MARCH 1993

The Institute of Petroleum

PETROLEUM REVIEW

IP Week

A European perspective from Sir Leon Brittan QC at the Annual Dinner

Texaco's AC DeCrane Jr forecasts the challenges in the years ahead

Energy

Gas concern at likelihood of subsidies for British coal

Russia

Dr P Cameron elaborates on the delays in drafting oil and gas legislation

Yemen

Striving to fulfil its potential

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Cover photo – AC DeCrane Jnr, Chairman, Texaco Inc. Photograph by Fred Marcus

. . . news in brief

21 January
Stena Offshore has landed the abandonment contract for the Argyll field.

The floating production vessel, the Emerald Producer was shut down for a period of several days by the Health and Safety Executive after both its diesel driven fire pumps were found to be out of order.

PM Services has won equip-ment maintenance contracts with Burmah Oil and Elf for fuel dispensing and related equipment and systems on forecourts controlled by both companies.

25 January
The Institut Francais du Petrole has upgraded proven reserves in Ecuador from 1.8 billion to 4.3 billion barrels.

26 January
A deal has been struck for the construction of a $500 million pipeline to transport 1.2 bcm a year of natural gas from Mozambique to South Africa.

28 January
Brazil's state oil company, Petrobras, is to buy $500 million worth of oil a year from Argentina.

29 January
Russia has commenced work on a new pipeline to western Europe as an alternative to the pipeline which crosses the Ukraine.

30 January
Elf is donating £108,000 to sponsor the Elf Lectureship in Reservoir Evaluation and Management at Heriot-Watt University.

1 February
Mobil has announced that it is to take a 10 percent stake in a consortium of companies to develop a $5 billion LNG project in Qatar.

A US/Nigerian joint venture could pave the way for the development of a Nigerian flagged tanker fleet which hopes to ship up to 40 percent of the country's oil exports.

Phillips has been given Annex B consent to develop the Judy and Joanne fields 175 miles southeast of Aberdeen.

BP Bitumen has awarded a three-year contract to P&O Roadtanks to provide distribution services throughout the southeast of England

2 February
BP is to search for oil and gas under a production sharing deal reached with Sonatrach, the Algerian national oil company. The target is a concession 160 kilometres south of Algiers in the Tellian Atlas Mountains.

Briggs Marine Environmental Services of Aberdeen has acquired BP's oil spill response facility in Dundee as part of the oil major's rationalisation plan to concentrate on oil and gas exploration and production.

BP has stated that up to a third of tankers available for charter have been rejected by the oil major after failing its internal ship vetting standards.

3 February
Unocal is to close its London office and concentrate its UK operations in Aberdeen as part of the California-based oil company's rationalisation programme. The company is also disposing of some of its exploration and production assets in the North Sea.

The Tullow Oil-operated West Firsby-4 well is due to begin production with flows expected to be between 1,500 and 2,000 b/d. Tullow took over West Firsby from Enterprise in January 1991 with production commencing the following July.

Texaco and its consortium partners plan to spend $20 million on drilling and related activities in Thailand this year.

4 February
Esso announced a 4.5p a gallon price increase lifting the price of four star to £2.45 a gallon in the UK.

LASMO has raised £126.5 million through sales of North Sea assets to Deminex UK and Pentex Oil.

5 February
Researchers in Australia are testing a mixture of diesel and ethanol to power diesel engines. The mixture will be used to power three buses in Canberra's public transport system. Exhaust emissions and engine wear comparisons will be made.

8 February
Enterprise has sold its interests in Hudson, Hutton and North West Hutton oil fields to C Itoh Energy Development Company of Japan for $106 million.

Marathon Oil has donated £3,000 to the Robert Gordon University's Offshore Engineering Department for software upgrading.

9 February
Total has been given Annex B approval to develop the Ellon gas field. The field has estimated recover-able reserves of 203 bcf of gas and 6 million barrels of oil.

The Norwegian Petroleum Directorate has upgraded recoverable reserves from the country's continental shelf by 12 percent to 10 billion tonnes of oil equivalent

A double hull on a tanker laden with 20,000 tonnes of fuel oil prevented a major spillage after the vessel ran aground and ruptured its hull off the southern coast of Sweden.

11 February
138 workers lost their jobs at two Scottish fabrication yards. McDermott's Ardersier yard is to go on a 'care and maintenance basis' for the first time.

12 February
Total Russian oil exports in 1993 are expected to reach 90 million tonnes with around 26 million tonnes set aside to pay for imports from other CIS states and 20 million tonnes allocated to finance other critical imports.

The French government is applying pressure on Elf Aquitaine to shelve plans to relocate a laboratory and industrial site due to fears of job losses in the local Dijon economy.

A blaze badly damaged the Repsol jetty at Tarragona in Spain after the 27,300 dwt tanker *Robert Maersk* struck the pier while berthing.

BP and its partners plan to spend $840 million upgrading the 220,000 b/d Singapore refinery.

LASMO has signed a contract for the sale of gas with the Pakistani government and the Sui Southern Gas Co.

17 February
China has announced that it is opening up 417,000 sq km for oil and gas exploration and development.

18 February
Statoil has been given the go-ahead to develop a small satellite field, Gullfaks West, using subsea technology. The field has reserves of 21 million barrels.

Union Jack Oil has completed the sale of its stake in block 29/5b in the central North Sea to Texaco for £6.9 million plus a 3.5 percent interest in the Claymore field.

Amoco has made a gas condensate discovery in block 30/11b in the central North Sea. The discovery, named Appleton, flowed at a rate of 19.4 mcf of gas a day and 4,400 b/d of 46 degree API condensate on a 32/64 inch choke.

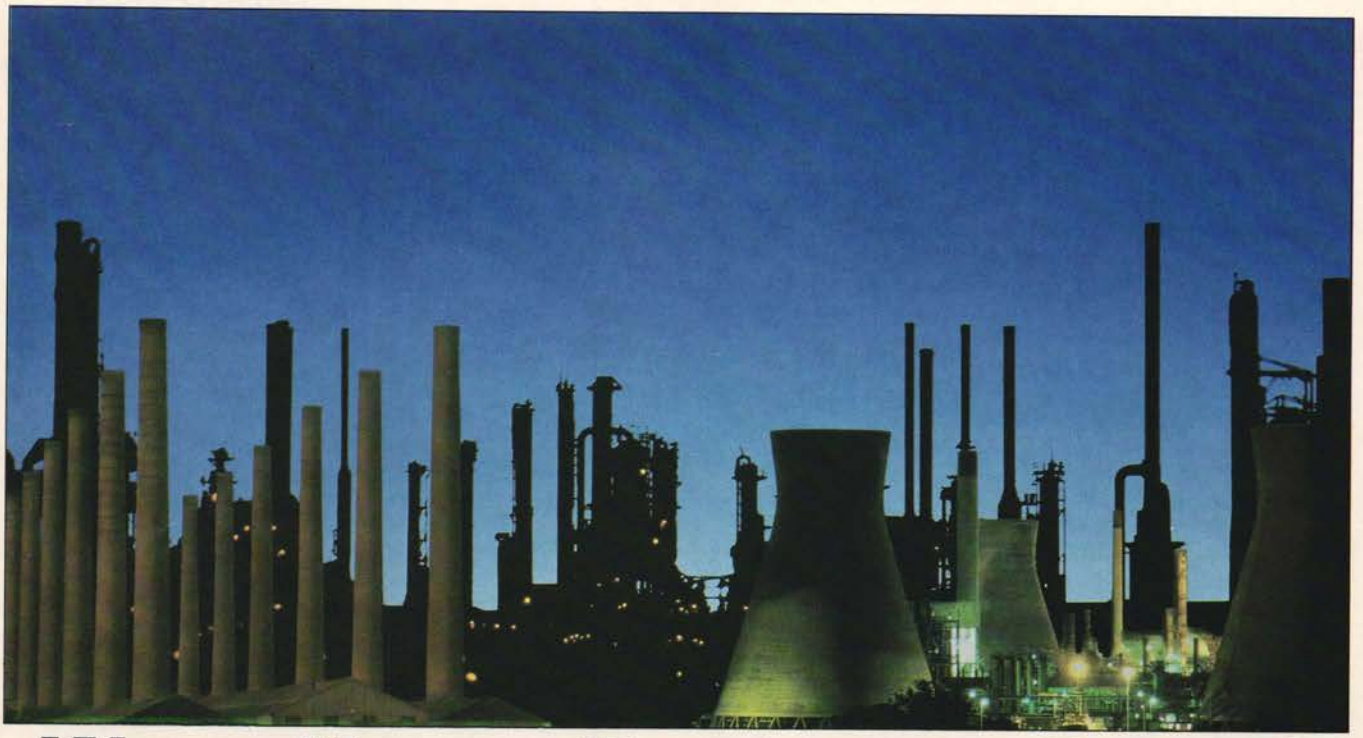
LASMO has completed its withdrawal from Australia with the sale of its final exploration permits for $4.8 million to SAGASCO Resources Ltd.

19 February
Statoil has postponed first production from its Stafjord North subsea development due to engineering delays on the main platform.

21 February
Shell Espana is pressing the Spanish government to allow it to buy back assets expropriated 65 years ago.

IN Rankin, the small independent oil company has signed a memorandum of understanding with the Yemen government covering block 13 northeast of CanOxy's find.

SOON EMISSION CONTROLS WILL BE LAW.



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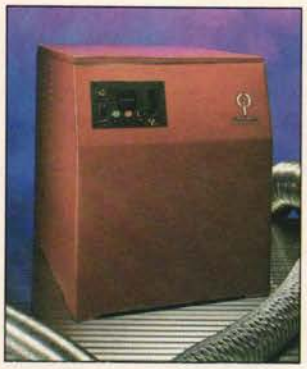

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Underwriters to deny insurance for unsafe vessels

The recent spate of tanker accidents has led to ship insurers moving to force unsafe or below standard operators out of the tanker market.

Roger Nixon, chairman of the joint hull committee at the Institute of London Underwriters (ILU), said that insurers are going to be asking 'a lot more questions' about the make-up, training and hiring of crews and the owners safety and maintenance records.

'We are going to be ruthless. We have to be, as we are in a survival position ourselves. We will apply the ultimate sanctions and drive the bad owners out of business,' he said.

The ILU position was further underlined by the chairman, Peter Evans, who stated that there 'must come a time when poor owners will find it difficult to get insurance'. He indicated that this time was 'fast approaching'.

Differentials are set to grow over the next 12-18 months. 'Good' owners were recently paying premiums of 0.75 percent while 'bad' owners paid one percent. This is set to rise to 1.5 percent for 'good' owners and to between 10 and 15 percent for those judged as 'bad'.

The age of world tonnage was also of considerable concern to underwriters with substandard vessels being identified by surveys. Where London underwriters ordered Structural Condition Surveys on 133 suspect ships at the time of policy renewal, some 84 percent required remedial work to be carried out or were scrapped. 'The modest number of vessels involved in the surveys and the high percentage of failures', said Mr Evans, 'indicates that underwriters have chosen their targets carefully and accurately.'

Thirteen tankers totalling more than 276,000 gross tons were lost in 1992 with all but two being older than 17 years, Average age of losses was 19 years.

The ILU claims to have the support of shipowners in trying to drive the substandard operators from the market.

Reduced tonnage would lead to acceptable freight rates for higher standard vessels which are currently unable to compete against the cheaper tonnage. The ILU is looking to 1994 before any major improvements in the tanker market and states that scrappings will 'hopefully' exceed new buildings over the next two years.

The ILU is also critical of the International Association of Classification Societies (IACS) although it acknowledged that steps had been taken to improve the standard of surveys. The IACS had been seen as 'not a club of quality, but of quantity' said Mr Evans. 'The turning point will come when the first classification society is expelled from IACS because it hasn't passed quality assurance and quality control standards.'

The quality of crews is 'undoubtedly variable' according to Mr Nixon. He would personally like to see the government take the initiative to help shipping companies train and employ British seamen.

On the recommendations currently being discussed in the wake of the *Braer* and *Aegean Sea* disasters, the ILU hopes that if the European Community is to make a recommendation it will be to implement the International Maritime Organisation's recommendations.

The ILU's 1992 Annual Report noted that there was slow and patchy improvement in the insurance markets.

After several years of what the ILU describes as 'disastrous results' the recovery in the marine market which started in 1991 is continuing. This is due, says the report, to the hull underwriters in particular 'showing no relaxation of their hardening attitude'.

Escalating rates, greatly increased deductibles and reduced terms of cover characterise the present mood of the London market.

Storage terminal expansion for Rothesay Dock

GATX Terminals Limited has announced the acquisition of Sealand Oil Services Limited, owners and operators of an oil storage terminal at Rothesay Dock in Glasgow.

The company plans to expand the current 5,500 cubic metres capacity, used for the storage of gas oil, derv and kerosene, by a further 35,000 cubic metres. The expansion, on land leased from Clydeport, will cater for a full range of clean petroleum products including gasoline and aviation kerosene.

The terminal includes a dedicated quay with a water depth of 6.7 metres and is completely protected from the main shipping channel providing a containable area in the event of spillage.

The redevelopment will include the latest environmental requirements including impermeable bunds, vapour recovery and a fully automated bottom loading system.

The company intends to extend the terminal further with dedicated quay space for the storage and distribution of chemicals. It is planned to open the fully expanded facility in 1995.

OFGAS concern over competition

The Director General of Gas Supply, Sir James McKinnon, has issued a strongly worded report attacking British Gas (BG) over the company's approach to opening up its transportation and storage infrastructure to competition.

Although acknowledging that the first substantial steps had been taken towards achieving the objective of access to all shippers on an equal basis to the transportation and storage system, the Office of Gas Supply (OFGAS) annual report stated that difficulties were encountered with BG in developing arrangements in a number of areas.

The report claims many shippers expressed doubts about the methodology employed by BG in determining specific prices. Because of the failure to debate its methodology adequately and its inability to provide proper cost data, it would be wrong to finalise proposals on the time scale concerned. New arrangements are now due to be in place by 1 October.

OFGAS was also concerned that BG was requiring an unacceptable rate of return on its low-risk transportation business of 6.7 percent on its existing assets and 10.8 percent on new assets. In its representations to the Monopolies and Mergers Commission, OFGAS has proposed a rate of between 2.5 percent and five percent real return on current cost assets.

Particular concern has also been expressed at the relationship between any new company set up to manage the transportation and storage assets and BG itself. OFGAS has recommended that the new business be put under separate rather than integrated ownership.

Piper B starts production

The first oil from the Piper field has been landed at the Flotta terminal since the accident which left 167 dead and destroyed the original platform.

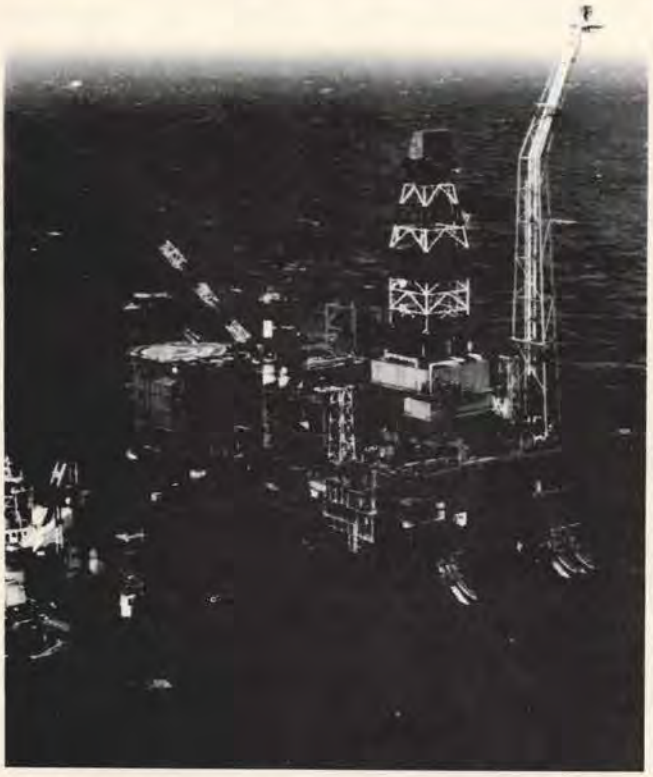
Elf Enterprise Caledonia (EEC) and its partners, Texaco Britain, LASMO North Sea and Union Texas Petroleum have developed Piper B as part of a £1.5 billion development programme for three fields – Piper, Saltire and Chanter. The combined fields have total recoverable reserves of over 322 million barrels of oil and 127 billion cubic feet of gas.

Operations on the platform have not gone as smoothly as possible. In mid-January a group of safety representatives tended their resignations after failing to get what they felt were adequate assurances from the company over procedures for flying in severe weather. After meeting with management the group were persuaded to withdraw their resignations.

The North Sea oil workers union, OILC, claimed that a group of 30 contractors refused to take flights from the platform on 18 January after weather conditions restricted the ability of the stand-by vessel to provide adequate cover. A letter sent to EEC chairman, Mr Michel Romieu, detailed concerns under SI 1019 regarding the availablility of stand-by vessels during take-off and landings and comments made by EEC at a safety meeting in April 1992. A copy of the letter was sent to the Health and Safety Executive which held meetings with EEC and OILC.

A spokesman for EEC declined to comment on the contents of the letter or on the company's safety policy with regard to helicopter flights. He said that no decision had yet been taken as to whether to reply to the initial letter.

Piper B is expected to produce 75,000 barrels a day of 37° API oil which will be sent to the Flotta terminal and 34 million standard cubic feet a day of gas which will enter the national grid via the pipeline to the St Fergus terminal in northeast Scotland.



Devaluation blights BP recovery

BP's year-end figures showed some signs of an improving trend but debts expressed in dollars soared, largely because of the devaluation of sterling.

The group reported a historical cost loss of £458 million for 1992 after exceptional items, compared with a profit of £415 million in the previous year. The dividend was held at the same level as the previous two quarters, making a reduction of 37.5 percent for the whole year compared with 1991.

The strenuous efforts to contain spending in the second half seem to have had some effect. Capital spending was slashed and brought down from $6.5 to $6.1 billion, with further cost cutting planned for this year to bring the figure down to $5 billion. Restructuring received more attention, with over 14,000 staff were made redundant worldwide last year (including some 3,000 when businesses were sold). Further staff cuts were still likely.

The group is engaged in a planned programme of disposals which totalled £1 billion last year, with further asset sales targeted for this year. Parts of BP Nutrition have been sold; other parts are still for sale, as is some of the group's chemicals business, such as advanced materials and nitrogenous fertilizers.

BP is aiming to reduce its debt by $1 billion annually. In the second half of last year this was achieved – total debt was reduced from $16.3 billion to $15.3 billion. This achievement is not evident in the sterling figures which rose by £2 billion because of the devaluation which took place during the same period.

Despite the difficulties, there were bright spots. Exploration and production had performed very well and optimism was expressed about future prospects, particularly in the Gulf of Mexico, Colombia, Azerbaijan, the North Sea and the Alaskan North Slope.

Chief Executive David Simon described 1992 as 'complicated'.

He was confident, however, that 'BP is on the move again. Perhaps not as fast as some of us would like but we are moving in the right direction.'

Go-ahead for Connah's Quay terminal

Plans for a £250 million gas terminal at Point of Ayr in north Wales has overcome a major obstacle as plans for the development received the go-ahead from the Welsh Office.

The project is still threatened, however, by the DTI coal review as it is dependent on the development of a gas-fired power station at Connah's Quay which could have repercussions for the local coal industry.

The construction of the power station is vital for the development of the sour gas fields in the Liverpool Bay region.

The developers, led by Hamilton Brothers, claim the project will create 3,000 jobs in the construction phase and could throw a lifeline to the Cammell Laird shipyard at Birkenhead.

The company will be examining the stringent environmental protection measures imposed to protect north Wales and the Wirral .

Miners at the local colliery fear that the gas-fired power station will make inroads into their traditional market.

BP wins Ford energy management contract

Against fierce competition BP Energy Ltd has secured a large industrial energy management contract with Ford. This will enable the vehicle manufacturer to make substantial savings on its energy costs at its industrial complex at Halewood on Merseyside.

This represents the largest contract of this type to date in the United Kingdom. At Halewood Ford manufactures Escort and Orion cars, using 210 MW of thermal energy for production and assembly line requirements. The plant has the capacity to make 1,200 vehicles a day.

In future BP Energy will manage and maintain the plant's entire energy system, with the contract running for five years. It will be responsible for the production of high pressure hot water for air conditioning, compressed air and steam for manufacturing, electricity and water distribution systems and all heating and ventilating plant. BP Energy will manage the system with its own specialists alongside personnel previously employed by Ford. Existing plant will be taken over and energy surveys carried out in order to identify efficiency and system improvements. No initial capital expenditure is envisaged.

By contracting out of operating its own energy system, Ford is estimated to be making undisclosed 'material' savings of between 10 and 25 percent or more.

This contract will be managed by BP Energy's regional office in Warrington. The company already has other sizeable energy management contracts in the northwest – with Solvay Interox (chemicals) and East Lancashire Paper Mills.

Nick Coleman, Managing Director, BP Energy, said, 'There is a terrific market opportunity for contract energy at present, as UK industry is moving towards contracting out. This is now one of the major growth sectors of British business.'

Canadian government's stake ensures Hibernia project's future

After months of seeking a replacement partner for the Hibernia project, the Federal government of Canada has committed to purchase 15 percent on the strength of a letter of intent from Murphy Oil which is to take a 6.5 percent stake. If Murphy did back out, the Province of Newfoundland & Labrador has indicated its willingness to take up some of the government share. Two of the remaining partners, Mobil and Chevron, are each to take up a further five percent in the project.

Expenditure has been running at approximately $3 million per day since the start and the first of the major modules was let last year to an Aker led joint venture, with two further module awards to Hyundai of Korea last month. The remaining two packages are expected to go to European yards.

