NORTHERN TERRITORY GOVERNMENT

The Hon Justice Rachel Pepper
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By email: fracking.inquiry@nt.gov.au

Dear Hon Justice Rachel Pepper

RE: HYDRAULIC FACTURING INQUIRY – INFORMATION REQUEST REGARDING THE REGULATORY FRAMEWORK FOR THE MANAGEMENT OF SPILLS OF CHEMICALS AND WASTEWATER ASSOCIATED WITH HYDRUALIC FRACTURING

I refer to your letter of 20 September 2017, where pursuant to section 9 of the *Inquiries Act* you requested a response to a number of matters.

Your letter indicates the Panel has identified that there is a risk that surface water and ground water could be contaminated if there was a surface spill of either fracking chemicals or wastewater. We note you are seeking to confirm the current regulatory framework on-site and off-site of petroleum exploration permit (or production licence) areas and the roles of NT Government agencies and authorities that administer relevant legislation. Therefore the Department of Primary Industry and Resources (DPIR) and the Department of Environment and Natural Resources (DENR) have provided a combined response to your information request to clarify the current arrangements.

The current regulatory framework

Like most jurisdictions across Australia, the Northern Territory has a number of Acts that relate to aspects of the environment and make up the current regulatory framework.

The Minister for Primary Industry and Resources is the accountable Minister for the *Petroleum Act* and DPIR is the agency that administers the Act, supporting regulations, schedule and guidelines. The Treasurer is the responsible Minister for the provisions about royalties in the *Petroleum Act*. This is administered by the Department of Treasury and Finance.

The Minister for Environment and Natural Resources is the accountable Minister for the *Environmental Assessment Act* (EAA), *Waste Management and Pollution Control Act* (WMPCA) and *Water Act* among other acts that may apply to petroleum activities (such as the *Weeds Management Act*, *Bushfires Management Act*, *Soil Conservation and Land Utilisation Act* etc.).

The Northern Territory Environment Protection Authority (NTEPA) has been given functions under the EAA and WMPCA and the powers necessary to fulfil those functions. Those functions include conducting the environmental impact assessment process and deciding whether or not a matter requires assessment under the EAA. Under WMPCA, this includes, regulatory functions, including licensing, compliance and enforcement.

The Minister for Environment and Natural Resources and the NTEPA are supported by DENR.

DPIR have included with this response, a slide deck (Attachment A) outlining the regulation of the petroleum industry in the Northern Territory, based upon presentations provided to the Panel in February and March 2017. This provides an overview of the industry and regulation from acreage release right through to decommissioning and rehabilitation. Slide 24 of the slide deck outlines the current processes for environmental assessment of petroleum activities.

In responding to the letter with the Request for Information (RFI), text boxes have been used to highlight the text from the RFI letter and include the related page number.

> Surface spills could occur on, or off, the petroleum exploration permit area. The location of the spill is important because different laws apply and different agencies in the NT Government have jurisdiction depending on whether the spill is inside, or outside, the permit boundary. (RFI p.1)

- The location of petroleum activities is important in understanding the responsible legislation and agency in the Northern Territory. Reference to petroleum activity rather than permit area for petroleum is more accurate. An exploration permit maybe several thousands of square kilometres in size. A retention licence and a production licence may also be up to 12 contiguous blocks in size (up to approx. 1,000 km^2). The activities described in technical works programs and environment management plans provide an accurate demarcation for understanding areas of regulatory responsibility. While under the *Petroleum Act*, a granted permit or licence provides the holder a right to explore for hydrocarbons, it does not automatically grant approval to conduct any form of activity. Separate environmental and technical program approvals are required before activities can occur.
- The NT *Water Act*[1] and the WMPCA[2] reflect this approach.
- In accordance with section 7(2) of the *Water Act*, surface spills of waste associated with a petroleum activity are not subjected to the pollution control measures available under section 16 of the *Water Act* when the waste or resultant polluted water is confined within the petroleum site, these are captured under the *Petroleum Act*. Section 4 of the *Water Act* defines a petroleum site as an access authority area, licence area or permit area within the meaning of the *Petroleum Act* on which the relevant petroleum activity responsible for the spill occurs.

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[1] Definition of mining or petroleum activity. Part 1 s 4 Interpretation of the *Water Act*
[2] Part 1 s 6(2) Application of the *Waste Management Pollution Control Act*

- Also, in accordance with section 7(4) of the *Water Act*, the disposal of waste via a bore does not require licensing under the *Water Act* if the waste is confined within the access authority area, licence area or permit area within the meaning of the *Petroleum Act* on which the waste disposal bore is situated, these are captured under the *Petroleum Act*.
- In accordance with section 6(2) of the WMPCA, contaminants or wastes that result from a petroleum extraction or exploration activities and are confined on the land on which those activities are being carried out are not captured by the WMPCA. These contaminants or wastes, which would include spills of wastewater or chemicals, are managed under the *Petroleum Act*. However, in accordance with section 6(5) of the *Petroleum Act* where a spill occurs on the land where the petroleum activity is being carried out and impacts are experienced outside of that area, the NTEPA may enter the petroleum activity area and enforce the WMPCA on that area.

