

02 February 2018

Justice Rachel Pepper - Chairperson

Scientific Inquiry into Hydraulic Fracturing in the Northern Territory

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Dear Justice Pepper,

As the managing director of Oilfield Connect Pty Ltd (OCPL), a local Territorian company, I would like to respond to the 120 recommendations in the Draft Final Report on behalf of myself as an industry veteran and OCPL.

OCPL specialises in the supply of specialised & high criticality equipment used in the construction of oil & gas wells to comply with the relevant API industry standards used worldwide.

It is my firm belief, from some 35 years' experience in the O&G industry that this industry has in the vast majority of cases acted to a high degree of professionalism, it practices Health, Safety, Security & Environmental (HSSE) as an integral part of the industry culture, cascading these from the top tier operators, down to the small service & supply companies, like OCPL, and has an inbuilt continual improvement culture which encourages new innovative/emerging technologies to be adopted.

Where the industry has had an unforeseen failure, it has an arsenal of specialised intervention equipment and skilled workforce to promptly rectify any situation/mishap and eliminate danger, then make good the area affected. It has always shouldered its responsibilities in this area with great integrity, and has not neglected or abandoned sites as is often portrayed in the media with unrelated images of abandoned legacy mineral mines.

OCPL, like many other Territorian small businesses which are directly or indirectly dependant on activity from an operational shale gas industry, has suffered significantly since the NTG imposed the moratorium on operators in NT from developing shale gas well using fracture stimulation technology, and is eagerly looking forward to the NTG finding a pathway forward to lifting the moratorium in the near future.

Part of that pathway forward will be for the NTG to develop the necessary regulatory framework, which for the most part is to be welcomed, where it will protect all stakeholders from mishaps, yet not be so onerous as to make the industry unviable by default of the regulations being overly harsh and restrictive.

Balance will be the key to success for all stakeholders.

On the whole OCPL finds the draft Final Report thorough and positive, in that the Inquiry panel has been able to cover a large volume of material and research, and objectively focus on the facts surrounding the industry and the technology of fracking, and has been relatively forthright in contesting misinformation from either side.

In my comments to the 120 recommendations below, I will make some references to refrain from requesting prescriptive regulations on some of the items listed, and this is mainly because prescriptive regulations can often restrict the evolution of new emerging technologies, methodologies, processes & procedures, which can be adopted through positive continual improvement and learnings.

#	Inquiry Recommendations	OCPL comment
<b>Shale gas extraction and development</b>		
5.1	<p>That the Government mandate a code of practice setting out minimum requirements for the abandonment of onshore shale gas wells in the NT.</p> <p>The code must be enforceable and include a requirement that:</p> <ul style="list-style-type: none"> <li>• wells undergo pressure and cement integrity tests prior to abandonment, with any identified defects to be repaired prior to releasing the well for decommissioning; and</li> <li>• testing must be conducted to confirm that the plugs have been properly set in the well.</li> </ul>	<p>Agreed, there are well established practices for well abandonment which include the relevant testing for integrity.</p> <p>However as well designs can be different, such codes should not be overly prescriptive, allowing for differences in well design and therefore methods of P&amp;A to be fit for purpose and be able to evolve with emerging technologies.</p>
5.2	<p>That the Government mandate a program for the ongoing monitoring of abandoned shale gas wells in the NT.</p> <p>The program must include the ongoing monitoring of water quality by bores installed adjacent to the well and the results of such monitoring to be published in real-time.</p>	<p>Disagree, a properly abandoned well will have no pathways for gas communication from the reservoir to surface, whereas if a well was improperly abandoned, this could be detected at a periodic inspection rather than constant real-time monitoring.</p> <p>This doesn't appear to be the standard practice in most other regions and appears to be somewhat risk-adverse overkill.</p> <p>Does this monitoring go on in perpetuity or is there a set time period by which no further monitoring is required.</p> <p>Possibly routine annual inspections for a few years post well abandonment would suffice.</p>
5.3	<p>That in consultation with industry and other stakeholders, the Government develop and mandate an enforceable code of practice setting out the minimum requirements that must be met to ensure the integrity of onshore shale gas wells in the NT. This code must require that:</p> <ul style="list-style-type: none"> <li>• all onshore shale gas wells (including exploration wells constructed for the purposes of production testing) be constructed to at least a Category 9 (or equivalent) standard, with cementing extending up to at least the shallowest problematic hydrocarbon-bearing, organic carbon rich or saline aquifer zone;</li> <li>• all wells be fully tested for integrity before and after hydraulic fracturing and the results be independently certified, with the immediate remediation of identified issues required;</li> <li>• an ongoing program of integrity testing be established for each well during its operational life. For example, every two years initially for a period of 10 years and then at five-yearly intervals thereafter to ensure that if any issues develop they are detected early and</li> <li>• remediated; and</li> <li>• the results of all well integrity testing programs and any remedial actions undertaken be publicly reported.</li> </ul>	<p>Disagree, the industry has well established code of practice and minimum requirements that must be met to ensure the integrity of onshore shale gas wells.</p> <p>Deviation from the established industry standards creates confusion especially where specialist engineers are working transient between NT and other states. It would be safer to maintain code of practice and minimum requirements which are consistent with that already practiced in other regions.</p> <p>Records of cement logs, pressure tests are usually carried out by the contractor performing the operation, and independently verified by the operator at each step.</p> <p>Results of well integrity and/or any remediation actions can be shared with NTG.</p> <p>It would be best if the NTG managed a central online data bank for public access to records of well integrity.</p>
5.4	<p>That gas companies be required to develop and implement a well integrity management system for each well in compliance with ISO 16530-1:2017.</p> <p>That each well must have an approved well management</p>	<p>Agreed, this seems in line with current practices and should be worked on collaboratively between NTG and industry.</p>