The Concrete Gravity Based Structure for Hibernia is taking shape at a new purpose built site in the southeast of Newfoundland. The 108 metre wide base will eventually load out at near one million tonnes, designed to withstand the massive icebergs that menace the Grand Banks each spring and early summer. Doris Engineering of Paris is leading the GBS design and construction in joint venture with several Canadian companies while an Aker led team of engineering firms including Brown & Root and Monenco is project managing the procurement and topsides engineering in Montreal. Both the Federal and Provincial governments have applied enormous efforts to provide the infrastructure and training to try to ensure that some technology transfer takes place during the project. Their hope is that the future series of offshore developments will contain an ever increasing percentage of local content. Newfoundland has long been one of the poorest provinces and is determined to maximise the benefits from the offshore oil and gas. Foreign companies wishing to do business there are well advised to seek out a local partner and offer technology transfer if they expect to obtain work.

Hibernia is expected to produce first oil late in 1997 and will export via a fleet of 700,000 barrel tankers. There will also be requirements for supply boats, standby/safety vessels and various offshore construction vessels of which few currently exist in Canada No plans have been announced to build the required ships. In light of the important fishing grounds on the Grand Banks, it is expected that double hulled, ice class vessels only will be permitted to operate in these waters.

With the progress of the Hibernia project ensured, attention will turn to the Terra Nova field which is estimated to contain at least 300Mbbls recoverable. Petro-Canada, the operators, have specified a turret moored tanker with storage capacity for 650,000bbls. There will be pressure to have a Canadian build but Petro-Canada would see that as time consuming and expensive and will resist in favour of a Far-East build. The compromise might be designing and constructing the process facilities in Canada. The Canada-Newfoundland Petroleum Board (which issues licences) has indicated it expects to see Terra Nova come on stream by the year 2000.

Burmah Castrol splits top jobs

Mr Lawrence Urquhart, Burmah Castrol's chairman and chief executive officer, is to relinquish his chief executive officer role on 31 May.

Mr Jonathon Fry, managing director of Burmah Castrol and chief executive of Castrol will take over the chief executive officer role.

The move was expected as Mr Fry had been taking a more prominent role within the organisation. He joined the group in 1978.

Tim Stevenson, currently chief executive of Burmah Castrol Fuels will take over from Mr Fry in August.

Mr Urquhart will remain as chairman of the group on a non-executive basis.

Shell Japan's currency loss

Royal Dutch/Shell's 50 percent owned Japanese subsidiary, Showa Shell Sekiyu, has made a £925 million loss on a foreign exchange contract.

After tax exposure amounted to £131 million. A statement by Shell said the company 'viewed the matter with concern' and said actions would be made to ensure such a situation does not recur.

North Sea evacuation

385 rig workers were flown to safety by a fleet of helicopters after severe gales severed mooring lines from the accommodation barge, *Safe Supporter.*

The barge was carrying out work on the Amoco-operated gas condensate Lomond field in the central North Sea. 97 crew and oil workers remained on the vessel as it was towed to the Norweegian port of Bergen for repairs.

Most of the contractors are employed by AMEC Offshore Developments.

OPEC agrees lower quotas

OPEC is claiming some success after its latest meeting cut oil production quotas by 1 million barrels a day from their previous limit.

The last quota, agreed in November last year, set the production limits at 24.58 million barrels a day. Despite assurances given at the time that the member countries were determined to adhere to the limits for the first quarter, actual wellhead output exceeded 25 million barrels a day. If the limits were actually adhered to, around 1.5 million barrels a day would be removed from production.

The effect on prices would be welcomed by producers. Some analysts predict that Brent crude could rise to as much as $20 a barrel on the strength of the agreement.

The present deal was agreed after much wrangling with Kuwait determined to increase its output to make up for lost income due to the Gulf War. Other member countries, particularly those facing desperate economic circumstances at home were less inclined to bow to pressure. However, Kuwait has seen its limit extended by 100,000 barrels a day. It is the first time since the war that the emirate has had limits, other than notional ones, imposed.

Output cuts are concentrated on the major producers, Iran and Saudi Arabia, while poorer countries took slightly smaller cuts. Iraq, which was present at the meeting but is prevented from exporting oil, dismissed the agreement.

OPEC Production Quotas ('000 b/d)

Country	Previous limits	New limits
Algeria	764	732
Gabon	293	281
Indonesia	1,374	1,317
Iran	3,490	3,340
Iraq	500	400
Kuwait	1,500	1,600
Libya	1,409	1,350
Nigeria	1,857	1,780
Qatar	380	364
Saudi Arabia	8,395	8,000
UAE	2,260	2,161
Venezuela	2,360	2,257
Total	**24,582**	**23,582**

Retail network for Ireland

A network of 250 fuelling points for commercial vehicles is being established in Ireland.

Many of the sites will be independent service stations. The network, to be established by Hyabury Ltd, is expected to be subscribed to by companies although individual stations may offer the service to local account customers. Each site is to have an exclusive franchise in its area. The system allows 24-hour fuel sales without associated labour costs and the security problems with cash sales

Besides secure access to fuel, subscribers will receive reports including account details, vehicle-by-vehicle analysis and highlighting any anomalies.

Each user will have an 'intelligent' key which is programmed with the user's identity code, account and authorisation data. The terminals are designed as touch-sensitive screens with requirements being selected by pressing the appropriate icon.

Tanker operations to be tightened

An agreement has been reached in principle on voluntary measures to restrict tanker operations in environmentally sensitive areas.

The move followed meetings between Department of Transport officials and national and international organisations representing oil companies, tanker operators and shipping interests.

Interim measures, due by mid-March, are expected to include restrictions in the Fair Isle Strait, Isles of Scilly, The Minches and Pentland Firth.

The decision comes at a time when restrictions and further action on shipping safety is being considered throughout Europe as a result of recent incidents.

Turkey has raised fears over increased tanker traffic due to increased exports from Black Sea ports. Traffic through the Bosporus waterway can be required to make up to 12 sharp turns through straits as narrow as 700 metres. Unilateral measures by Turkey are not yet being considered.

The European Commission is also taking action to remove sub-standard tonnage from European waters including introducing common rules and standards for classification societies, phasing out old tankers, improving crew training and strengthening support for the International Maritime Organisation.

Oryx UK seeks North Sea operatorship despite slashing exploration budget

Oryx, the independent exploration and production company, is seeking an operatorship on the UK continental shelf in the 14th Offshore Licensing round.

The company, which acquired its first North Sea assets from BP, has been undergoing massive restructuring over the last few years in an attempt to reduce its debt and operating costs, sees the North Sea as one of its major areas of activity.

Despite its determination to play a more active role in exploration and development, it has reduced its exploration expenditure budget over the last two years from $222 million to $112 million.

The company's top priority for the coming year is to develop its major projects, particularly the Alba project, Lyell production, and the Strathspey and Britannia developments. Officials expressed disappointment at progress on the Columba development where it has an 18 percent stake and remain keen to see that project given further impetus.

Oryx president Bob Keiser said that the company's priorities around the world – it is also producing in Indonesia, Gabon and Ecuador and seeking to enter Australia and Algeria – will be where it can best apply its advanced technical expertise.

The company has maintained its target of more than 100 percent production replacement since 1989 and its efforts and finances will remain targeted towards this objective.

Dick Standaert, Managing Director of Oryx UK, also said that the problems and cost over-runs on the Ninian third party project were now behind the partners and the project was now on track.

The Annual Dinner

The Right Honourable Sir Leon Brittan QC, EC Commissioner responsible for External Economic Affairs, proposed the toast of the Institute of Petroleum and the petroleum industry at its annual dinner held in London last month. Sir Leon concentrated his remarks on energy and the environment in the light of Community external policy.

IP President C M Smith replied to the Commissioner's toast. He outlined the Institute's achievements in the past year before proposing a toast to all guests at the dinner, mentioning in particular, Dr Alirio Parra, OPEC President.

Mr Craigie Veitch, former *Scotsman* journalist, gave an extremely entertaining reply on behalf of the guests.

Sir Leon Brittan said:

Mr President, Your Excellencies, My Lords, Ministers, Ladies & Gentlemen, it's a great pleasure and privilege for me to be invited here to address this intimate little gathering of yours that has become such a tradition. I'd like to thank you, Mr President, for your very generous hospitality.

I understand that this is the 80th year since the foundation of the Institute and I'd like to congratulate you on that anniversary and to congratulate you on all the enormous work that you do on codes of practice, on setting standards for the industry as a whole in collaboration with the BSI, the CEN and so on. Obviously work on standards plays a very important part in the establishment of a true Single Market in Europe, something dear to the heart of all of those who favour creating a healthy European economy. I have been pleased to learn in my research for this occasion, and who would dare to come to such a daunting occasion without adequate research, that the Institute does consider its future inextricably linked with Europe and that you intend, Mr President, to encourage the further formation of European branches on the Continent as a parallel forum for sharing knowledge and experience.

Environment

I wish you every success in that venture because your branches in Europe will encounter, as you do, the fashionable subject of the evironment when they come to discuss matters with you. Environmental issues will undoubtedly continue to impinge on all aspects of economic choice for many years to come.

Now, I'm absolutely in favour of taking action whenever that really is necessary to protect the environment but I do think that we have to be careful not to allow the debate to become theological. Environmental topics need to be debated and policies introduced with as much rigour as any other subject area but I'm not sure they always have been. New measures should only be introduced, I believe, after a really thorough examination of all the benefits and costs, including the most difficult one, of valuing the genuine benefits they produce for the environment. Otherwise, the list of possible actions in favour of the environment will be infinite. We have to establish priorities and consider how to make finite and limited funds

go as far as possible.

I also believe that it is very important to involve those most likely to be most affected early on in the process when new measures are being considered. We should make greater use of prior consultation in the community and elsewhere by making use of methods such as Green Papers which include real options for new policy decisions. What I really have in mind is genuine consultations in which we seek the advice of those most likely to be affected.

Carbon/energy tax

Now the most topical environmental issue is of course the carbon/energy tax. We will know shortly whether the US administration intends to go ahead and introduce such a tax or something similar to it. If they do decide to do so, frankly that will make it easier for ministers in Community member states to adopt measures of a similar kind. For the moment, the outlook for the Community's proposal for a carbon or energy tax is not at all certain, given the current recession and the fact that most OECD governments consider that US energy prices are significantly out of line with their own.

But two things remain clear: first, the Community can only consider taking this action if other OECD countries do likewise. Otherwise we would simply be landing ourselves with a massive and unacceptable competitive disadvantage. Secondly, it is essential that if such measures are taken in the Community, because our partners decide to do the same, that they should be fiscally neutral (for example, Corporation Tax could be reduced by an equivalent amount), so that any negative effects on the economy are minimised.

L to R: Sir John Greenborough KBE, IP Past President, Mr Charles Smith, IP President and Managing Director, Chevron UK Ltd., and Mr I Ward, IP Director General

We must also bear in mind the effect that such proposals would have on our external relations and on some of our trading partners . We must be open to explore all new ideas which are put forward to achieve the same objective - for example, whether some form of marketable CO_2 permits trading system might be considered at least in the longer term. But there can be little doubt that it does make sense to encourage the careful husbandry of our energy resources and indeed none of those economies where energy is used sparingly, such as Japan, seems to suffer as a result and some argue that it makes them even stronger. But Japan is some way from the European Community and in the European Community we have just experienced a very important event.

Single Market

The 1st January 1993 saw the effective creation of a single market but the1st January, in spite of the truth of that general proposition, has been and gone without there being anything approaching a single market in energy. In discussions about the single market, energy has not received the attention it deserves. It is astonishing that it was not even mentioned in the 1985 White Paper. But energy is something that really cannot be left out of the creation of a single market. The present situation is that several member states have import and export monopolies, as well as production, transport and distribution monopolies for gas and electricity. Prices vary widely across the Community and the consumers have far too little choice.

That is what prompted the Commission to propose a real internal market for gas and electricity. The objective of this proposal was to liberalise electricity production; to require transparency in company accounts; to allow companies other than existing monopoly suppliers access to the energy networks, the so-called 'third-party access'.

Now these proposals are not really revolutionary and they are more necessary than ever. They have provoked much industry opposition and I of course recognise that energy industries do have particular special features but these, important as they are, cannot possibly justify an absence of competition.

The benefits to be obtained from a more open market in this sector would not only be to users of energy; the most efficient of the energy companies themselves have much to gain from a genuine single market, open and monopolistic and not distorted by governmental policies in any country favouring one type of energy against another. Not that I would suggest that anybody could conceivably have such wickedness in mind.

L to R: Mr K H Taylor, Chairman and Chief Executive Officer, Esso UK plc and IP Vice President, Mr R R Standaert, President and Managing Director, Oryx UK Energy Co., Mr C E Fay, Managing Director, Shell UK Exploration and Production.

L to R: Mr D A G Simon CBE, Chief Executive, The British Petroleum Co plc, and Mr J A Collins, Chairman and Chief Executive, Shell UK Ltd.

External trade relations

The other area that I would like to focus on is the European Community's trading relations with third countries.

Just as allowing competition within the EC market will bring immense benefits, so encouraging a freer trade with third countries is of enormous potential benefit. A major concern for the Community is its dependence (for about half of its needs) on energy imports. We have a need for security of supply. But, if I may say so, exporting countries have a similar interest in ensuring security of demand. In other words, consuming countries and producing countries are interdependent. This interdependence can be seen as a problem but it could also be a means for the Community of sustaining security of supply. To benefit from this interdependence we should seek to encourage investment by Community energy industries in energy sectors outside the Community and vice versa. Solid relations of this kind, apart from being commercially profitable, should help to underpin our energy security. I believe that particularly significant are the potential opportunities provided by the major changes currently taking place in Central and Eastern Europe and the former Soviet Union.

The hugely significant reserves are currently being exploited in a chaotic and inefficient manner. We therefore have a joint interest with those countries to invest in them not just for our own supplies, our security, or for a return on our capital, but also for global environmental reasons as well and to help those emerging democracies develop their own domestic energy resources. The opportunities really are huge when you consider that the former Soviet Union is losing annually a quantity of gas equivalent to the consumption of the whole of Germany – methane is leaking out of corroded pipes and storage tanks, or being wastefully flared – a huge loss of needed hard currency, apart from anything else.

There is also evident need for new power plants to replace unreliable and dangerous nuclear capacity or filthy old sulphurous coal burning power stations that are a danger to health and the environment, not just where they are, but throughout Europe.

In other words, there is a substantial common East-West European interest to improve both energy supply and demand. But how can that be done?

Dr A A Parra, President OPEC, and Minister of Energy and Mines, Venezuela

The European Community's PHARE and TACIS aid programmes are useful pump-primers but, frankly, in themselves are only a drop in the ocean, amounting to 0.25 percent of the combined East Europe and former Soviet Union Gross Domestic Product. It is clear that capital will have to be generated from the private sector and invested in these emerging democracies. But for that to be feasible local energy prices must reflect the real costs of supply. The market must be allowed to work and subsidies phased out.

To achieve this kind of investment, it is clear that the private sector is bound to want solid guarantees of the conditions in which it will be investing. It is to provide a political umbrella to achieve this that the Community is currently involved in negotiating the European Energy Charter.

European Energy Charter

Signed in December 1991 in The Hague, it now has some 50 signatories: all Western European countries including the 12 members of the Community; nearly all the countries of Eastern Europe and the former Soviet Union; three Mediterranean countries and the four major non-European countries of the OECD.

The Charter establishes a framework for co-operation on energy matters based on market economy principles but for it to have any real effect it has to be implemented by means of a treaty, or 'Basic Agreement', which is currently being negotiated, with its two main features of protecting investment and trade. On investment, I hope the negotiators will be able to agree that 'National Treatment' (the principle whereby foreign investments are treated no less favourably than national ones) should be a basic principle. On trade, the Community would want GATT principles to be used as a model. That is to say binding commitments not to increase tariffs on energy imports.

The main aim is to enable the developed West to invest and operate in the energy sector in Central and Eastern Europe and the former Soviet Union and thereby help generate a cycle of economic activity and beneficial environmental change. It will benefit the European and world environment by encouraging investments in energy efficiency and transferring know-how and technologies.

The collaboration which imple-

L to R: Mr A C Barrel and Miss Helen Leiser, Health and Safety Executive

mentation of this Agreement will involve should also, I believe, help to create a sense of partnership across the whole of Europe on energy matters and may be a model for co-operation in other sectors, such as transport.

The Basic Agreement is expected to allow countries and investors to transport their energy products across the territory of other countries in order to reach their export markets. One means to achieve this would be to require signatory countries to facilitate such transit, for instance through inter-connected gas or electricity systems. This will be especially important to keep European energy supply lines open, for example through the Ukraine.

Further articles are likely to do with taxation, access to capital, technology and intellectual property, as well as defining dispute procedures under which companies or their governments can take up cases where the rules have not been followed.

This Agreement, Mr President, is not just a visionary dream. I very much hope, and I do not think it is an unrealistic hope, that the negotiation of the Charter Treaty will be completed before this summer. We need to bear in mind what the alternative might be to no agreement – very probably a fragmented and deteriorating oil and gas supply from the East, possibly enhanced, aggressive bidding from local energy resources, irrational distribution and even dangers of conflict. It would undoubtedly result in further inefficient energy use, underdevelopment and environmental damage at a global level.

The oil industry is a pioneer industry used to taking calculated risks. I believe that investing in the East and the former Soviet Union is a major priority for the Community energy industry and I would welcome receiving in the coming weeks your views about any further action which we in the Commission can take to help trigger this activity.

The opportunities for investment are colossal. It's estimated by the Russian government that Russia alone will require $30 billion over the next few years simply to stabilise its oil production. The European oil industry is beginning to move – for example, British Gas/Agip and also Elf and others in Kazakhstan; BP/Statoil in Azerbaijan; and Total among others in Russia. But progress is slow, especially in Russia. The oil industry is understandably loath to commit the large amounts of capital necessary in an environment which is uncertain and where the rules of the game are fluid to say the least.

The European Energy Charter should make it easier for companies, like many of those here, to invest in Central and Eastern Europe, Russia and the New Independent States, confident that their investments will be protected, and the terms of trade will be fair and respected.

I am convinced that the forward looking industries in the energy sector represented here will be equal to meeting the triple challenge I have outlined; that you are wise to the challenge of changes called for by the developments in environmental policy; that you will benefit from the advantages to be gained from a truly single market in energy within the European Community once the

L to R: Mr J Cole, Berry, Birch and Noble, Mrs Elizabeth Rayner, General Manager for Human Resources and Public Affairs, Shell UK Ltd Downstream Oil

L to R: Mr C Cleret, Managing Director, Elf Oil UK Ltd, Mr G McAully, Managing Director, Murco Petroleum Ltd and Mr D Clayman, Managing Director, Esso UK plc and President, UKPIA

politicians have got round to creating it; and that you will go out and take opportunities to invest in third country energy sectors, in particular in Central and Eastern Europe and the former Soviet Union. I congratulate you, Mr President, on 80 years of successful adaptation to rapidly changing circumstances. I am confident of the oil industry's ability to adapt to the new challenges and others in the future and on that optimistic but realistic note, I would like to propose the toast to the Institute of Petroleum and the petroleum industry.

Mr C M Smith

The President said:

Your new portfolio of External Economic Affairs, Sir Leon, has been described under the headline 'wider still and wider' – referring, of course, to the intention to enlarge the boundary and influence of the European Community. Now I've always thought of you, in your work on competition, as the groundsman of the level playing field. Imagine the implications for the groundsman as the outfield increases – certainly when cutting the grass! Indeed, with a new portfolio that includes building trade links with the rest of the world, your level playing field could extend so far that the Flat Earth Society will be offering you membership before long!

Clearly you've a challenging task ahead of you and a very busy schedule. I'd like to thank you on behalf of the Institute and all our guests, for coming here tonight and sharing your thoughts on Europe with us. You'll be interested to hear that the Institute, too, is looking to extend its boundaries and influence, reaching beyond the EC into countries such as Norway. We intend to develop a network of European branches to increase contact with those of our individual and corporate members based in Europe, outside the UK. In 1992 we focused on the Netherlands, where we have over 70 members. I am pleased to say we're very close to formalising the new Netherlands Branch.

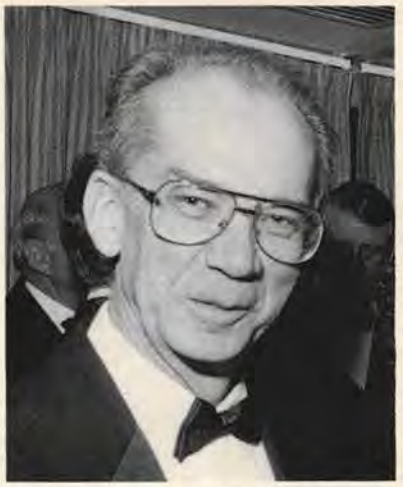
While we're on the subject of membership, it is also a priority to increase our numbers at home. Individual membership has risen by over 10 percent in the last three years, to more than 7,500, the highest ever recorded. That is great, but – and you know what I'm going to say – I expect that there are a significant number of people here who have yet to join the Institute! I am sure we can find a few application forms, so now's your chance to become part of the future of the IP.

As many here know, the IP developed a Mission and a set of Objectives and Strategies in 1992. That pointed us in the right direction for this year and beyond, towards the end of the decade. Our Mission is 'to be the most respected independent, European-based centre for the advancement of technical knowledge relating to the international oil and gas industry'.

The Institute manages a research programme of around £250,000 a year, focusing on health, safety and environmental projects – the main areas of common interest for the industry. This is not a large budget in industry terms so we are concentrating on the most worthwhile projects and hoping that funding will match the expansion of our portfolio. There are areas where the IP is a world-leader – such as our studies into the health of workers at refineries and in fuel distribution, and this work will continue.

I am not going to go into great detail on the Institute's work, you'll be pleased to hear, but the key role of the Technical Department is to develop codes of practice and achieve international recognition. During 1992 we published four new codes and made a significant contribution to the development of European and international standards. Indeed, our work on test method standardisation is so highly regarded by the BSI, they have asked us to represent them on the International Standards Committee – working on the fast-tracking of existing upstream industry standards to international standards.