(RFI p.2)

Agency	On the Permit[1]	Off the Permit (road, rail or pipeline)
DPIR	• Enforces the environmental offence provisions under the Petroleum Act if there is a spill. • Assesses and approves environment management plans to manage the risks of spills	• No role
EPA	• Administers environmental assessment legislation where environmental impacts are "significant".[2] Petroleum exploration activities are not currently assessed. An environment plan *may* be required as part of the assessment process.	
	• Comments on environment plans under the *Petroleum Act* only if the impact is "significant".	• Enforces and grants licences under the *Waste Management and Pollution Control Act*. An environment management plan is not always required.[3] • Issues waste transport certificates where waste crosses the NT border
NT Worksafe	• Enforces work health and safety legislation • Enforces dangerous goods legislation (incl transport of dangerous goods legislation)	
DENR (Controller of Water)	• No role	• Enforces and grants licences under the *Water Act 1992* (NT) for the drilling of bores, extraction of surface and groundwater, construction of dams, pollution of water etc

- The Table provided with your letter summarised the NT Government agencies as well as legislation they administer on the Permit and off the Permit. To fully describe the elements of the applicable legislation, the Table has been amended with regard to activities on and off a petroleum site rather than within an Exploration Permit, Retention Licence or Production Licence area (Attachment B). The Slide 24 of Attachment A sets out the environmental approvals and oversight of petroleum activities and the agency that administers the legislation. This may also provide a more complete summary than Attachment A provided with the RFI.

1. What might spill?

Fracking chemicals

The Department of Primary Industry and Resources (**DPIR**) publishes the chemicals that have been used in hydraulic fracturing in the Northern Territory on its website at https://dpir.nt.gov.au/mining-and-energy/public-environmental-reports/chemical-disclosure-reports . This appears to be a requirement of the *Schedule of Onshore Petroleum*

Exploration and Production Requirements 2016 (**Schedule**), which requires:

"*specific information regarding chemicals used [to be] released to the department and the general public.*"

It is not clear to me exactly what information must be disclosed pursuant to this provision of the Schedule. (RFI p.3)

- The disclosure of chemicals used in hydraulic fracturing operations must be described in an Environment Management Plan (EMP) pursuant to Schedule 1, Part 1, 1(d) of the Petroleum (Environment) Regulations. The Petroleum (Environment) Regulations commenced on 6 July 2016. In order to provide natural justice to proponents, transitional provisions were put in place via a letter (rather than embedded in the Petroleum (Environment) Regulations) to allow proponents time to fully consider the new regulations and have an approved EMP in accordance with the new regulations by 1 December 2017.
- To ensure appropriate regulatory enforceability was maintained during the transition particular environmental requirements were retained in the Schedule such as clause 342(4). DPIR intends to implement further revisions to the Schedule by 1 December 2017.
- DPIR requires disclosure of volumes and maximum concentrations of all chemicals including Chemical Abstract Service Registry Number, as identified in the Explanatory Guide to Petroleum (Environment) Regulations[3]. This document was released with the implementation of the Petroleum (Environment) Regulations. DPIR have also prepared a specific guideline on chemical use in the petroleum operations. Currently in draft form pending industry consultation.

Wastewater

Between 20 and 50 percent of the hydraulic fracturing fluid that is injected into the well returns to the surface. This water is called "flowback water". The discharge of flowback water typically lasts for 4 to 6 weeks. Flowback water is quite saline, especially if the target formation is of marine origin. Flowback water also contains residuals of the chemicals used in the hydraulic fracturing fluid plus geogenic chemicals that originate from the shale formation itself. These geogenic chemicals include salts, metals and metalloids, organic hydrocarbons, including BTEX, and naturally occurring radioactive materials (NORMs), depending on the geochemistry of the shale formation.

Water from the shale formation itself, called "produced water" also comes to the surface over the lifetime of the well. Produced water is very saline with higher concentrations of geogenic chemicals than in flowback water but with very little of the chemical signature of the fracturing fluid that was originally injected. Produced water and flowback water are both referred to as wastewater in this letter.

In the United States approximately 600 discrete chemicals have been detected in flowback and produced water and of this number, only 77 were components of the hydraulic fracturing fluids originally injected. As with fracking chemicals, wastewater includes chemicals that are hazardous to human health and the environment.

There is currently no statutory requirement to assess or disclose the composition of

[3] https://nt.gov.au/__data/assets/pdf_file/0005/295907/em-petroleum-environment-regulations.pdf section 3.8.2.5 Details of Chemicals and Other Substances page 24.

wastewater but I note that DPIR is supportive of this proposal. (RFI p.4)

- DPIR considers that full public disclosure of composition of waste water is in the public interest and aligns with government policy and, following industry consultation, plans to make the information publically available.
- DPIR have developed draft water monitoring guidelines that outline expected practices and outcomes for water monitoring programs and guidelines for disclosure of testing results.

