communicated to the Institute via the cross-committee Meter Proving Safety Working Group and the Commercial Measurement Panel (PM-D-4), both of which warmly welcome this development.

The Association invites other contractors who provide meter proving/calibration services to the downstream oil sector, including aviation, and any oil companies which carry out their own meter proving, to join the association in order to broaden this common standard.

Initial contact should be made to:

**PA Barlow,  
GEC/Avery Hardoll,  
Tel: 01329 853757  
Fax: 01329 853804**

## The biocatalytic desulphurisation of fossil fuels

Meeting of the Energy Economics Group on 1 March 1995

Over the last 30 years several major oil companies have explored biological desulphurisation and this presentation by Messrs Jeff Nagel and Mark John of Energy Biosystems Corp attracted a keenly interested audience. The content reflected the business administration and geological backgrounds of the two presenters respectively, as it was strong on financing, business partnerships, throughput and cost forecasts but contained little information on the technical aspects of the process. There was some impression that the technology was only partially developed. For example, it was clear that the 'biocatalyst' was actually a non-viable whole microbial cell preparation of a genetically engineered micro-organism and not a dissolved catalyst or a catalyst attached to a solid substrate. This whole cell preparation is grown up separately and introduced into the reactor for a contact time of about an hour.

The probability of unwanted microbial growth in the reactor – for example, yeast growth in an aqueous

phase in contact with gas oil – seemed to be of no consequence in laboratory scale plant but how it could be avoided in the pilot plant now under construction was not explained to the satisfaction of microbiologists present. The data presented indicated that biocatalysis was selective for certain sulphur compounds and the authors suggested that it would have the most attractive economics if it was supplementary to conventional desulphurisation which is also selective but for other sulphur species. Biocatalysis has the attraction of being an ambient temperature process.

The timeliness of a breakthrough in desulphurisation was in no doubt and a lively discussion followed the highly professional presentation.

**Ted Hill,  
Chairman,  
IP Microbiology Committee**



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## The Bottom of the Barrel

How to dispose of it and still  
make a profit

27 April 1995

To be held at The Cavendish Conference Centre,  
London

Chairman: Mr C Gillies, Manager,  
Stanlow Refinery, Shell UK Ltd

### Topics will include:

**Overview Paper** – *The Driving Forces for Residue Processing – how refiners can make the right investment decisions.*

**Residue Processing Technology Options** – *each option is evaluated by comparing differences in refinery yield and product qualities when processing Arabian Heavy Crude Oil.*

**Update of the European Situation on Product Quality Legislation** – *changes in product quality will have an impact on conversion process selection.*

**Atmospheric and Vacuum Residuum Hydrotreatment** – *a popular and cost-effective means of bottom of the barrel upgrading – the process and its economics are overviewed through a case study.*

**Advances in Resid FCC Technology (including Hydrogen Pretreatment)** – *how improved catalysts and technology are increasing the range of crudes which can be handled by this process.*

**Gasification of Resid and Other Low Value Products: Maximise Profit through Planned Integration** – *recent projects will be discussed, including the possibilities of new financing options to reduce capital expenditures.*

### Open Forum

For a copy of the registration form, which will be available shortly, please contact Conference Department, The Institute of Petroleum, 61 New Cavendish Street, London W1M 8AR UK  
Telephone: 0171 467 7100 Fax: 0171 255 1472



THE INSTITUTE  
OF PETROLEUM

## Microbial Quality Tests for Fuel Workshop

23 May 1995

This workshop will focus on:

- The microbial problems relating to long term storage of fuels, bunker distribution and retail sites;
- The assessment of fuel quality which will include sampling of fuels and sample handling and the various analytical techniques which are available to assess fuel quality;
- The interpretation of analytical results.

Invited speakers will give short papers and each presentation will be followed by a discussion period.

For further information and copies of the registration form when available, please contact The Conference Department, The Institute of Petroleum, 61 New Cavendish Street, London W1M 8AR  
Tel: 0171 467 7100  
Fax: 0171 255 1472

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# FORTHCOMING EVENTS

## April

### 3rd-4th

**MECC Maastricht:** 'LPG: A Clean and Efficient Motor Fuel - a THERMIE Programme Action'. Details: Quint and Partners bv, Communications Consultants, PO Box 122, 7300 AC Apeldoorn, The Netherlands. Tel: 31 (0)55 786640 Fax: 31 (0)55 785683

### 3rd-4th

**London:** 'Effective Gas Trading and Transportation — strategies for the network code'. Details: AIC Conferences Ltd, 2nd Floor, 100 Hatton Garden, London EC1N8NX. Tel: 0171 242 2324 Fax: 0171 243 2320

### 3rd-6th

**Amsterdam:** 'Corrosion in the Oil and Gas Industry'. Details: In-Plant Programmes, Box 1052, East Brunswick, New Jersey 08816-1052 Direct Dial (USA): 1/908 613 4547 Fax: 1/908 238 9113

### 3rd-7th

**Singapore:** 'Economics and Operations of Bunkering'. Details: Neil Cockett, Huntsman's Cottage, Waldershare Park, Dover, Kent CT15 5AZ, UK. Tel: 1304 820034 Fax: 1304 820177

### 3rd-7th

**Leeds:** 'Diesel Particulates and NOx Emissions'. Details: Julie Charlton, Department of Fuel and Energy, University of Leeds, Leeds, LS2 9JT. Tel: 0113 233 2494 Fax: 0113 233 2511

### 5th-8th

**Moscow:** 'MIOGE 95 Moscow International Oil & Gas Exhibition'. Details: Byron House, 112a Shirland Road, London W9 2EQ. Tel: 0171 286 9720 Fax: 0171 286 0177

### 5th-6th

**London:** 'Quality Criteria and Product Specifications'. Details: Abacus International, 214 Inchbonnie Road, South Woodham Ferrers, Essex CM3 5WU. Tel: 01245 328340 Fax: 01245 323429

### 5th-6th

**London:** 'Energy Price Risk Management'. Details: IIR Ltd, 28th Floor, Centre Point, 103 New Oxford Street, London WC1A 1DD. Tel: 0171 412 0141 Fax: 0171 412 0145

### 6th

**London:** 'Competition and Regulation in the Utilities'. Details: EuroForum. Tel: 0171 793 1230 Fax: 0171 793 8544

### 6th-7th

**Stavanger:** '1995 FPSO International Conference'. Details: OCS Technology Group, The Innovation Centre, Aberdeen Offshore Technology Park, Exploration Drive, Bridge of Don, Aberdeen AB23 8GX. Tel: 01224 708088 Fax: 01244 708080

### 6th-7th

**Aberdeen:** 'Safety and Environmental Management - Accident and Incident Investigation'. Details: Alison Wilson, Offshore Management Centre, The Robert Gordon University, Kepplestone Mansion, Viewfield Road, Aberdeen AB9 2PW. Tel: 01224 263101 Fax: 01224 263100

### 6th-7th

**Berlin:** 'European Service Station of the Future - Engineering and Environmental Aspects'. Details: Marianne Heemskerck, Expoconsult, PO Box 200, 3600 AE Maarssen, Netherlands. Tel: 31 3465 73777 Fax: 31 3465 73811

### 6th-7th

**Cambridge:** 'Data Acquisition and Dependence Modelling for Safety and Risk Assessment'. Details: The Course Administrator, University of Cambridge Programme for Industry, 1 Trumpington Street, Cambridge CB2 1QA. Tel: 01223 332722 Fax: 01223 301122

### 6th-7th

**Moscow:** '4th Annual Moscow International Oil & Gas Projects '95 Conference'. Details: International Trade and Exhibitions J/V Ltd, Byron House 112A Shirland Road, London W9 2EQ. Tel: 0171 286 9720 Fax: 0171 286 0177/0171 286 2838 Telex: 896217

### 6th-8th

**Berlin:** 'European Petrol Engineering 95'. Details: Expoconsult, European Petrol Engineering Team, PO Box 200, 3600 AE Maarssen, The Netherlands. Tel: 31 3465 73777 Fax: 31 3465 73811

### 6th-8th

**Berlin:** 'TANKSTELLE '95'. Details: Annette Holtmann/Sonja Czech, Expoconsult GmbH, Postfach 42 66 • 65032 Wiesbaden. Tel: 0611/95166-0 Fax: 0611/527010

### 10th-11th

**London:** 'New Oil: The World's Map in the Year 2005'. Details: Jenni Wilson, Centre for Global Energy Studies. Tel: 0171 235 4334 Fax: 0171 235 5038

### 11th-12th

**Rome:** 'Energy Strategy for Europe'. Details: AIEE Secretariat, Via Giorgio Vasari, 4 - 00196 Roma, Italy. Tel: (39-6) 3227367/3234921 Fax: (39-6) 3234921

### 12th-13th

**Aberdeen:** 'Specialist Management Skills - Offshore Project Management'. Details: Alison Wilson, Offshore Management Centre, The Robert Gordon University, Kepplestone Mansion, Viewfield Road, Aberdeen AB9 2PW. Tel: 01224 263101 Fax: 01224 263100

### 24th

**London:** 'Regulating Competition in the Utilities'. Details: Delores Broni, Marketing Executive, The Economist Conferences, 15 Regent Street, London SW1Y 4LR. Tel: 0171 830 1076 Fax: 0171 409 3296/0171 931 0228

### 24th-25th

**Aberdeen:** 'Innovations in Cost Effective Exploration and Development'. Details: EuroForum. Tel: 0171 793 1230 Fax: 0171 793 8544

### 24th-25th

**London:** 'Analysing Current Developments in Electricity Trading Arrangements for 1998'. Details: IIR Ltd, 28th Floor, Centre Point, 103 New Oxford Street, London WC1A 1DD. Tel: 0171 412 0141 Fax: 0171 412 0145

### 24th-28th

**London:** 'Directional and Horizontal Drilling'. Details: OGCI Training, PO Box 35448, Tulsa, Oklahoma, 74153-0448 USA. Tel: 1 918 742 7057 Fax: 1 918 742 2272

### 24th-28th

**Paris:** 'Petroleum Economics'. Details: Mrs Josée Foucault, ENSPM Formation Industrie Economie et Gestion, 232, avenue Napoléon Bonaparte, 92506 Rueil-Malmaison, France. Tel: 33 (1) 47 52 72 93 Fax: 33 (1) 47 52 70 66

# FORTHCOMING EVENTS

**25th-27th**

**Birmingham:** '14th BPMA Conference, Using Pumps Better'. Details: Alistair Muir, Conference Department, BHR Group Ltd, Cranfield, Bedford MK43 0AJ. Tel: 01234 750422 Fax: 01234 750074

**26th-27th**

**Gloucestershire:** 'HAZMAT 95'. Details: Ms Chris Allen, Event Management, HAZMAT 95, The Fire Service College, Moreton-in-March, Gloucestershire GL56 0RH. Tel: 01608 650831

**27th**

**London:** 'The Bottom of the Barrel - how to dispose of it, and still make a profit'. Details: Caroline Little, The Institute of Petroleum.

