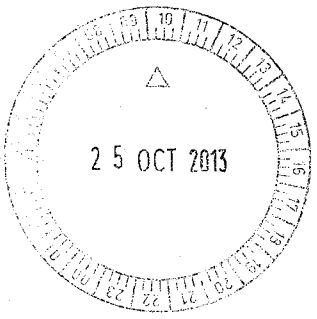
Government of **Western Australia**
Department of **Mines and Petroleum**



Your ref: PGE
Our ref: A0282/200702
Enquiries: Colin Harvey - Ph 92223315
Email: colin.harvey@dmp.wa.gov.au

Mr Mark Warner
Committee Clerk
Legislative Council
Parliament House
Perth WA 6000

Dear Mr Warner

PETROLEUM AND GEOTHERMAL ENERGY LEGISLATION AMENDMENT BILL 2013 - CLAUSES 11 AND 12

I refer to your letter of 21 October 2013 and attach for your attention the corrected transcript of evidence and answers to the questions listed in your letter including those taken on notice in the hearing.

Yours sincerely

Colin Harvey
Principal Legislation and Policy Officer

25 October 2013

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DMP RESPONSES TO FURTHER QUESTIONS AND QUESTIONS ON NOTICE

Identifier 6:

A number of terms are used in the Bill and in the definition of 'GHG operation'.

- ***To give some context to clause 11, please briefly explain the process of GHG (greenhouse gas substance) operations in relation to exploration and storage.***

The typical site **assessment** for GHG storage involves a number of different stages beginning initially with a screening process of sites. This involves the desktop study of all available data, and frequently reprocessing of historical data. This will result in a focus on one or more areas and possibly detailed modelling. The steps to be taken beyond this rely on the amount of available data. In most cases new data acquisition, or **exploration,** needs to be undertaken involving a combination of 2D seismic, 3D seismic and drilling (for a variety of electronic data, water samples and core).

- Most 2D seismic is conducted along public lands (roads and paths) as it is a provides a broad scale indication of the sub-surface;
- 3D seismic is more detailed in scale as it builds a map of the sub-surface and requires entry to vacant crown land or private property. This is generally for a short period of a few days (general less than a week, probably averaging 3-4 days per property);
- Drilling is restricted to a small area (one to two hectares for the drilling operation) and will also require entry to private property or crown land. Depending on depth of drilling, total time taken for the drilling operation on site is likely to be 4-8 weeks. Additional time might be required for rehabilitation, depending on seasonal conditions. Wells may be re-entered if prior agreement is obtained.

In the case of **storage**, longer or more permanent access to public or private lands of a site of 1 hectare or less per well site may be required. This will generally be negotiated on a commercial basis similar to petroleum and mineral extraction.

The legislation provides sub-surface rights, including access, to the Crown. The existing rights of a land owner remain unchanged, and the legislation provides the rights to negotiate access between landowner and those seeking information and use of the sub-surface.

With regard to (terms in the Bill) 'GHG exploration operation' 'GHG operation', 'potential GHG storage formation site', 'potential GHG injection site', and 'eligible GHG injection site', what rights are assigned to the Crown and what statutory rights do private landowners have over land captured by these terms?

In the context of cls. 11, all of the rights covered by the scale of the activities in the above terms are assigned to the Crown if required. In the context of cls.

11, if required to be exercised by the Government, landholders have a statutory right to compensation as if it were a claim in accordance with Part 10 of the *Land Administration Act 1997* (LAA 97).

All activities must be undertaken in accordance with the GHG legislation.

Identifier 10:
Why does the broad definition of 'GHG operation' in this Bill include the power to pass regulations to either extend or narrow the scope of this essential term?

This power allows for flexibility in the early stages of GHG legislation and the development of GHG technology.

For consistency, the definition is modelled on the existing definitions of ***geothermal energy operation*** and ***petroleum operation*** in s. 5(1). Both of those definitions contain similar regulation making powers.

Identifier 12:
Clause 11 also provides the unique power for the State to enter "any vacant Crown land' or 'any other land' temporarily or permanently for the operations.

Does this refer to all lands in the State?
Yes.

If so, why does clause state 'any vacant Crown land' and 'any other land' separately?
This relates to the different categories of land in the Act and the different compensation provisions that apply either under s.17 and 18 for private land and under s.21 for lessees of pastoral leases etc.

Identifier 15:
What area/s in Western Australia (other than the area relating to the South West Hub carbon capture storage project and Barrow Island (the Gorgon project) is the geology suitable for GHG operations?

The basin ranking in the report titled *National Carbon Mapping and Infrastructure Plan-Australia, 2009* identified the thin coastal strips of the Perth and Carnarvon Basins as Highly suitable, and the larger inland area of the Canning Basin as suitable.

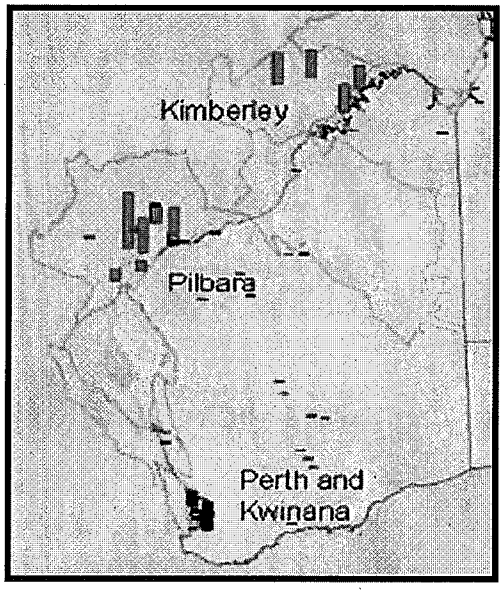
Further work, soon to be released by the Department of Mines and Petroleum through the Geological Survey of WA, identifies that:

- A total of eight possible leads have been analysed in the Perth Basin,
- four on the northern and western margins of the northern Dandaragan Trough,
- one flanking the southern Dandaragan Trough,
- one along the Mandurah Terrace (Harvey/Waroona area) and
- two on the margins of the Bunbury Trough.

Two leads identified in the onshore Carnarvon Basin are considered too small to be considered viable targets for CO_2 injection at this time.

All of the above require further detailed investigation, additional data acquisition and resource conflict analysis.

A copy of the 2009 Report was tabled at the DMP hearing of 16 October 2013.



Identifier 18:
Other jurisdictions
Which jurisdictions in Australia have passed similar legislation?
Of the jurisdictions that have developed GHG storage legislation to date:

- Commonwealth and South Australia have amended petroleum acts
- Queensland and Victoria have developed stand-alone legislation
- Victorian *Greenhouse Gas Sequestration Act 2008* is based on Vic's petroleum legislation – the *Petroleum Act 1998.*

What differences, are there between this legislation and the provisions of clause 11, and the legislation in other jurisdictions?
DMP is not aware of a similar cls. 11 provision in other jurisdiction's legislation.

It has been suggested that we need similar legislation to maintain the State's 'competitive edge'. Would the State be commercially disadvantaged by not passing clause 11?
Yes, because if pre competitive geological work was required, cls. 11 allows government to develop an area suitable for the release of acreage for application for GHG exploration permits as is currently the case for the SW Hub work. If the precompetitive work was not completed by government, industry may be reluctant to invest in a storage site and a significant investment opportunity linked to carbon storage may be lost to another State. The necessity for government involvement in the early stages of GHG

projects has been demonstrated in WA, Victoria, NSW and Queensland. In the WA context clause 11 would allow the work commenced under s.115 of the *Mining Act 1978* to continue following passage of the Bill.

Identifier 24:
The GHG operation compensation process compared to other processes

How does the compensation and negotiation process differ if the land is being explored for the purposes of storing GHG, being used to store GHG or if the land has incurred damage as a result of storing GHG?
As for petroleum, it is expected that a different compensation regime will apply for more permanent activities such as storage injection as this will mean the isolation of portions of land for a longer period of time.

Where land is being utilised for a more extended period, particularly associated with injection, it is expected that the compensation provisions of the *Land Administration Act 1997* will apply.

This is the preferred approach by land holders and industry based on discussions with stakeholders.

Under s. 19 compensation can also be sought for further damage to private land (damage not previously contemplated or addressed in the agreement for or determination of compensation) in same manner as described in Section 17 of the PGER Act.

Is the process for private landowners for claiming compensation for land voluntarily relinquished for the purposes of petroleum or geothermal resources the same as that proposed for land that is voluntarily relinquished for GHG exploration or storage?
Yes following passage of the Bill.

Is the compensation available to private landowners whose land is acquired for mining exploration and other operations as defined in the Mining Act 1978 different to compensation payable for GHG operations?
Essentially the system is the same. The *Mining Act 1978* Part VII prescribes when compensation is payable in a similar process as allowed for under the petroleum legislation. In the absence of compensation being agreed, the Mining Warden (rather than the Magistrate's Court) may determine compensation. See section 123 of the *Mining Act 1978*.

Identifier 25:
Action since the 2004 Committee report

In 2004, the Legislative Council Standing Committee on Public Administration and Finance undertook a substantial inquiry into the Impact of State Government Actions and Processes on the Use and Enjoyment of Freehold and Leasehold Land in Western Australia. The report identified a number of

recommendations in relation to the rights of affected landowners who voluntarily relinquish or refuse to relinquish land earmarked for public use including mining operations. The Government developed Six Principles in response to the Report's 37 recommendations

What progress has been made to implement the recommendations and principles since the Government's response? We are particularly interested in those recommendations and principles that support providing assistance to claimants, access to compensation and relate to Code of Conduct.

Please see attached the Government response re recommendations 23 and 37 in a letter to the Committee from Minister for State Development, Clive Brown dated 13 July 2004. (Attachment 1)

In response to the comment under Recommendation 37, development of a common spatial database has been ongoing. In November 2001 Landgate introduced an online and manual system that allows the public to enquire and receive a detailed report listing all affected other tenure including petroleum and mining. DMP's online mapping system, Tengraph was modified in 2001 to include petroleum tenure. This system comprises other land tenure including Landgate's information and has been substantially upgraded over the last 10 years. Following passage of the Bill, further modifications will be undertaken to accommodate GHG titles.

In addition over the last 18 months the Petroleum Division of DMP has conducted a number of community engagement sessions in the mid-west, met with farmers groups, the PGA, local government, other stakeholders and attended rural expos to explain the regulatory regime surrounding petroleum activities and the facts about drilling, well integrity and the fraccing process.

In DMP's opinion, land access by the petroleum industry using the framework in the legislation has worked well. Agreements have been reached and compensation where required, has been settled.

As part of this ongoing commitment to community engagement, DMP is participating in a Round Table group with the PGA, WAFF and APPEA chaired by Hendy Cowan on the issue of land access. The Group met on Monday 14 October it what is expected to be the first in a series of ongoing meetings to balance the interests of petroleum and agriculture through the development of template land access agreements and guidelines.

Please provide a copy of the Code of Conduct.
Copy of 1999 Code attached. (Attachment 2) DMP notes that the Code and the associated 1999 guidelines have a minerals focus and that there is no mention of petroleum. The petroleum industry has produced its own code of conduct titled *'Western Australian Onshore Gas – Code of Practice for Hydraulic Fracturing'* – (Attachment 3).

Identifier 27:
In other states, we understand that commissions have been established to provide applicants with assistance when negotiating agreements.

What bodies do particular State/s have available to assist private persons claiming compensation?

This information is limited to NSW and Qld and is in response to the high level of coal seam gas (CSG) activity in these two states. The impact of CSG activity in other states is significantly different to petroleum shale gas or proposed GHG operations in WA. CSG is gas (mostly methane) that is produced from deep coal seams that have been dewatered. Methane is released (desorbed) from the coal seam as the hydraulic water pressure is reduced through the removal of water from the coal seam.

Coal seam gas wells generally range in depth from 300 – 900 metres. Shale has is gas produced from deep sedimentary shales, usually at depths from 2,000 to over 4,000 metres. Gas bearing shales are dense rocks with a very low ability of gas to flow through them (low permeability), as such hydraulic fracture stimulation, or fracking is required to facilitate the production of commercial quantities of gas. Shales are one of the source rocks for conventional gas and therefore are very chemically similar to conventional gas.

