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TRANSCRIPT OF PROCEEDINGS

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MR B. WALKER SC, Royal Commissioner

IN THE MATTER OF THE MURRAY-DARLING BASIN ROYAL COMMISSION

ADELAIDE

9.43 AM, THURSDAY, 6 SEPTEMBER 2018

Continued from 5.9.18

DAY 26

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

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

We've got Mr Close here to give evidence this morning, Commissioner. And,
10 following that, we have Mr Modica and Mr Jenson from the Mildura Council, who we met at Mildura and who have lodged a submission with the Commission. Yesterday I didn't tender, from Mr Papps's brief – I won't read out the title of each document, but I tender tabs 1 through to 15 of that brief. There are a couple of other documents that were in it that need to be tendered, but I don't have my brief with me
15 to deal with that right now. And from Mr – sorry – Professor Paton's brief – I might come back to that, because there's some documents there I don't think I led. So I will deal with that later.

There has been an update of the Basin Plan, too, I think we should put on record.
20 We're going to have to get used to calling it a 2,680 Plan instead of a 2,750 Plan, because that's how it now appears in section 6.05 of the Basin Plan. That's, of course, as a result of the Northern Basin Review, the seven gigalitre reduction. Given that the SDL adjustment has been made and those projects aren't up and running, it's possible we need to call it a 2,075 Plan.

25 THE COMMISSIONER: So where do I go to see this change?

MR BEASLEY: If you've got the new Basin Plan - - -

30 THE COMMISSIONER: Yes.

MR BEASLEY: - - - if you go to say page 30.

35 THE COMMISSIONER: Yes.

MR BEASLEY: Top there, see it has got reduction of 2,680.

THE COMMISSIONER: Thank you.

40 MR BEASLEY: Whereas previously it said 2,750. The figure below it for the northern Basin previously said 390. It now it says 320.

THE COMMISSIONER: Thanks. So it's identified as compilation number 6; is that right?

45 MR BEASLEY: Yes, that's right.

THE COMMISSIONER: Thank you.

MR BEASLEY: Although I – I mean, I query whether 2,680 is actually accurate, given the SDL adjustment, which would make it a 2,075 gigalitre Plan.

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THE COMMISSIONER: Yes.

MR BEASLEY: Of course, the 605 is beyond the five per cent allowable, which only allows 543, so perhaps it's a 2,137 plan.

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THE COMMISSIONER: Yes.

MR BEASLEY: If you get the extra 450, it might be a 2,525 plan or a 2,587 plan.

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THE COMMISSIONER: Thank you.

MR BEASLEY: If you don't get the 450 – perhaps it's less than all of those figures. In fact, it almost certainly is. Mr Close is here to be sworn in.

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<ANDREW FRANK CLOSE, AFFIRMED

[9.47 am]

<EXAMINATION-IN-CHIEF BY MR BEASLEY

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MR BEASLEY: Have a seat, Mr Close. Mr Close you provided the Commission with a witness statement dated 28 August 2018.

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MR CLOSE: That's correct, yes.

MR BEASLEY: And do you have a copy of that with you?

MR CLOSE: I do, yes.

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MR BEASLEY: And that statement is correct and true?

MR CLOSE: True, yes.

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MR BEASLEY: Thank you. You've outlined your tertiary qualifications in paragraph 2. You've, essentially, been a modeller for – since the mid-70s. Is that right?

MR CLOSE: That's correct, yes.

45

MR BEASLEY: And ultimately your most recent employment before your retirement was with the Murray-Darling Basin Authority?

MR CLOSE: That's correct, yes.

MR BEASLEY: Were you – what was your position at the time that the Commission became the Authority?

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MR CLOSE: Commission became the Authority. I was head of the Water Resources Group which is, basically, the modelling group within the Commission. And I was also managing the cap on diversions, which was introduced in 1995, and had previously managed the salinity drainage strategy which had come in place - - -

10

THE COMMISSIONER: What does managing the cap on diversions involve?

MR CLOSE: I ran the Water Audit Working Group, which was the technical body that received the information on what the diversions were every year and ran the models to work out what the cap targets were and maintain the cap register. And then we would submit those reports to the Commission.

15

THE COMMISSIONER: Thank you.

MR BEASLEY: Can I just ask you some basic questions about modelling first? I think at the – towards the conclusion of the meeting we had recently I asked you how do you code? I will save that question up for later on, if there's enough time.

20

MR CLOSE: Yes.