**27th**

**Aberdeen:** '4th Offshore Installation Management Conference: Effective Team Working'. Details: Evelyn McLennan. Tel: 01224 263104 Alison Wilson. Tel: 01224 263101

**27th-28th**

**London:** 'Offshore Oil and Gas Supply and Construction Market'. Details: Helen Houseman/Athina Bradley, The Bookings Department, IBC Legal Studies and Services Ltd, Gilmoora House, 57-61 Mortimer Street, London W1N 8JX. Tel: 0171 637 4383 Fax: 0171 631 3214

**28th**

**London:** 'Seismic 95 International Conference'. Details: Themia Ltd, PO Box 2, Chipping Norton, Oxon OX7 5QX. Tel: 01608 684700/684888 Fax: 01608 684796

## May

**1st-4th**

**Houston:** '27th Offshore Technology Conference'. Details: OTC Meetings Department, PO Box 833868, Richardson, Texas 75083-3868 USA. Tel: 214 952-9494 Fax: 214 952-9435 Telex: 163245 SPEUT

**1st-5th**

**Calgary:** 'Improved Oil Recovery - Unit 1: Conventional Injection Methods'. Details: OGCI Training, PO Box 35448, Tulsa, Oklahoma, 74153-0448 USA. Tel: 1 918 742 7057 Fax: 1 918 742 2272

**3rd**

**Bromley:** 'Legislation for Hazardous Area Equipment'. Details: Sira Training, South Hill, Chislehurst, Kent BR7 5EH. Tel: 0181 467 2636 Fax: 0181 295 3005

**4th**

**London:** 'Gas Turbine Power Generation: Commercial, Economic and Operational Challenges'. Details: IChemE Conferences and Courses, 165-189 Railway Terrace, Rugby CV21 3HQ. Tel: 01788 578214 Fax: 01788 577182

**8th-12th**

**Calgary:** 'Improved Oil Recovery Unit II: Specialised Methods'. Details: OGCI Training, PO Box 35448, Tulsa, Oklahoma, 74153-0448 USA. Tel: 1 918 742 7057 Fax: 1 918 742 2272

**15th-16th**

**London:** 'Creating Value Through Improved Strategic Decision Making in Upstream Oil & Gas'. Details: Nadia Ross, IBC Technical Services Ltd, Gilmoora House, 57-61 Mortimer Street, London W1N 8JX. Tel: 0171 637 4383 Fax: 0171 631 3214

**16th-17th**

**Derby:** 'Permit to Work'. Details: Link Associates, Aspen Drive, Raynesway, Derby, DE21 7SG. Tel: 01332 677066 Fax: 01332 679609

**16th**

**London:** 'The Petroleum Forecourt in a Competitive Retail Market'. Details: Caroline Little, The Institute of Petroleum.

**17th-18th**

**Bordeaux:** 'Multimodal Transport: Issues and Developing Factors'. Details: M. Erik Loot, Conseil Régional d'Aquitaine, Hôtel de Région, 14 rue F de Sourdis, 33077 Bordeaux Cedex. Tel: 33 56 90 53 90 Fax: 33 56 24 73 66

**17th-18th**

**Chester:** 'Contaminated Soil Analysis'. Details: David Ruddock/Andrea Belcher, Geochem Group Ltd, Chester Street, Chester CH4 8RD. Tel: 01244 671121 Fax: 01244 683306

**22nd-23rd**

**London:** 'North Sea Conference 1995'. Details: Conference Registrar, The Conference Division, Lloyd's of London Press Ltd, 1 Singer Street, London EC2A 4LQ. Tel: 0171 250 1500 Fax: 0171 253 9907

**22nd-23rd**

**Aberdeen:** 'Meeting the Challenge of the Information Explosion in the Offshore Industry - What is Required - How to Meet Requirements'. Details: Nadia Ross, IBC Technical Services Ltd, Gilmoora House, 57-61 Mortimer Street, London W1N 8JX. Tel: 0171637 4383 Fax: 0171 631 3214

**22nd-26th**

**Bedford:** 'The Complete Pumping System'. Details: The Short Course Administrator, Department of Fluid Engineering & Instrumentation, School of Mechanical Engineering, Cranfield University, Cranfield, Bedford MK43 0AL. Tel: 01234 754766 Fax: 01234 750728

**24th-26th**

**London:** 'Seismic Sequence Stratigraphy; Its Role in Petroleum Exploration and Development Part 1'. Details: The Administrative Secretary, JAPPEC, c/o The Geological Society, Burlington House, Piccadilly, London W1V 0JU. Tel: 0171 434 9944 Fax: 0171 439 8975

**25th-26th**

**London:** '1995 Refining Technology Conference'. Details: Ms Fatma Yusuf-Pitt, UOP Ltd, 'Liongate', Ladymead, Guildford, Surrey GU1 1AT. Tel: 01483 304 863 Fax: 01483 466 298

**30th-1st**

**London:** 'Seismic Sequence Stratigraphy; Its Role in Petroleum Exploration and Development Part 2'. Details: The Administrative Secretary, JAPPEC, c/o The Geological Society, Burlington House, Piccadilly, London W1V 0JU. Tel: 0171 434 9944 Fax: 0171 439 8975

**29th-2nd**

**Singapore:** 'International Shipping and Insurance Law'. Details: Overseas Dept., The College of Petroleum and Energy Studies, Sun Alliance House, New Inn Hall Street, Oxford OX1 2QD. Tel: 01865 250521 Fax: 01865 791474 Telex: 838950 COLPET G



# Iran and Conoco – the deal that nearly was

By Colin Barraclough

**I**t has been a busy month in Tehran. The National Iranian Oil Company (NIOC) at last signed a \$1 billion deal with Conoco for the development of two offshore oilfields in the Gulf, only to have the deal quashed by an executive order from US President Bill Clinton preventing US firms from entering into contracts for the financing, supervision and management of oil development projects in Iran.

For several years, NIOC has been discussing the development of the Sirri A and E fields with Conoco, the Houston-based oil and gas subsidiary of DuPont de Nemours and Co., and the French firm Total SA. Elf Aquitaine SA was also believed to be bidding for the project, although the company has never commented on its position. Elf Aquitaine discovered the Sirri prospects, located 130 kilometres from the Iranian shore close to the Strait of Hormuz, in 1972 and 1976. Sirri E has reserves estimated at 435 million barrels, while Sirri A has about 50 million barrels. The two fields are expected to yield at least 120,000 barrels per day of

oil. Associated gas reserves in the neighbouring Sirri C and D fields are thought to be substantial; Conoco's plans included the construction of a 140 kilometre gas pipeline to Dubai for reinjection use in the emirate's offshore Fateh field, where Conoco is the operator.

Conoco's negotiations had centred around the terms of the deal. The American company sought equity in the fields in exchange for initial investment but Iran's constitution prevents equity transfer to a foreign company. According to Iran's oil ministry, Conoco broke the deadlock by agreeing to a buy-back deal involving the supply of Iranian crude for a five-to-eight year term scheduled to begin in 30 months. The oil ministry said the rate of resale would be calculated according to market prices. The US firm set up a Dutch-based affiliate, Conoco Iran NV, which signed the \$1 billion deal on 4 March.

Iran was hoping to earn some \$12.5 billion in oil revenues and \$750 million in gas sales through the accord, said the Tehran government. At least 30 percent of the work would have been subcontracted to Iranian companies under a law passed in early 1994 which seeks to guarantee that 30 percent of contract work going to a foreign client will be subcontracted to Iranian companies.

## First US investment

The Conoco deal would have been the first US investment in the Iranian energy sector since Iran's 1978/79 Islamic revolution. A number of Western oil companies are interested in participating in Iran's oil sector; most proposals focus on offshore areas, which are thought to be more politically acceptable than onshore projects. Nevertheless, the Iranian government felt that signing up with an American company was so politically sensitive that state-owned newspapers described NIOC's partner as 'the Dutch oil company Conoco.'

Oil sales provide Iran with some 80 percent of its export earnings. Its OPEC production quota was raised in September 1993 by 240,000 b/d to 3.6 million b/d, of which 2.6 million b/d are earmarked for exports. But there have been persistent reports of technical problems at many of the fields, and declining yields from ageing onshore fields have made it difficult for NIOC to sustain output at that level. A \$3.2 billion two-year crash programme to raise capacity from 3.5 million b/d in 1991 to 4.5 million b/d was completed in the summer of 1993 but questions remain about the sustainability of production at this level. Iran has little recourse to the enhanced recovery techniques employed elsewhere and prefers to boost well pressure by reinjecting gas. Seeking foreign assistance in the development of new offshore fields would thus provide a

valuable boost to Iran's output capability at a time when the cost of domestic economic reforms has risen dramatically.

### Opposition from administration

Days after Conoco announced it had reached agreement with NIOC, the deal was strongly criticised by the Clinton administration, which is seeking to limit Iran's access to foreign capital and technology. American firms are not prohibited from trading with the Islamic republic but President Clinton made it clear that he disapproves of close commercial contacts with Tehran.

The US government imposed an embargo on the import of Iranian oil in 1987 and further banned the export of high-technology equipment. It also disapproves of Iranian equity participation in a consortium set up to develop three giant oilfields in Azerbaijan.

Under sustained domestic political pressure to act firmly against Iran, President Clinton moved quickly to halt the agreement. Citing Iran's alleged sponsorship of terrorism, opposition to the Middle East peace process, and its nuclear programme, he announced on 15 March that he would shortly issue an executive order that would prohibit American companies from 'entering into contracts for the financing or the overall supervision and management of the development of petroleum resources in Iran.' He said such deals greatly enhance Iran's oil production capacity, giving it extra resources to pursue policies which the United States found unacceptable. The ban was specifically targeted at large-scale production contracts; it does not affect service contracts or general trade, nor does it prevent US oil companies from buying Iranian oil for re-sale.

