



## ***Katherine – Carol Randall and Andrew Smith***

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***Katherine Godinmayin Yijard Rivers Arts & Culture Centre, Katherine***

***Speakers: Carol Randall, Andrew Smith***

Carol Randall: Good morning. My name is Carol Randall, and I've been a part of many groups here, but I'm here to represent myself.

Hon. Justice

Rachel Pepper: Thank you, Ms. Randall. Yes. Sir?

Andrew Smith: My name is Andrew Smith. I'm here as an Australian citizen to present my point of view and I'm very grateful for the panel's opportunity and time to listen to what we've got to say.

Hon. Justice

Rachel Pepper: [inaudible] thank you. Yes, when you're ready. Thank you.

Carol Randall: Okay, so the timing needs to be asked for an hour, but we've got half an hour minus ten minutes, so we will go into it?

Hon. Justice

Rachel Pepper: No, no. You'll begin the full half hour.

Carol Randall: Full half hour. That's ten minutes of speaking and questions?

Hon. Justice

Rachel Pepper: You've got half an hour. Go for it.

Carol Randall: Thank you. Social license, I would like to address the panel through the terms of reference with what my understanding of the criteria is for the granting of the social license. Am I able to give consent, free, prior, and informed, to all activities associated with the hydraulic fracturing in the Northern Territory? Free, prior, and informed, thousands upon thousands of words have been written for and against unconventional shale gas hydraulic fracturing. The most complex and extensive hydro-geological assessments through to those who are concerned about their children's children. How



can I give consent, free, prior, and informed, to a practice that is complex as it is secretive? Free, informed, prior.

Social license field experts Ian Thompson and Robert Boutilier have identified three major components that a company must establish to achieve the highest level of social license, legitimacy, credibility, and trust. One, legitimacy requires a company spread awareness, listen to community concerns, and follow official and unofficial local norms, customs, and practices. Two, credibility, when a company is regarded as credible, it seems it's following through on promises and dealing honestly with everyone. Credibility can be achieved by transparency and consistency in decision making. Three, trust, is the degree to which the entire public holds collective trust towards an organisation. Companies should strive to achieve full trust from the public in their organisation. As has been said, trust is hard to earn, easy to lose, and very difficult to recover once lost.

The gaps in knowledge due to the limited development in Australia of onshore and conventional gas industry is of concern, as is the lack of guarantees in any long terms effects, and including its enormous waste disposal. Yet there is a rush to put thousands of wells in the Northern Territory. Gaps in the knowledge exist, for example, concerning the mobility of organic compounds, heavy metals, and radioactive elements during hydraulic stimulation. Similarly, the microbiology occurring deep underground is still largely unknown.

Let's look at some statistics. As a stakeholder, I am asked to give consent on behalf of those who cannot speak up, and for those who are yet to be born. I will be asked to consent, my consent, to the removal of vegetation and the establishment of thousands of wells, since unconventional shale reservoirs requires more wells in a shorter timeframe, all of which will be taking thousands of megaliters of top quality water, a slick water for extracting the gas, which is comprised of lethal chemicals, some of which, if you breathe in, will kill you. Many of the chemicals are suspect in causing many illnesses that can travel through your skin. I will be asked to consent to tonnes of these chemicals in 7 to 18 million litres of water per single fracking operation, which will travel down a complex well, with the hopes of mitigation where possible around aquifer and groundwater contamination.

Does the hydrocarbon industry in Northern Territory have the resources, experience, or expertise for monitoring and evaluating of the cement casings and strings needed for the wells for example? Are there overarching monetary regulations in place through legislation in the Northern Territory? I will suggest in fact it is not possible to reliably predict the release of problematic substances or prevent this by optimising the fracking processes because of many unresolved problems. For example, Apia does not disclose the significant portion of chemicals used in fracking. While these chemicals may only make up 0.1% of the total, there has been a decision secretly to not have to declare them.



