



Darwin – Panel Statement

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Darwin Convention Centre, Darwin

Speaker: Dr. David Close and Naomi Hogan

Hon. Justice Pepper: In light of comments made by Lock the Gate during their presentation this morning, the Inquiry's going to read out the following timeline. The Background and Issues Paper was published in February of 2017. There was then a request on the 20 ... Sorry, following that there was a request on the 28th of April 2017, by the Inquiry to Origin to provide additional information. That resulted in submission number 153, and attached to that was the diagram which is now at diagram 6.5 with no deformation noted. So, that's a diagram which is published in the draft Final Report. That's 6.5.

Then there were further, further information was provided to us by Origin in submission number 233 on the 14th of June 2017, and then in submission 283, which was in fact provided to us on the 25th of May 2017. Those two later submissions from Origin provided pursuant to the letter, further information to the Inquiry's letter dated 28 April 2017, they included the revised diagram with the deformation noted on that diagram and the fault noted. There was then the publication of the Interim Report published on the 17th of July 2017. The Interim Report at page 40 published the original diagram, not the diagram attached with the deformation noted and the fault noted in submissions 233 and 238.

What happened then was the publication of the draft Final Report occurred and that simply picked up the diagram in the Interim Report. Between the publication of the Interim Report on the 14th of July 2017 and the publication of the draft Final Report on 12 December 2017, certainly the Inquiry was not notified by anyone that indeed the diagram had since been revised and provided to the Inquiry in a different format than that which was originally provided to the Inquiry and published by the Inquiry.

That's all the Inquiry wishes to say. Yes, Dr Close, I think you have a statement you wish to make on behalf of Origin.

Dr. David Close: Yes, thank you Justice Pepper and thank you to the panel for giving us a chance to address some of the material that was shared with us this morning, we take the integrity of the company very seriously and would like to make a brief statement. It won't take up too much time.



Firstly, I would like to just state categorically there is no well integrity issue in Amungee NW-1 let alone a well failure, as some of the social media commentary that's come out in a very well-organized fashion since this morning would state. The casing in the horizontal section of a well is part of the pathway, not the barrier, of a well, by design. We intentionally perforate that section of the well bore to allow the gas and fluids from the rocks to fly back to the surface. It is not considered a barrier. So any changes in that section of the well bore are not fundamental to the overall well integrity. And that is a fundamental foundation that I want to state up front.

Secondly, a casing deformation in the horizontal section of a well bore does not pose a safety containment or fluid migration risk. This is something covered by the British Commission into oil, the Oil and Gas Commission in BC, in one of their 2012 studies looking at this is a side issue overall induced seismicity and they have published a report that does conclude exactly that. There is no, that an incident in the horizontal section does not pose a risk with respect to safety containment or fluid migration.

Again, I want to state categorically, that this incident is not of substance in relation to well integrity. We've certainly learned something this morning about how communicating around it can be important from a perception perspective, but in terms of our consideration and industry consideration, I wanted to state that.

Secondly, there has been on intention to mislead the panel. We're happy to take questions on this or any other issue relating to Amungee NW-1 or our operations had Lock the Gate asked or enquired for more information from the Panel instead of firing allegations at Origin and the departments and this Inquiry, this would not need to have been adversarial. We could have had a proper conversation about what it is to have a well bore deformation in the casing in the horizontal section of a well. And so, we're certainly disappointed that Origin's reputation has been unnecessarily, in our view, challenged on this issue.

We have spoken openly about the well bore deformation. It's in the public domain, and in venues in the Northern Territory and outside the Northern Territory in front of hundreds of people at the AGES conference in Alice Springs and again at APPEA. The reason that it's been of specific interest there is because it goes to the heart of economics. If you have events in the horizontal that prevents you effectively stimulating, which is what one of the consequences could be, then your production could be limited. But again, it's not a safety, environment protection, or well integrity risk, so it's a totally, it's a different bucket of issues where we discuss it. In those contexts where we're talking about what is the viability of this in an unconventional part is very relevant.

In figure 7, in the original submission, it was in the introductory chapter, talking about high-level expiration development. It was not a chapter about well integrity. It was not a chapter about operations at that well bore, it was included as a schematic figure to show what an exploration horizontal well could look like. In chapter 3, in the introduction in our response to the issues



paper. And as you've just pointed out, the well bore deformation is referenced in our June response to the panel's RFI (Request for Information), which is of course public, and the figure referenced by Lock the Gate is in that report and available. When we submitted it we assumed quite rightly that if there was interest or questions to follow up on, but the Panel and the experts that review it understand that it's not a safety, well integrity or environmental protection issue.

We didn't consider, and in hindsight we could have corrected the record after the interim report came out to say, there are multiple versions of this particular horizontal section, or we show different versions of stages and faults, pump rates, we show pressures in different figures and flow backs. There's a multitude of information, of course, that we have and we've shared openly what we thought appropriate and of interest to the panel on each occasion. So given that we submitted it voluntarily at that point, we did redact commercial information from the discovery report and I recall the interactions with the Inquiry on that because it's sensitive from a market perspective. We did not redact anything to do with the very clear statement that if a casing event occurred, the exact depth that it occurred at, we have a figure that references that. We talk about the faults specifically. And I'll talk about faults specifically in a second, if I may.

So all the public, all of the documents discussed this morning are publicly available submitted by us voluntarily and I'll just say that any indication that we've tried to obscure something feels somewhat contrived.