Conoco had already said that the deal had been contingent on the approval of DuPont's board of directors which was divided over the issue. Three crucial board members, all top officers of Seagram Co Ltd, which owns a quarter of DuPont, had said they would vote against the contract.

### Possible partners

Nevertheless, President Clinton's executive order has astonished oil producers, who believe that the ban will do more harm to American commercial interests than to Iran. NIOC is expected to return to its European negotiating partners, primarily Total, although oil company executives believe that Agip and Repsol, already poised to return to Iraq once UN sanctions on Baghdad are lifted, may also be interested in Iran. German engineering firm IAB Leipzig and a Dutch unit of John Brown Engineering are already reported to be close to a deal on one of Iran's offshore gas fields.

Any reopening of negotiations with Total would undoubtedly focus on the structure of the deal. 'Total has never said what type of deal it was prepared to accept,' said a Total spokeswoman in Paris. 'In the light of what's happened to Conoco, I think that was very wise. It was clearly a political decision on the Iranians' part to choose Conoco. We've had no further communication so far [with NIOC], but Sirri remains our main interest in Iran.'

'The crucial question is the nature of Conoco's contract,' said a London spokesman for Elf

Aquitaine. 'Generally a buy-back means you do the work and they take it back. We're not really in a position to say whether that kind of deal would be advantageous.'

### Trade ban?

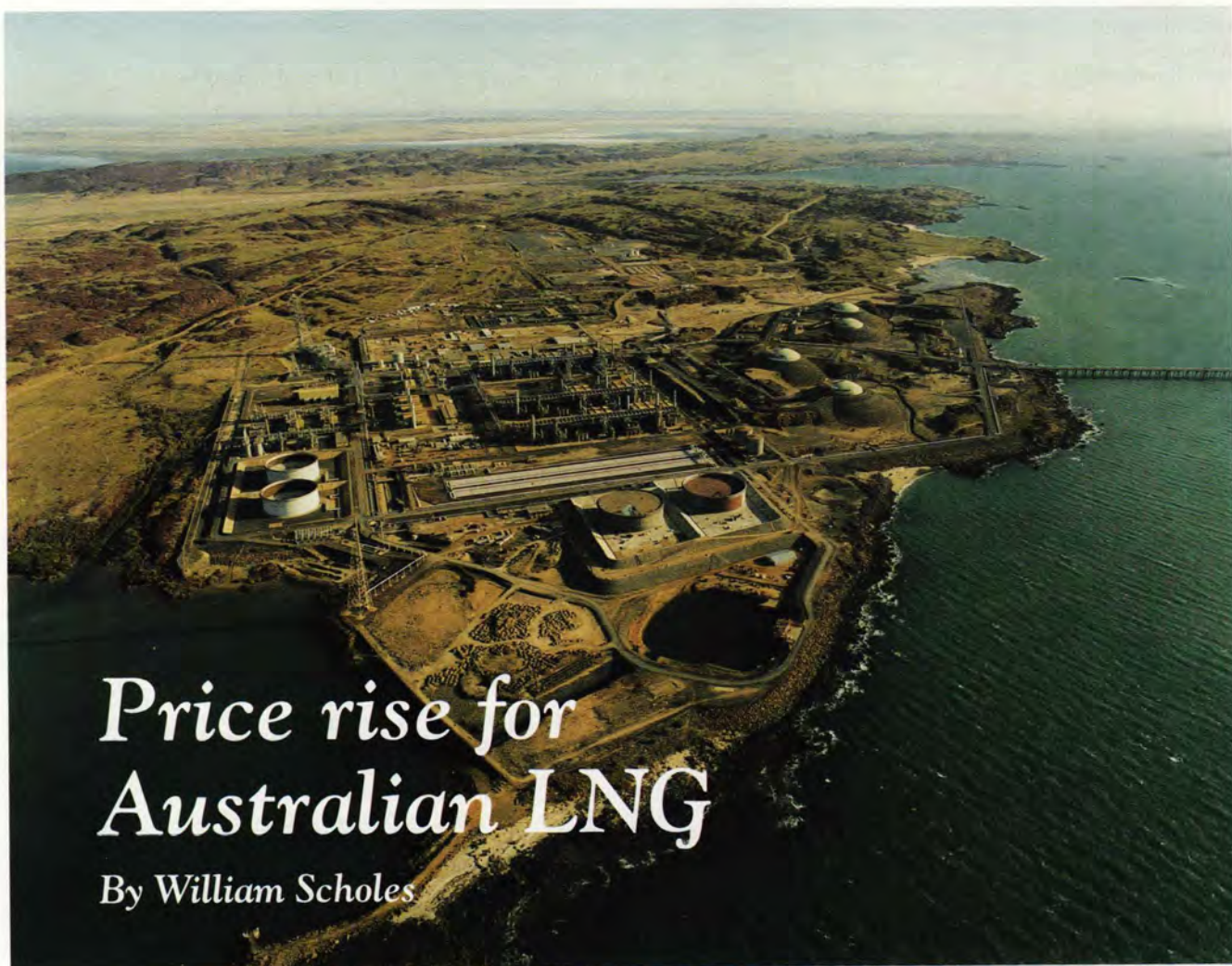
The US government move to ban US oil development work in Iran comes only weeks after a Republican senator introduced a bill that would impose a complete ban on trade with Iran. Alfonse D'Amato, a New York state senator, introduced the Comprehensive Iran Sanctions Bill into the Senate on 26 January. Modelled after restrictions on US trade with Cuba, the bill would prohibit all US-registered and US-owned companies from any commercial or financial transaction with the Islamic republic. It would also require American executive directors of international institutions such as the IMF to veto planned loans to Tehran.

US trade with Iran has risen sharply in the last few years, despite limited US sanctions on the Islamic republic. Last year, US firms overtook Germany to become Iran's biggest trading partners, responsible for some \$4 billion of Iran's overseas business. The figures were boosted by four US oil companies - Exxon, Coastal, Texaco and Mobil - which bought \$3.5 billion worth of Iranian crude (470,000 b/d), equivalent to one quarter of Iran's oil exports, for re-sale to customers in Latin America and Asia. In 1994, Exxon lifted 250,000 b/d mainly for its European refineries, Coastal took 120,000 b/d, mostly for its Aruba refinery, while Texaco and Mobil took 50,000 b/d each with US trader Phibro also taking significant spot volumes. Exxon is scheduled to be Iran's biggest single customer in 1995.

But non-oil trade has also risen over the last three years. American companies, operating through subsidiaries in Europe and the Gulf, have succeeded in boosting export sales to Iran. This trade is a curious by-product of Iran's credit problems which have slashed imports from traditional sources. Since Tehran's Central Bank was forced to reschedule \$10 billion in short-term external debt last year, Iranian letters of credit have rarely been accepted in Europe and the Far East; the country is off-cover to most government export-credit insurance agencies. As a result, Iran's trade with Europe has dropped by as much as 40 percent.

Tehran has long tried to enlist American companies to intercede with the White House. Iran's ambassador to the United Nations, Kamal Kharazi, believes that the extent of US companies' involvement in Iran will eventually force Washington to adopt a less confrontational approach towards Iran. 'American companies are looking out for their own interests,' said Mr Kharazi. 'The eventual result will be a change in American policy towards Iran.'

President Clinton's response to the Conoco deal is a clear refutation of that hope. For Iran, the alternatives are acceptable. Already, Germany's export-credit agency Hermes has reopened limited cover for Iran risk, following Switzerland's decision to do the same earlier in the year. In a tight field where the world's major oil producers always need significant new discoveries, Iran should have no problem in signing another contract to develop its offshore resources.



# Price rise for Australian LNG

By William Scholes

**T**he North West Shelf offshore gas joint venturers have secured what they describe as a 'moderate' price rise for liquefied natural gas exports to Japan. The new five-year deal includes cushions for both buyer and seller against volatility in the oil market. It is the second pricing agreement since LNG exports began in 1989. The agreement will be backdated to 1 April 1994 when the previous agreement expired. Operator Woodside Offshore Petroleum Ltd said this meant it would receive extra revenue for sales in the interim period. While the increase is small in percentage terms, it will apply to 7.5 million tonnes of LNG shipments a year to Japan, worth more than \$1.8 billion. This will help the troubled economics of the \$A12 billion project.

The North West Shelf project has been locked in its previous contracts when oil prices were above \$US 20 in the early 1980s and were expected to double by the turn of the century. The opposite was to happen, followed by a period of prolonged low prices.

Under the new formula negotiated with the project's eight Japanese customers, who have 20-year take-or-pay agreements, LNG prices will remain linked to a basket of prices for crude oil imports but a rebate mechanism will apply when prices move outside a defined band. This will afford greater protection to the North West Shelf partners when oil prices are low and to the Japanese power and gas companies when prices rise.

Industry analysts suggested the band was likely to extend from \$A16-18 a barrel to a high of \$A25.

Sources among the North West Shelf's equal stakeholders — Woodside, BP Developments Australia, Chevron Asiatic, Shell Development Australia, BHP Petroleum and Japan Australia LNG (MIMI) — put the band at \$A21 to \$A26.

The group manager of minerals and energy research at the Australian Bureau of Agricultural and Resource Economics (ABARE), Tom Waring, said the changes were unlikely to be based on expectations of sharp oil price rises. Rather they represented a positive signal to investors and financiers of LNG projects, in the face of a shortage expected to hit the Japanese and Asian markets around the turn of the decade.

## Major new gas find

A new major gas find on the North West Shelf has raised the prospect of another LNG project for Australia before the end of the decade.

The Chrysaor-1 exploration well, spudded by West Australian Petrol Ltd consortium (WAPET) in 806 metres of water, has encountered a major success in its drilling programme. Ampolex Ltd, the operator, reported a 63.5 million cubic feet a day gas flow from the well. The test was designed to report on a separate structure to the north of the Gorgon gasfield.

The flow from Chrysaor-1 was equal to the flows that started the existing North West Shelf gas project. The latest flow was identified when the well was drilling ahead to its now completed total depth of 3,597 metres.

