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TRANSCRIPT OF PROCEEDINGS

O/N H-910735

MR B. WALKER SC, Royal Commissioner

IN THE MATTER OF THE MURRAY-DARLING BASIN ROYAL COMMISSION

ADELAIDE

9.59 AM, TUESDAY, 17 JULY 2018

Continued from 12.7.18

DAY 9

**MR R. BEASLEY SC, Senior Counsel Assisting, appears with MR S. O'FLAHERTY,
Junior Counsel Assisting**

MR BEASLEY: Can I begin by saying we acknowledge that this land we meet on today is the traditional lands of the Kurna people and we respect their spiritual relationship with their country. We also acknowledge that the Kurna people as the custodians of the Adelaide region and their cultural and heritage beliefs are still as
5 important to the living Kurna people today. We also pay our respects to the cultural authority of the Aboriginal people visiting and attending from other areas of South Australia present here.

Commissioner, before I begin, I will provide an outline of the evidence that's to be called this week. The first witnesses today are Alan Whyte. Whyte is W-h-y-t-e and Rachel Strachan, S-t-r-a-c-h-a-n. They are both members of the Lower Darling Horticulture Group which has supplied a submission to the Commission. And they will be giving evidence this morning. They are both irrigators on the Lower Darling and both rely on flows in the – with other families in that area and other irrigators in
10 that area for their citrus trees and other crops.
15

Later this afternoon, or perhaps later this morning, depending on how we go, Professor Justin Brookes will be giving evidence. He is from the Adelaide University and he is one of the – amongst other reports that he has co-authored he's
20 is co-author of the November '11 CSIRO report that examined and reviewed the MDBA's determination of an ESLT. On Wednesday, I will be calling Fred Hooper, who is the chairman of the Northern Basin Aboriginal Nations board. They have also filed a submission to the Commission. And I will also be calling Monica Morgan, who is the CEO of the Yorta Yorta Aboriginal Corporation based in
25 Shepparton.

She is also a co-founder of MLDRIN, the Murray Lower Darling Rivers Indigenous Nations and she is on the UNESCO panel for cultural diversity and water. Yorta Yorta land, Commissioner, you probably know, spans the Murray River just east of
30 Albury to well east of Echuca and includes the riverine plains of the Goulburn-Broken catchment and covers parts of both New South Wales – southern New South Wales and northern Victoria. Also, on Wednesday I will be calling Steve Whan – that's W-h-a-n. He is the CEO of the National Irrigators' Council and he is the former New South Wales Minister for rural affairs, small business and emergency services from 2009 to 2011.
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On Thursday I will be calling David Harriss. Harris is spelt H-a-r-r-i-s-s. He was the New South Wales department's Commissioner to the Murray-Darling Basin Commission from 1997 to 2008. Once the Water Act was passed he became the
40 senior official to the Basin Officials Committee from 2008 to 2014. He was the New South Wales Water Commissioner in the Office of Water from 2009 to 2014. He has provided a statement to the Commission which, amongst other things, deals with the Barwon-Darling Water Sharing Plan and the setting of the amount of water required for the environment. That statement, however, is not yet online. It's still being
45 finalised.

Also on Thursday, I will be calling Rene, R-e-n-e, Woods the chair of the board of MLDRIN and Will Mooney, who is the executive officer. MLDRIN have also supplied a detailed submission to the Commission dealing with all aspects of the inquiry from statutory construction through to matters regarding the amount of water
5 required for the environment. They have also prepared some recommendations in relation to legislative change in terms of Aboriginal concerns for the Water Act. And they have recently been involved in a publication concerning cultural flow that will also figure in their evidence. And that completes the evidence for the week.

10 I also need to – having had the Wentworth Group here last week, tender – formally tender some documents and I knew I would do it, but I’ve lost the document. I think someone has got a spare copy for me. There’s some appropriate ticks there. So I neglected to say I was tendering various documents that I went through the
15 Wentworth Group with. The documents to be tendered are – so from the Wentworth Group folder that the group had – and you had, Commissioner, during the course their evidence. Tab 2 was a publication of the Wentworth Group of Concerned Scientists:

20 *Blueprint for a national water plan 2003.*

Published on 31 July 2003. I tender that. Behind tab 3, was a document the Wentworth Group of Concerned Scientists:

25 *Sustainable diversions in the Murray-Darling Basin: an analysis of options for achieving a sustainable diversion limit in the Murray-Darling Basin.*

Published in June 2010. I publish that. I publish it. I actually tender it, I think.

30 THE COMMISSIONER: They are all already published, I think, are they?

35 MR BEASLEY: They are all published. They’re all in the public domain; they’re all on the Wentworth Group’s website. Behind tab 4 was a document – the Wentworth Group of Concerned – I am only doing this because I’m not tendering all of the documents that were in the – tab 4, the Wentworth Group of Concerned Scientists:

Statement of the 2011 draft Murray-Darling Basin plan.

40 Published January 2012. I tend that. Tab 5, the Wentworth Group of Concerned Scientists:

Analysis of groundwater in the 2011 draft Murray-Darling Basin plan.

45 Published in April 2012. I tender that. Tab 6, the Wentworth Group of Concerned Scientists:

Wentworth Group evaluation – the proposed Basin Plan 2012.

Published on 20 August 2012. I tender that. Tab 7, the Wentworth Group of Concerned Scientists:

5 *Does a 3,200 gegalitre reduction and extraction combined with a relaxation of eight constraints give a healthy working Murray-Darling Basin river system?*

Published in October 2012. I tender that. Tab 8 is not tendered. Tab 9, Wentworth Group of Concerns Scientists:

10 *Five actions necessary to deliver the Murray-Darling Basin plan.*

I apologise for the words:

15 *In full and on time.*

Dated 5 June 2017. I publish that. Tab 10, Wentworth Group of Concerned Scientists:

20 *Review of water reform in the Murray-Darling Basin.*

November 2017. I tend that. Tab 11, Wentworth Group of Concerned Scientists:

25 *Requirements of SDL adjustment projects to ensure they are consistent with Water Act, Basin Plan, MDBA polices and inter-governmental agreements.*

Published on 6 May 2018. I tender that. And tab 12, Wentworth Group of Concerned Scientists:

30 *Advice on Basin Plan amendment instrument 2017 (1).*

Published in January 2018. I tender that. And the last two, tab 13, Wentworth Group of Concerns Scientists:

35 *Submission of proposed amendments to the submissions of the Murray-Darling Basin.*

Published on 24 February 2017. I tender that. And tab 14, the Wentworth Group of Concerned Scientists:

40 *Submission on the sustainable diversion limit adjustable mechanism draft determination report published on 3 November 2017.*

I tender that. All the other things I'm told I should tender I actually don't want to tender and so that will lead us to Mr Whyte.

45

THE COMMISSIONER: Thank you.

<EXAMINATION-IN-CHIEF BY MR O'FLAHERTY

5

THE COMMISSIONER: Please sit down.

MR WHYTE: Thank you.

10

MR O'FLAHERTY: Mr Whyte, you've provided the Royal Commission with a statement, have you not?

MR WHYTE: That's correct, yes. A witness statement and - - -

15

MR O'FLAHERTY: Do you have a copy of that in front of you?

MR WHYTE: My witness statement or our submission?

20

MR O'FLAHERTY: I will take you first to the statement.

MR WHYTE: Statement. Yes. Certainly.

MR O'FLAHERTY: And that's a statement signed 16 July of this year?

25

MR WHYTE: Yes. Yes.

MR O'FLAHERTY: That's true and correct to the best of your recollection?

30

MR WHYTE: That's correct. Yes. Is it possible to make any comment before we start?

MR O'FLAHERTY: Certainly.

35

MR WHYTE: Yes. Firstly, and very genuinely, thank you for taking the interest in what's happening with the river system out there. We appreciate, obviously – Rachel and myself – the opportunity to have made a submission. We think there's some fairly serious issues, particularly in the Lower Darling and we will talk about those during the session today. Unfortunately we are, sort of, caught between the northern Basin and southern Basin and, to a large extent, we're ignored by both.

40

We don't actually have a problem with the need for a plan. We think that's quite valid; it's sound; it's necessary. But we are a little worried when there is a – what, in effect, is a refusal to have a whole of river approach – how, in particular, the Darling is being run. Unfortunately, the Plan can deliver benefits in some places and costs to other places, and one of those places is the Lower Darling and no doubt we will get into some of those things a little later.

45

5 The effect of that – and as I have mentioned to your staff when we’ve met and had phone conversations – there’s a whole raft of reasons behind those problems. But the unfortunate reality is that the security of water supply to the Lower Darling has reduced drastically. Now, that affects us as irrigators; it affects the rivers; it affects the communities along the river, and I’ve have no doubt you would have had lots of comments from people along those lines.

10 Unfortunately the impacts of a lot of the changes under the Basin Plan are that we – that the water coming into Menindee is used quicker, which in practice means we run out of water sooner and stay drier for longer. Now, our choice would always be preferred – to prefer to have the secure water supply that we used to have. If we look at the issues around the Basin Plan, our objective assessment is that that is not likely. And, following from those issues, we have the proposal in the system, both at state and federal level, to remove all permanent plantings downstream of Menindee. We would very much prefer to stay there doing it, but if we don’t have secure water then we need plan B. Plan B is that proposal.

20 I probably should also just mention briefly some things that have happening in the Lower Darling very recently – they’re literally happening as we are talking here today. What are known as block banks are being installed in the river now, which will be the only way that we will have any access to water within a few months. They’re compacted clay or earthen banks that have got some through them. They’re being constructed literally now. There will be four of them. By any definition, they are an abomination in terms of a river management context.

25 THE COMMISSIONER: Could you just elaborate on that? Why they are an abomination?

30 MR WHYTE: Rivers are supposed to run as rivers, I think. What we are doing is building a great big bank and stopping flow.

THE COMMISSIONER: So they’re in the nature of temporary weirs, are they?

35 MR WHYTE: Yes. Effectively that, yes. They are temporary; they’re not permanent, and they are legal. I wouldn’t like you to think it was Rafferty’s rules. And – but they’re currently being constructed now. In any - - -

THE COMMISSIONER: But the purpose to enable sufficient pooling - - -

40 MR WHYTE: Pooling of water, so people’s - - -

THE COMMISSIONER: - - - for there to be pumping? Is that right, or not?

45 MR WHYTE: The intention is to cover off the needs of permanent plantings – and there’s not a lot of them. We can go into those details later. And also for stock and domestic water for the properties along the river.

THE COMMISSIONER: So they are there to, at times of very low flow – to permit localised pooling - - -

MR WHYTE: Yes.

5

THE COMMISSIONER: - - - for the pumping for those purposes?

MR WHYTE: Yes, that's correct. The water quality is appalling but, as I made a comment to someone else recently, we have got a choice of muck or nothing and we will choose muck every time and be thankful, I guess. But you won't find those sort of works being necessary anywhere else in the Basin. Indeed, if you – if someone was suggesting you had to do that on the Murray or in other places, there would be a – you know – a hell of a racket over it. It's a sort of – it's a symptom of the mess that the bottom half of the Darling River has got into. There was quite a good news story on the ABC Radio out at Mildura a day or two ago and I actually flew the river in a light aircraft on Saturday morning.

10

15

THE COMMISSIONER: How many of the block banks are being constructed?

MR WHYTE: The current intention is four. There will be two downstream of Pooncarie and two upstream of Pooncarie.

20

THE COMMISSIONER: Are they located by reference to permanent plantings?

MR WHYTE: No, not specifically. The location issues around where they go are largely related to the approval process that has to be gone through.

25

THE COMMISSIONER: That's the approval of the works themselves?

MR WHYTE: Yes, that's correct. And the – we need to be able to find parts of the river where there's previous evidence of disturbance to be able to, in effect, have more disturbance where the banks are. And that's fair enough. We don't have a problem with that. So the location is largely driven where that disturbance has happened.

30

35

We're also, obviously, trying to cover as many properties and people along the river as we can. And the ones downstream of Pooncarie will cover everyone from the upstream influence of the Murray through to Pooncarie. We know where they are going. The ones upstream of Pooncarie have been approved financially, but the location has not yet been determined. That's a work in progress and will probably take another month or two to get there.

40

THE COMMISSIONER: That's intended to tide over people how far upstream?

MR WHYTE: Dependant where they can find places to put them, the intention is that will cover everyone from Pooncarie to what is known as Weir 32, which is the downstream – effective – or the weir that's, effectively, the Menindee town weir.

45

THE COMMISSIONER: And do you know when block banks were first used?

MR WHYTE: Yes, absolutely. I've been involved with them every time they've
have gone in. One of the things to get the history of – or the context of things and
5 the history, we had a very reliable water supply. It first dried up in '02, '03, '04 and
one of the works that was done in 03/04 was to trial a water-inflated temporary weir
or sausage type of thing. That didn't work. It simply, you know, was – it didn't do –
didn't achieve what was hoped. The next time the river dried up, two constructed
block banks went in. They were relatively – or small compared to the current ones,
10 and they got us through – just.

THE COMMISSIONER: Just give me an idea. What sort of depth are they
intended to achieve?

MR WHYTE: They have a design rating of – the bank can have 4 metres of water
15 upstream on it. Now, to give you an example of the effect that has, there is a bank
going in on my own property – being constructed as we are talking here today. And
that will bank water up to Pooncarie, which is a road distance of about 50 kilometres.
Obviously, the river distance – a lot more than that.

20 So they can cover a lot of people, but the – first time the compacted clay banks were
made they were smaller, and, with hindsight, the location wasn't ideal but we all had
to learn through this. The next time the river dried up was 2015/16, and the two
large block banks went in, including one weir at our property at Jamesville and
25 another one on the property downstream. It's less than two years since they were
removed and it's somewhat sickening that within two years they've got to go back in
again.

THE COMMISSIONER: So this is the third occasion, to your knowledge?

30 MR WHYTE: This will be the fourth occasion. '02/03, '06/07, 15/16 and now
2018. There is a little bit of a problem there – they're coming in more frequently.

THE COMMISSIONER: To your knowledge, they – the first time they were ever
35 used was the unsuccessful water filled - - -

MR WHYTE: Sausage.

THE COMMISSIONER: - - - sausage.

40 MR WHYTE: In '03/04. We all had to learn – one of the rather sad things about
the mess that's in the river at the moment is that if 15 or 20 years ago you had asked
me if these sort of things ever going to happen, I would have ridiculed the
suggestion. One of the rather sad comments is that well – prior to the '02, '03, '04
45 event the last times river dried up was in the middle of the forties drought – 1943.
We went through to 2003 in effect, with continuous water. We had - - -

THE COMMISSIONER: Can you explain – I have been reading it. I am not sure whether I completely understand. When you say the river “dries up” or “stops flowing”, how literally do I take that?

5 MR WHYTE: You walk across the bottom and your boots don’t get wet.

THE COMMISSIONER: I can take it literally.

MR WHYTE: Yes.

10

THE COMMISSIONER: So these block banks are holding back very low flows?

MR WHYTE: The intention is to capture the last of the water that will be available from the Menindee Lakes and to store it in a deeper water column within the confines of the riverbanks. Now, if you have seen the Darling River banks, they can be relatively steep in places and we are certainly not going above the banks.

15

And the – one of the rather unfortunate, you know, facts of life is we have evaporation, which is 6 or 7 feet, somewhere around 2 metres a year, give or take a bit. And the water in the Menindee Lakes storage now tends to be in very shallow water columns. So the advantage of the banks is we can move it into an area which is significantly deeper. Now, we still have the same - - -

20

THE COMMISSIONER: You are talking about the time when the Menindee Lakes – whichever one or other of the lakes is - - -

25

MR WHYTE: They cease to supply.

THE COMMISSIONER: They are actually shallower at their deepest than these banks?

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MR WHYTE: No, they’re shallowest as they get close to empty.

THE COMMISSIONER: Yes.

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MR WHYTE: Now, Menindee Lakes, last approached being full, I think, in late 2016. Well, they weren’t actually 100 per cent full.

THE COMMISSIONER: And when they are full, they are about what, about, 4 metres, are they?

40

MR WHYTE: There’s no one figure, that the - - -

THE COMMISSIONER: No. I appreciate they’re basins, but - - -

45

MR WHYTE: It’s – that’s probably a half-reasonable average but, for example, the depth in Lake Cawndilla, which is the bottom lake, is double the depth of the lake of

Lake Menindee. They hold about the same amount of water, but Lake Cawndilla is double the depth and half the surface area – rough figures. Ballpark figures. We are talking about water levels in Pamamaroo, which is where the water is coming from now which will only be a few feet at the moment. And once we get in hot weather that's going to – and will evaporate very quickly.

THE COMMISSIONER: So the block banks at the water cost of travelling it down the bed - - -

10 MR WHYTE: Yes.

THE COMMISSIONER: - - - with evaporation and soaking, the purpose is to transfer that water from a relatively shallow evaporating bowl to somewhat deeper - - -

15 MR WHYTE: It makes more effective use of the last of the water.

THE COMMISSIONER: - - - bed of the stream storage.

20 MR WHYTE: Now, a bank that's – the design – or the design specifications for the bank are to hold up four metres of water and that's – that's obviously quite a reasonable depth. It doesn't guarantee us water forever, but it provides us a supply for longer than if we were reliant on the water staying in the – what were then very shallow lakes.

25 THE COMMISSIONER: While I'm on this topic – if you don't mind – you, for example, in paragraph 16 of your statement talk about the small flows have not been getting through in the last 20 to 30 years.

30 MR WHYTE: Yes, that's correct.

THE COMMISSIONER: And, in paragraph 19, the small flow events having ceased.

35 MR WHYTE: Yes.

THE COMMISSIONER: Should I understand that as meaning that the duration of periods between actual flow, even at a low level, has increased plus the frequency of those no flows have increased?

40 MR WHYTE: Yes, that's correct. One of the natures of the – well, you know, natures of the Darling Catchment is that it's a huge area. We start off in the central New South Wales with the Macquarie and Bowden rivers. You work all the way around up through Queensland and you come in on the western side of the and
45 the Paroo. It's a huge catchment. If you look at the records of river flow – and there are very good records going back for 100 plus years – even in the driest years, there

were always small flows coming down the system. They didn't necessary run all the way to the end but - - -

5 THE COMMISSIONER: That's what – I just need you to explain that to me. A flow that doesn't flow to the end. What does that mean?

10 MR WHYTE: That means that where it gets to is good. Now, it is wrong to think the flows almost got to the bottom of the river; they didn't. Well, certainly not the first one. You might have a series of three flows – small flows over three months and they will come down on top of each other and the last one might get down to the bottom. The first one, for example – just as a hypothetical example – might get to Wilcannia.

15 All of the flows are different, it is not – one of our challenges in terms of trying to manage the Lower Darling is that the variability of the catchment, particularly in dry years, makes conventional models very unreliable. They simply don't work. And it simply represents the huge variety which is the Darling catchment. We had an example in 2016 when the river was dry, and as is mentioned in those notes, there had previously been a policy to protect small flow from pumping in dry years and 2016 or in 2015, that policy was changed; it was a New South Wales policy decision.

25 And the consequence of that was that small flows that would have got through in a combination didn't even get to Wilcannia. The – quite often if the river is dry – or usually if the river is dry, you have a small flow and it doesn't get to the bottom. But if you have another one in a month's time or somewhere else in the catchment, it gets a bit further and so on. They piggy-back across each other.

30 THE COMMISSIONER: That change of policy – is that what you're referring to in paragraph 21 of your statement?

MR WHYTE: Yes, that's correct.

35 THE COMMISSIONER: I think you said '16. You meant '15, did you?

MR WHYTE: '15 was when the policy was changed. The flow events that were significant were in very early 2016.

40 THE COMMISSIONER: Now, you say that was a decision influenced by cotton growers. Why do you say that?

45 MR WHYTE: Because it was largely a debate driven in public on Alan Jones' radio show. And it unfortunately led to the decision being made not to implement embargoes. It literally put the lowest priority use of water in the system up to the top of the pecking order.

THE COMMISSIONER: You had better explain that.

MR WHYTE: Yes. The New South Wales licensing systems have different categories of water supply and the rules changed between sections of the river. So it's not all the same through the river. In regulated tributaries, I think, you know, Gwydir, Namoi Water rivers – places like that – they have systems similar to what we have out in Menindee and on the Murray, where you have high security products, general security products, and also what are known as supplementary licences.

When you go to the Barwon-Darling you have A, B and C class licences which are related to the flow levels at which they can be accessed. The effect of removing the embargoes was that people on tributaries could pump water on supplementary licences to grow an annual crop, when – literally – people downstream couldn't even wash their kids. Now, that's what we are talking about in terms of the lowest priority uses having priority over the highest priority uses. It's a sad situation.

THE COMMISSIONER: That reference to growing annual crops, that's more than just cotton, I take it?

MR WHYTE: Yes but, obviously, cotton is the major one. Now, the cotton industry is far and away the biggest user of water up north, and that's probably where that reference comes from.

THE COMMISSIONER: Thank you.

MR WHYTE: Sorry to drag you away on things.

MR O'FLAHERTY: Not at all. No. Just touching on the issue of block banks, to follow on the conversation. He touched on the fact that they – they're essentially used to essentially pool the water just prior to a cease-to-flow effect?

MR WHYTE: That's correct. Yes.

MR O'FLAHERTY: And you mentioned that they've increased in frequency over the last 10 or 15 years.

MR WHYTE: Yes.

MR O'FLAHERTY: How long have the block banks been in place – each of those times?

MR WHYTE: The first attempt at using a water-inflated sausage was removed quite quickly, because it simply didn't work. Actually, it largely removed itself.

MR O'FLAHERTY: Right.

MR WHYTE: It wouldn't stay still. The second attempt at block banks which were in '07 – '06/07 they would have probably been removed within about six months or

eight months; that sort of timeframe. They stay there until there's some semblance of flow coming down the river.

MR O'FLAHERTY: Yes.

5

MR WHYTE: The banks do have pipes through the bottom of them, but there's a limitation to what flow can travel through. That's required. So if a flow is coming down and it can't be contained within the bank, and it can't be released through the pipes, then the bank has to be removed.

10

The third attempt, which were the – the bigger ones, were constructed in late January, early February 2015, and they were removed in it August 2016, which is just under two years ago. The banks are currently going in and how long they are going to stay for, my guess is as good as yours. We simply don't know. I mean, we would be delighted to see some flow coming down the river, but it obviously doesn't – it's not happening at the moment.

15

MR O'FLAHERTY: And I think I have seen reference that the last cease to flow – the actual cease to flow even though the block banks were in beforehand, was about eight months.

20

MR WHYTE: It was that sort of figure. It varied a little bit depending where you were on the river.

25 MR O'FLAHERTY: Yes.

MR WHYTE: But that's a reasonable average.

MR O'FLAHERTY: And it's fair to say that's a much longer period of time than historically?

30

MR WHYTE: Yes. As an example – and Rachel can probably answer this a little more, the flow records for her property are very good and that was the longest recorded cease to flow since white man records.

35

MR O'FLAHERTY: You mentioned the water quality degrades.

MR WHYTE: Yes.

40 MR O'FLAHERTY: And you described it as “muck”. What aspects of water quality do the block banks create?

MR WHYTE: Well, water is saline. Certainly above anything that anyone in South Australia would want to deal with. Although what's there at the moment isn't the worst that it has been but it is saline certainly by any conventional irrigation system. And that salinity level will increase, obviously, as the water sits for longer – simply through evaporation. It is highly alkaline. So we're talking about pHs in the high 9s,

45

and I suspect that when we get into some warmer weather it's probably going to be over 10.

5 Now, in a sense of agronomy or crop production agronomy, that's a serious problem. In my case, I fix it by adding sulphuric acid to drop the pH down. Water is obviously used for – in houses, and by people and by livestock. Once the weather warms up it will – a term I frequently use, it's going to stink like a septic tank. That's the best, most honest description I can give you. I'm sorry that it's not precise. It will also be all shades of green. Now, we have already had red alert
10 warnings for blue-green algae outbreaks and as soon as we get into the warm weather that's what's going to happen. So I refer to it as "muck", and that's the simplest description I can come up with. I don't think you would let your dog swim in it, as an example.

15 MR O'FLAHERTY: So when you're adding sulphuric acid to the water to get down the pH level, I assume it will be as close as you can to pH 7, neutral?

MR WHYTE: We certainly want to be under 7.

20 MR O'FLAHERTY: Right.

MR WHYTE: How far under 7 we go largely depends on what the salinity levels are, because if the salt levels increase much above what they are now, we've then got to bring in some tricks with fertiliser injection systems to stop the trees taking up the
25 salt. Now, we can do that, but to get that to work we have to get the pH down to about 6.2 or 6.3.

MR O'FLAHERTY: And I think – this is in paragraph 62 of your statement, you talk about having to use about 2 to 3,000 litres per week.

30 MR WHYTE: That's correct.

MR O'FLAHERTY: What's the cost of that per week?

35 MR WHYTE: It's about \$1,100-and something per shuttle, plus GST. Obviously, we get the GST back. And so it adds up. But, agronomically, it does work.

MR O'FLAHERTY: Yes.

40 MR WHYTE: That's a business decision. That's what I do to handle that water quality on my property.

MR O'FLAHERTY: Just going back to some more general matters, you're a
45 member of the Lower Darling Horticulture Group.

MR WHYTE: That's correct.

MR O'FLAHERTY: And that consists of, I think you say in your statement – in the submissions, six properties comprising about 10 families on those properties?

MR WHYTE: Yes, that's correct. They're all family-owned properties.

5

MR O'FLAHERTY: Yes. And they have all got permanent plantings on them at the moment?

MR WHYTE: One of them has been – I guess put into caretaker mode, for want of a description. Five of them are still attempting commercial production.

10

MR O'FLAHERTY: Sure. And do you know roughly how many hectares are permanent plantings?

MR WHYTE: It's around 350, I think. 360 hectares. That sort of figure. The numbers have changed a bit since the proposals were put together, simply because we've had to remove patches to be able to survive with what our estimate of available water is. But it's around that area. That figure.

15

MR O'FLAHERTY: And when was this group formed?