25

MR BEASLEY: But what I asked you to provide some assistance on is actually what information is given to a modeller in order to model how much water is needed in a river system to reach certain flow targets at certain times and for certain durations. I'm right that in a basic sense, dealing with the Murray system, for example, the ecologist will make decisions, perhaps with other experts, about what the key assets are, and they will make decisions about how much flow is required for those key environmental assets or those environmental assets, for how long, at what times of year, for what duration and in what percentage of years. And they will then provide that information for the modellers with the question, "Please tell us how much water is needed for us to achieve these flow results." Is that essentially it? If it's more complicated than that, please don't hesitate to tell us. Or, if I've got it slightly wrong, please correct me.

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MR CLOSE: That's essentially it. I mean, the ecologists have made their best estimate of what's required for each of the different ecosystems along the valley. And certainly, then, the task that the modeller does when I first look at natural conditions, see how often they were related. And, you know, if there's a number there that - - -

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MR BEASLEY: And what was the pre-development situation.

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MR CLOSE: Pre-development situation, yes.

MR BEASLEY: Yes.

MR CLOSE: And that would, obviously, be – you know, if there was something that the ecologist has said that was bigger than that, you know, you would say,
5 “Well, that’s probably not correct”, you know? So there would be a - - -

MR BEASLEY: Right. So there’s a check on that. Yes.

MR CLOSE: - - - bit of a checking process. And then you would do a modelling
10 run with the current conditions and see how often it’s met.

MR BEASLEY: So, based on how much water is diverted for consumptive use now, what is being achieved?

15 MR CLOSE: That’s right, and the way the system is managed.

MR BEASLEY: Yes.

MR CLOSE: Yes. And then – yes, what - - -
20

MR BEASLEY: Sorry. When you say “the way the system is managed”, do you mean the way the river is operated?

MR CLOSE: That’s right. Yes. Yes.
25

MR BEASLEY: Yes.

MR CLOSE: How the storages are operated and whether they do flood - - -

30 MR BEASLEY: What the constraints are in terms of - - -

MR CLOSE: The constraints would, obviously, be a part of it.

MR BEASLEY: Yes. Okay. Go on.
35

MR CLOSE: And then – yes. So – so in the situation we’re looking at the Basin Plan - - -

MR BEASLEY: Yes.
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MR CLOSE: - - - the first step they would say is, “Well, let’s reduce the amount of water that’s diverted.” And so the modellers would go in and transfer some of the entitlement that’s given to irrigation and transfer it to an environmental entitlement. And that would – that would to some extent reduce the – reduce the amount of water
45 that’s diverted. And then when – because they are trying to achieve a reduction in diversion, they would then go through and scale down the irrigation demand so that the reduction in diversions matches the target. That process in itself would actually

increase the flow in the river. It would increase the rate at which these environmental targets were met. But then the next step and more complicated is to try and work out how the environment would manage the environmental entitlements or the.... allocations they have achieved on the basis of recovering water.

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MR BEASLEY: Right.

MR CLOSE: And they would, obviously, be trying to manage those releases so they achieved as much of the environmental targets as required. And then once they –
10 they say, “Well, if we cut it back by 1,000 we can achieve this. That’s not enough. Let’s try 1,500 or 2,000 or whatever.”

MR BEASLEY: One of the – I’m not sure whether “limitations” is the right word, but one of the things you identify, I think, as a limitation in modelling is that it’s
15 binary in nature, so that if you’ve trying to achieve an environmental watering target, if you just fall marginally authority, it’s considered a fail - - -

MR CLOSE: Yes.

20 MR BEASLEY: - - - whereas in the real world, no doubt, falling marginally short of a desired flow rate would still have some - - -

MR CLOSE: That’s right.

25 MR BEASLEY: - - - ecological benefit.

MR CLOSE: Yes. That’s a concern that I had when the environmental targets were developed as they are binary. And, you know, so they might say a particular wetland gets wet at 50,000.

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MR BEASLEY: Yes.

MR CLOSE: Well, in reality probably 35 per cent, or some percentage, would get wet at 50,000 and some would get at 49,000, you know.

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MR BEASLEY: Yes.

MR CLOSE: So it’s not going to be just a straight on/off, you know? But that’s – yes, that’s the limitation with those types - - -

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MR BEASLEY: All right.

MR CLOSE: - - - of targets. Yes.

45 MR BEASLEY: I’ve got some questions for you about – I know you weren’t involved in the modelling for the determination of the ESLT. I still want to ask you some questions about that. But my first question is you’ve said in paragraph 5 of

your statement that you weren't involved in that. And you said the Chief Executive of the MDBA was at the time, Mr Freeman. So this must have been in a period around 2008 to 2010.

5 MR CLOSE: That's correct.

MR BEASLEY:

10 *...wanted to keep the Plan under his control. So a number of us who transitioned from the Commission were not involved in key decisions about the Basin Plan.*

You were, essentially, the head of the modelling section. I'm not quite sure I understand why you would be excluded from being involved in that. I know 15 members of your team worked on it. Why were you excluded?