2. Spills on the petroleum activity site

Petroleum Act

There are environmental offence provisions of the *Petroleum Act* that operate as a "stick" to punish interest holders for polluting acts, like spills. The *Petroleum Act* makes it an offence to cause the release of a contaminant or waste material if it has an environmental impact that is greater than a "nuisance". There are different penalties depending on the level of harm caused: for an unintentional spill that causes material environmental harm the amount an interest holder would have to pay is between $11,858 and $118,580. In addition to the environmental offence provisions there is also a statutory condition placed on all permit holders that they must "cause as little disturbance as practicable to the environment". Non-compliance with a condition of a permit is grounds for cancelling a permit.

The *Petroleum Act* does not expressly require any environmental management systems to be in place to ensure that the risk of spills are managed. The *Petroleum Act* was, however, amended in 2016 to permit the Minister to make regulations to allow the Administrator to make regulation "for the protection of the environment"[16] and new environment regulations were introduced in 2016 for that purpose. (RFI p.5)

- The objective of the *Petroleum Act* includes, "*the reduction of risks, so far as is reasonable and practicable, of harm to the environment during activities associated with exploration for or production of petroleum*". General conditions in section 58 of the *Petroleum Act* includes several environment protection requirements such as conducting operations in accordance with approved plans and any directions by the Minister and to cause as little disturbance as practicable to the environment as well as expressly not to allow the escape or release of petroleum. Part V, Division 2 of the *Petroleum Act* deals with Environmental Offences with definitions for: Environment, contaminant, environmental harm and environmental offence levels. The definitions used in the *Petroleum Act* are consistent with other legislation in the Northern Territory such as the *Energy Pipelines Act* and the *Mining Management Act*. Penalties for environmental offences are set by the *Environmental Offences and Penalties Act* (EOPA). The EOPA which is administered by DENR prescribes penalty units to environmental offences. The value of a penalty unit is set by the Department of Treasury and Finance[4].

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4 http://www.treasury.nt.gov.au/TaxesRoyaltiesAndGrants/AboutTerritoryRevenueOffice/Pages/Penalty-Units.aspx

- Given that a proponent must comply with the above and operate in accordance with an approved technical works programme and commits an offence by causing a release of a contaminant, the panel may wish to consider that the Petroleum (Environment) Regulations have added more structure and enforceability of an approved plan with requirements for revision periodically and in the case of any variation in the activity or risk.

Petroleum (Environment) Regulations

> With regard to the hydraulic fracturing of the Amungee-NW-1H well, the environment plan was assessed under a prior version of the Schedule and approved using a Ministerial direction under section 71 of the *Petroleum Act*.
>
> While it undoubtedly compromised the community's trust in the assessment and approval process, the approval of Origin's environment plan was lawful because the *Petroleum Act* gives the Minister power to effectively bypass any regulation, including the Environment Regulations. Some stakeholders think that this is a major weakness of the current regulatory framework, which could potentially be overcome by amendments to the *Petroleum Act*. I note that the Minister's ability to grant a direction under the *Petroleum Act* could be considered both a strength and a weakness of the Act: a weakness for the reasons set out above, and a strength because it may allow the Minister to impose prescriptive minimum standards on interest holders (something the Inquiry has been considering) notwithstanding the objective-based nature of the regulations. (RFI p.6)

- DPIR have provided the summary (Attachment C), that includes a general statement about legal position and governance, to clarify the assessment of the EMP for Origin's Amungee NW-1H program and the EMP for the hydraulic fracturing simulation and testing activity. This includes the Notice of Intent (NoI) process of consultation and assessment of the EMP under the EAA. The summary also includes transitional assessment, compliance and enforcement processes that applied under the relevant provisions of the Schedule and the Regulations.

Schedule of Onshore Petroleum Exploration and Production Requirements 2016

> The Schedule requires that, where there has been a spill, action must be taken "in accordance with an approved spill contingency plan". I query whether or not this requirement is necessary in light of the Environment Regulations. For the reasons set out in the Interim Report, my view is that the Schedule needs to be repealed and replaced with enforceable regulations as a matter of priority. I note that this forms part of DPIR's regulatory reform agenda. I do, however, think there is value in keeping spill contingency plans on DPIR's checklists to ensure that, where chemicals and wastewater are used, stored or recycled on the permit, the risk is fully addressed. I note that the Guideline for *Well Drilling, Workover or Stimulation Application Assessment Process* currently includes an oil spill contingency plan but not a wastewater or chemical spill contingency plan. Why is this? (RFI p.7)

- DPIR plans to replace the Schedule with Petroleum (Resource Management and Administration) Regulations mirroring Commonwealth and Western Australian regulations complemented by codes of practice and guidelines such as the Code of Practice for Petroleum Wells in Queensland.