The resources listed below may not be exhaustive.

- The Queensland Government established the GasFields Commission to manage the co-existence between rural landholders, regional communities and the coal seam gas industry in Queensland. (http://www.gasfieldscommissionqld.org.au/gasfields)
- The Queensland Government has developed a standard conduct and compensation agreement and a standard deferral agreement to assist the development of legal contracts and negotiations with a resource company. (www.deedi.qld.gov.au)
- The Queensland Department of Employment, Economic Development and Innovation has produced a guide to landholders titled "Tips for Landholders Negotiating Agreements with Resource Companies". (www.deedi.qld.gov.au)
- The Queensland Government has established a CSG-LNG Hotline
- The Queensland Department of Employment, Economic Development and Innovation has produced a land access code detailing mandatory conditions applicable to resource companies. The guide is available here: http://mines.industry.qld.gov.au/assets/land-tenure-pdf/land_access_code_nov2010.pdf
- NSW Farmers have created a Landholder Mining and Coal Seam Gas Hotline
- The NSW Farmers and NSW Government Guide to Negotiating a Land Access Agreement has been developed. Available here: http://www.nswfarmers.org.au/__data/assets/pdf_file/0005/31685/Guide-to-Negotiating-a-Land-Access-Agreement-v2_4.pdf

- The NSW Government has established the NSW Land and Water Commission, the role of the Land and Water Commissioner is to build community confidence in the processes governing exploration activities in NSW and facilitate greater consultation between government, community and industry. (http://www.trade.nsw.gov.au/lw-commissioner)

Identifier 28:

Indigenous impact – How does section 11 impact on indigenous landholdings and heritage

Section 11 would if required, operate in the same way as for other types of land tenure. Compliance with the *Aboriginal Heritage Act* would be a requirement. Compensation as required would be in accordance with s.11(2) and treated as if it was a claim under Part 10 of the LAA 1997.

and what liability is there to pay compensation to native title holders?

Compensation as required would be treated as if it was a claim in accordance with Part 10 of the LAA 1997.

Identifier 31:

As you are aware, clause 12 of the Bill proposes to amend section 15 of the Act to replace the word 'reservation' with 'reservation area'.

What is the purpose and operational effect of proposed clause 12?

The purpose of the amendment in clause 12 is to correct a typographical error in section 15 of the Act. The section describes the land on which the authority conferred by permits, drilling reservations, leases and licences is exercisable. In the context of a drilling reservation, the reference should be to land within the "drilling reservation area". The section already properly refers to the permit area, lease area or licence area.

DMP believes that this amendment has no operational effect.

Identifier 32:

Clause 12 refers to other sections of the Act

The Committee notes that clause 39 proposes to substantially amend section 43D – how will the amendments (if passed) to section 43D impact on the effect of the operation of clause 12?

DMP understands that the amendments (if passed) to section 43D will have no impact on the effect of the operation of clause 12. Clause 12 amends section 15 of the Act. The section describes the land on which the authority conferred by permits, drilling reservations, leases and licences is exercisable

Clause 39 deletes existing section 43(D)(1) and inserts a new provision to clarify the existing rights conferred by a petroleum drilling reservation to cover exploration, recovery of petroleum on an appraisal basis to establish the nature and probable extent of a discovery of petroleum and carry on such works in the permit area. The amendment also provides consistency with the

existing rights conferred by geothermal energy drilling reservations, and in a similar context follows the new provisions proposed for GHG.

Section 48 (clause 51) proposes amendments. How will these amendments if passed impact on the operation of clause 12?
The amendments (if passed) to section 48C will have no impact on the effect of the operation of clause 12.

This clause deletes existing section 48C(1) and inserts a new provision to clarify the existing rights conferred by a petroleum retention lease to cover exploration, recovery of petroleum on an appraisal basis to establish the nature and probable extent of a discovery of petroleum and carry on such works in the permit area. The amendment also provides consistency with the existing rights conferred by geothermal energy retention leases, and in a similar context follows the new provisions proposed for GHG.

Section 60 (clause 74) proposes amendments. How will these amendments if passed impact on the operation of clause 12?
The amendments (if passed) to section 62 will have no impact on the effect of the operation of clause 12.

This clause extends the existing provisions detailing the rights conferred to the holder of a petroleum or geothermal production licence, to now include GHG injection licences. The rights for a GHG licensee are to inject and permanently store a greenhouse gas substance into an identified GHG storage formation; explore for a potential GHG storage formation or for a potential GHG injection site; and carry out any such operations or execute any such works as are necessary for these purposes.

A GHG licensee, with the written consent of the Minister, is able to recover petroleum or geothermal energy discovered as an incidental consequence of GHG injection or storage operations. Any petroleum or geothermal energy so recovered does not become the property of the GHG licensee. In addition a GHG licence does not authorise the licensee to make a well outside the licence area.

QN 1
Please provide a list of Western Australian sites considered as potential injection or exploration sites for GHG.

As advised in Identifier 15 above, further work, soon to be released by the Department of Mines and Petroleum through the Geological Survey of WA, identifies that:

- A total of eight possible leads have been analysed in the Perth Basin,
- four on the northern and western margins of the northern Dandaragan Trough,
- one flanking the southern Dandaragan Trough,
- one along the Mandurah Terrace (Harvey/Waroona area) and

- two on the margins of the Bunbury Trough.

Two leads identified in the onshore Carnarvon Basin are considered too small to be considered viable targets for CO_2 injection at this time.

All of the above require further detailed investigation, additional data acquisition and resource conflict analysis.

A copy of the 2009 Report was tabled at the DMP hearing of 16 October 2013.

QN 2

Hon Donna Faragher (refer Page 8 of the Transcript) regarding the formal process of entering the land. Is that stipulated within a particular Act or do you actually have an internal process as to what you must do; and, if so, could we get - what the process is?

In relation to the operation of s.11 (which to date has not been utilised for petroleum purposes), internal processes would be based on the work currently underway for the SW Hub under s.115 of the *Mining Act 1978*.

Examples of the DMP documentation (copies attached) for these processes include:

- CO2 Seismic Survey Project Land Access Request Process (Attachment 4).
- Access Agreement SW Geosequestration Seismic Survey (Attachment 5).

Land Administration Act 1997 Part 10 Compensation Process Information would also be provided in consultation with the Department of Lands.

The detail of these processes for land access would be the intellectual property of the contractors engaged by the Minister under s.11 to carry out GHG surveys or drilling activities. Examples of this process documentation could be supplied on a commercial-in-confidence basis if required.

QN 3

Hon Donna Faragher (refer Page 10 of the Transcript) raised the question of consent. Consent procedures other than section 15 and section 16. There are other processes that you can through, in working with the landholder. What are they?

For industry – The agreements mentioned below are commercial agreements between the titleholder and the landowner petroleum titleholders (and GHG titleholders following passage of the Bill):

- Section 20 of the PGER Act provides that a petroleum or geothermal energy title holder shall not commence operations on private land until compensation, if any, is paid to the owner and occupier of the land or agreement has been reached as to payment of compensation.

- PGER Act title holder and owner and occupier of the private land which needs to be accessed, can agree as to amount of compensation (if any) for the right to occupy the land.

- Compensation is for the land owner and occupier being deprived of possession of the land and for damage to the land.

- Further compensation for damage also extends to any improvements on the property and for severance of the land to be occupied from other land of the owner or occupier.

- It also extends to rights of way and all consequential damage.

- What compensation cannot include, is the value of petroleum, geothermal energy resources, gold or minerals supposed to be on or under the land (Section 17 PGER Act).

- Section 18 PGER Act also entitles private land holders in the vicinity of the operations to be compensated for all loss and damage suffered as a consequence of the activity, with the amount of compensation being agreed to in the same manner as above.

- If compensation cannot be agreed between PGER Act title holder and owner and occupier of the private land, then either party may apply to the Magistrates Court to fix the amount of compensation (Section 17 (4) PGER Act).

- Application is to be made to the Magistrates Court at place nearest to where the land in question is situated.

- Time for taking any dispute to the Magistrates Court is prescribed in Regulation 2 of the *Petroleum Regulations 1987* and is three months after the day on which notice was given to the land owner/occupier, of the intention to commence operations on the private land.

- It is important therefore that formal notice given to private property owner/occupier of intention to explore/produce and to be able to demonstrate that such a notice has been served.

- To best of DMP's knowledge, there have been two land access cases in 46 years – neither heard, both settled out of Court.

In terms of the agreements referred to above, the petroleum industry and rural associations are currently developing template access agreements for short term survey access and long term production access based on existing commercial agreements. These would be used in conjunction with the APPEA Code of Practice and land access guidelines currently being developed by DMP based on the NSW Farmers Federation model.

For the State under s.11:
As required in response to QN 2, if the State required access under s.11 the following would apply:

- CO2 Seismic Survey Project Land Access Request Process
- Access Agreement SW Geosequestration Seismic Survey.

Copies attached.

Land Administration Act 1997 Part 10 Compensation Process Information would also be provided in consultation with the Department of Lands.

The detail of these processes for land access would be the intellectual property of the contractors engaged by the Minister under s.11 to carry out GHG surveys or drilling activities. Examples of this process documentation could be supplied on a commercial-in-confidence basis if required.

QN 4
Hon Lynn MacLaren (refer Page 10 and 11 of the Transcript) Because we are looking at whether the processes that are put in place for this Act and previous acts, like the Land Administration Act are going to be adequate when landowners are considering compensation matters...But with greenhouse gas injection, it is over a long term that there may be potential impacts, and so compensation matters might be much more complex than in other matters like just accessing, removing the cattle or putting in a road or whatever. So I was very interested to learn if these long term impacts of greenhouse gas storage and potential leakage of greenhouse gas and the creation of contaminated sites or whatever long into the future due to these operations has been factored in when we consider compensation at the very beginning of doing it on someone's property.

What are the impacts of GHG storage and what are the processes available to landowners?

Under s. 19 compensation can also be sought for further damage to private land (damage not previously contemplated or addressed in the agreement for or determination of compensation) in same manner as described in Section 17 of the PGER Act.

In addition, during the operational life of the project the titleholder is required to maintain adequate insurance under s.91A of the Act as amended by cls. 89 of the Bill.

Liability for damages under the common law and statutory law will rest with the holder of an injection licence during the course of the licensed injection and storage activities. Other GHG titleholders may be potentially liable depending on the stage of the GHG operations, such as the holder of a GHG exploration permit (for exploration of storage formations) or a GHG retention lease (for injection within 15 years).

Once there is a valid site closure certificate and a declared closure assurance period as provided for in cls. 81 of the Bill, the State is required to indemnify the injection licensee against specified liabilities. This indemnity occurs whether or not the licence is in force.

The scope of the State's liability is limited by the following four conditions:

- the liability is a liability for damages;
- the liability is attributable to an act done or omitted to be done in the carrying out of operations authorised by the licence in relation to the formation;
- the liability is incurred or accrued after the end of the closure assurance period in relation to the formation; and
- such other conditions (if any) as are specified in the regulations.

The Bill also provides for a transfer of long-term liability if the licensee ceases to exist (whether or not the licence is in force). Provided the above conditions are otherwise met, liability will be taken to be a liability of the State.

The effect of the four conditions above is that the licensee will continue to be at risk of incurring liabilities that fall outside of the scope of the transfer. For example, the licensee will continue to be liable for acts or omissions in carrying out activities that were not authorised under the legislation.

QN 5

Hon Lynn MacLaren refer page 11 of the Transcript)

One of the difficulties of long term impact of greenhouse gas storage, as it is a really long term prospect, and that I that is what Hon Colin Holt said in his debate- that it is different from extraction and then you are out of there and then you might cap it or fill it or whatever. But with greenhouse gas injection, it is over a long term that that there may be potential impacts, and so compensation matters might be much more complex than in other matters like just accessing, removing the cattle or putting gin a road or whatever. So I was very

interested to learn if these long term impacts of greenhouse gas storage and potential leakage of greenhouse gases and the creation of contaminated sites or whatever long in the future due to these operations has been factored in when we consider compensation at the very beginning of doing it on some one's property.