	<p>plan in place that contains, at a minimum, the following elements:</p> <ul style="list-style-type: none"> <li>• consideration of well integrity management across the well lifecycle;</li> <li>• a well integrity risk management process that documents how well integrity hazards are identified and risks assessed;</li> <li>• a well barrier plan containing well barrier performance standards, with specific reference to protection measures for beneficial use aquifers;</li> <li>• a process for periodically verifying well barrier integrity through the operational life of the well and immediately prior to abandonment, and for reporting to the regulator the findings from integrity assessments;</li> <li>• characterisation data for aquifers, saline water zones, and gas bearing zones in the formations intersected during drilling; and</li> <li>• monitoring methods to be used to detect migration of methane along the outside of the casing.</li> </ul>	
5.5	That the composition (inorganics, organics and NORMs) of flow-back fluids, in addition to hydraulic fracturing fluids, be made publicly available.	<p>Agreed, the aim of this recommendation will go a long way to allaying concerns on transparency and should be worked on collaboratively between NTG and industry.</p> <p>It would be best if the NTG managed a central online data bank for public access to records.</p>
5.6	<p>That in consultation with industry and the community, the Government develop a wastewater management framework for any onshore shale gas industry. Consideration must be given to the likely volumes and nature of wastewaters that will be produced by the industry during the exploration and production phases. That the absence of any treatment and disposal facilities in the NT for wastewater and brines produced by the industry be addressed as a matter of priority.</p>	<p>Agreed, the aim of this recommendation will go a long way to allaying concerns on waste management.</p> <p>Caution on being overly prescriptive, as there are many competing technologies and constant emerging technologies for waste management, and options for most efficient and cost effective technologies should be available for selection.</p> <p>There is most likely scope for a local waste management company to invest in the capabilities, with other industries also having need of this service. NTG may look into any assistance required for local businesses interested in this area.</p>
5.7	That in consultation with industry and the community specific guidance be implemented by the Government, drawing on protocols and procedures developed in other jurisdictions, for the characterisation, segregation, potential reuse and management of solid wastes produced by the shale gas industry.	Agreed, the aim of this recommendation will go a long way to allaying concerns on transparency and should be worked on collaboratively between NTG and industry.
5.8	That to minimise the risk of occurrence of felt seismic events during hydraulic fracturing operations, a traffic light system for measured seismic intensity, similar to that in place in the UK, be implemented.	Agreed, the aim of this recommendation to minimise the risk of occurrence of felt seismic events during hydraulic fracturing operations as per what is practiced in other regions.
<b>Water</b>		
7.1	<p>That before any production licence is granted to extract onshore shale gas, the Water Act be amended to require gas companies to obtain water extraction licences under that Act.</p> <p>That the Government introduce a charge on water in the NT for all onshore shale gas activities.</p>	<p>Agreed, to the amendment of the Water Act to obtain water extraction licences under that Act.</p> <p>Note: water use by the onshore gas industry is very low compared to other major industries operating in NT.</p> <p>Disagree, to NTG introduction of a charge on water exclusively for all onshore shale gas activities, unless this is applied across the board to all other major industries operating in NT.</p> <p>To charge the onshore shale gas industry as a medium user, but permit high volume users to enjoy free water would be manifestly discriminatory towards the onshore shale gas industry.</p>
7.2	That the Government request the Australian Government to amend the EPBC Act to apply the 'water	No comment, however should be comparable to the practice in other states.

	trigger' to all onshore shale gas development.	
7.3	That the Government develop specific guidelines for human and environmental risk assessments for all onshore shale gas developments consistent with the National Chemicals Risk Assessment framework, including the national guidance manual for human and environmental risk assessment for chemicals associated with CSG extraction.	Agreed, development of specific guidelines, consistent with the National Chemicals Risk Assessment framework, including the national guidance manual for human and environmental risk assessment for chemicals associated with onshore shale gas extraction.
7.4	That a strategic regional environmental and baseline assessment (SREBA), including a regional groundwater model, be developed and undertaken for any prospective shale gas basin before any production licences are granted for shale gas activities in that basin, commencing with the Beetaloo Sub-basin.	Agreed, this seems in line with current practices in some other regions and should be worked on collaboratively between NTG and industry.
7.5	That the use of all surface water resources for all onshore unconventional shale gas hydraulic fracturing in the NT be prohibited.	Disagree, as per comments to 7.1 where there are other industries with higher usage rates of water being permitted to access surface water, whilst the onshore shale gas industry is prohibited, would be manifestly discriminatory towards the onshore shale gas industry.  Many variables that can be seasonal (wet/dry) and or location specific that may make some seasons or locations suitable for accession surface water with little to no impact on other users.  Surface water management should be worked on collaboratively between NTG and industry.
7.6	That in relation to the Beetaloo Sub-basin: <ul style="list-style-type: none"> <li>• the Daly-Roper WCD be extended south to include all the Beetaloo Sub-basin;</li> <li>• a separate WAP be developed for the northern and southern regions of the Beetaloo Subbasin;</li> <li>• the new northern Basin WAP provide for a water allocation rule that restricts the consumptive use to less than that which can be sustainably extracted without having adverse impacts on other users and the environment; and</li> <li>• the southern Basin WAP prohibits water extraction for shale gas production until the nature and extent of the groundwater resource and recharge rates in that area is quantified.</li> </ul> <p>That in relation to other shale gas basins with similar or greater rainfall than the Beetaloo Subbasin, WCDs be declared and WAPs be developed to specify sustainable groundwater extraction rates for shale gas production that will not have adverse impacts on existing users and the environment.</p> <p>That in relation to other potential shale gas basins in semi-arid and arid regions, all groundwater extraction for any shale gas production be prohibited until there is sufficient information to demonstrate that it will have no adverse impacts on existing users and the environment.</p>	Agreed, the aim of this recommendation should assist in allaying concerns on groundwater and should be worked on collaboratively between NTG and industry.  However the recommendation doesn't elaborate on how to determine going about meeting these requirements: <ul style="list-style-type: none"> <li>• "the nature and extent of the groundwater resource and recharge rates in that area is quantified"; and</li> <li>• "until there is sufficient information to demonstrate that it will have no adverse impacts on existing users and the environment"</li> </ul> <p>Are these requirements comparable that applied to other high water usage industries which currently rely on ground water?</p>
7.7	That the following measures be mandated to ensure that any onshore shale gas development does not cause unacceptable local drawdown of aquifers: <ul style="list-style-type: none"> <li>• the drilling of onshore shale gas petroleum wells within 1 km of existing or proposed groundwater bores be prohibited unless hydrogeological investigations and groundwater modelling indicate that a different distance is appropriate, or if the landholder is in agreement with a closer distance;</li> <li>• additional information on the aquifer characteristics is obtained as a result of the regional environmental and</li> </ul>	Agreed, to ensure onshore shale gas industry does not cause unacceptable local drawdown of aquifers, however this should be comparable to practices in other states and applied to all other high water usage industries.