MR CLOSE: It was never explained to me why I was not excluded – why I was excluded. Yes.

20 THE COMMISSIONER: You regarded that as irregular, did you?

MR CLOSE: I did. Yes. I thought I should have – I could contribute to that process. Yes.

25 THE COMMISSIONER: Do you today have any - - -

MR CLOSE: What's that?

30 THE COMMISSIONER: Today do you have any idea was to why that might have been?

MR CLOSE: As I said, I think Rob Freeman wanted to maintain control and make it his Plan, rather than assume it – you know, rather than share the glory with someone else, you know.

35 THE COMMISSIONER: Well, look - - -

MR BEASLEY: Was he a modeller?

40 THE COMMISSIONER: - - - I might be naïve. I'm sure I am, but this is a team effort. One man couldn't possibly do the Basin Plan.

MR CLOSE: No. It was worked on a team.

45 THE COMMISSIONER: You were an important member of the team.

MR CLOSE: Well, as it turned out I wasn't a member of the team that did the Basin Plan.

5 THE COMMISSIONER: I'm sorry. You occupied a position important in any team understanding of work towards a Basin Plan.

MR CLOSE: I would have thought so, yes.

10 THE COMMISSIONER: Yes. So do you still have no idea as to why people who came over from the Commission were not involved?

MR CLOSE: Well, it's not everyone who came over from the Commission was not involved, but there were a key – there were three or four of us who had senior positions in the Commission that weren't asked to contribute to the Basin Plan.
15

THE COMMISSIONER: Was there a perception of a culture difference?

MR CLOSE: I don't think so, no, but - - -

20 THE COMMISSIONER: Thank you.

MR BEASLEY: Just remind me, was Rob Freeman the CEO of the Commission or did he become CEO when the Commission became the Authority?

25 MR CLOSE: He became CEO of the Authority, so he was the first CEO.

MR BEASLEY: Right. All right. He's not a modeller himself, I assume.

MR CLOSE: No. No.
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MR BEASLEY: What was his background?

MR CLOSE: He originally came from Queensland and then he was head of the department.
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MR BEASLEY: It's not a great start, but - - -

MR CLOSE: I just can't recall what his background was. And then he was, obviously, head of the department here in South Australia before - - -
40

MR BEASLEY: Right.

MR CLOSE: - - - going over to the – he was certainly a Commissioner, the South Australian Commissioner before he came to the - - -
45

MR BEASLEY: In any event, members of your team were involved in the modelling for the ESLT determination, and I assume also for the modelling work that was done for the preparation for the Guide to the Basin Plan the year before.

5 MR CLOSE: That's correct. Yes.

MR BEASLEY: Yes. And they from time to time consulted with you or asked you questions about the work they were doing. Is that correct?

10 MR CLOSE: That's correct. Yes.

MR BEASLEY: Can I ask you this. One of the things that is a curiosity to many of us – perhaps I will just say it's a curiosity to me at the moment – is the fairly significant change between the amount of water said to be required under the Guide to meet environmental watering targets and the amount of water determined as an Environmentally Sustainable Level of Take in terms of the amount of water required by the environment in the ESLT report about a year later.

20 You're familiar with the range of figures I'm talking about with the Guide saying to meet the environmental watering targets we've determined for the Basin you would have a high uncertainty of achieving them with a return of water of 3,900 gegalitres for the environment, and a low uncertainty of achieving those environmental watering requirements with about 7,000 gegalitres being returned for the environment. Whereas, what's ultimately modelled a year later in the ESLT report is scenarios of 2,400, 2,800, 3,200, with a decision made that 2,750 is the – I will use the word sweet spot, because I know Mr Glyde is keen on that term.

30 One of the explanations given, perhaps the only explanation given, for the difference is that there's a brief couple of paragraphs in the ESLT report that says modelling in the Guide was based on an end of system flow analysis, whereas the ESLT report says, "We've now used a much more robust indicator site analysis." One of the reasons I'm confused about that is there seems to be indicator sites used in relation to flow targets for the Guide but, leaving that aside, are you able to help us with the difference between the end of system flow analysis modelling said to be used for the Guide and the indicator site analysis said to be used for the ESLT report?

40 MR CLOSE: I'm not particularly – I mean, I couldn't be – I couldn't be sure that I've got it right, but I – some of the original proposals were saying that you needed to preserve a certain percentage of the flow at the downstream end to be - - -

MR BEASLEY: Downstream end of each river valley, is that – yes.

MR CLOSE: That's right, yes.