As for QN 4 above.

QN 6
Hon Sally Talbot (refer page 12 of the transcript) could we ask for the information about other jurisdictions? What those States are and the points of difference between our legislation and other states?

Of the jurisdictions that have developed GHG storage legislation to date:

- The Commonwealth and South Australia have amended petroleum acts.
  (*Offshore Petroleum and Greenhouse Gas Storage Act 2006*, Cwlth; and *Petroleum and Geothermal Act 2000*, SA)

- Queensland and Victoria have developed stand-alone legislation.
  (*Greenhouse Gas Storage Act 2008*, Qld; and *Greenhouse Gas Geological Sequestration Act 2008 and Offshore Petroleum and Greenhouse Gas Storage Act 2010*, Vic.)

The main point of difference between the WA legislation and other states is the differing treatment of long-term liability.

The original bill for the Commonwealth offshore GHG regulatory framework did not include provision for the transfer of long-term liability. In this regard, the approach to liability was consistent with the Victorian Acts and the Queensland Act. However, the Commonwealth bill was amended to incorporate provisions on a transfer of long-term liability in order to secure passage by the Parliament based on the reality of the long-term nature of the liability. The Commonwealth legislation provides a model for much of the WA GHG Bill.

Government acceptance of long term liability was the approach for the Gorgon Project where indemnity has been extended by the Commonwealth and Western Australian Governments based on the specific circumstances of the project. The *Barrow Island Act 2003* is a project-specific piece of legislation. It was introduced to regulate the Gorgon CO2 Injection Project which will inject and store CO_2 produced from offshore gas processing operations. The Act does not expressly provide for the transfer of liability from the operators, but agreement was subsequently reached for indemnification with apportionment between the Commonwealth and Western Australian Governments.

This outcome influenced the policy for the development of the WA GHG Bill.

The Commonwealth and proposed WA regulatory framework for GHG activities provides mandatory indemnification by the Commonwealth and WA State Government for specified long-term liabilities.

Liability under the common law and statutory law will rest with the holder of an injection licence during the course of the licensed injection and storage activities. Other GHG titleholders may be potentially liable depending on the stage of the GHG operations, such as the holder of a GHG assessment permit (for exploration of storage formations) or a GHG holding lease (for injection within 15 years).

Once there is a valid site closure certificate and a declared closure assurance period, the State is required to indemnify the injection licensee against specified liabilities. This indemnity occurs whether or not the licence is in force.

The scope of the State's liability is limited by the following four conditions:

- the liability is a liability for damages;
- the liability is attributable to an act done or omitted to be done in the carrying out of operations authorised by the licence in relation to the formation;
- the liability is incurred or accrued after the end of the closure assurance period in relation to the formation; and
- such other conditions (if any) as are specified in the regulations.

The Bill also provides for a transfer of long-term liability if the licensee ceases to exist (whether or not the licence is in force). Provided the above conditions are otherwise met, liability will be taken to be a liability of the State.

The effect of the four conditions above is that the licensee will continue to be at risk of incurring liabilities that fall outside of the scope of the transfer. For example, the licensee will continue to be liable for acts or omissions in carrying out activities that were not authorised under the legislation.

The crucial difference between the Commonwealth/WA approach to long term liability and the Victorian approach is that there is no equivalent provision for the transfer of responsibilities to the Victorian Government. Under the Victoria onshore and offshore GHG legislation, all liabilities remain with the operator.

The Queensland Act is similar to the Victorian regulatory framework in respect of liability - there is no provision for transfer of liability to the State.

In South Australia, the liability remains with the proponent, but the Minister has the discretion to decide whether government should assume liability.

The divergences in outcomes exist notwithstanding the introduction of the CoAG Australian Guiding Principles for Carbon Dioxide Capture and Geological Storage (Guiding Principles), which aim to develop a consistent regulatory approach.

25 October 2013

Attachment 1.

GOVERNMENT OF WESTERN AUSTRALIA

MINISTER FOR STATE DEVELOPMENT

Received 11.00am July 15 2004. MB.

Our Ref: M24789

Ms Mia Betjeman
Clerk Assistant (Committees)
Standing Committee on Public Administration and Finance
Legislative Council
Parliament House
PERTH WA 6000

Dear Ms Betjeman

LEGISLATIVE COUNCIL REPORT OF THE STANDING COMMITTEE ON PUBLIC ADMINISTRATION AND FINANCE IN RELATION TO THE IMPACT OF STATE GOVERNMENT ACTIONS AND PROCESSES ON THE USE AND ENJOYMENT OF FREEHOLD AND LEASEHOLD LAND IN WESTERN AUSTRALIA

I refer to your letter of 17 May 2004 and thank the Committee for affording me the opportunity to comment on those of its recommendations that may impact on my portfolio.

Recommendation 23
The Code referred to was:-

- a successful culmination of lengthy consultation between five shires in the Central Great Southern Region, the Pastoralists and Graziers Association (PGA), the Western Australian Farmers Federation (WAFF), the Chamber of Minerals and Energy and the Association of Mining and Exploration Companies during which mutual trust was achieved between those involved in agricultural and mineral resource pursuits – this being primarily founded on a sound understanding acquired by these stakeholders of all of the issues involved; and

- funded and driven by the then Department of Workplace Relations and Small Business and the Great Southern Development Commission (i.e, the then Department of Minerals and Energy was only one of the numerous groups involved in the formulation of the Code).

For these reasons it would in my view be somewhat presumptuous, inappropriate and probably counter-productive for the Department of Industry and Resources (DoIR) to now assert an "ownership" of the Code for the purpose of publishing an "updated" version for distribution and application across all of the State's agricultural regions.

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E-mail: clive-brown@dpc.wa.gov.au
Website: www.ministers.wa.gov.au/brown

I believe that the Code and its benefits could be readily applied across all agricultural regions of the State, however, any such action for its wider distribution should be progressive (i.e, region by region) and be preceded by effective consultation involving all affected stakeholders, including local Shires, the relevant Development Commission and the above peak groups.

Such a process of consultation would help ensure that long held and often erroneous perceptions and misunderstandings were corrected in the minds of the stakeholders, including any landowner concern that the Code is merely the "thin end of the wedge" in a move to remove the protection of their properties currently afforded by the landowners' "veto".

In view of the foregoing it is considered that a practical and appropriate response to Recommendation 23 would be for DoIR to adopt the role of facilitator for such stakeholder consultation, with a view to the benefits of the Code being progressively "marketed" to all of the State's agricultural regions.

Essential to the ultimate success of such an enterprise would be the publicly expressed support for the Code (with any "local" variations) by the PGA, WAFF and the shires in each region.

Recommendation 37

On the assumption that the scope of Recommendation 37 would include mineral and petroleum titles, I do not support the concept of requiring the "registration" of interests in such titles on private land with the Department of Land Information (DLI) and the cross-referencing of this information with the relevant certificates of title. By their nature the boundaries and even the existence of mineral and petroleum titles throughout the State are constantly changing as these titles are surrendered in full or in part or are forfeited or the title is transferred, which would mean that on each occasion the registration with DLI and the entry against a certificate of title would need to be updated.

In May 2003, at the request of the above Committee, DoIR advised that in its view the most practical option would be to develop a common spatial database between DoIR and DLI, rather than pursue a common registration regime between two fundamentally and markedly different systems. Such an integrated mapping system would be readily available to the public and would offer a practical alternative to effectively address the Committee's concerns in this regard.

I am informed that this option has the support of DLI, which shares DoIR's view that a requirement to actually record or register all interests potentially affecting freehold land would be difficult and costly to administer.

Yours sincerely

CLIVE BROWN MLA
MINISTER FOR STATE DEVELOPMENT

13 JUL 2004

ATTACHMENT 2.

APPENDIX 9

A CODE OF CONDUCT FOR THE OWNERS OF FARMING PROPERTIES AND PERSONS EXPLORING OR MINING ON PRIVATE (AGRICULTURAL) LAND IN THE CENTRAL GREAT SOUTHERN

APPENDIX 9

A CODE OF CONDUCT FOR THE OWNERS OF FARMING PROPERTIES AND PERSONS EXPLORING OR MINING ON PRIVATE (AGRICULTURAL) LAND IN THE CENTRAL GREAT SOUTHERN

A code of Conduct
for the

Owners of Farming Properties
and
Persons Exploring or Mining
On Private (Agricultural) Land in the
Central Great Southern

September 1999

Funded by: The Dept of Workplace Relations and Small business, and Great Southern Development Commission.

INDEX

EXECUTIVE SUMMARY

The Exploration Code was developed in response to the steady increase in exploration activity on private freehold land during the current decade. The document is the end result of an extended period of consultation by a working party, made up principally of mining and farming industry representatives, local government and farm land owners, in the central Great Southern. The code of conduct is essentially a reference for mineral resource companies and private land owners, and covers the main issues associated with any minerals development activity that is anticipated for a farming property. It is a voluntary protocol for the various aspects and phases of mineral exploration and, **in an extreme minority of cases**, mining which may occur in the region.

The study method followed by the working party was to review the legislation, and similar codes being used in other places and to consult with, and accept submissions from, farmers who had experience with the mining industry. Through a prolonged period of review and redrafting the representatives in the working party have endeavoured to produce a comprehensive, though accessible document. Therefore, while the code is backed by the statutory regulations applying to the industry's activities, it is primarily a guide to assist farmers and mineral developers come to practical solutions "in the field".

As any entry, however temporary, to private land for the purpose of minerals investigation is a sensitive issue, this document recommends that a written agreement to govern such activities be drafted by the parties involved. Access agreements can be as comprehensive as necessary; and ideally cover issues such as the duration of the exploration program, communications to facilitate the interaction between exploration and agricultural operations, the care of agricultural, natural resources and farm infrastructures, rehabilitation and any compensation that is determined to be necessary. A soundly prepared Access Agreement negotiated between the farmer and the minerals developer should form the basis of a successful relationship during both exploration and any subsequent mining phase.

Given the importance of Access Agreements to both parties, a significant part of this document is devoted to providing information on the reasons for such arrangements, and on their general structure and provisions.

Access Agreements can be negotiated to cover the separate exploration and mining phases (disjunctive agreements) or both exploration and subsequent mining (a conjunctive agreement). Negotiations between the farmer and explorer will determine which type of agreement best suits their particular circumstances. It is reasonable to assume that most farmers may be reluctant to agree to future mining without specific details of the particular development proposal and what compensation might be due. Similarly, many explorers are reluctant to enter into an agreement to undertake exploration when there is no certainty that further access for mining can be negotiated. Some forms of mineral exploration are very costly and companies may require the security of an agreement that considers access for mining before commencing exploration. This code considers all of the issues associated with each

stage of the exploration and mining phases for inclusion in either type of agreement. As an appendix to the document, the working party has drafted a Framework for a Rural Land Access Agreement that may be used as a guide for a more formal, or expanded, agreement.

In summary, the development of good relationships between those concerned, respectively in agricultural and mineral resource pursuits, will depend on mutual trust, cooperation and good neighbour attitudes, which are in turn built on a sound knowledge of all of the issues involved.

INTRODUCTION

Mineral exploration and mining (described under the broad term of "mineral development activity" in the balance of this document) on agricultural land is an issue that affects both land use and the regional economy. In the central Great Southern region there is a demonstrated need for a Code of Conduct to cover such activity on freehold agricultural land. In order to be useful for everyday application, the document was drafted to cover the issues of land access, exploration programs, compensation, rehabilitation and communication between the mineral development company and the private land owner. It provides guidelines for both farmers and those who are planning exploration and mining on private land. The document is based on the understanding that both parties in the negotiations regarding access will need to be flexible and cooperative.

The Code is the result of extensive consultation between farming and mining industry representatives over a considerable period. Throughout the development of the document both groups have consistently argued for the inherent interests of their respective constituencies. The Code of Conduct is therefore intended to assist mineral developers and land owners to understand the land use issues involved; and to be used as a reference in finding satisfactory practices that would allow for mineral development activity on private agricultural land.

