

AFANT



Submission

**TERMS OF REFERENCE FOR THE PANEL UNDERTAKING THE SCIENTIFIC
INQUIRY INTO HYDRAULIC FRACTURING OF UNCONVENTIONAL RESERVOIRS
ONSHORE WITHIN THE NORTHERN TERRITORY 2016**

Representing recreational fishing in the NT and ensuring the quality of our sport

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Introduction

The Amateur Fishermen's Association of the Northern Territory (AFANT) welcomes the opportunity to provide a submission into the Terms of Reference for the Panel to investigate the potential risks and impacts of using hydraulic fracturing of unconventional reservoirs in the exploration and production of onshore oil and gas reservoirs in the Northern Territory.

AFANT was formed in 1980 by a group of keen anglers who wanted a body to represent and advocate their interests to the government of the day. Incorporated in 1980 the organisation is recognised by both the NT and Commonwealth Governments as the peak body representing recreational fishing interests in the Northern Territory.

Recreational fishing is an important social and cultural component of the Northern Territory lifestyle as well as being a major tourism drawcard and a significant contributor to the economy. Recreational fishing surveys and fishing tour operator data indicates that more than 35, 000 Territory residents and 54, 000 visitors participated in recreational fishing in the Territory in 2010. And it is estimated that the current figures for 2016 far exceed these with 43,000 tourists from 62 different countries participating in the recent NT Tourism 'Million Dollar Barra' promotion. Recreational fishing was estimated to contribute at least \$100 million directly to the Northern Territory economy during 2014.

As identified in the NT Governments Recreational Fishing Development Plan (2012-2022), seventy per cent of recreational fishing in the Territory occurs in its regional areas, where it is often the primary economic and development driver. King Ash Bay on the McArthur River, the Daly River, the Roper River and Dundee Beach are examples of communities where recreational fishing underpins development. Fishing tourism also providing impetus for regional development on Aboriginal land, such as the Tiwi Islands, Arnhem Land and Groote Eylandt.

Issues of Concern

The unconventional gas industry has the potential to greatly benefit the economy of the Northern Territory and Australia however it is important to acknowledge that there are significant international and domestic examples of unintended negative impacts to the environment, water aquifers and human health as well as significant economic and social impacts on communities.

AFANT is concerned about the impact of unconventional gas mining including coal seam gas (CSG) and shale gas mining on the groundwater and surface water environment of the NT as any negative environmental consequences may directly translate to irreversible damage of our iconic Top End rivers and valuable fisheries.

During exploration and production thousands of unconventional gas wells may be drilled in the Northern Territory. AFANT believes there is the potential for the contamination of aquifers and surface waters should the integrity of these wells be compromised.

The major recommendation of the Hawke Inquiry into Hydraulic Fracturing in the Northern Territory (2014) was that the environmental risks associated with hydraulic fracturing can be managed effectively subject to the creation of a robust regulatory regime. AFANT is sceptical of an adequate regulatory regime being established within the Northern Territory based on the history of environmental failures in the conventional mining industry and the enduring negative environmental impacts of legacy mines in the Northern Territory landscape.

Despite stringent regulations both within Australia and internationally, there appear to be broad failure of regulatory regimes within the unconventional gas industry to prevent environmental damage. Indeed, evidence presented to the South Australian Parliament Natural Resource Committee Inquiry into Fracking (2015) by Antony Ingraffea, Professor of Engineering and Weiss Presidential Teaching Fellow, Cornell University suggests that even with the most stringent regulations the leakage of gas wells is unavoidable. Information provided by Prof. Ingraffea is that despite the state of Pennsylvania having very tough regulations; regulations that have twice been

revised in the last five years “statistics provided to us by the Pennsylvania Department of Environmental Protection—that's the regulatory body in Pennsylvania—and their records show that shale gas wells were showing a leak rate of about 6.2 per cent in the first five years as compared to an overall failure rate in conventional wells of 1 per cent—one in 100 conventional wells and six in 100 shale gas wells. In some regions of the state where drilling occurred very, very quickly, where operators were totally inexperienced, the failure rate in the wells was almost 10 per cent—one in 10—within the first five years, leaking”.

Many of the spectacular recreational fisheries such as the Daly (Oolloo aquifer) and Roper River (Tindal-Mataranka aquifers) are totally reliant on groundwater flows, both during the wet season and the dry to ensure the health and adequate stock recruitment of numerous fisheries. AFANT believes that these fisheries and the economic, social and cultural benefits they bring to the Northern Territory should not be risked. AFANT has the view that leaking wells used in the process of unconventional gas extraction pose an unacceptable risk to aquifer contamination in the Northern Territory.