45 MR BEASLEY: Yes.

MR CLOSE: And certainly they replaced that with this concept of trying to meet these ecological targets we talked about before.

5 THE COMMISSIONER: So when you say they replaced it, wasn't that necessary from the very beginning?

MR CLOSE: Wasn't it necessary - - -

10 THE COMMISSIONER: Wasn't it necessary from the very beginning to model to reach ecologically expressed outcomes?

MR CLOSE: Yes, that was certainly the aim.

15 MR BEASLEY: I think what the Commissioner is getting to is in the Guide they've already identified the key environmental assets. There has been a lot of work obviously done over a large number of years, and I think the figure ultimately is about 2,442 key environmental assets which would range from the icon sites like the Coorong or the Barmah Forest down to other wetlands that aren't Ramsar wetlands, and I think the question you're being directed to, and also the confusion I have, is
20 that the modelling done for the Guide must have been to achieve environmental watering targets for all those assets expressed as flow rates at certain times at certain durations, etcetera, in the same way it is for the ESLT report. Are you able to help in terms of what actually changed in terms of the modelling?

25 THE COMMISSIONER: Well, first of all, did anything change, to your knowledge?

MR CLOSE: Well, I don't really know. I can't really answer that question.

30 THE COMMISSIONER: This is a fairly large and intellectually serious enterprise by the Authority, was it not?

MR CLOSE: It was, yes.

35 THE COMMISSIONER: And on any view of it all of you, whether you were hands-on or not with the project, must have understood that your efforts were directed, among other things, at establishing an environmental sustainable level of take.

40 MR CLOSE: That's right, yes.

THE COMMISSIONER: And everyone must have understood that was a key and principal aim of the exercise to which modelling was turned.

45 MR CLOSE: That's right, yes. I think, though, if you look at what I've said in my statement I personally don't believe there is such a thing as an ecologically sustainable level of take.

THE COMMISSIONER: I'm going to – that's paragraph 7. I'm going to come to that as it happens.

MR BEASLEY: You don't believe it's a definitive number.

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THE COMMISSIONER: As it happens I find that a very persuasive position, but I want to tease out a number of other things. Before we come to that, what Mr Beasley has raised with you is a matter of history which has a deal of presence in the public record and presumably has a deal not yet, or perhaps ever, in the public record. But the process to which the modellers were an important part, but part only, of the process therefore as you understood at the time, surely, involved other members of the multidisciplinary team, ecologists in particular - - -

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MR CLOSE: Yes. Definitely, yes.

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THE COMMISSIONER: - - - helping to identify, no doubt by a process in the nature of consensus the so-called key environmental assets, key ecosystem functions, the productive base of the water resource, and the key environmental outcomes for it. That's correct, isn't it?

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MR CLOSE: That's correct, yes.

THE COMMISSIONER: And you recognise those terms from the Act, don't you?

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MR CLOSE: Yes.

THE COMMISSIONER: Now, I've not seen any trace in the material concerning what preceded the Guide to suggest that the ecologists, the modellers, and the managers of the Authority had so mistaken their task that the model had been inappropriate to ascertain the level which if exceeded – the level of take which, if exceeded, would compromise those key assets, etcetera. In other words, I've not seen any trace that anybody has said, "Oh, we've been doing the wrong thing." Are you aware of people, as it were, understanding that they had been bending their efforts in the wrong direction and not done what the statute required in the first place?

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MR CLOSE: I've got no evidence of that.

THE COMMISSIONER: No.

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MR BEASLEY: You did tell us – I think you told me that the modellers for the Guide were under a fair amount of pressure.

MR CLOSE: They were. They had a very strong, very short deadline to work on.

45

MR BEASLEY: Yes.

THE COMMISSIONER: I've read those references in your evidence. Should I infer from that that you believe they were not able to do as good a job as the task required?

5 MR CLOSE: They're certainly not able to do as good a job as they could have done. And I'm certain that they – by cutting corners initially, they delayed further the subsequent modelling, you know, by months or years, you know.

THE COMMISSIONER: A false economy of time.

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MR CLOSE: Absolutely, yes.

THE COMMISSIONER: Very well. What I want to ask now is: Mr Beasley has read you the explanation, if that's the right word, that has been published by the Authority in defence – as I would see it – of the very large reduction in the amount to be recovered for the environment by reason of the SDL assessment which included determination of the ESLT resulting, historically, in 2,750 giganlitres of long-term average. Now, you will recall in the passage he quoted to you the characterisation of “more robust in relation to the modelling” which, I think the statement intends to convey, justified 2,750 in place of rather larger figures. I'm afraid I don't understand the expression “robust” in this context. I well understand the English word and I well understand that it is, to put it mildly like many words, ambiguous. To a modeller, is “robust” a term of art; a technical term?