A sustainable development discourse, the ways in which [inaudible] specifically defined and maintained a social license, has not been made explicit. It has been a massive effort on behalf of this industry to overlook criteria because among many issues, self interest has dominated. Okay, so ethylene glycol. Origins' energy chemical disclosure submission on among the well in the [inaudible] in Northern Territory disclosed the following compound among many, J604W, ethylene glycol. It's a cross linker and is extremely toxic. This chemical must never enter the waterways and Origin as an example. This is the same company which had to stop their operation of coal seam gas drilling after chemicals were found in the water in Queensland at Miles near Brisbane. Origin admitted that they had contaminated the water at the site. When contamination occurred in Queensland, the fracking fluid was supplied by Halliburton and had to Origins' manager, Paul Zealand, has, "a real surprise that [inaudible] chemicals had turned up."

Origin says 20 to 60% of injected simulation is recovered during flow back. Others say it mostly stays in the earth. Contradictions on the most important aspects of potential water contamination, recycling methane emissions, and number of fracks per well, all of which are of a great concern in our times of record climate change.

Can I give consent to the hydrocarbon extraction industry? Can I, indeed once the wells have been abandoned and bonds given back, there is nothing in place for perpetual monitoring or the remediation that is going to have to take place forever. Can I give consent to the hydrocarbon extraction industry? No. Thank you.

Hon. Justice

Rachel Pepper: Thank you. Yes?

Andrew Smith: Now, thank you very much for your time to come to Darwin to say what I've got to say. Can everybody hear me? Maybe I should just get rid of the microphone. I think you can probably hear me anyway. While I deal in a fairly cursory manner with the accidents, mayhem, and carry on, I think the main point that I'm trying to get across here is to have a generalised look at the broader financial picture with a view to forming some opinions about what is the value proposition for the average Australian citizen. What's in it for them?

And as it seems that the further we get into it, we're confronted here with a sea of relative truths and other things. So, basically the idea in terms of the big picture is to be mindful of the quantum field and of course, as many of the panel would know, you have classical physics and you have quantum physics. I think the idea of an adversarial setup where we listen to people painting other people as some sort of a lunatic fringe, and I'm not suggesting that the panel's doing that, but there seems to be this idea that somehow my points are less valid or more valid depending on how good I am at the old school debating trick.



My view on this is that we all have a point of view and certainly at each moment of the quantum field is a myriad of possibilities, some of which are very strong, some of which are very weak and as we progress through this, I'm grateful for your consideration.

As we move further into it, one has a point of view and an opinion. The first thing that Apia or Santos does is try and present alternative facts, which we must be grateful to Mr. Trump for alerting us to these sort of things. You go and see the spin doctors from Santos and Apia and they would spin you under the table without you even knowing.

It was only a week or so ago that I'd been down to the Apia stand here in the Katherine Show and had a bit of a chat with the chappies down there and fired with an evangelical zeal and a bright and shiny countenance as he proceeded to ram the half chewed chop down my throat was the way I felt because all I wanted to do was have a talk in general terms about the way things might be or the way things might not be. But, unilateral statements like Santos hasn't had a well failure for 50 years and yet, quite queerly, they had an 18% stake in the Lapindo Bratas in the Sidoarjo province of Indonesia with the volcano there, the mud volcano, which they claim to deny responsibility for, that they have no responsibility. They say it was seismic activity, and I'll get to the answer for that in a moment.

However, a reference in the Geological Society of America's journal, *GSA Today*, says that it was the failure of [Opendo] to install sufficient casing around its gas well, according to a 2007 report in *GSA Today*. That's the Geological Society of America's journal.

Now, they say that they're not responsible for what this did, but as a well structured company and formerly profitable one, I should say, they obviously had a man on the ground all the time. An 18% stake means they wouldn't leave these fellows to do their own thing. In fact, they said they had presented reports, regular reports, on casings and techniques and strategies to Santos on an ongoing basis and yet still these accidents happened with the dreadful consequences for the people concerned.