	<p>baseline assessment recommended in Section 7.4.1;</p> <ul style="list-style-type: none"> <li>• relevant WAPs include provisions that adequately control both the rate and volume of water extraction by the gas companies;</li> <li>• gas companies be required, at their expense, to monitor drawdown in local water supply bores; and</li> <li>• companies be required to ‘make good’ any problems if this drawdown is found to be excessive (that is greater than 1 m).</li> </ul>	
7.8	<p>That reinjection of wastewater into deep aquifers and conventional reservoirs should be prohibited until comprehensive geotechnical investigations are undertaken to show that no seismic activity will occur.</p>	<p>Agreed, this should be comparable to practices in other states.</p>
7.9	<p>That the following information about hydraulic fracturing fluids must be reported and publicly disclosed about hydraulic fracturing fluids prior to any hydraulic fracturing for onshore shale gas:</p> <ul style="list-style-type: none"> <li>• the chemicals to be used;</li> <li>• the purpose of the chemicals;</li> <li>• how the chemicals will be managed onsite, including how spills will be prevented and if spills do occur how they will be remediated and managed; and</li> <li>• the laws that apply to the management of the chemicals and how they are enforced.</li> </ul> <p>That the following information about flowback and produced water be reported and publicly disclosed:</p> <ul style="list-style-type: none"> <li>• the chemicals and NORMs found;</li> <li>• how and where the chemicals and NORMs will be managed, transported and treated, including how spills will be prevented and if spills occur, how they will be remediated and managed; and</li> <li>• the laws that apply to the management of the chemicals and NORMs and their enforcement.</li> </ul>	<p>Agreed, the public disclosure of chemicals used in hydraulic fracturing fluids should be managed similar to that practiced in other states, which is a requirement of the Petroleum (Environment) Regulations 2016.</p> <p>Recommend that data on flowback and produced water composition also be reported to government and made publicly available on a government website.</p>
7.10	<p>That in order to minimise the risk of groundwater contamination from leaky gas wells:</p> <ul style="list-style-type: none"> <li>• all wells to be hydraulically fractured must be constructed to at least Category 9 or equivalent and tested to ensure well integrity before and after hydraulic fracturing, with the results certified by the regulator (see also Recommendations 5.3 and 5.4);</li> <li>• a minimum offset distance of at least 1 km between water supply bores and well pads must be adopted unless specific site-specific information is available to the contrary (see also Recommendation 7.7);</li> <li>• a robust and rapid wastewater spill clean-up management plan must be prepared for each well pad to ensure immediate remediation in the event of a spill: and</li> <li>• real-time publicly available groundwater quality monitoring must be implemented around each well pad to detect any groundwater contamination.</li> </ul> <p>Multilevel observation bores must be used to ensure full coverage of the aquifer horizon, with a level of vertical resolution sufficient to be able to identify the location of any leak.</p>	<p>Disagree, the measures in this recommendation seem onerous and highly prescriptive compared to standard practice in other states and overseas.</p> <p>Well design should be determined by suitably qualified well design engineers, who take into account the site specific and geological information to design an appropriate well for that location.</p> <p>Minimum offset of 1Km to local water wells, should be open to negotiations, where the water bore owner is agreeing to a new replacement water well strategically placed further away, in lieu of the old well, being within the 1Km zone.</p> <p>A HAZCHEM rapid wastewater spill clean-up management plan to ensure immediate remediation in the event of a spill seems reasonable.</p> <p>Real-time publicly available groundwater quality monitoring systems may be very difficult to implement, as the technologies are relatively new, equipment can easily suffer in the extreme exposure of NT climate, and remoteness may make data streaming without telecommunication reception impossible.</p>
7.11	<p>That to reduce the risk of contamination of surface aquifers from on-site spills of wastewater:</p> <ul style="list-style-type: none"> <li>• the EMP for each well pad must include an enforceable wastewater management plan and spill management plan, which must be approved prior to the commencement of hydraulic fracturing;</li> </ul>	<p>Disagree, the measures in this recommendation seem onerous and highly prescriptive compared to standard practice in other states and overseas.</p> <p>Enclosed tanks where suitable to use, would be practical but this needs better wording to be less prescriptive, and allow for alternate</p>

	<ul style="list-style-type: none"> <li>enclosed tanks must be used to hold all wastewater;</li> <li>the well pad site must be treated (for example, with a geomembrane) to prevent the infiltration of wastewater spills into underlying soil and thence into an aquifer; and</li> <li>a real-time publicly accessible monitoring program for each well pad must be established.</li> </ul>	<p>emerging technologies to be adopted where suitable.</p> <p>Real-time publicly accessible monitoring program for each well pad seems unusual request for any other industry to be expected to have such invasive regulations imposed upon them. We do not see requests for this kind of regulation for say uranium or lithium mines.</p>
7.12	<p>That the Government undertake a review to determine:</p> <ul style="list-style-type: none"> <li>whether restrictions need to be placed on the transport of hydraulic fracturing chemicals and wastewater during the wet season, particularly on unsealed roads; and</li> <li>whether rail transport of some or all of the hydraulic fracturing chemicals and other consumables required should be used.</li> </ul>	<p>Agreed, to ensure onshore shale gas industry does not cause unacceptable surface spills, however this should be comparable to practices in other states and applied to all other high water usage industries.</p>
7.13	<p>That the reinjection of treated or untreated wastewaters (including brines) into aquifers not be permitted until detailed investigations are undertaken to determine whether or not the risks associated with this practice can be managed to acceptable levels.</p>	<p>Agreed, for untreated wastewaters containing harmful chemicals, however where wastewater has been treated to acceptable levels, and complies with guidelines comparable to other states, there should not be restrictions.</p>
7.14	<p>That gas companies must submit details of all known fault locations and geomechanical planning to the regulator.</p>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p>
7.15	<p>That appropriate site-specific modelling of the local groundwater system must be undertaken before any water is extracted for the purposes of onshore hydraulic fracturing for shale gas in order to ensure that there are no unacceptable impacts on groundwater quality and quantity.</p>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p>
7.16	<p>That the discharge of shale gas hydraulic fracturing wastewater (treated or untreated) to either drainage lines, waterways, temporary stream systems or waterholes not be permitted.</p>	<p>Agreed, for untreated wastewaters containing harmful chemicals, however where wastewater has been treated to acceptable levels, and complies with guidelines comparable to other states, there should not be restrictions.</p>
7.17	<p>That to minimise the adverse impacts of onshore shale gas infrastructure (roads and pipelines) on the flow and quality of surface waters, the Government must ensure that:</p> <ul style="list-style-type: none"> <li>landscape or regional impacts are considered in the design and planning phase of development to avoid unforeseen consequences arising from the incremental (piecemeal) rollout of linear infrastructure; and</li> <li>roads and pipeline corridors must be constructed to: <ul style="list-style-type: none"> <li>minimise the interference with wet season surface water flow paths;</li> <li>minimise erosion of exposed (road) surfaces and drains;</li> <li>ensure fauna passage at all stream crossings; and</li> <li>comply with relevant guidelines such as the International Erosion Control Association Best Practice for Erosion and Sediment Control and the Australian Pipeline Industry Association Code of Environmental Practice 2009.</li> </ul> </li> </ul>	<p>Agreed, this should be comparable to practices in other states.</p>
7.18	<p>That the Beetaloo Sub-basin SREBA should take into account all groundwater dependent ecosystems in the Roper River region.</p>	<p>Agreed, to ensure onshore shale gas industry does not cause unacceptable impact on groundwater dependent ecosystems in the Roper River region, however this should be comparable to practices in other states and applied to all other high water usage industries.</p> <p>Protection of groundwater ecosystems should ordinarily be already covered under the EIS performed prior to any development.</p>
7.19	<p>That the Beetaloo Sub-basin SREBA should take into account all subterranean aquatic ecosystems in the Roper River region.</p>	<p>Agreed, as per 7.18</p>