The Code recommends that a written agreement be made between mineral explorers and land owners to cover the conditions under which mineral development activity could be allowed to take place. This can include the provision of compensation, rehabilitation strategies, and the standards of conduct expected between the parties. Such an agreement is referred to here as an Access Agreement, which may, subject to negotiation, be Disjunctive or Conjunctive.

CONTEXT

The statutory context for the Code of Conduct is that all minerals are the property of the Crown. Ownership is vested in the State Government for the benefit of all Western Australians. Minor exceptions in the Mining Act 1978 relate to pre-1899 (ie. pre-Federation) Land Grants. Such exceptions could apply to a few land parcels within the central Great Southern region adjacent to the Perth-Albany railway.

The application of the Code of Conduct is voluntary. The land owner's statutory right to deny access for exploration on their properties, under defined circumstances, is maintained. The document serves as a pilot project on private and vested land in the five Shires of the central Great Southern region (Katanning, Broomehill, Woodanilling, Kent and Gnowangerup), and could also be used elsewhere in the agricultural region.

This document adopts a simplified description of the exploration, mining and approvals process. Its purpose is to provide Guidelines and a voluntary Code of Conduct, and should not be used as a reference in determining matters of law or as a basis of legal action. The Mining Act and Regulations, and the Land Access Unit of the Department of Minerals and Energy can be consulted for precise and authoritative information. If civil action is contemplated consult your legal adviser.

1. GENERAL PRINCIPLES

1.1 Mineral development activity on private land requires that a high level of cooperation and trust be established between the land owner and mineral company (staff and contractors) seeking access for exploration. In every case, the farmer and those involved in negotiations should have copies of this Code of Conduct in advance of any discussions regarding access to a property.

1.2 The mineral company should maintain close liaison with the land owner and ensure that contractor(s) or sub-contractor(s) conform to the guidelines established in this Code. The company will comply with the requirements of the Mining Act and Regulations concerning the serving of formal notices to the land owner and, if necessary, inform him/her of the compensation or land restoration provisions of those Regulations.

1.3 Although care should be taken to avoid damage to improvements, cultivated land, soil, natural vegetation, crops, livestock, water supplies or the land management system, a written agreement is recommended before any mineral development activity commences. This agreement should establish the basis for programs, compensation for any losses and rehabilitation where necessary. Such an Access Agreement should provide the protocol for notifying the timing, duration and nature of specific exploration programs, intended access routes, and the means

of liaison between the land owner, the mineral company and any contractors/sub-contractors. The agreement should set out the procedure for notification of damage, respective obligations, quantities, payments and completion dates for necessary repairs. If possible, the agreement should cover whether any rehabilitation may be required, and the anticipated work that would be undertaken to effect the defined land use. The conditions of the agreement should focus on practical and reasonable terms in the prevailing circumstances.

1.4 The written agreement on minerals development activity may also formalise other areas of mutual understanding regarding the project. It is useful if a clearly defined basis for cooperation and co-existence is established early, as for the duration of the activity two completely different businesses will be operating from the one property. Issues arising in such circumstances; include the strict maintenance of confidentiality, mutual respect for each other's plant/capital equipment, the communicating of changes in responsibility or management programs (etc), should be practically addressed in the paper. This will go a long way to ensure that a soundly managed minerals project operates alongside, and with a minimum effect on, the farm business.

1.5 While it is hoped that all operational issues could be resolved between the parties in advance, or through reference to the Access Agreement on which both land owner and mineral company have reached a negotiated settlement, this is sometimes not the case. If by chance a difficult issue does arise, both parties can refer it to their respective industry bodies, the Warden's Court or, as a final step, to the judicial courts for arbitration and determination. The Department of Minerals and Energy has the capacity to offer independent advice to all parties.

2. PRE-EXPLORATION GUIDELINES

2.1 During the pre-exploration phase, trust and cooperation should be established between the mineral company and the land owner. The principal mineral explorer should provide a detailed explanation of the expected scope of the exploration program, the exploration techniques to be employed, the roles and responsibilities of employees/contractors, plus relevant tenement application information. The mineral explorer should endeavour:

2.1.1 to make direct contact with the land owner well before property access is required, discuss the nature and likely duration of the exploration program as it affects the land, and its improvements, and to negotiate an entry agreement.

2.1.2 to ensure that the company officer negotiating with the land owner has the authority to negotiate and finalise the Access

Agreement regarding access/compensation/restoration with minimum delay and has *full authority* in the field.

2.1.3 complete any other consultations or provide any other information that will secure an Access Agreement.

2.2 At this stage, the farmer and mineral company should be in a position to complete an agreement to cover exploration only (a disjunctive agreement) or both exploration and, if the resource is economic, mining (a conjunctive agreement). This choice will be arrived at after discussion of which regime is suitable for their particular circumstances. If both parties agree to a conjunctive agreement then the document should be drafted to include all of the issues listed under Sections 3 and 6 contiguously. If disjunctive agreements are chosen, the same listed issues should be covered, but under separate agreements.

3. EXPLORATION ACCESS AGREEMENT

3.1 After a full discussion of the proposed exploration program is completed, both parties should be in a position to complete an **Exploration Access Agreement.** The agreement should be comprehensive and practicable as possible. The land owner and the mineral explorer should agree on such matters as duration of entry, entry routes, access ways, precautions to minimise the risk of disease or weed introduction and compensation for any substantial loss or damage. Overall, discussions should focus on providing a framework for recognising the land owner's rights and aiding orderly mineral exploration.

3.2 In negotiating and signing the Exploration Access Agreement at this point, both parties are to recognise that, after the geological, geophysical and analytical results of the phased exploration program have been assessed, a mining operation may follow. The experience of many years of mineral exploration in Australia has, however, shown that for every 1000 prospects investigated, about 100 are subject to further testing; of these 10 are subjected to detailed assessment but only 1 becomes an actual mine.

3.3 If a significant area of mineralised ground is delineated as a result of the exploration activities, the definition of a commercially exploitable discovery would be generally undertaken before application was made for a Mining Lease. This phase of intense activity would probably involve geophysics, geochemistry, geological mapping and the drilling of closely spaced holes. While still covered by an Exploration Licence, the most advanced stage of this type of work is classed as mineral resource evaluation and, as such, its purpose should be explained to the land owner at an early stage in the negotiations.

3.4 The Exploration Access Agreement should provide a guideline for any compensation that may be sought by the land owner. Section 123 of the Mining Act defines those matters for which compensation is payable. A copy of that section of the Act is attached at appendix 2. In broad terms, compensation should be paid in the event of any diminution in farm income, or in the value of the property, which occurs as a result of exploration, including mineral resource evaluation, or mining.

4. FOLLOWING THE GRANTING OF A TENEMENT

It is the responsibility of the mineral explorer to undertake the following actions:

4.1 Inform the land owner of the terms of the tenement(s), including duration, conditions of grant, statutory reductions in area, possible extension of term and allowed substitute tenements.

4.2 Provide the land owner with a tenement map and (where appropriate) a detailed location map of the intended exploration grid, or area of activity.

4.3 Discuss these maps with the land owner and obtain identification of features such as gates and other entry points, buried water pipes, contour banks, farm dams, levee banks, irrigation channels, shade tree clumps, erosion and flood-prone land, and the position of tracks and fences.

4.4 Attend particularly to sensitive areas, stock movements and calving or lambing periods.

4.5 Jointly inspect the area with the land owner. Plan exploration activities to cause minimum inconvenience to the land owner, disturbance to stock and generally prevent damage to the property's commercial value.

4.6 Undertake prior to field work commencing, the appointment of a field supervisor with good communication skills and empathy to rural people (and preferably with a knowledge of farming practice) and who is familiar with all technical aspects and requirements of the project.

4.7 Ensure that senior field personnel and any contractors or sub-contractors are familiar with the Mining Act and Regulations and the environmental conditions attached to the tenement(s).

4.8 Ensure that the field supervisor knows local regulations and conditions overing such matters as fire or water restrictions, control of disease and noxious weeds.

4.9 Provide the land owner with the names, titles and contact telephone numbers of senior personnel and the field supervisor responsible for the project.

5. MINERAL EXPLORATION GUIDELINES

Productive agricultural land constitutes the livelihood of farmers and therefore mineral explorers must be sensitive to any disturbance to stock and crops that may affect agricultural yields. The mineral explorer should be aware of the infrastructure and productive elements of the farm property on which exploration is to take place. All capital improvements and the natural endowment of soil, water and vegetation (including timber) should be considered. Recommended guidelines are as follows:

5.1 LIVESTOCK

5.2.1 The land owner's current and foreseeable stocking programs should be discussed in detail before commencing any exploration activity.

5.2.2 Stock disturbance should be kept to a minimum. The mineral explorer should take particular care when stock is watering, lambing and calving, or when other stock management work is in progress or is planned for the period of exploration. The land owner should be consulted before any low-flying aircraft are involved in the exploration activity and that flight paths are sited so as to avoid concentrations of stock where possible.

5.2 CROPPING

5.2.1 The land owner's current and foreseeable cropping program should be discussed in detail before commencing any exploration activity; and ways found to minimise disruption.

5.2.2 The exploration program and timetable should be organised so as to minimise the number of paddocks being used and to exclude any areas that have been prepared for cropping. The agricultural program, such as the likely timing of crop management should also be agreed upon in advance.

5.3 FARM TREES, REMNANT VEGETATION, SOIL AND WATER

5.3.1 The impact of exploration on trees or vegetation should be minimised. It should be specifically recognised where the land owner has sought to protect areas of remnant bush, which may contain native flora and fauna, through fencing and caveats. Where timber must be removed, it should be effected in accordance with the conditions determined by the Department of Minerals and Energy and after discussion and agreement with the land owner. Such practices must conform with any tree preservation and catchment priority legislation strategy or regulation. A range of statutory requirements are covered in documents such as the Soil and Land Conservation Act, the CALM Act and the National Heritage Trust legislation.

5.3.2 Clearing of lines in timber clumps and tree-belts is an extremely rare occurrence in modern exploration programs. If such access is absolutely necessary, it is preferable to lop branches than to fell trees, or to offset lines away from these areas.

5.3.3 Clearing on steep hillsides and along creek beds should be avoided, especially where there is an obvious tree shade line. All clearing is subject to the appropriate approvals.

5.3.4 Requirements of the Bush Fires Act and local shire council by-laws should be observed. It is essential to liaise with local fire authorities and observe their operational procedures, including the restrictions on vehicle movements during periods of total fire ban.

5.3.5 It is highly desirable to minimise soil disturbance during construction of grid lines and, where possible, restrict the disturbance of vegetation.

5.3.6 Topsoil removed for drill pads and trenches must be stored separately from the subsoil in shallow stockpiles, and replaced where possible before buried seeds germinate and die. Regrowth of natural or seeded vegetation should be undertaken after consultation with the land owner to ensure that the species are compatible with agricultural objectives.

5.3.7 There must be no pollution of water courses, dams and ground water through such contaminants as drilling fluids, fuels, rubbish, detergents or human waste. Under no circumstances should chemicals, oil or their containers, be introduced into surface drainage channels or groundwater systems. The exploration crew should carry rubbish containers for the

appropriate off-farm disposal of all waste generated by their field activities.

5.4 **CLEAN VEHICLES FOR WEED AND DISEASE PREVENTION**

5.4.1 The mineral explorer should be aware of the problems associated with sampling equipment, vehicular wheels and trucks carrying noxious weeds and possible spread of plant and livestock diseases. The exploration crew should take all practicable measures to minimise risk of exotic weed and disease introduction. Particular care is needed to prevent the spread of die-back disease in areas of native vegetation within or adjoining the private property.

5.4.2 The requirements of the Agricultural and Related Resources Protection Act must be complied with when operating within a declared area.

5.5 **DAMAGE BY VEHICLE MOVEMENT**

5.5.1 Inform the land owner when heavy mobile equipment will be entering or leaving the property.

5.5.2 During adverse weather conditions, mineral explorers should restrict movement of vehicles and machines that may unduly damage roads or cultivation. Any damage resulting from moving or bogging a vehicle should be repaired as soon as conditions allow.