This work is of vital importance to the industry and I'm pleased that the



J Kennedy, Editor, Oil and Gas Journal

IP will be so directly involved. For a while it looked as though the EC was in danger of re-inventing the wheel but commonsense seems to be prevailing.

I am sure we all know that 1st January 1993 heralded the start of the European Single Market and we have to take Europe very seriously. I remember when people used to sum up the EC by saying that Germans make the rules, the English follow them, the French break them and the Spanish and the Greeks don't know they exist! Of course, we don't say that sort of thing any more!

The Institute can make a real contribution to EC policy, through our practical expertise, knowledge and impartiality. We don't represent a narrow interest group – we embrace associations, such as UKOOA, UKPIA, EUROPIA and the E & P Forum, professional bodies like the SPE, and the academic world, consultancies and regulatory authorities. We therefore provide a useful international forum for all

Mr T Eggar, Minister of Energy, Department of Trade and Industry

Mr E J P Browne, Chief Executive, BP Exploration Co. Ltd and Managing Director, The British Petroleum Co. plc

shades of opinion to join in debate, and the Institute's expansion poses no threat to existing bodies.

In my view, European policy should not be based on a prescriptive and regulatory approach, particularly in the vital areas of health, safety and the environment. Indeed, that approach would be increasingly difficult to sustain as the European Community grows in size. Instead, the aim should be goal-setting legislation based on sound research and industry knowledge.

The academic high point of the Institute's year was the Cadman Memorial Lecture given by our colleague, Lo van Wachem, when he was awarded the Cadman Medal in September. He raised our thoughts and directed the attention of all who manage our industry, to the 'three-cornered challenge' of energy, environment and population. We ignore the warnings he gave at our peril.

I would also like to mention Al DeCrane, who spoke yesterday at lunch on the importance of energy policies having a sound scientific basis – if the industry is to make the same contribution to progress as we move into the 21st century, that it has over the last 100 years. We all agreed with his call for closer dialogue between our industry, governments, scientists and the public.

Turning back to the Institute's activities, our conferences are another opportunity to examine key issues. Those being held this week are looking at vital issues for the future, like the need to cut costs in the North Sea, and the industry's contribution to government coffers in various parts of the world. Our journal, the *Petroleum Review*, is highly respect-ed and does a great deal to carry the name of the IP across the world – to 85 different countries – and we have an enviable reputation as an independent institution.

In 1992 we started full-time work on providing information to schools and careers offices and we have had a very positive response. By encouraging an interest at an early age, we create a vital resource for tomorrow's industry.

All that has been achieved in the last year, would not have been possible without those who have worked so hard for the Institute. I would like to thank, on your behalf, Ian Ward and all his staff at New Cavendish Street, the Council and the Management Committee. I would also like to thank all the committee members and branch officers who put so much into the Institute. It is particularly important in these difficult times that we continue to have your commitment and support to help us to achieve our planned objectives.

To sum up, the aims of the Institute are to increase its membership and widen its sphere of influence within Europe and beyond, to continue to make a strong contribution to international codes and standards, to provide a forum for debate and to encourage young people to seek a career with the industry. I am sure that the IP has set off on the right road. That road is going to take us further into Europe and beyond, so 'Wider still and wider shall thy bounds be set' is a fitting motto for the Institute as it goes into 1993.

Before I close, there are a number of major issues currently of great concern to the industry and there is one in particular which I feel I must mention. UK energy policy is under scrutiny by the government and we are expecting a White Paper this month. We fear the government may retreat from its goal of a free energy market and subsidise coal at the direct expense of gas. I have to say that such a move would have a severe impact on all our members, both corporate and individual, in terms of jobs, investment and the future development of North Sea resources. Al DeCrane reminded us of Sir Winston Churchill's foresight in 1912 – when he switched the navy from coal to oil. It seems ironic that his grandson should be at the centre of the pro-coal lobby in the Commons!

In a moment, I'll have the pleasure of proposing a toast to all our guests. First I would like to welcome the President of OPEC, Dr Alirio Parra – we are very pleased you could join us. I would also like to introduce our next speaker, Mr Craigie Veitch. Craigie is a former journalist with Scotsman Publications and he and I have something in common. He was, man and boy, on the sports desk of the Edinburgh Evening News – and so, as a boy, on Saturday afternoons, was I!

I would now like to ask all members of the Institute to rise and drink a toast to the Guests. ■

L to R: Mr F Kulaas, Managing Director, Statoil (UK) Ltd and Mr Craigie Veitch

Call for responsive international environmental policies

Mr AC DeCrane Jr, Chairman, Texaco Inc., was the guest of honour and speaker at a special IP Luncheon during IP Week last month. While stressing that the oil industry looked forward to a 'very vital future', he called for more emphasis on cooperation with governments and environmental groups to establish specific, scientifically sound and cost-effective ways to seek solutions to environmental problems. He elaborated on the subject of global climate change, acknowledging the disparity of academic opinions. To benefit the 'material welfare of mankind', he proposed specific steps that the whole oil industry should adopt, adding that Texaco was ready to work on these initiatives.

Mr A DeCrane Jr addresses the lunch.

He said in part:

I am very delighted to have this opportunity to appear here amongst so many of our industry's leaders and in a place that is not only one of the world's great cultural and financial centres, but which in fact has played a very important role in the development of our industry and in the history of the industry. It may seem something of an unusual statement to talk about this industry having such importance to the city and the city having such importance to the industry when in fact in the minds certainly of at least many of our customers our industry is steeped in the sands of the Middle East and the rolling hills of the southwestern part of the United States.

But importantly, it was really here in London that one of the very defining moments of the development of the petroleum industry took place because it was in 1912 that Winston Churchill, then First Lord of the Admiralty, made the momentous decision to switch the British navy from coal to oil. This was a very typically visionary decision on his part, on the part of one of Britain's very great leaders. What it did was confirm the place of oil as a very, very dominant fuel in the years to come, a fuel that really drop by drop, pound by pound, is the most efficient, most economic, most transportable and, I believe, the safest source of energy in the world.

That action and the performance of our products helped to usher in, what Dan Yergin, in his very important book,'The Prize', described as 'The Age of Oil'. Before I quote from it, let us think for a moment of the importance of what Churchill has done – because his action in 1912 was unquestionably based on an appreciation of oil's attributes which were also based on an appreciation and a faith in the capabilities of a new, rising and developing industry.

Certainly I think a major reason that that confidence proved to be so well placed was the founding of the Institute of Petroleum two years later because it was really with the help of the IP and its own commitment to fostering technology and fostering market-based solutions that the British oil industry has played such a central role in the development of oil as the world's premium fuel.

Today the industry here in the UK and all around the world confronts another very defining moment in its history – as defining as that moment back in 1912. The issue is now whether the world can continue to look to oil as the leading fuel in the face of that host of tremendous issues which currently confronts our industry. I would hasten to jump in and say that my answer to that question is, a very, very loud yes.

But any reason or any examination or any explanation as to why I am so confident about oil continuing to be an integral part of global economic progress best begins with a quick look at some of our industry's past accomplishments and how the qualities that have made it what it is today can be projected into that very vital future which I see for the industry.

Today, as it has been over the last century, the petroleum industry is a spectacular contributor to the material welfare of mankind.

I would like to quote a few sentences from Dan Yergin's book. He says that 'Oil is so embedded in our daily lives that we hardly stop to comprehend its pervasive significance. It is oil that makes possible where we live, how we live, how we commute to work, how we travel and even where we conduct our courtships.... Oil and natural gas are the essential components of the fertilizer on which the world's agriculture depends. Oil makes it possible to transport food to the totally non self-sufficient megacities of the world....Oil also provides the plastics and chemicals that are the bricks and mortar of contemporary civilization, a civilization that would collapse if the world's oil wells suddenly went dry'.

What made all that possible? It was our industry's ability to marshall funds to meet the enormous needs of a truly capital intensive industry. It was our ability to work in all types of climates, in all corners of the world and under almost all forms of government. It was our ability to manage successfully projects of enormous scale and complexity and to do so on a worldwide basis and it was our innovative technology, in the form of applied science and advanced equipment. Taken together, all of these qualities have helped us repeatedly to confound those who have insisted, since this industry's beginnings, on periodically predicting the imminent extinction of the world's resources, our exhaustion of petroleum and an end to our economic competitiveness.

As a result, petroleum has not only brought to the developed world a modern industrial life – with its improved safety and its improved

Mr JN Sullivan, Vice Chairman, Chevron Corp. and Mr DeCrane Jr

hygienic standards – but it holds out the prospect of achieving precisely that for the developing and the undeveloped countries of the world. For if that is so, why is it that, despite all of these accomplishments, that the positive side of the industry's activities are so often down-played or just totally ignored? Why is it that some would even today question the future of this tremendous industry of ours.

One reason may be that we make it all look so easy. People have come to expect, almost as a matter of right, that affordable, reliable and nowadays environmentally sound energy is going to be there whenever they want it and almost wherever they want it. On the other hand, as an industry we are often grouped together in circumstances that bring public scorn and public concern. Highly visible events such as those very recently off

Mr VR Harlow, President and Managing Director, Sun Oil Britain, and Mr JW Wilkinson, Special Projects Manager, Sun Oil Britain.

Mr CM Smith, President, The Institute of Petroleum and Managing Director, Chevron UK, and Mr G Tilton, Chairman, Texaco Ltd

the coast of Spain and off the Shetland Islands and in the Straits of Malacca certainly don't help the way this industry is viewed.

Now the argument can be made that up until about 25 or so years ago the oil industry wasn't especially sensitive to the environment but then, honestly, few industries, few individuals and few governments really were. All of us seemed to subscribe, if we thought much about it at all, to the general notion that the world's capacity to absorb waste in every form was virtually limitless. Society wasn't consciously behaving irresponsibly but neither were we as thoughtful as we might have been until that fledgeling discipline of environmental science began to demonstrate the value, to all of us, of a more judicious approach in our actions, in our dispositions, in our handling of our waste. Since then we as an industry have moved aggressively to address and to respond to a host of environmental concerns. We have worked on the environmental problems like air emissions and water pollution, smog and waste disposal – problems that we can measure, assess and attack directly.

We have done so with a tremendous amount of accomplishment. In fact, our industry has become responsive, extremely responsive, in addressing environmental issues. We are as responsive there as we are in pursuing economic and material prosperity throughout all of our operations. As a result we are in many, many ways an even stronger and better industry than we were before those changes. As good business people in a highly competitive economy, we are pursuing practical solutions to practical and environmental problems, with measures such as specialised training on safety and environmental matters, with spill prevention and response programmes, by developing cleaner fuels, more efficient and safer exploration, better waste management techniques and a whole host of other approaches.

It is estimated currently that oil companies in the United States alone are spending upwards of $20 billion a year on environmental research, protection, enhancement and remediation. Even with this enormous commitment, this kind of tremendous dedication and involvement with the environment and its protection, our industry is still facing fundamental challenges regarding its future role and primarily because of this aspect.

Global warming

Nowhere is that challenge clearer than in the concerns arising out of the most complex of all environmental issues - global climate change or global warming as it is often characterized.

The question of global climate change is of a far different nature than the other environmental issues to which I have already referred. Climate change is so much harder to measure. It's affected by a seemingly endless array of facts and circumstances and forces such as, for example, the 1991 eruption of Mount Pinatubo in the Philippines and the impact that, we are told, it is currently having on weather patterns around the world.

While references to 'climate change' almost automatically evoke thoughts of global warming, it helps to remember back about 20 years ago when leading scientists focused on the risks of the threatened 'global cooling'.

So climate change is not an issue that can be addressed simply through some practical operational improvement. It is not a phenomenon that is readily perceived in our daily lives. Indeed, it may not be happening at all. But it is an issue of such very real significance for our industry and for the economies of nations everywhere that it requires, demands and derserves our undivided attention. At the Earth Summit last June, as you may recall, representatives of more than 150 nations adopted the Framework Convention on Climate Change which had two main objectives: developed countries would begin now to reduce their emissions of greenhouse gases; and developing

L-R: Mr M Foltynowicz, Gdansk Refinery, Mr J Tlusty, Kralupy Refinery, Mr TJ Indreland, Conoco Ltd and Dr W Dyrka, Gdansk Refinery.

countries would inventory their greenhouse gases and their emissions with the intent of reducing those emissions through projects and programmes that would be funded by the developed countries.

Now I have said that the Climate Convention was developed and signed in an effort by the participants to address what they viewed as serious environmental and economic problems. But underlying concerns for the future of the human family and for our mutual world home are really very profound and they deserve more attention than perhaps they have been given today.

I think that it is most important that in their enthusiasm to implement the convention, national governments, do not turn to command and control measures, that they do not ignore the cost benefit analyses that are absolutely necessary for success in any area of regulation. The risks flowing from command and control regulations enforced before adequate analysis are so enormous that they warrant the full attention of all of us.

Heated debate

The foremost problem is that global warming remains an issue of very heated scientific debate and while there is still some evidence to suggest a change of global climate, warming or cooling, there is at least equally strong evidence on the other side. The battle of computer projections continues. But empirical evidence also doesn't yet support a conclusion that any climate change is directly attributable to man-made carbon dioxide or any other anthropogenic greenhouse gases.

Nor does science yet support a conclusion that faults the roughly four percent of the atmospheric carbon dioxide that is man-made as the problem of climate change as, for example, contrasted with the impact of naturally occurring water vapours which account for approximately 90 percent of the greenhouse effect in the atmosphere. So because global warming is still a matter of such scientific dispute, it seems to me that policy-makers at the United Nations and in countries all over the world should exercise great care when fashioning plans to implement those global climate conventions passed last year.

It seems to me that they really might consider some instructive parallels. Take for example the United States' own approach to handling its concerns over the issue of acid rain. As debate raged in the United States as to whether acid rain was threatening destruction of the lakes and forests of North America, Congress responded. They ordered a massive, 10-year, $500 million investigation of the acid rain situation. Unfortunately, Congress didn't wait for the results of the study before it enacted the acid rain legislation; legislation that is costing billions of dollars per year in the United States.

Mr BRR Butler OBE, Past President, The Institute of Petroleum, and Mr BS Goodland OBE, Chairman, IP Membership and Environment Committees.

The reason I say 'unfortunately' is because when the study was finally completed, it said, in effect, that acid rain was a very limited problem that could be remedied by rather simple and relatively inexpensive measures. But Congress in its haste had moved before the study, before the facts, and they had not moved following a 'No Regrets' approach. They had not used a policy that said, 'We will take steps that there is good reason to take in relation to the protection of the environment, steps that even if acid rain isn't a problem, we will have no regrets for having taken those steps'. As a result, billions of dollars will have been spent to produce virtually no positive environmental impact.

In approaching global climate change, then, prudence would again seem to dictate that we think about a 'No Regrets Policy', promoting environmental and energy measures that stand and pass muster on their own. Following this approach would allow for beneficial actions while avoiding potentially recessionary policies, until we understood better the true dimension of the problems and until we had time to assess the costs and the benefits of various policy options, a whole host of which are sure to emerge.

My concern is that out of a deep respect about global warming some advocates may be rushing headlong towards solutions that could actually lead to problems themselves. Solutions that make it more difficult to reach our mutual goals of a cleaner environment and healthy, strong, solid economic growth. Solutions that unnecessarily divert the limited resources that the world has from other areas that have already demonstrated a need for action.

We pursued a course very much like that latter sad approach in the United States back in the early 1970s. That was the time when the US government established the Synthetic Fuels Corporation. It was to have been an $88 billion effort to research and to develop alternative fuels. In fact, it was the proposed solution that turned out to be the problem. The Synfuels Corporation was dissolved more than 10 years ago after having spent over $3 billion of the tax payers' money and after having left no single persevering project of value.

Now the implementation of the Climate Convention growing out of the Rio activities may be similarly problematic but even much more so, if not properly handled, they may be truly disruptive should they result in imposing stiff carbon taxes or stringent restrictions on business activity in the industrialized world

which later turns out not to have been required to deal with the nature of the problem or with the non-problem.

Need for action

But the lack of firm proof of global warming and the flaws of earlier command and control programmes that addressed parallel circumstances do not bring me to the conclusion that no action of any type should be taken at this time. Again it is the concept of a 'No Regrets' approach, an approach utilising market-based mechanisms, tested for their cost benefit productivity, that should be given priority as the study of the issue goes forward.

Any other approach, I would maintain, risks a reduction in economic growth that could also carry with it the unintended effect of really cutting back on environmental protection in other areas. Years of human experience have shown us that the more affluent societies can better afford to invest in environmental protection and it is the more affluent societies that in fact do so. Unneeded or excessive economic disruption is really the enemy of environmental protectionism.

In the final analysis, then, one should not ask an economically advanced society to reduce its standard of living significantly unless it is faced with a proven, compelling threat, unless no other approach, unless a 'No regrets' approach is possible. Nor should we ask an economically developing society to forgo opportunities for growth and advancement unless they too are faced with equally clear danger and with no other reasonable alternative.

Now, as an industry it is not enough for us just to point out the problems which can flow from the Climate Convention. We have a responsibility, each and everyone of us in this industry, has a responsibility to help to address these problems. We must join with others who want a safer, more prosperous future and we must all join in seeking positive solutions that benefit each and every one of us.

Proposed policies

That's fine but where do we start. First, we should work with other responsible parties to develop a comprehensive and an impartial body of scientific research on global climate change in order to establish to the public's satisfaction and to our own the real dimension of the global climate issue – warming or cooling, as it may be.

Mr CJ Fister, CMG Rotterdam and Interim Chairman, IP Netherlands Branch.

If we don't have some acceptable measure of the extent of the problem, then our responses to it, whatever form they take, are merely shots in the dark. What we find ourselves doing is firing before we know how to aim.

Secondly, we must make the result of our research and we must make our reason available to assist in designing a truly 'No regrets' approach.

Third, we must ensure that credible studies of the economic and social impact of reduced energy consumption, of carbon taxes and of command and control initiatives are part of the policy development process.

Again, before we rush forward with plans that would lay a heavy burden on societies all across the globe, we must have a basic understanding of how much environmental benefit the money we spend is really buying and whether there is in fact a less expensive, possibly more effective, alternative approach.

Fourth, we should openly and freely debate how best to provide technological assistance to the developing countries. Merely transferring wealth is, in my opinion, not the way to solve the problem. It appears the better answer is to create wealth and do it in the developing countries the same way that we are working to create wealth in the developed world – through economically and environmentally sound business investments and through the application of our advanced technologies in the enfolding of those investments and those projects.

Fifth, we should as an industry work with environmental organisations and with other industries to ensure that we use the best forum for the international co-ordination of environmental and economic policies.

Sixth, we should move to participate directly and actively in the policy process, involving industry associations like the IP and involving our own direct communications with governments in countries where we operate and where we have a presence.

Finally, we should develop proactive communication programmes designed to convey our industry's environmental commitment.

For we must in the end convince the public of our good faith and our belief in the possibility and the practicality of a dynamic world economy in which petroleum will continue to play its very large and very positive role and do so totally compatibly with environmental concerns.

At Texaco, we are prepared to work co-operatively on any such initiatives and to follow and develop such ideas along with others. We are prepared to take the ideas we have now and do additional research and develop new ideas – as they will unfold and as we have more facts. We are prepared to reach out in good faith to all who share our goal in doing so.

The challenge before all of us demands and deserves the very best thinking that our industry has to offer. If we address it successfully for ourselves and for our society, then we will have achieved a great deal.

If we can rise once more to this kind of challenge, I believe that our successors in this still very strategic, very important, very useful and very wanted industry, will look at these years in which we are now involved as yet another turning point in a great, a grand age of oil.

It should be an age of continuing progress, prosperity and quality of life for people around the world – people that this industry and this Institute have done so much to help in the past and can do so much to assist in the future. ■

Outdoor payment systems move on

Outdoor Payment systems are definitely back on the agenda in the 1990s after the failed experiments of the mid '80s. The requirements to use PIN numbers and limited card acceptance were just two reasons given for the failure of the systems to take off on forecourts in the United Kingdom as they have done in continental Europe and the United States.

Amongst recent developments in forecourt automation, outdoor payment systems are arguably the most innovative, by offering amongst other benefits, 24 hour self service, a reduction in queuing and deterrent of theft. Designed to accept magnetic cards for payment, the systems are sited on the fuel island and are linked to the site pump controller. PINless access has found favour with many users as most people are unaware of the PIN. on their debit or credit card.

One of the front runners in this emerging market is Triscan, the U.K's largest manufacturer of fuel management equipment. The systems carry full weights and measures approval and can be linked to a wide range of kiosk equipment. Sainsbury's and Tesco have already installed stand-alone outdoor payment terminals (o.p.t's) and pump integrated payment terminals (i.p.t's) onto their sites and several oil companies are due to implement trial sites during the first quarter of 1993.

Transaction information is electronically transferred back to the site owners merchant services company, making the operation a truly automated tank to bank transaction.

Improved 'hot card' checking, via the B.B.C's Ceefax service, increases security. With systems now accepting a wide range of credit, debit and even fuel cards, many oil companies and independent site operators are planning the introduction of systems, providing that suppliers are flexible enough to offer a wide range of hardware, software and interfaces to other site equipment.

The options for site equipment include, a card reader terminal integrated with the pump head, which finds favour on new installations or stand alone terminals that can be added to an existing site. The terminal links into the pump console via an office based processor which can send the transaction information to the sites P.O.S. terminal or direct to the merchant services company's polling bureau.

Local account card acceptance is one variation where on site software needs to be flexible to fit the particular site owners requirements.

Investing in Russian oil and gas : the legal factor

By Dr P Cameron, Director of the International Institute of Energy Law, University of Leiden, The Netherlands.

There is probably no other country in the world in which the contrast between reality and potential is as stark as it is in Russia. According to a recent World Bank study, 'Russian Economic Reform: Crossing the Threshold of Structural Change', 'the Russian Federation is the second largest energy producer in the world, accounting for about 14 percent of world commercial energy production' and 'despite having one of the most energy-intensive economies, it is able to export over 40 percent of its total energy production, making it the world's largest exporter of energy'. The irony, however, is that since 1990 oil production in the Russian Federation has declined by 1 million barrels per day (b/d) each year and may fall even more rapidly in the near future.