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MR WHYTE: It was formed in – it came together in about August 2014. We had an initial approach from within the New South Wales department and I think at that stage they were still the Office of Water but, as you probably understand, the name changes. In that, one of the guys from that department and also someone they had engaged as a consultant, had some informal discussions with myself and with Rachel. I guess – well, not I guess – literally flagging that, what it looked, like we were heading for trouble. We took that suggestion constructively, realistically both Rachel and myself had been coming to similar conclusions, although I'm not sure we phrased it – we might – we weren't keen to talk about it openly at that stage.

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We then discussed those issues with the six properties with permanent plantings and, as a consequence of that, we put together a proposal to remove permanent plantings. We largely wanted to be proactive in that process; we didn't want to be reactive to it. We would much prefer to drive it ourselves. We put the proposal together. We had – we formed a formal company just for an operating structure, and we came to an agreement amongst ourselves as to where we were going, and I hope that's perhaps appreciated as that's quite an achievement. It's a bit hard to do things like that. But we have done it and we have been able to hold it together. Now, our preference has always been to go back to the reliability of water which we used to have, and we used to have the most secure high security water in the Murray-Darling Basin. Unfortunately, now we are down to the lowest security, high security water, and a lot of the proposals around the Basin Plan make that worse. Now, we have had the proposal to remove permanent plantings in the system. I think the summary – or not I think, the summary of the proposal was formally submitted in early December 2014. And the final full version went in, I think, at the end of January or early February 2015.

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MR O'FLAHERTY: This is your proposal - - -

MR WHYTE: Yes.

5 MR O'FLAHERTY: - - - to the NSW Government?

MR WHYTE: Yes.

10 MR O'FLAHERTY: And I wanted to – that's in late 2014, early 2015, this process of - - -

MR WHYTE: That's when we put it together, yes.

15 MR O'FLAHERTY: That what you call the proposal started.

MR WHYTE: Yes.

20 MR O'FLAHERTY: Where your first base is you want to continue with the security for permanent planting but, as an alternative, an adjustment.

25 MR WHYTE: Yes. It really comes down to – yes, I mean, we can argue probably as well as anyone that we should get security of supply back. But the reality is it was six family properties against the general intention of the Basin Plan and also the intentions of an irrigation industry upstream.

MR O'FLAHERTY: Yes.

30 MR WHYTE: It's very easy to get warm inner glow by standing your digs on something like that, but realistically are we going to win? The answer is no. So what's plan B? Plan B is the proposal. It's not actually what any of us prefer to do. We would prefer to stay there, but we are not keen to become sacrificial lambs, and that's the alternative.

35 MR O'FLAHERTY: Yes. And so you make the point in paragraph 65 of your statement that this has been going – these negotiations have been going on for about three and a half years.

MR WHYTE: That's correct.

40 MR O'FLAHERTY: What effect has that had on your business, your business planning?

45 MR WHYTE: Its effect – well, effectively having lost the reliability of supply, our ability to make long term business decisions is gone. We don't have it anymore. Now, that is particularly a problem with businesses based on permanent plantings. So citrus, vines, stone fruit, because you're making decisions on a 10 to 15 year time frame. And we have been very good at that historically. Very good at it. But

realistically, with the water issues we've got to, now we can't do anything more than a 12 month time frame. Now, one instant way to knowing the permanent planting business is headed for a fall is to only make short term decisions. You simply can't run them on short term decisions.

5

Now, all of properties have been very proactive historically in making long term decisions and, realistically, the businesses are sound. We don't turn up at this process pleading poverty. We have sound businesses, we are pretty good at manages things, because we're still there. But the reliability of supply of water means we can't now make decisions on anything more than a 12 month time frame, which means we can't reinvest in new plantings or new infrastructure, and we're sort of going backwards simply because we can't even do the normal basic things.

10

It's also true it causes a lot of angst within families. The – I mean it's – if you think from a mind sense or approach it from a mind-set of families which have been very good at developing and managing businesses over quite long periods of time, you don't do that by sitting on your hands nothing. You always have to be thinking about what you want, where you want to be in five, 10, 15 years time. And we are sitting here, sort of in a bit of a time warp where we simply can't make decisions, and that causes a lot of angst within the families involved. The – our people, who are very good at doing things, can start getting quite – quite, you know, angry and annoyed that we can't resolve these issues.

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MR O'FLAHERTY: Without going into the detail of your discussions, is this a level of uncertainty – is that a result of not being told with definitive – with definitive nature of which way – which option will be entertained by the NSW Government?

25

MR WHYTE: Certainly, that's part of it. We have had mixed messages over time both state and federal.

30

MR O'FLAHERTY: Yes.

MR WHYTE: As you would probably understand, there has been a fair amount of angst in the water – water space in New South Wales and, you know, obviously to an extent in the Basin as well. Now, that makes it hard for some of the people in those agencies to actually make decisions. There's been a lot of churn of staff. For example, we do have a meeting with some of them on this coming Thursday, but their – they would be the third group of people in those positions in the last year. Now, in that sort of churn over of staff, it's very hard to make progress. The – I suspect that it's more that decisions aren't being made, because it is simpler for people not to make a decision with the mess that's out there. Now, we are obviously trying to change that – obviously, and we have a meeting on Thursday with them and we will be pushing that line, but I am sure you are aware of the level of dysfunction in some water issues in New South Wales in the last two or three years.

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MR O'FLAHERTY: I also want to ask you about the South West Water Users group.

MR WHYTE: That's correct, yes.

MR O'FLAHERTY: You're the chair of that at the moment.

5 MR WHYTE: That's correct.

MR O'FLAHERTY: That covers more than the six family farms in the Lower Darling?

10 MR WHYTE: Yes, absolutely. South Western Water Users is the local representative group of water users. It covers – or its area of coverage is down stream of Menindee, obviously on the Darling, and the New South Wales side of the Murray from the Murrumbidgee Junction at Balranald to the South Australian border. It's, I think, a pretty fair call that the level of issues in water is greater on the
15 bottom Lower Darling than it is on the Murray. And while I'm chair of South West Water Users, and obviously involved in the horticulture group proposal, Rachel Strachan is treasurer of the south-west water users and Nerida Healy is the public officer of there. It reflects that there's been far bigger issues in the Darling, of late, than Murray, but the organisation certainly does cover the Murray.

20

MR O'FLAHERTY: You said Nerida Healy was the public officer of?

MR WHYTE: Public officer of South West Water Users.

25 MR O'FLAHERTY: And she is part of – she's part of one of the families in the Lower Darling Horticulture Group?

MR WHYTE: Yes. That's correct. We wear multiple hats at times, and I always find it best to be up front about that.

30

MR O'FLAHERTY: Yes. As well as being farmers.

MR WHYTE: Yes. That's supposed to be our main job, you know.

35 MR O'FLAHERTY: Roughly how many members is there in the South West Water Users group?

MR WHYTE: Precise number, I should know, but I think it's in the order of 50 or 60. Rachel might - - -

40

MS STRACHAN: Nearly 90 now.

MR WHYTE: 90 now. It has gone up. Okay, 90. I will accept advice from the treasurer.

45

MS STRACHAN: 90 properties.

MR O'FLAHERTY: And roughly when was this group formed?

MR WHYTE: Long before I got tangled up in the water issues. It would go back to the late 70s, I would think. Certainly around that. My father was involved with it,
5 but – so I'm sort of aware it, but the detail is earlier than I was involved.

MR O'FLAHERTY: And you say in paragraph 9 of your statement that Rachel Strachan is the representative on the state-wide stakeholder advisory panel.

10 MR WHYTE: That's right.

MR O'FLAHERTY: Is that a representative of the Lower Darling Horticulture Group or the South West Water Users?

15 MR WHYTE: No. The water sharing plan representation comes from the user groups which is South West Water Users.

MR O'FLAHERTY: Yes.

20 MR WHYTE: And Rachel is the delegate from this – from the Lower Darling for the Murray Lower Darling Water Sharing Plan, and then obviously gets the hat for the – for the state panel as well. I – as I mentioned there – am an alternative delegate, so I go to those things if Rachel cannot attend.

25 MR O'FLAHERTY: Just in respect of the state-wide meetings, have you attended any of those meetings recently?

MR WHYTE: I attended one in December, I think it was about the 14th or 15
30 December, about that time, simply because Rachel was tied up on other things. There has been a more recent meeting, I think in April or May or thereabouts, and Rachel obviously can talk about that.

MR O'FLAHERTY: Yes. So I will ask Ms Strachan about that one.

35 MR WHYTE: Far better you talk to Rachel on that, because she has more direct involvement than I do.

MR O'FLAHERTY: Just turning then to the submission on behalf of the Lower Darling Horticulture Group, do you have a copy of that in front of you?
40

MR WHYTE: Yes.

MR O'FLAHERTY: A submission dated 21 March 2018. And before I go off it, if I haven't said it already, I will tender the statement Alan Whyte dated 16 July 2018.
45 Going to the submission then, it's signed – or at least signed off – by Ms Strachan. But what level of involvement did you have in this submission?

MR WHYTE: It was – it was a joint exercise that we put together. One of the issues – and you have already covered on it previously – is that we wear multiple hats. And while we can't always eliminate the complications of that, the paperwork that goes out from the Lower Darling Horticulture Group tends to have Rachel's
5 signature on it, and the correspondence or the papers that go out of the South West Water Users tends to have my name on the bottom. Now, in reality they are all joint – you know, joint efforts. We are all involved in the editing and putting it together, and it's just a delineation we make to try and simplify what can otherwise become complicated.

10 MR O'FLAHERTY: And just because I'm a pictures man, on the second page I take that picture down the bottom of that is your farm, Jamesville?

MR WHYTE: That's part of my property, yes.

15 MR O'FLAHERTY: One of the matters I wanted to discuss with you, which won't surprise you in the slightest, is the Menindee Lakes Water Savings Project.

MR WHYTE: Yes.

20 MR O'FLAHERTY: It's touched upon in – now, unfortunately, there aren't page numbers on these - - -

MR WHYTE: My apologies.

25 MR O'FLAHERTY: No, no. But it's the third-to-last - - -

MR WHYTE: Yes. Menindee Lakes Water Savings project.

30 MR O'FLAHERTY: Page with the heading Menindee Lakes Water Savings Project.

THE COMMISSIONER: It's just opposite the skin disorder picture.

35 MR O'FLAHERTY: Indeed. There's a discussion about the business case.

MR WHYTE: Yes.

40 MR O'FLAHERTY: Now, this is of course dated in April, and the business cases were produced in the Senate in June. I take it then that this isn't – the business case, wasn't produced by way of a formal consultation process?

45 MR WHYTE: No. No. If it had been provided as part of the negotiations around the proposal it would have had confidentiality agreements attached to it, so we would not have been able to admit we had it, certainly not able to discuss the contents. Probably the simplest description is to refer to our copy coming off the back of a truck.

THE COMMISSIONER: Why do you say there would have been confidentiality requirements?

5 MR WHYTE: Everything at the time – or if you go back under the previous people in senior departmental positions in New South Wales, every time we had any discussions on the proposal we had to sign confidentiality agreements.

THE COMMISSIONER: When you say the proposal, you mean what proposal?

10 MR WHYTE: The horticulture group proposal to remove permanent plantings. Every time we had discussions with anyone out of the New South Wales department – this was principally when Gavin Hanlon was there, which was up until August last year, September last year, about then. Every meeting, we signed confidentiality agreements, and obviously we couldn't breach them.

15 THE COMMISSIONER: Now, those dealings of course included the possibility of what I'm going to call price; is that right?

MR WHYTE: Yes.

20 THE COMMISSIONER: Was there ever any discussion of keeping the price confidential, but the proposal itself being published?

25 MR WHYTE: Our view from within the group was that we were perfectly happy for it to be open, on the basis that if we couldn't justify it, it shouldn't be happening. Now, the view from with government was the exact opposite, and the confidentiality agreements were a requirement of the New South Wales department and they were quite strict. Now, we were a little puzzled why were they were expected to be so strict, because as I said we were quite comfortable for the details to be in the public domain. And literally, if we can't justify and explain them, well, the proposal
30 shouldn't go ahead.

35 THE COMMISSIONER: I'm just trying to work out myself why the need for confidentiality – or what sound public policy reason could be given for confidentiality.

MR WHYTE: Well, I - - -

40 THE COMMISSIONER: Mostly pricing produces a reflex that it should be confidential, but on examination - - -

MR WHYTE: If we can't - - -

45 THE COMMISSIONER: - - - the point about pricing or costing being confidential is that you don't want to distort a market, but there is no market if there's no competitor to the government for buying you out, is there?

MR WHYTE: We're removing an entire industry from the valley.

THE COMMISSIONER: That is, there's no one else but the government who's in a position - - -

5

MR WHYTE: That's correct.

THE COMMISSIONER: - - - say, to outbid the government. You found that - - -

10 MR WHYTE: We were somewhat perplexed at the time at the very stringent demands for confidentiality. We were quite comfortable with details being open and they should be. It's government money; it should be open to be justified. But the view from within the New South Wales department at the time was to maintain absolute confidentiality on everything.

15

THE COMMISSIONER: Has that changed?

MR WHYTE: We haven't had any discussions with the successors yet where it would even come into play.

20

THE COMMISSIONER: And when you say the successors you are referring to some change of personnel at senior level?

MR WHYTE: Yes. We have a meeting with those people this coming Thursday. But since, I guess July or August last year, around then – when the first changes came out following the Four Corners report – we haven't had detailed discussions on a proposal with anyone. Which is one of the things that's annoying.

25

THE COMMISSIONER: Can you remember anyone representing the NSW Government telling you why there needed to be what you call "absolute confidentiality"?

30

MR WHYTE: The only comment was that it had to happen.

35

THE COMMISSIONER: So no reason was given?

MR WHYTE: No. It was just a mandatory requirement.

THE COMMISSIONER: What, in the sense they wouldn't talk unless you agreed to that?

40

MR WHYTE: That's correct. The first confidentiality agreement that they demanded we sign we literally refused to sign for the simple reason – it's paraphrasing a bit, but a confidentiality agreement when you have got four or five people sitting in the room it was actually worded in a way in which, if one person breached that confidentiality agreement, everyone else was liable as well.

45

THE COMMISSIONER: When say “liable”, what do you mean by liable?

MR WHYTE: Subject to action.

5 THE COMMISSIONER: Action to do what?

MR WHYTE: That was the mandatory – we had some legal advice that said, “Just don’t sign”, largely on the basis that that if, for - - -

10 THE COMMISSIONER: It sounds like pretty good legal advice.

MR WHYTE: Yes. If – if I sign a confidentiality agreement and I then breach it, then it’s right and proper that people could take action against me. But - - -

15 THE COMMISSIONER: Well, only if they have suffered loss on account of - - -

MR WHYTE: Yes. But to go after Rachel because I opened my mouth, we weren’t going to sign that and we didn’t. We were very puzzled by it.

20 THE COMMISSIONER: Can you remember any of the names of any of the persons who insisted on confidentiality of the negotiations being carried on with a view to removing permanent planting so as to ease the way to the Menindee proposal?

MR WHYTE: The confidentiality requirements were always very strenuously
25 required by Gavin Hanlon.

THE COMMISSIONER: Who was then occupying what position?

MR WHYTE: A director – you go to – there has been that many changes in the
30 roles. He was the senior person in the New South Wales department dealing with water. The exact description of his title, I don’t recall.

THE COMMISSIONER: And – thank you.

35 MR WHYTE: That’s where the requirement came from. I can’t put logic into it, I’m sorry.

THE COMMISSIONER: No, I’m not asking you to explain reasoning, I just want
40 to know whether you were given any.

MR WHYTE: No, it was just it was a mandatory requirement. We sign this or we don’t talk. And the first version they put out we refused to sign.

MR O’FLAHERTY: So just to clarify that, this confidentiality agreement was
45 intended to cover all discussions - - -

MR WHYTE: Absolutely.

MR O'FLAHERTY: - - - with the NSW Government, not just with respect to any offsetting of the – in terms of not in respect of any payments for removal of permanent plantings.

5 MR WHYTE: It was everything around the proposal.

MR BEASLEY: Mr Hanlon was the Deputy Director-General of the – of water at the New South Wales Department of Industry, and he resigned in September 2017.

10 THE COMMISSIONER: Yes. He was described as the most senior water official in New South Wales when he resigned by reason of being be a – the Deputy Director-General of the New South Wales Department of Primary Industries in its water division. Yes.

15 MR WHYTE: My apologies for not knowing the finer details.

MR O'FLAHERTY: That's all right.

20 MR BEASLEY: I think we were both consulting Google, too. So I wouldn't feel - - -

MR O'FLAHERTY: So you said they were – they gave you a copy of a confidentiality agreement for you to sign, and you refused to sign it

25 MR WHYTE: The first version we refused, yes.

MR O'FLAHERTY: But there was a second version you did.

30 MR WHYTE: We came to an arrangement where there would be a confidentiality agreement, which we would sign prior to every meeting, which covered everything in that meeting, but with the component where other people could be taken to task for the indiscretions of one removed.

35 MR O'FLAHERTY: Right.

MR WHYTE: Every time we had a meeting we signed a separate confidentiality agreement for everything in those meetings.

40 THE COMMISSIONER: According to the Sydney Morning Herald of 16 September 2017, in relation to dealings which have been reported as the occasion for Mr Hanlon resigning, he was reported as saying that it was important to be able to have frank conversations with stakeholders – these words were attributed to him:

45 *These discussions are carefully managed under our protocols so that market sensitive information is not released.*

That's why I was asking you about pricing and costing, because most of us understand that the rorting of tenders or distortion of a market, including to the – at public expense by forcing a government – as it were – to bid against itself, one can understand why that might produce the need for some confidentiality. But I am
5 presently, I confess, at a loss to understand how people in your position would have access to any information which was market sensitive, because I can't see what the market is.

MR WHYTE: Yes. I certainly – I would like it to be known I took no part in any of
10 the discussions which were referred to in those – in the Four Corners story or those sort of issues. I am not that far up in the pecking order to do that.

THE COMMISSIONER: I think that reference was to irrigators other than the
15 Lower Darling irrigators.

MR WHYTE: Yes, that's correct. Probably one – just one, following on a little bit
from there, if we had been – and you were starting to wander on to the Menindee
Lakes business case, before we – there. If we had been supplied with that as part of
20 the negotiations around the business proposal, it would have been subject to those confidentiality agreements, so we would not have been able to even admit that we had it let alone discuss the contents. You will have noticed, I imagine, that we have discussed the contents and we have made it known that we have a copy.

MR O'FLAHERTY: Yes.
25

MR WHYTE: It certainly did not come through the negotiation process through the horticulture group's proposal.

THE COMMISSIONER: I just want to explore my understanding. Anybody who
30 wants to correct this should feel free to do so in an appropriate way. My understanding is that there requires to be a degree of public consultation before these SDLs are advanced to the point of - - -

MR WHYTE: That's certainly the public intent or the publicised intention.
35

THE COMMISSIONER: Yes. And I may be old fashioned, but I don't think you can consult the public without telling them what they are being asked about.

MR WHYTE: Yes.
40

THE COMMISSIONER: So a level of detail is necessary in order for intelligent
comment which may include, of course opposition, to government plans. And at the
risk of disappointing some people in the bureaucracy, it is the purpose of
consultation to include the opportunity for people to oppose government plans. Not
45 just to cheer it on. Well, then that means, doesn't it, that if the public had been consulted and you are a member of the public, you have been told that persuading

you and your group to leave the business of permanent plantings was essential to the plausibility of the Menindee Lakes project.

5 MR WHYTE: That was certainly flagged, and as you probably noticed in the business case that was, I think, officially released two or three weeks ago.

THE COMMISSIONER: Yes.

10 MR WHYTE: It specifically mentions that to get the Menindee project to go you have to come up with an alternative supply for Broken Hill, you have to come to an arrangement with Websters, on the property and you have to remove the permanent plantings.

15 THE COMMISSIONER: Now, were you told at the beginning of your negotiations that the importance to the government of accomplishing a deal with you was that it was essential for getting up the Menindee Lakes project?

20 MR WHYTE: Not as specifically as that, but there certainly was an understanding if they were going to make changes at Menindee there were going to be some issues that had to be covered, and we were one of them. The – while there has been effectively no consultation on the Menindee project to date, there has also been no consultation on the Broken Hill Pipeline and while it doesn't directly affect me that has caused angst certainly in people in Broken Hill. The Menindee Lakes business case was published on the department's website three weeks ago or thereabouts.
25 That's the first time there has been any public information at all on the Menindee Lakes proposal. Now, as I've mentioned, we have had a copy of that document since about August last year, but not officially – not officially given the planning involvement with our proposal, or anything else for that matter.

30 MR O'FLAHERTY: I don't need to take you to the published version of the business case, which is exhibit RCE72, but just I wanted to touch upon one comment about consultation that's made in here. It says on page 15 of that document:

35 *Consultation was undertaken during the development of the options analysis by the NSW Government between 2006 and 2013.*

Now, you said were you approached in 2014.

40 MR WHYTE: Yes. There has been - - -

MR O'FLAHERTY: That means you weren't approached before then?

45 MR WHYTE: One of the things to be conscious of, in terms of the history of things at Menindee generally, is that there has always been suggestions around of things that could change at Menindee. And it's probably a fair call that a fair proportion of them were sort of half intended to happen when they built Menindee, but they never quite got around to it. So that we've had a collection of issues coming along over

time. Now, as an example, one of the early components of the Murray-Darling Basin Plan was the constraints management strategy which you have probably seen reference to, and that came up with specific proposals for the Lower Darling. And effectively all of those are included in the Menindee Lakes business case.

5

THE COMMISSIONER: What should I understand to be the relevant constraints in the Lower Darling?

10 MR WHYTE: The – if we go back to the basics of what’s been intended through the Basin Plan, the key triggers are – or the key intentions are to meet flow targets largely on the Murray, in terms of the river flow components of it, which are quite high. Now, the number varies a bit. I’ve heard figures between 50,000 and 80,000 megs a day over the South Australian border, but it’s a moving feast and if you talk to six different people you will probably get eight different answers. The problem I
15 have is that you physically cannot get that flow volume down the Murray, because of the constraints on the Murray. One - - -

20 THE COMMISSIONER: When you say you physically can’t get it down, if there is enough water precipitated upstream it will go down; it’s just that it will break the banks.

MR WHYTE: Yes, it will flood out a lot of people. There are physical - - -

25 THE COMMISSIONER: Well, it will flood floodplains.

MR WHYTE: Yes – yes.

THE COMMISSIONER: Which is why they are called floodplains.

30 MR WHYTE: Yes – yes. That’s totally correct. The thing with the constraints policy is that in effect they flood out people, you are quite correct, in terms of if they want to get that flow through the Murray. Most of that flow – if I go back a step further. On the Murray, the restriction which is most known is the Barmah Choke, which is effectively a narrow bit of the Murray, but there are lots of restrictions.
35

THE COMMISSIONER: Well, that’s why the Barmah Forest is on the floodplain.

MR WHYTE: Yes.

40 THE COMMISSIONER: The further up above.

MR WHYTE: Yes – yes.

45 THE COMMISSIONER: Because the water reaches there when the water - - -

MR WHYTE: And floods out.

THE COMMISSIONER: River naturally breaks its banks.

MR WHYTE: Yes. That's correct.

5 THE COMMISSIONER: Producing a floodplain ecology. So you're saying it's a constraint, because - - -

MR WHYTE: It's a constraint if you are trying to shift flow from the Hume Dam to a flow figure over the South Australian border.

10 THE COMMISSIONER: It's only a – the same amount – the same amount or more water will go across the border, it's just that a lot of water will spill on to the floodplain as well.

15 MR WHYTE: Yes. That's correct. The logic of what's - - -

THE COMMISSIONER: It's a constraint because the river is being seen as a conduit for industry as opposed to being a river.

20 MR WHYTE: Yes. And as a – and also a conduit to meet other targets in other places.

MR BEASLEY: It might be a constraint also if you are seeking to get a flow to South Australia, but you put water on the Barmah floodplain because of the choke, when it's not ideal to. And therefore it's wasted.

25 THE COMMISSIONER: Quite. That's right. So the artificial timing means that the floodplain is not behaving as a floodplain would ordinarily.

30 MR WHYTE: Yes. That's a fair call. In terms of the mindset around the Basin Plan, they do have flow targets at the South Australian border. It's not the only thing the Plan is about, of course, and to achieve those flows the easiest way to do it is to get water out of Menindee, because it doesn't have those physical constraints attached to it.

35 MR O'FLAHERTY: This is essentially the contribution of that – whatever the flow regime to the South Australian border is – from the Darling and how the Menindee Lakes can contribute to that.

40 THE COMMISSIONER: Downstream of the choke.

MR WHYTE: Yes. Now, the natural channel capacity of the Darling River, which is a flow that's contained within the banks, is about 9,000 megalitres a day. To meet the targets they have on the Murray they want about 14,000 megs a day out of the Darling. And to achieve that the proposals under the constraints management strategy – and they are incorporated now in the Menindee Lakes business case – were to build a much bigger outlet regulator on Lake Menindee so you could get

water out of that lake quicker. To get things into context, the existing regulators on Lake Menindee, if the lake is absolutely full it can only deliver 4,500 megs a day. And that's the nature of the way it's constructed. So you obviously can't get 14,000 out.

5

THE COMMISSIONER: Can the channel take 14,000?

MR WHYTE: Not – not within the channel. This is where some of the other things come into play that they build regulators across a couple of creeks, and particularly the natural intake to the outer branch, which is obviously downstream of Menindee. The proposal for the constraints management strategy was to build a regulator across there so you could stop water running down the Anabranh at that flow, flows of about 14,000 megalitres a day

10
15 THE COMMISSIONER: So if by preventing natural diversion to the Anabranh, more water goes down what I call the main channel.

MR WHYTE: Yes.

20 THE COMMISSIONER: But can the main channel take 14,000 megs a day?

MR WHYTE: If you then block off a couple of other creeks and another small lake, yes. Obviously, the higher you go – the higher you go – excuse me – the higher you go - - -

25

THE COMMISSIONER: The closer you will get to breaking the banks.