- The Schedule was reviewed and updated in 2016 concurrently with the implementation of the Petroleum (Environment) Regulations to include contemporary best practices to allow DPIR to more effectively regulate petroleum activities and incorporate rules for new activities and to remove environmental aspects that transferred to the Petroleum (Environment) Regulations. Given the transitional provisions referred to above and outlined in Attachment C, some particular requirements remained in the Schedule. The Schedule will be revised before 1 December 2017 when transitional provisions expire and will therefore remove any remaining references to environmental matters.
- The risks of spills is managed through the implementation of an EMP. Proponents must comply with the approved plan which is enforceable through the regulations. Causing environmental harm on a petroleum site is an offence under the *Petroleum Act*. If a spill or contamination is not confined to the area of land on which petroleum activities occur, the WMPCA is enforceable on that land by the NTEPA.
- An EMP is both an environmental management and compliance document. This ensures that all environmental aspects of the proposal are effectively managed and the controls committed to in the approved plan can be enforced by the regulator.
- The EMP provides a pro-active regulatory tool that allows the regulator to enforce compliance with the plan and prosecute non-compliance without the actual occurrence of environmental harm. The *Petroleum Act* provides for penalties for causing environmental harm so that the Petroleum (Environment) Regulations complement the *Petroleum Act*.
- Spills of any nature must be identified and treated in accordance with an approved EMP. DPIR is currently assessing EMPs under the new Petroleum (Environment) Regulations. As those EMPs are assessed, the assessment checklist is being adapted. The aim is to develop a comprehensive checklist with clear approval criteria for all the relevant environmental aspects of petroleum activities.
- The oil spill contingency plan will be replaced to require a spill contingency plan that addresses the various types of spills that may occur as a result of the particular activity.

The NTEPA provides input into environment management plans

Under the current Environment Regulations, the Minister *must* take into account any recommendations made by the EPA on an environment plan, but *only* if an assessment is also required under the *Environmental Assessment Act*, that is, if a Public Environmental Report or an Environmental Impact Statement is required. In other words, where the impacts of an activity or project are not deemed "significant", which is the EPA's current position (see below), the EPA's comments are not *required* to be considered by the Minister when s/he decides whether or not to approve an environment plan.

I understand that there is currently an informal process whereby all environment plans received by DPIR are provided to the EPA for comment regardless of whether or not the activity or project is deemed to be "significant". DPIR has an internal policy that:

"*all NT EPA comments must be addressed by the operator as a condition of activity approval*".

My view is that this informal process must be formalised. Environmental experts, including the EPA and other relevant agencies such as the Weeds, Land Resource, and Water Branches in DENR must be given an opportunity to comment on all environment plans, regardless of the apparent significance of the activity or project. Further, comments received by these bodies must be fully disclosed along with the environment plan and the Minister for Resources' statement of reasons, which must also include commentary on how the Minister dealt with the bodies' feedback. (RFI p.8)

- DENR considers that the current process whereby the NTEPA judges an activity to be 'significant' allows for the appropriate level of scrutiny of these activities. While it may be desirable for relevant agency experts to be given the opportunity to comment on all environment plans, DENR considers the process undertaken by the NTEPA in identifying 'significant' activities provide an acceptable threshold for assessment. As indicated by the NTEPA in its response, this does not mean that future exploratory or production activity will not require such assessment.

It is not clear whether the NTEPA will assess an unconventional shale gas production project under the new environmental assessment legislation

> The NT Government is part way through an extensive environmental reform agenda. I have written to DENR, which is the agency leading the reforms, asking whether or not the development of unconventional gas resources, including hydraulic fracturing, will require an environmental impact assessment under the new environmental impact legislation. DENR responded that:
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> "*it is not possible to definitively state whether or not the development of unconventional gas resources, including individual activities associated with exploration and production, would be subject to environmental impact assessment without reference to a specific proposal*".
>
> I also understand that Government has not reached a position on whether or not shale gas development and its associated activities such as hydraulic fracturing will be a "hard trigger" under the new environmental assessment legislation. My current view is that, given the uncertainties associated with the development of the industry in the Northern Territory and its potential impact on water resources, it should. This will help engender confidence in the regulatory framework as it evolves. (RFI p.9-10)

- The NT Government is currently undertaking an extensive environmental regulatory reform program.

- As part of this program, Government will be asked to consider the mechanisms by which a proposal may 'trigger' the need for a referral to the NTEPA to determine whether the environmental impact assessment process under the new environment protection legislation[5] is to be conducted.

- As noted by the NTEPA, it is currently implementing a new framework for environmental impact assessment that employs a factor and objectives approach similar to that used by the Western Australia Environmental Protection Authority.

- This policy based approach is designed to provide a logical, consistent and systematic framework for impact assessment and related decision making. The approach identifies the objectives that are to be achieved by a proponent when designing and implementing a project. It is akin to identifying the values of the Territory that are to be maintained and protected.

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[5] It is currently proposed that the new environment protection act will include requirements for environmental impact assessment processes which are currently found in the *Environmental Assessment Act* and *Environmental Assessment Administrative Procedures*. This is often referred to as 'formal environmental impact assessment' and should be differentiated from the required assessment of an application for an approval as conducted by DPIR and other regulatory agencies.

- Government is also considering what it has referred to as 'hard triggers'; i.e. triggers based on location or activity. These triggers would automatically require the environmental impact assessment process be undertaken. At this time, Government has not identified what matters would be included as 'hard triggers' should these be adopted. However, it is the view of these Departments that hard triggers should also be risk based, and therefore set in consideration of the values of the potentially impacted environment and the scale, duration and risks of potential activities.