The World Bank report might also have noted that during the same period efforts at the production of oil and gas laws for the Russian Federation have increased in inverse proportion to the production of oil and gas oil and gas. The proliferation of draft laws in this area of the economy had by October 1992 given Russia a place in the history of oil and gas law-making which is to my knowledge unique. Had its oil and gas reserves been less than spectacular, it is unlikely that the international oil industry would still be talking to the government and the Russian oil industry. But it has. Are their expectations of a stable legal and institutional framework justified? A brief look at the past and the present situation may throw some light on this question.

Why have a petroleum law?

For several reasons it is important to have a distinct law for the oil and gas sector. It provides a framework for specific agreements, for detailed legal regulations and for the achievement of government policy in the oil and gas sector. The current legislation, in particular the Subsoil Act, encompasses minerals in general, with all their different characteristics and provides a framework but one which is too general. It is like a skeleton with too few bones to hold the flesh.

Secondly, some kind of petroleum law is necessary to convince investors that the government has the authority to make the kind of contracts which it wants to make and in Russia's case to identify who in the government has this authority. It is therefore quite wrong to think that a framework law can be dispensed with.

'A distinct oil and gas law has been considered necessary and of practical importance in every major oil and gas producing country in the world'

A further reason is the need for clarity which arises from the scale of the projects in the oil and gas sector which one finds in the Russian Federation. Investors will be highly sensitive to the legal conditions applicable to the negotiation and conclusion of lasting agreements. Finally, a distinct oil and gas law has been considered necessary and of practical importance in every major oil and gas producing country in the world. The areas of divergence have been over the degree of detail to be included with respect to oil and gas operations in a law, not over whether a law is necessary or not.

The current situation

An umbrella mineral resources law, The Subsoil Act, was adopted in February 1991. Its scope extends to the entire territory of the Russian Federation. It deals with a wide range of matters including the competence of the Federal and Republican authorities in matters concerning the subsoil, types of use, granting of licences, duration, terms and conditions, rights and obligations of the user, revocation, payment of fees and dispute settlement. The provisions of the Act are being implemented by the Committee on Geology.

Since the Subsoil Act is concerned with minerals in general, its potential overlap with any Oil and Gas Law is considerable. Efforts will have to be made to ensure that any licensing regime developed under an Oil and Gas Law will co-exist and not conflict with the existing legislation. Probably, the Subsoil Act's provisions will have to be amended to some extent. At present, there is a risk of separate authorities emerging, both with legal authority. Confusion will result.

For the oil and gas industry, the Subsoil Act fails on several counts. By encompassing minerals in general, with all their different characteristics, it fails not because there is no

framework but because the framework it provides is too general. On the question of identifying authorities with whom one can do business with, the assurances provided by the Act on the authority competent to negotiate and award contracts in the oil and gas sector are insufficient to permit large-scale investment. Clarity about the substantive and procedural rules is simply not forthcoming, at least as far as oil and gas are concerned.

None of these observations is less pertinent when one takes into account the Statute on Licensing, made in mid-1992 and containing more detail about the implementation of the Subsoil Act.

The next steps

In the course of 1992 several draft oil and gas laws emerged with the aim of filling an increasingly obvious gap. Three are highly significant and require some comment. These are the drafts produced under the supervision of M Gazeev, A Tishchenko and A Perchik respectively. A fourth draft law restricted itself to the gas industry and was drawn up under the supervision of experts from Gasprom. It seems that a separate law for the 'unified gas supply system' will be made afer all but it is doubtful whether the ambitious scope of the first Gasprom draft (to extend into upstream licensing) will be retained. Tax issues have been handled separately and will not therefore be considered here.

What do the various drafts attempt to achieve? Two of the drafts have (or at least claim to have) their origins in a project initiated by the University of Houston Law School. However, the Russian experts have played the leading role in shaping the final drafts.

The draft produced by Mr Gazeev is intended to supplement the Subsoil Act, providing the kind of specialized provisions on oil and gas which the latter omits. It goes a long way toward eliminating doubts about the ownership of petroleum and makes detailed provision for licensing. It expressively forbids the licensing authority from engaging in entrepreneurial activities. As the regulator, the Competent Authority would grant petroleum rights under the terms of a petroleum agreement and would supervise or monitor operations. In general, the draft goes a long way towards taking on board market mechanisms. It benefited from World Bank input which attempted to bring to the authors' attention the wide range of choice open to them by summarizing the experiences of other petroleum producing countries.

Dr Peter Cameron

'The result is an ambitious attempt to draw on the industry's strengths and yet push it in a clear market direction.

The draft produced under the supervision of Dr Tishchenko, Head of the VNIIOENG Institute, is the result of a very considerable input from experts in the Russian oil industry The result is an ambitious attempt to draw on the industry's strengths and yet push it in a clear market direction. If it does not succeed, that underlines the scale of the task which the authors set themselves. Like the Gazeev draft, there is a tendency to tackle many matters in detail which would normally (ie, in the international oil business) be dealt with in a model agreement or in regulations. Unlike the Gazeev draft it deals in some detail with issues relating to oil and gas pipelines.

The draft leaves open doubts about the property right which a licensee company will acquire through a licence. It envisages a state oil company with more extensive control over petroleum operations than an oil company would be prepared to accept. It also contains no clear separation between the awarding authority and state company activities, when the company would be acting in a commercial capacity.

The third draft, produced under the supervision of Mr A Perchik, is an attempt to synthesize the above drafts, with the co-operation of the authors. The first results of the synthesis indicate that many problems which international oil companies have had with previous drafts remain. It is, for example, no clearer which 'state authorites' will be making which decisions. From time to time, the draft is content to list the problems to be addressed in a licence without giving a prospective licensee an idea of precisely what terms and conditions to expect. The relationship between decision-making at the central and regional level seems no clearer either.

The future

The latest steps in the process of enacting an oil and gas law for the Russian Federation have been taken against a background of a rapidly changing industry structure.

However, there is still no hard evidence that the kind of law is imminent which will provide the international oil industry with the stability it needs to make large-scale investments. One option which the industry will inevitably be considering is whether it is possible to introduce into a draft law a provision allowing the state authorities to authorise specific transactions, even if they do not conform to the provisions of the oil and gas law.

Essentially, a mandate to allow the government authorities to negotiate specific deals. Inevitably, there will be some in the industry who will feel like giving up on the idea of there ever being a satisfactory petroleum law. Exemptions for large projects might therefore seem like a suitable way forward. If this is so, it is possible that the Russians will not disappoint them. The companies best positioned to reap the benefits of such a course are the largest ones in the international oil and gas industry. Yet surely it is in the Russians' interest to be able to draw on a wide range of western expertise.

Another outcome is also possible however. A failure to make cogent arguments to the legislators about the need for reasonable terms and conditions in a petroleum law may ultimately mean that the industry is faced with a bad law and no exemptions at all. ■

FORTHCOMING EVENTS

March

7th-11th
Divonne-les-Bains, France: 'AIPES '93', PEL's 9th Advanced International Executive Seminar. Details: Dr Bob Gale, Seminar Manager, Petroleum Economics Limited, Piercy House, 7 Copthall Avenue, London EC2R 7BU.
Tel: (071) 638 3758.
Fax: (071) 638 3708

8th-12th
Lübeck-Tavemünde, Germany: '1993 European Community Wind Energy Conference and Exhibition'. Details: Conference and Exhibition Organiser, WIP-Munich, Sylvensteinstr. 2, D-8000 München 70, Germany.
Tel: -49 / 89 / 7201235.
Fax: -49 / 89 / 7201291.

9th-10th
London: 'Distribution of Oil and Gas in the FSU - Pipeline Transmission Systems'. Details: Business Seminars International Ltd. 56-60, St John Street, London EC1M 4DT.
Tel: (071) 490 3774.
Fax: (071) 490 2296

15th
London: 'New Horizons New Risks' Details: Alison Elgar, Telerate Europe/Gulf, 12-15 Fetter Lane, London, EC4A 1BR
Tel (071) 832 9532

15th-19 March
London: 'Basic Well Log Interpretation'. Details: OGCI Training, PO Box 35448, Tulsa, Oklahoma, 74153-0448, USA.

16th-18th
Manchester: 'Safety of Electrical Equipment in Potentially Explosive Atmospheres'. Details: Sira Communications Ltd, South Hill, Chislehurst, Kent BR7 5EH.
Tel: (081) 467 2636.
Fax: (081) 467 7258.

16th-19th
London: 'Offshore Pipeline Engineering - Level 1'. Details: Sarah Peace, IBC Technical Services Limited, 57-61 Mortimer Street, London W1N 7TD.
Tel: (071) 637 4383.
Fax: (071) 631 3214.

16th-19th
Amsterdam: 'Thermal/Mechanical Design and Analysis of Heat Exchangers', Details: Centre for Professional Advancement, Oudezijds Voorburgwal 316A, 1012 GM Amsterdam, The Netherlands.
Fax: (31-20) 620 2136

16th-21st
Lagos: 'The World of Oil in Nigeria 1993'. Details: Carolyn Anderson, Project Manager - Glahe International Group Ltd, Woodcroft, Pebmarsh Road, Bures Hamlet, Suffolk CO8 5DU.
Tel: (0787) 228086.
Fax: (0787) 228164.

17th
London: 'Horizontal Wells and Use of Electrical Pumps in Subsea Wells',discussion forum. Details: Society for Underwater Technology, 76 Mark Lane, London, EC3R 7JN.
Tel (071) 481 0750
Fax (071) 481 4001

17th-18th
London: 'Certification Standards for Non-Destructive Testing'. Details: PCN, 1 Spencer Parade, Northampton NN1 5AA.
Tel: (0604) 30124.
Fax: (0604) 231489.

18th
London: 'The New Electricity Market: Challenges and Opportunities', Details ; Jack Murphy, Economist Conferences, 40 Duke Street, London, W1A 1DW.
Tel: (071) 493 6711
Fax: (071) 931 0228

18th-20th
Wiesbaden: '3rd International Petrol Station Fair, Tankstelle '93'. Details:MMS Expoconsult GmbH, Postfach 4266, Abeggstr. 2, DW-6200 Wiesbaden, Germany.
Tel: (06 11) 52 70 17.
Fax: (06 11) 52 70 10.

22nd
London: 'The Transportation of Hazardous Cargoes by Sea', Details: IBC Legal Studies and Services, Vickers Drive, Brooklands Industrial Park, Weybridge, Surrey, KT13 0XS.
Tel: (071) 637 4383
Fax: (071) 631 3214.

22nd-24th
Cranfield: 'Pressure Surges in Pipe and Duct System'. Details: The Administrator, Department of Fluid Engineering and Instrumentation, School of Mechanical Engineering, Cranfield Institute of Technology, Bedford MK43 0AL.
Tel: (0234) 752766.
Fax: (0234) 750728.

22nd-26th
Zurich: 'Multiphase Flow and Heat Transfer: Bases, Modelling and Applications in the Process Industries'. Details: Prof. G. Yadigaroglu, ETH-Zentrum, CH-8092 Zurich, Switzerland.
Tel: 41 1 256 4615.
Fax: 41 1 262 2158.

23rd
London: 'Marine Surveying – Focus on Technique', Details: IBC Legal Studies and Services, Vickers Drive, Brooklands Industrial Park, Weybridge, Surrey, KT13 0XS.
Tel: (071) 637 4383
Fax: (071) 631 3214.

23rd-25th
Harrogate: 'Liquidex 93', Details: Phil Norgate, Trinity Group, Times House, Station Approach, Ruislip, Middx, HA4 8NB.
Tel: (0895) 677677
Fax: (0895) 676027

23rd-25th
Birmingham: 'Environmental Technology '93'. Details: Showcase Communications, 36 Earls Court Square, London SW5 9DQ.
Tel: (071) 373 8711.
Fax: (071) 835 2081.

24th
London: Conference on 'The UK Oil Industry in the 1990s – Key Legal and Commercial Issues'.
Details: Miss Caroline Little, The Institute of Petroleum, 61 New Cavendish Street, London W1M 8AR.
Tel: (071) 636 1004.
Fax: (071) 255 1472

24th-25th
London: Course on 'Wave Kinetics and Environmental Forces'. Details: Society for Underwater Technology, 76 Mark Lane, London, EC3R 7JN.
Tel (071) 481 0750
Fax (071) 481 4001

25th-26th
London: 'Unitisation 0f Oil and Gas Fields and Oil and Gas Transportation Agreements', Details: Langham Oil Conferences, 37 Main Street, Queniborough, Leicester, LE7 3DB.

FORTHCOMING EVENTS

29th-30th
London: 'Hedging the Risk in Energy Price'. Details: Monique Quant, IBC Financial Focus Ltd, 57/61 Mortimer Street, London W1N7TD.
Tel: (071) 637 4383.
Fax: (017) 323 4298.

29th-30th
London: 'The 1993 European Seminar on Offshore Water & Environmental Management'. Details: Lisa Bilby, Business Seminars International, 56-60 St John's Street Farringdon, London EC1M 4DT.
Tel: (071) 490 3774.
Fax: (071) 490 2296.

29th March-1st April
The Hague: 'Corrosion in the Oil and Gas Industry', course. Details: Centre for Professional Advancement, Oudezijds Voorburgwal 316A, 1012 GM Amsterdam, The Netherlands.
Fax: (31-20) 620 2136

29th March-1st April
Tampa, Florida: '1993 International Oil Spill Conference'. Details: Suite 300, 655 - 15th Street, NW Washington, DC, 20005, USA.

30th
London: 'Critical Appraisal of Oil and Gas Reserves', SPE Meeting Details: Imogen Masters, Simon-ERC Ltd, Anglers Court, Spital Street, Marlow, Bucks, SL17 1DB
Tel: (0628) 474 911
Fax: (0628 482 023

30th-31st
Aberdeen: 'Partnering and Closer Working Relationships'.
Details: IIR Ltd, 28th Floor, Centrepoint, 103 New Oxford Street, London, WC1A 1DD.
Tel: (071) 412 0141
Fax: (071) 412 0145

31st March-1st April
Dusseldorf: 'Developments in Protection Strategy and Pipeline Security'. Details: Katie Abberton, Technical Services Ltd, 57-61 Mortimer Street, London W1N 7TD.
Tel: (071) 637 4383.
Fax: (071) 631 3214.

31st March-2nd April
Cambridge: 'European Gas Contracts Negotiating Workshop', Details: Langham Oil Conferences, 37 Main Street, Queniborough, Leicester, LE7 3DB.

April

1st
Aberdeen: 'Offshore Safety Cases', Details: IAS 5, HSE, Room 414, St Hughes House, Bootle, L20 3QY.
Tel: (051) 951 4225

1st
London: 'Competing for Gas Markets'. Details: Overview Conferences, 82 Rivington Street, London, EC2A 3AY.
Tel: (071) 613 0087
Fax: (071) 613 0094.

1st-2nd
London: 'Energy Industry in Eastern Europe and Former Soviet Republics', Details: Patricia Matthews DRI/McGraw-Hill.
Tel: (081) 545 6212.

3rd-6th
Bahrain: '8th Middle East Oil Show & Conference'. Details: Stephen Key, Arabian Exhibition Management, PO Box 20200, Manama, Bahrain.
Tel: 973 550033.
Fax: 973 553288.

5th-6th
London: 'Oil Production Capacity: Investments, Relationships and Policies'. Details from Centre for Global Energy Studies, PO Box 5, Kirkby-in-Ashfield, Notts, NG17 7JG.
Tel: (0623) 722213
Fax: (0623) 722216.

5th-7th
Aberdeen: 'Monitoring Hydrocarbons and Oil Field Chemicals in the Environment'.
Details: Dr R Large, M-Scan Limited, Silwood Park, Sunnighill, Ascot SL5 7PZ.
Tel: (0344) 27612.
Fax: (0344) 872709.

20th
London: 'Fuels for Power Generation'. Details: Conference Department, Institute of Energy, 18 Devonshire Street, London, W1N 2AU.
Tel: (071) 580 0008
Fax: (071) 580 4420

20th-21st
Manchester: 'Advances in Process Technology'. Details: BHR Group, Cranfield, Bedford, MK43 0AJ.
Tel: (0234) 750 422
Fax: (0234) 750 074.

22nd
London: 'Improving Navigation for Seismic Acquisition and Processing'. Details: Themedia, PO Box 2, Chipping Norton, Oxon, OX7 5QX
Tel: (0608) 84888
Fax: (0608) 84796

29th
London: Conference on 'Petroleum Retailing: Environment, Regulation and Profitability'.
Details: Miss Caroline Little, The Institute of Petroleum.

29th
Aberdeen: Offshore Installation Management: Managing Offshore Safety'. Details: Evelyn McLennan, Offshore Management Research Group, Robert Gordon University, Viewfield Road, Aberdeen AB9 2PW.
Tel: (0224) 208 887
Fax: (0224) 208 947

29th-30th
London: 'Putting Vessel Response Plans into Practice'. Details: IIR Ltd, 28th Floor, Centrepoint, 103 New Oxford Street, London, WC1A 1DD.
Tel: (071) 412 0141
Fax: (071) 412 0145

May

3rd-6th
Houston, Texas: 25th Offshore Technology Conference. Details:OTC, 4 Mandeville Place, London, W1M 5LA.
Tel: (071) 487 4250
Fax: (071) 487 4229.

5th-7th
Birmingham: 'Performance Evaluation of Automotive Fuels and Lubricants'. Details: National Exhibition Centre, Birmingham, B40 1NT.
Tel: (021) 780 4321
Fax: (021 780 4260

13th
London: Conference on 'Petroleum-Based Land Contamination'. Details: Miss Caroline Little, The Institute of Petroleum

19th
London: Conference on 'Improving Oil Industry Cost Competitiveness through the Logistics Chain'. Details: Miss Caroline Little, The Institute of Petroleum.

President Clinton's Energy Tax

The energy tax which President Bill Clinton proposed in his State of the Union address to Congress on 17 February will be calculated on the basis of the heat content of fuels as measured in British Thermal Units (Btus). In effect, it is a broad-based energy tax with a bit of a carbon tax thrown in, as the proposed proportional levy on petroleum is more than double the proportional levies on coal and natural gas. The tax will hit coal, natural gas and electricity at a rate of 25.7 cents per million Btus, and petroleum at a rate of 59.9 cents per million Btus. This translates into a levy of $5.57 a short ton of coal, 26 cents for a thousand cubic feet of natural gas and $3.47 a barrel of oil. Hydroelectricity will be taxed according to the average Btu content of fossil fuels burned in conventional power plants to produce equivalent power. Solar, wind and geothermal energy are exempt.

The new administration apparently decided on a Btu-based energy tax because it is much less visible to consumers than a gasoline tax, can be sold to the public as a way to promote conservation and help the environment, as well as raise revenue. The levy will be included in the price consumers pay for fuels and electricity and is designed to bring in $22 billion a year when it fully takes effect in fiscal 1996, which begins 1 October 1995.

The process by which President Clinton's budget proposals may become law is a long and complicated one. The administration hopes to get a package of measures designed to stimulate the economy passed quickly. The rest of the Clinton plan, including the energy tax, will be rolled into a huge 'reconciliation' bill, drafted by the House and Senate budget committees. This will enumerate the specific targets for revenue increases and spending cuts which dozens of different Congressional committees will debate before a final version of the bill reaches the floor of the House and Senate for a vote.

In the meantime, lobbyists, associations and public interest groups will continue to pressure members of Congress regarding their views. Companies of all sizes and descriptions formed coalitions to fight the energy tax even before it was announced. Opponents include the US Chamber of Commmerce, National Assocation of Manufacturers, American Petroleum Institute, American Gas Association, Air Transport Association, Edison Electric Institute and major consumer groups. Widespread opposition is expected from New England, a region which would be hit hard by a high tax on heating oil.

Critics point to the problems of such a tax. Who will decide, for instance, on how to tax the different grades of coal with their differing energy content? What about the different kinds of fuel oil used in different settings for different purposes? Will hydrocarbons used as feedstock in the petrochemical industry be taxed? Will the tax be calculated on the theoretical Btu content of a fuel under optimal conditions, or on the energy derived from it? How, where and when will the tax be collected?

The tax will hit energy-intensive industries particularly hard – energy accounts for 30-40 percent of total costs in the aluminium business, for instance. The industrial boiler fuel market is highly competitive, and in order not to lose its share of this market, the oil industry will try to shift most of the tax burden onto lighter fuels – gasoline and jet fuel. This will affect the freight and airline industries adversely.

Lobbyists are pressuring Congressmen to support alternatives to the Btu tax. Domestic oil and gas producers are calling for a tax on imported oil; a bill for this has already been introduced. Environmentalists prefer a carbon tax, a proposal which is vociferously opposed by the coal industry and by those who oppose nuclear power. A steep gasoline tax is especially unpopular in western states where mass transit is limited and people drive longer distances to work and shop. The Senate Energy Committee Chairman is known to prefer VAT as an alternative.

The consensus seems to be, however, that the odds of the Clinton energy tax getting through Congress are fairly good, provided the Democratic Party stays behind him. ■

Judith Gurney

LONDON BRANCH

FORTHCOMING EVENT

" Energy Strategy and the Environment"

by Professor Ian Fells,

Professor of Energy Conversion, Newcastle University

will be held on Thursday, 11 March 1993,
at the Royal School of Mines, Imperial College,
Prince Consort Road (near the Royal Albert Hall)
at 16.00 hours.

Ian Fells appears frequently on television as a commentator on energy issues. His presentation will explore the recent problems encountered with formulating an UK energy policy and will challenge some of the commonly held basic assumptions. The environmental implications of various options will be considered. This promises to an interesting talk with a fresh and uninhibited look at a very topical subject.

The meeting is preceded by tea and biscuits at 15.30 hours.

