AUSTRALIAN PETROLEUM COOPERATIVE RESEARCH CENTRE

http://www.apcrc.

Level3, 24 Marcus Clarke Street
GPO Box 463, Canberra
ACT 2601, Australia
Tel: +61 2 6200 3366
Fax: +61 2 62300 448
Email: pjcook@apcrc.com.au
Executive Director
Dr Peter j Cook CBE FTSE

ADELAIDE *CANBERRA* *MELBOURNE* *PERTH* *SYDNEY*

5 July 2002

Chairman,
Standing Committee on Industry & Resources
Parliament House
Canberra ACT 2600

Dear Mr Prosser,

INQUIRY INTO RESOURCES EXPLORATION IMPEDIMENTS

I am pleased to have the opportunity to comment on impediments to increasing level of petroleum exploration in Australia.

I shall focus my comments on matters relating to the public provision of geoscientific data and petroleum-related R&D issues. However, I will first touch on Australia's petroleum prospectivity and on greenhouse issues.

Petroleum prospectivity

No doubt other submissions will deal with this issue in depth; all I seek to do here is to set the scene for my subsequent comments.

Australia is perceived to be gas-rich and oil-poor. It is also perceived to have only modest petroleum prospectivity compared to many other parts of the world. Current projections indicate a significant drop in the oil production in the coming years, which will have an increasingly severe impact on Australia balance of payments situation. Therefore, the message is, that because of its geology and perceived poor prospectivity, we must work to ensure that Australia is seen as a good place in which to invest E&P dollars. This means that we must level the playing field by measures such as maintaining a good R&D base and having high quality data readily available. We must also have a sensible approach to greenhouse issues that does not inhibit responsible post-exploration/production activities.

Greenhouse issues

The link between greenhouse issues and the focus of the enquiry is not self evident, but it is important and will become increasingly so. Some of Australia's largest gas fields are high in carbon dioxide. Already some companies are using this as a basis for deciding not to explore in a CO_2-prone area. There are perceived uncertainties regarding Australia's position on CO_2 emissions (and the consequential financial uncertainties that might flow

on from that uncertainty). Given that Australia is unlikely to implement the Kyoto Protocol it is important for it to be seen to take other, perhaps more appropriate steps, in order to limit CO_2 emissions and reduce uncertainty amongst gas explorers, yet ensure that there are no adverse cost implications for energy producers.

Natural carbon sinks will be important to Australia, but of particular significance to the petroleum industry will be the development of geological sequestration of carbon dioxide as an accepted mechanism for controlling CO_2 emissions. Australia has potentially much to gain from geological sequestration, and successful cost effective implementation of this option may help to enhance the level of exploration activity for natural gas. The technology undoubtedly needs more research, including a major Demonstration Project. Government support for such work will be seen positively by the exploration industry, which will in turn flow on to gas exploration in particular.

Public provision of geoscientific data

Most developed, and many developing, countries seek to provide ready access to pre-competitive data as a means of encouraging petroleum exploration. The quality of the data varies from country to country and the price of data is also quite variable. Countries perceived to be highly prospective for petroleum exploration, have less need to provide such data to encourage exploration, whereas less prospective countries need to "level the playing field" by offering high quality pre-competitive data (and knowledge) at low, or no, cost.

Australia is fortunate in having an outstanding organization – Geoscience Australia – to collect, compile and hold geoscience data. Ready access to such data undoubtedly acts as a magnet to overseas exploration companies. The work of Geoscience Australia must be maintained and preferably enhanced. Underfunding of Geoscience Australia, thereby resulting in its inability to collect and/or maintain new data would be a severe impediment to exploration in Australia.

Is the current level of funding (and activity) of GA adequate? Whilst this question should be asked of GA, my impression is that the current lack of Government long term financial commitment to GA's petroleum program is an inhibition on GA's work (this, hopefully will be addressed as part of a current departmental inquiry). Additionally GA is not currently funded at a level that enables it to undertake major new data collection programs or adequate curate existing collections.

The need for new data will become increasingly pressing. For example, the entry into force of UNCLOS will result in major extensions to Australia's Continental Shelf zone. Many of these areas have very poorly known petroleum prospectivity. GA must be funded to adequately assess the prospectivity of these and other deep water frontier areas on the Australian margin.

Related to this is the issue of long term curation of new or existing data. GA holds large amounts of petroleum data in purpose-built facilities that are greatly valued by the exploration industry. However, much of the existing data is becoming difficult to access for modern processing. It is essential that GA is funded to enable it to move all existing data to modern media and to be able to in future curate all its data to prevailing standards.

There is another important aspect to the provision of pre-competitive data and that is its importance to the junior explorers. Australia, unlike the USA, Canada or the UK, has only a limited number of junior petroleum explorers. Lack of low-cost publicly available data can mean that small companies are unable to access information and consequently are unable to develop innovative exploration concepts. The absence of a strong junior sector is an inhibition to petroleum exploration in Australia. Therefore, action to develop a more active junior sector, including through the provision of data and knowledge, will be beneficial to petroleum exploration in Australia. GA, CSIRO, the Universities and the private consulting sector all have a role to play in assisting the junior companies, but they would find it difficult to play their full role from existing resources.