One of Santos's tricks is that they say, for example, that in relation to coal seam gas which, as the Dr Richey has pointed out, the main body of its movement is relationships and connections between people who have had unsavoury experiences and health conditions and other types of things like that. As a result, that's where the strength lies, in general disenchantment and something of a cynicism with a range of organisations who purport to look after our interests, but as we proceed into numbers, I wonder whose interests they're looking after.

Santos will say that we can't compare coal seam gas to non-conventional hydraulic fracturing. On a technical level, that may well be the case. However, I think we need to remember the spin and the types of evidence which were provided to people in southeast Queensland prior to the commencement of CSG when, in fact, they were reassured that it was a very



safe industry, that there was no toxic issues in the chemicals used in the process that you would find under a bathroom sink, although having said that, there's lots of chemicals under my sink that I really wouldn't want to have anything to do with myself.

I think the idea of that you can't compare coal seam gas and extraction and non-conventional deep shale gas extraction is probably true superficially, but when we look beyond that and say, well, the presentations by various operators were this and now, with the benefit of hindsight, it's now that is the thing that we're all concerned about. This general idea that, for instance, that companies can transfer risk to the general public from themselves is a concern to me and something that we need to think about in the future, I think. Anyway, we'll get to that in a little bit.

Just to sum up what I was talking about before, that in relation to Santos, the Australian taxation office has a very handy list of a number of companies who have not paid tax or who have paid tax. When you look through this list, and I'm not suggesting that they've done anything illegal or that, in fact, that they're avoiding paying tax, but if their interest in ... If they're acting in my interests collectively in terms of getting me the best value for money they can out of a resource which we all own, which is the commonwealth, then what is the benefit to me of a company that doesn't pay tax?

I think that's a great legal option that they have where they don't pay tax for a whole variety of reasons, some of which we'll get to in a moment. It seems to me that when we look at this whole process of what the numbers are that there's an awful lot that is not generally known. For example, in Canada, companies over there are not allowed to export gas unless they can prove that there is a surplus of gas in the domestic economy. Now, it seems to me that some of the benefits of an approach like this in Australia, which when we compare Canada with Australia are very broadly similar, has some benefits for a value proposition for me.

In relation to tax, I'd just like to reassure everybody that I'm not suggesting that companies are illegally shirking their responsibilities or that by avoiding tax, but when we look at some of the cosy relationships that they've had with government further on down the track, I still wonder whose interest they're acting in.

When I'm waiting to hear what Santos says when I'm wrong and I'm drowning under a blizzard of numbers, because that's usually what people in these circumstances do, they have well rehearsed lines which ... If what I'm saying is propaganda, then I'm a very poor student. However, from the Santos point of view, there's a number of well rehearsed lines, Apia I should say, and let's just acknowledge Martin Ferguson's contribution to Strine in Australia. I think it's widely very little known that he introduced the term "the om lion" to Australian vernacular. For that I'm very grateful. 10 minutes to go, Christ almighty. Thank you so much.



Okay, value for money for the economy and the long suffering tax payer. Accidents and mistakes will happen. Drilling wells, any wells, is a risky business with a long legacy tail. How many disasters are acceptable? For instance, in terms of fatalities on the road, is there a point where there is an acceptable number of fatalities? For instance, in New South Wales they've got fatalities down there to the same level that they had in 1927. Practically, as a realistic community, are happy with zero fatalities in New South Wales, Is that what we're hoping to do?

Similarly in this industry, what is our acceptable level of risk in relation to future generations in an environment like ours with very little in the way of water. It seems to me that the notion that there could be problems later on is a big issue for me. What is the form guide and based on a Melbourne Cup form guide, would we back it? Let's find out.

Drilling wells, any wells, is a risky business with a long legacy tail. How many disasters are acceptable? Who will be liable in the future for screw ups that may take decades or more to manifest than certainly the history of legacy mines in the Northwest Territory would seem to suggest that the long suffering taxpayer is going to pick up the tab for that. Hydraulically fractured wells in 2011, 2012, have failed in the Northern Territory. That's Petro Frontier. They had three wells, one shell o casing failure, two wells were drilled into faults, communicated with a highly permeable water source and produced biogenic hydrogen sulphide. All three have been abandoned and yet the chappy from Santos says there hasn't been a hydraulic well failure in Northern Territory. There's a credibility gap there in terms of the social license.