### Land

8.1	That strategic regional terrestrial biodiversity assessments are conducted as part of a SREBA for all bioregions prior to any onshore shale gas production, with all onshore shale gas development excluded from areas considered to be of high conservation value. The results of the SREBA must inform any decision to release land for exploration as specified in Recommendation 14.2 and be considered by the decision-maker in respect of any activity-based EMP.	<p>Disagree, as the typical onshore shale gas well and well pad are a comparably a very small environmental footprint, when in comparison to say deforestation for agriculture or pasture, or open pit strip mining, or other large footprint industries like production forests, each of which do pose real risks to biodiversity in natural ecosystems.</p> <p>A SREBA could take many years to conduct field studies, reports and analysis, which can delay onshore shale gas development for an unacceptable period.</p> <p>Areas identified as being of relatively low risk or sensitivity of impact to biodiversity in natural ecosystems should be given a green light and used as a means of collecting data along the way to help build a future SREBA data set.</p>
8.2	That a baseline assessment of all weeds within a permit area be conducted prior to any onshore shale gas exploration or development and that ongoing weed monitoring be undertaken to inform any weed management measures necessary to ensure no incursions or spread of weeds. Gas companies must have a dedicated weeds officer whose role is to monitor well pads, roads and pipeline corridors for weeds.	<p>Agreed, however as the onshore shale gas industry is not the only industry to potentially transport weeds into remote areas, if this measure is to be adopted it should be uniform across all other industries and practices which hold the same risk of weed incursion, such as: rural property owners &amp; employees, tourism industry, adventure seekers, recreational fisheries / hunters, residence and visitors to remote communities, mineral mining industry, exploration activities by geologists, archaeologists, biologists, nature photography, just to name a few.</p> <p>To impose prescriptive practices and costs, beyond that which is standard practice in other states, only onto the onshore shale gas industry, but permit other industry traffic to enjoy no regulations for same risk, would be manifestly discriminatory towards the onshore shale gas industry.</p> <p>The onshore shale gas industry should comply with requirements in the Petroleum (environmental) Regulations 2016, by developing an EMP. The EMP should detail weed management to comply with NT Weed Management Act 2013.</p>
8.3	That gas companies be required to have a weed management plan in place prior to entering onto a petroleum permit. The plan must be consistent with all relevant statutory weed management plans and relevant threat abatement plans established under the EPBC Act.	Agreed, as per 8.2
8.4	That gas companies be required to comply with any statutory regional fire management plan. The fire management plan should: <ul style="list-style-type: none"> <li>• address the impact that any onshore shale gas industry will have on fire regimes in the NT, and how those impacts should be managed;</li> <li>• establish robust monitoring programs for assessing seasonal conditions and fuel loads;</li> <li>• require that annual fire mapping be undertaken to monitor any increase in fire frequency due to any onshore shale gas development;</li> <li>• require baseline data to be established for at least the decade prior to commencement of any onshore shale gas development; and</li> <li>• require the implementation of management actions, such as prescribed fuel reduction burns at strategic locations, to reduce fuel loads and protect key values and assets if required on the basis of the annual fuel monitoring data.</li> </ul>	Agreed, however as the onshore shale gas industry is not the only industry to potentially pose a risk of causing fire or operations be affected by a fire in remote areas, if this measure is to be adopted it should be uniform across all other industries and practices which hold the same risk of fire in remote regions.
8.5	That as part of a SREBA, a study be undertaken to determine if any threatened species are likely to be	Disagree, as per 8.1

	affected by the cumulative effects of vegetation and habitat loss, and if so, that there be ongoing monitoring of the populations of any such species. If monitoring reveals a decline in populations (compared with pre-development baselines), management plans aimed at mitigating these declines must be developed and implemented.	
8.6	That the area of vegetation cleared for infrastructure development (well pads, roads and pipeline corridors) be minimised through the efficient design of flowlines and access roads, and where possible, the co-location of shared infrastructure by gas companies.	Agreed.
8.7	That well pads and pipeline corridors be progressively rehabilitated, with native vegetation re-established such that the corridors become ecologically integrated into the surrounding landscape.	Agreed.
8.8	That to compensate for any local vegetation, habitat and biodiversity loss, the Government develop and implement an environmental offset policy to ensure that, where environmental impacts and risks are unable to be avoided or adequately mitigated, they are offset.	Agreed.
8.9	That the Government consider the establishment and operation of local Aboriginal land ranger programs to undertake land conservation activities.	Agreed.
8.10	That environmental legislation include a requirement for gas companies to identify critical habitats during corridor construction and select an appropriate mechanism to avoid detrimental impact on them.	Agreed.
8.11	That corridor widths be kept to a minimum, with pipelines and other linear infrastructure buried, except for necessary inspection points, and the disturbed ground revegetated.	Agreed.
8.12	That directional drilling under stream crossings be used in preference to trenching unless geomorphic and hydrological investigations confirm that trenching will have no detrimental impact on water flow patterns and waterhole water retention timing.	Agreed.
8.13	That roads and pipeline surface water flow paths minimise erosion of all exposed surfaces and drains, and comply with design for fauna passage.	Agreed.
8.14	That all corridors be constructed to minimise the interference with wet season stream crossings and comply with relevant guidelines, such as the International Erosion Control Association Best Practice for Erosion and Sediment Control and the Australian Pipeline Industry Association Code of Environmental Practice 2009.	Agreed.
8.15	That to minimise the impact of any onshore shale gas industry on landscape amenity, gas companies must demonstrate that they have minimised the surface footprint of development to ALARP, including that: <ul style="list-style-type: none"> <li>• well pads are spaced a minimum of 2 km apart; and</li> <li>• the infrastructure within any development areas is not visible from major public roads.</li> </ul>	<p>Agreed, to the principle of <i>“minimise the impact of any onshore shale gas industry on landscape amenity, gas companies must demonstrate that they have minimised the surface footprint of development to ALARP”</i>, however the dot points which followed appear to be overly prescriptive in nature and again would be manifestly discriminatory against the onshore shale gas industry.</p> <p>There may be some instances where it is better to have a well pad spaced closer than 2Km, even though that may not be the case for the majority of pads within the development.</p> <p>The production infrastructure of wellhead and line piping is relatively tidy and compact, and is easily dwarfed in size by almost all other roadside infrastructures, including mobile phone towers, bill boards, power lines, railway lines and switching stations, variety</p>