MR WHYTE: Excuse me. Certainly not Darling River water. Yes. I mean, as – my apologies. As the flow rate increases, obviously, you start wetting up billabongs and creek systems. Now, a lot of those don't take huge amounts water and don't travel great distances, whereas obviously the Anabranh will take a lot of water down its natural channel. So - - -

30
35 MR O'FLAHERTY: So I take it that the answer the Commissioner's question in terms of it going over the banks of the main channel, is it won't.

MR WHYTE: It won't.

40 MR O'FLAHERTY: But it may, without works go to various creeks and billabongs.

MR WHYTE: And billabongs. Things like that, yes.

MR O'FLAHERTY: So the - - -

45 THE COMMISSIONER: That's a constraint only in the sense that it prevents water going where a flow – a natural flow would take it.

MR WHYTE: In effect, yes.

THE COMMISSIONER: Yes. Thank you.

5 MR O'FLAHERTY: And so, as you understand the proposal, in the Menindee Lakes and at the risk of oversimplification is it intended to drain the lakes quicker and get that water delivered down to the Murray quicker.

10 MR WHYTE: Quicker, yes. The release rates go up significantly, and so if you have – and part of the Menindee proposal is to effectively decommission the bottom lake.

MR O'FLAHERTY: That's Cawndilla.

15 MR WHYTE: Lake Cawndilla. You then – if you get water into the other lakes you then draw it down quickly to those high flow targets. Now, our problem of course is that if you have got less water stored there, and you are then going to draw it out quicker, we start having problems or more problems with reliability.

20 THE COMMISSIONER: Now, have I grasped this correctly: there is no paradox in what you've just said, that is that there will be more water coming down in greater amounts under the proposal but, you say, the cost will be that there will be less available to maintain tolerable low flow?

25 MR WHYTE: Yes, that's correct. The intention is to store less water at Menindee, which obviously means more of it runs down, simply because they don't divert it into Cawndilla, and then to release it very quickly to meet the high flow targets.

30 THE COMMISSIONER: It has the approach, as it were, of saying a concentrated flow – just using the arbitrary figures per fortnight, is the same as the same amount of water eked out over six months?

MR WHYTE: Yes. But with – there's also a - - -

35 THE COMMISSIONER: Whereas that's obviously not correct environmentally - - -

MR WHYTE: Well - - -

40 THE COMMISSIONER: - - - or industrially.

MR WHYTE: - - - it depends where you are looking environmentally. If you have an intention of meeting a flow target on the Murray to put water into some places down there, then you drain the resource from Menindee much quicker, which means we run out of water sooner.

45

THE COMMISSIONER: But there's an obvious environmental difference between the water flow being concentrated in two weeks as opposed to eked out over six months.

5 MR WHYTE: Absolutely, yes.

THE COMMISSIONER: There's also an industrial difference for agriculturists who want to take the water.

10 MR WHYTE: Yes. The effect of the Menindee proposal is that we will run out of water sooner and we will stay drier for longer.

THE COMMISSIONER: Notwithstanding there may be same volume over – what I might call a year – because it ignores the difference between concentrated flows and
15 eked out flows.

MR WHYTE: Yes, that's correct.

MR O'FLAHERTY: The page – in the page before and in your submission, in the
20 horticulture group submission there's a reference to the 2015/2016 releases of environmental water.

MR WHYTE: Yes.

25 MR O'FLAHERTY: How similar is that proposal to that – or that process to what is proposed in the Menindee Lakes or if is it that similar to a scenario where you have got a large release of water which then contributes to low or no flows - - -

MR WHYTE: It's a very similar scenario. You will probably understand the
30 natures of every individual flow event are different. But effectively it's literally why we have block banks going in now. It's exactly the same thing happening. We had – just as an example, the last major flow down the Darling system came down the middle of 2016. In late 2016 or September – August – July, August, September was quite a flow event in the Murray. It was proposed as a major flood but it was really
35 quite a minor flood but it was quite a good flow. And a decision was made to extend that flow by pulling water out of Menindee . Now, that would never have happened previously.

And most of the water – we had quite a lot of negotiations around some of the details
40 of that, but most of the water came from Lake Menindee, which is the sort of central lake. Unfortunately, some of it came from Lake Pamamaroo, which is one of the top lakes which is where the security or reliability comes from in terms of flow in the river.

45 MR O'FLAHERTY: Is that because it's easier to store the water in those two top lakes? Or those fill first?

MR WHYTE: It is largely driven by release rate out of regulators. As I mentioned earlier, if Lake Menindee was full, you can get about 4,500 megs a day out of the existing regulator. But as the level of the lake decreases, that flow rate decreases, so that if a requirement for a flow of say two and a half or three thousand megs a day, from recollection that was the ballpark figure of that flow, if you can't get it out of Lake Menindee you then pull it out of Lake Pamamaroo to top it up and that's what happened. We are now in a situation where the block banks are going back in and they turned the river off in December, give or take a bit.

10 It's one of the fundamental changes in terms of the way that the water stored in Menindee is used under the Basin Plan. The – most of the water that has been recovered under the Basin Plan hasn't been recovered from the Lower Darling, but physically getting water from Menindee is easier than physically getting high flows down the Murray particularly through the Barmah Choke. And realistically, obviously, in the Murray – in the middle of summer they are flat out supplying irrigation demand. So releases from Menindee become significant there. The consequence of that is that the draw-down of water stored in Menindee, or the pattern of that draw-down is changing under the Basin Plan.

20 And it has already changed and the release in the second half of 2016 is a recent example, and if you follow what's proposed in the plan now, it becomes a greater – a greater issue. One of the components of the SDL package that went through the Senate two months ago, whenever it was, is an acknowledgment of – in effect, the right of the Commonwealth environments water holder to pull water out of Menindee effectively whenever they choose to. Part of the prerequisite policy measures. Those guys know that they physically can't get the water down the Murray at times and the Darling becomes an easy option. Unfortunately, it then provides greater problems for reliability for people left along the river.

30 THE COMMISSIONER: It sounds as if the agricultural and the environmental demands for water downstream of the Barmah Choke – much of which is South Australia – is counterpoised with the demands for irrigation usage upstream, say of Bourke, in such a way as to render the Lower Darling irrigators surplus to

35 MR WHYTE: That's a good description. I don't think I could improve on that. We are very conscious of it. We are sort of – we're between two systems, and largely ignored by both. Effectively that's why we have a proposal in the system to remove high security demands from permanent plantings from the system.

40 THE COMMISSIONER: What happens at the moment with Cawndilla's water? It used to go to Tandou?

MR WHYTE: Yes. The nature of Lake Cawndilla is the terminal lake in the storage. The lake flows into Cawndilla from Lake Menindee.

45 THE COMMISSIONER: So last to fill, last to empty.

MR WHYTE: Yes. Now, bear in mind that Lake Cawndilla is double the depth of Lake Menindee. I flew the river last Saturday morning in a light aircraft, and there's still water in Lake Cawndilla, because can't get at it. What it was used for previously was the release down the Anabranh. There was a constructed channel
5 from Lake Cawndilla, which delivered water to a creek, which went down the Anabranh. And in terms of irrigation use that was the supply of water for the cropping operations at Tandou. Now, the – in the dry years, and one of the fundamental principles about how do you manage rivers or perhaps the mess that's in the Lower Darling, is that in wet years there's plenty of water, but what happens in
10 dry years is critical.

In the dry years the Anabranh, which is the stock and domestic supply, always had priority for water out of Cawndilla, and Tandou and their cropping operations got their water from Cawndilla as well. Now, unfortunately both of those uses of water
15 have now been removed from Lake Cawndilla. The Anabranh had a stock of domestic pipeline built, I think in 2006, and as part of that - - -

THE COMMISSIONER: That's from the Murray?

MR WHYTE: From the Murray, yes. Well, they do have a pumping station on the Darling at a property called but in effect the water comes from the Murray. The – now, as part of that a water licence was created which was a general security water licence for 47,800 megalitres, so it's a very big licence in the Darling context. That water had always historically, in dry years, come from what was discontended or a
20 storage in Lake Cawndilla. And that was fine, there was nothing wrong with that. But unfortunately the licence that was created is now accessible from the top two lakes, which is where the reliability of supply for the Lower Darling comes from.

The recent purchase of the water licences from Tandou, Websters at Tandou, which I think was about 22 gigitalitres or thereabouts, that again in dry years was always water that came from Cawndilla. It has now been shifted to a licence which will be principally accessed from the top lakes. Now, what that has meant is that the actual supply obligations from the top lakes, which is or Marmaroo have increased four-
30 fold, simply from the changing the nature of previous buyer arrangements with the both with the Anabranh and with Tandou. And it is literally a four-fold increase on the supply obligations from the top lakes in dry years.
35

And the Menindee Lakes project refers to a New South Wales reserve of 80 gigitalitres, which is somewhere between one-third and one eighth of the current effective reserve under the current rules. The proportion variously depends on
40 whether you are filling it – filling or an emptying cycle. We have a rather ugly situation - - -

THE COMMISSIONER: That's the 48,640.

MR WHYTE: Yes. The 48,640 are total figures not accessible water figures. The 80 gigitalitre reserve under the Menindee project is accessible water of probably the

last five or six gigs. And that is between one-third and one-eighth of the current effective reserve from the current policies. So we have a four-fold increase on supply obligations and a massive reduction in reserve. Which is, of course, why Broken Hill needs an alternative supply, it's why – you know, the need to remove Tandou makes sense, but unfortunately the Lower Darling is still there and we still have not yet been able to come to any agreement on our proposal. It's one of the reasons why the reliability is shot in the Lower Darling.

THE COMMISSIONER: Have I remembered correctly that from time to time there has been a proposal to link Cawndilla to the Murray?

MR WHYTE: Not to the – well, technically it can happen, because it runs down the Anabranche which runs into the Murray but there have been proposals over the time to connect - - -

THE COMMISSIONER: Sorry, I don't mean via the Anabranche.

MR WHYTE: There has been proposals over the time to have a channel constructed between Cawndilla and the Darling River. You would have to construct a channel for part of the way, and part of the way you will be able to use an existing creek.

THE COMMISSIONER: That's certainly not part of the New South Wales proposal.

MR WHYTE: No, absolutely not. Largely because you then have to do the excavation across a national park, and that is a bit of a problem. But - - -

THE COMMISSIONER: That would require legislation.

MR WHYTE: Yes. Certainly not something that's going to happen routinely, and it is not being seriously looked at to the best of my knowledge. But that – like a lot of the proposals around Menindee, have been sort of out there for 20 or 30 or 40 years.

THE COMMISSIONER: Thanks.

MR O'FLAHERTY: I just wanted to finally touch on – touch base back on the issue of connectivity that we discussed pretty much at the outset, and just going back to your statement at paragraph 55, you speak to raising the issue of connectivity at an irrigator council meeting.

MR WHYTE: That's correct. We tried to get the message across.

MR O'FLAHERTY: Yes.

MR WHYTE: I have been spectacularly unsuccessful.

MR O'FLAHERTY: I just – I don't know if you have got the – you might – I think you may have a folder in front of you, but – and you may also have a copy of this behind tab 3 of our volume is a document called the New South Wales Irrigator's Council Item for Discussion at Council?

5 MR WHYTE: Yes, that's correct. I have one here, if you give me time to find it.

MR O'FLAHERTY: Tab 3.

10 MR WHYTE: Yes.

MR O'FLAHERTY: Yes. That's for discussion at the meeting on 8 March 2018.

MR WHYTE: That's correct.

15 MR O'FLAHERTY: That's the item that you mentioned in paragraph 15 and put up for discussion, is it?

MR WHYTE: That's correct.

20 MR O'FLAHERTY: And I just go down the key points of discussion at the bottom of that page regarding connectivity on the Darling system, connectivity being required for base river flows, logically requiring the ability to manage individual flow events. That, as I take it, is what you refer to in paragraph 56 as trying to keep it simple?

25 MR WHYTE: Yes. That's correct. I think it is important to start with principles on things.

30 MR O'FLAHERTY: Yes.

MR WHYTE: It's very easy to get distracted on detail. It's much easier to think about the principles. Then, if you come to some position on principle, the detail will fall into place from that.

35 MR O'FLAHERTY: And what was it you hoped to achieve by putting this item for discussion?

MR WHYTE: I go to those meetings representing water users downstream of Menindee. It's my job of trying to get issues of relevance there. That's what I go there for. I quite honestly didn't expect that it would be agreed to with great gusto, and it certainly wasn't, but I go to those meetings representing the interesting of people downstream of Menindee at the bottom part of the river, and it certainly was not warmly received.

45 MR O'FLAHERTY: So do I take it that these key points, were they agreed by – did you get any agreement by the members of that meeting?

MR WHYTE: No.

MR O'FLAHERTY: How do they articulate their agreement? Why did they say they didn't agree?

5 MR WHYTE: Quite loudly.

THE COMMISSIONER: What was the substance of what was put to the meeting against the principle of connectivity?

10 MR WHYTE: Largely because, in the wet years, a lot of water runs past Bourke and therefore everything is covered.

MR O'FLAHERTY: I see. So they said low flows weren't to be concerned with, because there would be high flows at regular intervals.

15 MR WHYTE: They let – they the big stuff through. Well, not so much - - -

THE COMMISSIONER: I'm correct to understand that the real focus here is on the duration and frequency of low flows?

20 MR O'FLAHERTY: That's the critical issue, in terms of the current ecology of a river, and the people who live along it.

THE COMMISSIONER: I'm not suggesting that the river should be chronically low flow.

25 MR WHYTE: No.

THE COMMISSIONER: I'm saying the critical issue is - - -

MR WHYTE: In terms of current management issues, the absolute critical issue is small flows in dry years.

35 THE COMMISSIONER: That's what I'm trying to find out. Those whom you characterise as urging against your principle of connectivity. What, if anything, was being put to the meeting concerning the maintenance of low flows for sufficiently long times?

40 MR WHYTE: Well, I was suggesting that it should be part of the decision-making mix, and there was complete opposition to that.

THE COMMISSIONER: In the sense that low flows - - -

45 MR WHYTE: Their view is the small flows would never do anything downstream, and it's far better they pump them upstream. One – one of the failings of some people, particularly perhaps some people up north – and I've seen it in a couple of

the submissions that you have received – is that they talk frequently about that they only remove 6 per cent of the river flow. Now, the problem with something which is highly variable – and by any definition the Darling River is highly variable – an average figure is of no use at all. They can be completely technically incorrect, but in a practical sense it's completely irrelevant.

That six per cent figure is a good example of that. To get that figure you add up all the flows, which includes the massive floods in the river system. For example, in 1976 I think the flow of Bourke was 500,000 megs per day. And when you do the calculations on those very high figures, in wet years it is quite true that the actual amount extracted is about six per cent of the total flow, but it's a meaningless figure. It's a totally inaccurate - - -

MR O'FLAHERTY: Because in high flows they may take smaller proportions, say two per cent, but in low flowing they will take - - -

MR WHYTE: A very large proportion.

MR O'FLAHERTY: - - - say, for example 80 per cent. And it averages out.

MR WHYTE: Yes. One of the documents that I refer to there is one of the flow analysis reports that came out of the Murray Darling Basin Authority. And – and quite clearly identifying small flows being subject to 100 per cent removal in dry years. Now, it's what happens in the dry years which is the thing that's really critical. It doesn't matter whether it's me down, right at the bottom, trying to irrigate citrus; it doesn't matter whether it's the Aboriginal guys at Wilcannia who want water in their river – which I have no problem with, they have every right to expect that – it's the small flows in the drier years which are the critical things.

THE COMMISSIONER: I think you might - - -

MR WHYTE: And unfortunately none of the current systems, in the New South Wales context, treat that seriously enough.

THE COMMISSIONER: Well, now, can I just ask this: a year later – sorry, a year beforehand, almost to the day, you were at a meeting in Sydney, I think, with the Irrigators Council?

MR WHYTE: Yes. That's correct.

MR O'FLAHERTY: If you have got that folder in – we've got a white folder in front of you, Mr Whyte.

THE COMMISSIONER: It's tab 4.

MR O'FLAHERTY: If you go to tab 4.

THE COMMISSIONER: That folder there, tab 4.

MR WHYTE: Yes. I have a copy of it here.

5 MR O'FLAHERTY: Yes.

THE COMMISSIONER: I just want to establish this. These are notes that – did you make them or - - -

10 MR WHYTE: Yes. They are 100 per cent my notes. They would have been written in a folder like that initially. And then, immediately after, compiled into a – into a report.

THE COMMISSIONER: That's about a year before you tabled the item.

15 MR WHYTE: About that, yes.

THE COMMISSIONER: And it's dominated by – at least to my reading, it's dominated by some fairly striking statements attributed to Gavin Hanlon.

20 MR WHYTE: That's correct. Who – what position did Monica Morona hold at that time to your knowledge?

MR WHYTE: She was in effect – this is where the terminology of the - - -

25 THE COMMISSIONER: Don't worry about the title, but what position?

MR WHYTE: She was one of the people who was – one of three or four key people who reported directly to Gavin.

30 THE COMMISSIONER: Thank you.

MR WHYTE: From recollection she was manager of stakeholder relations or something like that.

35 THE COMMISSIONER: I'm just trying to unpack some of these references that you make with the knowledge you had.

MR WHYTE: She was - - -

40 THE COMMISSIONER: So back in March 2017, attributed to Gavin Hanlon and Monica Morona

MR WHYTE: She was - - -

45

THE COMMISSIONER: So back in March 2017, attributed to Gavin Hanlon and Monica Morona was what you describe as a categorical statement they will veto all of the Northern Basin tool kit recommendations.

5 MR WHYTE: That's correct.

THE COMMISSIONER: I'm to understand that refers – I'll just use the word measures, generally speaking, which have now been the subject of Commonwealth legislation.

10

MR WHYTE: Correct. Indeed, the state had signed up to those at the time.

THE COMMISSIONER: So historically, that rather brash statement by the bureaucrats about veto came to nothing?

15

MR WHYTE: Well, effectively, the people who were referred to there departed their roles some months later. Six months later.

THE COMMISSIONER: So that - - -

20

MR WHYTE: That was the stated intention for - - -

THE COMMISSIONER: I don't doubt that.

25 MR WHYTE: Yes.

THE COMMISSIONER: I'm saying that the declared intent to veto did not come to pass.

30 MR WHYTE: Well, they haven't actually been implemented yet, but I expect they probably will be.

THE COMMISSIONER: But they've been legislated, haven't they?

35 MR WHYTE: I think so. One of the reasons I found those notes was I found those comments horribly out of place from people in those positions.

THE COMMISSIONER: I appreciate that.

40 MR WHYTE: That's - - -

THE COMMISSIONER: So do I. The statement – you attribute then this statement to them:

45 *They –*

that is, Hanlon and Morona:

...will never restrict upstream pumping for any downstream issue.

MR WHYTE: That's correct. That's what they said.

5 THE COMMISSIONER: How close to their actual words is that note?

MR WHYTE: Very close to 100 per cent.

10 THE COMMISSIONER: Thank you.

MR WHYTE: They very sincerely, particularly I think it was Monica, very sincerely even apologised for even listing the option in a discussion paper

15 THE COMMISSIONER: That was the option of connectivity. Is that right? Operating rules for connectivity? First dot item under key issues?

MR WHYTE: No, more related to the third dot - - -

20 THE COMMISSIONER: No, no, no, the third dot point.

MR WHYTE: Third dot point.

25 THE COMMISSIONER: I see. So Mr Hanlon you recall apologising for connectivity being mentioned.

MR WHYTE: And Monica as well.

30 THE COMMISSIONER: And Monica Morona apologised, and in each case it's to northern irrigators, you say.

MR WHYTE: Yes, I was in the room when it happened.

THE COMMISSIONER: Yes.

35 MR O'FLAHERTY: Was this the protection of low flows - - -

MR WHYTE: Yes. Was - it was - - -

40 MR O'FLAHERTY: - - - as a tool kit measure, was it?

MR WHYTE: The tool kit - - -

THE COMMISSIONER: What should I understand as PPMs - - -

45 MR WHYTE: Prerequisite - - -

THE COMMISSIONER: - - - the suggestion - I know what that means, but - - -

MR WHYTE: Yes.

THE COMMISSIONER: - - - the suggestion for which was the subject matter of
Monica Morona's apology?

5

MR WHYTE: PPMs in the Northern Basin were largely around water shepherding.

THE COMMISSIONER: Right. Thank you.

10 MR WHYTE: Protection of environmental water.

THE COMMISSIONER: Thanks.

MR WHYTE: From recollection, there's about eight or 10 components of that –
15 you know, what's referred to as a tool kit.

MR O'FLAHERTY: Yes.

MR WHYTE: But there are two or three big ones, and one of the big ones is water
20 shepherding.

THE COMMISSIONER: Now, the last dot item attributes to Gavin Hanlon an
intention to seek a review of legislation, the Water Act. And you attribute to him an
apology that the Act then current reads like a bit of an environmental Act, and that
25 this was obviously not acceptable.

MR WHYTE: That's what he said.

THE COMMISSIONER: How close to his words is that a note of yours?
30

MR WHYTE: As close to 100 per cent as you can get. I was highly alarmed by the
comments, which is why I kept detailed notes of what he said.

THE COMMISSIONER: I didn't quite understand the next sentence. You said:
35

Again –

your note here:

40 *Again removing any obligations for New South Wales to have river
management objectives in its water legislation.*

Is that your comment?

45 MR WHYTE: That would be my assessment of what he meant in practice.

THE COMMISSIONER: Thank you.

MR WHYTE: He was quite genuinely apologising that the Water Act had too much to do with environmental issues. And he was – he stated that he would review it to remove that. My perspective there is, being downstream on the river, I really think the Water Act should have some environmental issues in it. I would have thought it was actually the purpose of it, amongst other things.

MR O'FLAHERTY: And just following from that line of inquiry - - -

THE COMMISSIONER: Is that a convenient break time?

MR O'FLAHERTY: Certainly. I really have just one question.

THE COMMISSIONER: Right.

MR O'FLAHERTY: Just on that document. Just on the last line, last sentence of that last paragraph on that page, you write:

It is worth noting the political risk from changes at Menindee is less than that which would be incurred by actions in other places which would generate similar results.

Again, is that your assessment or is that something from which someone said?

MR WHYTE: That's my assessment, but it would also be acknowledged out of government as well. The alternative source of – if they can't do the SDL offsets from Menindee is literally to go to the Murrumbidgee and Murray valleys - - -

MR O'FLAHERTY: Yes.

MR WHYTE: - - - and buy the cap equivalent volume of what is currently 106 SDL offsets. Political cost of that in those valleys is far greater than it is in the Lower Darling, simply because there is not many of us out there. It's also massively expensive. I did a calculation, or if you follow the calculations for a - - -

MR O'FLAHERTY: Yes, I think you've done a calculation at least in paragraph 37 of your - - -

MR WHYTE: Yes.

MR O'FLAHERTY: - - - statement, where you talk about high security water in Murrumbidgee and the Murray. Significantly more expensive.

MR WHYTE: Yes, it's – it's \$5,000 a megalitre.

THE COMMISSIONER: Do I understand correctly the theory as you understand it of the Menindee SDL is that if you hold the water with less surface area to its volume and for a shorter time, less of it will become water vapour, that is, evaporate - - -

MR WHYTE: Yes.

THE COMMISSIONER: - - - and more of it will flow, in some sense of that word, in the river system?

5

MR WHYTE: Yes. And you generate - - -

THE COMMISSIONER: And that that is supposedly capable of being estimated as being a reduction in the amount of reduction of consumptive use, to reflect how much of the water that would otherwise have become water vapour flows in liquid form down the river.

10

MR WHYTE: That's correct. Effectively, the calculation of what an SDL offset is – is a model number out of a computer model run by the Murray-Darling Basin Authority - - -

15

THE COMMISSIONER: Yes.

MR WHYTE: - - - which, to the best of my knowledge, isn't known – or that model is not available to anyone outside the – the MDBA. The – you generate SDL offsets at Menindee by storing less water, which means you let it go down and you use it quicker which means that it – less of it evaporates. And that then generates - - -

20

THE COMMISSIONER: But it's the fact of the so-called less evaporation that enables to you say - - -

25

MR WHYTE: That's correct.

THE COMMISSIONER: - - - we can get – I paraphrase very broadly – the same environmental effect for less - - -

30

MR WHYTE: That's correct.

THE COMMISSIONER: - - - water reduced from consumptive - - -

35

MR WHYTE: Yes.

THE COMMISSIONER: - - - use.

40

MR WHYTE: Yes.

MR O'FLAHERTY: Before we break, was there anything that you wanted to say or cover that we haven't covered this morning?

45

MR WHYTE: Look, we've covered quite a lot of issues. I – I would perhaps like you to – I mean, if I come back to our situation on the Lower Darling, I – I would hope you would appreciate there's some fairly serious issues about the impacts of the

Basin Plan, and other things; it is not just the Basin Plan, but the Basin Plan is a big one. It's causing a lot of angst. We come - - -

5 THE COMMISSIONER: Well, you're facing the prospect of having to pack up shop, so far as irrigation.

10 MR WHYTE: Absolutely. One of the principles around particularly the SDL program, or SDL offset program is an open acknowledgment there will be adverse impacts to some people, and the specific requirement in – in the – that SDL legislation was they have to be offset or negated.

MR O'FLAHERTY: Yes.

15 MR WHYTE: Now, we can understand that there is a state benefit in not having to pull 110 gigs of water out of the Murrumbidgee to – to meet the same volume as the SDL. We can understand that. But we are sort of annoyed that the – the covering off the downside impacts of that simply hasn't been happening. And that's – that's a problem. If you are going to make big changes, as the Basin Plan does, or proposes to, there will be places that are adversely impacted, and in – particularly in the SDL
20 offset component, the 650 gigs downwater, in jargon – it specifically requires adverse impacts to be offset or negated. Now - - -

25 THE COMMISSIONER: Have I recalled correctly that you have perceived a halt in meaningful discussions concerning the public, as it were, making up for the Lower Darling irrigators' plight - - -

MR WHYTE: Yes.