Enquiries: Mrs E Walker, Hon Secretary, London Branch, Tel: 0926-404257

Petroleum Retailing

The Environment, Regulation and Profitability

Thursday 29 April 1993

To be held at
The Institute of Petroleum

Topics to be discussed at this annual IP conference will include:

- EC initiatives on environmental protection affecting the retail petroleum market
- Enforcement of construction and operation standards
- Regulatory compliance and environmental measures: An oil company view
- Regulatory compliance; the cost for the independent dealer
- Vapour recovery at the petrol station
- Developments in underground storage tank systems
- Leakage from underground tanks
- The petrol station market; regulatory change and capital values

For further information and a copy of the registration form which will be available shortly, please contact: Caroline Little, The Institute of Petroleum, 61 New Cavendish Street, London W1M 8AR. Telephone: 071 636 1004. Fax: 071 255 1472

ENERGY ECONOMICS GROUP

Wednesday 31 March at 5.30 p.m.

Miss Cristina Caffara

on

PETROL RETAILING : AN ECONOMIC PERSPECTIVE ON CONTRACTS

Miss Caffara, a Ph.D student at the Oxford Institute for Energy Studies will present an interim report in laymen's terms on her research into 'Vertical Contracts in Oligopolistic Competition : the Case for Petrol Retailing in the United Kingdom'. She is the holder of the Paul Frankel Award.

Please let Roger Sparrow at the Institute of Petroleum know (Tel 071 636 1004) if you or your colleagues plan to attend.

Yemen – the next big player?

By John Roberts

1993 should be the year in which United Yemen finally starts to fulfil its potential as a significant oil producer. In recession for three years, the country desperately needs the revenues and has spared no effort in its attempt to provide the right financial climate within which international oil companies can operate. But the last three years, in terms of revenues from actual oil production, have been disastrous, with production from the much-touted Shabwa fields persistently deferred and with the overall climate for the oil industry clouded by a border dispute with Saudi Arabia that prompted at least one western major, BP, to suspend operations for a while.

Uncertainty

No-one is quite sure just how much oil there is in Yemen. The government has estimated its reserve base at 3.75 billion barrels. Of this, some 750 million barrels lie in the former North Yemen. This is believed to be a tolerably accurate assessment of oil reservoirs that have been studied and developed for almost a decade. But the remaining 3.0 million barrels a day (b/d) is little more than a guesstimate of the reserves that might lie in former South Yemen. In truth, although it is clear that South Yemen is the boom prospecting area, no-one knows how much oil it really has. In January the Intera Company was reported to have signed a contract to carry out an independent study of the country's oil reserves. But the study, which is to be completed by the end of the year, will concentrate on proven fields and will not take into account the extensive prospective acreage, which is mainly to be found in the south.

Between 1989 and the autumn of 1992, Yemeni oil production remained stuck at around the 180,000 b/d level. Of this, around 115,000 b/d was exported. Exports had been higher but the loss of subsidised Iraqi and Kuwaiti crude oil for refining at Aden, which freed up some 40,000 b/d of Yemeni oil for export significantly affected the country's oil trade and revenues. Indeed, the United Nations estimate that after Kuwait and Iraq itself, Yemen was, with Jordan, one of the countries most adversely affected economically by the Kuwait crisis which broke just two months after the May 1990 unification of North and South Yemen. The new state paid dearly for its policy of condemning the Iraqi invasion and occupation while refusing to approve the use of military force to oust the Iraqis.

On top of the costs of unification – which included the movement of government ministries and upgrading of cross-border infrastructure – Yemen found it had to cope with a sudden eight percent population increase as Saudi Arabia expelled some 880,000 Yemenis in protest against its stance during the Kuwait crisis. The pressure on the country's finances caused by the loss of revenues, loss of Arab aid, loss of remittances and increased social cost for returnees – not only from Saudi Arabia, but also Somalia – has contributed greatly to the uneasy political climate and poor security conditions in much of the country. These conditions include very strained relations between the two principal elements in the government, representing the chief northern and

Sana'a

southern political parties, and the persistent influence of tribalism. The resultant tensions led to riots in a cluster of Yemeni cities last December – including the capital of Sana'a, the port of Hodeidah and Taiz – which left at least 15 dead. Saudi Arabia, which has close ties with some of the leading tribes of the former North Yemen, contributed to the unease first by expelling its Yemeni workforce and their families and then reviving one of the regions's most serious border disputes. The Saudi claims were not publicly stated, although Saudi military maps published as recently as 1986 show as much as one-quarter of Yemen, largely comprising the northern regions of former South Yemen, as lying in Saudi Arabia.

In addition to this political baggage, the international oil companies engaged in developing Yemen's oil resources have also had to cope with a mixed legacy from former Soviet oil companies in South Yemen.

'It is likely that Yemen will be a significant oil exporter in the first decade of the next century'

A consortium of Soviet companies had by early 1990 begun producing oil from its giant Shabwa concession at a rate of around 10,000 b/d but production was stopped after the Soviets encountered technical difficulties in July 1990. As the new authorities in united Yemen were then beginning to negotiate production sharing agreements with western and other international oil companies to develop a variety of fields throughout the country, the decision was taken to open up the Shabwa concession to international firms on the basis that compensation would be paid to the Soviets for work already done, both in developing the field and beginning work on a pipeline to the coast.

The Shabwa concession was broken up into various lots and eventually a Saudi venture, Nimr Petroleum, was awarded the core area, now identified as Block Number 4, called Iyad. Nimr, which is owned by a Saudi family of Yemeni origin called the Bin Mahfouz, is understood to have paid $500 million for the Iyad field and installations, the bulk of which went to pay off the Soviets. After many delays, Nimr was able to begin test production at Iyad in September 1992 at a rate of 7,000 b/d. Output was subsequently expanded to 10,000 b/d with test flows of up to 15,000 b/d. Nimr has been very quiet in recent months concerning 1993 projections, possibly in order to downplay previous expectations that Iyad would be capable of yielding more than 100,000 b/d for much of 1993. It now looks as if the government believes that Nimr's output may total no more than 25,000 b/d by the end of the year.

Aden harbour

Oil Minister Abu Bakr Hussainoun said in October that current Yemeni production was running at 195,000 b/d and that he expected overall output to rise to 350,000 b/d by the end of 1993. His optimism that Yemen would be able to increase output so fast is because an accelerated development programme at another southern field, Block 14, is now projected to start producing crude oil at a rate of 120,000 b/d from next September. This estimate remained constant throughout the latter half of 1992 and, taken with a 25,000 b/d increase at Marib-Jawf it therefore implies that Iyad's contribution to Yemeni production will be no more than 25,000 b/d.

Yet Mr Hussainoun also declared that Yemen might be able to produce as much as 1 million b/d by the year 2000. This remark was not so much a serious estimate of future production as an enticement to the outside world, where it is hoped to find fresh investment funds, and to the Yemenis themselves, since the government needs to give its people at least a glimpse of a glowing future at a time when present conditions are so poor. Nonetheless, the extensive international interest in Yemen makes it likely that the country will, indeed, be a significant oil exporter in the first decade of the next century.

The country's most promising prospects are clearly Block 14, Masilah; Block 4, Iyad; Block 5, Jana and Block 18, Marib-Jawf. But more than 40 blocks have now been awarded and many have yet to start drilling. At Masilah, Canadian Occidental in December announced a discovery of six new fields. These are North Camaal, Tawila, Haru, Heimar, North Heimar and South Heimar. It is said that estimated reserves in place were 560 million barrels and that if 500 million in reserves in the existing fields of Suna, Heijah and Camaal were taken into account, then total reserves in the block were more than one billion barrels. It announced an acceleration of its $1 million development programme in order to begin production next September. The company's programme includes construction of a 24-inch, 160-kilometre pipeline, to link the fields with the oil storage depot at Mukallah on the Gulf of Aden. A large tanker loading facility is currently being built at Mukallah and the government has proposals to build a 100,000 b/d refinery at the port at an estimated cost of $300 million.

Nimr's prospects at Iyad seem

cloudy, if only because of high hopes originally entertained of a rapid rise to substantial volumes of production. But the Shabwa area in general remains an attractive prospect. To the north and west of Nimr's concession is the Jana block, which includes the original area along the old north-south border that the two former Yemeni governments agreed to develop jointly in the late 1980s. It was their success in securing co-operation on this project that led directly to the negotiations that resulted in the 22 May unification of the country.

'Yemen is very much the oil world's new frontier'

Jana's operator, Total, announced two successful discoveries last August. Halewah No. 1 tested at 4,250 b/d, while Halewah No. 2 tested at 5,885 b/d – results which Total said were 'very encouraging for the future development of the block'. It earlier said Jana No. 1 well tested at 350,000 cms/d of gas and 600 b/d of condensate at a depth of 3,000 metres. Partners in the consortium exploiting Jana represent a cross-section of international interests in Yemen. Western oil companies with a share in the project are Total, Hunt and Exxon, while the Kuwait Foreign Petroleum Exploring Company is a partner, as are the two original Soviet – now Russian – companies involved in Shabwa, Maschinoexport and Zarubezhgeologia.

Immediately next door is Marib-Jawf, the original North Yemeni concession area developed by Hunt and Exxon. By September, production was running at about 163,000 b/d but on 26 September a new central processing unit was commissioned at the Asad al-Kamil field, which will raise output there from 28,000 b/d to 45,000 b/d.

Marib-Jawf is also extremely important because of the volume of gas it is producing. Prime Minister Abu Bakr al-Attas said in 1991 that there was 'a huge amount of gas' in Marib. Independent estimates have put the volume of reserves at some 12-15 trillion cubic feet. Last August the Lebanese-Greek Consolidated Contractors Company (CCC) and Italy's Saipem secured a $85 million contract to expand gas processing facilities at Marib. CCC also put in the new CPU which should enable Total and the Yemenis to recover enough liquified petroleum gas to ensure, together with existing LPG production, an end to Yemeni dependence on gas imports. The Yemen Petroleum Company has already hired a Danish company to supply LPG stations. Four have already been built in Saana and Hodeidah, three more are being set up in Aden and Taiz and the government hope to build LPG stations throughout the country.

In September, Bechtel was hired to carry out a feasibility study on a 180 MW gas-fired power station, probably to be located at Marib. Yemen hopes the station can be built for $100 million and be operational in 1995. The government has said that in the long term it wants to become a natural gas exporter and in January, during a visit by the Omani Oil Minister, Omar al-Shanfari, there were talks on possible joint LNG development. It is thus possible that Yemeni gas might be piped to the new LNG facilities being built in Oman.

Border problems

Hunt was one of six companies that received a letter from the Saudi Foreign Ministry last summer asserting that its operations were in disputed territory. Hunt was clearly the addressee because Riyadh regarded it as the senior partner in the Jana consortium. The Jana block includes the Yemeni side of the presumed tri-border area where North Yemen, South Yemen and Saudi Arabia met. The borders in this region have generally not been mutually defined and, indeed, it is not clear whether all the territory immediately to the north of the Jana block has been formally claimed by either the Yemenis or the Saudis, although it was traditionally regarded as a part of the Emirate of Shabwa.

The other five companies to receive such letters were BP, Elf Aquitaine, Petro-Canada, Phillips Petroleum and Ireland's Tullow Oil. BP, which was then in the process of hiring a rig to explore its offshore Antufash concession in the Red Sea, suspended operations citing force majeure. In this case, it appeared that the Saudis were questioning the basis of the maritime boundary in the Red Sea between Yemen and the Kingdom. But in late August 1992, BP said it would resume drilling activity on the grounds that Saudi Arabia had not taken a high profile against other companies which had maintained their operations along the border. At the same time it said its insurance quotations for use of the offshore rig which had been substantially raised to war risk levels were now being set at commercial levels. BP spudded its first well in November and subsequently secured from Sanaa a four month extension of the first phase of its exploratory work which is now due to end on 28 February.

The attitudes of both sides to what seemed to be a potentially disastrous crisis over their common border appear to have mellowed. After a

Marib installation

preparatory meeting in Geneva last July, Saudi Arabia and Yemen have held four rounds of talks, the most recent in January in what is routinely described as a 'cordial and friendly atmosphere'. No headway yet seems to have been made on any of the core issues which include the formal declaration of claims and suitable procedures for arbitration or dispute settlement. But the fact that they are talking and that the Saudis have not significantly interfered in oil company operations in concession areas awarded by Sanaa is obviously an encouraging sign.

Elf Aquitaine has most to lose because of the large extent of its Block 11 concession at Sirr-Hazar on which it has worked for several years. After drilling a dry well in December 1991, Elf stopped drilling and switched to studying exploration results. It is not clear when drilling will resume. In the late 1980s Elf teams found themselves subject to harassment from Saudi and pro-Saudi forces in the area. The concession in which Tullow formerly had a 10 percent stake, Block 12, known as North Sanau, lies immediately east of the Elf area. The Phillips concession area in the Upper Jawf, Block 20, encloses a considerable area of former North Yemen along the presumed, but now disputed, eastern section of the old Saudi-North Yemen border. The Block 30 concession in which Petro-Canada and Lasmo are engaged covers much of the northeastern corner of the country and the border with Oman. Petro-Canada began a drilling programme there in August despite the Saudi letter.

There are more than two dozen other concessionary blocks and work is progressing on several of them, notably in the Shabwa area. Crescent Petroleum began a drilling programme in Block 2, al-Maber, in October and plans to drill four exploration wells there by early 1994 when it will then move on to another Shabwa concession area, Block 9, al-Hajar, where it will drill two more wells.

BP reported that Block 7, Barqa, had shown 'minor hydro-carbon deposits' when a test well was drilled earlier this year. Another well is to be drilled in this Shabwa region in 1993. In the next door Block 8, Asakir, BP has said the first well will be spudded in this year. At Block S-2, Uqla, Occidental has completed its first exploration phase by drilling three wells. Oxy reported finding oil, but not in commercial quantities, and it is not clear whether it will proceed to a second exploration phase.

For the last two years barely a month has gone by without news of a fresh production sharing agreement between the Yemeni authorities and foreign companies. The signature bonuses have been invaluable in keeping the government even remotely close to solvency. Very rarely have they been of the magnitude of Nimr's reported $500 million; a more common level has been the $6 million paid by Adair Petroleum of Oklahoma for Block 28, North Balhaf, or the $125 million paid by Indonesia's Codell for Block 6, Iryan.

Although some blocks are still open, the best prospects have naturally already been taken. But Yemen is very much the oil world's new frontier. It will certainly be interesting to follow the fortunes of British Gas which last October secured an offshore concession next to the storm-swept island of Socotra in the Gulf of Aden. It is not just the political and financial conditions that can make life difficult in Yemen: the weather can play its part as well. ■

Will British coal put an end to gas?

By Robert McLeod

The Select Committee Inquiry into the future of the British coal industry has come out in favour of subsidies to maintain and develop the use of coal for power generation and for the establishment of an energy commission to oversee the industry.

Leading oil industry organisations have warned, however, that balancing the market in favour of coal could put thousands of oil and gas industry jobs at risk and threaten the development of North Sea reserves.

Senior industry sources have stated that the government's 'clumsiness' in handling the initial coal review has made the oil and gas industry's case much harder to argue and that the industry has 'dis-benefited' from problems that had to be solved that 'were of the government's own making'.

The select committee's remit was to consider the consequences of British Coal's pit closure programme for the electricity consumer, the Exchequer and the economy and to examine alternatives in terms of energy prices.

Diminishing subsidy

It recommended a five-year diminishing subsidy to lift the demand for British-mined coal from 40 million tonnes a year to 56 million tonnes a year. The current level of gas-fired generation was accepted by the committee. However, it suggested that the plants be used to supply peak and mid-merit demand rather than baseload. Future gas related projects should concentrate on the development of sour gas reserves and combined heat and power plants.

The government was also urged to consider funding flue gas desulphurisation projects and clean-burn technology as part of its commitment to the industry.

Speaking at the January launch of the Trade & Industry Select Committee's (TISC) report, British Energy Policy and the Market for Coal, Richard Caborn MP, the Committee's Chairman, said 'If the government adopts the whole of our recommendations, they would not only lift British Coal out of its current crisis but they would also lay the foundations for its future development and prosperity. And although our report is not a blueprint for the future of our energy industry ,it does offer a sustainable framework within which a balanced policy could be developed in the medium and long term.

'We asked ourselves is a larger market for coal feasible and if so, how much would it cost; and how should it be achieved?

'If companies don't believe that the market will be there to warrant further development of gas fields in the next century, there will be severe cutbacks in exploration. Companies don't need large portfolios of undeveloped gas.'

'We approached these questions from a sound commercial and economic perspective although we have constantly kept in mind the interests of the consumer.

'Our conclusion is that a larger market for British Coal is feasible and that the benefits of expanding the market far outweigh the costs,' he said.

The committee made clear that the transitional subsidy would be dependent on British Coal achieving further cost reductions.

'To be blunt,' added Mr Caborn, 'without political will and action from government no amount of enterprise from British Coal will succeed. Equally, unless British Coal seizes any opportunity offered, government action will come to nothing.'

Energy commission

The proposal for an energy commission to oversee the security of supply, environmental protection and fuel prices which 'combines the independence and statutory powers of the Monopolies and Mergers Commission with the scrutiny duties of Select Committees' would provide, according to the committee, an open forum to consider the nation's energy requirements and industry's commercial interests.

The committee – comprising six Conservatives, four Labour members and one Liberal – received verbal evidence from 31 organisations and received over 200 pieces of written evidence.

'We are confident that the report's

analysis is authoritative and impartial and that our recommendations are practical and prudent.' added Mr Caborn.

Concern at the effect of maintaining the indigenous coal industry on the further development of oil and gas has been expressed from a number of sources.

Although the report did not specifically seek to cut back on gas development, Dr Harold Hughes, Director General of the UK Offshore Operators' Group (UKOOA), insisted the report will be damaging to industry confidence. 'Existing projects need to get into fruition over the next five years to take advantage of the existing infrastructure. If companies don't believe that the market will be there to warrant further development of gas fields in the next century, there will be severe cutbacks in exploration. Companies don't need large portfolios of undeveloped gas.'

Mr David Odling, Chairman of the Offshore Contractors' Council, said the recommendations in the review did nothing to resolve the uncertainty surrounding future gas developments on the UK Continental Shelf.

Planned investment

'Consequently,' he added, 'there is still a great deal of doubt over whether planned investment of at least £5 billion during the next five years will still go ahead and at least 45,000 jobs remain under threat.

'It is vital that the government addresses this uncertainty, which is already beginning to affect future investment decisions by oil companies and leading to a loss of confidence within the oil and gas industry as a whole.'

Not all the gas industry saw the report in the same light. Mr David Lewis, Vice-President of Enron Europe, the US gas giant building up its gas business in Europe, said: 'On the whole we welcome the committee's decision in principle not to penalise independent gas generators.' He warned, however, that the suggestion that the output from gas-fired power stations should be restricted in favour of coal-fired generation could have serious implications for generators, distributors and consumers.

So long as the coal subsidy is restricted to five years and is linked to the price of imported coal, it would not inhibit the planned development of new gas generating capacity.

Enron's gas-fired power station on Teesside

The company's main concern is the implications of moves to restrict the output of existing and planned stations.

'Restricting CCGTs to mid-merit or peak instead of baseload capacity would put us in breach of our existing contracts with the regional electricity companies, cause significant financial losses for both generators and distributors and force up the price of electricity.'

'The weakness of the report is that it attempted to look at British energy policy because of a political crisis. The report hasn't addressed the energy balance required to meet the needs of the future. It was addressed by the wrong committee and its recommendations were arrived at in haste.'

Commenting on the possibility of 45,000 jobs under threat, energy specialist and TISC member, Dr Michael Clarke, said that the figures were grossly exaggerated. 'We were very careful not to make recommendations for coal that would affect other British-based industries.'

Dr Clarke was confident that the government will take the recommendations of the committee on board when reaching any decisions on the pit closure programme. He argued that the measures are sufficient to allow British Coal to finalise its reforms and compete in the marketplace without subsidy. 'There will be no returning to Parliament in five years time,' he said.

Defunct committee

Although he would like to see the industry with a regulator and minister, he was less enthusiastic about the prospect of an Energy Commission. As former chairman of the defunct Energy Select Committee (ESC) he believes the importance of the industry requires that ESC be reinstated and argued last April that the 'tradition' of only having select committees that shadow departments was only 14 years old and was not a rule.

The figures given for job losses in the gas industry have also been dismissed by Mr Alex Salmond MP, former oil analyst and prominent member of ESC.

'The TISC Report doesn't call for a reduction of gas-fired power plant and accepts the 20-25 percent share of the market that gas will achieve,' said Mr Salmond.

'The weakness of the report is that it attempted to look at British energy policy because of a political crisis. The report hasn't addressed the energy balance required to meet the needs of the future. It was addressed by the wrong committee and its

recommendations were arrived at in haste.'

Mr Salmond is also a strong supporter of re-forming ESC and insists that the problems being encountered now are a direct result of that committee's reports being ignored by successive energy ministers.

'A level playing-field is a much-used but little adhered-to phrase. We have to accept that by favouring one fuel source, job losses will occur in other sectors. If all subsidies were removed, including those for gas – such as PRT relief on long-distance pipelines – and the nuclear levy abolished, the market could decide what form of generation provides the best value.'

The situation in Scotland, according to Mr Salmond, was not even addressed in the report which he considered more appropriately titled 'Energy policy in England and Wales and the threat to mining jobs'.

Scotland has a huge opportunity because of its enormous gas reserves, low sulphur coal, cheap hydro-electric power and potential for renewables.

'A level playing-field is a much-used but little adhered-to phrase. We have to accept that by favouring one fuel source, job losses will occur in other sectors.'

'Gas has pole position in low cost/environmentally friendly electricity generation. The technology, like clean coal technology, is still being developed. Yet the government insists on subsidising ageing nuclear reactors. The potential for gas in Scotland is being lost because we continue to suffer the nuclear overhang.'

The government is expected to take into account many of the report's recommendations when the final decisions on the pit closure programme are announced. There is even suspicion in some circles that many of the recommendations were tabled at the request of senior government figures.