Chevron has already indicated that it has high hopes for the Gorgon/Chrysaor field, claiming that reserves are equal to those of the North Rankin field.

Ampolex is the only Australian partner in WAPET with 14.2 percent, while Chevron, Texaco, and Shell have equal shares of just above 28 percent.

A detailed evaluation is now under way in which development options and market opportunities are being determined. South Korea currently seems to be the most likely market. WAPET is also investigating whether Gorgon/Chrysaor fields could be developed as a stand-alone greenfields LNG project. The alternative would be to back into the existing North West Shelf project, providing the opportunity to extend the North West Shelf scheme well into the next century.

## Gorgon prospects

Before the Chrysaor-1 gas discovery Shell Australia Ltd, a partner in Gorgon, said that rising prices and strong demand for LNG by early next century would make Gorgon economic. The onshore treatment plant near Dampier would be expanded to process the new gas supply.

Mr Charlton said that demand for LNG would outstrip supply by 2002 and that a decision on a new development was required 'in the short term.'

'Shell will be in there pitching for additional market share which is not yet satisfied,' he said. 'I am sure we'll be able to make Gorgon work.'

Shell is a member of the WAPET consortium planning development of Gorgon-Chrysaor, as well as a partner in the North West Shelf venture and is Woodside's major shareholder.

After years of concern that technology did not exist to extract the deep gas reserves efficiently, there is now renewed confidence among the WAPET partners that a project could be under way well before the end of the decade.

The Gorgon, North Gorgon and Central Gorgon fields, about 70 kilometres north-west of Barrow Island, are estimated to contain 188 billion cubic metres of recoverable natural gas, 50 million barrels of condensate and 14 million barrels of oil. Any development is expected to include the West Tryal Rocks field, about 25 km north-east of Gorgon.



# The operators' perspective on the decommissioning of UKCS offshore installations

By P F Dymond, Chairman, UKOOA Decommissioning Committee

**T**he UK offshore business has installed just over 200 oil and gas producing facilities since it started in 1966. It has decommissioned nine of these, which were all floaters or in shallow water and were totally removed. However, the North Sea also has some much larger structures where the practicalities of decommissioning are more challenging. These deeper water structures, where decommissioning options other than total removal are potentially applicable, account for about 25 percent of all UK

## UKOOA Survey

UKOOA has recently conducted a membership survey to understand the extent of this decommissioning activity. This shows that over the next 10 years about 50 installations, nearly a quarter of the total, will be decommissioned. This will involve 15 of the current 22 production operators directly but, through joint venture partnerships, nearly the whole industry will be involved. The cost to the industry of this activity, within the 10 year period, is estimated at about £1.5 billion.

From the UKOOA survey it appears that the number of decommissionings will initially be about two to four per year but, by 2004, if not managed to spread the peak, the rate could rise to nine or 10 per year. However, as seen in recent years, companies have been effective in reducing operating costs and deferring the need to stop production operations. In a number of instances this deferral has allowed two or three years extra production, which has increased reserves, maintained jobs and displaced the timing of decommissioning costs.

Most UKCS structures are unique. Southern North Sea platforms, typical of the structures removed from the North Sea and the Gulf of Mexico to date, range from about 1,000 to 5,000 tonnes, jacket and topsides combined. The deep water Northern North Sea steel structures are about 10 times that weight, at 50,000 tonnes. Installation of these structures has been a major feat of engineering which, together with the productive benefits they have brought, is of great credit to both the companies involved and the country. Decommissioning poses new engineering challenges but it is essentially an unproductive activity,

which detracts from future productive investments.

The oil and gas business is a high investment, global business. Investment in the United Kingdom competes for funds with other areas of the world. The industry's confidence in and commitment to the UKCS shows through in its level of investment, over 20 percent of UK industrial investment.

Correspondingly, the contribution to the national economy is large:

- self-sufficiency in oil and gas
- £4 billion a year to the balance of payments
- employment
- corporate and production taxes.

This activity is set to continue well into the next century, in spite of the current low prices, because the industry is challenging its cost base and working hard for its margin. We are now entering a new phase of North Sea activity, where continued development investments will exist alongside a significant decommissioning cost. This industry has a long-term future well into the next century but, if its full productive potential is to be realised, we must prudently manage the costs of decommissioning. It is in both company and national interest.

The industry therefore agrees with the current government position, established after the 1990/91 Parliamentary Select Committee for Energy, and restated after the recent government policy review, that:

- a variety of decommissioning options should remain generically available for consideration, including, for deeper waters, partial removal and in situ disposal.
- individual installations are assessed to establish the most appropriate option on a case-by-case basis, through an assessment which establishes the costs and benefits of alternative options.

With little North Sea experience to draw from, it is premature for government guidelines to be too prescriptive. It is also in everyone's interest for there to be competition between alternative methodologies, as this will foster both innovation and cost competitiveness.

## Challenges

The industry challenges posed by decommissioning are therefore:

- a) to maintain the impetus of investment in further developments and ongoing production, for the continued benefits to the national economy,
- b) to improve and develop decommissioning technology and streamline operations,
- c) to achieve a balance of safety, environment and cost considerations for each decommissioning case.

A safe decommissioning operation is a fundamental requirement. When the final methodology is chosen, operators will be required to submit a Safety Case for acceptance by the HSE. Safety considerations must also be included up front in

choosing an option which has risks which are as low as reasonably practicable. The safety of navigation, a responsibility of the DoT, is addressed by adherence to the IMO Guidelines and Standards.

The industry is committed to responsible removal and disposal of installations. For marine disposal this means effective cleaning and/or obtaining a licence from SOAFD MAFF, to comply with the Food and Environmental Protection Act. Onshore disposal is the responsibility of local authorities.

Operators must also justify the cost of the chosen option to those paying, i.e. the shareholders and, through relief against taxes already paid, the Inland Revenue. The overall balance of the safety risks, environmental aspects and cost-effectiveness will be needed to produce the best practical environmental option, selected for the Abandonment Plan, approved by the DTI.

### Dialogue

Although the responsibility for decommissioning lies squarely with operators, several government departments have a role in ensuring the acceptability of any programme. The industry looks to the DTI to provide the lead role and primary access point in this approval process. The outcome of the government's recent policy review should be guidelines and an efficient inter-departmental approval process. UKOOA is keen to maintain the momentum and its active involvement in developing these guidelines and generating a 'route map' through the 'maze' of consultations.

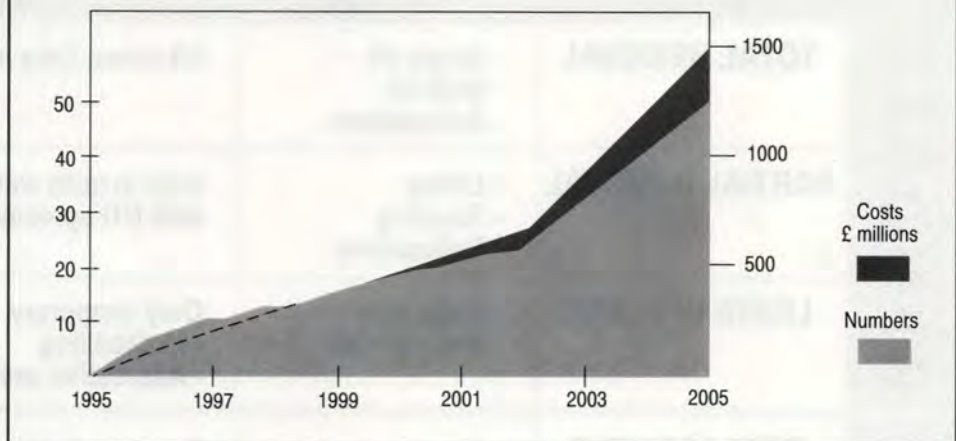
The industry is addressing these challenges in discussions with government, other sea users and within the industry itself. In each case the key sentiment is one of co-operation.

Discussions with government are on two planes, the generic one through UKOOA, e.g. industry contribution to the review, and at an individual company level, through pursuit of consents for specific installations. Currently there are about 15 under active preparation, all expecting to be completed before the end of the decade.

A few of the key points in the current dialogue are:

- The minister recently announced the approval for the deep water disposal of Shell's Brent Spar. Potential deep water disposal sites have been surveyed to establish where is most appropriate.
- The industry has requested the MoD to revise its water clearance requirements in northern

### Expected Decommissioning Rates and Costs Next Ten Years



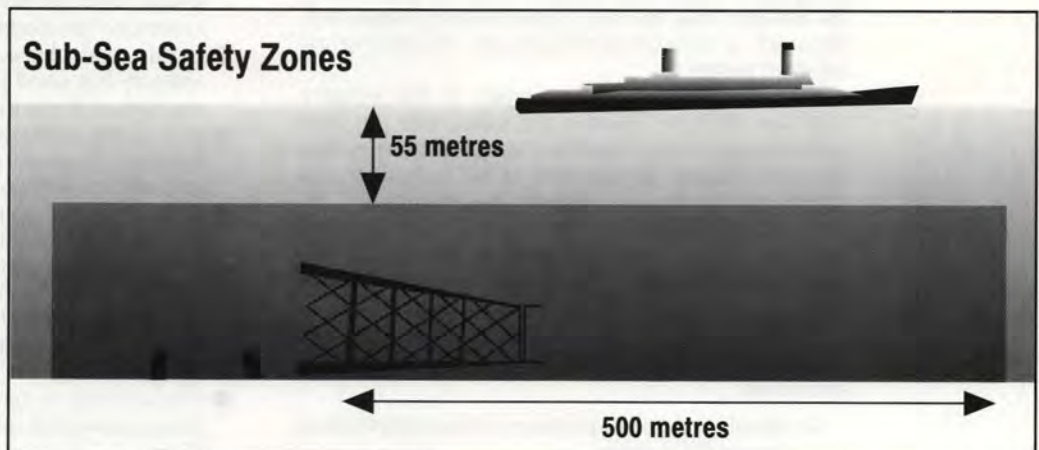
UK waters back to the IMO Standard of 55 metres. This has significant cost and safety benefits for decommissioning operations.

- All parties are also beginning to recognise the importance to costs of providing timing flexibility, e.g. through mothballing. Flexible timing helps by allowing the aggregation of operations to give economies of scale and mobilisation savings.