30 THE COMMISSIONER: - - - at about the time when the Four Corners broadcast revealed allegations about – I call it water stealing.

35 MR WHYTE: Yes. That the – certainly the decision-making sort of largely ceased around that – that – perhaps described as a – as a mess. We could spend the next week, I guess, discussing the details behind it, but – now, the – the simplest thing for people involved was to do nothing. It's also true that, as I mentioned earlier, the people in the senior positions on the department are now the third group of people in those positions in less than a year. And it's very hard for people who are completely new to a position to start the job running. It's just – you know, it takes them a while
40 to get their mind around the issues. And the – they want to, you know, understand what's happened previously and why, and they're trying to understand where things are going.

45 THE COMMISSIONER: Well, I think I've grasped how significant this is for the Lower Darling, and I think – at least I hope I understand that that, therefore, is significant for the Basin. Can I just ask something – just a minor detail? In this report of the February to March 2017 meetings at tab 4 of the folder before you - - -

MR WHYTE: Yes.

THE COMMISSIONER: - - - there's a list of definitions and acronyms.

5 MR WHYTE: Yes.

THE COMMISSIONER: And in the explanation of the expression "upwater", you conclude by this sentence:

10 *Tony Burke's comments in recent weeks complicate this.*

I'm not sure I am precisely aware of which ones you're talking about.

15 MR WHYTE: We've got to understand that's now 15 months ago or thereabouts that they're - - -

THE COMMISSIONER: I do understand that, yes.

20 MR WHYTE: And a lot has changed. The - - -

THE COMMISSIONER: Are you able to recall now the gist of the comments which were no doubt published to which you're referring there? Just so we can identify them.

25 MR WHYTE: In some ways I'm surmising a bit. The theory behind that 450 gigs of upwater, as I mentioned there, is its economic neutrality. Now - - -

THE COMMISSIONER: No.

30 MR WHYTE: How you define that I don't know.

THE COMMISSIONER: No. I'm not asking about the substance of that, no.

35 MR WHYTE: Don't - - -

THE COMMISSIONER: But I just want to make sure I've identified - - -

MR WHYTE: Yes. I - - -

40 THE COMMISSIONER: - - - if possible, what comments by former Minister Burke you're there referring to.

45 MR WHYTE: Yes, well, he hadn't been the Minister there for quite a while, obviously, because it goes back to the previous - - -

THE COMMISSIONER: Former Minister Burke.

MR WHYTE: Yes.

THE COMMISSIONER: Yes.

5 MR WHYTE: From recollection, there was quite a lot of comments coming from different sides of politics around that 450 gig figure. And my memory - - -

THE COMMISSIONER: Do you now recall what you're thinking - - -

10 MR WHYTE: My memory is struggling to recall the detail of that.

THE COMMISSIONER: That's all right. That's fine.

MR WHYTE: I'm sorry I can't be more specific.

15

THE COMMISSIONER: Don't – no, no, don't apologise.

MR WHYTE: No.

20 THE COMMISSIONER: Does that conclude - - -

MR O'FLAHERTY: Yes. That concludes the questions I had.

25 THE COMMISSIONER: Yes. Mr Whyte, I'm really very much obliged for your attendance and your assistance. Thank you very much.

MR WHYTE: Thank you for your interest.

30 **<THE WITNESS WITHDREW** **[11.42 am]**

THE COMMISSIONER: Now, we will adjourn for – till 12.

35 MR O'FLAHERTY: 12?

THE COMMISSIONER: Yes. Thanks.

40 MR O'FLAHERTY: Very well.

ADJOURNED **[11.42 am]**

45 **RESUMED** **[11.58 am]**

MR O'FLAHERTY: I'm ready whenever you are, Commissioner.

THE COMMISSIONER: Good. Thanks.

5 MR O'FLAHERTY: Before we swear the witness in, I just would like to quickly tender the two documents I referred to with Mr Whyte.

THE COMMISSIONER: Yes.

10 MR O'FLAHERTY: I tender the New South Wales Irrigators' Council discussion dated 17 February 2018, and I tender a document titled 'Report of Meetings with New South Wales Irrigators' Council', 28 February to 3 March 2017, document dated 6 March 2017.

15 THE COMMISSIONER: It is actually described as a "draft" but I think from the evidence that it represents the notes.

MR O'FLAHERTY: Yes.

20 THE COMMISSIONER: Yes.

MR O'FLAHERTY: Thank you.

THE COMMISSIONER: Thank you.

25

<RACHEL ANNE STRACHAN, SWORN

[11.59 am]

30 **<EXAMINATION-IN-CHIEF BY MR O'FLAHERTY**

MR O'FLAHERTY: Ms Strachan, you've provided a statement to the Commission; is that right?

35

MS STRACHAN: Yes, we have.

MR O'FLAHERTY: I will go to that statement in a minute but I just wanted to go first to your submission put on behalf of the Lower Darling Horticulture Group.

40

MS STRACHAN: Yes. Would I be able to make a statement?

MR O'FLAHERTY: Certainly, yes.

45 THE COMMISSIONER: Before you do, that - - -

MR O'FLAHERTY: I haven't tendered that.

THE COMMISSIONER: The submission is the same. Is that right?

MR O'FLAHERTY: That is the same that I took to - - -

5 THE COMMISSIONER: Is that yet tendered?

MR O'FLAHERTY: I was about to. I can tender that now, if you like.

THE COMMISSIONER: So the submission by the Lower Darling Horticulture
10 Group of 21 March 2018 is what you are tendering now?

MR O'FLAHERTY: Is what I tender now. Yes. Thank you.

THE COMMISSIONER: And then Mr Whyte's statement - - -
15

MR O'FLAHERTY: I tendered that.

THE COMMISSIONER: - - - of 16 July is already tendered.

20 MR O'FLAHERTY: That is already tendered, yes.

THE COMMISSIONER: I just wanted to make sure what the witness is being
asked.

25 MR O'FLAHERTY: Yes.

THE COMMISSIONER: And now Ms Strachan is being asked about, first of all,
the submission, which is already tendered, and then her witness statement of 13 July
2018.
30

MR O'FLAHERTY: Yes. That's correct.

THE COMMISSIONER: Thank you.

35 MR O'FLAHERTY: Sorry, Ms Strachan, I think we interrupted you.

MS STRACHAN: No, that's okay.

THE COMMISSIONER: Which has been – which is tendered. Is that right?
40

MR O'FLAHERTY: Yes.

THE COMMISSIONER: Thank you. Now, before Counsel Assisting asks you a
question, you would like to be off the bit - - -
45

MS STRACHAN: Make a short statement.

THE COMMISSIONER: - - - and what you want to say. That's right.

MS STRACHAN: Is that okay?

5 THE COMMISSIONER: Of course it is. Yes. Away you go.

MS STRACHAN: Thanks for the opportunity. We made a submission to use the opportunity to highlight the negative impacts of the Basin Plan on the environment, irrigation, businesses and the community on the Lower Darling River. We have
10 always needed a plan for water management in the Basin to make sure the rivers continue to be healthy and productive. The operations of the Lower Darling to meet environment downstream, particularly in South Australia, has reduced the security of water supply for irrigation in the Lower Darling to the point where we will no longer be viable.

15

To meet environmental requirements downstream, the Murray Darling Basin Authority is drawing more water from Menindee Lakes and at higher flow rates. This leaves us facing droughts far more regularly than has occurred previously. We wanted to use the opportunity with the Royal Commission to highlight the impacts
20 on our families and our businesses. We would like the Royal Commission to recognise these impacts and the impacts on our lives as we believe they are not understood by governments. If we are going to be sacrificial lambs for the Basin Plan, then we need to be compensated for the loss of our businesses. We would prefer to have a guaranteed water supply, but that seems very highly unlikely.

25

THE COMMISSIONER: Thank you.

MR O'FLAHERTY: Thank you very much. And I will certainly touch upon those bullet topics in the line of questions this afternoon. I just wanted to clarify, from
30 your point of view, the submission that we just tendered – the submission dated 21 March 2018 – I understand that was a collaborative effort between you and Mr Whyte?

MS STRACHAN: Yes, that's correct.

35

MR O'FLAHERTY: And you're obviously one of the six operating – one of the six family farms – as part of that horticulture group. And am I correct in thinking that your home is the Tulney Point Station?

40 MS STRACHAN: Yes, Tulney Point Station.

MR O'FLAHERTY: And, again, because I love pictures, that's – a picture of that is on page – on the third page?

45 MS STRACHAN: That's correct.

MR O'FLAHERTY: You've also provided a statement to this Commission dated 13 July 2018. Do you have a copy of that - - -

MS STRACHAN: Yes, I do.

5

MR O'FLAHERTY: - - - to hand? And that statement is true and correct to your best of your knowledge?

MS STRACHAN: Yes, that's correct.

10

MR O'FLAHERTY: And I tender the statement of Ms Rachel Strachan of 13 July 2018.

THE COMMISSIONER: Thank you.

15

MR O'FLAHERTY: I just wanted to go first to the attached pictures on the – which are attached to that statement. There's a series of about half a dozen photographs. I wonder if you can just explain to me what they expressly depict?

20

MS STRACHAN: The photos were taken a bit over a month ago on the front of our property on the Lower Darling, so just north of the weir. Over the last period of years, we have had, on and off, blue-green algae events and that, but, this year in particular, we have had extended periods of horrendous quality in the water which has passed through in the slugs coming from the Menindee Lakes down. So we would have six to eight weeks of this type of water in front of our property, and then we would have a reprieve for a couple of weeks but then the next slug would come down and we have never seen any sort of water quality like this in the history of us being there.

25

30

THE COMMISSIONER: This is the second page of photos, the top photo – it's the mustard-coloured swirl in the left-hand side, that little way down – that's what I'm – you're talking about?

35

MS STRACHAN: It's – you know, they say it's blue-green algae. We haven't had it tested ourselves.

THE COMMISSIONER: I'm just finding – that's what you are referring to?

MS STRACHAN: Yes.

40

THE COMMISSIONER: Thank you.

MR O'FLAHERTY: And so this is the – this is the – at the point of low flows at the moment, this is the water quality?

45

MS STRACHAN: Yes. So under the basin agreement there's a low-flow protocol about 300 megs a day. But now when we hit the 480 trigger we seem to – the

5 government immediately reduces or has an amendment that reduces those flows to 150 megs a day to get as much longevity of 12 months out of the water supply in Menindee. So where if you had say 300 megs it would push it through at a quicker rate rather than just sort of parking it in front of people's properties and having no flow to push it through the system. So we are finding that, getting put into this drought situation more and more regularly, we are not having that flushing ability to keep the river or the environment actually healthy in our section.

10 THE COMMISSIONER: I'm sorry, when were those photos taken?

MS STRACHAN: They were taken about six weeks ago.

15 THE COMMISSIONER: And, in your experience, how low is the flow that I'm seeing there?

MS STRACHAN: It was about 70 to 80 megs a day. Which required about 120/140 megs out of the Menindee Lakes. So we're – we're 180 kilometres south of Menindee Lakes so we're at the bottom reach of that – that section of river.

20 MR O'FLAHERTY: So just to assist you, in paragraph 58 of your statement, I think you estimated, at that time, it was about 40 megalitres at the point of your property or is that - - -

25 MS STRACHAN: So it varies.

MR O'FLAHERTY: Okay.

MS STRACHAN: So between 80 and 40 megs there's not a lot of difference in height.

30 MR O'FLAHERTY: Right.

MS STRACHAN: It's like a matter of a mil.

35 MR O'FLAHERTY: Sure. Yes.

40 MS STRACHAN: So if – yes, we were talking a thousand megs and you went from 1080 to 1040, you wouldn't even notice the difference. So it varies. So over that period, though – like we were experiencing that for six to eight weeks at a time – it would fluctuate between 40 to 80, so - - -

MR O'FLAHERTY: And at that speed it's barely trickling, is it?

45 MS STRACHAN: It's not moving.

MR O'FLAHERTY: It is essentially a pool of water which is why it's – why the algae is in abundance?

MS STRACHAN: Yes. I'm not quite sure of the science behind algae. We just live with the consequences.

5 MR O'FLAHERTY: Yes. So with the water like that, do you – how do you use that water? Do you need to treat it before you use it in your crops?

MS STRACHAN: Well, we – we would avoid – on our crops we can that use – algae doesn't have a detrimental effect on irrigation crops so we can put that through a filtration system and take any debris out of the water and we can still use it through
10 our drip irrigation. However, we won't use it in our house. So I won't allow my children to bathe in anything like that.

So we have a domestic bore that we supply water to our house because, as you can see by some of the photos in our submission, the water gets quite toxic at times and
15 the stuff – the bacterias that it's causing – there is children that are now building up resistance to antibiotics because they are putting on such long and large doses of antibiotics to try and cure their skin conditions that have come from the water. And there has also been massive – conjunctivitis has become a real issue with any children who swim and still only have access to river water in the houses because it's
20 just – bacterial infections are terrible, especially for the young and also for the older – older people.

MR O'FLAHERTY: Just going to your statement then, at paragraph 16 and onwards, you talk about the issue of connectivity, and later in your statement you
25 talk about the – this idea of there being one system. Is that the same as – do I take it that the main concern about considering it as one system is this preservation of low flows from the northern Basin, or is it more than that?

MS STRACHAN: So we – in the time that we have lived on the Lower Darling –
30 Menindee Lakes were built in the fifties and we had – we were on a regulated system that provided – you had a catch of water and it was just regulated out of the system and we had a constant supply of water. So it flowed and it connected Menindee Lakes through to the Murray River from the 1950s right through until 2003 when we first saw the cease to flow over Weir 32.

35 The connectivity in my eyes is that the – those low flows that are no longer getting through in the Barwon-Darling System –that's one of the bigger losses that we have had that's not replenishing the water in Menindee. So the other connectivity issue that we are facing though is with the Basin Plan, and it was a catchphrase that the
40 Murray Darling Basin Authority always used was the "use it or lose it policy".

Is that they're now trying to pull the water out of the lakes that much quicker to avoid evaporation – that we have less coming in, but we're are pulling it out at a far greater rate and that's just leaving us with no water to keep the connectivity between
45 the Menindee Lakes and the Murray. So our regulated system is being really stripped of its supply of water.

MR O'FLAHERTY: So is it connected if it goes both ways – from your point of view, it's connectivity to the Murray through the Lower Darling, but also upstream through the Barwon-Darling - - -

5 MS STRACHAN: As well.

MR O'FLAHERTY: - - - system to the Lower Darling system.

10 MS STRACHAN: Yes. Some of the documents we referred to that the Murray-Darling Basin Authority has released has shown that, like, in those low flow events, water is just not getting from point A to point B because they are having 100 per cent extraction through their access licences where, historically, at least some of that flow we used to get through.

15 MR O'FLAHERTY: In paragraph 22 you talk about the changes to the water share plan and that you found out about them in 2015. How did you find out about those changes?

20 MS STRACHAN: Well, we were trying to understand why the flows were not getting through to the Menindee Lakes. Like, it just seemed so abnormal as to why – there had always been constant flows, even in dry times, just those small flows getting through but, all of a sudden, they had completely stopped.

25 And I think it was the Floodplains Association actually raised our – that we could – that we understood that what had happened because some of the guys up around Tilpa and that had mentioned – who were involved in the Barwon-Darling system, had said that these changes to what was historically classed as a class licence – they are A class licences. There had been massive changes to them that it basically took all the water out of the system now rather than still allowing water to come past.

30

MR O'FLAHERTY: So you mentioned the Floodplains Association. Is that the Australian Floodplains Association?

35 MS STRACHAN: That's right.

MR O'FLAHERTY: Which - - -

MS STRACHAN: Terry Korn.

40 MR O'FLAHERTY: And Mr Stuart Le Lievre.

MS STRACHAN: Yes.

MR O'FLAHERTY: I think he's - - -

45

MS STRACHAN: I'm not sure how to say his name.

- MR O'FLAHERTY: Yes.
- MS STRACHAN: Sorry, Stuart.
- 5 MR O'FLAHERTY: I probably just mangled it. So apologies to – they have put in a submission as well.
- MS STRACHAN: Yes.
- 10 MR O'FLAHERTY: So they contacted you or you – how - - -
- MS STRACHAN: Well, through – just through concern. We have a bit – I haven't actually personally met them but - - -
- 15 MR O'FLAHERTY: Sure.
- MS STRACHAN: - - - through emails and that. When we were asking a question, people would say, "Email such and such. They might have some light on the situation."
- 20 MR O'FLAHERTY: Right.
- MS STRACHAN: It was just more through a common - - -
- 25 MR O'FLAHERTY: Word of mouth sort of.
- MS STRACHAN: Yes. A common need to find the root of the problem that we were discussing
- 30 MR O'FLAHERTY: I take it that's not something the New South Wales Government formally advised you?
- MS STRACHAN: No, they hadn't.
- 35 MR O'FLAHERTY: You mention, in your statement, and – that you are the – on the – what I think is called the "Stakeholder Advisory Panel" in two respects. One is for the individual or resource area for the New South Wales Murray Lower Darling and, as a result of that, you are also on the state-wide Stakeholder Advisory Panel meetings. Is that right?
- 40 MS STRACHAN: Yes. So we are part of the Murray Lower Darling one.
- MR O'FLAHERTY: Yes.
- 45 MS STRACHAN: They have two all – SAP meetings, they call them.
- MR O'FLAHERTY: Yes.

MS STRACHAN: Which – we haven't been asked for advice to the all SAP – over the – all the resource programs because – and that's one of the things we are fighting for is that there has to be a lot more communication between Water Resource Sharing Plans because, at the moment, the Lower Darling is solely reliant on inflows from the northern Basin, however there is no reference articulated anywhere of actual requirements to the Lower Darling or even the Murray on getting water through Menindee.

MR O'FLAHERTY: Yes. I will get to the All SAP meetings in a moment. Just on the Murray Lower Darling, Stakeholder Advisory Panel, when did that process start?

MS STRACHAN: So they asked for nominations in 2016 at our customer advisory group that we were a group that advises Water New South Wales on issues arising in our local area. So we had our first meeting, it was March – 23 March 2017.

MR O'FLAHERTY: Over the page on page 4 of your statement, you talk about the efforts to – what I might call link-up the meetings between the SAP you were on and the Barwon-Darling SAP. When did you start – you said you were requesting a meeting. What – when was the first time you requested such a meeting?

MS STRACHAN: In March 2017.

MR O'FLAHERTY: So at that first SAP meeting you were on for the Lower Darling?

MS STRACHAN: Yes.

MR O'FLAHERTY: You say you haven't had that meeting. Now, it has only been a few days since you signed a statement, but I take it there hasn't been a meeting since the statement?

MS STRACHAN: No. We haven't had the meeting. However, at the June All SAP this year they did have an interactive session between the north and the south.

MR O'FLAHERTY: Yes.

MS STRACHAN: Where we raised concerns for 45 minutes.

MR O'FLAHERTY: Yes, so - - -

MR O'FLAHERTY: And they put up on a whiteboard if you were – why you thought there should be connectivity between the two SAPS, whether it was fish passage or the environment or irrigation needs, but it didn't actually lead to any further discussion, and I haven't seen any minutes at all that have alluded to any outcomes or further things that we would be discussing.

MR O'FLAHERTY: So this is the state-wide SAP meeting and that was in June, was it?

MS STRACHAN: In June.

5 MR O'FLAHERTY: And how long was the meeting in its totality?

MS STRACHAN: Two days.

10 MR O'FLAHERTY: So it was a two day meeting, and one of those days there was a 45 minute session on connectivity?

MS STRACHAN: They – yes.

15 MR O'FLAHERTY: What was that – what was that – it was 45 minutes dedicated to - - -

MS STRACHAN: It was called an interactive session that we were broken into for. Four groups, I think it was.

20 MR O'FLAHERTY: I see. And the – what was the – the purpose that was to discuss why connectivity was - - -

MS STRACHAN: Why it should be relevant or considered.

25 MR O'FLAHERTY: Right. And you said that there wasn't any follow-up session - - -

MS STRACHAN: Not to date.

30 MR O'FLAHERTY: - - - as to what to do about connectivity?

MS STRACHAN: Yes. No, to date we haven't had any communication.

35 THE COMMISSIONER: How should I understand connectivity in this context? On any view of it, there is resort to the waters of rivers for consumptive use that necessarily will, from time to time, effect the water available for flow, I guess sort of bleeding obvious, in a sense. So we are not talking about connectivity in any unrealistic pristine sense that is before European settlement, are we?

40 MS STRACHAN: We are talking about connectivity that there should be base flows within a river to maintain basic river health, which will give you a basic land holder right, and access for your stock and domestic, and then following on from having that base river health and access to stock and domestic water or your town

45 utility water that then you have the needs of irrigated businesses, whether it's a high security licence for your permanent plantings, on to other regulated general security licences, to then take of water when it hits certain triggers in your unregulated

systems, which was historically an opportunistic take, and that's why they had certain additional benefits of extraction when that arose. But it was always – those base flows and those small flows historically were protected to get through and cater for the - - -

5

THE COMMISSIONER: I understand that. So connectivity as something desirable, in your submission, means not that there will always be flow, but that the times of no flow won't be too much. That is, either too frequent or too prolonged.

10 MS STRACHAN: Well, hopefully. As - - -

THE COMMISSIONER: Are you aware of any publication, by government or otherwise, seeking to calibrate proposed standards for how long would be too long between flows?

15

MS STRACHAN: I haven't seen any documents.

THE COMMISSIONER: How frequent will be too frequent for no flows. It seems to – it occurs to me that it lends itself to some setting of environmental thresholds.

20 You are nodding, meaning you agree?

MS STRACHAN: I totally agree. I think - - -

25 THE COMMISSIONER: I haven't seen any – in the literature – I don't claim to have read the whole literature, but I just haven't seen for that aspect of the – I will call it the Darling, meaning its tributaries as well – I haven't seen anything as worked up as one finds for many, many stretches of the Murray.

30 MS STRACHAN: They – I think the closest I've seen is they had a matrix of – but didn't have timelines within that matrix. So it was more highly probable, probable, and less probable. But it was - - -

35 THE COMMISSIONER: Frequency of no flows and duration of no flows from your and Mr Whyte's evidence, and I must say from some science I've read, seems to be right at the heart of the environmental as well as agricultural significance of the Darling connectivity.

MS STRACHAN: At critical of river health. As river health, none of us are - - -

40 THE COMMISSIONER: I'm trying to understand what the – if you like dispute, controversy, difference of opinion is that you have witnessed or participated in. Have you heard people say, have you, that the Lower Darling river basically flowing only a little, it won't matter if it stops to flow altogether?

45 MS STRACHAN: I think they have putting it in a broad context of the entire length of the Darling River. Where we have out the records of our property show that the river never ceased to flow, so that we had water within the river, but it didn't have a

– it was measured more by the current. So it didn't cease to flow for more than three months at a time in European history.

5 THE COMMISSIONER: You refer to that in paragraph 31 of your statement. I was really asking about the words at the end of paragraph 29 of your statement.

MS STRACHAN: I think it's more –

10 THE COMMISSIONER: You attribute – you attribute a view to people. I'm just wondering have you ever heard anybody say anything like that.

MS STRACHAN: I have heard them throw that comment out. And they go well, the – not so much the Lower Darling, but they said the Darling River always ceased to flow. And it like, well, it may have but not for the periods that we are now
15 witnessing.

THE COMMISSIONER: So the – would I be right in understanding that you perceive opposed views being on the one hand, well, it does cease to flow, but the frequency of that phenomenon and its duration are therefore critical.
20

MS STRACHAN: They are.

THE COMMISSIONER: And on the other hand there are people who say it does cease to flow, and therefore it doesn't matter if it never flows again.
25

MS STRACHAN: That seems to be their - - -

THE COMMISSIONER: Except in times of huge natural flow.

30 MS STRACHAN: That seems to be their opinion, and I think they have a lot to gain out of that by allowing them easier extraction ability north of us.

THE COMMISSIONER: I have not seen any, as it were, hydraulic calculation of this advantage. Is there really a lot of extra water available if you render frequent
35 and prolonged ceasing to flow, say, below Bourke?

MS STRACHAN: I don't think it's a huge amount of irrigation water, but it would allow somebody to store water in their dam – to capture and store water in their dam to finish off a crop or to plant the next crop, but that's at the detriment of actually
40 maintaining river health downstream. So I take it as it's an opportunistic take, but it's not a huge take, and that's where we are with wanting the small flows to be recognised, how critical for the river health to be maintained.

THE COMMISSIONER: You seem to be proposing, in particular, that either to
45 supplement or in place of the current trigger levels for pumping, should be a far more physically remote trigger, by reference to the low flows well downstream.

MS STRACHAN: Possibly. But before 2012 those small flows did get past A class licences. So an A class licence, prior to 2012 in the Barwon-Darling, you couldn't store the water. It was limited to pump size, and you couldn't trade the water, and that allowed the water to continue flowing down the river. So whereas now they can
5 actually – there is no pump size limit, there's – they can store the water, yes, they can trade the water so – and they can actually also extract 300 per cent of the water licence per annual take limit. So it has exacerbated the extraction of those low flows.

So where in a low flow event historically about 4000 megs may have been taken in
10 that – from an A class licence, they can now take up to I think it's 27,000 megs in one fell swoop. That 27,000 megs would allow the water to get down to Wilcannia and possibly further on down into the Menindee Lakes for that base river health.

MR O'FLAHERTY: Is that - - -
15

MS STRACHAN: So it may not sound like a huge amount of water, but in those dry times and low times it's – it is massive.

THE COMMISSIONER: Yes, I understand.
20

MR O'FLAHERTY: That 27,000, that's the three times the 9,000 total entitlements.

MS STRACHAN: That's the 300 per cent.

25 THE COMMISSIONER: Well now, in your paragraph 28 of your statement, you conclude that there needs to be recognition that there must be some base flows for the health of the river before extraction can occur. You're nodding. You agree.

MS STRACHAN: I agree.
30

THE COMMISSIONER: And should I understand that reference to base flows as not confined to the Barwon, and not confined to the Darling and above Bourke, but all the way down to Wentworth?