Its position is weakened by the continued simmering rebellion among backbench Tories who support the miners and have urged the government to accept the select committee report. ■

Recommendations of the

(1) A high priority should be placed on reforming working practices, including the passing of any necessary legislation where this would reduce costs without compromising safety.

(2) The Government should resist the introduction of the carbon/energy tax unless it can be shown that the tax is essential to achieve the UK's or EC's commitments on CO2 emissions and is more cost-effective than other measures.

(3) The nuclear element of the Fossil Fuel Levy should be reduced to a sum sufficient to cover the liabilities which are to be discharged by 1998.

(4) Consideration should be given to using part of the present Fossil Fuel Levy income for other purposes.

(5) Nuclear Electric should cease to receive income from the Fossil Fuel Levy and should cease to be responsible for discharging inherited nuclear liabilities.

(6) The nuclear review should be brought forward to 1993.

(7) Electricity supplied from France should cease to be non-leviable, and EdF's ability to negotiate contracts to supply baseload electricity from 1993 should be made conditional on UK generators having non-discriminatory access to the French electricity market and through the French transmission network to other countries.

(8) HMIP should insist on FGD as a condition of using orimulsion or high-sulphur heavy fuel oils for generation.

(9) The Government should give greater consideration to the possible increase in the use of oil for generation.

(10) Planning guidance relating to opencast mining should be changed to restrict consents to sites where there are clear benefits, either locally in terms of reclaiming derelict land or to the nation through making available particular qualities of coal and thus helping to sustain the coal industry.

(11) British Coal or the proposed Coal Reserves Authority should use their control over licences to bring about a reduction in opencast coal output.

(12) The boundary of the RECs' franchises should remain at the present 1 MW level until 1998 instead of being lowered in 1994 provided that: (i) both RECs and generators prices are tightly regulated; (ii) retention of the franchise is conditional on the RECs agreeing to contract for a larger quantity of electricity generated from British coal; and (iii) the boundary is reduced to 100 kW as planned in respect of CHP schemes.

(13) British Coal and the generators should explore alternative forms of contract of the types suggested by our witnesses and British Coal should seek to obtain contracts for part of its output extending beyond ten years.

(14) The Government should provide a subsidy to the generators of England and Wales to burn up to 16 million tonnes of deep-mined BC coal per annum above the quantities of 40 million tonnes falling to 30 million tonnes which they already expect to contract for in 1993-98, and the subsidy should be equal to the difference between the delivered costs of the additional BC coal and imported coal.

(15) The Government should consider financial assistance to contracts undertaken in the non-ESI market up to a maximum level of 3 million tonnes per annum for five years.

(16) In negotiations with the generators, the Government should require the generators to contract for an additional five million tonnes in 1994/95 above the tonnages already mentioned, bringing the total in that year to 51 million tonnes. The Government should agree with British Coal target prices for the additional coal for each of the next five years.

(17) As regards the proposed subsidy:

It should be limited to the period up to 1998 (at the latest); it should

Trade and Industry Select Committee

be conditional on the achievement of specified reductions in British Coal's operating costs and on it keeping open as many pits as possible. The RECs' should if necessary be required to purchase the electricity generated from the additional tonnages, possibly by making the retention of each REC's franchise dependent on doing so; subsidies towards FGD or clean coal technology should, if possible, be determined at the same time as the subsidies for additional tonnages and as part of the same agreement with the generators; similar subsidies should be available in respect of the output from licensed mines to ensure that they are not disadvantaged by subsidised BC coal.

(18) The Government should use its powers at an appropriate time to ensure that PowerGen installs FGD on a further 2 GW of coal-fired plant.

(19) In return for a contribution from Scottish Power towards installing FGD in England and Wales, a corresponding proportion of its share of the required reduction in sulphur emissions, should be transferred to the generators of England and Wales.

(20) The DTI should determine the relative cost-effectiveness in terms of environmental improvement and continuing markets for British coal of support for clean coal technology compared with support for installing FGD. Subject to that investigation and conditional on the generators concerned agreeing (under penalty) to use specified quantities of British coal subsidies (possibly derived from the present Fossil Fuel Levy) should be given towards measures to ameliorate the environmental impact of coal-fired generation through installing further FGD beyond the 8 GW already planned or bringing clean coal generating technology into commercial use.

(21) The effect of the pool s operation on coal-fired generation should be considered as part of the present pool review.

(22) In determining whether new capacity should be licensed preference should be given to: projects with a substantial CHP element and thus major environmental benefits; projects using sour gas, which is unsuitable for other purposes and thus unlikely otherwise to be developed; projects not promoted by the two main generators.

(23) The Government should explore the possibility of some of the CCGTs being used as mid-merit or peak instead of baseload capacity.

(24) The Director General should be given some powers over the generators' prices, and should be encouraged to use them.

(25) The Government should require the generators to hold total stocks of not less than 20 million tonnes of coal.

(26) British Coal or licensees should extract all coal where this can be done at low cost and any colliery proposed for closure should be put into the Modified Colliery Review Procedure.

(27) The consideration of applications to license former British Coal mines should be given to an independent authority which would be the custodian of Britain's coal reserves.

(28) Royalties paid by licensed mines to British Coal should in future be levied by the coal reserves authority and be paid into public funds.

(29) The proposed coal reserves authority should be required to publish information on reserves.

(30) The Government should demonstrate its commitment to the long-term future of the coal industry by announcing support for clean coal demonstration projects as part of its coal review.

(31) The Department should determine the future funding of research into coal use, including the funding of the Coal Research Establishment, as a matter of urgency.

(32) The DTI should investigate the potential value of an Energy Commission along the lines we have suggested, as well as alternative ways of achieving the same results, with a view to increasing the level of public information and scrutiny in the energy field.

(33) The Director General's duties should be amended to make protection of consumers one of his primary duties, and a new secondary duty should be added requiring him to consider the legitimate long-term interests of indigenous fuel producers in carrying out his duties.

(34) The Department should review the powers of the energy regulators, with the aim of securing a greater degree of government and parliamentary control over the more discretionary aspects of the regulators' work, notably in respect of promoting competition, and it should review whether the different regulatory bodies in the energy field should be merged to ensure a more consistent approach.

(35) The Electricity Act 1989 should be amended to empower the Secretary of State to require the Director General to make a particular review as a matter of priority.

(36) The Director General should conduct his review of the RECs' distribution charges immediately and the starting point for any new price control formula should be determined by what is an appropriate level of return on capital relative to risk rather than the present high return.

(37) The Department should set up a review of how, in the long term, a satisfactory balance between capacity and demand can most effectively and economically be achieved.

(38) The Fossil Fuel Levy should be tapered so that larger users pay a lower percentage.

(39) Urgent steps should be taken to introduce demand-side bidding in the pool and to provide for large users with unvarying demand to be able to by-pass the pool and contract directly with generators.

Recovery of hydrocarbon vapours from ship loading of crude oil

By Rick Bennett, Cool Sorption A/S

The following article outlines the losses involved with bulk handling of crude oil and summarises on the basis of tests typical losses experienced with ship loading of North Sea crude. It goes on to outline the prospects for crude vapour recovery based on experience gained from a demonstration plant indicating that recovery efficiencies of between 80-90 percent can be expected.

While technology and the proposed legislation is well equipped to deal with the hydrocarbon emissions associated with the handling of gasoline, the larger environmental problem of emissions which occur during the bulk handling of crude oil have so far been neglected. There is world wide annually produced about 3,110 million tons crude oil and of this 1,253 million tons is shipped, while the annual gasoline production is about 890 million tons (figures based on 1991 data).

Although the composition of crude oil varies immensely, many, including North Sea crude oil, are often even more volatile than gasoline. Consequently the hydrocarbon emissions from crude oil represent both a significant resource loss and a major environmental problem.

The reason that little attention have been paid to this area in the past are probably due to:

1. The vapour contains substantial proportions of light ends, inert gas and sulphur compounds which makes the recovery with traditional vapour recovery systems almost impossible;

2. The volumes of crude oil vapour to be handled are always very large;

3. The crude is untaxed and consequently the recovered vapour is of substantially less value than in the general case for gasoline vapour recovery.

Following initial studies, Cool Sorption A/S with support from the EEC Thermie Programme & in association with Shell Denmark, have installed a demonstration plant at Denmark's only crude oil export harbour at Fredericia. The crude handled here is piped directly to Shell's refinery from the Danish sector in the North Sea. The crude is allowed to settle first so that any water can be tapped off prior to shipping. At present 3 million cubic metres (m^3) of crude oil are exported here per year. The maximum ship loading rate is 4,000 m^3/hour but due to economic reasons the pilot plant has been designed to take a partial stream of 500 m^3/hour.

Two of the ships which regularly visit the terminal have been adapted for vapour collection. These ships both have an inert gas system which is only active while under passage and a simple modification enables vapour to be collected here from all tanks under loading. A flexible hose connects from this system to the onshore piping leading back to the recovery unit and detonation proof flame arrestors at each end of the line protect both the ship and the recovery unit. The excess vapour from the tanks vents as previously through the ship's pressure/vacuum valves.

During the filling of the tankship with crude oil the vapour will be displaced by the incoming product. The concentration and composition of the vapour will vary according to the vapour pressure and composition of the product used in filling and by that which had previously been transported. In the beginning of the loading, the displaced vapour originates mainly from the previous cargo but as the level rises the vapour pressure of the product will have a still greater importance for the concentration.

In order to estimate the losses involved, measurements were carried out throughout the year indicating that the average values for hydrocarbon concentration in the vapour varied from 330g HC/m^3 in the winter to 700g HC/m^3 in the summer, the average being about 500g HC/m^3. However the actual value under loading started low and then maintained a relatively constant level during most of the loading rising to the maximum as the filling was completed. The composition by weight indicated the following typical concentration of hydrocarbon in the vapour C1, C2 9-15 percent, C3 20-25 percent, C4 30-40 percent, C5 and above 20-30 percent.

The vapour recovery process used was a standard Cool Sorption process. The vapours displaced from the ships tanks through the pipeline back to the recovery unit are scrubbed in a column with cold kerosine resulting in the absorption and condensation of most of the crude oil vapours.

The advantages of such a process are that there are no moving parts in contact with the vapour, resulting in a very safe process and when compared with direct condensation it is possible to have a higher efficiency in relation to energy consumption. An adsorption process typically using active carbon would result in free sulphur being deposited on the surface which would quickly poison the carbon. Alternatively incineration could be used though the safety aspect compared with recovery is less and the product is lost.

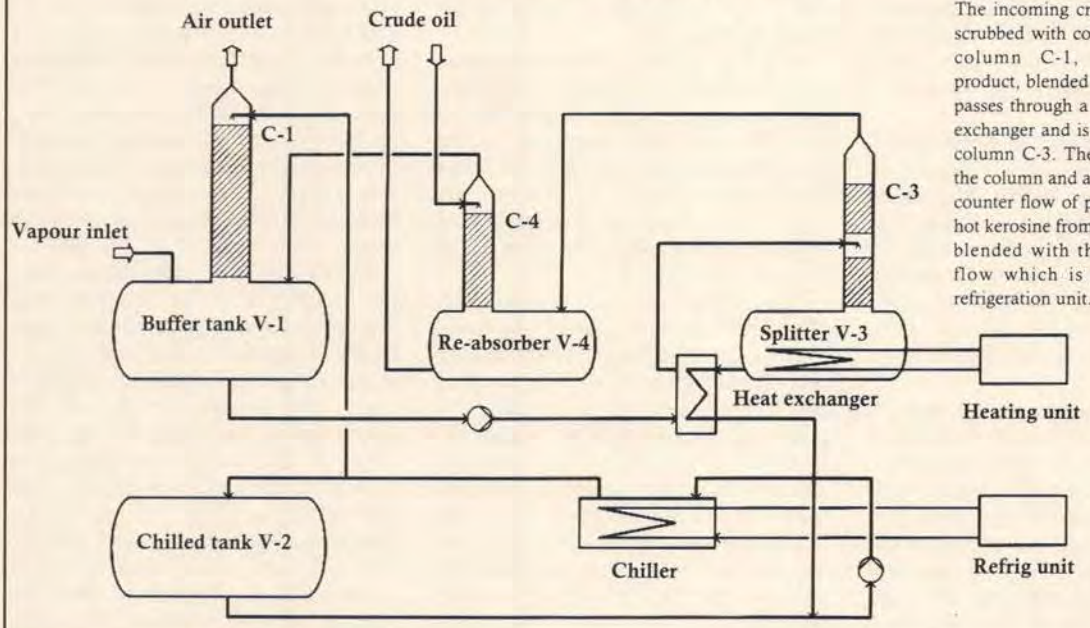
The performance of this type of vapour recovery process is dependent on the column design, the compositions and temperature of the scrubbing liquid as well as the relative flow of

liquid to gas in the column. On the basis of such a standard unit set up for gasoline recovery the outlet concentration would be in the order of 25g/m³. However because of the very high concentration of C1 and C2, measurements indicate that an outlet concentration of 140-160g/m³ can be expected and this is relatively independent of inlet concentration. The composition by weight of the outlet being typically: C1, 55-57 percent; C2, 27-32 percent; C3, 3-8 percent; C4, 3-5 percent; above C4, 2 percent, resulting in an average efficiency of about 85 percent. As indicated above there are some possibilities for optimising the units performance but a significant improvement in efficiency cannot be anticipated due to the characteristics of C1 and C2 components. However the installation of a full size unit at such a terminal would result in a recovery of approx. 1.2-1.3 million kg HC per year.

Tests throughout the period have indicated no adverse effect from sulphur compounds, admittedly low in North Sea crude, and there are no grounds for expecting problems.

The addition of a second stage would allow the removal of most of the remaining hydrocarbon but we believe that this could not be justified either from an economical or general environmental view point. ■

VAPOUR RECOVERY PLANT



Process Description

The incoming crude oil vapour is scrubbed with cold kerosine in the column C-1, the recovered product, blended with the kerosine passes through a regenerative heat exchanger and is flashed off in the column C-3. The light ends leave the column and are reabsorbed in a counter flow of product, while the hot kerosine from the splitter V-3 is blended with the cold kerosine flow which is kept cold by a refrigeration unit.

Cyclone season delays Goodwyn platform

By William Scholes

The installation of the Goodwyn A platform, the second gas platform on the giant North West Shelf project off Western Australia, will be delayed by at least four months because of problems encountered at the end of last year.

This comes at a time when worldwide demand for LNG is expanding fast. Mr Charles Allen, Managing Director of Woodside Petroleum Ltd., said recently that at least $US 20 billion investment would be needed for new LNG plants around the world before the end of this decade if the expected demand for fuel is to be satisfied.

Construction problems off western Australia have now been compounded by the threat of severe weather – the cyclone season in this area extends from November to April. It had been planned that the new platform would be in place before that period. Analysts now believe that the costs associated with the delay could reach at least $A500 million. Production is now unlikely to start until next January.

Hook-up delay

'The remedial works will delay the commencement of the hook-up and commissioning phase by at least four months and suggest a complementary delay to platform start-up,' said a spokesman for Woodside Petroleum, operator for the North West Shelf consortium.

The company installed 20 primary piles deep into the seabed at the end of November but reported early last December that most of these had buckled, preventing the installation of the insert piles, which help to secure the 17,000-tonne steel structure to the seabed, 23 km southwest of the Rankin A platform.

The group said in late January that five of the 16 secondary piles had been installed and that the jacket was now considered cyclone safe. However, it would be at least eight weeks before the resumption of offshore activity was likely as it would take this long to obtain the equipment needed for the remedial work.

In the meantime, it was decided as a precautionary measure to move the accommodation and modules for the platform from their moorings in the cyclone zone back to Fremantle. The installation vessel, *Balder*, left for Singapore early last month and offshore activities are not expected to resume until April.

Woodside moved quickly to reassure Japanese LNG customers that the installation problems would not affect deliveries. It was stressed that there would be no shortfall in deliveries of domestic gas nor LNG exports because of the delay and that all contractual arrangements would be met since the existing North Rankin A platform is capable of meeting all supply contracts to Japan and the West Australian domestic market until 1997.

Platform design

The design of the Goodwyn A substructure and the topsides facilities represented a major milestone in Australian engineering because it was the first deepwater platform to be designed entirely in Australia.

The new platform forms an integral part of the giant North West Shelf development. (See Petroleum Review, December 1989 and December 1991). It is located in 131 metres of water approximately 138 km offshore from Dampier. Once on stream the oil and gas will be pumped ashore through an undersea pipeline for further processing and subsequent export.

After nearly five years of intensive work the fabrication of the substructure and topsides of the platform were completed and installed offshore last October.

The substructure comprises an eight-leg steel jacket with a separate module support frome to carry the 23,500 tonnes of modular topsides facilities. The jacket is a tubular space frame weighing about 17,300 tonnes and was fabricated onshore, transported to site by barge and then launched over the stern. When in position it was upended to the vertical and set on the seabed by controlled ballast of its leg compartments. Flotation and upending of the jacket was aided by two large auxiliary flotation tanks positioned on the outer frames of the jacket.

After removal of the flotation tanks, the jacket piles were installed with groups of four piles located at each corner of the jacket. Each pile, of two stage configuration and total weight of about 700 tonnes, extends to 181 metres below the seabed. The pile first stage, of 2.65 metre diameter, was driven to 161 metres depth. The second stage insert, of two metre diameter, was then lowered through the primary pile tip. With a conservatively estimated ultimate strength of some 114 MN, these piles have the highest load capacities of any piles ever installed offshore.

The corner pile groups each include a fifth primary pile to provide sufficient lateral resistance at mudline. This pile can be used as a construction contingency. If drilling problems in some way compromise the capacity of a pile, a fifth insert can be installed below the spare primary pile.

Future prospects

It is generally accepted that if the completion of Goodwyn is seriously delayed, Australian gas stands to lose out as other producers proceed to carve up the ever expanding markets in Asia.

While Mr Allen is confident about the future of the Australian gas industry, he acknowledges that other suppliers are emerging. Projects under consideration include those in Sakhalin, Papua New Guinea and Indonesia, while early feasibility studies are being undertaken in Venezuela, Oman and Trinidad. ■

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These Codes are referenced in the *EEMUA Selective Guide to the Pressure Systems and Transportable Gas Containers Regulations (1989)* - written by the Committee of User Inspectorates. The Guide which gives valuable advice on the interpretation of Regulations relating to periodic examination of pressure systems and critical associated aspects, can be obtained from **EEMUA (Tel: 071-235-5316)**.

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Report of IP-sponsored research

The importance of hydrocarbon input as an energy source for benthic production near natural gas and oil seeps

By P R Dando, Marine Biological Association of the United Kingdom

Natural oil and gas seeps have been known since before the commercial exploitation of hydrocarbon reserves, notably in the Gulf of Mexico. Hydrocarbon exploration of the NW Atlantic shelf and slope has shown that submarine gas seeps are common in most areas with thick sedimentary deposits containing 0.5 percent or more organic carbon. In areas of soft sediment, such as the Witch Ground in the North Sea, seepage is often associated with large craters on the seabed (pockmarks) which are thought to be formed by fluid expulsion. Some areas of the seabed resemble a lunar-like landscape with craters hundreds of meters across and 20 metres or more deep. Seep areas are frequently characterised by large formations of carbonate-cemented rock which has been exposed by erosion of the sediment. This carbonate is largely formed by methane oxidation, as judged by the 13C/12C ratios of the high magnesium calcite, aragonite or dolomite forming the 'cement'. Video pictures and diver observations show a diverse and spectacular bottom fauna around the submarine seeps. This has led to speculation that the methane is providing a carbon input into the benthic ecosystem with a local food web based on methane-oxidising bacteria.

The project was designed to investigate the effect of methane on the marine benthos in seep areas and to see if the seeps in northern European seas are equivalent to the spectacular hydrothermal vents and cold seeps observed in the Pacific and the deep hydrocarbon seeps in the Gulf of Mexico.

Methane seeps were studied in water depths ranging from the intertidal to 330 metres, at sites between 57° and 58°N in the Kattegat, Skagerrak and the North Sea. Stable isotope studies indicated that the methane at all the sites was of microbial origin, even where there was an underlying thermogenic hydrocarbon reservoir.

At most of the sites, with the exception of the deepest, the presence of 'hard grounds', due to sediment sorting or carbonate cementation, were associated with the gas seepage. This caused a change in the local flora and fauna giving rise to a hard-bottom or 'fouling' community in the vicinity of the gas seeps. In areas of extensive soft bottoms the gas seeps can form oases for epifauna, providing migration routes for these animals. Stable isotope and 14C measurements indicated that little methane carbon was entering the food chain and becoming incorporated in the tissue carbon of the spectacular epifauna and thus it may be inferred that natural gas seeps do not 'feed' North Sea fisheries.

The infauna in the vicinity of the gas seeps can also show differences in composition due to changes in sediment type or sediment depth and the presence of sulphides. High sulphide concentrations were often present in the immediate vicinity of the gas outlets. This was partly due to a combination of the rising methane bubbles stripping hydrogen sulphide out of the sediment and to deep interstitial water being pumped to the surface by the 'air-lift' action of the ascending gas bubbles. The hydrogen sulphide causes local anoxia in the sediment and is also toxic for many species so that few animals may be found close to a gas outlet. Species which utilise sulphide, such as bivalves and nematodes with sulphur-oxidising symbiotic bacteria are frequently found in the seep area but may be absent from the surrounding sediments.

Conversely, within a few centimetres of bubble outlets in sandy sediments, the overlying water is drawn down, thereby replacing water displaced by the ascending gas bubbles. In such cases the sediment may be far more oxic than normal. The interstitial water 'pumped out' of the sediment by the 'air-lift' of the rising gas bubbles is rich in nutrients and may cause a local increase in algal growth.

At the deeper Skagerrak sites the dissolved methane concentrations were substantially higher and greatly enhanced sulphate reduction rates were found in sediment where the methane outgassed. An increase in infaunal biomass was noted where there was methane rich superficial sediment, largely due to the presence of the pogonophore *Siboglinum poseidoni*, one of the few species to live on endosymbiotic methane-oxidising bacteria. It is likely that increased productivity directly due to gas seeps is confined to deeper water sites.