### Seabed safety zones

In the case of total removal, a clean seabed will be left and ensured through a monitoring survey. This will apply to the majority of structures but the total removal of all structures is an unjustifiable economic burden. This view has been held by the industry for some time but recently appears to be also gaining recognition in the fishing industry, where there is a legitimate concern that any remains must be effectively managed to address their safety concerns.

In response to this, serious consideration is being given to a seabed safety zone concept. UKOOA believes that the Petroleum Act allows for the setting up of zones around decommissioned structures in much the same way as the 500 metre radius exclusion area around opera-



## Removal and Disposal Options for Deep Water Structures

	OPTION	METHOD	APPLICATION
<b>REMOVAL</b>	<b>TOTAL REMOVAL</b>	- Single lift - Multi-lift - Refloatation	All areas: Only method for shallow waters
	<b>PARTIAL REMOVAL</b>	- Lifting - Toppling - Refloatation	Only in deep waters (more than 75 metres), with DTI agreement
	<b>LEAVE IN PLACE</b>	- Make safe and maintain	Only temporary - Mothballing - Alternative use
<b>DISPOSAL</b>	<b>EMPLACEMENT</b>	- On site - Use heavy lift vessel	For clean jacket and topsides
	<b>TOPPLING</b>	- On site - Cutting near base for required orientation	For clean, whole platform or jacket only
	<b>DEEPWATER</b>	- Towed and disposed at approved location	At licensed sites in the ocean
	<b>ONSHORE</b>	- Licensed permanent disposal site - Recycling	Disposals must show due "duty of care"

tional structures. However, these may not need to be the same radius and will not extend above the 55 metre water clearance mark, as they are to ensure the safety of fishing operations, not oil-field operations.

All structural remains will be confined within this zone. The objective of the post-decommissioning monitoring plan will be to confirm all debris remain within this zone. Any debris outside the zone will be removed. The creation of each zone will be communicated to all sea users, through Kingfisher Charts etc. This concept now needs to be written into the new government guidelines, through a consultation process involving all affected parties.

It is important for the reputation of this industry and our ability to operate profitably into the next century that all companies succeed in meeting these challenges. Recognition of this is leading to a significant drive for pan-industry co-operation.

Decommissioning is not a competitive activity, so joint industry initiatives help to save costs and improve outcomes by pooling resources. Joint studies are, therefore, already underway, some directly through UKOOA, some by separate groups of companies with common interests, including:

- identifying multi-platform decommissioning logistical synergies

- engineering studies on toppling and deep underwater cutting technology
- studies at universities and research institutes on seabed debris stability, the effects of underwater structures on increasing fish stocks and environmental assessment techniques

### Conclusion

In conclusion therefore:

- The UK offshore industry is entering a new phase with decommissioning costs alongside continued development investments.
- If this new phase is properly managed, the industry has good prospects for continued production well into the next century.
- It is in the national interest for authorities to maintain a range of decommissioning options and not be overly prescriptive.
- Partial removal options will only be considered for a minority of structures.
- Decommissioning involves many external interests but historically the industry has achieved mutually acceptable outcomes through a co-operative process which is set to continue.
- This industry recognises the challenges that are being presented and is committed to meeting them.





THE INSTITUTE  
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## The Petroleum Forecourt in a Competitive Retail Market

16 May 1995

To be held at the Institute of Petroleum

Presentations will include:

- Keynote address  
*J Attwood, Director of Retail Marketing, Total Oil Great Britain Ltd*
- Trends in UK Shopping Habits
- The Service Station of the Future
- The Ecological Filling Station of the Future – MOL 2000
- Brand Projection – The Implications and the Opportunities for the Independent Distributor and Retailer
- Retail Development – Planning Constraints
- Rebuilding the Forecourt to Optimise Opportunities – The Modular Approach
- Forecourt Retailing – An Independent Perspective

For a copy of the registration form, please contact  
Conference Department, The Institute of Petroleum,  
61 New Cavendish Street,  
London W1M 8AR UK

Telephone: 0171 467 7100 Fax: 0171 255 1472



THE INSTITUTE  
OF PETROLEUM

## Measurement of Water in Oil Workshop

12 June 1995

To be held at the Institute of Petroleum

This inter-active workshop will focus on automatic sampling and test procedures for the measurement of water and sediment in stabilised crude oils. Presentations will be made by speakers from equipment manufacturers, inspection companies, oil companies, the National Engineering Laboratory and the DTI Gas and Oil Office. Attendees are encouraged to participate in a debate on the subjects and to voice their problems and experiences.

Presentations will include:

- Sampling – an Inspector's viewpoint
- Assessment and differentiation of IP, API and ISO Sampling Standards
- Applying the Standards in practice
- Sample mixing and handling
- Determination of water and sediment contents
- Determination and use of wet and dry oil densities
- Techniques for low and high water-cut samples
- Evaluation of trials with an on-line water-in-oil measurement system
- The Regulator's view

For a copy of the registration form, when available,  
please contact Conference Department, The Institute of  
Petroleum, 61 New Cavendish Street,  
London W1M 8AR UK

Telephone: 0171 467 7100 Fax: 0171 255 1472

# Will the Network Code be ready in time?

By Susannah Cardy

**P**oor communication, lack of trust and some tortuous debating sessions have all helped to hamper progress towards a Network Code. All sides must now stop procrastinating and draw together if the system is still to go live in October 1995.

Transco's David Dewar, the man who ultimately carries the can for the Network Code, has taken to quoting Machiavelli of late. 'There is nothing more difficult to plan, more doubtful of success nor more dangerous to manage than the creation of a new system,' he recites. 'For the initiator has the enmity of all who would profit from the preservation of the old system and merely lukewarm defenders in those who would gain from the new one.'

Formulating the Network Code was always bound to be a thankless task. An essential prerequisite to the opening up of the UK domestic gas market to

competition, it is an horrendously complex project. Its purpose is to define the rights and responsibilities of all participants in the gas transportation industry within a legal framework and to form a basis for all contracts between Transco and its customers. This demands an awe-inspiring array of new information technology, including (to name just one of five key project areas) a brand new sites and meters database covering 18 million supply points.

Decision-making was also bound to be fraught with difficulties. The strong political

pressure for competition meant there was no time to set up a legal constitution. This has placed Ofgas in a particularly difficult position. As natural arbitrator between Transco and the independent shippers, it is often expected to solve disputes. Yet, in reality, it has no legal remit to do so and instead has had to walk a delicate tightrope between the two sides.

The sheer number of shippers has only served to exacerbate these problems. It is no easy task to run a project with almost 40 clients, all of whom are in competition with each other.

It came as little surprise to anybody, therefore, when major cracks began to appear in the project.

By the beginning of 1995, discussions had become seriously bogged down and deadlines were slipping dangerously behind schedule. Transco felt the shippers had lost considerable faith in the whole project and so decided to take a radical step: management consultants Touche Ross were brought in to carry out an independent assessment of the state of the project.

## The Touche Ross report

The review, which was carried out during January, highlighted some major shortcomings and shed serious doubt upon the October 1995 deadline. 'We are not convinced that the total (functionality) requirement will be delivered,' said the authors, 'or indeed whether that total requirement has yet been fully agreed'.

Touche Ross discovered that communications between Transco and the shippers were a major weak spot, creating a general air of mistrust and confusion. "What is Transco playing at? Where have they got to? What have we got to do? We don't understand". This is what the shippers kept asking me,' says co-author of the report, Mr Mike Kelly.

A failure to clarify the roles, rights and responsibilities of the different parties had further exacerbated the situation, according to Touche Ross. 'It was quite clear what Transco had to do,' says Mr Kelly. 'It wasn't desperately clear what everyone else had to do. Transco proposed, the rest reacted, but I couldn't see the industry talking as a whole'. The result was that Transco was working under an 'onerous remit', whilst the shippers 'had become observers...rather than partners in the process'.

The role played by Ofgas caused particular concern amongst the Touche Ross team. They had expected to find the regulator providing a 'proactive guidance, facilitation and brokering service', but instead discovered a 'serious vacuum' in this respect.

The project also lacked a concrete programme plan. 'Shippers have no clear idea of what is required of them,' said the report, 'or how they must interact with the Transco development process.'

Touche Ross was also concerned at the overall management structure of the project. The work-stream groups, for example, originally set up to decide upon the basic business rules of the Network Code, had gradually found their power being whittled away. 'They would come to a decision and then refer that decision up to the Network Code panel, only to find that the panel would debate the issue all over again,' says Dr Jayesh Parmar, seconded to Transco from Ernst & Young to help with the Network Code. 'Yet the original role of the panel was to deal solely with issues unresolved by the workstreams.'

## Turning-point

The Touche Ross report was to prove a major turning-point in the development of the Network Code. Transco accepted all of its recommendations and, as *Petroleum Review* went to press, many were in the process of being implemented. A steering group of seven key players from all sides has now been set up, for example, to act as an advisory body to the Network Panel. Plans are also under-

**'What is Transco playing at? Where have they got to? What have we got to do? We don't understand'**

way to empower the workstreams, to integrate the various project plans, to issue monthly progress reports, to clarify the responsibilities and success criteria of each of the three main parties, to draw up a Master Plan and to appoint a Programme Director.

Transco has traditionally borne the brunt of the blame for the slow progress of the Network Code but it is now turning the tables on the shippers. It has made major strides towards putting its house in order, firstly by opening itself up to the scrutiny of an independent review and then by introducing sweeping procedural changes. Now the pressure is on the shippers as they begin to develop their computer interfaces with Transco's new IT systems. The official Transco line is now: 'Yes, the Network Code will be delivered by October 1995 and the computer systems will not form an obstacle to its successful implementation, *provided all parties share the responsibility for decisions, implementation and action.*'

### Transco on the defence

Transco may have accepted all of the Touche Ross recommendations but it is also keen to defend its performance so far. Dr Parmar insists every effort has been made to communicate with the shippers throughout the project. 'If anything, we've actually done more than we strictly needed to. We've been pretty pro-active in telling them what they need to do, despite the fact that they have an obligation upon themselves to get ready for the new regime.'