25 MR CLOSE: With models, you need to be – I mean, part of the – part of the art of modelling is to maintain credibility by going through a rigorous process of calibration of your models.

THE COMMISSIONER: You've explained that, if I may say so, in a way that even I understood and I'm going to ask you about that.

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MR CLOSE: That's all right. So a model - - -

THE COMMISSIONER: What's the - - -

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MR CLOSE: - - - that is better calibrated, I would say, is a more robust model.

THE COMMISSIONER: Does that mean any more than “better”?

40 MR CLOSE: I don't think so, no.

THE COMMISSIONER: Yes. Because another meaning of “robust” is in rather direction, rough and ready, crude. I'm sure that is not what the Authority was boasting of.

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MR CLOSE: I'm sure that's not what they meant, no. That's right.

THE COMMISSIONER: No. Well, then that amounted to a statement by the Authority that, in fact, the modelling had been improved, made better; correct?

MR CLOSE: Mmm.

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THE COMMISSIONER: What is it concerning the supposed shift from end of valley flow to flow indicators at various sites – what is it that makes that better?

MR CLOSE: Well - - -

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THE COMMISSIONER: To put it another way, could they not parallel each other?

MR CLOSE: I would say if you're just using a fairly crude expression, such as an end of valley percentage or whatever, that would not be as scientifically justified as the – as the individual targets that are based on particular wetlands and requirements of particular species, because you would have to say that that percentage that was chosen for the end of valley flows is probably – there's probably not a lot of justification for it or not a lot of – it's not justified as well as the targets that would be based on the individual wetlands.

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THE COMMISSIONER: That all depends, doesn't it, on examination of the ecological input into the establishment of the flows, whether they be end of valley or sites?

MR CLOSE: That would be dependent on end of valley, but most of the ecological things don't exist actually at the end of valley.

THE COMMISSIONER: Quite so. What I'm saying is an end of valley flow could be a result of the aggregate - - -

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MR CLOSE: It could be, absolutely.

THE COMMISSIONER: - - - of a number of ecological assessments at sites upstream of the end of valley; correct?

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MR CLOSE: Yes. It could be, yes. That's right.

THE COMMISSIONER: Indeed, if there is a flow that affects sites, by definition – except in times of absolute disaster – something is going to come out of the end of valley.

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MR CLOSE: And that assumes that the end of valley target has been based on an analysis of all those other ones, which is probably not the case.

THE COMMISSIONER: Quite so. Well, now, do you know what, if any, difference there was of such a kind that produced the remodelling, if it was

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remodelling, to which the Authority was referring in its public statements about a more robust approach?

MR CLOSE: I don't, no.

5

THE COMMISSIONER: Have you ever seen anything published about that?

MR CLOSE: I haven't, no.

10 THE COMMISSIONER: Does it not strike you, as somebody with expert knowledge and experience, as a startling lack in the public justification of a key element of the plan for that not to have been published?

15 MR CLOSE: I would say – I've been involved – I was involved in a scientific panel that was – that was – it went down the River Murray in the start of the Living Murray Program. And we were trying then to get the ecologists to come up with some guidance for us to work out what the environment needs. And some of the original ideas were – you know, they were looking at the natural flow regime and the current flow regime and they were saying, "Well, we need to have – we need to maintain the frequency of flooding all across the range at about two-thirds of natural." So
20 possibly some of these end of valley systems were based on those sort of original ideas.

25 THE COMMISSIONER: No. Sorry. My question to you was is it not a defect in the Plan and its administration that such an important matter as remodelling has not been the subject of published material? Published material. So that the scientific world, the administrative world and even voters may know about it.

30 MR CLOSE: The modelling for the Basin Plan is well defined in a modelling document.

THE COMMISSIONER: Yes, I understand that. It's referred to quite specifically in the Plan.

35 MR CLOSE: Yes.

THE COMMISSIONER: That's not my question. There was a change apparently in the modelling.

40 MR CLOSE: Yes.

THE COMMISSIONER: That produced, apparently, the 2,750 figure. You've never seen anything published to explain the difference.

45 MR CLOSE: No.

THE COMMISSIONER: Is that right?

MR CLOSE: That's correct.

THE COMMISSIONER: Is that not in itself a defect in the administration of the Plan, that there has been no publication of such an important change?

5

MR CLOSE: Without knowing exactly what the change was, I don't feel I'm capable of answering that question.

10 THE COMMISSIONER: So you don't have a view as to whether science, which affects the expenditure of that kind of money, should be published or not?

MR CLOSE: Well, it should be and I believe it has been, hasn't it? Not for the Guide possibly, but for the Basin Plan it certainly has.