In the Gulf of Mexico seeps of higher hydrocarbons are relatively common and have been used as indicators of underlying exploitable reservoirs. In both shallow and deeper waters there is evidence of fossil carbon input into the benthic food web. It is likely that seeps with higher hydrocarbons are more biologically productive because of the greater retention of the higher alkanes within the sediment. In the present study seeps with a significant higher hydrocarbon content were not found.

The Skagerrak 330 metre gas seeps were similar to the Gulf of Mexico hydrocarbon seeps in that there were large areas of methane-saturated sediment close to the surface. Their greatly enhanced sulphate reduction rate was similar to that in the methane seeps in 3,000 metre water at the base of the Florida escarpment where we have recently shown a 100-fold increase in sulphate reduction rates.

The reason for the difference between shallower (<200 metre) and deeper (>300 metre) methane seeps is still not entirely clear but may be due to the increased partial pressure and solubility of methane.

Copies of the full report can be seen at the Library, The Institute of Petroleum.

. . . technical report

Exploration and Production

The study of subsea equipment operating envelopes has been extended to take account of a better representation of vessel responses and bore pressures.

A draft report on the incidents of overpressure in high pressure heat exchangers has been received from the consultants and is being reviewed by the working group.

The Code of Practice on Well Control during the Drilling and Testing of High Pressure Wells was launched in Aberdeen before an invited audience from exploration and production and drilling companies, consultants, HSE and the press. The presentations were well received and this approach has achieved a high profile for this new code.

Refining and Marketing

The draft Fire Precautions Code has been issued for comment to IP committees and external organisations relevant to the subject.

The first meeting has been held of a Stage 1b vapour recovery working group which will address the design considerations for vapour balancing operations at service stations and produce guidance on this subject.

The filtration working group of the Aviation Committee has commenced work on a draft micro filter specification to be discussed with manu-facturers and users. Witnessed testing of aviation filtration equipment has taken place in Germany.

The Electrical Committee has held a meeting with members of the IP service station panel and representatives of the electricity suppliers to consider the issue of Protective Multiple Earthing (PME) at service stations, as a result of which it has recommended the commissioning of an urgent risk analysis study of service stations utilising TT systems and those with TN-C-S systems.

A draft code of practice for aircraft refuellers produced by Aviation Committee is being considered as a base document by a CEN working group producing a standard for this type of vehicle.

A draft Code of Practice for Product Uplifts from Service Stations and Customer Premises has been extensively edited .

Measurement

The Petroleum Measurement paper, A Guide to Coriolis Direct Mass Flowmeters, has been balloted and comments have been reviewed. Publication is expected shortly

As a result of the decision to adopt the Strapping Code as the IP's reference tank calibration method, it has been necessary to move several sections of the Optical Reference Line Method into the Strapping Method. These sections have also been subjected to major editing to improve the clarity of the calibration procedure.

User Guidelines for Standard Temperature Accounting were submitted for preliminary comment; difficulties were experienced with the way accounting downstream from supply terminals had been treated.

Test Method Standardization

An additional 54 new and revised British Standard 2000 methods will be available from the IP at the end of February 1993. These are in addition to three already published in November 1992.

The 1993 IP Standard Methods book has been updated and will be published shortly.

Environment

The Code of Practice providing guidelines for the investigation of possible contamination of land by petroleum products has been sent to the printers. Publication is expected in March. A conference on this subject is scheduled for early May.

Work has started by a consultant on the production of an Environmental Effects Register for refineries for use in conjunction with BS 7750 - Environmental Management Systems.

A project to identify a solvent to replace the halocarbon used in determining the oil content of water has been approved and work started.

The conference 'Life Cycle Analysis and Eco-assessment in the Oil Industry' was well attended and voted a success by attendees.

Health

Agreement has been reached with Nottingham University for a project to investigate several mortality patterns found in the 1991 IP Epidemiology Study of refinery and oil transportation workers, together with any possible relationships to exposure to oil products. An international workshop at Nottingham University will discuss techniques of achieving scientifically valid benzene exposure estimates in petroleum marketing and distribution. Techniques developed at this workshop will be considered for use in studies for the IP project.

The Code of Practice for Occupational Hygiene Audits has been completed.

The final draft of a Code of Practice on Occupational Health has been completed. This Code will update those sections which cover health in the IP Marketing and Refining Code.

Microbiology

Two very successful microbiology conferences have been held, 'Implications of Biocide Use within the Petroleum Industry' and 'Current Problems of Microbial Spoilage of Bulk Distillate Fuels'. Both were well attended. Following the second conference it was agreed to reconvene the fuel oils task force in order to produce guidelines for the sampling, methods of test and the interpretation of results to be used when investigating potential microbial problems in distillate fuels.

J Hayes, Technical Director

Training for emergencies offshore

The Offshore Petroleum Industry Training Organisation (OPITO) was set up by the industry in April 1991 following the demise of the statutory Offshore Petroleum Industry Training Board. The main role of OPITO, which is self-funded, is to establish standards and to ensure that training is available to meet these standards in order to satisfy the skills and competences required by the offshore oil and gas industry. In particular this applies to safety, firefighting and survival skills.

Currently some 35,000 people are employed offshore on production platforms, drilling rigs, standby vessels and the many other facilities, which constitute the UK offshore oil and gas industry. Each member of this workforce is recruited and, as necessary, trained to provide his or her particular technical and vocational skills at the level of competence required for effective and safe operation of the facility on which they work.

The industry has always acknowledged, however, that no matter how carefully trained and managed a workforce may be, there is always a risk that an accident will happen; something can go wrong. In a remote, difficult and unpredictable environment, such as the North Sea, which is not readily accessible to the emergency services normally available onshore, the employees must be trained to cope with emergencies themselves, while the appropriate emergency services are mobilised. All individuals who work offshore, therefore, receive basic training in offshore firefighting and survival.

In the early days, the industry found that no appropriate training courses were available to meet these needs. Through an initiative with the Robert Gordon Institute of Technology in Aberdeen, the UK Offshore Operators Association (UKOOA) arranged for suitable survival training courses to be put in place; in order to meet its firefighting training needs, UKOOA financed and set up its own facility at Montrose.

With the rapid increase in size of the offshore workforce during the 1970s and 1980s, the demand for training also increased. To meet this demand, other training establishments were set up at various locations in the United Kingdom; some were the result of further industry/UKOOA initiatives and investment; others were independent. By the mid-1980s, the diversity of training establishments and the various requirements of the increased number of companies operating offshore had resulted in a range of courses with no assurance either that they were appropriate, or were of an acceptable quality, to equip trainees to meet their needs offshore. UKOOA decided that a common approach should be adopted for safety and survival training. They also decided that the standards should be set by an independent body; that the same body should also be responsible for assuring the quality of the courses which were developed to satisfy the standards. The Offshore Petroleum Industry Training Board (OPITB), the government's offshore industry statutory training body, was given this responsibility by UKOOA. To provide the bases for the training standards, UKOOA produced its own 'Guidelines for Offshore Emergency Training.'

The first standards were developed by the OPITB and approved by the industry in 1987/88; the first courses designed to meet these standards were approved soon after.

Then the government announced its decision to disband the OPITB, along with other industry training boards, UKOOA considered that it was essential for the offshore industry to retain an independent body which would continue to ensure the availability of adequate, quality assured emergency training to meet the ongoing needs of the industry. OPITO was therefore established in 1991, immediately replacing the OPITB. This industry-led organisation has a tripartite board of 12 directors; four are nominated by UKOOA, four by the official trade unions; one by the International Association of Drilling Contractors and three by the academic/training institutions. In addition, two senior government officials attend the board meetings as advisers; one comes from the Offshore Safety Division of the Health and Safety Executive, the other from the Training Enterprise and Education Directorate of the Department of Employment.

OPITO standards are now in place for courses at 15 training establishments in the United Kingdom, covering a whole range of offshore emergency survival and firefighting training requirements. All individuals who work offshore will have attended the basic survival and firefighting courses or one of the combined courses. The other courses are for those who have special responsibilities related to offshore emergencies.

OPITO training standards, covering skills related to effective rescue operations and following Lord Cullen's recommendations, have also recently been approved for the crews of standby vessels. Courses to meet these new standards will be in place in the United Kingdom and approved by OPITO by the middle of this year.

It is absolutely essential that the training standards reflect and are appropriate for the real and changing world offshore. To ensure this, they are developed by work groups which are co-coordinated by OPITO; these work groups consist of appropriate specialists from UKOOA, the trade unions, training establishments, other relevant organisations and government bodies (e.g. the HSE and Department of Transport). The final versions of the standards are only approved by the OPITO Board once there has been wide consultation within the industry and with the training colleges.

A recent example of a typical development to meet the changing scene offshore is the establishment of free fall lifeboat training courses. This type of survival system only became effectively acceptable offshore in the United Kingdom following Lord Cullen's recommendation that the industry should be allowed to adopt a 'goal setting' approach to safety rather than have to adhere to the old 'prescriptive' regime. New survival systems can now more readily be introduced creating a need for training standards and training courses.

In order to meet its responsibilities for ensuring a consistent quality of training between trainers, OPITO operates teams of inspectors. Only when a team has thoroughly inspected a course and is totally satisfied, will it receive a certificate of approval. Each course, once approved, is then subject to detailed re-inspection and re-validation at regular intervals; currently this is every two years. In the intervening period, each trainer is subject to unannounced ad hoc visits and audits by individual inspectors. If standards and quality are not maintained, then approval will be withdrawn.

On behalf of the industry and in line with another of Lord Cullen's recommendations, OPITO also maintains a Central Training Register of the names of those who have been trained on approved courses. Currently this register contains over 180,000 individual entries. It is used by the industry as the authoritative and independent source to check on the authenticity and current validity of individual training certificates. It is also consulted by the authorities in the event of an incident offshore.

John Batchelor

Conference report

Occupational standards for the oil industry

In early December the Institute of Petroleum held its annual conference organised by the Education and Training Committee. The title this year was Standards of Competence in Practice. As the title implied the conference had a very practical flavour with presenters from the petroleum industry and outside giving examples of how organisations have gone about developing and applying occupational standards. The conference also covered a broad range of the national initiatives in this area, including Investors in People and the Management Charter Initiative, to help delegates understand these initiatives and how they have progressed.

The conference generated a great deal of interest with over 50 delegates attending from a large number of petroleum sector companies. The framework of the day allowed plenty of time for questions and discussion: the very active contributions from the floor added a great deal of value for all present.

Clive Mather, Personnel Director of Shell UK Ltd. Downstream Oil and Chairman of the IP Education and Training Committee, chaired the conference, providing helpful links between the individual topics. The first presenter was Carole Singleton, Personnel Development Manager of Glaxo Manufacturing Services, who described how Glaxo had identified the core skill requirements for their pharmaceutical business and had utilised the National Vocational Qualifications (NVQ) framework in identifying training needs and setting training targets. The task focused structure and the potential link to payment by results outlined were variants on the standard assumption of how NVQs should be approached. This gave rise to a lively discussion .

Richard Ayres, General Manager of the Petroleum Employers' Council, proved less controversial but was no less valuable. He described the impact of NVQs on the downstream industry. He described the NVQ movement as a very quiet revolution, but a revolution nonetheless, with important implications for the petroleum business: not just in terms of approaches to training, but also potentially in terms of employment contracts, with more emphasis on professional skills than historical loyalties. He also talked about the functional mapping exercise being undertaken by the Petroleum Employers' Skills Council (PESC), targeted for completion shortly, which would help the industry to catch up with others who are currently well ahead in this field (e.g the major retailers). Peter Crowther, Head of Operations Training at Shell UK Exploration and Production, then described an application of competence assurance to their safety management system. The Piper Alpha disaster and the subsequent Cullen Report had highlighted the need for highly developed installation safety cases for North Sea operations. He explained the process adopted in developing 28 safety cases: identifying safety critical roles, individual competences, developing assessment mechanisms etc. The presentation provided a very practical illustration of how the concept of occupational standards could be applied to improve the integrity of operations.

Consultant Candace Miller led a workshop session which helped delegates to understand in detail the methodology of functional analysis and the specific requirements of a standard of competence. She used the Santa Claus Corporation as a seasonal illustration of what is involved. Audience participation, critical to the success of this session, was readily forthcoming but revealed that even some of the more experienced practitioners were not as familiar with the precise approach as they had imagined.

In the afternoon, John Fuller, Standards Manager of PESC, gave a presentation which confronted the delegates with the very real challenges that face workplace assessment. He described the work done to date in developing industry standards for Refinery Process Operations and for Bulk Liquids Warehousing – a painstaking process involving a great deal of co-operation from Esso, Shell, BP and many other oil companies – and highlighted the need to overcome perceived constraints such as cost, bureaucracy, credibility.

Progress made by the Management Charter Initiative (MCI) was then outlined by Fabian Partigliani, the MCI Crediting Competence Manager. He explained the MCI set-up but then focused on the way in which they are handling the Accreditation of Prior Learning or 'Crediting Competence' in MCI terms. There followed a double act on engineering competences: Peter Swindlehurst, Senior Executive at the Engineering Council and Kelvin Appleton, Project Manager for the Standing Conference for Extraction and Processing explained how competences can lead to professional engineering qualifications and the work being done to develop qualifications for craftsmen at NVQ levels 2 and 3 and to design standards for engineering competence at NVQ levels 4 and 5.

Lawrie Bain, Recruitment and Training Supervisor at Amerada Hess Ltd. then gave a case study style presentation on the Investors in People Initiative. He described this government and CBI backed initiative to improve the structures in place within companies for people development and explained the approach adopted by Amerada Hess. He was clearly committed to the Investors in People initiative and did a good job in selling the benefits of the scheme.

The conference was most privileged to have Peter Morley, Chairman of the National Council of Industry Training Organisations, to give the closing address. He explained the national targets for 'Foundation Learning' and 'Lifetime Learning' established by the government for the year 2000 and interim years. These are expressed as the proportion of the UK workforce qualified at NVQ levels 2 and 3 or equivalent and as various qualitative objectives. He also outlined what he saw as the key ingredients for success and the options open to the government in promoting the whole concept of lifetime learning. He also gave some valuable personal insights into opportunities and potential pitfalls for companies in the occupational standards area. (See *Petroleum Review*, February 1993).

This closing address helped pull the threads together from the day and put them into an overall context. As noted earlier, there was a high level of delegate participation during the day and this was sustained right through to the end. Although the conference agenda was ambitious, the high standard of the speakers, the workshop style and Clive Mather's skilful control ensured that delegates left exhausted maybe, but more importantly with a sound understanding of the issues facing the petroleum industry in the field of Standards of Competence.

I would like to take the opportunity to thank my colleagues on the Education and Training Committee for designing the conference and especially Bob Edmondson and Caroline Little of the IP for all their hard work in setting up the day and ensuring that it was such a success.

Frank Penson

Advanced tank gauging system for forecourts

The TLS 350R – recently launched by Veeder-Root Environmental Systems Normond CMS – is claimed to be the most advanced tank gauging system in the world and can dramatically improve petrol retailers' ability to monitor their petrol stocks and to quickly detect any petrol leaking from their underground storage tanks.

The new product is a fully integrated wet stock reconciliation and leak detection system which is modular and capable of later upgrades. As petrol forecourt site conditions are constantly changing, anyone with an underground storage tank, whether a major oil company or an independent owner of a filling station, will be able to choose the facilities required and even subsequently increase the TLS-350R's capability by adding new monitoring and control functions which are available as snap-in modules. In this way filling station operators can accommodate new tanks, changes in regulations or new developments arising out of technological advances.

The unit will also appeal to anyone requiring tank testing as it offers an automatic precision tank test, thus removing the need to spend some £500 per tank for a visiting tank test. The TLS-350R will automatically recognise quiet periods, continually test the tanks and provide a report stating their security. The system also offers:

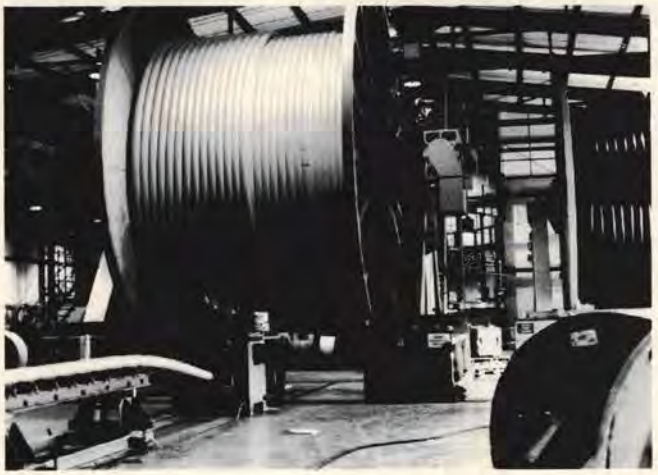
- Automatic callibration;
- dynamic leak detection;
- precision tank testing;
- interstitial monitoring for double skinned tanks;
- choice of probes;
- stock reconciliation;
- continuous inventory monitoring;
- static leak detection;
- programmable alarms;
- automatic delivery reports;
- status reports;
- leak detection sensors;
- lione leak detection;
- data communications, and;
- DCD compatible.

The company believes the greatest benefit of the new system is its modular design allowing filling station operators to choose a basic configuration and add new features as their needs change.

Sheathed rope's 300-year life

The new Shell Oil *Auger* oil and gas production platform, which will operate at a world record depth of 872m in the Gulf of Mexico, is a Tension Leg Platform (TLP) which uniquely incorporates a Lateral Mooring System (LMS). The LMS wire mooring lines are being supplied by Bridon Ropes of Doncaster and comprises eight mooring lines for the Auger platform. A large proportion of the underwater mooring lines have been constructed from sheathed spiral strand. The sheathing ensures that the wire strand is protected from corrosion, extending the practical working life of the installation to around 30 years - the designed fatigue life is 300 years.

Each of the eight mooring lines will have three sections using the sheathed spiral strand totalling 2,590m in length. The strand diameter is 127mm and the sheathing is 11 mm thick. According to Arthur Brecke, contracts manager at Bridon Ropes, this is the first time that this thickness has been achieved for this type of application.



Protecting drains from tanker spillage

The effects of oil and chemical spillages in terms of pollution, clean up costs, higher insurance premiums, fines and impaired public relations can be substantially reduced or totally eliminated by precautionary sealing of surface drains when tankers are loading or discharging.

The Drizit Emergency Drain Seal is designed to provide an easily deployed, simple and efficient means of protecting all drains likely to be at risk during tanker operations.

A high proportion of pollution incidents originate from pipe fractures, pump and valve malfunctions, overfilling and other human error. A drain seal, permanently located on walls or posts adjacent to vulnerable drains or carried on the vehicle and capable of being fitted within seconds, prevents spillage from flowing into the drainage system.

Produced in sizes ranging from 200mm to 900mm square and suitable for both flat and curved drains, Drizit Emergency Drain Seals are lightweight, weatherproof and resistant to oils, acids, alkalis and solvents.

Non contact flow measurement

Reading based ABLE Instruments and Controls has recently supplied non contact flow metering computers to Shell Expro for use in offshore water injection systems. The Controlotron 990 Uniflow, universal transit time clamp-on ultrasonic flowmeter offers many benefits to offshore users, in addition to providing better performance, reliability and economy than most conventional intrusive devices such as orifice plates, turbines, magmeters, venturis and vortex meters.

Clamp-on transducers mean that no additional pipework is required, neither is any pipe cutting, special flanges, or downtime for installation. A pipe simulator can be used to test the instrument prior to installation and all flowmeter setup operations are programmable by menu driven software. The computer incorporates a graphics LCD displaying a choice of flow rate, total flow, setup and diagnostic information, together with a 'strip chart' trend display of flow over time. A large internal memory and real time clock allows automatic or manual logging and storage of flow data.

Pipeline ice plug prevents Lincolnshire flood

An ice plug 28-inch long by 24-inch in diameter has proved the effectiveness of pipe freezing enough to hold back the Theddlethorpe coastal dunes pipeline crossing water head, whilst a new shore side block valve outside the Theddlethorpe gas terminal was installed.

ARCO British Limited, operators of the gas pipeline had taken the decision that the valve would be retrofitted after installation of the line pipe, but had not decided what method would be used to install the shore line block valve.

To isolate the pipeline where the valve was to be fitted, Hydra-Tight On Site Services created two ice plugs, using liquid nitrogen to freeze the pipeline, either side of the section of pipe to be removed. The 70km long pipeline had been back filled with approximately three million gallons of chemically treated sea water for hydrostatic test purposes.

The pair of ice plugs were held for 4 days whilst the modification to the pipeline and the fitting of the valve took place.

Pipeline freezing was chosen as it promised savings in both time and manpower requirements, as well as being an extremely clean and tidy process with only the minimum of equipment required at the site.

This fact alone encouraged ARCO to decide to pipe freeze as the pipeline at the point where the valve was to be installed is below ground, requiring excavations either side to expose the pipeline.

Such was the success of the Hydratight pipe freezing that ARCO British Ltd. also used the technique whilst the blind flange from the end of the test line was removed.

It is commonly accepted that the use of liquid nitrogen at 1196°C does not cause any permanent structural or mechanical changes to pipework material.

It does, however, provide a means of establishing quick, clean, local isolations in liquid filled pipework, eliminating the need for drain down or storage of large amounts of potentially hazardous liquids.

Endurance tests on downhole pump

Weir Pumps has completed a programme of material development which has concluded with endurance testing of a hydraulic drive downhole pump to demonstrate superior sand erosion performance under difficult operating conditions.

The objective of the £325,000, two-year programme – supported by BP, Chevron, Shell and the Department of Energy – was to develop a pump which would operate in such conditions with a minimum period between workover of two years.

Endurance testing of a 10,000 barrel a day pump under simulated highly corrosive conditions in the Weir laboratory has demonstrated that this objective has been achieved.

Prior to the tests, a materials screening exercise was carried out to identify the most suitable materials, coatings and surface engineering treatments for maximum wear resistance.