  For example:
  - A location trigger may be an area of high conservation value, such as the Sir Edward Pellew Islands.
  - An activity trigger could be the construction of a new dam with a wall height exceeding a specified meterage or designed to service a specified population.

- In regards to activity triggers, it is the risk and potential impacts that should be considered in order to identify and set the trigger. Activities that may present a lower risk, due to their scale or duration, such as exploratory activities, are not necessarily appropriate to be identified as automatically triggering the environmental impact assessment process.

- Triggers, whether based on location, activity or the values of the NT environment which are to be protected, should be identified and developed using a science and fact based approach and a publicly consultative process. It would be inappropriate to comment on whether a specific activity, or process within an activity, should be an environmental impact assessment trigger in the absence of Government having agreed to the types of triggers to be adopted within the assessment system or consultation on potential triggers with industry and the community.

NT WorkSafe administers work health and safety legislation, which includes a requirement to have a spill containment system in place

The Work Health Authority, supported by NT Worksafe, administers the *Work Health and Safety (National Uniform Legislation) Regulations* (Work Health and Safety Regulations). DPIR advised the Inquiry that:

"*In 2008 the NT Work Health and Safety legislation took over responsibility of Work Health and Safety of petroleum activities and the Schedule was amended in 2010 to clearly indicate the aspects of petroleum activities, the then Department of Resources was not responsible for and were transferred to NT WorkSafe* [sic]."

Chapter 7 of the Work Health and Safety Regulations relates to the use, handling, and storage of hazardous chemicals in the workplace, which includes a well pad. Hazardous chemicals are chemicals listed on the Globally Harmonised System of Classification and Labelling of Chemicals (GHS).

Many chemicals used in hydraulic fracturing and that are in wastewater are hazardous.

The Work Health and Safety Regulations impose prescriptive obligations on petroleum operators to, among other things, label chemicals correctly, obtain safety data sheets (**SDS**) (the SDS for Origin's Amungee frack are attached), keep a register of chemicals used on site, and display placards and signs. Gas companies must also ensure that, where there is a risk of a spill of a hazardous chemical on site, a spill containment system is in place. The spill containment system must provide for the clean-up and disposal of hazardous chemicals that spill. The operator

must also have a system for the use, handling and storage of hazardous chemicals.

There is, in my view, a great deal of overlap between the measures that can be taken to mitigate risks on human health and safety and measures that mitigate risks on the environment. This is clear to me from the Safety Data Sheets provided to the Inquiry by Origin Energy, which clearly show that a chemical that is a risk to human health and safety is invariably a risk to the environment. (RFI p.11)

- DPIR recognises that there is overlap in regulatory requirements and duplication in regulatory oversight that may be more effectively administered by a single regulatory agency. The quote from Elmer P. Danenberger former District Supervisor for the US Minerals Management Service (MMS) provides important insights into the risk of gaps in a fragmented regulatory framework for a highly technical and complex industry such as the petroleum industry.

NT WorkSafe administers the Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act and supporting regulations

The Work Health Authority, supported by NT Worksafe, administers the TGA, which is uniform legislation across Australia. The objective of the Transport of Dangerous Goods Act is to "*regulate the transport of dangerous goods on land in order to promote public safety and protect property and the environment.*" The Act operationalises the Australian Code of the Transport of Dangerous Goods by Road and Rail. Again, my view is that the regulatory framework would be strengthened and clarified if a single regulator had oversight of the transport of fracking chemicals and waste water on the permit (including on roads on the permit) and on public roads. (RFI p.12)

- It is considered that the regulatory framework for the transportation of hazardous goods on public and private roads and rail is well-established and effectively regulated by WorkSafe throughout Australia. The chemicals used in hydraulic fracturing are of the type of industrial chemicals used in many other industries and do not require special treatment beyond that of those industries.
- DPIR considers that the transportation of dangerous goods on private roads and access tracks for the transportation of chemicals to petroleum sites might be better regulated by a single regulator that has oversight of the various activities occurring on that site and is therefore in a better position to assess and manage any risks that may arise.

DENR administers the *Water Act 1992* (NT) (**Water Act**) but that Act does not currently apply to any petroleum activities. The types of activities that are authorised by the Water Act and the extent to which the Water Act and *Petroleum Act* apply to those types of activities on petroleum permits is shown below.

Application of the Water Act and *Petroleum Act* to various water-related activities on petroleum permits (RFI p.12-13)

Activity	Water Act	Petroleum Act
Drilling holes (including bores)	×	✓
Interfering with waterways	×	✓
Polluting water	×	✓
Building dams and other structures	×	✓
Recharging aquifers	×	✓
Disposing of waste underground by means of a bore	×	✓
Extracting water	×	✓

- You have noted the current demarcation in regulatory responsibility that exists between activities that occur within a petroleum permit area and outside of a permit area in relation to various water activities.

- In this regard it is important to note that the limitations imposed by sections 7(2) and 7(4) of the *Water Act* only apply to the extent that the pollution or waste is confined within the petroleum site on which waste disposal or polluting activity is conducted. If the pollution or waste is not confined within that petroleum site, then the relevant regulatory powers of the *Water Act* apply.