There are a few key points, specifically about the fault and some of this morning's points that I would just like to address. There was an implication this morning that drilling was limited by a fault. That is certainly not the case. Drilling was progressing successfully when we decided to call TD, or total depth, of the well. We had a target depth to get to that we thought we would be able to get the casing that we had available down to that total depth. That's what selected the depth we finished that well at, not the fault. All the faults being counted in that well were sub-seismic. Minor, small in turns of throw, the largest was about 15 metres and we can actually trace where the less antrigated(?) end was introduced in our drafting process before the APPEA conference. It is a typographic. We should just say about 15 and you can see very clearly in the figures we have included that it's about 15 metres. It's the interpretation we wouldn't be able to be more exact than that. Most faults being encountered are between two and five metres, and again that's very clear in the figure. So they're very small faults. They do not travel, faults of that throw will not travel for vast distances. We know that from many academic studies and many studies of faults.

From a drilling perspective, we've talked openly at conferences and meetings, that it was a big positive in terms of drilling, because we knew there were no major faults from the seismic data. We drilled along seismic lines in areas where we had seismic control to minimise that risk, so it was a positive to find that our interpretation was backed up by the drilling results. That we didn't see any faults of a seismic scale, any faults of about 15 metres so they aren't going to be a challenge in terms of well integrity or in being able to complete a



horizontal well in the target section. The overall (inaudible) section is somewhat 800 metres thick, so very minor in terms of the overall thickness of the formation.

Casing deformation of this type during hydraulic fracturing stimulation is relatively common. It's a localised event. It occurs in the reservoir in horizontal wells. The stress state is changed around the well bore. There's no question that's what we're physically pumping in water at high pressure it changes that local pressure state. We create cracks. They may open, they may slide. They're the two types of openings we talk about in anything from earthquakes (inaudible) to hydro fracture stimulation. So you can have sliding events and they may create a sort of a well bore deformation.

In this instance, we still had communication to the rest of the well bore, but the inside diameter was somewhat smaller than it was initially. So a millimetre scale change is sufficient to stop our coiled tubing equipment going through that section, and that's how we discovered that it was there after stage 6. It's incorrect to say that we didn't complete the rest of the stages.

We did move state 7 to be further away from that event to be cautious. We wanted to protect our asset. We did not want to compromise that it might be reactivated again with a further stage, so we were very conservative in our offset from that event. And when we completed successfully stages 7, 8 9, 10, 11, stage 12 was sort of indicated this morning correctly did not break down. For whatever reason the stress state at that specific stage would not break down. We couldn't create a fracture. Our controlled work didn't exceed the 9300 PSI safety limit that was set well below our 10,000 PSI testing limit, which is well below the 13,000 PSI stated limit of the casing that we had in the hole. So we didn't pump stage 12 ultimately.

We haven't talked about that stage much. It's not a stage for any intents and purpose. So I did want to set the facts straight and happy to submit this in writing after so that you can see what did and didn't occur in terms of that operation.

It does appear that this is a bit of an attempt to compromise the entire Inquiry process over a common event that is not of significance with regard to well integrity, environmental protection or safety. The panel are informed sufficiently I think to recognise the difference between a casing failure associated with over pressing fracture simulation, an almost non-existent event, and we've learned about through this extensive process and from changes in the reservoir because of changes in the reservoir stress state. Very very different in members of what could be conceived at the most basic level of being related, but they're simply not when you understand the context of them.

So, I'm happy to say, questions? That was sort of an attempt to set the record straight on scientific facts. So I don't want to get into some kind of adversarial, I said, they said and so on and so forth, but of course if there's questions and clarifications you'd like on anything we've stated, and again I reiterate that at



no point was there an attempt to mislead the Inquiry, the public, or anybody, any of our other stakeholders. Very horrified at that prospect, truthfully.

Hon. Justice Pepper: No, no. Just to be clear, so though, really, this information has been in the public domain since the 25th May 2017?

Dr. David Close: At least.

Hon. Justice Pepper: That was prior to the publication of the interim report, prior to the second round of consultations, including when a number of stakeholders, including Lock the Gate, presented to this panel. All right.

I think you've accepted that you didn't bring to the attention of the Inquiry the difference, or the fact that there were two versions of this diagram in the public arena between the publication of the interim report and the publication of the draft final report.

Dr. David Close: Yeah, we didn't reach out on that fact.

Hon. Justice Pepper: Certainly, I must say, speaking on behalf of the Panel, the explanation that you've provided is more than satisfactory. I don't accept for one moment that there's been any attempt to misrepresent or mislead this Inquiry. I do note that Lock the Gate, Ms. Naomi Hogan is sitting in the back of the room. I invite and extend the invitation to her to make comment now, and offer to the panel any clarification, retraction or any other explanation she wishes to do so, she can do so either today right now or alternatively in writing. It's entirely a matter for Lock the Gate.

Dr. David Close: Of course.

Hon. Justice Pepper: Thank you very much for dealing with this expeditiously.

Dr. David Close: Thank you. Appreciate your time.

Hon. Justice Pepper: I thank Ms. Hogan for accepting the invitation.

Naomi Hogan: Thank you. Thank you Justice Pepper and thank you David. I find all that information very interesting, and I'm sure the public would have found it interesting. I only found those reports on the weekend when I was preparing this submission, and wanted to look for more information on what I could provide. I have not read those Origin's submissions that were there prior to that time. And, I can see from the panel's surprise that it seems that you hadn't either. I'm currently digesting the information from Origin. I'm glad that this is now being discussed, and I think that we still should be looking at the process that has taken place here and why that information wasn't dealt with sooner in this inquiry so that we could have talked through this process and what the well casing deformation meant in these public inquiries. And when Origin was presenting to you, I still wonder why they didn't bring any of this up to talk it through.

Justice Pepper: Thank you for that statement.