35 MS STRACHAN: If the base flows are getting through, I think you will still have – maintain that connectivity through to Wentworth.

THE COMMISSIONER: So your reference to base flows in your paragraph 28 is a
40 reference to base flows including that reaches all the way down to Wentworth?

MS STRACHAN: While Menindee Lakes has the ability to put as well, Menindee has the actual physical water there in the lakes. They priority is actually keeping that connectivity between Menindee Lakes and the Wentworth
45 junction.

THE COMMISSIONER: Again, I understand your connectivity not literally to mean continuous uninterrupted flowing, but a tolerable environmental and

economically tolerable frequency of cease to flow and duration of cease to flow. Have I understood that correctly? I need to know whether you were proposing that there ought to be a target that there always will be uninterrupted flow.

5 MS STRACHAN: I don't think you would have the ability to do that.

THE COMMISSIONER: That's again because of simply the nature of this river, even without development?

10 MS STRACHAN: With it, yes.

THE COMMISSIONER: Now, does it follow from that view of yours that Water Sharing Plans all the way upstream, in your opinion, need to take some account – by whatever device they adopt – figures, thresholds, whatever, need to take some
15 account of the - - -

MS STRACHAN: And assist - - -

THE COMMISSIONER: - - - estimated effect of consumption pursuant to them on
20 flows, and cease to flows, further downstream all the way to Wentworth.

MS STRACHAN: I think they need to recognise that, yes.

THE COMMISSIONER: At the moment I don't think they do.
25

MS STRACHAN: No, they don't.

THE COMMISSIONER: But to be fair one could presumably address that indirectly by what I call proxy measures, so a level at which pumping can commence
30 could be fixed by reference to a datum point within that area, that is upstream. The hydrologists will be able to tell us, "Well, if that's your threshold it will have", if you forgive the expression, "the flow-on effect that you will protect the health of the river all the way down stream". So - - -

35 MS STRACHAN: I think rather than a datum point it needs to be an event situation. Like when you have an event, however small it is, whether a certain amount needs to pass Wilcannia before extraction can occur. Rather than if you said – yes, droughts are of varying lengths and durations and what-not, that they don't respect date and time at all. So I think it has to be something that's assessed on an event by event
40 situation that has a flexibility within it to – depending on how dire the situation is at the time, like if you had an event following the 2016 event, out of that – put 80 per cent water into Menindee, in 2017 the may – you need a flexibility as to what flows were protected to get past Wilcannia, but still a certain amount. Whereas now, when we are facing very dry river beds and that, there may need it to be a large proportion
45 that needs to have certain flexibility in response to what climate we are in at that particular time.

5 THE COMMISSIONER: So there seems to be a tension between what you call the Menindee as the womb of the basin, which figure of speech rather suggests that it will always have something appreciable that it can deliver, and the SDL proposal under which it would fill more rapidly because fewer of the lakes are being used and it will empty more rapidly. That's the tension that you are drawing to attention? Is that what you are –

10 MS STRACHAN: That's what we're drawn to understand and that's where we feel that our businesses are no longer viable. Me referring it to as the womb of the basin is also in the context of that it's environmentally the fish outcomes that you get out of the Barwon Darling through the Menindee Lakes and then connectivity right through to the Murray without weirs and stoppage as part of that is that it is the hub of where a lot of our native species are actually born.

15 THE COMMISSIONER: Do the block banks have any significance for fish, as far as you know?

20 MS STRACHAN: The block banks have a huge significance for fish, in that it – they don't have fish ladders or anything in them. So they - - - 1

THE COMMISSIONER: On the other hand, they do provide pools, though.

25 MS STRACHAN: They provide an emergency refuge. So it's a very short term emergency refuge that, if I was a fish ecologist, I would be pretty disappointed in.

THE COMMISSIONER: Well, we will ask the fish ecologist.

30 MS STRACHAN: But myself as an irrigator, with citrus and wine grapes, they are critical to our survival.

THE COMMISSIONER: In your paragraph 31 you say, "We are about to see another cease to flow event this year". That's as of about a week ago you said that. How evident is it, do you think?

35 MS STRACHAN: December. So the block banks are currently being built at the moment. The first one at Jamesville, and the next couple will be happening in the next couple of months, and they are talking about the water ceasing to flow over weir 32 in December.

40 THE COMMISSIONER: Thank you very much.

45 MR O'FLAHERTY: Do I take it that of – well, sort of say, topic of such importance as connectivity being – raising this at these SAP meetings since they first started in March 2017, what government officials are at those meetings?

MS STRACHAN: So they are run by the Department of Industries. They are also
- - -

- MR O'FLAHERTY: Of New South Wales?
- MS STRACHAN: Yes, they are who oversee them, but they are attended by OEH, MDBA, Water New South Wales and various representatives from industry.
- 5 MR O'FLAHERTY: OEH is Office of Environment - - -
- MS STRACHAN: Yes. And heritage.
- 10 MR O'FLAHERTY: - - - and heritage. New South Wales, the MDBA, and who sorry?
- MS STRACHAN: Water New South Wales, the river operators.
- 15 MR O'FLAHERTY: And when you raise the issues of connectivity at these meetings what has been the response, (1) from New South Wales officials, (2) from MDBA officials? If any?
- MS STRACHAN: We have discussions and we put comments into drafts, but I haven't got any of the draft reports back, like the water quality reports and that, to see whether they have actually taken note and actually put our comments into them. So like with water quality, they had a salinity report that they put to us that it – they had a – they got up and spoke about it and said, “But there's no actual salinity issues around Menindee or the outlying areas,” and the – the discussion went on. I said, well, it's – isn't there a big salt load picked up just below Bourke, when there's a big – when - - -
- 25
- MR O'FLAHERTY: Yes.
- 30 MS STRACHAN: - - - water does flush down and that it needs to be recognised in the Barwon-Darling water quality report that that salt load is then having to be dealt with at Menindee and then further on into the Murray in South Australia and that.
- MR O'FLAHERTY: Yes.
- 35 MS STRACHAN: So there has to be a connectivity between the Water Resource Sharing Plans to recognise that one plan – one Water Resource Sharing Plan is actually attributing that problem to the other Water Resource Sharing Plan. But I haven't had – we haven't had discussions with the Barwon Darling, SAP
- 40 representatives - - -
- MR O'FLAHERTY: No.
- MS STRACHAN: - - - about such a thing, and I haven't got back the drafts yet to know whether they've been actually highlighted as an issue that we should be following.
- 45

MR O'FLAHERTY: Taking a step back, and probably a more broader philosophical point of view, what has been their reaction to the more broader concerns that connectivity is an issue that needs to be addressed. Are they – do they accept that that's an issue that needs to be addressed and then it's down to the details as to how, or is there a disagreement at that first stage?

MS STRACHAN: I think there's generally agreement in the room, but it's not always reflected in minutes and that.

MR O'FLAHERTY: In the detail.

MS STRACHAN: Because they are constantly writing back within the minutes – when we get the draft saying the – the connectivity is a greater issue, especially to those on the Lower Darling because we're having the effects of not getting those end of system flows passing from one resource sharing plan into another. The water quality and – and whatnot.

MR O'FLAHERTY: You say in respect of the Barwon-Darling Water Resource Plans you've been given access to the notes about the draft plan. So that's notes about the Barwon-Darling draft plans or about the Lower Murray one.

MS STRACHAN: We – we have notes on – on both of them – have been provided to us.

MR O'FLAHERTY: Yes.

MS STRACHAN: But part of my problem with the Barwon-Darling one is it's – it would be good to be able to talk to some of the SAP members - - -

MR O'FLAHERTY: Yes.

MS STRACHAN: - - - to have an understanding of whether – whether the issues in the Lower Darling are actually being articulated either by the Department of Industries to those members, or – or by - - -

MR O'FLAHERTY: In a draft plan.

MS STRACHAN: Or – or if other members actually are raising it, so - - -

MR O'FLAHERTY: Yes. So I take it you've not seen a draft Barwon-Darling Water Resource Plan?

MS STRACHAN: Not to date.

MR O'FLAHERTY: Have you seen a draft Murray Lower Darling Water Resource Plan, or is that also in the form of notes and reports?

MS STRACHAN: They're – yes, they're not actually – yes, they're still very juvenile in their stages at the moment, I guess you would call them.

MR O'FLAHERTY: So - - -

5

MS STRACHAN: Not juvenile, but they're still – there's still pieces - - -

MR O'FLAHERTY: First stages.

10 MS STRACHAN: First stages.

MR O'FLAHERTY: Yes. So I think you are talking about you've been – in paragraph 27 you talk about giving – given to read sections. So you're getting parts of a plan but not the full draft plan yet.

15

MS STRACHAN: Yes. And parts of it, too, that we found very frustrating is that we did have a copy given to us unofficially of the Menindee Lakes business case last August, and in that it talked about reducing the – the Menindee Lakes trigger down to the 80 GL.

20

MR O'FLAHERTY: Yes.

MS STRACHAN: Which absolutely was a red alert to us because at the moment with a 480 trigger we're – we're struggling to stay viable with these – running out of water in these drought reserves so quickly. So to see them want to reduce that to 80 gigs was – was a red flag, but also within that document it said that high security water was going to be addressed out of Menindee. And the industries – whereas we – yes, the discussions that we've had had – they – yes, they were putting the cart before the horse, and assuming that we weren't there and it feels like when we're in these Water Resource Sharing meetings that the assumption is, well, there will be no high security irrigation on the Lower Darling anymore, so they're moving the Water Resource Sharing Plans on further. Whereas being a representative of the Lower Darling, we need water security to survive. There has been nothing formal to address our issues, so we are still there in the capacity that we always have been growing citrus and – and wine grapes and stone fruit and everything. We – we need to return to that security of supply unless our issues have been addressed.

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MR O'FLAHERTY: I will come to the interaction with you having a draft of the business case. But just first before I get there, there's reference to sections which say this clause is contingent on the Menindee Lakes project. What sort of clauses were they that said that?

40

MS STRACHAN: That's where we're asking to have our return to a security of water supply as a regulated river source out of Menindee Lakes.

45

MR O'FLAHERTY: Yes.

MS STRACHAN: That we have a continuous flow out of there, like we did from the 1940s through to 2003, and that that need to be readdressed because we've had so many small – small changes that have actually piggybacked each other to cause us the pain we are now in. So, like, from – from the creation of the – the Living Murray licence out of the Anabranh, to Tandou's water being purchased to the Basin Plan now wanting to pool water out of the lakes far more quicker to prerequisite measures who want to name being able to pull out of a preferential lake by the Environmental Water Holder – all these things just continually keep just diminishing our water supply. So – and so on top of that, we've got changes – Barwon-Darling Water Sharing Plan in 2012 to the - - -

MR O'FLAHERTY: Yes.

MS STRACHAN: - - - A class licences and that. Cumulatively, it's all just adding and worsening our water security, and we just feel that the Basin Plan is just going to completely push us over the edge, especially if they are going to talk about reducing it to an 80 gigalitre trigger.

MR O'FLAHERTY: You say that was problematic because at the time you didn't have detailed information about the Menindee Lakes proposal. And you said that you obtained a copy of the business case around August. So prior to August, what were the nature of discussions about trying – or did you ask can we get information about the Menindee Lakes proposal?

MS STRACHAN: We had – the whole – whole Lower – Lower – Murray Lower Darling SAP have requested that because there are - - -

MR O'FLAHERTY: Yes.

MS STRACHAN: Out of Menindee Lakes' water savings project, there is massive implications for New South Wales Murray users, Victorian Murray users and South Australian Murray users. So it is – it is very - - -

MR O'FLAHERTY: It has got to be one of the key projects.

MS STRACHAN: It – it is critical for the whole Basin, basically. So - - -

MR O'FLAHERTY: Yes.

MS STRACHAN: Everyone is wanting to get their hands on it. We – we were – we were given a – a copy that was then completely denied by anyone within the Department of Industry as even existing. So - - -

MR O'FLAHERTY: So I want to get to that. So you asked – you asked for it before you obtained a copy, and what was their response? You asked for more information about the Menindee Lakes proposal. Prior to obtaining a copy of a business case, what was the response from - - -

MS STRACHAN: They were still working - - -

MR O'FLAHERTY: - - - New South Wales and the MDBA?

5 MS STRACHAN: They were still working on it.

MR O'FLAHERTY: Okay. And then when you got a copy of, in August – so prior to then, they said, well, there isn't a business case; we're working on it. Is that right?

10 MS STRACHAN: That's correct.

MR O'FLAHERTY: And when you did have a copy, did you tell them that you had one?

15 MS STRACHAN: Yes, we had nothing to hide - - -

MR O'FLAHERTY: Yes.

20 MS STRACHAN: - - - and we wanted to know whether it was an official genuine copy that we should be making comment on and actually - - -

MR O'FLAHERTY: Sure.

25 MS STRACHAN: - - - understanding the repercussions of what that business case told us was going to happen to our businesses.

MR O'FLAHERTY: And what was their response to you saying, "Well I've got this. What do you have to say?"

30 MS STRACHAN: We went to a meeting Pooncarie – I think it was in September 2017, which was a public meeting.

MR O'FLAHERTY: Yes.

35 MS STRACHAN: And we had top level bureaucrats from the Murray-Darling Basin Authority and Department of Industries and Water New South Wales there. So I think we had about 14 of some of the States' and the Feds' highest level bureaucrats in that room, and we asked about the existence of it. And they denied it was there, even though within the statement it said it had been to the Basin Officials Committee – was on the – within the front page, so it had been at the Basin Officials Committee. So yes, we smelled a rat from there. But then we showed them outside after the meeting that we had a copy, and the shock was huge.

40 MS STRACHAN: Mmm.

45 MR O'FLAHERTY: So they expressed shock that you had a copy?

MS STRACHAN: Mmm.

MR O'FLAHERTY: Who from the MDBA was there?

MS STRACHAN: We had Phillip Glyde, Neil Andrews, Andrew Reynolds, and there was another gentleman I can't remember.

5 MR O'FLAHERTY: So you said there was Andrew Reynolds.

MS STRACHAN: He's a – he's - - -

10 MR O'FLAHERTY: Do you know what position - - -

MS STRACHAN: - - - does river operations.

MR O'FLAHERTY: And from New South Wales?

15 MS STRACHAN: We had Charlie Dowsett. So he had just begun. Mitch Isaacs and also Andrew Garrett.

MR O'FLAHERTY: And they held senior positions in

20 MS STRACHAN: So Charlie Dowsett had just stood in in place of Gavin Hanlon, at that stage.

MR O'FLAHERTY: He replaced Gavin Hanlon, did he? And so there was Mitch Isaacs. And who else, sorry?

25 MS STRACHAN: Andrew Garrett.

MR O'FLAHERTY: Andrew Garet. Sorry. I should know that

30 MS STRACHAN: I would need to look at my notes of all the other people.

MR O'FLAHERTY: Yes.

MS STRACHAN: But they were – they were the key ones that we were directing our comments to.

35 MR O'FLAHERTY: This particular meeting you said was in September 2017. And that was a public meeting, was it?

40 MS STRACHAN: At Pooncarie, yes.

MR O'FLAHERTY: At Pooncarie. And you said you – did you take notes of that meeting or - - -

45 MS STRACHAN: Not – no, not particularly.

MR O'FLAHERTY: No, okay.

MS STRACHAN: We participated in it.

MR O'FLAHERTY: Yes.

5 MS STRACHAN: And we were wanting answers as to what would be occurring in our neck of the woods.

MR O'FLAHERTY: What was the stated purpose of that September 2017 meeting? Was that a SAP meeting or a - - -

10 MS STRACHAN: The – the Murray-Darling Basin Authority was coming out to discuss SDL projects and - - -

MR O'FLAHERTY: Right.

15 MS STRACHAN: - - - it was one of their tours, however we weren't to discuss Menindee Lakes.

MR O'FLAHERTY: So you weren't to - - -

20 MS STRACHAN: So the SDL projects, which is one of the main ones that will impact everyone on the Lower Darling and at Pooncarie and that, and they weren't there to speak about that particular SDL project.

25 MR O'FLAHERTY: Right. So they were just talking about SDL projects more generally, were they?

MS STRACHAN: Yes, which was totally irrelevant to our livelihoods and our futures.

30 MR O'FLAHERTY: Yes. So what was the nature of the meeting? Was it a presentation from the government officials or was there a Q and A?

35 MS STRACHAN: There was a presentation that followed and followed by questions.

MR O'FLAHERTY: And I dare say, did you ask questions about the Menindee Lakes proposal?

40 MS STRACHAN: We did, and our questions were – were shut down. And it was really disappointed because at the end of – I'm really proud of Pooncarie residents because they are just a polite, beautiful farming community that – that – you can't ruffle their feathers, but one really quietly spoken farmer at the end, he said, "I was so mad at myself because I should have got up and said, 'Listen. You lot, sit down. We are going to have a meeting and you can learn the concerns of the community'".
45 And yet he didn't, he was polite, and we all left just feeling quite ignored in the whole process.

MR O'FLAHERTY: And he said when you actually showed them the physical document that you had, as a business case which was dated June 2017, they expressed shock that you had it.

5 MS STRACHAN: I don't think they believed we had it until we walked outside and actually showed them a copy.

MR O'FLAHERTY: Did they say anything other than – what well – did you remember what they said at that time?

10 MS STRACHAN: It was just – I was a bit upset at the meeting, because I thought it was really disrespectful, the way government has treated our community. So yeah, I take the community a bit personally out there.

15 MR O'FLAHERTY: You've got – you – in terms of the – we have discussed previously – well, sorry, if – did they explain – well, did they say whether you should have had a copy or whether there was confidentiality attached to it after you showed him a copy?

20 MS STRACHAN: I'm pretty sure that it, being based on an official's document, it would have been highly confidential. I still – I still don't know where it came from. It was so – it's - - -

25 MR O'FLAHERTY: Just in terms of – did they express to you – so did the MDBA officials and/or NSW Government officials – did they say that document is confidential?

30 MS STRACHAN: I don't – they just were shocked that we had it. I think the – the New South Wales guys were very new to dealing with the Menindee Lakes, so whether they thought we had been given it through some other process, that - - -

MR O'FLAHERTY: Right.

35 MS STRACHAN: Well, we couldn't divulge where we got it from, because we didn't actually know where we got it from. So it was - - -

MR O'FLAHERTY: I'm not asking you to.

40 MS STRACHAN: It was - - -

MR O'FLAHERTY: The – during the time period between which you had revealed to them that you had a business case and to June of this year when a copy of the business case was produced, did they ever explain to you why it hadn't been publicly released?

45 MS STRACHAN: They said that they were still doing work on it.

MR O'FLAHERTY: So it was in draft form and that's why they couldn't give you a copy?

MS STRACHAN: That's what we're presuming, yes.

5

MR O'FLAHERTY: You talk about the operational – not getting enough detail about the operational rules. Do I take it that's the operational rules or arrangements that are outlined in that business case document? Or is that something else?

10 MS STRACHAN: There's not – there is not a lot of detail in that business case as to the operational rules. So how does – water enter into Menindee? Is it still going to be split between fifty-fifty between Victoria and New South Wales resource? There's a lot of talk about them wanting to shepherd water through Menindee Lakes for environmental reasons. How are they actually going to do that? Is there a certain
15 portion of water that comes into Menindee still going to be a drought reserve?

What are their thresholds of how long they consider a cease to flow to be appropriate? How long – how low do the flows go, do they drop below 300 megs a day, say, for a certain period of time? Is that allowed? There's a lot of detail and a
20 lot of questions that we have that hinge on us actually being still alive there in the Lower Darling, whether it's for stock purposes and domestic or also for irrigation purposes – that it's critical we understand those operational rules and, being part of a water resource management advisory committee, you would hope that there can be some – we can also put in our comments to that as to what we think is feasible and
25 what we think isn't.

MR O'FLAHERTY: I wanted to ask you some questions about what you have got in your heading in your statement Structural Adjustment Package, this is from paragraph 50 onwards. You say in paragraph 53 that you have been in discussions for
30 over three years. How has that affected your business as a farmer?

MS STRACHAN: So as I said in our witness statement we – in the nineties, we – the Tulney Point supported one family and we had a little bit of citrus and we ran sheep. Whereas – and when my brothers wanted to come back we become – we
35 needed to become farm that can support three families so we expanded our citrus and wine grapes in the nineties because we had a high reliability of water. We had a 100 per cent allocation in our general security and high security from the 1 July every year up until 2003.

40 So that was a first time that we had any wavering of reliability. So our plan had always been to get big enough and we had the land, we had the water, licences to actually be able to have an ongoing succession of family farms that we could – support us on Tulney Point. It really has become – since 2014 – has really come a
45 crux to us that we have had to start cancelling citrus tree orders that we had, because we are trying to always keep up with the latest varieties and expand our holdings a bit.

So that, in itself, we had ordered those trees in 2012, when the lakes were surcharge of well over 100 per cent, and we didn't think that we would be running out of water within two years. But you can't be planting a young citrus tree and expanding when every two years you are looking at running out of water. Also the water quality is
5 diminished in the last five years to the degree that it's affecting tree health and tree productivity so it's also affecting the – our income has been drastically – it's on a real rollercoaster of us putting extra expenses into getting through these dry periods to then finally gaining tree health, which we have this year in having really good healthy crops but now we are facing another cease to flow in December which is
10 going to affect our – our tree health and our – the production levels we are doing too.

So we are being reactive to constant problems now, whereas we used to be so proactive of making the most of every opportunity. And we are not old farmers, and our kids are all wanting to come home on the farm too, so I think they have really
15 affected – one of the biggest things is in our most productive years in our late thirties, early forties, we have been completely hamstrung from making any of this – prosperous ideas and taking up of opportunities that our family has really missed because – due to the operational changes and the proposed changes are just - - -

20 MR O'FLAHERTY: Yes.

MS STRACHAN: You can't jeopardise your whole family on what we can see as the future and that future government doesn't really see us there.

25 MR O'FLAHERTY: As I understand – and Mr Whyte was saying the two options in this proposal – are your preferred option being security of water.

MS STRACHAN: Yes.

30 MR O'FLAHERTY: But in lieu of that, a structural adjustment package to compensate for the removal of permit plantings. Am I right in thinking that it's essentially the uncertainty as to which option will be progressed – impacts upon that forward planning you would need for a permanent crop?

35 MS STRACHAN: And it does. Because all our capital is tied up in our permanent planting.

MR O'FLAHERTY: Yes.

40 MS STRACHAN: So even though we may see we are on the verge of the Basin Plan just completely decimating us, our capital is so tied up in it that we haven't got the capacity to go and do something else. Because we are tied up within that industry. And that's where the structural adjustment proposal that we put up would then actually compensate that to a degree.

45 And that was the first thing that the department of industry came to us in 2014, and when they were looking at the Menindee Lakes savings project, was – they gave us a

document of options and they said, “We can see more cease to flows happening and one of the things that we can see we will need to do is that we will have to compensate you so that we can operate the lakes that we are proposing to do.”

5 MR O’FLAHERTY: Yes. And, without going into specifics, how have those discussions about the structural adjustment package progressed since 2014?

MS STRACHAN: They - - -

10 MR O’FLAHERTY: How would you describe it?

MS STRACHAN: So we formed our – we – in 2014, we had a government official come to us with that proposal and, being proactive farmers as we are, it was like, “All right. Well, we don’t want to be left behind in this way.” That’s why we put
15 the proposal together. We spoke with all the permanent plantings properties on the Lower Darling because we felt that it was in everyone’s interest; they had to know where government was feeling our direction was going.

So we formed the Lower Darling Horticulture Group and united everyone that’s like,
20 “All right. We are not prepared to leave one farm behind in this. It’s either we are all out or all staying.” So – but we were hoping that we would all stay. But our petitioning to government doesn’t seem to have – there is a greater vested interest in Menindee in the Lower Darling than what we can get out of government. So we progressed and then the New South Wales Government put a – put together a
25 business case on our behalf in 2016/17 and put it to the Commonwealth and - - -

MR O’FLAHERTY: This is the business case for the structural adjustment.

MS STRACHAN: For the structural adjustment. And it – so the New South Wales
30 put that. We weren’t always in agreeance with everything that they put in, we didn’t actually see the final business case that they put to the Commonwealth but it progressed through that then in July 17 we were to be progressing financial discussions with the Commonwealth. And that was after Tandou had their structural adjustment package accepted at the end of June 2017.

35 And also Broken Hill’s needs have been addressed. Then Four Corners happened, then we have just – the Federal Government have then asked for – then more information from New South Wales about the Menindee Lakes water savings project. We spoke with the Commonwealth Government in December, but they said they
40 were still waiting for information from New South Wales.

MR O’FLAHERTY: Did they say what information they were requesting? Is this on the Menindee Lakes project?

45 MS STRACHAN: Not in – not in detail, but I think it would have been more about stock and domestic and general security, like addressing all the issues in the Lower Darling. Not just our issues, which I think is only fair too. And then we had – then

that progressed to January, February, and the Commonwealth said, “We still haven’t got the answers we need.”

MR O’FLAHERTY: Yes.

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MS STRACHAN: Then it went to – they said we will have an answer to you early April. Early April passed because they said, “We want to see what the disallowance motion on 8 May brings.” So that then passed, and we still haven’t heard from the Commonwealth since then. And New South Wales has dabbled in small tippets of communication that really haven’t been – they have heard our story again, because we have a new executive in the Water – leading Water charge and we are having a meeting this Thursday.

10

MR O’FLAHERTY: This Thursday.

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MS STRACHAN: But we don’t have an agenda as to what even that meeting is about. So - - -

MR O’FLAHERTY: Right. So when would you say the last substantive meeting you had was? Was that December last year, was it?

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MS STRACHAN: No, because they – Federal Government still wanted answers from New South Wales.

MR O’FLAHERTY: So it was even earlier than that?

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MS STRACHAN: Yes. Well, when they were coming to by the end of July to discuss financial options.

MR O’FLAHERTY: This is July last year?