There has to be value for money for the taxpayer and the owners of the resource, which is all of us here in this room. Who would be liable for issues in the future and can we stop the shifting of risks from companies and onto the public? For example, we're all familiar, I think, with the Irish bank, the Anglo-Irish bank where the Irish government guaranteed the bank and then found out about a huge black hole in the background and the Irish people are still paying for it, of course. I think that that metaphor in relation to companies in Australia is really very apt.

Are there benefits to giving companies our minerals, oil, and gas, the commonwealth, when they don't pay any tax or minimal tax? What is the value proposition for me as a tax paying citizen? I don't have access to these sort of things that they do. I still pay taxes and I expect everybody also in Australia will, too. The background to this is control people through resources allied with a shifting from companies onto the citizens and taxpayers of Australia.

After years of waffling, I'm going to give an example here. Malaysia's state on Petromas is throwing in the towel on its Canadian Northwest LNG project due to the dismal economics facing global LNG. A glut of world supplies and stagnant demand have driven prices well below break even prices for construction and operating enormous facilities required to process and



liquefy and ship the gas. The companies [inaudible] says it was because of Canada's anti-business pipe policy climate. They say it's because of Canada's high taxes, carbon taxes, interminable environmental reviews, and indigenous land claims.

Surprisingly, a left wing government in British Columbia, empowered for only a week, was a major contributor as well. We should be collectively grateful for an opportunity to reflect on the circumstances which has led to this point because Australia has far less onerous regulatory constraints than the Northern Territory with no exception.

When gas moved from \$15 per million British thermal unit in 2009 and 2012, Australian companies moved quickly. Several huge LNG projects were built, Gorgon, Curtis Island, and [inaudible], almost simultaneously aiming to cash in on the premium Asian prices. Environmental and fiscal hurdles were modest and indigenous populations in Australia have little leverage to negotiate depending on where they are.

A new right wing government sweetened the pot by cancelling a modest carbon tax in 2014. It was a hammer and tongs madcap adventure where almost \$200 billion was spent on LNG projects over the next few years. In Queensland, three massive plants were built by Bechtel at the same time and on the same island. The impact of these high jinx on the construction costs was enormous and could have been reasonably foreseen. Chevron's Gordon plant cost over \$72 billion dollars and almost 50% over budget. Imagine the recriminations if it were the Northern Territory Department of Housing or the commonwealth government that had an overrun like this. We'd have their guts to garters. A triumph for free market efficiency? Come on now.

After construction started, Asian gas prices fell by two thirds, hemorrhaging red ink. Write downs already exceed \$10 billion dollars for the Queensland LNG plants. Former boom towns suffer a major hangover including collapsed house prices. Gladstone's no exception. Every type of Australian consumer pays for this miscalculation and, unlike Canada, gas exporters don't have to prove that gas exports are surplus to domestic needs. The cost of domestic gas more than doubled with the diversion of so much gas to export. Electricity prices have gone ballistic due to use of gas with quick response times during electricity production during peak times. The government and Australian people are not reaping any benefits since the royalty deals inked to accelerate LNG projects mean there will be no royalty income until capital investments are paid off.

That will more than likely never happen. Therefore, we have given this gas away to Asian people, many of whom pay less for it than we do, an unseemly headlong helter skelter rushing into the projects meant that there was insufficient time for proper reflection, checks, and balances, which is part of what this inquiry is about. Clearly more time needs to be spent assessing costs and benefits of these projects. These resources will still be there in the future, so just waiting some time, a long time preferably, is not



really an issue. What is the benefit of haste for the Australian citizen and taxpayer in this? Nothing plus high potential for an environmental disaster. Act in hast, repent at leisure.

How are gas projects taxed? The petroleum resources tanks tax is a profit based tax levy load with a specified threshold and generated from the sale of [inaudible] petroleum commodities such as natural gas an oil that excludes LNG. From 2012, it was extended to include all onshore and offshore oil and gas projects from Northwest Shore from [inaudible] coal seam gas.