5.5.3 Wherever possible, drive vehicles on established tracks. Where new tracks are needed, their positions and design should be jointly agreed by the mineral explorer and land owner. Safe driving methods should be applied to all vehicle movements, of either tracked or conventional vehicles.

5.5.4 Confining exploration programs to the dry periods of the year could be a practical solution in some situations.

5.6 **PEGGING**

5.6.1 Marker pegs should be of a mutually agreed size and material; and be positioned where they are visible to farm workers and do not hinder stock or farm machinery movement. Remove all marker materials, which includes pegs, plastic tapes, stakes, measuring strings, wires and other materials as soon as practicable after the job is completed. These items are hazardous to stock and agricultural practices.

5.7 TRENCHES FOR MINERAL EXPLORATION

5.7.1 The land owner should be consulted about the position and size of any trenches.

5.7.2 Trench excavation should ensure separate sub-soil and topsoil stockpiles for subsequent backfilling and spreading respectively.

5.7.3 Refill trenches as soon as possible after completion of mapping and sampling. Where water is likely to run along trenches, construct check banks to divert water flow from the trench. Re-seed replaced topsoil on completion, and fence off from stock if the land owner considers this precaution necessary.

5.8 GATES AND FENCES

5.8.1 Leave all gates as found, whether they are open or shut. Stock security is a priority at all times.

5.8.2 Any necessary disruption of farm infrastructure and equipment should have the consent of the land owner. The mineral explorer should either have a competent contractor carry out any permanent repairs, or make provision for such work to be done through an agreement with the land owner.

5.8.3 If a new gate or fence (temporary or permanent) is required by the mineral explorer, its position and design should be discussed and agreed with the land owner. The construction should be undertaken by a fencing contractor or by other arrangement, as agreed with the land owner.

5.9 DRILLING

5.9.1 Drilling and associated work requires a high level of cooperation between land owner and mineral explorer. Drill holes should be located to minimise surface disturbance and inconvenience to the land owner while optimising their use in defining mineralised ground.

5.9.2 All drill holes should be back-filled or properly capped (PVC collar and cement plug flush with ground level) and after they have been drilled generally made safe for stock and native animals immediately. After bagging and sampling, excess cuttings should be removed unless other arrangements are agreed. All plastic sample bags should be removed by an agreed date.

5.9.3 The mineral explorer should ensure that drilling sumps are of sufficient capacity to retain drilling slurry during operations. Drill sumps should be filled when they are no longer required.

5.9.4 Saline water flows should be capped or directed to a suitable collection site, as agreed with the land owner and stipulated by the Commissioner of Soil and Land Conservation. Any water (potable or saline) identified by the drilling program should be reported (location, quality, quantity, depth) to the land owner upon the completion of the work. The land owner should be given the opportunity and, when feasible, assisted to develop such water resources.

5.10 GENERAL

5.10.1 A cooperative 'good neighbour' attitude by the mineral explorer during the exploration program, would mean that he was alert for means to assist the land owner in farm management. Opportunities could include reporting unusual situations or events, prohibiting contractors from bringing dogs, domestic animals or firearms onto the property, and facilitating infrastructure development while drilling or earth-moving equipment is on the property. Minimising noise near homesteads, stock holding areas (etc) would be consistent with the principle of a shared environment.

5.10.2 Exercise due regard for agricultural activities on the property while conducting the exploration program.

5.10.3 Ensure regular contact with the land owner and provide information about work in progress.

5.10.4 Advise the land owner of any significant changes to the exploration plan or program as soon as possible and before they affect the property's management program.

5.10.5 Completion of the exploration program on each property should involve a thorough rehabilitation of the site. This work would include removing rubbish, filling trenches and sumps, capping drill holes, and rehabilitating the area to a safe and productive state. The land owner should be invited to inspect all areas subjected to exploration activities. This occasion would probably be the best time to finalise any agreed rehabilitation and to pay any agreed compensation. When this has been completed, each party should sign acknowledgment that all terms of the Exploration Access Agreement have been fulfilled, particularly regarding terms of compensation and rehabilitation.

5.10.6 A courtesy call should be made by the mineral explorer to the land owner before leaving the area.

6. MINING ACCESS AGREEMENT AND GUIDELINES

6.1 This section details issues which should be considered:

6.1.1 If the farmer and mineral company choose to enter into a conjunctive agreement prior to the commencement of any mineral activity; or

6.1.2 If the farmer and explorer have chosen to use disjunctive access agreements and
the exploration program results in the identification of economic mineral resources on the private (agricultural) land. At that time the mineral explorer, who holds the rights to develop the discovered minerals, and the land owner should re-negotiate the key compensation and operational sections of the original Exploration Access Agreement. The negotiation of a revised agreement will strongly depend on the level of trust and cooperation achieved between the parties during the exploration phase. The mineral explorer will have made a decision on the feasibility of extracting the minerals contained in the deposit as a result of the mineral resource evaluation phase. In most instances this work will have been completed while the deposit was still held under an Exploration Licence.

6.2 It is important to note that without an **Access Agreement**, which covers conditional mining activity on the mineralised ground identified, the Department of Minerals and Energy cannot advise the Minister for Mines to grant a Mining Lease.

Steps for the preparation of a separate Mining Access Agreement or for inclusion in a conjunctive Access Agreement are as follows:

6.2.1 The land owner should be informed that if a Mining Lease is issued, the title will be for a period of 21 years, and the developer will have the option of two further renewals, each for 21 years. It should also be advised that the developer's right to the minerals can be traded as part of a commercial transaction between the developer and another company.

6.2.2 The land owner should be briefed on the estimated extent of land to be affected by the proposed mining operation, and the area of land which will be covered by the proposed Mining Lease. In most cases, the lease area will comprise a relatively small portion of the ground covered under any original Exploration Licence.

6.2.3 The land owner is not normally given technical information regarding the composition, value and size of the ore body and other feasibility data because of commercial sensitivity and corporate obligations, including statutory regulations. However, these aspects should not prevent a thorough explanation being made by the developer about all the facets of the project that could affect the land and the land owner's interests.

6.2.4 The Department of Minerals and Energy requires that the developer drafts a Notice of Intent (NOI) before approval is given by the Minister for Mines to mine. The NOI outlines the method and duration of mining, the environmental management program and how the ground disturbed will be progressively rehabilitated. It is a key document for the approval process. Its provisions regarding the final use of the land (eg. pasture, water catchment, etc) must be fully understood and acceptable to the land owner. If a disjunctive Mining Access Agreement is being used, the developer could use a draft of the NOI as a basis for discussion with the land owner. In the case where a conjunctive Mining Access Agreement is in place, the signatories would not have had such information (extent of mineralisation, method/duration of mining) at that earlier stage of discussions. This lack of information would have made necessary an agreement that was drafted in more general terms.

6.2.5 The Mineral Exploration Guidelines provisions in regard to livestock, cropping, farm trees, remnant vegetation, weed/disease prevention, vehicle movements and all other factors that affect on farm operations and viability should be examined. While the provisions for the Mining Access Agreement will be similar to those documented for consideration during the exploration phase, the nature and duration of the mining phase may require their re-evaluation in the light of different circumstances.

6.2.6 As with any original Access Agreement, the settlement made by the two parties should clearly document any compensation that is deemed necessary (see Appendix 2). While several of these issues will be similar to those previously dealt with (eg. social disruption and constraints to farm income), the effective alienation of agriculturally productive land requires detailed examination. As a general rule, compensation should be paid in the event of any diminution in farm income (or in the value of the property) which occurs as a result of exploration or mining.

If there is to be any ongoing, or post mining, cost to the land owner such as an assumed public liability in reference to an open pit, this should also receive consideration when drafting the second Access Agreement.

6.2.7 The Mineral Exploration Guidelines (listed under Section 3 of this document) provide a sound basis for arrangements to be considered by land owners and explorers. Similarly, the provisions of the guidelines for preparing a NOI, approved by the Department of Minerals and Energy, the Minister for Mines and the relevant company, are required to be followed during the whole course of the mining operation. The NOI document can be reviewed by the Minister and the Department in light of changed circumstances during the life of each project. The mining operation is regularly inspected by Departmental inspectors to ensure compliance with the agreed conditions and management objectives. The decommissioning phase of the project would require the removal of buildings and the restoration of the ground in keeping with the agreement between the mining contractor and the land owner, as well as under the terms of the NOI and Mining Lease title.

7. GENERAL INFORMATION

Statutory and practical requirements of a possible minerals extraction project from the initial stage of Exploration to final stage of Rehabilitation are outlined below. Also attached is a flow chart of the process and a framework for an Exploration Access Agreement. A Mining Access Agreement would be more complex and project specific.

EXPLORATION

7.1 Literature search of previous mineral survey work.

7.2 Regional surveys (aerial surveys, interpretation of satellite imagery, mapping and drilling along road reserves, satellite maps etc).

7.3 Application for an Exploration Licence (if not sought earlier).

7.4 Preliminary discussions with land owners.

7.5 Granting of a Permit to Enter (for ground surveys and surface sampling).

7.6 Exploration Access Agreement negotiated with the land owner(s).

7.7 Exploration program reviewed by the Department of Minerals and Energy (DME).

7.8 Warden's Court hearing, including presentation of supporting and/or opposing evidence if required.

7.9 Warden's decision and recommendation

7.10 DME briefs Minister for Mines.

7.11 Refusal or approval (for 5 year period).

7.12 Exploration of licence area in accordance with the negotiated agreement. Project may be abandoned at any stage during 5 year term if progressive results are discouraging.

7.13 Reduction of land held under Exploration Licence (compulsory reduction to 50% of original area after 3 years, reduction to 25% after 4 years). For some cases (eg when government approvals delay the exploration program), there is a provision under the Mining Act where land may be exempted from "drop off" and held under the Licence for a longer period.

7.14 Finalise extent of mineralised ground (by geological mapping, geophysics, geochemical analyses, drilling, etc).

7.15 Closer definition of lateral and vertical limits of mineralisation in some cases.

7.16 Delineation of an economically extractable ore body in a few cases.

7.17 Possible application for extension of term for Exploration Licence.

MINING

7.18 Bulk sampling

7.19 Metallurgical and process studies.

7.20 Feasibility study based on metallurgical, engineering, infrastructure, economic and marketing factors.

7.21 Decision by mineral explorer to proceed to mining phase (based on economics of project.

7.22 Discussions with the land owner(s).

7.23 Application for a Mining Lease (may occur earlier).

7.24 Revised Access Agreement with the land owner(s).

7.25 Mining program reviewed by the DME.

7.26 Warden's Court hearing (regarding Mining Lease application), including presentation of supporting and/or opposing evidence (if required).

7.27 Warden's decision and recommendations.

7.28 DME briefs Minister for Mines.

7.29 Refusal or approval by Minister for Mines (approval of the Mining Lease will result in the expiry of the Exploration Licence in favour of the granted Mining Lease). Mining Lease has an initial 21 years duration.

7.30 Notice of Intent prepared, which is reviewed by a consultant employed by DME and then evaluated by the DME.

7.31 Mining and post-mining rehabilitation program approved.

7.32 Mining commences. A mining project may be deferred for economic or corporate reasons and a Retention Licence sought for the area covering the mineral resource. The Retention Licence normally has a duration of up to 5 years, and may be renewed for further intervals of up to 5 years.

7.33 Rehabilitation, usually progressive, always to a documented schedule.

7.34 Decommissioning.

Appendix 1

Framework for a Rural Land Access Agreement for Mineral Exploration

This agreement is made this day of 1999 between the private land owner/occupier ("the owner/occupier") and the mineral explorer ("the explorer") described below.

Owner/Occupier.....of

Address: .....and

Mineral Explorer
(Head Office Contact).....

Address .....
.....Tel.....

Mineral Explorer
(Local Contact).....

Address .....
.....Tel.....

Supervisor's Name.....Tel.....

Name and address/location.....
of Property ("the property").....
Shire: .....

Land Titles (location numbers):
(where available) .....
Points of Entry .....
.....
.....

Duration of
Agreement.....

Exploration or Prospecting
License Number and
details.....