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MS STRACHAN: So at that stage we were basically led to assume that we would – this time in July this year we wouldn’t be growing permanent plantings, but we’re still reliant on them. They’re very productive. Very proud to be a citrus grower and wine grape grower. Especially in today’s age, because they are a very, very profitable crop at the moment and yes, it is going to be very sad if we do have to pull them out.

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MR O’FLAHERTY: I note the time. I – I probably have a couple more questions, but we can probably break for lunch and I can go on after lunch if that’s convenient.

40

THE COMMISSIONER: Yes, that’s convenient to me.

MR O’FLAHERTY: I probably don’t have much, but – and then we can have Professor Brookes after that.

45

MR BEASLEY: We’re not going to finish Professor Brookes anyway, so

THE COMMISSIONER: Then we shouldn't – we shouldn't eat into the adjournment. So we're adjourning - - -

5 MR O'FLAHERTY: Sorry, I am reminded that – and Ms Strachan probably does have a fairly long drive ahead of her. So can we perhaps do it this way. I probably don't have much more to go, and then we can break for lunch so that Ms Strachan can be on her way.

10 THE COMMISSIONER: How do you feel?

MS STRACHAN: That would be appreciated. I have got a five hour drive, that's all.

15 THE COMMISSIONER: In which case we will do it. Fire away.

MR O'FLAHERTY: Having done that drive myself recently, I know that it's not a short one.

20 THE COMMISSIONER: No. Definitely.

MR O'FLAHERTY: So – sorry, I think I was just asking – so it was really July last year was the last substantive meeting which this structural adjustment proposal - - -

25 MS STRACHAN: And we – and we have been told all along that there were three main issues that needed to be addressed. And that was Broken Hill's town water supply.

MR O'FLAHERTY: Yes.

30 MS STRACHAN: High security irrigation on the Lower Darling and its constant requirements of needing quality water and content supply of water, and Tandou's water security issues as well, being one of the larger irrigators.

35 MR O'FLAHERTY: Assuming with the pipeline and the purchase in – of Tandou two of those – of Tandou two of the issues have gone away. So it's really, essentially, what to do with the high security entitlements in the Lower Darling is the key remaining issue; is that right?

40 MS STRACHAN: It is. I mean, there's other issues as well, like stock and domestic, that they are going to have to deal with and that, as well. Because you can't just – there are numerous issues on the Lower Darling that need to be addressed, and I should hope that they are all going to be addressed, and not just our high security needs for permanent plantings.

45 MR O'FLAHERTY: And I take it that there is still no clarity, from your point of view, as to whether there will be protection of those high security entitlements or a

compensation package. There's still no clarity as to which of the two options will be exercised?

MS STRACHAN: We don't have any formal clarification of that yet.

5

MR O'FLAHERTY: I think you said you have had some intermittent contact with New South Wales officials. Has that been recently?

MS STRACHAN: It's fortnightly we might have a brief discussion or an email.

10

MR O'FLAHERTY: Right.

MS STRACHAN: Things are progressing. Our biggest issue is that since 2014 we have had a time line of decisions just continually pushed out. That is making – it does your head in, because you think you are getting to a point where there's going to be a decision and you can proactively move your business and your family into safer territory than where we're at. It's – and I think the last time we had a meeting at Pooncarie, which was a couple of weeks ago, the community – it was the first time that angst has really started to bubble up within the community too, that they feel completely ignored by government. It's just – I think the Lower Darling has been really cruelly treated. Really cruelly. And it doesn't matter whether you are growing permanent plantings or whether you're a pastoralist or whether you are a community member or a fishermen who comes up camping or whether you are trying to bathe your children in water that's just giving them infection after infection. We have been horrendously treated.

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MR O'FLAHERTY: You said that there was a – a meeting a couple of weeks ago in Pooncarie. Was that by New South Wales Government?

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MS STRACHAN: Water New South Wales called that to discuss the operations out of Menindee.

MR O'FLAHERTY: Right.

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MS STRACHAN: But there was a lot of pressure put on them to give people answers, but they are purely the river operators not the decision-makers.

MR O'FLAHERTY: Right.

40

MS STRACHAN: They are not implementing SDL projects. Realistically, Department of Industries and MDBA should have been there to really start to proactively work with the community.

45

MR O'FLAHERTY: So the purpose of that meeting was for Water New South Wales to say, "This is how we are going to operate Menindee" or "This is how we are operating Menindee"?

MS STRACHAN: In the short – so that was in the short term how they were going to try to get us through by installing the block banks that they were going to be – our level will be reducing water flows – they were trying to fill the block banks but then – yeah, so it was purely very short term issues.

5

MR O'FLAHERTY: Yes. Short term planning.

MS STRACHAN: The problem is everyone in the room knows that there's a whole bigger picture that is being failed to be addressed.

10

MR O'FLAHERTY: You mentioned a meeting in September 2017 at Pooncarie with MDBA – quite high officials of MDBA, and New South Wales Government. That was to discuss SDL adjustment projects generally. Was there – has there been any other – what I might call “community consultations” of a similar sort maybe not quite as high level, or has it just been that one meeting?

15

MS STRACHAN: No, that was the only one.

MR O'FLAHERTY: You referred in paragraph 62 of your statement – there's a reference to “190 gigalitres in additional flows”. Can you just explain to me what you mean by that, where that figure has come from?

20

MS STRACHAN: So Karl Binning of the MDBA – he was another one at the Pooncarie meeting, actually. Karl quite often references the 190 gigalitres of additional flows expected to flow through the Menindee Lakes. However, it will only occur in wet years when they have – when you've got really big floods. Our biggest issue is in the low flow dry years.

25

So the other thing is with the 190 gigs – with the SDLs, the PPMs, the constraints and everything else that they're talking about in this Basin Plan, the operations haven't been articulated to us of how – how or where it will be used. Will it be used for drought strategy within the Lower Darling? It will be used for purely environment for Murray outcomes? The constraints where they're wanting to push the water through the lakes at a far quicker rate – that 190 gigalitres will be just a blink of an eye and it will be passed through without actually remaining in Menindee to actually give us any water security.

30

35

MR O'FLAHERTY: Yes. Because as I understand the Menindee Lakes proposal is that the inflows into the Menindee Lakes will then be quickly released down so it goes down the Lower Darling into the Murray. So it doesn't provide any security for the users of the Lower Darling. They see it whoosh past but that's it.

40

MS STRACHAN: That's it.

MR O'FLAHERTY: There's a reference in the submission to the stocktake – SDL adjustment stocktake report referring to 150 gigalitres of inflow.

45

MS STRACHAN: Well - - -

MR O'FLAHERTY: Notwithstanding the difference, is that the same concept we are talking about?

5

MS STRACHAN: It is the same concept but the 190 is what the MDBA have been recently been quoting to us as the number?

MR O'FLAHERTY: Okay. And they make the point that additional volume was intended to provide a windfall gain to downstream water users; however, would provide some support and maintain reliability of supply. And that reliability of supply is the same statement that MDBA are saying about this 190 gegalitres, is it?

10

MS STRACHAN: Yes. They are still going to pull it through the lakes. Like, at the moment we come out of – 2016, we had inflows that put the lakes up to 80 per cent, but it's barely two years and we are going back into block banks going back in. And I don't think the New South Wales Government will be prepared to build – put \$1 million into block banks on the Lower Darling every two years after they have pulled them out. And, environmentally, they are not conducive to fish passage or anything else, which are all Basin Plan outcomes that the Basin Plan is trying to achieve.

15

20

MR O'FLAHERTY: That covers what I wanted to ask you specifically. Was there anything that I haven't covered or the Commissioner hasn't covered that you wanted to raise at the discussions this afternoon?

25

MS STRACHAN: No, just that I think that if the Royal Commission actually recognises how poorly the people and community and businesses in the Lower Darling have been treated – and it is for the benefit of the whole basin, but we seem to be the last people to be actually addressed and the third-party impacts that have been felt there are just – yes. They are at breaking point.

30

THE COMMISSIONER: I am much obliged to your assistance. Thank you very much for coming.

35

MS STRACHAN: Thank you.

MR O'FLAHERTY: Thank you.

THE COMMISSIONER: Thank you. We will adjourn until quarter to 2. 1.45. Thank you.

40

<THE WITNESS WITHDREW [1.12 pm]

45

ADJOURNED [1.12 pm]

RESUMED

[1.45 pm]

5 MR BEASLEY: Professor Brookes is here, Commissioner, if you're ready to start?

THE COMMISSIONER: Yes, I am. Thanks.

MR BEASLEY: He will need to be sworn.

10

<JUSTIN DEAN BROOKES, AFFIRMED

[1.45 pm]

15

<EXAMINATION-IN-CHIEF BY MR BEASLEY

MR BEASLEY: Professor, you are a professor at Adelaide University?

20

PROF BROOKES: That's correct.

MR BEASLEY: Are you still the Director of the Water Research Centre?

PROF BROOKES: That's correct.

25

MR BEASLEY: And you have a Bachelor of Science in – honours – in botany and also zoology majors - - -

PROF BROOKES: Yes.

30

MR BEASLEY: - - - from the University of Adelaide, and a Doctor of Philosophy from the University of Adelaide, 1998?

PROF BROOKES: Yes.

35

MR BEASLEY: What was your PhD?

PROF BROOKES: My PhD was on cytotobacteria, so blue-green algae in the River Murray.

40

MR BEASLEY: All right. And you are the co-author of a number of reports that have been tendered to the Commission, and, in particular, you were a co-author of a CSIRO report prepared in November 2011 which was a review of the Basin Authority's determination of the environmentally sustainable level of take.

45

PROF BROOKES: Correct.

MR BEASLEY: That is exhibit RCE9. That report, RCE9 – you were engaged, what, as a consultant for the CSIRO. Is that how it works?

5 PROF BROOKES: Yes, that’s right. So independent expert panel.

MR BEASLEY: And the other authors of the report are listed as Bill Young, who I think was – was he the head of water at CSIRO at the time?

10 PROF BROOKES: He may not have been head of water, but he was certainly high up within land and water.

MR BEASLEY: All right. Mr Bond, who was he?

15 PROF BROOKES: Nick Bond at the time was probably a – like, a post-document researcher at Melbourne or Monash University.

MR BEASLEY: He might have been at Griffith.

20 PROF BROOKES: He was at Griffith. He was based in Melbourne.

MR BEASLEY: Right. Okay. And - - -

PROF BROOKES: Employed through Griffith.

25 MR BEASLEY: And Mr Gawn was from the Murray-Darling Freshwater Research Centre.

PROF BROOKES: That’s right

30 MR BEASLEY: What was his specialty?

PROF BROOKES: He was a Director of that centre. He works on a lot of ecological issues, and particular his PhD was on carbon – carbon transport and blackwater.

35 MR BEASLEY: All right. And Mr Jones who was from the eWater Cooperative Research Centre. Is he a modeller?

40 PROF BROOKES: No, Gary – he also worked on cytobacterium toxins early on and then ran the CRC freshwater ecology merging into eWater, which had both catchment hydrology and freshwater ecology.

MR BEASLEY: All right. Can a copy of RCE9 be provided to the witness, please.

45 THE COMMISSIONER: Professor, these research centres, the Murray-Darling Freshwater and the eWater Cooperative – are they part and parcel of CSIRO or what?

PROF BROOKES: The – the Murray-Darling Freshwater Centre is a partnership with CSIRO, so contributing to that are Latrobe University CSIRO and Murray-Darling Basin Authority.

5 THE COMMISSIONER: And what about the eWater Cooperative.

PROF BROOKES: Yes, so the eWater – that's – it's a CRC, so federally funded. The MDBA is a partner in that, along with a number of Universities.

10 MR BEASLEY: Now, Professor, if you could look at the document behind tab 1. I'm going to take you to RCE9. Hopefully – is there a red dot on that that says RCE9?

PROF BROOKES: Yes. Yes.

15

MR BEASLEY: Good. If you could just have a look, though, at the document behind tab 1. No, you have to go back the other direction. Tab 1. And if you just look at the front cover, that's a Basin Authority report called 'The Proposed Environmentally Sustainable Level of Take for Surface Water in the Murray-Darling Basic – Method and Outcomes.' That's actually – that's RCE6. That's actually dated November 2011 as well, which is the same date as the report you've been involved in as a co-author.

20

PROF BROOKES: Yes.

25

MR BEASLEY: I don't think that – while you're working on the CSIRO – I will call it the sustainable level of take report, your recollection is you didn't have a final version of what's RCE6; is that correct?

30 PROF BROOKES: No, we had – if I recall, we had a number of drafts but a lot of the process was that we had – that the staff involved in the methods and development
- - -

MR BEASLEY: Yes.

35

PROF BROOKES: - - - were coming in and giving presentations and answering questions to our group.

MR BEASLEY: These were oral presentations.

40

PROF BROOKES: Oral presentations.

MR BEASLEY: And if I can take you, to assist you, to page 35 of RCE9, the CSIRO sustainable level of take report. Not that one. No, yours. So go – sorry. Go to tab 3. And go to page 35. You should see 10, Appendix A Material Provided For Review.

45

PROF BROOKES: Yes.

MR BEASLEY: Dropping down one, two, three, four, five, you will see 'MDBA
2011A Method for Determining Environmentally Sustainable Level of Take for
5 Surface Water,' Unpublished, 5 October '11. So that looks like you were given at
least a draft of the report that's RCE 6. I think we can note that that report is
described as Authority in confidence, whatever that means. So you had a draft of
RCE 6 at some stage - - -

10 PROF BROOKES: Yes.

MR BEASLEY: - - - prior to the finalisation of this report. All right. I just want to
discuss with you firstly the parameters of the CSIRO sustainable level of take report.
But before I do that, I should ask, five co-authors for this report – was it broken up
15 between you as authors into areas of specialty, or did you all take some responsibility
for all of the report?

PROF BROOKES: We took responsibility for all the review. It's pretty fair that
Bill led a lot of the review and - - -

20

MR BEASLEY: When you say he led a lot of the review, what does that mean?

PROF BROOKES: Well, he led – well, he led the process, he led the questioning,
he - - -

25

MR BEASLEY: Led the questioning of the MDBA staff?

PROF BROOKES: Yes.

30 MR BEASLEY: Yes.

PROF BROOKES: And also was involved more outside of formal process that we
were reviewing, which was go to Canberra, look at documentation that was provided,
provide comment on it. Bill was more heavily engaged with day-to-day reviewing,
35 so, I guess, access to staff, more insight around the development of the methods and
outcomes, and also providing feedback to that process.

MR BEASLEY: All right. And he would then provide feedback to you as a group?

40 PROF BROOKES: Provide feedback to us as a group but also lead discussions.

MR BEASLEY: Did you meet together - - -

PROF BROOKES: We met together a - - -

45

MR BEASLEY: - - - or was it telephone hook-ups or how did it work?

PROF BROOKES: We met together a number of times in Canberra. Yes.

MR BEASLEY: All right. The meetings were in Canberra, were they? And that
involved – the processes for the processes for preparing this CSIRO review involved
5 a number of meetings at the Basin Authority, did it, with relevant staff there?

PROF BROOKES: Correct.

MR BEASLEY: And what area from the Basin Authority were the staff that you
10 were having discussions with for the purposes of this review?

PROF BROOKES: They were mainly from the hydrological modelling, so there
was a number – a number directly involved. So really the – the – the lead modellers,
and also the staff involved in Pick a Box, which were more ecologists, but using
15 hydrological modelling.

MR BEASLEY: Yes. I will come to Pick a Box in a moment, but I take from that,
then, primarily you were speaking to modellers, being modellers of – in the end,
we're talking about flow. I know it's a bit more sophisticated than that, but
20 modellers of flow to achieve certain ecological targets, and – but also ecologists who
are informing the process about how much flow, for example, might be needed at a
particular indicator site.

PROF BROOKES: Yes.
25

MR BEASLEY: And – all right. So they are all science based people.

PROF BROOKES: Yes.

MR BEASLEY: Did you have any discussions with any people that might be
described more in the policy framework or management to your recollection, or
would that not have been relevant to what you were doing?
30

PROF BROOKES: No, I guess it's – it's hard to divorce the some of the policy and
35 hydrology in this context.

MR BEASLEY: Yes.

PROF BROOKES: So the – the people we were discussing – they would all be
40 across policy as well, particularly J Swirepik, who – an ecologist, but really that - - -

MR BEASLEY: Just stop. I think Ms Swirepik – have I said that correctly – is now
the Commonwealth Environmental Water Holder.

PROF BROOKES: Correct.
45

MR BEASLEY: When she was at CSIRO, what was her position?

PROF BROOKES: She was at the MDBA.

MR BEASLEY: Sorry. When she was at the MDBA – thank you – what was her position there?

5

PROF BROOKES: It may have been – a term around – a senior ecologist. She was running the Living Murray program.

MR BEASLEY: Okay. Okay. But her training as a scientist is ecology. Any – like vegetative, aquatic?

10

PROF BROOKES: I'm – I'm - - -

MR BEASLEY: You are not sure.

15

PROF BROOKES: I'm not sure.

MR BEASLEY: All right. Okay. So that answer tells me, then, that the science people that you were talking to for the purpose of the review had an appreciation that policy considerations were factored into the determination of an ESLT, or is that too simplistic?

20

PROF BROOKES: It may be too simplistic. I guess there's an interpretation of policy which goes into setting these things and so they are – they're aware of the policy; they are aware of the Act; and they are aware of obligations under that in setting any ESLT.

25

MR BEASLEY: Let's, perhaps, approach it this way, because your report was confined and can I take you, firstly, to page 1 of the report. You will see a series of five boxes, a chart, a framework chart.

30

PROF BROOKES: Yes.

MR BEASLEY: Now, I know that it's slightly more – I'm not going to take you through that chart in terms of, necessarily, the order because the order of one, two, three, four and five may, to some extent, not reflect exactly what has happened but your understanding was, in relation to the framework for determining an ESLT, that, first of all, the Basin Authority had done a lot of work in defining key environmental assets and ecosystem functions.

40

PROF BROOKES: Yes.

MR BEASLEY: I'm going to ask you in a moment what your understanding of an "ecosystem function" is. Someone will remind me, because it's not defined in the Act, but they do that and then they determined indicator sites for key environmental asset, key ecosystem functions. Correct?

45

PROF BROOKES: Correct.

MR BEASLEY: And then using those matters and, perhaps, other outputs or inputs they decide what the environmental watering requirements are for indicator sites in order to support those environmental assets and ecosystem functions.

PROF BROOKES: Correct.

MR BEASLEY: I've used the word "support" but if I'm going to use the statutory language I would say "watering requirements so as to not compromise those environmental assets or ecosystem functions". Whatever that term means. It might mean "maintain them" at least – possibly even "improve them", certainly in the context. I've never seen anything expressly on this but one of the things that's supposed to be achieved, obviously, from the Water Act also is implementing our international obligations and they might involve more than maintenance; they might involve an element of restoration for example.

The environmental watering requirements are also sometimes, I think, described as – have I got this right, "site-specific flow indicators"? And by that, what the modelling will hopefully show is, first of all, in terms of achieving an ecological target that is said to be consistent with achieving an environmentally sustainable level of take, it will set an amount of flow per day of megalitres, a time of year for that flow and even a percentage number of years to achieve that level of flow.

PROF BROOKES: And potentially a duration as well.

MR BEASLEY: And duration of flow. Yes. So "this amount of days, this amount of flow for this number of days in this time of year in this percentage of years" and that's all to achieve, no doubt, through information from the ecologists, certain ecological targets which might be for vegetation; it might be for aquatic species; it might be for birds. And to achieve things like migration, reproductive events, etcetera. All right.

So in – the modelling is designed so that if you have got that amount of flow for that duration, and that percentage of years, at that time of year, we predict it won't compromise the key environmental assets and key ecosystem functions. So that's what you were looking at in terms of the modelling that the MDBA told you they had done in terms of reviewing it for this report.

PROF BROOKES: Mmm.

MR BEASLEY: What you don't find, in that box at page 1, is any mention of economic or social outcomes. Correct?

PROF BROOKES: Correct.

MR BEASLEY: And that's because you were specifically told not to address that?

PROF BROOKES: We were specifically looking at environmental outcomes.

MR BEASLEY: Yes. So if we go to page 2, for example, of this report, and we look at the original specific questions you – as a group – as an expert panel, I
5 suppose, had been asked to address, second paragraph down, the report says

*We stress, however, the determination of the magnitude of the ESLT and thus
SDLs involves consideration of not only environmental objectives but also of
the social and economic objectives for the Basin Plan.*

10 Just pausing there, was that an instruction given to the expert panel by the Basin Authority?

PROF BROOKES: No, I think that's something we have arrived at, because - - -
15

THE COMMISSIONER: How did you do that?

PROF BROOKES: Because if – if you look at establishment of flow, the ecological objectives, then you would be looking at, perhaps, a higher number because if you
20 were to satisfy environmental outcomes without ecological, then you are going to be returning a lot more water to the river.

THE COMMISSIONER: Sorry, I must be missing – if you look at environmental without looking at ecological?
25

PROF BROOKES: If you are looking at ecological objectives – so if you're – if you're returning water to the environment only for environmental objectives then you are going to be returning the majority of the water because that's the – that's the condition that the rivers evolved under, that's how the floodplain has all been
30 established and so that's – that's the historical baseline.

MR BEASLEY: Sorry, are you saying that the moment you don't return the river to pre-settlement conditions, you are factoring into a form of economic or social consideration?
35

PROF BROOKES: I think you always are. As soon as you take water from the environment for another use, then you are factoring socio-economic.

MR BEASLEY: Because the – leaving aside the definition of the ESLT and Water Act from an ecologist's point of view, shall we say, the desired result will be every drop of water goes for the environment rather than for consumptive use?
40

PROF BROOKES: Yes. Well, not necessarily an ecologist's point of view, but I think as soon as – just pragmatically, if you are not returning all the water to the environment then you are making some social economic considerations as a baseline.
45 Now, it is unrealistic to do so but I think – as we look at this process, I think it's

necessary to acknowledge that as soon as we look at lower volumes of water then there's already socio-economic implications.

5 THE COMMISSIONER: Now what – the limit that the Water Act talks about uses these expressions. A level at which water can be taken from that water resource. So it starts with the premise that we are not in a pristine predevelopment, pre-consumptive use, pre-settlement state of affairs. We are talking about a premise where water is taken and you may assume that means for consumptive use.

10 PROF BROOKES: Yes. Correct.

15 THE COMMISSIONER: Then it says that the environmentally sustainable level of take is that level at which water can be taken which, if exceeded, would compromise key environmental assets, key ecosystem functions, the productive basin, the key environmental outcomes of the water resources. So that ESLT, it seems to me, already abandons what might be called the literal or pure approach of what's necessary for restoration of an environmental state of affairs because this is an Act about allocation between consumptive use and environmental use.

20 Does it make sense to you, in your expertise, that the notion of compromising key environmental assets or compromising key ecosystem functions or the productive base of the water resource or key environmental outcomes of the water resource is a state of affairs where danger is created to an unacceptable degree, well below what might be called optimum or natural levels?

25 PROF BROOKES: Yes, so I think, yes, compromise is against which baseline. So if we work on a current, relatively healthy river as a baseline, then compromise would be starting to lose key ecological function or key assets. So where we might reach a situation where we no longer have migratory bird breeding or fish spawning, then that would be a pretty dramatic compromise of the system.

30 THE COMMISSIONER: So that's a state of affairs where, if you like, things get worse than they presently are. Do you agree?

35 PROF BROOKES: I would say yes. So compromise from, you know, I guess the current baseline, because that's the starting point we are going from.

40 THE COMMISSIONER: Well, another premise of the Act seems to be that there has already been too much taken, meaning that some has to be given back, to use – put it crudely – to the environment. You're nodding – meaning you understand that.

PROF BROOKES: Yes.

45 THE COMMISSIONER: Yes. If you put those two premises together, it would appear that the difficult task that the MDBA was given and that you reviewed, in part, was to find a level more generous to the environment that is presently the case,

above which take would compromise the values that the statute talks about but, nonetheless, there will be take – consumptively.

5 And it's for those reasons that – assuming that consumptive take is a socio-economic phenomenon, I am wondering how do you approach this notion of a level above which those environmental values are compromised but, nonetheless, there is take? What did you have – what do you have in mind? What do you think I should have in mind about that?

10 PROF BROOKES: Well, I guess the approach that's taken is that, you know, there's indicator sites across the river, which are representative of broader ecological assets. And so a healthy river system is one which has diversity of plant communities; has a diversity of habitat for birds – both migratory and domestic birds, and satisfies the conditions where we have a productive fishery.

15 So you have spawning events, you have fish going through to recruitment and you have viable populations. So they are the populations that can sustain and be sustained through both dry periods and potentially flourish and be more protective during wet periods.

20 THE COMMISSIONER: Presumably, it's in various disciplines within the broad church of biology that will tell you what is necessary in the channels over the banks, on the floodplains from time to time, for how long, in order to provide for various birds, fishes and presumably all the other organisms that for which they are high level proxies?

25 PROF BROOKES: Yes.

THE COMMISSIONER: Have I got that correct?

30 PROF BROOKES: Correct.

MR BEASLEY: Once you've established - - -

35 THE COMMISSIONER: But the point is that that's biological, not political, economic or social.

PROF BROOKES: Correct.

40 MR BEASLEY: Once you've established what the key environmental assets are and the key ecosystem functions are and the productive base of the water resource and the key environmental outcomes, you want – then you're stuck with having to not compromise them aren't you? That's what the Act tells you to do. Decide what those things are and then not compromise them. Footnote that, the Act also requires
45 us to meet our international obligations which may have aspects not just of maintenance or not compromising, but may have aspects of actual restoration where there is degradation?

PROF BROOKES: Yes. So particularly the there is an international obligation that we would maintain at least the habitat and numbers of 1985.

5 MR BEASLEY: Yes. Sure. The one thing you were not specifically outside the terms of reference for this review, is outlined in the next sentence that I was taking you to on page 2:

10 *Determining this balance across objectives requires policy judgments made in the context of the requirements of the Water Act, reflecting multiple trade-off decisions.*

Query the correct analysis there, but moving forward:

15 *Consideration of the social and economic dimensions of ESLT determination is outside the terms of reference of the review.*

You were told to stay away from that. It wasn't part of your review.