In a nutshell, these fellows get to carry, they get to deduct, the receipts from gas sales from the cost of the asset, the building of the asset. In Gorgon's case, that's \$72 billion dollars. They can carry forward this amount year on year at 18% compounded. We don't have to be mathematicians to work out that there's going to be very, very little in it for us if they ever pay any tax at all. Up here when people are looking for jobs over in Gorgon, you can go to the website two or three years ago and if you could look after a team of fellows and you had a trade, they were offering \$330,000 per annum. If you could stick it out for three years, they'd give you another \$150,000 as a bonus. It's not hard to see where the money went.

How much does the government collect? I've got a table here on the paper which I've given you. The source is from the Australian Taxation Office. Okay, so basically these deals are comparatively with Qatar, which I think is public knowledge, that the idea that \$26 billion in receipts from the government of Qatar based on their interest in gas exports compared to our rather paltry \$800 million ... I'll get back to what is the value proposition for me as a citizen of Australia.

What are other people's, companies', contribution to this value proposition? It doesn't worry me if they're not paying any taxes and doing it legally. The fact is they're not paying any tax and, as a taxpayer, I resent it. We all want services here and I'm not afraid of paying for them, but I want to see people paying for what they're doing. I don't want to see people shirking their responsibilities and being rebated for royalties as they do in the Northern Territory, having unlimited access to the water, which they do in the Northern Territory.

The low petroleum resource rent tax collection suggests that the only marginal benefits from the current LNG boom for the wider community is the Commonwealth of royalties collected and redistributed Australia-wide. However, Queensland royalties collected from coal seam gas projects are only distributed within the state.

Let's look at this table here. In 2012, 2013, federal royalties was \$5,798,614,359. We can see that as we move forward to 2014-15, the numbers drop. Though the state governments, it's they correspondingly increased, my point here is it in terms of the overall scheme of things and





looking at the expenditure of these gas people and whatnot, \$200 billion, these receipts are very, very little.

In terms of the petroleum resources rent tax, for 2013-2014, and sourced again I'd say, I'm telling you, from the ATO, we can see that expenditure that in excess of sales, that is accessible receipts, can be carried over year by year plus interest at 18%, the table below depicts sales receipts for more than 25 billion in 2014-15, but only 1.2 billion was paid in resource rent tax. So there's a problem with that now. My view on it is the value proposition for the Australian citizen needs to be better than that. You can look at these facts and figures to your heart's content later on, but I'm mindful that there's only five minutes to go.

The gas price plays a vital role in assessing the business's liability in petroleum resource rent tax. That is because gas value minus expenditures is subject to the petroleum resource rent tax. As there is no Australia-wide hub for gas that can help determine the fair price, a transfer price needs to be calculated for the cost of gas that is used to make LNG.

Transfer pricing of the petroleum resource rent tax is covered by regulations of gas transfer price methodology. This is used to calculate the transfer price of gas, but the various creative interpretations by business of the method are seen as contentious. That means they're not transparent. Back to our social license again. The fairness of the regulation process should be debated more openly and it's not, as it's currently debated only among companies, tax advisors, and the ATO.

Chevron, a major oil and gas company, failed to defend its profit shifting which minimises company tax in the Australian courts and they've had to cough up a few more bucks. Thank God for the long suffering tax payer. Surely this lack of revenue from the petroleum resource rent tax raises a few questions for the government and the rest of the long suffering Australian taxpayers and citizens. There has been recent commentary about a resource rent tax versus royalty. It's time for review of taxing LNG at a time when Qatar enjoys tax income, \$26 billion for an equivalent amount of gas that we get here in Australia.

That pretty well concludes it for me. There's a bit of information there which you can read at your leisure, and I think everybody's got a copy. Once again, thank you so much for your time. I really appreciate that you come here to listen to us and you're happy to take into account the concerns of an average Australian citizen, so thank you very much to the panel.