		<p>of poorly constructed gate entrances, old burnt out vehicles, water tanks, graffiti on prominent rock structures, cattle yards, roadside water pipelines, etc.</p> <p>It should be noted that in the fullness of time, the production infrastructure will be removed and the area made whole again, unlike other larger and permanent structures.</p>
8.16	<p>That the Government assess the impact that all heavy-vehicle traffic associated with any onshore shale gas industry will have on the NT's transport system and develops a management plan to mitigate such impacts. Consideration must be given to:</p> <ul style="list-style-type: none"> <li>• forecast traffic volume and roads used;</li> <li>• the feasibility of using the existing Adelaide - Darwin railway line to reduce heavy-vehicle road use; and</li> <li>• road upgrades.</li> </ul>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p>
<b>Greenhouse Gas Emissions</b>		
9.1	<p>That to reduce the risk of upstream methane emissions from onshore shale gas wells in the NT the Government implement the US EPA New Source Performance Standards of 2012 and 2016.</p>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p> <p>It is in the best interests of the onshore shale gas industry to reduce if not eliminate all fugitive methane emissions as they are considered a loss of product and revenue for industry and also a loss of royalties for NTG.</p> <p>It is industry practice to measure, monitor and report as part of compliance requirements for National Greenhouse and Energy Reporting System (NGERS).</p>
9.2	<p>That a code of practice be developed and implemented for the ongoing monitoring, detection and reporting of methane emissions from onshore shale gas fields and wells once production of any onshore shale gas commences.</p>	<p>Agreed, as per 9.1</p>
9.3	<p>That baseline monitoring of methane concentrations be undertaken for at least one year prior to the commencement of shale gas production on a production licence.</p>	<p>Agreed, however the onshore shale gas industry should be afforded every opportunity to commence monitoring as soon as is practicable to ensure no unnecessary delays in production.</p>
9.4	<p>That baseline and ongoing monitoring be the responsibility of the regulator, undertaken by an independent third party, and funded by industry.</p>	<p>Agreed, as per 9.3</p>
9.5	<p>That all monitoring results should be published online on a continuous basis in real time.</p>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p> <p>However there can be some significant issues with transmitting data from remote locations, this may be more practical if periodical rather than real-time.</p>
9.6	<p>That once emission concentration limits are exceeded, the regulator must be notified, investigations must be undertaken to identify the source(s) of the excess levels, and make-good provisions be undertaken by industry where necessary. These measures are to be the responsibility of industry.</p>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p>
9.7	<p>That the action framework outlined in Table 9.10 of the draft Final Report be implemented to mitigate any supplementary risks that may prevent the achievement of lower levels of fugitive methane emissions.</p>	<p>Agreed, as per 9.1</p>
<b>Public Health</b>		
10.1	<p>That formal site or regional-specific HHRA reports be prepared and approved prior to the grant of any production licence for the purpose of any shale gas development. Such HHRA reports to address the potential human exposures and health risks associated</p>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p>

	with the exploration for, and the production of, any shale gas development, off-site transport, and the decommissioning of wells, as recommended in NCRA guidance. The HHRA reports must include risk estimates assessments of exposure pathways that are deemed to be incomplete.	
10.2	That to better inform the human health risk assessments, the following knowledge gaps must be addressed and published: <ul style="list-style-type: none"> <li>• contemporary knowledge of the chemicals proposed to be used in hydraulic fracking fluids for onshore shale gas extraction in the NT;</li> <li>• details of the chemical composition of flowback and produced water in the NT; and</li> <li>• the proposed methods of treatment and/or disposal of flowback and produced water.</li> </ul>	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
10.3	That in consultation with industry, landowners and local communities, the regulator set appropriate setback distances to minimise risks identified in HHRA reports, including potential pathways for waterborne and airborne contaminants, for all shale gas development (exploration and production). Such setback distances to be not less than 1,600 m.	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
<b>Aboriginal people and their culture</b>		
11.1	That gas companies be required to obtain an Authority Certificate before undertaking any onshore shale gas activity.	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
11.2	That AAPA: <ul style="list-style-type: none"> <li>• be provided with a copy of any application to conduct hydraulic fracturing for onshore shale gas under petroleum environment legislation at an early stage of the assessment and approval process;</li> <li>• be given an adequate opportunity to explain the application to custodians; and</li> <li>• be given an adequate opportunity to comment on the application and have those comments considered by the decision-maker.</li> </ul>	Disagree, as agreements are normally made with Land Councils and Traditional Owners, so any additional steps or duplication are obstructive and not necessarily addressing any identified risks.  AAPA core function appears to be setup to perform a very different role to that of the Land Councils, such as the NLC which has much more experience in handling resource agreements.
11.3	That legislation for the protection of sacred sites be amended so that sub-surface formations can be included as a sacred site or a feature of a sacred site.	No comment
11.4	That gas companies be required to provide a statement to native title holders with information of the kind required under s 41(6) of the Land Rights Act for the purposes of negotiating a petroleum exploration agreement under the future act provisions of the Native Title Act.	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
11.5	That interpreters be used at all consultations with Aboriginal people for whom English is a second language. Interpreters must be appropriately supported to ensure that they understand the subject matter of the consultation.	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
11.6	That Land Councils, AAPA, and the Government cooperate to ensure that reliable, accessible (including with the use of interpreters), trusted, and accurate information about any onshore shale gas industry is effectively communicated to all Aboriginal people that will be affected by any onshore shale gas industry. That the gas industry fund the design and delivery of any information programs.	Agreed, education be it formal or passive, through information sessions and workshops is to be strongly encouraged wherever and whenever possible.  The lack of education and knowledge is what is more likely to lead to false fears and/or misconceptions of what is really happening.
11.7	That Land Councils, traditional Aboriginal owners and gas companies consider making all, or if this is not	Agreed, where both parties agree to make it publicly available.