The materials finally selected and used in the endurance test included a cobalt based alloy with surface treatment to enhance hardness for the hydraulic components, and advanced engineering ceramics for bearings and wear rings.

This new development, in combination with the advantage of wireline retrieval of the Weir hydraulic drive downhole pump as demonstrated during field applications over the last two years, provides the industry with a reliable and readily retriev-able downhole pump option for application in subsea completed wells.

Solidified sulphur solution

When engineers at a major UK petroleum refinery began experiencing problems with the steam tracing lines of the sulphur recovery plant, they invited Spirax Sarco to survey the installation.

The company was soon able to piece together a picture of the problems based on their own findings and historical information supplied by the plant engineers.

Steam is used extensively to trace heat the sulphur lines to prevent solidification. The lines need to maintain a temperature of approximately 150°C at 4.5 barg, but the critical sulphur temperature was difficult to maintain. This was primarily because bi-metallic thermostatic traps had been fitted which sub-cooled the condensate prior to discharge and therefore provided insufficient heat in the sulphur lines. A further problem was that the traps themselves had been welded into the lines and could not be easily replaced or serviced.

A survey of each steam trap was undertaken using an ultrasonic leak detector and/or temperature probe. While the majority of traps were found to be working satisfactorily, it was clear they were unsuitable for the application as steam space was becoming waterlogged thus impairing heat transfer.

The proposed solution was Spirax Sarco's UTD30L thermodynamic steam trap. Comprising a pipeline connector which can be welded into the line and to which the trap itself is bolted, it is easy and quick to remove and replace and therefore simple to maintain in optimum condition to ensure high product temperature is achieved.

Multi-purpose chemical hose

Flex-Rite Hose and Couplings has recently added a new high grade multi-purpose chemical hose to their wide range of flexible hoses for the chemical and petrochemical industries.

The hose's new smooth homogeneous XPE liner is resistant to almost all chemicals at temperatures up to +90°C and can be sterilised at +130°C for up to 30 minutes, it can discharge static electricity, has a working pressure of up to 10 bar and is suitable for a wide range of applications.

To ensure maximum safety and avoid the potential problem of "blow-off", Flex-Rite can supply complete hose assemblies incorporating Series 7000 permanently attached coupling system, offering a range of end connections including 316 s/s, monel, hastelloy, corrosion resistant PTFE lined fittings for flanged and camlock type assemblies and Dry Break couplings.

All hoses are tested under severe conditions to ensure high quality and a long service life, they are supplied complete with a certificate and permanently marked with a registration number for traceability.

Advanced lubricant training

Shell Oils recently launched a special interactive training programme to develop essential knowledge about lubricants and their applications. The Shell Oils Tutor is targeted at the industrial market, in particular the manufacturing industry, and provides a flexible system for lubricant training.

The tutor was developed in response to research which revealed that 70 percent of companies interviewed had no formal lubricants training programme. A large percentage of this group agreed that there was a need for some form of specific lubricant training in an easy-to-understand format.

The new tutor is the first training package of its kind. The programme provides information on basic principles of lubrication and also looks at key specific application areas such as hydraulics, gears, compressors, greases, diesel engines and agricultural equipment.

The tutor is a multi-media training system which consists of training handbooks together with audio cassettes and an overall computer-based test. It can provide a range of individuals, in particular maintenance engineers and internal maintenance departments, with a greater understanding of lubricants and the principles and criteria for their selection.

Contact List

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Combustion Developments Limited	0629 814 351
Weir Group	041 637 7111
Flex-Rite Hose & Couplings	0933 673 699
Hydra-Tight	0922 645 945
Hoechst Polymers	0908 680 494
Spirax Sarco	0242 521 361
ABLE Instruments & Controls	0734 311 188
Darcy Products	0732 843 131
Veeder-Root Environmental Systems	081 392 1355

Integrated multiple emissions monitoring system

An Integrated Emissions Monitoring system has been developed by CODEL (Combustion Developments Ltd) for plants requiring multiple stack and/or parameter monitoring. Extremely flexible, the powerful IEM system provides total management of emission data on potential atmospheric pollutants such as smoke, dust, CO, NOx and S02 without compromising plant and process management and control functions.

The system allows two-way communication via a serial link between up to 30 individual CODEL analysers and a stand-alone central controller which can be accessed by an IBM-compatible personal computer. Using CODEL-developed software, the data can be automatically displayed and reported in the format required by Her Majesty's Inspectorate of Pollution.

Pressure, temperature and oxygen levels can be used by CODEL instruments to normalise actual operation measurements to standard conditions. This data can be brought in via 4-20mA inputs, the keypad or the serial communications highway.

Security of the IEM system is enhanced by each analyser being responsible for the computation of measured (mg/m3) or normalised (mg/Nm) data over various rolling average periods from 10 seconds to 30 days. Data is stored for a moving 365 day period.

Easy to install, simple to operate and virtually maintenance-free, the IEM will be a great advantage for plants with little or no available technical support.

New survival aid patented

A new life-saving device for use on shipping craft, North Sea oilrigs and in case of air disasters is being patented by leading patent attorneys Urquhart-Dykes & Lord.

In any emergency occurring in severe weather conditions, the solution to survival is to retain as much body heat as possible. Many survivors of air or sea disasters die quickly, not from injuries or drowning, but from hypothermia brought about by exposure to low water temperatures and high wind chill factors.

Invented by W M Healthcare, the Thermour Survival Suit, is a lightweight emergency thermal garment designed to reduce loss of body heat and provide a barrier against severe weather conditions. Made from a windproof and waterproof non woven fabric, the suit has an aluminised lining to reflect body heat and maintain core body temperature at the normal level until the wearer is rescued or is able to make their own way to safety.

Comments patent attorney George Kelvie, 'Designed to be worn over a buoyancy aid, the suit allows full mobility and removal is not necessary until the danger has passed. significantly reducing critical wind chill factors. Existing protection aids currently on the market have to be removed prior to the wearer being winched to safety, not necessary until the danger has passed.'

Rigorously tested at the Robert Gordon Institute for Technology, Survival Centre in Aberdeen, the suit has been approved by the DOT Marine Section and meets SOLAS 1986 regulations for safety at sea.

...people

Mr Lucio Noto has been nominated as President and Chief Operating Officer of Mobil Corp. and Mobil Oil Corp. with effect from 1 March. He joined Mobil in 1962 and has worked for Mobil Sekiyu KK, Tokyo, Mobil Oil Italiana in Rome and Mobil Saudi Arabia in Jeddah.

Mrs Lesley Mason, above, has been appointed General Manager, Prime Garages Ltd. Mrs Mason has been with Mobil for 17 years and was previously Manager of Marketing and Planning Services.

Mr Joe Darby, above, has become Chief Executive of LASMO plc in succession to Mr Chris Greentree who is leaving to pursue other interests. Mr Darby was previously the Chief Operating Officer of the Group. He joined LASMO in 1989 when it bought Thomson North Sea of which he was Chairman and Chief Executive.

Mr Clive Mather has joined the Board of Shell UK Ltd. with responsibility for personnel and administration. He was formerly General Manager of Human Resources and Public Affairs for Shell UK Ltd. Downstream Oil. He is a member of the Equal Opportunities Commission and a Director of the British Pipeline Agency.

Foster Wheeler Energy Ltd. has appointed **Mr A J Barrington** as Sales and Marketing Director. Previously General Manager, Sales and Marketing, he will continue to have responsibility for sales in the United Kingdom and internationally in all areas of process plant engineering and on and offshore oil and gas production.

Mr James Hargreaves has recently been appointed a Director of Smith Rea Energy Analysts Ltd. He worked for GEC-Marconi before joining Smith Rea five years ago. He has recently joined the IP Energy Economics Group committee.

Mr K H Taylor, above, has been appointed Chairman and Chief Executive of Esso UK plc, with effect from 1 February. Since 1985 he has been Managing Director of Esso Exploration and Production UK Ltd. and Esso UK plc. In 1988-89 he was President of the UK Offshore Operators Association. He is currently Vice-President of the Institute of Petroleum.

Mr P E Mawn has joined the PA Consulting Group as Vice-President of the International Oil and Gas Division. He worked previously for Exxon and Amerada Hess.

Ms Nancy M Trahey has been elected as Chairman of the 1993 American Society for Testing and Materials (ASTM) Board of Directors. She is Senior Project Manager in the Standards Reference Materials Program of the Office of Measurement Services, National Institute of Standards and Technology in Gaithersburg.

Mr Colin F Britton has set up a corrosion engineering consultancy.

Mr John Hogan, above, has been appointed Chief Operating Officer of LASMO plc. He was previously Managing Director of LASMO North Sea plc. He will have responsibility for the day-to-day management of the company's worldwide operations. He is succeeded as Managing Director of LASMO North Sea by **Mr Russell Harvey**, former Production and Operations Director.

Naval architect **Dr Furkan Ramzan** of Brown and Root Ltd. is the new Chairman of the Technical Advisory Committee of the Marine Technology Directorate Ltd.

Enron Europe has made **Mr Ralph Hodge** Non-Executive Chairman of the Board. Mr. Hodge, formerly Chief Executive of ICI Chemicals and Polymers, is joining Enron after 37 years with ICI. **Mr Robert H Baldwin** Jr has been promoted from Senior Vice-President to President. Mr Baldwin joined Enron Power Corp. in 1989 and has worked for Enron Europe on the Teesside power project.

IT management consultancy CMG has recruited **Mr Arthur Davies** as Senior Consultant. He leads the CMG team working on the contract to provide strategic consultancy on Chevron UK's multi-field integration project.

Mr Norman Chambers, formerly Chief Executive Officer, has been made Managing Director, Brown & Root Marine Europe and Africa. **Mr Jan Veldwijk** takes over as Chief Executive Officer. He was Managing Director of Smit Offshore Contractors before the formation of Rockwater.

Mr John Jennings who has been with the Royal Dutch/Shell Group for over 30 years, will take over the chairmanship of Shell Transport and Trading, when Sir Peter Holmes retires at the end of June.

Dr Howard Johnson has been appointed to the Enterprise Oil Chair of Petroleum Geology in the Department of Geology at Imperial College of Science, Technology and Medicine in London.

Mr Pieter van der Linden has been appointed Managing Director of Inspectorate's operations in The Netherlands. For the last nine years he was Managing Director of Caleb Brett in Rotterdam.

Mr Dennis Arnold is the new National Account Manager for BR Tankfreight. He has worked for Tankfreight since 1966.

Texaco Ltd. has announced that **Mr Wayne N Clark** is to move from Houston to become General Manager of the Pembroke refinery in south Wales. Most recently he was President, Texaco Petroleum Development Co. and Assistant General Manager, Engineering and Purchasing Department, Texaco Inc. He succeeds **Mr Guy Birmingham** who is retiring after 37 years with Texaco. including periods managing refinery operations in The Netherlands, Saudi Arabia and the United States.

Mr Roland Shaw has become Non-Executive Chairman of Premier Consolidated Oilfields plc with effect from 1 January.

Mr Phillip Greenfield has been appointed as Managing Director of United Transport Tankers and United Transport Logistics.

Institute News

New Collective Members

Cairo Oil Refining Company
Mostorod, P O Box Heliopolis, Cairo, Egypt
IP Nominated Representative: Ms L Khattab, Chemist, GM Chemical & Research Labs

The company is an Associate of the Egyptian General Petroleum Corporation and processes 40% of the crude refined in Egypt. the main products are propane, LPG, regular & premium gasoline, kerosene, gas oil, fuel oil and two aromatic solvents. The refinery has four distillation units, a catalytic reformer and a hydrodesulphurization unit.

MOL Hungarian Oil & Gas Company
Oktober 23-A U 18, H1117 Budapest, Hungary
IP Nominated Representative: Mr Zoltan Mandoki, Vice-President for Corporate Planning.

MOL is the leading oil and gas company in Hungary and the only integrated oil company in Eastern Europe. The company produces circa 25 percent of Hungarian oil consumption and circa 50 percent of gas consumption and has four refineries and 300 filling stations.

PG Marine bv
Kasteelweg 5-7, 3077BN, Rotterdam, Netherlands
IP Nominated Representative: Mr G C A Langelaar

PG Marine was founded in 1990 and is part of the P Guldemond Group. The latter was established in 1946 in Antwerp, followed in 1967 by the Rotterdam branch. The main activity of P Guldemond has always been inspection of quality and quantity of vegetable and animal oils and fats, mineral oils and chemicals, as well as calibration of shore tanks etc. PG Marine concentrates on the petroleum sector as an independent inspector and cargo superintendent. The company is represented in Syria, Greece, France, Turkey, Italy, Spain and the United States.

Around the Branches

Aberdeen
9th March: 'Telecommunications & Teleconferencing' John Johnston, Cameron Communications.
13th April: 'The Scott Field Development', Keith Hart, Amerada Hess

Yorkshire
9th March: Joint Meeting, Guest Speaker from The Institute of Energy

Essex
10th March: 'Future trends in Automotive Fuels and Lubricants', Dr Ian P Field, Exxon Chemicals – Paramins Division.
19th March: Annual Dinner Dance

Southern
10th March: 'The Valdez...Four Years On...', Dave Dando

West of Scotland
11th March: The Petroleum Dinner 1993, The Hospitality Inn, Glasgow

Northern
15th March: Joint Meeting with Stanlow Branch
12th April: Hot Pot Supper

Midlands
17th March: 'Diesel Fuels vv Synthetic Lubricants', Mr M Redgard, Esso Research
21st April: 'Electricity at Work Act – Sparks Us Into Action', Speaker from C A Sothers Limited, Electrical Contractors

Stanlow
17th March: 'Crude Oil Loss Control and Reduction in Volatile Organic Emissions', Phillip Duggan, Consultant

South Wales
18th March: 'Oil Spill Response', Mr D Salt, OSR
26th/28th March: Visit to York Minster
22nd April: 'Real Time Route Planning', Mr J Abbott, General Logistics plc

North East
23rd March: 'Hazard Analysis in the Oil Industry', P Waite, Cremer and Warner Ltd.
23rd April: Annual Dinner Dance

Humber
1st April: Ladies Night

London
27th April: 'Current Tax Issues – The UK North Sea', P M Naylor, Arthur Andersen & Company

New IP Staff Member

Mr Sjoerd Schuyleman, has joined the staff of the Institute of Petroleum in London as Technical Manager Upstream. He succeeds Alan Lodge who left in July last year. Mr Schuyleman has a degree in geology from Imperial College, London and a wealth of experience gained from more than 26 years with BP Exploration worldwide. His technical experience includes field and rig work, acreage evaluation, field development and production monitoring. This was followed by a number of senior appointments in operational, exploration and technical management positions. He joined the Institute in February where his role is to increase IP involvement in upstream matters.

UK Deliveries into Consumption (tonnes)

Products	*†Dec 1991*	*†Dec 1992*	*†Jan-Dec 1991*	*†Jan-Dec 1992*	*% change*
Naphtha/LDF	261,694.0	295,894.0	3,299,407.0	3,280,943.0	-1
ATF - Kerosene	458,196.0	473,479.0	6,175,912.0	6,665,651.0	8
Motor Spirit	2,009,665.0	2,039,321.0	24,020,836.0	23,906,314.0	0
of which unleaded	866,804.0	1,006,904.0	9,868,010.0	11,204,286.0	14
of which Super unleaded	105,207.0	127,357.0	1,171,938.0	1,414,362.0	21
Premium unleaded	761,597.0	879,547.0	8,696,072.0	9,789,924.0	13
Burning Oil	277,961.0	332,624.0	2,383,094.0	2,500,378.0	5
Derv Fuel	838,179.0	922,276.0	10,694,016.0	11,086,412.0	4
Gas/Diesel Oil	686,599.0	69,807.0	7,923,126.0	7,188,392.0	-9
Fuel Oil	1,036,460.0	1,055,900.0	11,948,042.0	11,266,992.0	-6
Lubricating Oil	49,556.0	50,781.0	758,736.0	761,070.0	0
Other Products	526,788.0	1,211,334.0	7,205,388.0	7,680,500.0	7
Total above	**6,145,098.0**	**6,451,416.0**	**74,408,557.0**	**74,336,652.0**	**0**
Refinery Consumption	536,687.0	530,370.0	6,057,634.0	6,080,395.0	0
Total all products	**6,681,785.0**	**6,981,786.0**	**80,466,191.0**	**80,417,047.0**	**0**

*†Revised with adjustments *Preliminary n/a Not Available*

Institute News

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Mr D W Morgan, Building 56, Marine Technology Centre, Cranfield Institute of Technology, Cranfield, Bedford, MK43 0AL

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PERSONNEL EDUCATION & TRAINING DISCUSSION GROUP EVENING MEETING

Wednesday 21 April, 1993
5.15 for 5.45 p.m.

'THE LEARNING ORGANISATION IN PRACTICE'

'WHAT DOES IT MEAN FOR THE OIL INDUSTRY?'

Terry Bowden - Manager, Quality & Learning
Shell U.K, Downstream Oil

will present a view of how and why the 'Learning Organisation; will be an aid to competitiveness in the future. His talk will be relevant to all industries.

Staff member companies, individual members, guests and those interested in the future of the oil industry will be most welcome.
Please let **Bob Edmondson at The Institute of Petroleum (telephone 071 636 1004)** know if you or your colleagues plan to attend.

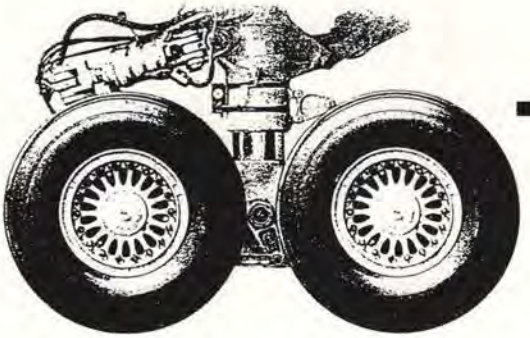
ENVIRONMENT DISCUSSION GROUP

at the IP on the
30 March 1993
commencing at **5.30 p.m**

"THE BRAER OIL SPILL - DISPERSION IN ACTION"

Speaker **Dr Dick Thomas** of Warren Springs Laboratory
Dr Thomas's talk will be based on the initial findings of the study carried out by WSL in Shetland following the grounding of the Braer.
All members of the Institute and their guests are welcome to attend the meeting for which there is no charge.
If you and your guests would like to attend this meeting contact **John Phipps** and the IP.

SMOOTH



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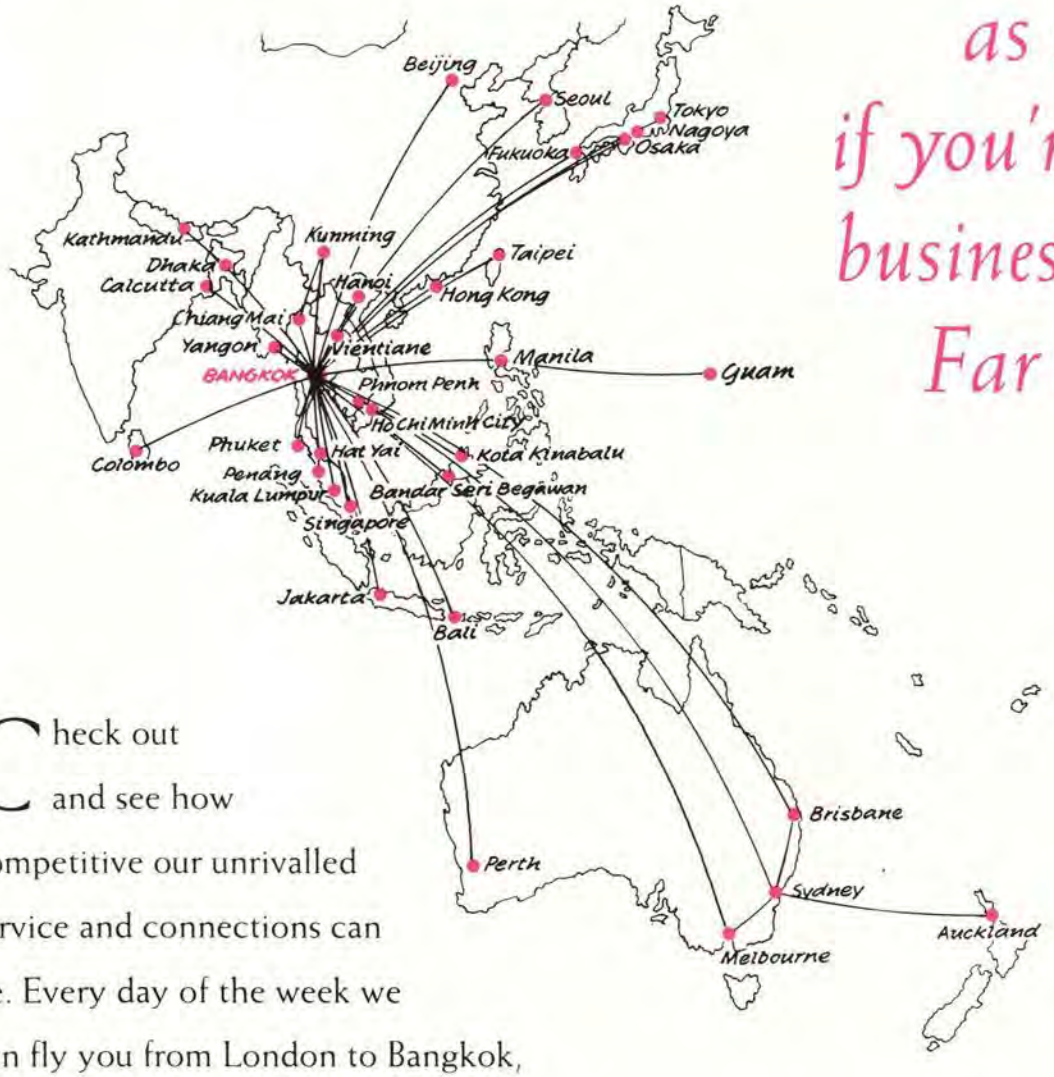

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