It is important to note the activities listed above are currently regulated under the *Petroleum Act* and its supporting regulations because they are "regulated activities", that is, they have an impact on the environment and do not fall into any of the exceptions.

The Government has committed to removing the exemption under the Water Act, which will mean that each of the activities listed in the table above will be prohibited *unless* a gas company has a licence or permit under the Water Act. In the context of a surface spill, the removal of the exemption will mean that a gas company will commit an offence under the Water Act if it causes, "*either directly or indirectly, (a) waste to come into contact with water or (b) water to be polluted*" unless the company has a waste discharge licence under s 74 of the Water Act. The same act may trigger an environmental offence under the *Petroleum Act*.

Subject to the comments below, I agree that gas companies should require a separate approval under the Water Act for the above water-related activities. This will ensure that water-related activities by the shale gas industry, like water extraction and aquifer recharge (to the extent permitted), are included in regional planning and allocation plans and that the regional, basin-wide impacts of the gas industry can be anticipated and managed.

If s 7 is removed, however, regulatory reforms will be required to ensure that assessment and approvals are not required under *both* the Water Act and *Petroleum Act*. This is unnecessary duplication. Further, the Water Act could be strengthened by ensuring that the decision-maker must:

- consider principles of ESD when granting a licence;

- publish environment plans and statement of reasons; and

- consult with stakeholders.

This process should apply to all types of licences granted under the Water Act.

The regulatory framework must also ensure that risk management systems are in place to manage impacts to water, including the risk of a spill (this can be achieved under petroleum legislation). (RFI p.13-14)

- The *Water Act* already provides for consideration of water use and potential impacts associated with petroleum activities in water allocation plans, notwithstanding that authorisations for such water use are currently provided through the *Petroleum Act*.

- Approval has been received from Government to amend the *Water Act* so that it will regulate interference and obstruction of waterways, surface water extraction, bore drilling and groundwater extraction by petroleum activities. These amendments will result in petroleum activities being subject to the same permit and licensing administrative and regulatory arrangements as applying to all other water users. Assessment and approvals for water use by petroleum activities will be undertaken under the *Water Act* alone. Principles of ESD could be taken into account in licensing decisions in accordance with section 90(1)(k) of the *Water Act*. The Act requires public notification, with invitation for comment, for each anticipated water extraction licensing decision, in accordance with section 71B. A statement of reason for each water extraction licence decision is always published in accordance with section 71C(3) of the *Water Act.*

- Government agreed to defer consideration of the further amendments in regard to waste disposal and pollution regulation under the Water Act until the review of environmental regulation is completed.

3. Spills outside the petroleum activity site

- Petroleum Exploration Permit areas are of such a size that multiple petroleum activities can occur within them concurrently or sequentially. Under the *Petroleum Act*, the Schedule to the Act and the Petroleum (Environment) Regulations are treated as discrete activity sites, each with a requirement for an approved EMP and technical works program.
- For the transport of chemicals and waste water the activity approval and EMP will also include maps and coordinates of the access roads, set down sites and locations where the chemicals and wastewater will be transported and stored, including during transportation.
- The transport and management of listed wastes and hazardous and dangerous goods on a petroleum activity site is identified in the activity approval application of a petroleum project and are assessed under the *Petroleum Act*.
- A petroleum activity site can include any private or public access road that is upgraded or constructed by the operator in its project as well as the project operational area.

- DPIR has the responsibility to regulate spills of any material on a petroleum activity site. DPIR also ensures that all listed wastes and hazardous and dangerous goods are correctly transported by licensed waste contractors and disposed of at appropriately licensed waste facilities.
- NT Worksafe has the responsibility for the transportation of hazardous and dangerous goods on public and private roads and for any worker safety matters. NT Worksafe has the ability to enter petroleum activity site areas to conduct safety audits.
- NTEPA has the responsibility for the response to spills that occur outside of a petroleum activity site, but which may still be within a petroleum permit. NTEPA holds the register of listed waste handlers, transporters and facilities and issues and manages licenses.

The NTEPA administers the EAA legislation outside of petroleum permits but it is not clear whether transportation of fracking chemicals and wastewater via road or rail is deemed 'significant' and therefore assessed under environmental assessment legislation

- As discussed in its response, the NTEPA considers specific proposals and makes decisions based on the likely significance of the impact on the environment given the nature of the receiving environment, and the scale and duration of the activity as well as other matters.
- DENR and DPIR agree with the approach adopted by the NTEPA that they do not consider that it is appropriate for the NTEPA to 'deem' certain activities to be 'significant'. Road and rail transport matters, including those associated with the movement of chemicals and wastewater, if significant, may be included in an environmental impact assessment process. For example, the proposed Olympic Dam Expansion – NT Transport Option was considered to have the potential for a significant effect on the environment and was assessed at the level of an environmental impact assessment[6].