Failures in the containment and safe storage of waste water laden with chemicals and by-products is another major concern of AFANT. Extreme weather events, including cyclones and monsoonal flooding, common in Northern Territory's Wet Season mean that on-site storage is impractical unless structures are built to endure cyclonic conditions and waste water containment ponds are built in anticipation of extreme rainfall and flooding. A more practical and environmentally safe option would be to remove all waste water from wells sites to an alternative location for storage and treatment. This will however involve transporting contaminated water from well sites, placing additional pressure on roads and infrastructure as well as creating a risk of spillage during transport.

AFANT understands that in almost all legislation that is geared towards unconventional gas mining the regulator has the burden of proof to prove that the nearby gas mining well had contaminated a water source or aquifer. AFANT believes that legislative controls should reverse the onus of proof so that it is up to the

company which is drilling and operating the gas mining well adjacent to a water source or aquifer to prove that their well was not the source of contamination. The concept of reversing the onus of proof is not new and is used across other areas of legislation to great effect. If the burden of proof is placed on the operator under legislation to prove they didn't cause any contamination AFANT believes this will ensure companies conduct operations more cautiously, responsibly and with greater foresight into environmental protection.

At present within the Northern Territory the Government budget is severely limited and groundwater monitoring and assessment programs are constrained by lack of resources. The IAH (NT) Submission to the Northern Territory Government's Hydraulic Fracturing Inquiry iii (20014) identified that the Northern Territory has a social and economic dependency on groundwater and that the groundwater environment of the NT is poorly understood. It also raised concerns that the NT Government does not currently have the local skill set to effectively predict and manage the impacts of hydraulic fracturing on water resources. Previous Northern Territory governments have publically acknowledged the large scientific knowledge gaps in water resource management, especially in the mapping of Northern Territory groundwater systems, both static and flowing. While much research has been conducted in southern Australia this can be very rarely applied to the Northern Territory environment due to the difference in rainfall patterns and other climatic factors. This significant knowledge gap raises the potential for poor management decisions to be made. While the precautionary principle is often quoted to address such knowledge gaps this is rarely enacted, rather decisions are made and justified in the name of economic development and backed up by questionable science.

In addition to our concerns over the contamination of ground and surface water by the unconventional gas mining industry, AFANT believes that any environmental reform in regards to the regulatory regime around hydraulic fracturing is meaningless until the NT EPA is a truly independent body with strengthened powers of prosecution and significant penalties for breaches of environmental legislation. The head of the NT EPA Dr William Freeland has himself described the current NT EPA as a 'toothless tiger' in the media. AFANT has for some time raised the appointment of an impartial EPA with funding and staff outside of any Northern Territory

government department as our primary concern in the process of environmental reforms for the unconventional gas industry.

AFANT believes a strong and effective EPA together with an environmental bond, sufficient to cover all environmental costs, including rehabilitation and future well leakage and failure would allow some measure of protection against poor environmental practices and encourage good corporate citizenship from the unconventional oil and gas industry.

Terms of Reference

AFANT has serious concerns regarding the scope of the current Terms of Reference and believe it is extremely limited in focusing on the purely physical action of Hydraulic Fracturing, defined as “the injection of fluids under pressures high enough to fracture the gas bearing formation where the fluid is comprised of water, chemicals and proppant, and the unconventional reservoir being defined as “a reservoir where the gas bearing formations is shale”.

AFANT notes that the 2016 election commitment from the current NT Labor Government was to consider “all factors associated with the development of an onshore shale gas industry”. We believe this commitment has been significantly watered down and under the current definitions the scope for this inquiry is extremely limited and does not adequately encompass all aspects of the unconventional gas industry as it relates to reservoirs and the process of hydraulic fracturing shale gas.

AFANT believes that the terms of reference for the inquiry must consider all matters relating to the exploration, extraction, production and rehabilitation for onshore unconventional gas in the Northern Territory and, in particular, the inquiry should include but not be limited to, the following;

- (1) Provide advice on whether all factors of the onshore shale gas industry including exploration, extraction, production and rehabilitation can be safely and effectively undertaken under best practice conditions, without adverse impacts on environmental, social, cultural and economic values of the Northern Territory and its peoples.