Methods of Exploration
to be used .....

Terms of Agreement

In consideration of the mutual promises set out below it is agreed that:

1. **General**
By this agreement the owner/occupier licenses the explorer to enter and leave the property, to conduct exploration for minerals on the property and to bring onto and remove from the property such equipment, vehicles, employees and contractors as the explorer may reasonably require to conduct such exploration for minerals.

(a) Operations are to be conducted in such a way as to cause minimum damage to pasture, crops and other improvements. Any disturbance to stock should also be kept to a minimum. All defined areas of remnant vegetation should be excluded from activities.

(b) The Code of Conduct for land holders and mineral explorers endorsed by the Pastoralists and Graziers Association, W.A. Farmers Federation, Association of Mining and Exploration Companies (Inc), and the W.A. Chamber of Mines and Energy, will be observed (attached).

(c) The explorer shall ensure adequate public liability cover is maintained by himself or his subcontractor to satisfy all eventualities including drilling areas, workings and costeans.

(d) That in the event that a mineral deposit which it is judged will support a viable commercial mining venture is discovered, that a renegotiation of this agreement
will occur on questions of compensation and any relevant operational matters, to enable that venture to proceed.

2. **Other Conditions**
"Refer to Rural Exploration Code"
.....
.....

3. **Supervision Of Agreement**

A supervisor will be appointed by the explorer, with responsibility for ensuring
that this agreement is observed. He will normally be the senior representative of the explorer and will keep in close contact with the owner/explorer.

4. Compensation and Making Good

(a) Any damage to stock, crops and property shall be promptly compensated. Compensation terms, setting out payments to be made by the explorer to the owner/occupier for specific types of damage or disturbance are set out below. (If insufficient space add a separate page headed "Annexure to Rural Land Access Agreement for Mineral Exploration: Compensation Terms")

Compensation terms:
.....
.....

5. Compliance with the Agreement

(a) In the event of any demonstrated failure to observe the terms of this agreement the owner/occupier shall:
(i) Notify the field supervisor or head office contact
(ii) Have the right to suspend further entry, and to refer the problem to the Wardens Court.

(b) Any provision in this agreement which is unenforceable shall not cancel nor invalidate the remaining provision of this agreement.

6. Special Reference

Major earth disturbing excavations, for example, the construction of costeans or the use of explosives, which require special approval under the exploration or prospecting license, are to be subject to negotiation.

Signed by Owner/Occupier.....

Date .....

Signed by Mineral Explorer.....

Date.....

The framework of this agreement has been endorsed by the Pastoralists and Graziers Association, W.A. Farmers Federation, Association of Mining and Exploration Companies (inc),and the Chamber of Minerals and Energy of Western Australia Inc

Appendix 2

Summary of Private Land Provisions for Compensation under the Mining Act 1978

Taking into account several sections and subsections of the Mining Act, the owner or occupier of land may be broadly entitled to compensation for :

1. Being deprived of the possession or use, of the natural surface of the land or any part of the land.

2. Damage to the natural surface of the land or any part of the land.

3. Severance of the land or any part of the land from other land of, or used by, that person.

4. Any loss or restriction of a right of way or other easement or right.

5. The loss of or damage to improvements.

6. Social disruption.

7. In the case of private land that is land under cultivation, any substantial loss of earnings, delay, loss of time, reasonable legal or other costs of negotiation, disruption to agricultural activities, disturbance of the balance of the agricultural holding, the failure on the part of the person in the mining to observe the same laws or requirements in relation to that land as regards the spread of weeds, pests, disease, fire or erosion, or as to soil conservation practices, as are observed by the owner or occupier of that land.

8. Any reasonable expense properly arising from the need to reduce or control the damage resulting or arising from the mining.

9. Where the use for mining purposes of aircraft over or in the vicinity of any land (whether or not private land) occasions damage that damage shall be deemed to have been occasioned by an entry on the land thereby affected.

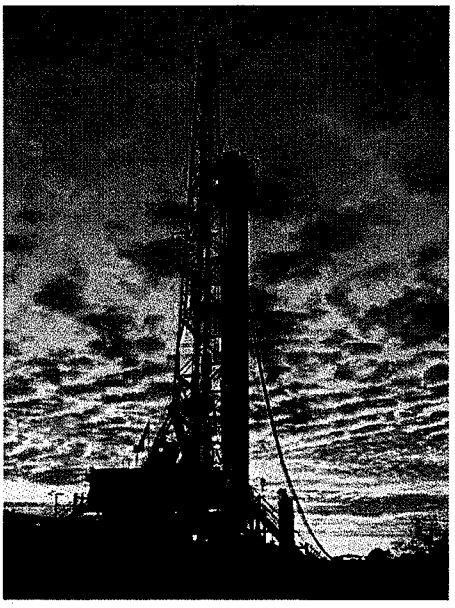
Please note that the above provisions are meant to be used as a guide for any land owner who is engaged in drafting an Access Agreement with exploration or mining interests. The provisions covered are not exhaustive, and both parties to any agreement should consult Sections 35, 123, 124, 125 and 125A (and any other sections that can provide background information) of the Mining Act 1978.

Attachment 3.

APPEA

Western Australian Onshore Gas

Code of Practice for Hydraulic Fracturing



Background

APPEA has facilitated the preparation of this Code of Practice to demonstrate what the gas industry is doing to successfully and responsibly develop significant onshore gas reservoirs in Western Australia.

The Code has been developed by a working group of industry operators based on established operating principles and leading practices in other jurisdictions that are relevant to local conditions.

Onshore gas reservoirs in Western Australia typically occur in tight sandstone and shale formations at depths of between two to four kilometres and in geological formations that are isolated from surface aquifers by significant barriers. Developing these resources can potentially deliver major environmental and economic benefits.

The shale and tight gas industry aims to assess and if feasible develop these reservoirs in a safe and environmentally responsible way consistent with regulatory requirements.

This Code was developed as part of industry input to an independent review of the regulation of these activities in WA which was released on 31 October 2011: http://www.dmp.wa.gov.au/7105_14068.aspx Western Australia's shale and tight gas industry will support these regulatory reforms to help ensure safe natural gas development, responsible water management and enhanced transparency. In addition, the industry commits to the guiding principles set out in this operating framework.

Legislation

In Western Australia, the Department of Mines and Petroleum (DMP) is the lead agency responsible for regulating unconventional gas activities. Shale, tight and coal seam gas are regulated using a similar process to conventional oil and gas activities under the Petroleum and Geothermal Energy Resources Act 1967, Petroleum Pipelines Act 1969, and the Schedule of Onshore Petroleum Exploration and Production Requirements 1991.

Proponents intending to carry out drilling and hydraulic fracturing operations must submit a number of applications to DMP, including:

- a drilling application;
- an environmental management plan; and
- a safety management plan.

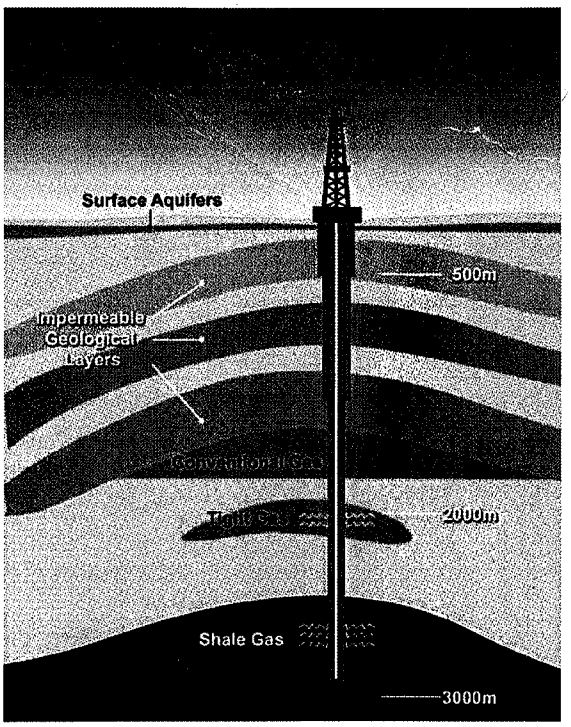
This Code of Practice has a particular focus on well stimulation given that requirements for drilling and well integrity in the broader oil and gas industry are well developed and dealt with in detail in the Schedule of Onshore Petroleum Exploration and Production Requirements 1991.

Guideline 1– Community, landholder and stakeholder interaction

The aim of this guideline is to ensure operators communicate openly and as early as practicable with landholders, local communities and other stakeholders. This communication includes explaining how risks are being managed to minimise any potential unwanted or adverse impacts.

For example:

- Operators will work to understand and minimise potential impact of hydraulic fracturing on existing land users, the natural environment and local communities. This includes keeping activities away from dwellings or environmentally sensitive areas as per regulatory requirements.
- Operators will ensure contractors are fully informed as to the potential environmental and occupational health and safety impacts of hydraulic fracturing operations and that they comply with this Code of Practice as part of contractual arrangements.
- Operators will provide accurate, timely and current information about their hydraulic fracturing activities, including how risks are identified, assessed and managed, prior to undertaking the activity, and will provide additional significant information as it becomes available. This information will include publicly released environmental management plans.
- Landholders or occupiers of the land where hydraulic fracturing operations take place will be entitled to fair and reasonable compensation which will be arrived at by negotiation.



Guideline 2 - Protection of Aquifers

The aim of this guideline is to ensure that well design and implementation practices include protection of aquifers or groundwater that may be accessed for commercial or residential water supply ("Production Aquifers").

For example:

- During the well design and planning process, operators will identify any Production Aquifers at significant risk of being impacted by hydraulic fracturing fluids. This will include the identification of critical aquitards that protect such Production Aquifers from contamination.
- If any such aquitards have been identified, fracture stimulation activities will be designed to not breach these aquitards. As far as is reasonably practicable, monitoring will be carried out during operations with the aim of ensuring this is not occurring.
- Well design will ensure protection of all Production Aquifers from exposure to stimulation and/or resultant reservoir fluids by ensuring two independent and verified barriers in all wells.

Guideline 3 – Sourcing and Use of Water

The aim of this guideline is to protect and, where required, effectively and responsibly use groundwater resources.

For example:

- All water used in hydraulic fracturing operations will be captured and recycled for reuse as much as practical.
- Taking water from aquifers will be subject to Department of Water licence requirements. This includes demonstrating as far as reasonably practicable that the volume of water extracted will not have unacceptable impacts on aquifers, the environment or other water users.

Guideline 4 – Use of Chemicals in Hydraulic Fracturing

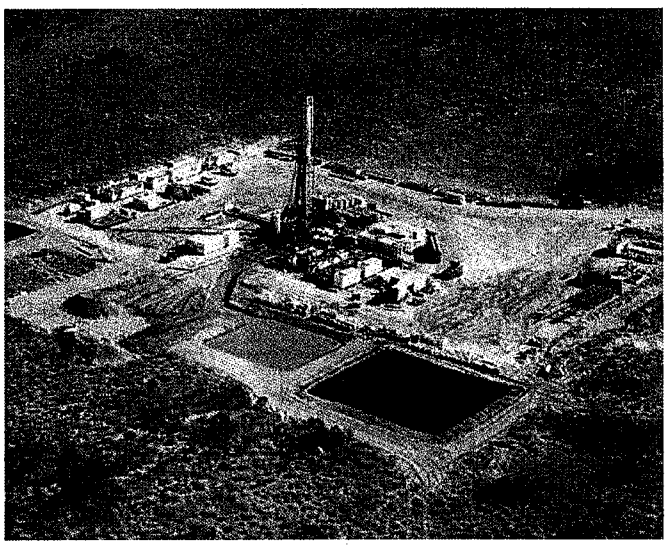
The aim of this guideline is to minimise the use of chemicals in hydraulic fracturing operations, provide clear and accurate information on any chemicals that may be used, and promote the safe and responsible use of chemicals.