15 MR BEASLEY: Can I just help with the witness just on this, so that we have this bit of additional information for this discussion. In the technical background for the Guide at page 114 where it goes through each region or each valley and says what reduction diversions are required to achieve target end of flow in each valley as a high uncertainty and low uncertainty, and the commentary for it after it says "basin-wide diversions: high uncertainty 3,856, low uncertainty 6,983", it says this:

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MDBA is undertaking modelling and other analysis to verify that this end of system flow approach provides an aggregate environmental water share that aligns with the specific estimates of environmental water requirements for key environmental assets and key ecosystem functions, and that these environmental water requirements can be implemented within operational constraints.

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This verification will continue through the public consultation period, but modelling to date has shown that the approach is consistent with the specific estimates of environmental water requirements and that there are no insurmountable operation issues. Modelling to date has shown that there will be operational efficiencies associated with environmental water delivery. There are also inherent uncertainties associated with measurement flows, diversions and interceptions, estimation of environmental water requirements and hydrological modelling.

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MDBA's best estimates are that the end of system flow analysis represents the environmental water requirements of key environmental assets and key ecosystem functions with a confidence limit of about plus or minus 20 per cent for the high uncertainty target. MDBA, therefore, believes the environmental requirements for key environmental assets and key ecosystems functions can be achieved with high level of uncertainty with a basin-wide reduction of diversions of 3,000 gegalitres.

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Etcetera. But that seems to indicate the end of system flow analysis modelling still is looking at what can be achieved for key environmental assets, key ecosystem functions.

5 MR CLOSE: That's what

MR BEASLEY: So - - -

10 THE COMMISSIONER: Well, that's what you expect, unless people were ignoring their task, surely.

MR CLOSE: Yes. You expect that. Yes.

15 THE COMMISSIONER: Well, that's why there remains an unexplained mystery as to how such a large change was introduced following publication of the Guide and public – I should say certain members of the public expressing a disapproval that probably had little or nothing to do with science.

20 MR CLOSE: Yes. Well, I can't really answer that question. I can't really cast any light on that.

THE COMMISSIONER: Why not?

25 MR BEASLEY: I think the reason we're curious about this, I think, is that the difference between the Guide of 3,900 at a high uncertainty to 7,000 at a low uncertainty, then right down to 2,750. I mean, amounts of 1,000 billion litres of water per year on average or more in the Amazon may be meaningless, but in Australia that's a massive amount of water. It's really quite an extraordinary difference between the Guide and the ESLT. And if the ESLT is right, it means the
30 Guide was done absolutely hopelessly. And yet it was said to be the best available science only less than 12 months before the ESLT determination. So that's where our confusion comes from, that either the ESLT determination is hopelessly wrong or the Guide was hopelessly wrong.

35 THE COMMISSIONER: Yes. We've got one brief explanation for the difference. I think I've asked three times now, "Do you have any idea of what that means?" You understand our interest in this point?

40 MR CLOSE: Yes. Well - - -

THE COMMISSIONER: This has to do with the core function of an important authority of the Commonwealth, does it not?

45 MR CLOSE: Yes.

THE COMMISSIONER: In which you were a relatively senior officer.

MR CLOSE: Yes.

THE COMMISSIONER: And it concerns a matter at the heart of which is your professional metier, modelling. I can't believe you didn't have an opinion about it.

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MR CLOSE: Well, I mean, the modelling probably has a - - -

THE COMMISSIONER: Can you respond to that? You must have had an opinion about it, surely.

10

MR CLOSE: Well, my opinion was, yes, that they put the number out and the community responded very vigorously to it.

THE COMMISSIONER: Not the community of modellers, though, if I may say so.

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MR CLOSE: Well, it's not really a modelling issue. In this case, it's the selection of the ecological targets that's different, isn't it? The models are still - - -

THE COMMISSIONER: It may well be.

20

MR CLOSE: The models are still much the same.

THE COMMISSIONER: I want you to assume that the ecological targets didn't change.

25

MR CLOSE: Well, I can't. I can't – if they didn't change, then you will say - - -

THE COMMISSIONER: I'm asking you to assume that, they didn't change.

30

MR CLOSE: I assume that. Right. Yes.

THE COMMISSIONER: It means, as the explanation you've heard quoted today suggests, the only other integer that might have produced such a large decrement would be the modelling.

35

MR CLOSE: Well, the modelling hasn't changed enough to cause that difference, no.

THE COMMISSIONER: Did you not have an opinion at the time about this very large change following publication of the Guide?

40

MR CLOSE: I did. And I believe it's a response to the political ruckus that produced.