20 PROF BROOKES: It wasn't part of our review.

THE COMMISSIONER: Well, now – and with all due respect, I consider you – you and your co-authors' qualifications and they don't seem to include socio-economic analysis, let alone political judgments about a balance between the economy and the environment.

25 PROF BROOKES: Correct.

THE COMMISSIONER: That would be, on its own, a sound reason for you not to undertake it, I would have thought. Do you agree?

30 PROF BROOKES: Yes.

35 THE COMMISSIONER: But Counsel Assisting has asked you a question, which I'm interested in as a pointed answer as I can get from you. Were you told by the MDBA (1), socio-economic factors will affect the value, (2) you are not to look at that exercise?

40 MR BEASLEY: Before you answer that to help you, have a look at the top paragraph on page 30 of this report, because that may assist you. On page 30 from the words, "The panel understands", just refresh yourself by reading that paragraph and then you can answer the Commissioner's question.

45 THE COMMISSIONER: Well, that paragraph politely starts with the words, "The panel understands". Should I take that to mean that you had been informed of that by these meetings?

PROF BROOKES: Well, that other reduction scenarios have been modelled?

THE COMMISSIONER: Yes.

PROF BROOKES: Yes.

5 THE COMMISSIONER: And then the next sentence, starts, “The panel assumes”.
Should I take it from that that what follows is not something you were told by
MDBA?

10 PROF BROOKES: If we have assumed, yes, I can - - -

THE COMMISSIONER: You weren’t told that.

PROF BROOKES: We weren’t told that.

15 THE COMMISSIONER: I’m sorry, I’m a bit dim. What does the reference to
figure 1 refer to?

MR BEASLEY: I will come to that in a second. It is on page 10. But just on the bit
where the panel say has not seen modelling results for these other scenarios and,
20 thus, it’s not clear how a 2,800 gicalitre reduction proposal was arrived at. You are,
however, looking in this report at a 2,800 gicalitre reduction. Does that mean you
didn’t see the modelling for any proposal that resulted in – or all of the modelling
that resulted in a 2,800 gig litre proposal?

25 PROF BROOKES: I can’t recall but, given the wording in this report, we have not
seen modelling results for other scenarios.

MR BEASLEY: Right. I’m just curious about the words, “And thus it is not clear
how the 2,800 gig litre per year reduction proposal was arrived at”. Because what
30 you are reviewing here is a 2,800 gicalitre per year reduction proposal.

PROF BROOKES: Yes.

MR BEASLEY: Are you saying that – perhaps – and don’t let me put words in your
35 mouth – are you saying you don’t know how the – the panel doesn’t know how the
2,800 gicalitre per year reduction proposal was arrived at because you don’t know
what socio-economic considerations were taken into account?

PROF BROOKES: I would – given our wording here that the panel assumes
40 proposal was arrived at as a result of socio-economic considerations then I would be
– it would – then I presume, given that the number that has arrived, incorporates both
the environmental considerations which is what we considered at the 2,800 scenario
and other socio-economic considerations that we weren’t privy to.

45 MR BEASLEY: Right. Don’t feel uncomfortable about the fact that you may not
remember all of this because we certainly appreciate this report is dated November
2011. You may have done something since then. So we are sympathetic.

THE COMMISSIONER: Forgotten a few things, I hope, unless you've got mental illness.

5 MR BEASLEY: Now, the Commissioner asked you about what does figure 1 mean. I think we find that on page 10.

THE COMMISSIONER: Yes. I know. I'm wondering about his it's described as a bit of an interpretation by your group of what the MDBA told you. Is that right? Figure 1.

10 MR BEASLEY: Go to page 10, Professor Brookes.

PROF BROOKES: Figure 1. Yes.

15 MR BEASLEY: You haven't got a – have we got a colour copy? Because it will be a lot easier if the professor has got a colour copy of that.

PROF BROOKES: Top, middle, bottom panels. I have got a copy here.

20 MR BEASLEY: All right. Have a look at a colour copy, because it's – there's a – is it your recollection that may have been Mr Young that drafted this particular diagram which looks something like the pipework for a nuclear reactor or I'm not quite – was it him that did that or did all of you contribute to that?

25 PROF BROOKES: No, I didn't contribute to this.

MR BEASLEY: All right.

30 PROF BROOKES: So it may have been a development of Bill's – Bill Young, or ---

MR BEASLEY: All right. So there's layers to this – Hydrology and Environmental science, in the green band. Top right corner. You see the heading?

35 PROF BROOKES: Yes.

MR BEASLEY: So that's – and then there's a blue band, Policy. And then there's a pink band, Socioeconomic Science. But looking at the text, in the sentence immediately above the top of the box, the only thing your review panel was involved in is what's described in the red box with the bigger box:

This review however does not consider the steps outside of the red box in figure 1.

45 Do you see that?

PROF BROOKES: Yes.

MR BEASLEY: You can see there is a little red box in there, which as I read it, largely deals with hydrological things with the exception of the three little boxes in blue for policy. Very difficult to read. The other thing you weren't asked to – asked to deal with is groundwater SDLs, or the associated issue of surface groundwater connectivity. What is your understanding of “surface groundwater connectivity.”
5 What is that a reference to?

PROF BROOKES: The – so the water allocation includes both surface water and groundwater. The connectivity between the two, if you have bore fields close to a river then you're essentially extracting river water. And so where you may have an allocation based on flow, through the river, and a take associated with that, that hasn't historically been a strong link between the surface water and groundwater, however we know that if you are extracting groundwater in those regions then you're essentially extracting river water. And so - - -
10

15 MR BEASLEY: So the extraction of groundwater has an impact on surface water?

PROF BROOKES: Yes.

20 MR BEASLEY: Yes. All right. And therefore I would be right in saying, wouldn't I, that if you are going to allow in a particular valley, or a water resource planning area, if you are going to allow increased extraction of groundwater that may have an impact on what you should be setting for a sustainable diversion limit for surface water?
25

PROF BROOKES: Yes.

MR BEASLEY: Yes.

30 PROF BROOKES: and vice versa.

MR BEASLEY: All right. Just going back to the table though, looking in the red box, despite the extraordinarily small print that's been decided on here, the blue – the boxes in the blue band, within that red box, are described as policy decisions but if my reading is correct the left-hand box says:
35

Decide on key environmental assets and key ecosystem functions.

40 What - - -

THE COMMISSIONER: Is this to be regarded as policy only - - -

MR BEASLEY: Might – yes.

45 THE COMMISSIONER: - - - in the sense that it involves a matter upon which reasonable minds might differ? It doesn't seem to – it doesn't seem to be the kind of thing that might be decided by a public opinion poll.

MR BEASLEY: I think what the commissioner means is the guide said there's 2,442 key environmental assets. A scientist might say, "No, there's 2,444," and another scientist might say, "There's 2,250," or that's the sort of judgment area.

5 THE COMMISSIONER: Or one may say, "That's not key, but this other thing that you haven't counted as key is key." Judgments upon which reasonable minds might differ.

PROF BROOKES: Yes.

10

MR BEASLEY: Using a scientific judgment, though.

THE COMMISSIONER: Quite. I think the point that Counsel Assisting and I are both making is that that's not how we understand the word "policy" at all. Policy doesn't seem to be capable of saying, "That forest is not key." You might have a judgment between two people, one saying it's key, the other saying it's not key, but policy seems to be a rather vague way to describe that difference of judgment which I hope is not reached by contemplating the kind of thing that a cabinet might consider. Do you understand - - -

20

PROF BROOKES: Yes. I think - - -

THE COMMISSIONER: - - - the difference between a policy judgment which says, "We need five warships and we cannot afford primary education anymore." That's a policy decision. It's a bad example, because it might be that reasonable minds couldn't differ about that, but that's a pure policy decision involving the kind of trade-offs that seem to me to be inimical to a scientific judgment. "I would consider this tree important to preserve, but I have been told that the government would rather spend money on something else, therefore I don't think it's important to preserve." That doesn't sound to me like a scientific judgment, that sounds to me like a scientist saying, "I wish they would look at the science, but they have given me a budgetary constraint." I mean, why have a scientist to tell you something is important if the scientists says, "I don't really think it's important, not when you tell me that it costs that much." You see my point?

35

PROF BROOKES: Yes.

THE COMMISSIONER: They seem to me to be quite different and probably somewhat conflicting areas of discipline.

40

MR BEASLEY: Well, there may even be a good contrast within the blue box because on the left-hand side, inside the red box:

Decide on key environmental assets and key ecosystem functions.

45

The next box says:

Set environment objectives and targets for key environmental assets and key ecosystem functions, represents a policy interpretation of not compromise.

- 5 THE COMMISSIONER: I want to know
- MR BEASLEY: I would have thought that's a legislative - - -
- 10 THE COMMISSIONER: I want to know the source of those words, which I find provocative. But that is, I think, there to be as an attempt to summarise a statute provision, but they are to be criticised – probably by me, probably quite harshly – for being tendentious and inaccurate. Where does that come from? A policy interpretation of noncompliance? We know where “not compromise” comes from, it comes from the statute. I have already read you those wording – that wording. That's how you set an ESLT. What is a policy interpretation of not compromise?
- 15 PROF BROOKES: Well, the policy interpretation is you are setting a limit of acceptable change, and that was a policy of decision because most of them sit at 10 per cent, so it's an arbitrary – it's an arbitrary number on what is an acceptable limit of change.
- 20 MR BEASLEY: I think you are confusing yourself now with the limits of change for the SDL adjustment mechanism, aren't you? Or are you talking about something else?
- 25 THE COMMISSIONER: But even if there were, the idea of setting a limit to change contemplates that, but for that limit, there would need to be a bigger change for environmental or scientific reasons. But policy says you can't make a bigger change - - -
- 30 MR BEASLEY: In fairness to you, you did - - -
- THE COMMISSIONER: - - - than the arbitrary limit.
- MR BEASLEY: Sorry, did I interrupt that question?
- 35 THE COMMISSIONER: I'm just trying to – do you know where those words came from? They are obviously not yours, by the look on your face.
- 40 PROF BROOKES: So which words - - -
- MR BEASLEY: That's what I was trying – you said this box isn't yours. So –
- THE COMMISSIONER: It says it:
- 45 *...represents a policy interpretation of not compromise.*

And they seem to be words that are indicative of a very serious misstep. What I'm trying to find out: was it a misstep by you or your group or was it given to you by the MDBA?

5 PROF BROOKES: So which wording are you - - -

THE COMMISSIONER: Do you see in the blue band, which is policy - - -

PROF BROOKES: Yes.

10

THE COMMISSIONER: Second from the right, within the red box.

PROF BROOKES: Okay. The second box.

15 THE COMMISSIONER: It says:

Set environmental objectives and targets for KEA and KEF (represents a policy interpretation of not compromise).

20 Not compromise being in bold to reflect the fact it comes from the statutory - - -

MR BEASLEY: And if I can help you, in the text below, in the paragraph commencing "The first step" there seems to be an assertion that setting the environmental objectives for the Basin Plan is primarily a policy judgment.

25

THE COMMISSIONER: And then the next paragraph talks about the policy judgment of what targets are required to not compromise key assets and functions. Now, it may be at the end of the day that we simply differ as to the usefulness of putting the word "policy" there. It seems to me to be a judgment about which reasonable scientific minds might differ, but I as a layman would have nothing of value to add to it, whereas on policy I would like to think that all of us are laymen and all of us have something to say. Do you see that's why they're such different areas of discourse?

30

35 MR BEASLEY: As an example of a different area of discourse, if you look at policy outside of the red box, the first one is:

Decide on economic and social acceptability of proposed SDLs.

40 Now, that might well be policy.

THE COMMISSIONER: I'm sure it is, but it also seems to be illegal.

45 MR BEASLEY: It might be a terrible interpretation of the Water Act but that, to me, is a policy judgment. Someone has gone, "Well, the scientists tell us the environment needs 4,000 gigalitres to be recoverable, but we are now going to decide on economic and social acceptability, and we end up with 2,750." That's a policy

call. I think what the Commissioner is asking is: what's the policy aspect of selecting a key environmental asset? That's a judgment, but it's science-based isn't it?

5 THE COMMISSIONER: Just to go back to your – I think useful, simple example of the bears and the fish, and let's throw in trees as well because I think they have been as widely mentioned. If the scientists, yourself included, tell us that environmental watering below a certain level – of which I mean of course height, spread, duration, seems to have happened, frequency of outlining events, etcetera, below a certain
10 target there will be not the maintenance, not the protection, and not the restoring of the biological performance of those elements of the environment. The birds will breed more precariously or not at all, the fish will breed more precariously or not at all, and the trees will – as to – part of their population die and not reproduce. Those are scientific indicators of not protecting, not restoring, I think, are they not?

15 PROF BROOKES: Mmm.

THE COMMISSIONER: Once the scientists have decided that, and they seem to me to be matters which – out of great respect for what you and your group did –
20 that's something about which I imagine scientists have a lot of judgment to exercise, there's – presumably no one would say there's a perfect correct answer, there's a range from bands of confidence, and one of the purposes of the working in groups is that there's some robustness given by the necessity to achieve a consensus. That is what might be called a scientific judgment, is it not?

25 PROF BROOKES: Yes.

THE COMMISSIONER: Yes. It recognises the imprecision of input and output, when you have to ask, "Would this target level of environmental watering
30 compromise or not that ecosystem?" Have I got that correct?

PROF BROOKES: Mmm.

THE COMMISSIONER: What I don't understand – sorry, and that is what you and your text describe as a technical question. And that's what we see on page 31 of the
35 report, the review report. That's what you have in effect said, isn't it, that it's the – not 31, I'm so sorry, that's the outcome of it – on page 11, figure 2. More steely in black and white, without any colour. You describe that, I think, in the text as being the technical work that your review group was responsible for; is that right?

40 PROF BROOKES: Yes.

THE COMMISSIONER: And technical in the sense of it being scientific in the way you and I have just discussed. Yes. Your nod means yes?

45 PROF BROOKES: Yes.

THE COMMISSIONER: It's really difficult to record a nod that's all, in audio.
Very well.

MR BEASLEY: So that - - -

5

THE COMMISSIONER: And figure 2, item 11, of course, doesn't have any place,
feedback or otherwise for socio-economic factors?

PROF BROOKES: In figure 2, no.

10

THE COMMISSIONER: No.

MR BEASLEY: No. And just to help you with that, in contrast, if you – that
MDBA ESLT report that I took you to, if you go to page 16 of that, the one behind
tab 1 – I'm sorry, page 17 - - -

15

THE COMMISSIONER: You've got these feedbacks, I think.

MR BEASLEY: You will see a similar-type table, with the exception that you will
see out of step 6 a blue arrow going to the right saying"

20

Iterate if required to the environmental and socio-economic objectives.

That's the distinction between your framework and what the MDBA did, and that's
what they didn't tell you how that was done.

25

PROF BROOKES: No.

MR BEASLEY: Which we took at the top of page 30. So in fairness to you, one of
the – in terms of the difficulty I think we are all having, or certainly I am and perhaps
you too also Professor Brookes, in relation to figure 1, is first of all it was Mr
Young's diagram, if I can call it that, or figure. Yes?

30

PROF BROOKES: Yes.

35

MR BEASLEY: And would it be fair to say you didn't focus in terms of your – and
tell me if I'm wrong about this – but in terms of your input into this particular
review, you didn't spend a lot of time focusing on what's described as the policy
boxes in terms of the opinions that you are comfortable with in this report?

40

PROF BROOKES: That's correct.

MR BEASLEY: Right, okay.

THE COMMISSIONER: Can I just say if – zero in on the one we were talking
about, the one that refers to a policy interpretation "not compromise", as I read the
overall conclusion of your review group it was that you observed that the KEAs and

45

5 KEFs and the targets in question, having been selected by the MDBA by a process that I think you regard as scientifically robust, you then record the failure of the figure involving a 2,800 gegalitre reduction, being consumptive use from baseline, to meet those targets. And then you observe that so far as you are aware – the review group is aware, the MDBA did not go back in some feedback approach and make less stringent any of the KEA or KEF targets. Have I got that correct in summary?

PROF BROOKES: Yes.

10 THE COMMISSIONER: So that – were you given to believe by the MDBA, those people with whom you dealt, that the process involved setting KEAs, KEFs and relevant targets, and then testing whether they would be achieved with a certain level of water recovery for the environment? And, if they weren't, revisiting the KEAs and KEFs on so-called policy grounds, making them less stringent and iterating, to
15 use the jargon, to see whether you could thereabouts reduce the current achievement? Is that how you understood your colleagues at the MDBA saw the process?

PROF BROOKES: Yes. You could either iterate to achieve compliance, if you like, to meeting those ecological objectives or functions, or with iteration you may be
20 trading off against socio-economic.

THE COMMISSIONER: But if you have already reached the amount above – take above which would compromise, that doesn't lend itself to being – once the judgment has been formed, with all the imprecision and need to achieve consensus,
25 once that judgment has been formed, how do you alter that level without – obviously, science is dynamic and there may be better science, but in the absence of better science how do you alter that level?

PROF BROOKES: Alter the level of the ecological objective?
30

THE COMMISSIONER: Yes.

PROF BROOKES: You don't alter the - - -

35 THE COMMISSIONER: Thank you.

PROF BROOKES: You don't alter the level, you either comply or you don't comply.

40 THE COMMISSIONER: Right, exactly.

MR BEASLEY: That's the point.

45 THE COMMISSIONER: So for example, in the consensus approach, you and your colleagues on the review team, to put it very crudely, some of you may be more cautious, some may be a little bolder, in terms of what I will call the resilience of the relevant part of the ecosystem to withstand conditions, say, of three month low water

as opposed to a two month low water. Just to pick an arbitrary example. But once that consensus has been – exercise workshopped through, you all sign up to a particular amount. It wouldn't seem to me to be principled at all as scientists to observe that the modelling shows that the tested amount of return water doesn't
5 achieve that target. And the one of you that was a bit bolder about it says, "Look, I told you so, we need to relower that target if we are going to get a tick rather than a cross in our box." That would appear to me to be terribly unprincipled. Do you agree with that?

10 PROF BROOKES: Can you please say that again?

THE COMMISSIONER: The idea of the testing that your review group carried out, or at least reviewed, was to see whether at the volume of water putatively to be returned to the environment, 2,800 gicalitres, the so-called targets would be met or
15 not. That was the idea, wasn't it?

PROF BROOKES: Yes.

THE COMMISSIONER: And that's - - -
20

PROF BROOKES: Well, it's to review the science. We're not – we're not making a judgment.

THE COMMISSIONER: No. That's what I said. You're reviewing the – what
25 they did to do that.

PROF BROOKES: Yes.

THE COMMISSIONER: Yes. Thank you for the correction. I do understand that.
30 Page 31.

MR BEASLEY: Can we go back to page - - -

THE COMMISSIONER: I suppose page 29 is best, isn't it, table 2? So page 29,
35 generally speaking – but particularly it's table 2, records what might be called the relative failure of environmental watering at a level of 2,800 gicalitres recovery to hit the environmental targets; is that right?

PROF BROOKES: Yes.
40

MR BEASLEY: The watering target. What does high risk and low risk mean?

PROF BROOKES: I think it links back to - - -

45 MR BEASLEY: Is met at low risk means there is a good chance of meeting it; is that what that means?

PROF BROOKES: Yes. And high risk - - -

MR BEASLEY: Means there is a good chance of not meeting it.

5 PROF BROOKES: Not meeting it.

MR BEASLEY: Right.

10 THE COMMISSIONER: Well, now, thank you. Now, I think you've already told me that your group – your understanding and you think your group's understanding was that the MDBA had in mind that, upon observing that kind of failure, maybe the targets could be made less stringent and the model run again to see whether failure would be thereby turned into success; is that correct?

15 PROF BROOKES: So you're referring to the second-last paragraph on page 30?

THE COMMISSIONER: Yes.

20 PROF BROOKES: So:

The model indicates the proposed SDLs would be highly unlikely linked specified objectives.

25 THE COMMISSIONER: Unlikely, yes.

PROF BROOKES: And then further down:

This assessment does not seem to have led to revision of ecological targets to remove those unachievable, given unavoidable constraints.

30 THE COMMISSIONER: That's right. So that they haven't altered the targets and the targets are in any event ones about which you've – your review group made some comments, including some criticisms; isn't that right?

35 PROF BROOKES: Yes.

40 MR BEASLEY: The targets are set in – I don't know whether you were given them, but the – in the draft of the ESLT report that you were given, but if you look at the document, yes, you have got in front of you now, and just as an example go to page 203.

THE COMMISSIONER: That's back in tab 1, Professor.

45 MR BEASLEY: Back in tab 1. 203 is just an example. Do you see something there for the lower McIntyre River?

PROF BROOKES: Mmm.

MR BEASLEY: So we have got system wide environmental watering targets, site specific ecological targets, then the site specific flow indicators. And that's what's desired in terms of flow. The 4,000 megalitres a day for five consecutive days between October and December 23 per cent of the years to meet those ecological targets. Were you given something like that when you were reviewing this report? You can say you don't remember.

PROF BROOKES: I don't remember.

MR BEASLEY: In any event, we were on page – we can - - -

THE COMMISSIONER: Just before you leave that. Professor, I take it that when you look at the yellow column on page 203, and you see the figures 4,005, that's a classic example of what is an inherently imprecise estimated exercise? They're round figures, or decimal figures.

PROF BROOKES: Yes – yes.

THE COMMISSIONER: Yes. Thanks.

MR BEASLEY: Should also point out that yellow means that that is an event that's considered achievable when delivered in combination with tributary inflows or unregulated flow events, brown has got Buckley's, blue is a chance.

THE COMMISSIONER: Can I go back – you pulled me up about the question – very long question which had in its tail the sting about something being very unprincipled. I am finding it difficult to understand why, once you had set targets – assuming that you still thought they were scientifically sound – you would even dream of altering them to run against an unchanged water recovery amount rather than the obvious proposition, which is, “If I can't meet the targets that I scientifically think are necessary in order to avoid compromising the environmental value, I better run a model on perhaps either more water or water differently timed.” Isn't that the obvious proposition?

PROF BROOKES: There's – I guess there's a number of ways you could view that problem. You could look at a greater flow scenario, but it's always wise to revise targets. It's always you set a target based on your best understanding. If I go back to the example on page 203, and if I had site specific target of 4,000 megalitres per day for five years and hitting that – you know, 23 years in 100, then I would question – I would go back and I would say, “Okay, let's run a scenario where we do increase to – I don't know – 3,000 gicalitre per year. Do we hit the target? I would also scrutinise the target and go, “What – what are we actually trying to achieve?”

THE COMMISSIONER: Yes.

MR BEASLEY: And it goes back to fish and frogs, and so on. I would – I would scrutinise the target. I wouldn't necessarily change the number, but you will do a revision to ensure that we have the right targets.

5 THE COMMISSIONER: Professor - - -

MR BEASLEY: Well, for example, look at page 215 for Hattah Lakes

THE COMMISSIONER: Before we leave 203.

10

MR BEASLEY: Yes.

THE COMMISSIONER: I promise we're going to do it. What you have just described as a process is one which seems, with respect, to be inherently scientific.

15 That is, you don't treat a conclusion that you have reached in the past as good for all purposes, and not to be rethought. Is that – have I got that correct?

PROF BROOKES: Correct.

20 THE COMMISSIONER: And may I say, in an iterative process, given the imprecision and the nuances of judgment and ranges of confidence that both individuals and groups may display, when thinking about the matter, I personally don't have any problem and not regard as unprincipled revisiting targets as well as flow limits. What I would have a problem, and what I'm asking what do you think
25 whether it would be unprincipled or not, is reducing a target not because you have altered your scientific view, not because you have become more bullish about the resilience of the ecosystem, but in order to manipulate the modelling to produce a tick not a cross.

30 PROF BROOKES: That would definitely be unprincipled.

THE COMMISSIONER: It has been known in politics, you see, that kind of manipulation. Change your assumptions and you will change how quickly you tell the population you will achieve surplus. When you see the assumption, which is –
35 you know, why there's now a body non-partisan to check these figures, or at least publish them, and you see the assumptions. Some of them are, how should I say, heroic from time to time. And you – most people, voters included, are left with the conclusion that somebody has chosen that figure because it produces a certain outcome. Not because they think it is right or realisable or plausible.

40

No one thinks budgetary politics are scientific or principled in scientific terms, whereas I would like to believe that scientists such as yourself and this group are principled and do not change variables like these targets in order to reach a desired outcome in the modelling. Do you agree with all of that?

45

PROF BROOKES: Yes.

MR BEASLEY: So 209.

THE COMMISSIONER: But the happy news is the MDBA, so far as you could see and your group was aware, had not done that. They left the targets in place.

5

PROF BROOKES: Yes.

THE COMMISSIONER: And you could record what they had recorded: failure to hit them. That's correct?

10

PROF BROOKES: Yes.

MR BEASLEY: So 209 might be a good example. If you go to 209 of that report. Professor Brookes. So do I understand you correctly – if you look at 209,

15

Murrumbidgee region, for our site-specific ecological targets, second paragraph, provide a flow regime which supports the habitat requirements of water birds and is conducive to successful breeding of colonial nesting water birds, what you're saying is you may do some different modelling as to how much flow, for how long, at what times and what percentage of the years might be required to meet that ecological target. But you are not going to throw that target out. Correct?

20

PROF BROOKES: Correct.

MR BEASLEY: I mean, you're not – there's not much point in having – providing a flow regime that will result in the unsuccessful breeding right? So the target has got to stay. Equally, provide a flow regime which support recruitment opportunities for a range of native aquatic species, eg, fish, frogs, turtles, invertebrates. That sounds like a target that's consistent with the Act.

25

30 PROF BROOKES: Yes.

THE COMMISSIONER: I'm sorry, can you just remind me, Mr Beasley, the colour coding is what again?

35

MR BEASLEY: Blue is probably – let's – I don't want to paraphrase this, so I will find the text.