For example:

- As far as practicable, fluids with the lowest toxicity will be used in hydraulic fracturing, and the concentrations used will be the minimum required to facilitate effective operations. Chemical suppliers will be required to meet these guidelines.
- Details of all fluids to be used during hydraulic fracturing operations, including information on actual usage and fluid recovery will be provided to DMP.
- The information will include relevant Material Safety Data Sheets (MSDS) and National Industrial Chemical Notification and Assessment Scheme (NICNAC) registration details and will be subject to the protections of proprietary or commercially sensitive information available under these schemes.
- Operators will support the public release of this information. This will include working with DMP through APPEA to develop a standard process including consideration of a website service such as FracFocus Chemical Disclosure
- All chemicals used for hydraulic fracturing operations will be handled and stored in accordance with appropriate International Standards Organisation standards, relevant Material Safety Data Sheets and State regulatory requirements.

Guideline 5 – Fluid flowback and produced fluids containment

The aim of this guideline is to ensure that post-fracture stimulation clean-up flowback or produced fluids cannot come into contact with Production Aquifers or pollute soil or soil substrate.



For example:

- All recovered hydraulic fracturing fluids will be isolated in sealed storage areas designed to prevent leakage.
- Recovered fluids will be recycled or disposed of through flaring, sale, evaporation or removal to an approved disposal site consistent with regulatory conditions.
  Produced hydraulic fracturing fluids may be reinjected into a suitable formation isolated from Production Aquifers in accordance with regulatory requirements.
- When no longer required for use, all sites, including any sealed storage areas, will be rehabilitated to meet regulatory or any other agreed requirements.
- Operators will comply with any legislative requirement to report any known or suspected contamination to the Departments of Environment and Conservation, Department of Health and Department of Mines and Petroleum.

Guideline 6 – Fugitive Emissions

The aim of this guideline is to ensure the fugitive emissions from stimulated wells during flowback and testing activities are minimised.

For example:

- Venting of gas to the atmosphere is to be avoided and when this is not possible for operational or safety reasons it should be kept to a minimum.
- During flowback of hydraulic fracturing fluids and extended well testing periods, gas will be separated from liquids and either be put into a pipeline for sale or when this is not possible, flared such that fugitive emissions are minimised.

Guideline 7 – Continuous improvement

The aim of this guideline is to ensure continuous performance improvement and the sharing of information with regulators and other stakeholders to reduce potential risks of hydraulic fracturing.

For example, well operators should:

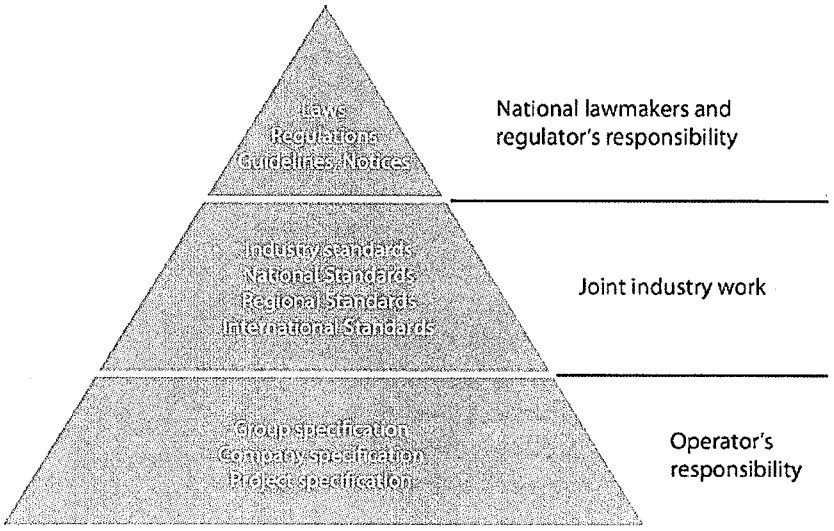
- Develop well construction procedures, environmental management plans and safety management plans consistent with regulatory requirements and the Code of Practice principles.

- Ensure full and open communication with regulatory authorities and other stakeholders in relation to industry activities and the processes of continuous improvement, including through supporting the public release of approved management plans.
- Collate and share information among the operating and services community on knowledge and experience to continuously improve operating practices.
- Contribute to building the body of knowledge within government on the appropriate management and regulation of the industry.

Industry standards and guidance, and the regulatory framework

The oil and gas industry operates under regulatory frameworks supported by many international and national standards relevant to exploration, development and operation as shown in figure 1. Further details on the standards identified in regulation and those that relate specifically to hydraulic fracturing are provided at Attachment 1.

This WA Code is a contribution to this guidance within the category of joint industry work.



Source: International Association of Oil and Gas Producers, Regulators' use of standards, Report No. 426, March 2010

Next steps

APPEA welcomes your views on the guiding principles and suggested actions in this Code of Practice. It is anticipated that a final version of the document will be issued after further consultation with regulators in relation to the regulatory reforms announced on 31 October 2011.

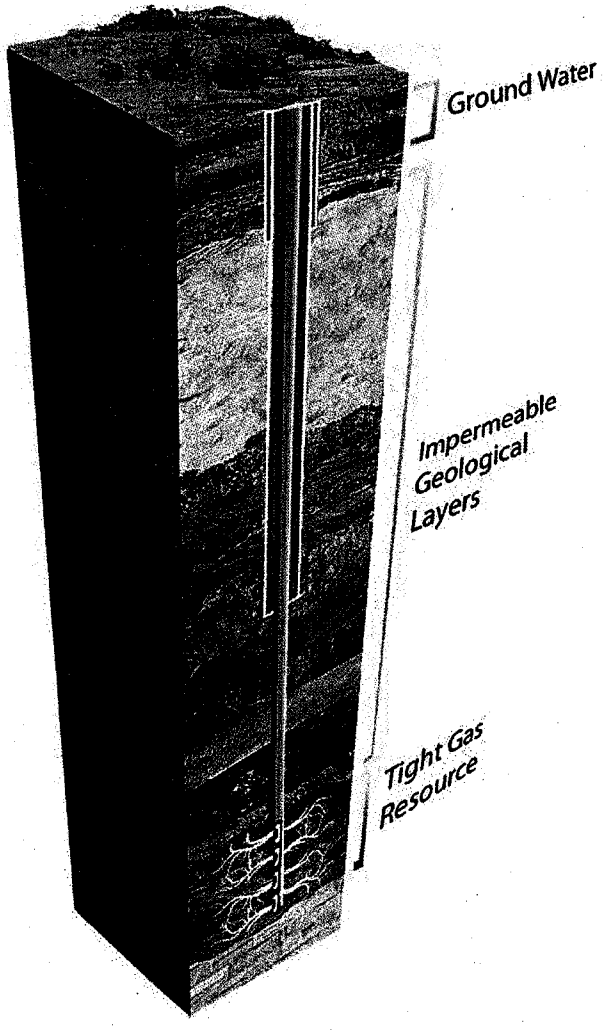
APPEA is also working with onshore gas operators in other States and Territories to consider a nationally consistent approach to a Code. This could define best practice operating principles for all onshore gas activities while also recognising that the different geology and regulatory frameworks must be considered in deciding which actions are best for local conditions.

To download the Code of Practice document or request a copy visit: www.appea.com.au

Post your comments to Onshore Gas Code of Practice, APPEA, Level 1, 190 St Georges Terrace, Perth WA 6000 or email your comments to ataylor@appea.com.au

Definitions

- Aquitard: A confining or impermeable layer that overlays or underlays an aquifer
- Coal seam gas: Gas derived from coal beds, typically at depths of between 300 and 600 metres.
- Hydraulic fracturing: Hydraulic fracturing (known in the industry as fraccing) is a process that uses the hydraulic pressure of fluid pumped into gas wells to open fractures in target formations and help increase gas production.
- MSDS: Material Safety Data Sheets provides details of the properties of a substance. They also provide details of actions that should be taken if a person comes into contact with the product.
- NICNAS: National Industrial Chemicals Notification and Assessment Scheme. NICNAS assesses all new chemicals to Australia and those already used on health, safety and environmental grounds.
- Production aquifer: Aquifers or groundwater which may be accessed for commercial or residential water supply.
- Shale gas: Gas derived from shale rock formations, typically at depths of below 2500 metres in Western Australia.
- Tight gas: Gas derived from low porosity or low permeability rock, typically at depths of below 2500 metres in Western Australia.



International Standards Employed in Western Australia for Onshore Petroleum Activities

Standards Identified in Regulation

Detailed below is a list of standards cited in Western Australia's Schedule of Onshore Petroleum Exploration and Production Requirements 1991 that relate to onshore petroleum activities under the Petroleum and Geothermal Energy Act 1967. A copy of the regulations is available on the Department of Mines and Petroleum's website at http://www.dmp.wa.gov.au/documents/PD-PTLA-TGR-248D.pdf.

Reference in Regulations	Reference	Title	Purpose
		See http://www.osha.gov/SLTC/etools/oilandgas/glossary_of_terms/glossary_of_terms_a.html for a description of the typical components of a petroleum well.	
503 (a) – Equipment to conform to certain standards	API Std 4A	Specification for Steel Derricks (including Standard Rigs)	Sets standard for drilling and workover equipment
503 (a)	API Std 4D	Specification for Steel Derricks (including Standard Rigs)	This specification covers any mast structure suitable for oil-well or gas-well drilling or servicing
503 (a)	API Std 4D,	Specification of Portable Masts	
503 (a)	API Std 4E;	Specification for Drilling and Well Servicing Structures	This specification covers steel derricks, portable masts, and substructures i.e. structures suitable for drilling or well servicing
503 (b)	API Spec 7	Specification for Rotary Drilling Equipment	Sets standard for drilling and workover equipment
503 (c)	API Spec 5CT	Specification for Casing, Tubing and Drill Pipe	Specifies the technical delivery conditions for steel pipes (casing, tubing and pup joints), coupling stock, coupling material and accessory material
503 (d)	API Spec 6A	Specification for Wellhead and Christmas Tree Equipment	Specifies requirements and gives recommendations in relation to wellhead and christmas tree equipment for use in the petroleum and natural gas industries.
503 (e)	API Spec 16A	Specification for Drill Through Equipment	Includes blowout preventers, drilling spools and adapters
503 (f)	API Std 8A	Specification for Drilling and Production Hoisting Equipment	Establishes ratings for certain hoisting equipment used in drilling and producing operations
503 (g)	API Spec 9A / AS 1656	Specifications for Wire Rope	Specifies the minimum requirements and terms of acceptance for the manufacture and testing of steel wire ropes.
503 (h)	API Spec 10	Specification for Materials and Testing of Well Cements	Requirements for manufacturing eight classes of well cements and application of the API monogram, including chemical and physical testing requirements.
506 (1) - Casing	API Bull. 5C2	Bulletin on Performance Properties of Casing Tubing and Drill Pipe	Sets standard for design and placement of casing strings
506 (5)	API RP 5C1	Recommended Practice for Care and Use of Casing and Tubing	Sets standard for re-use of casing strings
508 (1) - Blow out prevention control	API RP 53	Recommended Practices for Blow-out Prevention Equipment Systems for Drilling Wells	Sets standard for installation, operation, maintenance and testing of blow out preventers.
515 (4) - Drilling fluid	API RP 13B	Recommended Practice for Standard Procedure for Testing Drilling Fluids	Sets standard for design of tests of drilling fluids
523 (1) - Fluid samples	API RP 44	Recommended Practice for Sampling Petroleum Reservoir Fluids	Sets standard for testing of recovered fluids from formation tests or non-routine production tests

Standards Specific to Hydraulic Fracturing

In relation to hydraulic fracturing, alignment with the following API standards would be considered good practice. Similar standards are also available from other jurisdictions.