	appropriate, part, of negotiated petroleum exploration agreements publicly available.	
11.8	That a comprehensive assessment of the cultural impacts of any onshore shale gas development be completed prior to the grant of any production licence. The cultural assessment must: <ul style="list-style-type: none"> <li>• be designed in consultation with Land Councils and AAPA;</li> <li>• engage traditional Aboriginal owners, native title holders and the affected Aboriginal communities, and be conducted in accordance with world leading practice; and</li> <li>• be resourced by the gas industry.</li> </ul>	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
<b>Social impacts</b>		
12.1	That as part of any strategic SIA, early and adequate consultation be undertaken on road use and related infrastructure requirements that result in realistic road upgrade and work schedules to support the required transport infrastructure for any unconventional shale gas industry and other users.	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p> <p>As many of the existing roads are unsealed and often in poor condition, it is very possible that in some cases the onshore shale gas industry may either perform much needed maintenance or voluntarily upgrade to sealed road.</p> <p>Such improvements in transport infrastructure would be very welcomed by paternalists and remote communities which may enjoy safer access by better roads.</p>
12.2	That gas companies ensure the provision of adequate and sustainable funding to ensure the identified infrastructure requirements are met and maintained appropriately.	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
12.3	That consideration be given to the development of road use agreements between gas companies and local councils that include safety considerations and ensure monitoring for compliance, including reporting requirements.	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p> <p>The SIA should consider development of a road use agreement where applicable</p>
12.4	That gas companies be required to work closely with the Government and local communities early in any onshore shale gas development projects to ensure that any potential impacts on services are mitigated.	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p> <p>The SIA should consider impacts on services where applicable</p>
12.5	That any strategic social impact assessment, anticipate the long-term impacts and requirements for housing (not just through construction phase) to adequately mitigate the risk of inflated real estate prices and shortages within a community.	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p> <p>The SIA should consider impacts on housing prices where applicable, however it should be noted that currently there is widespread concern of NT housing prices plummeting despite the onshore shale gas industry not being a contributing factor, so there is a limit to what the onshore shale gas industry can do to affect property pricing.</p>
12.6	That in consultation with local communities, Aboriginal Land Councils, local government, and the Government, gas companies be required to provide accommodation, whether temporary or permanent, which must be completed prior to the construction/development phase.	No comment
12.7	That there be a minimum standard set for gas companies to source goods, services and workers from local communities. This should include ensuring training programs are developed for Aboriginal and other local workers to develop the necessary skill sets and to improve their opportunities for local employment in any onshore shale gas industry.	<p>Agreed, As the onshore shale gas industry will have requirements for a diverse range of skills and competencies to be able to operate safely and cost effectively.</p> <p>Some skillsets will need to be highly specialised and some tasks only required infrequently, thus these activities would more typically be filled by FIFO workers.</p> <p>Some skillsets will be readily available locally in the general</p>

		<p>population and these workers should be given some preference, as they should be less expensive than FIFO (no flights, accommodation &amp; meals required).</p> <p>Some skillsets and locations would be ideal for indigenous workers to fill, especially where they are living in remote communities near to the operations, as they will have a lot of valuable local knowledge which can benefit the onshore shale gas industry, they can arrive on scene to handle an activity at short notice, and given the right opportunity would highly value their employment in an area where such opportunities are far and few between.</p>
12.8	<p>That gas companies use a range of mediums to proactively work with local businesses to ensure they are able and adequately skilled to compete for contracts. They should follow the steps outlined above by the Queensland Gasfields Commission to assist them to be ready to participate in any economic opportunities that may emerge.</p>	<p>Agreed, however local engagement has been historically somewhat hit and miss in NT, and not all businesses have had success using existing mediums like ICN, NTIBN &amp; CoC.</p> <p>My own experience using these mediums has been woeful, in that I have never received a lead which materialised into an order in over a decade, whereas all business occurred through direct B2B contact.</p> <p>The difficulty or disadvantage for NT service or product suppliers is where the client procurement team are all based interstate, making it easier for interstate competitors to have greater access for B2B marketing/sales.</p> <p>Much greater efforts are needed to ensure greater local business participation, as this will translate into more jobs and thus more families reliant on the industry and a stronger support base.</p> <p>Consideration for having at least one permanent member of the procurement based in NT and be accessible for local businesses seeking opportunities.</p>
12.9	<p>That the Government regulate to ensure that existing and future users of land can continue to enjoy their rights and interests in the land, including a mechanism to compensate for, among other things:</p> <ul style="list-style-type: none"> <li>• loss of use of surface area where infrastructure is installed;</li> <li>• diminution of the use made or that may be made of the land or any improvement on it;</li> <li>• severance of any part of the land from other areas of the landholder's property; and</li> <li>• any cost, damage or loss arising from the carrying out of activities on the land.</li> </ul>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p>
12.10	<p>That gas companies be required to establish a relationship with communities to determine how to best facilitate community cohesion on an individual and collective level. This should be done in consultation with Aboriginal land councils and local councils, to ensure that the needs of all parties are accommodated.</p>	<p>Agreed.</p>
12.11	<p>That gas companies must develop and implement a social impact management plan which details how they will optimise the relationship with the community prior to any onshore shale gas development. This plan must be developed in consultation with Aboriginal land councils and local councils to ensure that it meets community needs and be presented to the regulator for approval prior to any production approval being granted.</p>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p>
12.12	<p>That gas companies be required to develop a social impact management plan that outlines how they intend to develop and continue their SLO within each of the communities they will operate in. This should be developed in conjunction with any SIA, and introduced as early as possible, preferably in the</p>	<p>Agreed.</p>

	exploration phase, to ensure that any potential changes can be flagged in advance to allow communities time to adapt and prepare for the changes.	
12.13	That a strategic SIA, separate from an Environmental Impact Statement, be conducted in advance of any onshore shale gas development, during the exploration phase. Such SIAs must be conducted holistically to anticipate any expected impacts on infrastructure and services, and to mitigate potential negative impacts, and be funded by industry.	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
12.14	That early engagement and communication of the findings of the strategic SIA be systematically undertaken with all potentially affected communities and with all levels of government to ensure that unintended consequences are limited and shared understanding of roles and responsibilities, including financial responsibilities, can be developed.	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
12.15	That ongoing monitoring and measurement of social and cumulative impacts be undertaken with the results publicly available.	Agreed, introduction of CSIRO's Gas Industry Social and Environmental Research Alliance (GISERA) is a collaboration between CSIRO, Commonwealth and state governments and industry established to undertake publicly-reported independent research would be beneficial.
12.16	That in order to operationalise an SIA framework in the NT the Government should make the following structural reforms: <ul style="list-style-type: none"> <li>• introduce mechanisms for strategic assessment, either through a Strategic Assessment Agreement under the EBPC Act, or through reforms proposed in the 2015 Hawke Report. A strategic SIA is needed to decide if any onshore shale gas industry should go ahead, and if so, under what conditions;</li> <li>• establish or enhance an independent authoritative body, such as the EPA or a newly established independent regulator (see Chapter 14), with powers to request information from, and to facilitate the collaboration between individual gas companies, and between gas companies, government agencies (including local government), communities and landholders;</li> <li>• establish a long-term participatory regional monitoring framework, overseen by the EPA or the independent regulator, with secure funding (raised from industry levies) and able to endure multiple election cycles; and</li> <li>• establish periodic and standardised reporting to communities on the social, economic and environmental performance of the industry through either the independent regulator or a specialised research institution. This includes information from the monitoring of key indicators, and an industry-wide complaints and escalation process.</li> </ul>	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
<b>Economic impacts</b>		
13.1	That in developing its budget the Government consider the source of royalty revenue to ensure that regions that are the source of taxation revenue benefit from any onshore shale gas extraction activity that has occurred in that region.	It is up to the NTG to decide how best to spend the royalties on behalf of all Territorians, but it would be prudent to use a generous portion on developing practical infrastructure that would open up other new opportunities of employment for people living in remote communities.
13.2	That the Government work with stakeholders and gas companies to ensure that there is early knowledge of the labour and skills required for all phases of any onshore shale gas development to maximise local employment.	Agreed, as per 12.8
13.3	That the Government work with gas companies, training providers, local workers, job seekers, Land Councils and	Agreed, but add local small businesses to the list.