THE COMMISSIONER: Can you remember, Professor?

40

MR BEASLEY: It's not his report. So - - -

THE COMMISSIONER: I know.

MR BEASLEY: 199. Yes.

45

THE COMMISSIONER: Was it?

MR BEASLEY: 199. Blue – considered deliverable is mostly regulated flows under current conditions.

THE COMMISSIONER: Right.

5

MR BEASLEY: Yellow – achievable when delivered in combination with tributary inflows and unregulated flow events. In other words when it rains. And brown – require large unregulated flows, and it is likely that these flows cannot currently be influenced by river operators due to river operating constraints. In other words, needs a big flood.

10

THE COMMISSIONER: Thanks.

MR BEASLEY: Right. Can we go back to your review report, though? And I think this just – this flows on from some of the questions that the Commissioner was just asking you. And I wanted to take you firstly to – there's a number of instances of this, but one is page 4, bottom paragraph:

15

The model 28 gig reduction scenario, considered by the panel does not meet several of the specified hydrologic and ecological targets. In some cases operational constraints –

20

I will come back to constraints in a minute –

prevent delivery of environmental water to meet targets implying that some of the current ecological targets are not consistent with unavoidable operation constraints. In other cases, the shortfalls against targets appear to be a result of, one, insecurity environmental water, ie, 2,800 is not enough, shortcomings in modelling environmental flow regimes in the unregulated rivers, or a combination of these factors.

25

30

A very similar thing is said in the concluding paragraphs on page 30, second-last paragraph:

In summary, the model indicates the proposed ESLTs will be highly unlikely to meet the specified ecological targets, even in the absence of future climate change.

35

I will come back to climate change. But is this a fair way of describing what you and your colleagues are saying, that if it's 2,800 gegalitres as a recovery of water for the environment and if the watering – environmental watering targets remain those that were set by the Basin Authority as being the ones that are desirable, then a 2,800 gegalitre reduction in water for the – sorry recovery of water for the environment creating an SDL that would create a sustainable diversion limit that does not reflect an environmentally sustainable level of take?

45

PROF BROOKES: Across all of the objectives.

MR BEASLEY: If the objectives stay the same as the targets – if the ecological targets stay the same as set by the MDBA, your report is saying 2,800 gicalitres for the environment will mean – will create an SDL that does not reflect an environmentally sustainable level of take?

5

PROF BROOKES: Again, across all of the indicators. So you can be environmentally sustainable.

MR BEASLEY: If it has got to hit all the targets that they set, it's not an environmentally sustainable level of take.

10

PROF BROOKES: If it has to hit the targets, then it's not environmentally sustainable.

MR BEASLEY: Right. All right.

15

THE COMMISSIONER: But that's an example, is it, of a situation, intellectually, in which – a pretty quick follow-up question would be now, are those targets appropriate to those necessary to achieve the non-compromise of the environmental values? Is that right?

20

PROF BROOKES: Yes. And I guess with these it's not consideration of the basin-wide habitat. And so if we look at within reach or within whole Basin, then we may be hitting the targets and it may be ecologically sustainable for various populations, but against the targets, then - - -

25

THE COMMISSIONER: Yes. To be fair the review report in several places points out that there is insufficient knowledge and, thus, demonstration of what I'm going to call the capacity to extrapolate Basin-wide from the places and events that have been studied. Is that right?

30

PROF BROOKES: Yes, we have. There is pretty significant scaling issues.

THE COMMISSIONER: Yes.

35

MR BEASLEY: Sorry?

THE COMMISSIONER: Scaling issues.

MR BEASLEY: Using the indicator sites isn't necessarily perfect as a means of assessing Basin-wide.

40

PROF BROOKES: It's not perfect. There was no review that the indicator sites hit the diversity habitat we require throughout the Basin.

45

THE COMMISSIONER: Yes.

MR BEASLEY: Is an end-of-flow analysis better for that. Like an end-of-valley flow analysis or does that have its drawbacks too?

PROF BROOKES: That's – yes. That's only a hydrological target.

5

MR BEASLEY: Yes. All right. Just because we have been using the term “key ecosystem function”, and it's not defined in the Act, I have been reminded a number of times to ask you what is your understanding of an ecosystem function?

10 PROF BROOKES: Yes. So the assets are the – well, the way I understand it, the assets could be the wetlands; they could be the organisms - - -

MR BEASLEY: Well, the assets are the defined environmental assets we have got defined in the Act, whereas – it's ecosystem function. I didn't mean to interrupt you, so the assets are defined as water-dependant ecosystems, ecosystem services, is that defined? Probably not. No. Sites with ecological significance. Your understanding of ecosystem functions.

15

PROF BROOKES: Yes. So the functions are the – the processes. And so the – an asset I guess. I wouldn't even necessarily consider an ecosystem service an “asset”. It's a service that's provided by the – by the wetland system. So the asset would either be the wetland or the organisms within the wetland or river system. The functions are key functions associated with those assets. So it's germination, spawning - - -

20

25

THE COMMISSIONER: Feeding?

PROF BROOKES: Feeding. Yes. So – you know, their habitats. If it's – the feeding could be seen as a function of birds or fish, but it's the process associated with an asset. It could be biogeochemical; it could be via the organisms.

30

THE COMMISSIONER: Then just to show the fun the Parliamentary draftsman had with the wording, we had the express “key environmental outcomes”. And “environmental outcomes” is defined to include ecosystem function. What should I understand – so - - -

35

PROF BROOKES: So an outcome might be a bird breeding event. And that's an ecological outcome and so you would set a hydrological target to provide the habitat which enables birds to breed. And then the outcome of that is the breeding event.

40

THE COMMISSIONER: Yes. Right. Not surprisingly – this is not a criticism – there's a lot of overlap, isn't there, between these concepts?

PROF BROOKES: There is a lot of overlap. And I guess, necessarily, there has been terms given to try and develop a process and papers, plans, and yes, there's considerable overlap. There's considerable confusion, I think too in - - -

45

5 THE COMMISSIONER: Just as a lawyer, I look at a test that says, “I have got to find a level which if exceeded would compromise key environmental assets, key ecosystem functions and key environmental outcomes.” And it seems to me that it would compromise one of those if it would compromise one of those, it will compromise three of them. Yes.

PROF BROOKES: Yes. So - - -

10 THE COMMISSIONER: Why say in 10 words if you can say it in 30? Yes.

MR BEASLEY: What’s an “ecosystem service” or “ecosystem services”?

15 PROF BROOKES: So the ecosystem is a term that was coined, I guess, in the nineties to describe services that are provided by the environment that – to humans, particularly – that they then don’t have to pay for. So the example would be the wetland acts like the kidneys in a system; it filter the water, cleans it up - - -

MR BEASLEY: Right. Yes.

20 PROF BROOKES: - - - the provision of good clean water then is a service provided by the environment and there was - - -

25 MR BEASLEY: That’s linked to an environmental outcome which is good quality water.

PROF BROOKES: Good quality water.

MR BEASLEY: Yes. Sorry, did I – I interrupted part of your answer.

30 PROF BROOKES: No. That’s fine.

MR BEASLEY: No. Good. Okay. You can’t tell us what the triple bottom line is, can you? I withdraw that.

35 PROF BROOKES: No, but - - -

THE COMMISSIONER: No, he has withdrawn that, so we will move on.

40 PROF BROOKES: But there was a paper. So a lot of this is determined in trying to preserve the environment for ecosystem services. So there is a financial value associated with that, so that gets towards your triple bottom line.

THE COMMISSIONER: It’s not his triple bottom line, I assure you.

45 MR BEASLEY: Please don’t go there. Can I just go now to page 5, the summary of your recommendations? I know there’s a bit more detail about this later on, but I

want to see if I understand what – what the recommendations fully mean and why the panel ask for them. The paragraph above the four recommendations commences:

5 *The most important short-term work is to more clearly articulate the ecological framing for the ESLT method and to publish coherent and comprehensive description of the ESLT method and its implementation.*

That’s not a great endorsement of what you were provided in terms of assistance by the Basin Authority. What do you mean by that – by:

10 *A more clearly articulated ecological framing from the ESLT method and a coherent and comprehensive description of it.*

PROF BROOKES: I guess it’s common to all of the reports that we’ve reviewed
15 that the documentation is just not there to provide clarity on all of the process. And that clarity is required, because it – without, it there’s a lack of confidence in the process. And so where we have asked for a more coherent comprehensive
20 description, it is so that there’s greater clarity around the methods. So people are more familiar with it and the links between the various hydrological indicators and ecological outcomes are clearer and so that there’s a clearer line of evidence towards
how that was derived and why it’s important.

MR BEASLEY: Is that – what you just discuss there, and what’s contained in that
25 sentence, “The most important short-term work”, is that reflected in each of the four recommendations underneath? For example, one:

A coherent conceptual ecological model linking flow regimes to ecological responses across multiple spatial scales.

30 When it says “multiple spatial scales”, is that area or - - -

PROF BROOKES: It’s – yes, it’s area, but area in terms of both individual wetlands and broader reach – regional level.

35 MR BEASLEY: And “biogeographic zones”. What’s that?

PROF BROOKES: So upland, lowland river, for example.

40 MR BEASLEY: Right:

Description of the final modelling methods stating the key assumptions and sources of uncertainty.

45 That tells me that you weren’t – your group – sorry, your review panel was not provided with the modelling methods or the assumptions that were the inputs to the modelling.

PROF BROOKES: Yes. We were asking for a more thorough report. So the final modelling methods – there was a number of iterations. So we were involved in the process and not just reviewing the final work, but feeding into the process about where it could be improved where there was ambiguity and, I guess, the fact that we,
5 you know, trying to write and finalise our report at the same time as they were finalising the other report leads to – it’s - - -

MR BEASLEY: And – sorry, go on.

10 PROF BROOKES: - - - leads to – leads to that we are looking for final modelling methods and, particularly, the key assumptions.

MR BEASLEY: All right. And:

15 *At the summary of the modelling results that support the proposed ESLT and SDL it was indicated which hydrologic targets can be met under current constraints.*

20 What is meant by the word “constraints” there?

PROF BROOKES: So there’s constraints in the river operations. So there’s some – there’s some flows that can’t be achieved or are undesirable to be achieved with certain timing. And so – and they relate to particular river operations and how you can deliver water at particular times of the year and through particular reaches of the
25 river.

MR BEASLEY: Can you give me a specific example? Barmah Choke is often – is that one?

30 PROF BROOKES: Barmah Choke is one. So there’s - - -

MR BEASLEY: Why is that a constraint?

PROF BROOKES: Because it’s a narrow reach of river. If you – if you’re trying to
35 deliver a constraint on irrigation or environmental flows downstream of that – means you might be wanting to push more water through that reach, but if you do so you will be flooding. So overbank flows, you will be losing water and so you won’t be necessarily achieving the flow downstream that you are wanting, and you will be pushing a lot of water which is then unutilised. It’s going into a floodplain at an
40 undesirable time, and potentially getting return flows of poor quality water.

MR BEASLEY: So the Barmah Choke is a constraint in a sense there will be times you want an overbank flow there, because you want it to go to the Barmah Forest, but there will be times when if you are pushing – if you want an environmental flow
45 to go further down the river, but it is going to spill over at Barmah at the wrong time of year, that’s just a waste of – one waste a water.

PROF BROOKES: Waste of water.

MR BEASLEY: Waste of that part of that environmental flow.

5 THE COMMISSIONER: It may actually be damaging.

PROF BROOKES: And you may be getting poor water quality occurring in Barmah Forest.

10 MR BEASLEY: By poor water quality, you're talking what, a Blackwater event or something of that - - -

PROF BROOKES: Potentially a Blackwater, yes. Or cyanobacterial blooms, if you're getting nutrients returning to the river as well.

15 THE COMMISSIONER: On the constraint question, sort of a converse of what you have just been telling Counsel Assisting about, on page 4, the fourth – the third paragraph of the response says:

20 *The modelling has used to current carryover rules designed for water irrigation use. These are likely to be suboptimal for environment water management given the need to reinstate small/medium overbank flow events*

25 Pausing there. The small/medium overbank flow events are an example of the kind of thing which in the right season, and with the right frequency, and for all the right duration, are necessary for - - -

PROF BROOKES: Floodplain productivity, yes.

30 THE COMMISSIONER: The next – you then go on:

This is likely to have influence which hydrological targets have been met in the modelling.

35 That's a reference to the idea of whether constraints make something achievable, I think, is that right, which the Authority has assigned as one of the ways in which it evaluates whether a target can be met. They modelled on the basis that the current carryover rules - - -

40 PROF BROOKES: Yes. So carry over rules aren't necessarily - - -

THE COMMISSIONER: Were trying to avoid the overbank flow events; is that right?

45 PROF BROOKES: Yes. Carry over rules, so carry over rules link, I think we can even carry over environmental water now, so there has been a freeing up of that. But I'm not sure that that - - -

THE COMMISSIONER: Is that a – is that a reference to what I call an artificial constraint?

5 PROF BROOKES: It could be an artificial constraint. But it's an operational – it's an operational constraint.

THE COMMISSIONER: This is a criticism, though of the modelling exercise. The question was are the hydrologic and environmental modelling and analysis transparent, appropriate and defensible? Part of the answer is the modelling used
10 rules which are likely to be suboptimal for something that is desirable to occur?

PROF BROOKES: Yes, so in – and these may have been addressed, I don't know the carry over rules. And there's been a number of operational constraints that have been addressed.
15

THE COMMISSIONER: Thanks.

MR BEASLEY: And just finishing off on page 5, recommendation 4:

20 *Basin scale synthesis of expected environmental benefits from the proposed ESLT and SDLs.*

Is that criticism that there's a lack of specificity of what the MDBA is attempting to achieve by its SDLs?
25

PROF BROOKES: Maybe they have been too specific around particular sites.

MR BEASLEY: Right.

30 PROF BROOKES: And so what this is saying is, "What do we want across the basin in terms of fish populations, bird populations", etcetera.

MR BEASLEY: So this is a system wide.

35 THE COMMISSIONER: A way of addressing a problem of not having a spatially continuous data sample?

PROF BROOKES: Yes. And model to determine outcomes across that dataset.

40 THE COMMISSIONER: Thanks.

MR BEASLEY: Page 12 of the report, I think we probably are going over old ground, but the fourth paragraph under the heading 3.1:

45 *Overall, the body of science sufficient to make an informed decision on the environmentally sustainable level take from the basin.*

Paragraph commencing:

5 *Secondly, whilst noting issues in relation to delivery constraints and current water management rules (eg carryover rules), the scientific evidence presented to the panel indicates that an ESLT based on a water recovery target larger than 2,800 gigs would be required if all the ecological targets being considered by the authority at the time of the review are to be met.*

10 In other words, that's the point you were making before, that if you have to meet all these targets 2,800 gigs for the environment, isn't what – won't be an – won't create an SDL that reflects an ESLT on that assumption?

PROF BROOKES: Yes.

15 MR BEASLEY: Yes. Pages 14, 15 and you discuss the setting of key environmental assets on page 14, which the opinion of the panel was that in relation to key environmental assets they had been compiled using best available assets. You talk about the identification of more than 2,000, I think the figure is 2,442 in the guide. Then on page 15 where under the heading 'Setting Ecological Targets for
20 Key Environment assets and key ecosystem functions', you talk about the iKea, which are the indicator sites for the key environmental assets. And the iKea EFs, which are the indicator sites for the key ecosystem functions. I just want to see if I can understand the paragraph commenting the third paragraph, under – that commences:

25 *Many of the iKea ecological targets include an aerial extent.*

What's an aerial extent?

30 PROF BROOKES: So it's how much of that would be inundated.

MR BEASLEY: Right.

35 PROF BROOKES: So that there's area associated with that.

MR BEASLEY: So how much area is inundated by a particular flow event?

PROF BROOKES: Mmm.

40 MR BEASLEY: Right. However, the basis for setting those aerial extents is unclear. So that was something that wasn't provided to you, as to why a particular extent of inundation was required?

45 PROF BROOKES: Yes. I don't recall exactly, or it's that what the boundaries for that floodplain were.

MR BEASLEY: In many cases the target is 100 per cent of the existing area of a particular ecological community, while in other cases the target is for a lesser area. For some of these cases the lower targets are linked to the threshold of acceptable change. Which threshold – is it the Ramsar character description? Yes, okay. In
5 other cases no justification is given for targets set less than 100 per cent of the current area. I'm just wondering, where it says no justification is given, is that something that you recall the review panel asking the MDBA to give you?

PROF BROOKES: I don't recall.
10

MR BEASLEY: Right. There is some - - -

THE COMMISSIONER: It's unlikely your panel would have decided to put that criticism in without inviting the MDBA to talk to you about it?
15

PROF BROOKES: Or inviting them to respond to this, yes.

THE COMMISSIONER: Yes. Thanks.

MR BEASLEY: You've got a criticism, to an extent, in relation to the non-specification, I think, of ecological targets for key ecosystem functions, and also saying that values have been poorly described. What do you mean by the values poorly described for ecosystem functions?
20

PROF BROOKES: So it's the ecological values. So what is – what is that function actually providing to the system?
25

MR BEASLEY: Right. All right. Commencing on page 16 there's a discussion of the modelling, and I think the upshot of that discussion at pages 16 and 17 is that the
30 best available modelling was at least accessible and used by the Basin Authority. Can you tell us: the initial basin-wide modelling was developed by the CSIRO on the sustainable yields project? On page 17, it says the MDBA is a key participant in the EWaterCRC. What is – what – can you describe that for us. What's that?

PROF BROOKES: The eWaterCRC is – it's a combination of federally funded, state government funded, university funded research centre.
35

MR BEASLEY: Right. And they develop this Eco Modeller, did they?

PROF BROOKES: They developed Eco Modeller and also took the, what was called Bigmod, the hydrological model for the River Murray, and have updated with better information, hydrological information.
40

MR BEASLEY: And it says here in the bottom paragraph, 17 Eco Modeller is a
45 tool developed by eWaterCRC includes a library of ecological response models. What should we understand by that? Is that like a particular flow will achieve particular ecological response or is it more sophisticated than that?

- PROF BROOKES: No, it's pretty simple. And some of it is – some of it is expert opinion, to develop those functions. And some of it will be based on more data.
- 5 MR BEASLEY: And whilst this talks about these various models that can be used, did the MDBA tell you exactly what was the modelling they used? I know you have criticised them for not providing you with all the assumptions that went into the modelling, but this seems to be a list of what's available without actually directing us to what was it that MDBA did.
- 10 PROF BROOKES: Yes. I guess I don't recall that in this instance those preference curves were used explicitly. They may have been used - - -
- MR BEASLEY: Stop right there. What's a preference curve?
- 15 PROF BROOKES: So there's - - -
- MR BEASLEY: I don't mean that rudely, but if I don't say stop right there, I will forget. So - - -
- 20 PROF BROOKES: So those – what did you call them, species specific - - -
- MR BEASLEY: Site specific flow indicators.
- PROF BROOKES: Site specific flow indicators.
- 25 MR BEASLEY: Which is another way of saying, I think, an environmental watering requirement. Go on.
- PROF BROOKES: Yes. So then there is a range of, like – well, species preference curve. It might be that in order to achieve a fish spawning event, then you need a particular flow. And so the – as flow increases, you get a curve and so the - - -
- 30 THE COMMISSIONER: It's kind of dose response, is it?
- 35 PROF BROOKES: It's like a dose response. And so the occurrence of an event will increase in some function as flow increases or duration of - - -
- THE COMMISSIONER: To a certain – to a certain point.
- 40 PROF BROOKES: To a point. And so there's – there's those models available, and I guess the site specific flow indicators take into account some of those species specific models. Expert opinion around how long – well, areas need to be inundated for flooding or how long or what fresh flow we need within our river system in order to get a spawning event.
- 45 MR BEASLEY: All right. You need to go in 7 minutes, so I want to go – I want to just finish – I won't finish this report, but I just want to finish on climate change,

because it's something that is – can be dealt with fairly compactly. On page 19 you are dealing with the question:

Has the use of scientific information been consistent and defensible?

5

Tell me when you are on page 19.

PROF BROOKES: Yes.

10 MR BEASLEY: So third paragraph:

MDBA has modelled the likely impacts of climate change to 2030 on water availability, and this modelling is robust. MDBA has not used this information in the determination of SDLs for the proposed Basin Plan, but rather has determined SDLs using only the historic climate and inflow sequences. The panel understands –

15

and I assume this is something the MDBA told you –

20

that this reflects a policy decision to accept the climate change risk sharing amongst the users that is represented in current water sharing plans.

That's what they told you?

25

PROF BROOKES: Mmm.

MR BEASLEY: Do I – is your understanding that what that means is, that irrigators may have a particular entitlement in – under their licence of, say, 100 megalitres a year, but if it doesn't rain or it doesn't rain much their allocation in a particular year might be only 50 megalitres, and that's how climate variability is factored in, rather than putting in climate change projections?

30

PROF BROOKES: Correct.

35

MR BEASLEY: There are reasonably – and have been for some time – reasonably well developed climate change projections for the Basin. You are aware of them?

PROF BROOKES: Yes.

40

MR BEASLEY: Including the work of the CSIRO dating back to 2008, I think, as part of the sustainable yields project.

PROF BROOKES: Yes.

45

MR BEASLEY: And in general terms, let's just talk about the southern Basin for a moment, the expectation is – and while there is obviously a degree of variance that

might occur – but it’s generally expected to, (a) rain less and (b) become warmer; correct.

PROF BROOKES: Correct.

5

MR BEASLEY: And at perhaps not the worst case scenario, but at a high scenario in terms of – at a more extreme scenario, there could be a significant drop off in terms of inflow to the southern Basin.

10 PROF BROOKES: Correct.

MR BEASLEY: And is it – is it your view that climate change projections, if the command in the Water Act is to use the best available science in terms of setting SDLs, that climate change projections should have been incorporated in setting the
15 SDLs for the Basin Plan?

PROF BROOKES: I think it would have been prudent to consider climate in future flow forecasting, and so if you – if you want to plan with longevity then, you know, you look out that 20 to 30 years and that the 20 to 30 year projections of rainfall
20 across the basin, you know, we are looking at feasibly five per cent to 10 per cent reduction. The reduction in inflow is non-linear to that. So it depends on how wet the catchment is in order to get the inflows. And so you – we could have feasibly expect somewhere between a 10 to 30, possibly higher, reduction in inflow with a 10 per cent reduction in rainfall. And so I think prudent modelling would suggest we
25 should consider climate in setting future flow.

MR BEASLEY: Well, just so you can catch your plane, if you go to the first paragraph on page 20, over the page, you’ve talked about the Basin Authority’s policy choice not to address projected impacts of future climate change. And you
30 have said that:

*No view has been given on whether the ecological targets would be changed should the climate change as projected. If climate change impacts do unfold as projected, lower SDLs would be required to maintain a level of environmental
35 protection offered by the currently proposed SDLs. This represents a significant risk in the longer term and a smaller risk in the short term.*

That’s another way of saying what you were just telling me, I think, that - - -

40 THE COMMISSIONER: A risk of what? A risk of - - -

PROF BROOKES: The risk of compromising ecological values.

THE COMMISSIONER: So that a significant risk – I take it that your panel
45 proceeded on the basis that if you thought that a certain state of affairs would represent a significant risk to an ecological value, that would be – that would constitute a compromiser.

PROF BROOKES: Yes.

THE COMMISSIONER: I see.

5 MR BEASLEY: In relation to what we have just been discussing, the fact that it appears in the – in your review here, and tell me if I'm wrong, but it does lead me to assume that it was a matter that was discussed between the review panel and the people of the MDBA you were speaking to?

10 PROF BROOKES: Yes.

MR BEASLEY: Either incorporating or not incorporating climate change projections.

15 PROF BROOKES: Yes.

MR BEASLEY: They told you about this policy choice?

PROF BROOKES: Yes.

20

MR BEASLEY: Did anyone – did you or anyone in the panel to your recollection say, look, this is – it's a bad decision?

PROF BROOKES: Yes.

25

MR BEASLEY: All right. Well, was that you, was it all of you, or - - -

PROF BROOKES: I think it's – I think it's the view of the collective group, that if you want this – if you want the Plan to have longevity, and you want the environment to not wear all the risk again, you should account factor in climate change.

30

MR BEASLEY: And do you recall the response?

35 PROF BROOKES: No.

MS STRACHAN: It was simply restate the policy, was it?

PROF BROOKES: I think it's the policy around, you know, the water sharing arrangements where the risk then is – because we now have water purchase for the environment there is an allocation during those dry events, but whether that fully offsets or – whether that still maintains the ecological integrity in the long term is yet to be determined.

40

45 MR BEASLEY: Thank you. Mr – sorry, Professor Brookes has to catch a plane. There's another couple of reports to get through, and a little bit of this, so there is quite some time. Not a whole day, but - - -

THE COMMISSIONER: Have to reprogram, then.

MR BEASLEY: Yes. We will have to reprogram.

5 THE COMMISSIONER: Professor, I'm sorry about that.

MR BEASLEY: Yes.

10 PROF BROOKES: No, that's fine.

THE COMMISSIONER: But I'm much obliged for your assistance. It really helps me. Thank you.

15 MR BEASLEY: So we will make another date.

PROF BROOKES: Yes.

MR BEASLEY: Obviously, Professor Brookes is from Adelaide, so it hopefully won't be too inconvenient.

20 THE COMMISSIONER: Thank you.

25 **<THE WITNESS WITHDREW** **[3.19 pm]**

PROF BROOKES: All right. So that is it for today.

30 THE COMMISSIONER: So we adjourn till?

MR BEASLEY: 10 tomorrow.

THE COMMISSIONER: 10 o'clock here tomorrow.

35 MR BEASLEY: Yes.

THE COMMISSIONER: Will 10 o'clock – do you need to make it earlier than that? No, 10 o'clock?

40 MR BEASLEY: I would rather not.

THE COMMISSIONER: No. 10 o'clock it is. Thank you very much.

45 MR BEASLEY: Thanks.

MATTER ADJOURNED at 3.20 pm UNTIL WEDNESDAY, 18 JULY 2018

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