45

THE COMMISSIONER: So, as a modeller and as somebody familiar with the integrity of your colleagues, I take it you didn't then and you don't now believe that there was a technical modelling change that justified that drop?

MR CLOSE: No.

THE COMMISSIONER: You agree with me?

5 MR CLOSE: I agree with you.

THE COMMISSIONER: Thank you. Could I ask you about paragraph 7? To me, you say the ESLT is not a definitive number.

10 MR CLOSE: That's correct, yes.

THE COMMISSIONER: I probably can adopt those words for myself, as well. By definition, of course, we are dealing with something that could never truly be expressed precisely, because the historical phenomena can only be estimated and the
15 projections, of course, approximations, estimations with degrees of confidence. Is that right?

MR CLOSE: Well, as I said here, it's more likely to be a continuum than a particular point.

20

THE COMMISSIONER: Absolutely.

MR CLOSE: Right.

25 THE COMMISSIONER: However, take it from me as a lawyer, that because there's a maximum limit, it requires a figure rather than a range. Now, that's - - -

MR CLOSE: I think that's probably a failing with the Act, then, in the original place to assume that there was that.

30

THE COMMISSIONER: And you may well be right.

MR CLOSE: Yes.

35 THE COMMISSIONER: And it's something that we have under consideration. But, as it stands at the moment, the will of Parliament is that there have to be limits and administration in relation to limits which alas, bearing in mind the real world, have to be described by a single figure. Now, I don't think Parliament should be too much criticised for that because every limit lends itself only to a single figure rather
40 than a range. It may be, as you say, the notion of limits is the thing that needs to be investigated.

MR CLOSE: Yes.

45 THE COMMISSIONER: But we all have to deal with the fact that Parliament has imposed a limit. It's what the L stands for in ESLT.

MR CLOSE: But if there is actually no limit, how can the people who implement it
- - -

THE COMMISSIONER: Exactly.

5

MR CLOSE: - - - select a limit, you know?

THE COMMISSIONER: Now, you then say in paragraph 7 that water management
will always require trade-offs between the economy and the environment.

10

MR CLOSE: Absolutely.

THE COMMISSIONER: I think as well that's an axiom to which I have no
difficulty in adhering. The Water Act enacts a trade-off. It is the legislated
compromise. To put it another way, the Parliament, not surprisingly, has not
required that we stop taking water from the Murray.

15

MR CLOSE: No.

THE COMMISSIONER: So that it will flow as it did before there was European
settlement, even assuming that in nature there would have been a constant flow.

20

MR CLOSE: Yes.

THE COMMISSIONER: Which we know there wouldn't have been. So there's
already a compromise and the compromise is in, as you know, the familiar notions of
Sustainable Diversion Limit, again that word "limit".

25

MR CLOSE: Yes.

30

THE COMMISSIONER: And the Environmentally Sustainable Level of Take the
definition of which talks about a level which, if exceeded, would compromise. And
the key environmental assets, etcetera, etcetera. The notion of compromise is where
the ecologists come in and say, in a fashion that lends itself to this artificial binary
notion that we talked about, again persuasively, that here is a level beyond which
there will be what they regard as compromise of the assets. The combination of
hydrologists and modellers then take that ecological input.

35

MR CLOSE: Yes.

40

THE COMMISSIONER: And try, by the iterative process of trial and error - - -

MR CLOSE: Yes – yes.

THE COMMISSIONER: - - - calibrating against historical data, etcetera, try to
produce a model which is not inappropriately sensitive to matters it shouldn't be, and
is appropriately sensitive to matters it should be, as to variables, so as to produce

45

what might be called a predictive tool whose merit is measured to a degree by its capacity to mimic what has actually happened if it is given, for example, data of a kind that is apt to test a run of the model; is that correct?

5 MR CLOSE: Well, that's – that's the concept of the modelling is to do that.

THE COMMISSIONER: Yes.

MR CLOSE: Yes. That's right.

10

THE COMMISSIONER: Have you seen anything published which amounts to professional scientific or technical criticism – criticism – pointing out of defects in the modelling effort that produced the Guide?

15 MR CLOSE: Well, other than what I've discussed in here, in that it was done in a rush and that the process that they used to model it wasn't actually building into the model the – the processes that the operators or the environmental managers would have to use to allocate that water. And I've made some comments in here.

20 THE COMMISSIONER: Yes.

MR CLOSE: But in terms of actually coming up with the output that probably doesn't make a big difference in the results they got.

25 THE COMMISSIONER: And are those comments made true of the modelling post the Guide as well?

MR CLOSE: Yes. Yes they - - -

30 THE COMMISSIONER: Yes. And I think – do we gather from your statement – is the basal proposition about modelling that, subject to the law of diminishing returns in terms of your manpower and resources – sometimes the press of deadlines – the iterative process is one of continuous improvement; is that right?