	local Aboriginal corporations and communities to maximise opportunities for local people to obtain employment during all phases of any onshore shale gas development.	
13.4	That the Government ensure that training providers and gas companies collaborate so that skill requirements are clearly understood by training providers, and that trainees acquire appropriate skills.	Agree.
13.5	That the Government work with gas companies and local suppliers to ensure there is early knowledge of local supply and service opportunities for all phases of any onshore shale gas development.	Agree 100%
13.6	That the Government work with gas companies and local suppliers (regional and Territory wide) to identify immediate supply opportunities and to map future potential supply opportunities. This should be done in consultation with the ICN-NT and the Chamber of Commerce.	<p>Agree 100%, however note, not all Territorian businesses are paid up members of NTICN or CoC.</p> <p>For some small businesses these mediums can appear to be an added expense (membership fees) for very little commercial benefit in return.</p> <p>These mediums seem to be more cost effective for medium to large companies.</p> <p>There may need to be a deeper more inclusive approach to achieve better win-win outcomes than the traditional methods.</p> <p>Refer to 12.8, base at least one local point of contact for procurement in NT for B2B connections.</p>
13.7	That the Government work with gas companies, Land Councils, local Aboriginal corporations, Aboriginal communities, and businesses to identify local supply and service opportunities to keep sustainable economic benefits on country.	Agreed.
13.8	That the Government assist regional businesses to obtain quality assurance certification and to partner with larger suppliers to encourage greater local supply, employment and knowledge transfer.	Agree 100%, not just regional, but also small urban suppliers.
13.9	That the Government work with gas companies, peak bodies of affected industries, and affected stakeholders to identify and resolve potentially negative economic impacts of any onshore shale gas development on other industries.	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
13.10	That the Government work with all levels of government, peak organisations, communities and gas companies to identify and manage infrastructure risks, including identifying options to fund any new infrastructure or upgrade existing infrastructure.	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
<b>Regulatory reform</b>		
14.1	That the Government design and implement a full cost recovery system for the regulation of any onshore shale gas industry.	Disagree, to impose a full cost recovery system for the regulations, beyond that which is standard practice in other states, only onto the onshore shale gas industry, when other industries needing similar regulations and oversight can enjoy no cost for similar regulations, would be manifestly discriminatory towards the onshore shale gas industry.
14.2	<p>That the Minister publish any proposed land release for any onshore shale gas exploration. That the Minister must consult with the community and stakeholders and consider any comments received in relation to any proposed land release.</p> <p>That the Minister be required to take into account the following matters when deciding whether or not to release land for exploration:</p> <ul style="list-style-type: none"> <li>• the prospectivity of the land for petroleum;</li> </ul>	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.



	<ul style="list-style-type: none"> <li>• the possibility of coexistence between the onshore gas industry and any existing or future industries in the area; and</li> <li>• whether the land is an area of intensive agriculture, high ecological value, high scenic value, culturally significant or strategic significance.</li> </ul> <p>That the Minister publish a statement of reasons why the land has been released and why coexistence is deemed to be possible.</p>	
14.3	<p>That Government consider mechanisms, including an amendment to the Petroleum Act, to ensure that applications that are currently extant are not granted in relation to areas that are not prospective for onshore shale gas or where coexistence is not possible. Consideration must be given to areas of intensive agriculture, high ecological value, high scenic value, cultural significance and strategic significance.</p>	Agree.
14.4	<p>That the following areas must be declared reserved blocks under s 9 of the Petroleum Act, each with an appropriate buffer zone:</p> <ul style="list-style-type: none"> <li>• areas of high tourism value;</li> <li>• towns and residential areas (including areas that have assets of strategic importance to nearby residential areas);</li> <li>• national parks;</li> <li>• conservation reserves;</li> <li>• areas of high ecological value; and</li> <li>• areas of cultural significance.</li> </ul>	Agree, however some of the definitions may need clarifications to ensure there is no confusion, like “ <i>areas of high ecological value</i> ” could mean different things to different people.
14.5	<p>That prior to undertaking any onshore shale gas activity on a Pastoral Lease (including exploration), a land access agreement must be signed by the Pastoral Lessee and the gas company. That the land access agreement be required by legislation. That breach of the land access agreement will be a breach of the relevant approval giving rise to the petroleum activity being carried out on the land.</p>	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
14.6	<p>That in addition to any terms negotiated between the pastoralist and the gas company, the statutory land access agreement must contain standard minimum protections for pastoralists.</p>	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
14.7	<p>That the Government consider implementing a mandatory minimum compensation scheme payable to Pastoral Lessees for all onshore shale gas production on their Pastoral Lease. Compensation should be by reference to the number of wells drilled on the Pastoral Lease and the area of land cleared and rendered unavailable to the Pastoral Lessee.</p>	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
14.8	<p>That the Government consider whether a royalty payment scheme should be implemented to compensate Pastoral Lessees for all new petroleum fields brought into production.</p>	<p>Disagree. NTG should be the sole beneficiary of royalties on behalf of all Territorians and must decide how that should be best spent.</p> <p>Any compensation needed for interruption to business, which can be offset with any benefits afforded to the Pastoralists, should be dealt with inside the terms of the access agreement.</p>
14.9	<p>That any person may lodge an objection to the proposed grant of an exploration permit. That the Minister must, in determining whether to grant or refuse the application, take into account the objections received, and that all objections received by the Minister be published.</p>	<p>Disagree, this is too open-ended and subject to abuse by any obstructionists.</p> <p>Some thought is needed to devise a way to allow legitimate objections from direct and indirect stakeholders to be heard, whilst filtering out those who would simply seek to disrupt the NT onshore shale gas industry, putting local Territory jobs at risk again.</p>
14.10	<p>That the Petroleum Act be amended to require the Minister to take into account and apply the principles of</p>	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.