Petroleum-related R&D

In addition to ready availability of pre-competitive data, the existence of a strong and vibrant research sector can be a magnet to exploration companies. Conversely the lack of a good R&D sector can be a disincentive to new explorers.

Is the Australia R&D scene vibrant? Probably yes. Does it have a critical mass? Probably no. It has been said that oil is discovered in the minds of men (or women) – or words to that effect! The point is that the development of new knowledge and ideas is critical to finding more oil and gas. It is therefore important to have active research programs to generate new and, perhaps unconventional exploration ideas. The major petroleum research groups in Australia are the parties making up the Australian Petroleum CRC (Geoscience Australia, CSIRO Petroleum, University of Adelaide (NCPGG), University of New South Wales (SCOPE) and Curtin Exploration Geophysics). Funding for all of these Parties should at least be maintained, and preferably enhanced, for they all contribute very positively to exploration in Australia.

Funding for the APCRC is due to finish on 30 June 2004; this will have a negative effect on the overall level of exploration research in Australia and indirectly in the longer term on exploration activity. A decrease in the level of support to these APCRC-related Universities will also adversely impact on student numbers, and on the quality of students, equipped to enter the petroleum exploration industry. A shortage of good, well-trained, new staff with high level skills would be a major inhibition to the exploration industry in Australia It is, therefore, imperative that a supply of good geoscience graduates is maintained, including graduates trained to MSc and PhD levels. Funding for a new petroleum-focussed CRC, commencing in 2005 would contribute to the level of exploration activity in Australia in 2005 and beyond.

As indicated earlier, the current level of petroleum-related R&D is probably below the optimum level. As is the commonly the case in Australian industry, the level of petroleum R&D by the private sector is especially low. This may not be a problem for the exploration industry (or Australia) if the industry were to commission R&D from Australian research providers. This does happen to some extent and certainly some (but not all) companies are major purchasers (and users) of Australian research and technical services in support of their exploration. Small companies who have little or no production and may not be able to afford to fund petroleum research in Australia. Public support for

petroleum R&D, coupled with a program to ensure benefit to the junior explorers, would help to raise the level of exploration activity in Australia by the junior companies.

Some larger companies choose, for whatever reason, to fund little or no R&D in Australia, despite significant Australian earnings. This lack of engagement in Australian R&D is a matter of concern. Some of these companies may undertake research through their parent companies and this too may benefit Australia indirectly. However, in some cases significant companies may be engaged in little or no R&D in Australia. In the report "The Value of Petroleum R&D in Australia", authored by Mark Matthews and published by the APCRC, the point is made by Matthews that :

"*Over the period 2001-2010, the net present value of the Australian upstream petroleum industry will benefit by an extra A$9 billion from technology advances with A$6 billion derived from global technologies and A$3 billion from Australian focused technologies."*

In other words there is a very direct benefit to Australia from technologies focused on (including developed in) Australia.

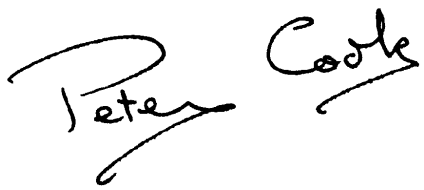
In my preface to the Matthews report, I state:

"Whilst it would be unreasonable to expect a precise linear relationship between money spent on petroleum R&D in Australia and economic benefit to Australia, it is reasonable to expect that an increased level of petroleum R&D in Australia would produce real economic benefits for Australia, and the Australian petroleum industry, well in excess of expenditure. The experience of the APCRC indicates a net benefit of almost $30 for every CRC dollar invested in petroleum-related R&D. Despite this there is no avoiding the fact that, currently, the overall level of petroleum-related R&D in Australia is low. In 1996-97, companies in the upstream oil and gas industry reported to the ABS that they spend A$1.651 billion on technological innovation but only 2% of this (A$34 million) was estimated to be on R&D. The ABS data does not indicate how much of this R&D expenditure was incurred in Australia but my knowledge of the overall level of R&D activity leads me to estimate that perhaps no more than half of this (A$17 million) would be spent by the industry with Australian R&D providers. Given the size of the industry in Australia, by any standards this is an unacceptably low level of expenditure for maintaining and enhancing Australia's petroleum R&D capability. I suspect it also adversely impacts on the capacity of the petroleum industry in Australia to take up innovation."

I believe that it is in the best interests of the Australian petroleum exploration industry (and the level of exploration) to undertake more R&D and for more of that R&D to be carried out in Australia. Conversely, the rather modest level of support for R&D by industry overall, is probably inhibiting exploration in Australia. This serves to highlight the need for (and the benefit of) government support for petroleum-related R&D programs as a means of correcting "market failure" in the Australian petroleum R&D sector, thereby contributing to maintaining and enhancing, the level of exploration in Australia.

I would be pleased to provide additional information to the Committee is this would be useful.

Yours sincerely



Peter J Cook
Executive Director
Australian Petroleum Cooperative Research Centre