He points out that Transco holds regular 'shipper involvement sessions', as well as one-to-one sessions. The real problem, he insists, is the patchy response. 'Sixty shippers turned up to the first involvement session, 35 to the second and just 13 to the third. So what happened to the other 25 who were clamouring to attend?' In fact, preparations for October 1995 vary quite enormously from shipper to shipper, according to Transco sources. While the likes of Amerada Hess and Kinetica are already extremely well placed, some surprisingly large shippers have done very little.

Transco is also keen to stress it has a good track record on the IT side. 'We are at a highly advanced stage but, unfortunately, it is always difficult to demonstrate progress on systems development,' says Dr Parmar. 'You can have 80 percent of the job done but until you have screens, working prototypes and test cases, you really have very little to show for all your work.' On 17 February the AT Link (which emulates gas transportation activities between the beach and the point of consumption) was demonstrated live to the shippers. According to Dr Parmar, their reaction was one of considerable surprise. 'I think they were seriously concerned that the system had not been developed at all.'

Transco's greatest headache now is to ensure that the Network Code 'business definitions' are completed as soon as possible. These define the rules of the Code and the new operating regime and are an essential prerequisite to effective systems development and implementation. The original deadline for agreement on all rules was October 1994. Yet to date there are still some key areas outstanding. One problem area concerns the business rules covering the energy balancing regime. These had been agreed upon until Amerada Hess recently raised concerns over the degree of emphasis placed upon the accuracy of consumer consumption estimates. Transco's frustration at the re-opening of this and other debates is plain.

'Any changes now will have major repercussions on the IT systems,' says Dr Parmar. 'Of course we want to address all the shippers' concerns but we simply cannot carry on debating and re-visiting issues and then expect 1 October 1995 to be an immovable date.' ...Over to the shippers!

***'I think they were seriously concerned that the system had not been developed at all!'***

***'We simply cannot carry on debating and re-visiting issues and then expect 1 October 1995 to be an immovable date'***

Mr David Dewar





Aberdeen Branch Chairman Hayden Barrett makes the presentation to Adrian Starkey (left) and Christopher Morgan (right).

## Institute of Petroleum Student Award

The Aberdeen Branch was delighted to be able to present the Institute of Petroleum Student Award to two local recipients at its technical meeting on 13 December 1994.

Adrian Paul Jorgen Starkey was awarded his M.Sc degree in Petroleum Engineering by the Imperial College of Science, Technology & Medicine. He is currently working for Conoco UK Ltd in Aberdeen.

Christopher John Morgan gained his M.Sc degree in Petroleum Geology at the University of Aberdeen. He is working for British Telecommunications – until a suitable opportunity occurs in the oil industry.

Both received a cheque for £250, three years free IP membership including access to library and information services, and a certificate to mark the occasion.

## Bespoke management training for the oil industry

The Offshore Management Centre based at Aberdeen's Robert Gordon University offers specialist vocational qualifications tailored to the needs of the oil and gas industries.

The Centre is accredited to offer vocational qualifications at two levels – Level 4, suitable for front-line managers and supervisors, and Level 5, suitable for middle management. These are equivalent to the Management Charter Initiative Levels 1 and 2.

The Centre offers a distance learning/portfolio assembly approach backed by four one-day workshops. This approach guides the manager through the National Standard, identifying existing skills and offering assistance in the preparation of evidence to demonstrate

these skills. It also provides distance learning material to supply the underpinning knowledge where necessary.

The portfolio assembly guide is backed by a helpline, and the portfolios may be assessed by Offshore Management Assessors or by workplace assessors in those organisations with suitable credentials.

Four of the key roles in the management qualifications at SVQ Level 4 are managing people, managing operations, managing finance and managing information, which are relevant to all managerial occupations.

For new supervisors and managers the Offshore Management Centre offers a programme of four two-day courses together with support to prepare portfolios of evidence.

## Take Our Daughters to Work Day. Are you taking part?

Last year, over 100,000 girls and many employers took part in Britain's first 'Take Our Daughters to Work Day'. The organisers are hoping numbers will be doubled in this year's repeat on 27 April. BP Oil International (London) and Texaco are among the companies involved.

Girls aged between 11 and 15 are invited to take part. They are given the chance to learn more about career opportunities and to see for themselves jobs they may not previously have considered.

Why is it needed? Some girls may feel their choices of work and opportunities are limited. This special day, which is supported by the Equal Opportunities Commission, helps them to see a wider range of possibilities for their futures.

Our Daughters' Charitable Trust was set up at the beginning of last year to publicise and promote the range of career openings for girls. It aims to help the current generation take action and achieve its potential through various initiatives, one of which is Take Our Daughters to Work Day. This is designed to alert girls to the effects the choices they make now can have on their futures, to introduce them to a wider range of career options and to instil in them

the belief that they can achieve whatever they want to achieve. Forward-thinking employers who are interested in the welfare of their future workforce have an important role to play here.

Last year employers found that not only were they put in touch with young women at an early stage but were also given the opportunity to address their own needs directly by working with schools to get the best out of the future labour force. Students responded to the day with enthusiasm, using it to identify job opportunities. Employers gained valuable publicity both for their own activities and by association with Take Our Daughters to Work.

On 27 April girls will spend the day at work with a relative, neighbour or friend, with employers planning a schedule of activities for them. Schools can establish their own contacts with local employers (or vice versa) and design their own programmes for the day.

Last year three of Texaco's main operating centres participated. They were so successful that 27 April is marked clearly in Texaco's diary for this year. In addition, Texaco repeated the exercise last year by offering employees' sons the same opportunity to see where their parents worked.

## Assembling your portfolio

Whether it be for a job interview, a performance appraisal, preparing for a management assessment or working towards a vocational qualification at the higher levels, it is never too early to start assembling a personal record of your achievements.

The awarding body City & Guilds' recent publication 'Producing a Portfolio of Evidence for an NVQ' has proved extremely helpful in guiding staff on which materials should be gathered together.

This publication is designed to assist candidates, assessors

or advisers with the compilation of evidence towards NVQs. There is guidance on the types of things that should be in a portfolio and how these should be presented for assessment as well as tips on how to deal with problems such as referencing systems and confidentiality. Pro formas have been developed to help with the process and completed examples are provided as the reader works through the suggested options for portfolio production. It is available at £15 from the City & Guilds office.

## The control of isolations in the oil industry

A computer-based training package has been developed to assist companies with training in the areas of mechanical isolations and Permit to Work. The course helps staff to acquire the underpinning knowledge necessary to implement safe mechanical isolation procedures.

An effective training in isolation and Permit to Work systems procedures is required by the Health &

Safety Executive in order that companies can demonstrate that their personnel are adequately trained and assessed in this area.

'The Control of Isolations in the Oil Industry' self-study package, available from Sanderson CBT, provides high-quality standardised training which is available for use anywhere there is a PC and any time it is convenient. The package is modular in structure,

allowing companies to tailor the training to the needs of the employee. The trainee's progress and performance are monitored and recorded, while an end-of-

course assessment provides a verification of competence.

The material takes between 8 and 10 hours to complete and is equivalent to that gained by attending a two-day training course.

## Ensure your forecourt operation is safe and efficient

For many years, the old Road Transport Industry Training Board provided training courses for forecourt operations. More recently, however, under the impetus of Health & Safety Executive *Guidelines for Petrol Filling Stations: Construction & Operation HS(G)41* and the general drive for increased competitiveness, there has been a major initiative on job competence standards for forecourt staff. It is essential to identify those aspects which mark out a competent forecourt operator in such a way that any deficiencies can be identified and training given to remedy them. The days when competent staff were a bonus have now gone – incompetent staff will not just cost money but could ensure the forecourt is closed if a petroleum inspector is not satisfied.

With these points in mind, the Petroleum Employers' Skills Council has been working with the National Retail Training Council to produce job competence standards for forecourt retailing operations.

A group of industry specialists took the decision to develop standards within the National Vocational Qualifications framework so that forecourt operators could have a 'quality' national qualification recognising their skills.

As a result of these efforts, it is now possible for forecourt staff to obtain qualifications

which are nationally recognised by the retailing industry and, in addition, gain specialised NVQ units which cover the operational aspects of petrol filling stations, with emphasis on the need for good safety practices and meeting legislative requirements.

Developed by a PESC industry working party the key specialised units for forecourt operators referred to above, are units 26, 27 and 28. They particularly reflect the key requirements for training to meet HS(G)41.

The Motor Industry Training Standards Council and PESC have agreed to work together with industry specialists to produce a forecourt operations job competence standard to cover general forecourt operations and any special safety requirements. This would incorporate all existing relevant units, including the specialised ones. It is important to stress, however, that the existing units will not change – additional work will only be carried out after a cross-section of the industry's interests have agreed that a need exists.

Recent evidence from the retailing industry indicates that NVQs have been very well received and that staff with NVQs are much better motivated, as well as being more effective at their jobs.

Full details of the existing standards are available from either City and Guilds of London Institute or the Royal Society of Arts as Awarding Bodies for the qualification.

## Sponsorship for environment courses

Several universities are offering short or modular courses in environmental and pollution management.

Brunel provides an environmental management programme for the whole senior environmental management team through a series of two- or five-day courses on environmental systems management and audit, in life-cycle assessment, marketing and environmental strategy.

After extensive piloting, the University of Bath is launching an M.Sc course, by distance learning, in integrated environmental

management.

UMIST runs a part-time modular M.Sc course in integrated pollution and management. To date many of the participants in these courses have been seconded from H M Inspectorate of Pollution or the National Rivers Authority, the agencies responsible for enforcing the Integrated Pollution Control practices. Sponsorship is available for those with engineering qualifications enrolling on the part-time modular course, whereby the Panasonic Trust provide up to 50 percent of the course fees.

## Paul Frankel Award given to Cambridge

At a recent meeting, the Council of the Institute agreed that the second Paul Frankel Award should be presented to Andrew Whitney.

The award will extend over the academic years 1994-96 and assist Andrew to work on his doctoral thesis 'Western Involvement in Russian Petroleum.'

Although based at Cambridge University, Andrew Whitney is presently in the United States where, as part of his research programme, he has arranged a series of interviews and meetings with senior figures in international oil companies, energy agencies, government departments, financial and other commercial organisations.

As well as reviewing

library and archive materials, Andrew is also finding time to learn Russian in preparation for a further series of interviews in the former Soviet Union which will take place later this year.

