

SCIENTIFIC INQUIRY INTO HYDRAULIC FRACTURING IN THE NORTHERN TERRITORY



CSIRO
Submission #450

Damien Barrett
Research Director - Energy
CSIRO

By email: [REDACTED]

Dear Mr Barrett

RE: HYDRAULIC FRACTURING INQUIRY – INFORMATION REQUEST

I refer to the *Scientific Inquiry into Hydraulic Fracturing of Unconventional Reservoirs in the Northern Territory (the Inquiry)*, which was established by the Northern Territory Government under the *Inquiries Act 1945 (NT)* in late 2016 to investigate the impacts and risks of hydraulic fracturing of onshore shale gas reservoirs and associated activities on the environmental, social, economic and cultural conditions in the Northern Territory. The Hydraulic Fracturing Taskforce (**the Taskforce**) has been established in the Department of the Chief Minister to support the Inquiry.

The Panel has formed a preliminary view that, if the industry is given approval to proceed, the following mechanisms will be required to minimise greenhouse gas emissions, and in particular, methane emissions:

- implementation of leading practice standards for emission reduction, such as the United States Environmental Protection Agency's New Source Performance Standards, Permitting Rules for the Oil and Natural Gas Industry;
- baseline measurements of methane levels prior to development; and
- ongoing monitoring of methane levels at key points during exploration, development and production.

The Inquiry invites comments on the above. In addition, to the extent possible, please comment on:

1. the technologies that are currently available to obtain baseline measurements of emissions, including the possible use of drones;
2. the scope, including the location, of any emissions monitoring that should occur during the exploration, development and production phases, such as, for example, wellheads during completion, liquids unloading, compressor seals and gathering stations;
3. the use of emission limits that, if exceeded, would trigger an investigation, make-good requirements and/or a penalty;
4. the need for transparency when setting emission limits; and
5. whether or not baseline measurements and on-going monitoring should be undertaken by an independent body.

Finally, the Inquiry requests your comments on section 9.8 of the Interim Report, which has been duplicated at **Attachment A**.

To the extent reasonably practicable, the Inquiry requests that you address the matters outlined above at the upcoming hearings. If this is not possible, then, in order to meet reporting deadlines, please provide your response by **18 August 2017**.

Yours sincerely

A handwritten signature in black ink, consisting of several overlapping, sweeping strokes that form a cursive, somewhat abstract shape.

THE HON JUSTICE RACHEL PEPPER
Chair

31 July 2017

Attachment A

9.8 Preliminary Assessment

Risk assessment

While carbon dioxide emissions dominate the life cycle GHG emissions (because downstream combustion of natural gas generates high amounts of carbon dioxide), methane emissions dominate the upstream GHG emissions. Furthermore, the quantity of methane emissions is more uncertain and they are more amenable to reduction. Accordingly, the focus of the proposed risk assessment is on methane emissions. A framework for an interim risk assessment is given in Table 9.2 for a number of hazards which may prevent lower levels of methane emission performance from being achieved. These levels of methane have been discussed previously.

At this stage, the Panel has insufficient information to make an informed assessment of risk. This risk assessment will be used to identify areas where mitigation of risks is required and to assess strategies to mitigate those risks.

Table 9.2: Interim risk assessment framework for hazards that may prevent lower levels of methane emission performance from being achieved

Hazard	Comments	Likelihood	Consequences	Risk
Regulations are not implemented at either State or Federal level.	Regulations are required for reduced emissions completions, compressor emissions and pneumatic controllers			
Regulations are not fully complied with	This may have the effect of allowing increased emissions			
Monitoring of regulatory compliance is not undertaken or is inadequate	Monitoring by a regulatory authority may not occur because of lack of resources.			
Monitoring of both baseline emissions and emissions during production is not undertaken	Monitoring emissions is one means for assuring compliance and also to possibly detect "super emitters"			
Low production performance means emission performance is not achieved	Wells that have low ultimate gas recovery can give rise to higher emission rates. Such wells may also be uneconomical			
Failure of plant or equipment occurs during the lifetime of the well	Consequences can range from a minor to a catastrophic release of gas for a relatively short period over the life of a well			