- (2) the prospectivity of the Northern Territory's geology for commercial sources of onshore unconventional gas;
- (3) risk mitigations and residual risks of onshore unconventional gas activities, including the potential effects on;
 - (a) Aquifers (groundwater)
 - (b) Surface Water, including rivers, creeks, billabongs and ephemeral streams
 - (c) Geology
 - (d) Land and terrestrial ecosystems
 - (e) Ecotoxicology
 - (f) Human health, including both the use and effect of chemicals relating to the process of hydraulic fracturing and mental health from detriment issues such as loss of employment, loss of social and cultural values from landholders and indigenous owners.
 - (g) Emissions
- (4) the coexistence of onshore unconventional gas activities with future and existing land and water uses, including;
 - (a) agricultural production and domestic and export market requirements;
 - (b) the legal rights of property owners and the impact on property values;
 - (c) the legal rights of indigenous land owners and the impact on cultural values;
 - (d) any implications for local and regional development, investment and jobs
- (5) the ability of potential onshore unconventional gas resources contributing to the Northern Territory's overall energy sources including;
 - (a) an ability to provide a competitive source of energy and non-energy inputs for Northern Territory industries;
 - (b) an affordable energy source for domestic consumers; and
 - (c) carbon dioxide emissions from these sources;

(6) the resource knowledge requirements and policy and regulatory safeguards that would be necessary to enable exploration and development of onshore unconventional gas resources, including;

(a) further scientific work to inform the effective regulation of an onshore unconventional gas industry, including the role of industry and government, particularly in relation to rigorous monitoring and enforcement, and the effectiveness of impact mitigation responses; and

(b) performance standards for managing environmental and health risks, including water quality, air quality, chemical use, waste disposal, land contamination and geotechnical stability.

(7) Assess the effectiveness of common mitigation and rehabilitation methods used by the onshore gas industry after the completion of all phases of hydraulic fracturing of unconventional reservoirs

(8) Investigate relevant domestic and international reviews and inquiries covering the management of risks for similar industries including, but not limited to, the Victorian Auditor-General Office's report on Unconventional Gas: Managing Risks and Impacts, the Victorian Parliamentary Inquiry into Onshore Gas in Victoria and the South Australian Parliamentary Inquiry into Unconventional Gas (Fracking) as well as any other reports generated by community and stakeholder engagement programs.

AFANT strongly believes that the individuals appointed to the Panel undertaking this inquiry should be expanded to include individuals from industries such as tourism, agriculture, the pastoral industry and recreational fishing, as these industries may be strongly affected by the hydraulic fracturing of unconventional reserves onshore. We note that an appointment is provided for individuals with experience in the onshore oil and gas industry. Broadening the panel will allow a more transparent, community led process which may otherwise be seen as biased towards the onshore oil and gas industry.

Conclusion

AFANT has a strong commitment to ensuring the protection of the quality of the recreational fishing in the Northern Territory which is inextricably linked to the health and quality of the top end aquifers, rivers and waterways.

AFANT is strongly of the view that Northern Australia must learn from the mistakes of the more populated southern areas of Australia. The major mistakes that have affected waterways across southern Australia have had a major impact on the environmental quality of the nation's waterways. In most of these areas restoration is required to repair the significant environmental degradation that has occurred through inappropriate or over development. The cost of this restoration amounts to millions of taxpayers' dollars on individual river systems just to return rivers back to some lower level of environmental health.

Due to the risk associated with contamination of ground and surface water by the unconventional gas industry AFANT believes the terms of reference for this proposed scientific inquiry Panel must be significantly expanded in order to adequately assess the true impacts of hydraulic fracturing of unconventional reservoirs. This includes not only the exploration, extraction, production and rehabilitation for onshore unconventional gas in the Northern Territory but the impacts the unconventional gas industry may have on local economies, human health and habitation, roads and infrastructure, land values and the potential impact on other significant economic industries within the Northern Territory such as tourism, agriculture, recreational fishing and pastoralists. Ultimately unless the legislation and regulatory regime along with the skill set to monitor the impacts of hydraulic fracturing of unconventional reserves is improved exponentially in the Northern Territory the risk of contamination of ground and surface water is unacceptable.

We would welcome the opportunity for greater engagement and consideration of AFANT's views

Yours sincerely

A handwritten signature in black ink, appearing to read 'T. Sloan'.

Tristan Sloan

Executive Officer

Amateur Fishermen's Association of the NT Inc.

3rd October, 2016

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