Hon. Justice

Rachel Pepper:

Thank you and I don't think there's any such thing as an average Australia citizen. Just a couple of ... One was a request. In both of your detailed papers and presentations, there's a lot of figures there and facts, but they're not referenced in any way. If we could, in due course, have the references that you used to construct the tables and the facts and figures, we'd be very grateful.



Andrew Smith: Are you referring to mine or to hers?

Hon. Justice

Rachel Pepper: Both.

Andrew Smith: Both.

Hon. Justice

Rachel Pepper: There are facts and figures in both.

Andrew Smith: I have facts and figures from the ATO. Would you like a screen dump or something like that?

Hon. Justice

Rachel Pepper: No, no. So you take your figures only from the ATO?

Andrew Smith: Only from the ATO.

Hon. Justice

Rachel Pepper: Okay, no. That's all right, but I don't think that's necessarily the case, obviously, in relation to yours, Ms. Randall. There's claims there as well that are not sourced by any facts, or rather facts that aren't sourced by any references and we would certainly appreciate those. For example, you've given a quote in relation to Origin's manager, Paul Zealand. You've also given some facts about [inaudible] claims that Origin's have made.

Andrew Smith: We can provide those.

Hon. Justice

Rachel Pepper: Excellent. That would be very useful. It would be very, very useful

Andrew Smith: Yeah, thank you.

Hon. Justice

Rachel Pepper: Sometimes it's the case that people manage to get their hands on information that we haven't or can't, so we'd be very grateful for those, thank you. I should just say that you were only given half an hour because we are over subscribed in Katherine. So we've had lots of demand, which is great. That's we had to limit people. I've got a question for you, Ms. Randall. You said... you posed yourself as sort of a rhetorical question, can I give consent to hydrocarbon extraction industry to the hydrocarbon extraction industry. No. Is that any hydrocarbon extraction industry or was that really specifically to ...



Carol Randall: [crosstalk] because of their gas and oil. It's the whole of the industry, but here I am looking at shale gas in the Northern Territory.

Hon. Justice

Rachel Pepper: But your comment was in relation to the whole industry, oil and gas.

Carol Randall: In that I need to know a lot more about the extraction, about the business itself. I can't just blindly say, "Yes, great to oil, great to gas, great to anything. I just have to have more information about what's happening here."

Hon. Justice

Rachel Pepper: Would your preference be that in the absence of that information that all oil and gas industry shuts down?

Carol Randall: No, that's not what I'm saying at all. It's the methodology. It's the way they engage with general communities. It's the way they move to secret communities and have a certain spin. I've come to that conclusion as someone who wanted to describe social license, someone who's lost a lot of trust in these industries.

Hon. Justice

Rachel Pepper: Thank you, yes. I'll start with there. We'll work our way up. Dr. Anderson, thank you.

Dr. Anderson: Yeah, thanks. Ms. Randall, I've got a question about the social license, which is obviously really important point. We just heard from Ms. Cummings a presentation in which she talks about a lack of relationship between social license and facts or evidence, as she put it. You gave an example of the pastoral industry doesn't employ many people relatively, is a dangerous workplace, causes considerable environmental damage, yet has a very, very strong social license, which is very true. If I could read from your presentation, I'll be asked to consent to the removal of vegetation, taking of thousands and thousands of megaliters of top quality water, which is what the pastoral industry does. You could also add that the pastoral industry is a major emitter of methane. Despite all those things, there's still a very, very strong social license for pastoralism.

I guess my question is, in your view what is different? Why has something like the pastoral industry got such a strong social license despite these issues whereas something like a potential shale gas industry is total reverse in terms of social license.

Carol Randall: I think because the hydraulic shale gas extraction business cannot give any long term guarantees. To give a social license, you have to give guarantees. We do not know what's going to happen with the amount of slick water, fluid, that's coming out of this very complex industry. Where it's being taken, where it's going, the general hydrology that the science of it is very, very worrying. There's no one giving you promises or guarantees for what's going to happen to the long term when they get ... What's the word? When



they put a plug in these. I'm relying on a plug to put into this incredible long cement thing that's going down kilometres and hoping for the best.