	ESD.	
14.11	That the Minister must not grant an exploration permit unless satisfied that the gas company is a fit and proper person, taking into account, among other things, the company's environmental history and history of compliance with the Petroleum Act and any other relevant petroleum legislation. That the Minister's reasons for determining whether or not the gas company is a fit and proper person be published.	Agreed, it is in the best interests of all stakeholders and the wider community that all operators operating in NT are suitable and able to comply with all NT regulations and industry best practices.
14.12	That Government develop a financial assurance framework for the onshore shale gas industry. The framework must: <ul style="list-style-type: none"> <li>• be transparent and developed in consultation with the community and key stakeholders;</li> <li>• clarify the activities that require a bond or security to be in place and describe how the amount of the bond or security is calculated; and</li> <li>• require the public disclosure of all financial assurances and the calculation methodology.</li> </ul>	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
14.13	That the government impose a non-refundable levy for the long-term monitoring, management and remediation of abandoned onshore shale gas wells in the NT.	No comment.
14.14	That all draft EMPs for hydraulic fracturing must be published and available for public comment prior to Ministerial approval. That all comments made on draft EMPs be published. That the Minister must take into account comments received during the public consultation period when assessing a draft EMP.	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
14.15	That all notices and reports of environmental incidents, including reports about reportable incidents under the Petroleum Environment Regulations, must be published.	Agree, however to impose publicly available reporting of incidences, beyond that which is standard practice in other states, and only onto the onshore shale gas industry, when other industries can enjoy no publicly available reporting of incidences, would be manifestly discriminatory towards the onshore shale gas industry.
14.16	That the Schedule be repealed and replaced with legislation to regulate seismic surveys, drilling, hydraulic fracturing, and well abandonment prior to the grant of any production licence for the purpose of any onshore shale gas development.	No comment.
14.17	That the Government develop and implement enforceable codes of practice with minimum, prescriptive, standards and requirements to give clarity to the regulatory framework.	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
14.18	That the Minister must be satisfied that a gas company is a fit and proper person to hold a production licence prior to the licence being granted.	Agreed, as per 14.11.
14.19	That, as part of the environmental assessment and approval process, the Minister be required to consider the cumulative impacts of any proposed onshore shale gas activity.	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.  Possibly this is more relevant to development phase, rather than the exploration phase.
14.20	That the Government consider developing and implementing a regional or area-based assessment in the regulation of any onshore shale gas industry in the NT.	Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.
14.21	That the Petroleum Act and Petroleum Environment Regulations be amended to allow open standing to challenge administrative decisions made under these enactments.	Disagree, as per 14.9
14.22	That merits review be available in relation to decisions	Agreed, however this should be comparable to practices in other

	<p>under the Petroleum Act and Petroleum Environment Regulations including, but not limited to, decisions in relation to the granting of exploration permits and approval of EMPs. That the following third parties, at a minimum, have standing to seek merits review:</p> <ul style="list-style-type: none"> <li>• proponents (that is, gas companies) who are seeking a permit, approval, application, licence or permission to engage in onshore shale gas activity;</li> <li>• persons who are directly or indirectly affected by the decision;</li> <li>• members of an organised environmental, community or industry group;</li> <li>• Aboriginal Land Councils;</li> <li>• local government bodies; and</li> <li>• persons who have made a genuine and valid objection during any assessment or approval process.</li> </ul> <p>That an independent body, such as NTCAT, be given jurisdiction to hear merits review proceedings in relation to any onshore shale gas industry.</p>	<p>states and in line with existing industry standard practices.</p> <p>This does raise some concern of opening up to non-genuine interest groups or individuals who only seek to disrupt the process, similar to those expressed in 14.9.</p> <p>There needs to be mechanisms to filter out malicious troublemakers from abusing proper processes.</p>
14.23	<p>Where litigation is brought genuinely in the public interest, that costs rules be amended to allow NT courts to not make an order for the payment of costs against an unsuccessful public interest litigant.</p>	<p>Disagree, for there to be an amendment to the cost rules to allow NT courts to not make an order for the payment of costs against an unsuccessful but genuine public interest litigant, would be manifestly discriminatory towards the onshore shale gas industry, especially where this was not equally applied to other industries.</p> <p>What are the comparable practices in other states and in line with existing industry standard practices?</p>
14.24	<p>That the Government develop and implement a robust and transparent compliance monitoring strategy, having regard to the principles set out in the ANAO Administering Regulation: Achieving the right balance guide, and the policy in SA.</p>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p>
14.25	<p>That the Government enact whistle-blower protections. That a hotline be established to make anonymous reports about any onshore shale gas industry noncompliance and that such reports be investigated.</p>	<p>Agree that there should be whistle-blower protections, but that this should be generic to all government services and private industries, and not a stand-alone whistle-blower protection just for the onshore shale gas industry.</p>
14.26	<p>That the Government consider developing and implementing a tiered regulatory model such as the one in SA, whereby gas companies with a demonstrated record of good governance and compliance require a lower level of monitoring, with a corresponding reduction in regulatory fees.</p>	<p>Agreed, positive measure will encourage good governance and compliance, which should be welcomed as a win-win for all stakeholders.</p>
14.27	<p>That the Government enact a broader range of powers to sanctions, including but not limited to:</p> <ul style="list-style-type: none"> <li>• remediation orders;</li> <li>• enforceable undertakings;</li> <li>• injunctions; and</li> <li>• civil penalties.</li> </ul>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p>
14.28	<p>That the Government allow civil enforcement proceedings to be instituted to enforce potential or actual non-compliance with the legislation governing any onshore shale gas industry.</p>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p>
14.29	<p>That the Government consider enacting provisions that reverse the onus of proof or create rebuttable presumptions for pollution and environmental harm offences for all regulated onshore shale gas activities.</p>	<p>Disagree, as there will already be baseline sampling/study to act as evidence of 'before' and there will be ongoing monitoring program during exploration, development, production and post P&amp;A, with the data being made publicly available as evidence of 'after', so should there be an issue, there shouldn't be any need for reverse onus of proof, as the 'before' and 'after' evidence should be sufficient to mount a case.</p>
14.30	<p>That penalties for environmental harm under the Petroleum Act and Petroleum Environment Regulations be reviewed and increased in line with leading practice.</p>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p>
14.31	<p>That in order to ensure independence and</p>	<p>Disagree, NT is a relatively small jurisdiction with relatively limited</p>

	<p>accountability, there must be a clear separation between the agency with responsibility for regulating any onshore shale gas industry and the agency responsible for promoting that industry.</p>	<p>suitable skilled resources to be able to effectively break up into segmented independent bodies/departments, each having competing requirement for more or less the exact same skill sets, just to satisfy a need to see greater independence.</p> <p>This may be better managed by implementing effective protocols within the NTG department to manage both the promotion of the industry and the regulation with efficient use of resources.</p>
14.32	<p>That the Government develop and implement the reforms described in Option 1 and/or Option 2 above prior to any production licences being issued for any onshore shale gas activities in the NT.</p>	<p>Agreed, however this should be comparable to practices in other states and in line with existing industry standard practices.</p> <p>Possibly QLD &amp; SA may offer some good examples of what works well and what doesn't work so well, to assist in decision making for reforms suitable for NT.</p>
<p><b>Strategic regional environmental and baseline assessment</b></p>		
15.1	<p>That a strategic regional environmental and baseline assessment (SREBA) be undertaken prior to the grant of any production licence for onshore shale gas.</p>	<p>Agree that there should be a SREBA undertaken, but disagree that it needs to be done prior to the grant of any production licence for onshore shale gas, as per 8.1</p>

Kind regards,

Mark Fraser

Managing Director

Oilfield Connect Pty Ltd