The NTEPA issue approvals and licences for the transportation of listed wastes under the WMPCA outside of petroleum permits

The EPA administers the WMPCA, which applies outside petroleum permits. The collection, transport, storage, treatment or disposal of "listed wastes" is an offence unless a person has been granted an environmental protection licence. "Listed wastes" are listed at Schedule 2 of the *Waste Management and Pollution Control (Administration) Regulations 1999* (NT) and include an extensive list of chemicals, many of which are fracking chemicals or included in wastewater.

Where an activity is licenced under the WMPCA an environment plan may be, but is not necessarily, required. Before the EPA can grant an environmental protection licence it must consider a variety of matters, including the principles of ESD as well as any comments from other agencies. The process is similar, but not identical, to the assessment process set out in the Environment Regulations under the *Petroleum Act*.

I am concerned, nonetheless, about the demarcation between the regulatory framework that exists on, and off, petroleum permits. My view is that the regulatory framework for the management of fracking chemicals and wastewater produced by the shale gas

[6] Note, this assessment was completed by the then Department of Natural Resources, Environment, the Arts and Sport under the same legislation as currently administered by the NTEPA.

> industry should be the same on and off the permit area to avoid regulatory loopholes and duplication. (RFI p.14)

- DPIR and DENR agree that demarcations based on land tenure can fail to provide an appropriate and consistent risk-based approach to managing environmental impacts.

- The environmental regulatory reform program will seek to address such demarcations while removing duplications and streamlining regulatory processes. In doing so, it must be recognised that there are specific skills and expertise required to manage environmental impacts associated with particular types of activities, such as petroleum or mining activities, and that these need to be maintained. What is appropriate is that the environmental risks arising from petroleum activities (in their broadest sense) are appropriately managed regardless of where an incident resulting in an environmental impact may occur.

> DENR submitted that: "*Under the Government's environmental reform commitments, as articulated in its Healthy Environment, Strong Economy policy, the current demarcation between the environmental regulations of activities occurring on and off-site will be removed.*"
>
> I understand that the provisions in the WMPCA and the Environment Regulations will be consolidated into a new Environmental Protection Act. My view is that one regulator should administer that Act for all unconventional shale gas activities, regardless of whether they occur on and off the permit area. (RFI p.15)

- The NT Government has determined that regulatory activities under the new environment protection act, such as issuing licences or other authorisations and ensuring compliance with the legislation, are to be undertaken by DENR. DENR will also be responsible for ensuring compliance with the new environmental approval issued by the Minister for Environment and Natural Resources following the environmental impact assessment process.
- Government has previously agreed that the new legislation will, at a minimum, include management of wastes and pollution (currently covered by the WMPCA and *Litter Act*), the environmental impacts of mining activities (currently managed under the *Mining Management Act*) and the environmental impacts of petroleum activities (including those currently managed under the Petroleum (Environment) Regulations).
- Government has not identified what other, if any, environmental matters may be covered by the new legislation. There are aspects of environmental or resource management that are already managed and not likely to be included within the new legislation, such as weeds. The extent of responsibilities of any 'one regulator' should be clearly articulated to avoid confusion about the proposed role and any subsequent recommendations by the Inquiry.

Where waste crosses the NT border, the NTEPA issues waste transport certificates

> The National Environment Protection Council is established under the *National Environment Protection Council Act 1994* and there is mirror legislation in other jurisdictions. In the Northern Territory it is the *National Environment Protection Council (Northern Territory) Act 1994* (NT). The Council has power to make national environment

protection measures and has made the *National Environment Protection (Movement of Controlled Waste) between States and Territories) Measure 1998.* The purpose of the measure is to:

"*provide a national framework for developing and integrating State and Territory systems for the management of the movement of controlled wastes between States and Territories originating from commercial, trade, industrial or business activities.*"

In practice, the EPA issues a Waste Transport Certificate (WTC) wherever waste crosses the border. The guide for completing the certificate is found on the EPA's website. Origin had to complete a WTC when they transported fracking fluids and wastewater to Queensland in connection with the fracking of the Amungee well. The WTC requires an emergency contact number to be listed in the event there is an accident or spill. No spill management plan was included. (RFI p.15-16)

- In addition to the NTEPA requirements, DPIR also requires that the operator provides DPIR with a certificate from a registered waste facility that has accepted the waste.

DENR administer the Water Act outside petroleum permits. As discussed above, the Water Act does not require any type of management system be in place to manage the risk of water pollution from spills off-site. The Water Act, however, makes it an offence to:
"*cause, either directly or indirectly, (a) waste to come into contact with water or (b) water to be polluted*".

The Water Act also prohibits activities of the kind listed in the table on page 12-13 unless the person has a licence from the Water Controller. (RFI p.16)

- The *Water Act* permits, through a waste discharge licence[7] and through an underground waste disposal licence[8], activities that result in the release of wastes to water or pollution that would otherwise be an offence under that Act. This approach recognises that the return of water to the environment (the water cycle) is necessary and appropriate. The *Water Act* is not otherwise designed to manage risks of polluting activities.

- Waste discharge licences permits include conditions, where appropriate, to minimise the environmental impacts arising from the discharges of wastes.