API Reference	Title	Purpose
API HF1	Hydraulic Fracturing Operations – Well Construction and Integrity Guidelines, 1st Edition, October 2009	• Highlights industry practices for well construction and integrity for wells that will be hydraulically fractured. • The guidance identifies actions to protect shallow groundwater aquifers, while also enabling economically viable development of oil and natural gas resources.
API HF2	Water Management Associated with Hydraulic Fracturing, 1st Edition, June 2010, (API)	• Identifies best practices used to minimize environmental and societal impacts associated with the acquisition, use, management, treatment, and disposal of water and other fluids associated with the process of hydraulic fracturing. • Focuses primarily on issues associated with hydraulic fracturing pursued in deep shale gas development, but also describes the important distinctions related to hydraulic fracturing in other applications.
API HF3	Practices for Mitigating Surface Impacts Associated with Hydraulic Fracturing, 1st Edition, February 2011, (API)	• Identifies the best practices for minimizing surface Environmental impacts associated with hydraulic fracturing operations. • Focused on protecting surface water, soils, wildlife, other surface ecosystems, and nearby communities. • Includes API's policy on chemical disclosure: - API supports transparency regarding the disclosure of the chemical ingredients;
		- States are the proper authority to determine reporting requirements and formatting of reporting and public disclosure; - Proprietary information should be protected; and - Hydraulic fracturing is effectively regulated by numerous federal, state and local requirements. Hydraulic fracturing should not be placed exclusively under the purview of the Safe Drinking Water Act (SDWA) or any other federal statute.
API Std 65 Part 2	Isolating Potential Flow Zones During Well Construction, 2nd Edition, December 2010, (API)	• Identifies best practices used to minimize environmental and societal impacts associated with the acquisition, use, management, treatment, and disposal of water and other fluids associated with the process of hydraulic fracturing. • Focuses primarily on issues associated with hydraulic fracturing pursued in deep shale gas development, but also describes the important distinctions related to hydraulic fracturing in other applications.
API RP 51R	Environmental Protection for Onshore Oil and Gas Production Operations and Leases, 1st Edition, July 2009, (API)	• Provides environmentally sound practices for domestic onshore oil and gas production operations, including fracturing. Applies to all production facilities, including produced water handling facilities. Operational coverage begins with the design and construction of access roads and well locations, and includes reclamation, abandonment, and restoration operations.

Source: http://www.api.org/policy/exploration/hydraulicfracturing/upload/Hydraulic_Fracturing_InfoSheet.pdf

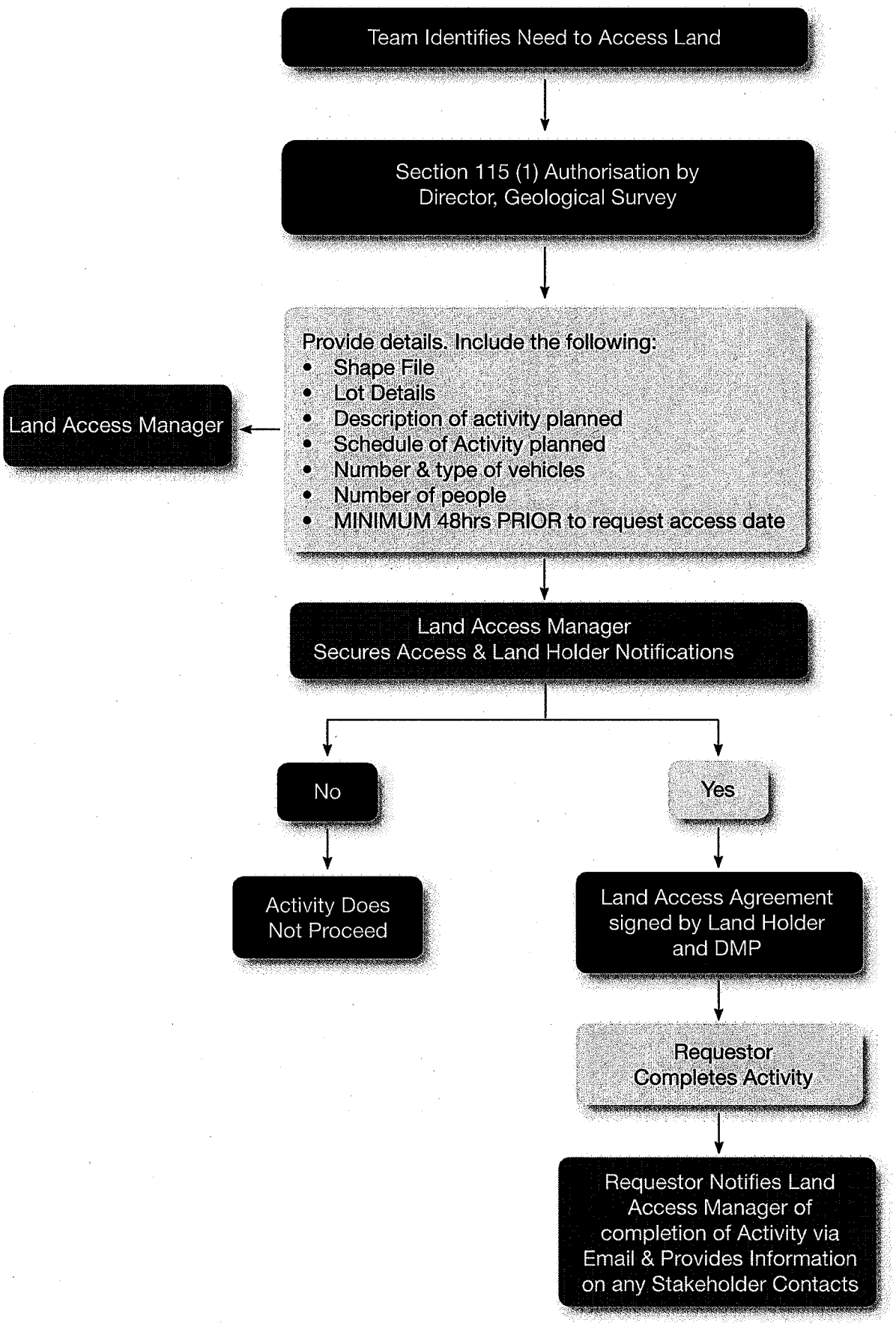
Abbreviations

API - American Petroleum Institute
Bull - Bulletin
RP - Recommended Practice
Spec - Specification

ATTACHMENT 4.

Government of **Western Australia**
Department of **Mines and Petroleum**

CO_2 Seismic Survey Project Land Access Request Process



ATTACHMENT 5.

ACCESS AGREEMENT
SOUTH WEST GEOSEQUESTRATION HUB SEISMIC SURVEY
(Permit no).

Between

Name of Landowner: _____

Address: _____

Property: _____

Mobile Phone:_____

Home Phone: _____

Email: _____

Fax:_____

AND

THE STATE OF WESTERN AUSTRALIA through the Department of Mines and Petroleum of 100 Plain Street, East Perth, WA 6004

The Department of Mines and Petroleum (DMP) is a State Government agency and is acting on behalf of the South West Geosequestration Hub project(South West Hub). The South West Hub has been established to examine the options for Carbon Capture and Storage (CCS) in the South West of Western Australia. Hub. A document providing advice on the participants in the South West Hub and on project activities has been provided.

DMP plans to conduct a 3D onshore seismic survey in the Shires of Harvey and Waroona. A plan of the seismic survey area is attached.

The survey will be conducted on behalf of DMP by the Seismic Contractor according to the provisions of the *Mining Act* 1978 and current best practice and is planned for the end of the first quarter 2013, subject to the availability of the Seismic Contractor and any other mitigating factors. The anticipated duration of the survey is 30 days from commencement.

The DMP will cooperate with the Landowner in minimising disruption to normal agricultural activities on the Property. Any impact on existing improvements (roads, fences etc) and upon any crops and pasture being produced on the property will be kept to a minimum. Any damage that is caused by the seismic survey will be repaired and rehabilitated as is mutually agreed between the DMP and the Landowner. If a dispute arises as to the value of damage to crops and pasture or cost of repair to damaged

improvements, an independent agent acceptable to both parties will be called upon to evaluate the damage and cost of repair. If the parties are not able to come to an agreement over the employment of an independent agent, the matter will be referred to the Mining Warden's Court.

The Seismic Contractor and its employees will be under close supervision by the Department of Mines and Petroleum and will be contractually obliged to comply with, but is not limited to, the standards detailed below.

The Department of Mines and Petroleum will indemnify the Landowner and keep the Landowner indemnified against any direct loss, claim, damage or liability suffered by him as a result of, or arising from the performance of this survey on the landowner's property unless such loss or damage arises out of negligent or wilful misconduct by the landowner. For the purposes of this agreement the term "direct loss or damage" means the damage directly suffered by the Landowner and specifically excludes any claim for loss of profits consequential loss, loss of goodwill or loss of reputation.

This agreement applies to the South West Hub 3D seismic survey only. Access for any future exploration activity will require the Department of Mines and Petroleum and/or the South West Hub to negotiate a separate agreement with the Landowner.

The Project Manager is:

MARTIN BURKE
Project Manager Carbon Strategy
The Department of Mines and Petroleum
10/61 Victoria Street
Bunbury WA 6230
Ph. 9791 2008
Mob. 0427 429 697
martin.burke@dmp.wa.gov.au

or such other person as appointed by DMP and advised in writing to the Landowner.

The Seismic Contractor is:

Geokinetics (Australasia) Pty Ltd
601 Curtin Avenue East
Pinkenba, Queensland 4008

The following requirements are agreed between DMP and the Landowner and will be complied with by the Seismic Contractor and its personnel including its visitor's licensees, agents and invitees. The Seismic Contractor will be advised in writing of the agreed requirements of the Landowner.

1. All motor vehicles are to be thoroughly washed down and are to be free of soil and vegetable matter before entering the survey area. Inspection by an Agriculture Protection Officer may be undertaken at the Landowners request.
2. Where vehicle hygiene measures are required to combat the spread of noxious weeds or plant disease, DMP and the Contractor will comply with biosecurity hygiene requirements – e.g. wash downs.
3. Gates will be left 'as found' or marked, OPEN or SHUT.
4. All vehicles will be driven on seismic lines or on agreed, nominated access tracks only.
5. Seismic line width must be kept to a minimum. All vehicles must follow the same agreed tracks – no short cuts across paddocks or circle turns.
6. In soft, sandy areas, tyres will be deflated before entry.
7. Vehicle speed limitations will be strictly observed and unless advised otherwise will be 20 kph on the Property at all times.
8. Pets and firearms are forbidden. No employee of either DMP or the Contractor will bring pets or firearms onto the Property.
9. No personal vehicle (of either the DMP or the Seismic Contractor will be allowed onto the property without the Landowner's consent.
10. Farm fixtures or machinery will not be interfered with by DMP or the Seismic Contractor.
11. Farm livestock will be respected. Livestock will not be driven and patience will be employed at all times.
12. If accidental damage to fences or fixtures occurs, it will be reported to the DMP Project Manager and the Landowner. All damage will be remediated as soon as practicable.
13. The use of illegal drugs will not be tolerated. Should any person use or be suspected of using illegal drugs the Seismic Contractor's field crew manager or DMP Project Manager must advise the relevant legal authority.
14. Alcohol consumption will not be permitted upon any property during the survey.
15. No litter of any kind will be left on property. The litter to be removed includes the survey teams personal litter, litter from the seismic survey vehicles and process. All vehicles will be removed from paddocks for refuelling.
16. Maximum care is to be taken with fire related issues. Fire bans and restrictions on vehicle movements will be strictly adhered too.

17. Cigarette smoking will be restricted in paddocks on days of high fire risk – disposal of cigarette butts will be within receptacles provided by the Seismic Contractor and approved by the DMP Project Manager.
18. All vehicles will be equipped with a dry powder fire extinguisher plus a 9 litre pressurised water fire extinguisher and at least one shovel or fire rake. The equipment must be fully operational at all times.
19. The Seismic Contractor will provide a water tanker with a minimum capacity of 1000 litre equipped with pump and fire fighting hose. This vehicle will have a CB/UHF radio transceiver.
20. All vehicles on the Property will be equipped with VHF and/or C/B UHF radio transceivers.

DMP also agrees to comply with the following specific requirements of the Landowner.

SPECIFIC REQUIREMENTS

_____

_____

_____

Signed:	Signed:
_____	_____
Landowner	For and on behalf of the Department of Mines and Petroleum
_____	_____
In the presence of (signature)	In the presence of (signature)
Witness	Witness .....
Address of Witness	Address of Witness
.....	.....
Date: / / 2012	Date: / / 2012