That is not guaranteed. I don't have those kinds of questions around the pastoral industry. I can see yes, it produces a lot of methane, but I don't have a lot of other questions around what it's actually, how it's impacting beneath the earth, above the earth, surface water, ground water, the aquifers in Northern Territory. No one understands the aquifers of the Northern Territory and you're putting an industry in here that has very little ... indifference to some of these issues. We have thousands of reports over thousands of years, thousands of reports over many, many decades, of water quality, water monitoring, and yet this can just go in here and decide we'll extract this much water and change the whole depth. You can't take something out and not change the geology. What are we putting back in? Where are we going to store it?

There is just so many questions and there's no guarantees and no one can give you a guarantee. That's what a social license stands for.

Dr. Anderson: I understand that, but it's well known that the pastoral industry has a lot okay difficulties environmentally and certainly if you were to read Augustus Gregory's journal, An Expedition to Northern Australia, you can make a pretty good comparison with what the river beds were like in those days, in 1856 in fact, comparatively with what they are now and that the rise of woody weeds and thing like that. I think their time will come. I also think that the return... the average return on your investment for a averaged over 30 years for a Northern Territory cattle station, we tend to think that it's got to be a lot of money, but in fact it's 3%. There's a lot of damage being done in that industry for sure, and there's a lot of land tied up by very few people, companies and all the rest of it. I'd certainly like to acknowledge what you're saying. Absolutely, you're right.

Hon. Justice

Rachel Pepper: Yes, Professor Hart?

Professor Hart: Ms. Randall, could I just following on from Justice Pepper about evidence, you made a number of statements there that I'd like some evidence and some references. For example, you said top quality water. What's your basis for that statement?

Carol Randall: [inaudible] a lot of my readings because of the chemical ... We have chemicals and a lot of stimulation, under pressure, under heat, incredible pressure. There's very little known about some of those particular reactions. In a lot of my reading I've read, and I can give you the reference, top quality water is preferable because, again, water has incredibly many chemicals in itself. Again, you've got these chemical reactions. Top quality water is [inaudible] for the first lot of fracking. I'm not talking about [inaudible].

Professor Hart: Okay. So you're talking about the aquifer, the groundwater that they're potentially going to access.



Carol Randall: Yes.

Professor Hart: For the fracking. Well, I'd be interested because I don't think anyone knowing the quality of, the range of quality, of the Cambrian Limestone Aquifer would say it's top quality. It depends a little on what you mean, but it's, in many cases, it's okay for cattle. It's probably a bit dicey for irrigation, and certainly we wouldn't want to be drinking it. If you can justify that a little bit better, that would be great.

The other one was I was a bit surprised why you picked out ethylene glycol from Origin's east ...

Carol Randall: And this is... Thank-you. This is again the issues around clear knowledge of information and understandings and angles and perspectives of everyone that comes here, so you're looking at the chemical, chemistry, biologists, geologists. Everyone's going to say to you, "Ah, this is something that you can just put through in your cooler to your car, for example". Everyone's got a way of diminishing the concern around any chemical. This is a chemical that are coming to research that it is a very toxic chemical and it's something that you don't want to be putting in the water, let alone the risk of it going through ... You can't control where water goes. We've seen that problem in Katherine with the PFAS contamination. You have plumes. You have these particular compounds that don't break down. I'm seeing it as a far more serious chemical than just something that you put in your cooler to whatever.

Professor Hart: I think you better do a little bit more research on that particular chemical.

Carol Randall: J604.

Professor Hart: I think your general perspective of transparency in the companies in terms of what chemicals they're using and what chemicals are coming back from the flow back fluid is genuine and we're certainly doing all we can to work those out. I don't think I could accept your statement that ethylene glycol is extremely toxic. Yes, it is toxic, but it is used in runways and aircraft as an antifreeze. So overseas it gets into lots and lots of waterways. It breaks down in a couple of weeks. So, I just caution against that terminology. We're into the evidence game and we need to justify everything that we say.