After studying sciences at school, Andrew was awarded his first degree at Lancaster University and his M.Phil in International Relations at Queen's College, Cambridge.

It is planned that he will speak about his research work at a future meeting of the Institute in a similar manner to the winner of the first Paul Frankel Award, Cristina Caffarra, who addressed the Energy Economics Group evening meeting on 21 March on the topic of her thesis 'Retailing Contracts – How Do They Work'.



THE INSTITUTE  
OF PETROLEUM

## Introduction to Oil Industry Operations

Wednesday 21 June – Friday 23 June 1995

*This course is designed as a general introduction to the whole range of oil industry operations from the search for oil and gas to the delivery of products to the customer. It will include an appreciation of the principal functions of the different parts of the petroleum industry and the inter-relationship between them. It is likely to be appropriate for:*

- Participants from within the oil companies whose experience is limited to one function of the industry and who require a broader perspective of the industry's activities.
- Participants from financial and commercial institutions, other energy industries, analysts, suppliers, service companies and contractors; and government organisations who need an informed 'birds eye view' of the oil industry.

Topics to be covered during three days will include:

<i>Changing perspectives in the International Oil Industry</i>	<i>Exploration for Oil and Gas</i>
<i>Petrochemicals</i>	<i>Petroleum Production</i>
<i>Basic Concepts of Drilling</i>	<i>Introduction to Marketing/Distribution/Retail Markets</i>
<i>How Technology Serves the Business</i>	<i>Supply</i>
<i>Marine Transportation</i>	<i>Refining</i>

This is a self-contained course but is followed by:

## Introduction to Petroleum Economics

Monday 26 June – Wednesday 28 June 1995

*This course is designed as a general introduction to the economics of the oil industry and may be particularly valuable to companies who do not hold their own in-house induction courses covering this subject. It is likely to be appropriate for:*

- Participants from within the oil industry whose experience is limited to one function of the industry and who require a broader perspective of the economic factors affecting the industry.
- Participants from financial institutions, government, other energy industries and the supply and service industries who want to obtain an informed and concise introduction to the economic and commercial background to the industry.

Topics to be covered during the three days will include:

<i>Geopolitics of Oil</i>	<i>The Oil Markets</i>	<i>Structure of the Oil Industry</i>
<i>OPEC/Middle East</i>	<i>Crude Oil Markets</i>	<i>Development of Major Oil Companies</i>
<i>Asia and Pacific Region</i>	<i>Product Markets</i>	<i>The National Oil Companies</i>
<i>Eastern Europe and the Former Soviet Union</i>	<i>Oil Price Information</i>	
<i>North America</i>	<i>Oil Futures Market</i>	
<i>North Sea Basin</i>	<i>Oil Supply and Price – the Outlook</i>	

*For copies of the registration forms for both courses please contact The Conference Department, The Institute of Petroleum, 61 New Cavendish Street, London W1M 8AR. Tel: 0171 467 7100 Fax: 0171 255 1472*

# PEOPLE



**Mr Joe Evon** has been appointed President and General Manager, BHP Petroleum, Europe Russia Africa and Middle East Region. Mr Evon, as Chief Executive Officer of the newly formed regional unit of BHP Petroleum (formerly Hamilton Oil) is responsible for the complete spectrum of exploration and production business, including activities and operations of the former Hamilton Oil Company which was acquired by BHP in 1991.

**John Craner** has been appointed Finance Director and **Colin Tannock** Chief Geologist of Aran Energy Exploration Ltd, a wholly-owned subsidiary of Aran Energy plc.

**Mr Keith Weiser** has become Operations Director at ARCO British Ltd (ABL). He joined from ARCO Alaska Inc where he was Manager, Planning & Evaluation.

**Sir Philip Jones**, Chairman of TOTAL Oil Holdings, has been elected President of the Oil Industries Club for the next two years

**Meggitt plc** has recruited Dr Tony Davies to become Managing Director of its Petroleum Systems subsidiary. Dr Davies, who took up his post on 1 February, has been Managing Director in charge of Gilbarco's European operations.

Brisco Engineering Ltd have appointed **Mike Root** and **Adrian Williams** as Systems Managers for Surface & Subsea control systems respectively.

LASMO plc has announced two new Board appointments. **Anthony Hichens** has been appointed a non-executive director and Deputy Chairman designate, and **Nigel Turnbull** a non-executive director.

**Thomas M. Verdura**, staff research scientist with General Motors Corp. in Warren Michigan, received a 1994 ASTM Award of Merit and the title of Fellow at a June ceremony in Denver.

**Mr Gary Moe** has been appointed Executive Vice President of Client and Service Development at OASIS Inc. Mr Moe joins from Gemini Consulting where he was Vice President of their Transformation Technology Group. Previously Mr Moe worked in marketing and distribution with Exxon.

**Dagfinn Lunde** is to become Deputy Managing Director of the International Association of Independent Tanker Owners, Intertanko. He will take up his new position in July and will succeed Tormod Rafgård, who plans to retire in 1995 after 25 years in the position.



**David Rae**, Director and Retail Manager of Kuwait Petroleum has succeeded **Danny Roden** as the Chairman of the British Oil Industry Service Station Security Committee (B.O.S.S.). Mr Roden, Manager of Gulf Oil's Retail and Distributor Division served the committee as Vice-Chairman throughout 1994.



**Leigh's Paints**, specialists in protective coatings for metal structures and masonry, have created a special sales management post dedicated to their new passive fire protection material, Firetex M90. **Peter J O'Reilly** will spearhead sales and marketing of M90.

**Arthur Stephens**, a former Vice President of Brown & Root Inc., the world-leading engineering, project management and construction group, is joining Brown & Root Ltd as chief executive with responsibility for the company's operations in the Europe, Africa and Former Soviet Union region. He replaced **Keith Henry** who is moving to be chief executive of National Power. **Basil Butler**, a former managing director of BP and former IP President, will remain chairman of Brown & Root Ltd.

**Dr Gerry Orbell**, Director of Exploration and Production, has decided to leave Premier Consolidated Oilfields to pursue other interests. **David Melzer** remains in his role as an Executive Director in charge of the company's assets in the Far East, **John Lander**, Executive Director, is now in charge of the London-based technical staff as well as the Company's expanded UK and North West European portfolio and **Steve Lowden**, who together with Dr Orbell has been instrumental in developing the company's international portfolio, will become General Manager of the company's international assets in Pakistan, Albania, the Caribbean and North Africa. He will report to the Chief Executive.

Interconnector (UK) Ltd, has announced the appointment of its senior executives. **James Allcock OBE**, who retired from his position as Director of Gas Supplies at British Gas last year has been appointed the non-executive Chairman. **Dr Philip Nolan** is the new Managing Director. He will be seconded from BP Exploration where he is currently Manager of Acquisitions and Disposals. In addition, **Chris Marchant**, Director of Engineering Projects at British Gas has been appointed Technical Director and **Mr Habib Huque** of Conoco, the Company Secretary. **Mr Heneage Legge-Bourke**, who was seconded from Elf Aquitaine has taken the post of Finance Director.



**Pentex Oil** has won the services of **Peter Kingston** (above), who joins the Board as a Non-Executive Director, and of **Ruud Winkel** (below) who now becomes Petroleum Engineering Manager. Mr Kingston was a founder Director of Enterprise Oil until 1992 when he set up his consultancy. Mr Winkel has 28 years worldwide experience with Shell.



## Weather warning – Monsoon imminent

The rapid changes in ambient temperatures combined with frequent tropical rainstorms and high humidity which are typically found in southeast Asia and West Africa can play havoc with electric motors. Problems experienced include water ingress and condensation forming inside the motor and damage to the external paintwork, resulting in rapid failure of the corrosion-protection system of a standard motor.

Brook Hansen has now developed a new treatment called Monsoon which is designed to ensure maximum protection from the environment. During extensive testing carried out at ERA Technology in Leatherhead sample motors were tested to IEC 68-2-28 : 1990 Environment Testing. The motors were

subjected to temperatures ranging from 25° to 65°C and a much greater level of condensation was induced than would be experienced in tropical conditions.

The system is offered by Brook Hansen on all its cast

iron and steel motors. The range is particularly suitable for petrochemical installations and for existing installations where it would be impractical to fit anti-condensation heaters.



Protection against the storm

## New inspection tool for pipes

AEA Sonomatic, a subsidiary company of AEA Technology, has developed a revolutionary new type of ultrasonic transducer for the continuous monitoring of wall thickness in vessels and pipework.

The high-tech inspection hardware system, known as Fleximat, is comprised of 12 piezoelectrical elements bonded to a flexible printed circuit strip approximately 40mm wide x 450mm long.

The device can be permanently attached to pipework or vessels allowing for the continuous monitoring of corrosion rates with measurements accurate to less than 0.1 mm.

Relevant data can be retrieved from the monitor by a manual operator or it can be fully automated on-line using the company's Microplus inspection system. The transducer is suitable for use on

wall thicknesses ranging from 1.5mm to 30mm.

'The Fleximat is inexpensive and easy to install on a permanent basis,' said AEA Sonomatic Managing Director Bill Browne. 'This in turn reduces the cost of vital inspections because lagging does not need to be removed and aerial pipework can be checked without the need for scaffolding.'

## Gas detection with flood protection

The Analox 2000S flammable gas detection system is now available with a special floodproof adaptor to safeguard against the ingress of water.

The system, which is approved by the UK Department of Transport for installation in oil tanker pump rooms, also monitors the level of flammable gas in oil tanker double hull cavities, sewage treatment works, oil rigs, garage forecourts, refineries, chemical works, boiler houses, buildings close to landfill sites, underground sewers and service tunnels.

The new Analox 2000 flammable gas sensor utilises EEV VQ22 poison-resistant pellistors for reliable operation and increased protection, particularly against sensor poisoning agents.

It comprises a stainless steel detector head with a sintered stainless steel filter mounted in its own explosion-proof cast iron junction box.

The submersion protector adaptor attaches to the sensor head, making it completely waterproof, thus allowing the continuation of readings as soon as the water level subsides.



The 2000S is now floodproof

## New Dow Jones TV service

Dow Jones Telerate has launched a new television service for European financial professionals, bringing a 'new level of dealing room information directly to the desktops of traders, analysts and fund managers'.