- The *Petroleum Act* is the regulatory system designed to more broadly prevent impacts from petroleum activities. Ensuring that management systems are designed to prevent off-site[9] spills is the responsibility of DPIR under the *Petroleum Act*.

- It is also noted that off-site, the provisions of the WMPCA apply, which includes the general duty for persons that are conducting activities that may result in waste or pollution to minimise the waste generated and prevent pollution from occurring (see s.12 of the WMPCA).

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[7] s74
[8] s.63
[9] Used in this context to refer to spills outside of the activity area that is the subject of the exemption under the Water Act; and not to refer to spills off of the permit area as defined by the *Petroleum Act*.

4 Single Regulator

My view is that consideration should be given to the oversight of environmental and safety matters on petroleum permits in a single regulator given the significant overlap between the goals of the legislation that NT Worksafe and DPIR administer. In that regard I note the follow quotation:

"*Safety and pollution prevention programs are more effective if a single agency is responsible and accountable for the regulation of operations. Unfortunately, legislative bodies do not always comprehend the safety and environmental risks associated with fragmented or compartmentalised regulatory regimes. These risks include regulatory gaps, overlap, confusion, inconsistencies, and conflicting standards. Also, a sufficient number of competent regulatory personnel may not be available to staff multiple agencies. Ideally, one agency would be responsible for all regulatory aspects of drilling and production operations. Safety and pollution prevention are inextricably linked.*" (RFI p.11)

I note that in Australia's offshore context, a single regulator, the National Offshore Petroleum Safety and Environmental Management Authority (**NOPSEMA**), has jurisdiction over both environmental and safety matters. Similarly, the Alberta Energy Regulator (**AER**), which is widely considered to be a best-in-class regulator, also has jurisdiction over public safety and environmental matters, including water allocation licences. (RFI p.12)

The regulator [for the WMPCA and the Environment Regulations] should also be the same to ensure accountability of the regulator, consistency of oversight and enforcement of the law, and to ensure that nothing falls through the gaps.

My view is that one regulator should administer that Act (new Environmental Protection Act) for all unconventional shale gas activities, regardless of whether they occur on and off the permit area. (RFI p.15)

DENR RESPONSE

- The Northern Territory Government has approved the development of new environment protection and management act that will establish a new environmental assessment and approvals system and incorporate the environmental management provisions of the *Mining Management Act*, *the Petroleum Act*, and other relevant resource management legislation as well as the WMPCA. This decision provides for a single environmental approval and brings together a range of regulatory functions as they relate to protecting and mitigating impacts on the environment. This is in essence a single **environment** regulator.

- The recommendation of a single **industry** regulator of petroleum activities including safety, resource management, and environment matters and titles administration is a departure from Government's current policy position and the environmental reform process that is currently being undertaken. Any decision to establish a single industry regulator model would need to be considered further by Government.

- It is also difficult to comment on the specific model of a single industry regulator without an understanding of the scale or likely extent of the proposed industry. The two models highlighted were constructed based on specific characteristics of their related industries. NOPSEMA – to address the challenges of the offshore jurisdiction while the Alberta Energy Regulator – addresses issues associated with the massive scale and size of the gas industry, demanding dedicated and significant resources.

DPIR RESPONSE

- While noting this recommendation is outside of Government's current policy position, there may be merit in exploring the efficacy of a single industry regulator model for an onshore oil and gas industry in the NT responsible for process and human safety, resource management (including technical operations) environment matters and titles administration, on the basis that these aspects of petroleum activities are intrinsically linked.

- In addition to safety, which may be interpreted to mean occupational health and safety, and environmental aspects of the petroleum industry, the most critical aspect of managing those aspect is the process safety which includes well integrity, pipeline integrity and the integrity of plant piping and pressure vessels. Process safety ensures that chemicals, waste water and hydrocarbons (sometimes under high pressure and temperature) are contained and remain separate from the environment, the public and workers on the site. Regulation of process safety requires a competent and well-resourced regulator.

- Risks of matters 'falling through the cracks' are greatly reduced when responsibility for ensuring sound outcomes rest with a single regulator. Such a regulator would potentially administer an amended *Petroleum Act* and associated regulations, as well as those elements of the proposed Environment Protection Act, Work, Health and Safety legislation and any other regulation that impact on an onshore oil and gas industry.

- However, environmental impact assessment of oil and gas developments should still remain the responsibility of an independent EPA and prospective oil and gas fields subject to a strategic assessment where all potential impacts and risks are identified and assessed and mitigation measures on development and detailed in conditions that are implemented by individual proponent's operators within that region. A single industry regulator should be responsible for ensuring conditions are implemented and outcomes monitored.

We trust that you will find the information provided comprehensive and useful. Please contact our Departments should you require any further information.

Yours sincerely

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9 October 2017

Attachment A: DPIR Presentation to Hydraulic Fracturing Inquiry March 2017

Attachment B: Applicable legislation on and off petroleum site

Attachment C: Petroleum Environment Regulations Transitional arrangements and Directions

List of References

Letter from Dr Paul Vogel, Chair NTEPA in response to Letter from Hon Justice Rachel Pepper, 3 October 2017

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