Hon. Justice

Rachel Pepper: Professor Greesly.

Carol Randall: I'm happy to provide that.

Hon. Justice

Rachel Pepper: Sorry, did you wish to say something?

Carol Randall: I'm happy to provide that information.



Hon. Justice

Rachel Pepper: Excellent.

Professor Hart: Okay, thank you.

Hon. Justice

Rachel Pepper: That would be very useful. Professor Greesly.

Professor Greesly: I guess following up on that particular issue, we've certainly heard in a lot of consultations on this issue, the toxicity of chemicals that are used in this processes. Toxicity is a very relative term. I'm not sure whether you're prepared to accept the basic concept of toxicology that the risk of producing hazardous effect is very much related to the dose or level of exposure. For a very toxic chemical, a low exposure might cause harm. For a relatively non-toxic chemical, you'd require a much higher level of exposure. That's for any toxic chemical, even a very toxic one, there will be a level of exposure at which there should be no adverse effect on human health. I'm wondering if you are prepared to accept that particular concept?

Carol Randall: I think that's where I begin defining the social license. As we sit here, do we ... Stick with what Andrew said. Is one or two accidents on the road acceptable? Is this amount of toxicity acceptable? What is the effects of the accumulation of chemicals in our environment? What is the background of what we're all experiencing? We have a lot of illness in Katherine. We have significant cancers that are arriving. We've got some strange deformities in the hospital. It's not propaganda. It's not crazy stuff. It's what are we prepared to live with. Are we happy that we've got PFAS in our chemicals, in our water here? Are we going to be happy with this extra amount of thousands of gallons, litres of chemicals that are going into this industry? It's an invasive industry. We don't know much about the long term chemical combinations and how these things begin to accumulate and how things react.

Hon. Justice

Rachel Pepper: Yes, last question from Dr. Beck.

Dr. Beck: Mr. Smith, thank you very much for your detailed collation of information and commentary, particularly on the taxes. I'd just like to pursue one that you've raised towards the end. In terms of there are problems with the petroleum resource rent tax and also associated with the transfer pricing mechanism, and then you say, looking at the resource rent tax versus a royalty, I'm just wondering can you elaborate as to how you see a better outcome being derived in the future and try to balance those two or even introducing something additional.

Andrew Smith: Probably the petroleum resource rent tax, it was probably seemed like a good idea at the time. Then as it unfolded, there were problems, in terms of the simplicity, in terms of the administration, things like that. I would



suggest that royalty payments of some sort or another are probably a better way to go. It certainly, with the idea that possibly gas companies are doing their own metering in terms of holdings and stuff like that, it's a worry to me that foxes are looking after the hen houses and things like that.

Personally, I'm not too sure how you would police or administer these things. I'm a taxpayer, basically, and I have a, obviously as you can imagine, a keen interest in seeing other people paying their share of what is, in fact, the common wealth. It might be that there is a better method other than a royalty and other than a petroleum resource rent tax. Possibly it's a matter that collegially people like yourself who obviously have a great deal of expertise can come up with a better model, and that it may well be that a better model exists. This is not a perfect science. I've done the best I can with information that I have available to me and it's available publicly on the public record. I'm happy to acknowledge that it's not a perfect science. To that extent, it may well be that you might have recommendations or ideas of your own based on information that you've also heard here.

Certainly I'm interested in the idea that there needs to be more talk about it generally, more discussion, because I think that people generally speaking are very ill informed in terms of what the overall economic picture is, what's in it for you and me, how does this whole thing work. In terms of whether there's issues with chemicals, whether there's issues with environmental things, these are all valid things. But at the end of the day, we're all part of our country here and we'd all have an interest in better hospitals and better policing and hopefully better government. Thank you.

Hon. Justice

Rachel Pepper:

Thank you we'll leave it on that, I think, very apt observation. Thank you both for coming today, presenting material, preparing papers. You put in an enormous amount of effort and we're very grateful. Thank you very much. I look forward to those references in due course. Thank you.