Dow Jones Telerate Live, launched this month, will offer a mixture of market-moving interviews, analysis, economic announcements and regular news briefings designed to give users a clear competitive edge. The service will be delivered across Europe by satellite and will be available alongside subscribers' existing text and data sources on the Telerate Workstation and other Windows-compatible PCs.

'Our programmes will be especially tailored to add value to dealers' information sources, not to duplicate them', said Marketing Director Peter Kinglsey.

## Distribution software enhanced

Paragon, a leading vehicle routing and scheduling package, has been enhanced by the addition of MapInfo, a data visualisation and geographical analysis package.

Interfacing the two has enabled Paragon data to be displayed and analysed in detail, both geographically and graphically. Data can be extracted from a file and displayed layer by layer, allowing a clear geographical picture to be formed.

Having analysed the details displayed, a new file can be created. This could be based on all customers within a desired radius or all customers with orders over a certain size or with a combination of criteria.

The ability to display individual layers or a series of layers allows the user to produce a detailed and highly-professional presentation based on the results.

## Stay alive with confined space training

Draeger is now offering a series of customised training courses for use by anyone at risk within the oil and petroleum industries. Designed to meet the training requirements of COSHH and other European legislation, the courses can be held on-site or at Draeger's purpose-built Confined Space Training Centre in Blyth, Northumberland.

Without adequate training in environmental monitoring, the use of breathing apparatus, and the techniques required to manoeuvre through tight spaces, oil and petroleum engineers can place their lives at risk.

The Draeger Training Centre comprises sewer, chamber and crawl galleries, complete with temperature,



Confined spaces are recreated at the training centre

lighting and atmospheric changes to allow potentially life-threatening scenarios to be simulated.

The centre can also be

used to provide training in both the use and calibration of gas detection equipment and the use and care of breathing apparatus.

## Measuring valve stem position

Westlock Controls has introduced Epic<sup>®</sup>, an intelligent non-contact unit for measuring the valve stem position of linear valves and monitoring valve condition.

The company claims Epic represents a significant advance on previous attempts to provide reliable measurement of valve stem position without using linkages, levers or seals.

Sensing is performed by non-contacting means using a static slide-by assembly attached to the valve stem and proximity sensors in the unit, which in turn attaches neatly to the side of the valve unit.

Not only does the unit bring a high degree of intelligence to the final control element, claims the company, but it also allows remote monitoring and diagnostics functions which continually monitor valve positioning performance allowing comparison with the ideal.

Equipped with built-in electronics, the unit reports on deviations and gives operating personnel the ability to detect valve problems before they become serious enough to trigger alarms. Its output is updated 20 times per second, permitting the measurement of rapid, small valve stem movements.

## Handy drum discharger

TAPPO is a new hand-operated valve from Agriemach which provides an easy, leakproof, no-spill way to empty oil barrels on their sides.

Designed for use with the standard 2" BSP Trisure metal plug and neck, the valve fits over the drum closure, unscrews the seal until sufficient fluid is extracted at a controllable rate of flow, then replaces the closure.

The discharge port then

becomes an inlet port for refilling drums simply by rotating the whole unit through 180°.

A wide range of liquid chemicals can be handled in addition to oil, with units available in nylon or fibre-filled polypropylene. Its generous bore diameter also suits viscous fluids, and there is no problem with liquids under pressure since the valve can vent gasses.



Empty drums without spills

## Curb cell-phone costs

A new computer software package, called Controller, has been launched by Securicor Cellular Services, to help companies improve the overall management of their mobile phones, whilst significantly reducing call costs and administration time.

The product combines three essential pieces of information relevant to a company's mobile phone fleet – resource management, asset management and financial management – in one easy-to-use computer software package.

It provides the vital infor-

mation company managers need in order to monitor and analyse phone call patterns and usage rates. This information can then be used to plan current and future mobile phone resources, reduce billing administration, improve operational efficiencies and cut costs.

Every mobile phone call is logged by date, time, duration and cost and recorded by the package, enabling companies to quickly identify mobile phones which are being abused or under-utilised. These phones can then be retrieved and redeployed.

## Coating for new construction

International Protective Coatings has developed a coating designed specifically for new construction and maintenance.

The company claims that Intercure cuts ordinary coating, curing and handling times by at least half, 'with absolutely no loss of quality or performance'.

Another benefit of this new product is that no extra preparation is required. Several coats can be applied in one day which means that steel can be moved more rapidly through the fabrication process, more efficient use can be made of the paint

application area and working periods can be extended. Savings of two to three days are easily achieved, claims the manufacturer, leading to increased production and ultimately lower overheads.

The molecular structure of the product ensures curing takes place even at sub-zero temperatures, so no more delays need be faced at the onset of winter.

The product does not contain isocyanate, nor lead nor chrome-based anti-corrosives and is also said to benefit from reduced VOC emissions.

## Fully-featured telemetry system

Leeds firm COE has announced the launch of Telecommand, an integrated telemetry package for the remote control and monitoring of multiple-camera security and surveillance systems.

The package includes a video switching matrix with programmable control, a keyboard control console and telemetry receivers for camera sites. The system is capable of handling all the monitoring, camera control, picture recording, alarm

inputs and network capabilities from one keyboard – ending the need for banks of equipment and extensive cabling.

The package also provides guaranteed fibre compatibility and has the ability to set camera patrols from the keyboard. The operator can perform a camera walk using the joystick and then set this into the control. To recall the same walk in future, the operator simply presses a key.



Remote control and monitoring of surveillance systems

## Clean-up pumps flow faster

A new range of automatic pneumatic remediation pumps designed to deliver an unprecedented flow range is now available from Geotechnical Instruments.

The pumps in the powerful new HammerHead™ range are suitable for a variety of uses including contaminated groundwater remediation, landfill leachate and condensate control, floating hydrocarbon recovery and drawdown pumping.

The range features total stainless steel construction engineered to meet tough conditions where proof against explosion, the ability to pump solids or solvents, strength, corrosion-resistance and easy maintenance are key requirements. The pumps run

themselves without the need for an external controller – an internal float and the self-cleaning Hammer Drive adjust flow rate to well conditions automatically.

The flow rates vary from near-zero to more than 40 litres per minute. This is achieved by using a double-down water valve. The discharge check ball is located at the bottom of the pump, just above the inlet check ball. Both valves are over-sized, measuring 38mm and 50mm in diameter respectively.

This creates less resistance, increasing flow rates dramatically and provides more clearance and self-cleaning action for improved solids handling.



New pumps move over 40 litres per minute

## Self-diagnostic car wash modem

Car wash specialist Kleindienst UK has introduced a self-diagnostic modem, used to monitor up to 36 potential faults which can put a car wash temporarily out of action. Many of these 'faults' can be rectified simply by tripping overload switches.

The aim of this new product is to cut costly downtime, thus boosting car wash profits.

In use, the forecourt manager telephones the service control centre and, once connected, presses a button on his or her modem which triggers a secondary modem connected to the service centre computer. The computer recognises any fault and prints out

corrective measures which can be passed back to the forecourt manager for action.

Since commencing operations in the United Kingdom back in 1967, the company has been carefully monitoring the reasons for car wash faults and a recent study shows that almost 75 percent of temporary faults can be corrected over the telephone, allowing the car wash machine to be put back into action with the minimum of delay.

In the case of more serious faults, the computer print-out is used to alert the nearest mobile engineer and ensures that he or she is equipped with the necessary parts to effect repair.

## CONTACTS

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COE	0113 277 7212
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# CONSULTANT HANDBOOK

Members of the Institute of Petroleum offer consultancy services in a wide range of petroleum industry subjects. Currently over 600 members offer 66 different categories of expertise.

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- ▲ Training
- ▲ Valuation/Management of Retail Outlets

Alternatively a list of consultants in any category will be provided free of charge on application (maximum 2 categories).

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Anyone interested should contact Jo Howard-Buxton at the IP, or send a request for the handbook, together with a cheque for £12 to: Technical Department, Institute of Petroleum, 61 New Cavendish Street, London W1M 8AR.  
Tel. 071 467 7126 Fax. 071 255 1472

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- Mr P G Adams Associated Gas Supplies Ltd, 59 Markham Street, London, SW3 3NR.
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## UK Deliveries into Consumption (tonnes)

Products	†Jan 1994	*Jan 1995	†Jan 1994	*Jan 1995	% Change
Naphtha/LDF	299,908	275,042	299,908	275,042	-8
ATF - Kerosene	533,708	527,555	533,708	527,555	1
Petrol	1,709,785	1,625,607	1,709,785	1,625,607	-5
of which unleaded	950,589	982,648	950,589	982,648	3
of which Super unleaded	104,008	75,220	104,008	75,220	-28
Premium unleaded	846,581	907,648	846,581	907,428	7
Burning Oil	290,380	306,233	290,380	306,233	5
Derv Fuel	916,575	955,372	916,575	955,372	4
Gas/Diesel Oil	677,061	690,510	677,061	690,510	2
Fuel Oil	862,037	784,633	862,037	784,633	-9
Lubricating Oil	62,007	66,013	62,007	66,013	6
Other Products	580,344	662,120	580,344	662,120	14
<b>Total above</b>	<b>5,931,805</b>	<b>5,893,085</b>	<b>5,931,805</b>	<b>5,893,085</b>	<b>-1</b>
Refinery Consumption	579,455	574,426	6,383,111.0	574,426	-1
<b>Total all products</b>	<b>6,511,260</b>	<b>6,467,511</b>	<b>6,511,260</b>	<b>6,467,511</b>	<b>-1</b>

† Revised with adjustments \*preliminary

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We regret to announce the deaths of the following members:

	Born		
W L Coats	1907	A Taylor	1908
G W Duffield	1921	D C Watson	1925
G W Fisher	1934	H A Corbett	1957
G Goodrich	1915	A C W Madge	1939
D Perkins	1917	I G M Grat	1949
		R K Turner	1945

## Around the Branches

### Aberdeen Branch

**11 April:** The Alba Field Development  
 Alan Higgins, Chevron

### South Wales Branch

**8 March:** Low Energy Futures  
 Peter Harper, Centre for Alternative Technology

### London Branch

**25 April:** Change Management  
 David Varney, MD, SHell UK Ltd and IP President

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**15 April:** Visit to AEA Winfrith Petroleum Division



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