35 MR CLOSE: That's correct, yes.

THE COMMISSIONER: Which would mean, I assume, that you would regard modelling as a task that ought to continue alongside ecological monitoring and analysis as the Plan itself is implemented; is that right?

40

MR CLOSE: That's right, yes.

THE COMMISSIONER: Yes. When you were with the Commission - - -

45 MR CLOSE: Yes.

THE COMMISSIONER: - - - was there a project of suitable scale to be comparable with the Basin Plan where the modelling was continuously improved in that fashion?

5 MR CLOSE: Well, when – I started with the Commission in 1983 and we continuously improved the model

THE COMMISSIONER: Is that Healthy Rivers? Which one was that, which project was that? Or was that all the work?

10 MR CLOSE: '83, you mean?

THE COMMISSIONER: Yes.

15 MR CLOSE: That – we were interested in salinity at that stage, so were developing a model of salinity and the environment, and you name it. So there has been a continual process of model improvement, you know, ever since the models first started, and it's going on as we speak.

20 MR BEASLEY: Just to remind us, going back to the Commissioner's question about whether there has been any publications commenting or reviewing the work done for the Guide there is – at RCE38 is a bundle of peer review reports by international experts who were brought out to Australia to peer review the work done for the Guide, which I don't have the peer reviews in front of me, but were – largely contained in praise in relation to the work that had been done with the Guide, but
25 with the warning, "We're concerned politics may be intruding here."

THE COMMISSIONER: Yes.

30 MR BEASLEY: Yes. This is from the peer review, Mr Bewsher who is an international reviewers' opinion that:

Given the prior modelling work in the Basin Plan, timeframes for the proposed surface water modelling methods are technically robust –

35 there's that word –

and fit for purpose to deliver the proposed Basin Plan. Nevertheless, will require adaptive revisions –

40 etcetera. There's another one, though, from an international bloke. Yes.

THE COMMISSIONER: Well, that's exactly right. The question was around it being technically robust and appropriate. And you're aware, I take it, of the professional standing of Mr Bewsher and Professor Jakeman.

45 MR CLOSE: Absolutely, yes.

THE COMMISSIONER: And it's high, isn't it?

MR CLOSE: It's high, yes. That's right.

5 MR BEASLEY: Yes. The person I was thinking of was Professor Gene Likens.

THE COMMISSIONER: From the United States.

10 MR BEASLEY: From Cary Institute of Ecosystem Studies. Yes. Where he and his other colleagues said this:

15 *It's a fundamental tenet of good governance that the scientists produce facts and the government decides on values and makes choices. We are concerned that scientists in the MDBA who are working to develop the facts may feel they are expected to trim those so the sustainable diversion limit will be one that is politically acceptable. We strongly believe this is not only inconsistent with the basic tenets of good governance, but that it's not consistent with the letter of the Water Act.*

20 God. Lawyers as well:

We equally strongly believe that Government needs to make the necessary trade-offs and value judgments and needs to be explicit about these.

25 Good God, fancy being transparent:

Assume responsibility and make the rationale behind these judgments transparent to the public.

30 That's page 34 of the exhibit I referred to.

THE COMMISSIONER: Well then, hence my repeated question: are you aware of any publication that in effect said they had got it wrong? I don't mean it's not susceptible to improvement. I think it's established that these things are always
35 improvable depending upon practical questions of how you allocate your recourses.

MR CLOSE: I'm not aware, no.

40 MR BEASLEY: In the context that the change from that – the 3,900 for the environment, to 7,600 for the environment versus 2,750, was an absolutely radical change - - -

MR CLOSE: It is. Yes.

45 MR BEASLEY: - - - in terms of this system that, frankly, doesn't have much water in it.

THE COMMISSIONER: Well now, I don't wish to provoke any lifelong sensitivities you may have, or career long sensitivities you may have, but modelling has been variously described to me as one of the "dark arts". You've heard something like that?

5

MR CLOSE: I have. But I think it's - - -

THE COMMISSIONER: Yes. It may actually - - -

10 MR CLOSE: - - - just really the ignorance of the people who have made that comment, you know.

THE COMMISSIONER: Exactly. So it may only be a backhanded way of complimenting you and your colleagues on the highly skilled logically and mathematically-sophisticated work that you do. Is there any reason why that kind of work would not benefit from public scrutiny?

15 MR CLOSE: No. No. And there has been a – all of the models that are used in this study have been – had documents describing their construction and their calibration and whatever. Certainly as part of the cap on diversions, they require that all the models had to be accredited. So they went through a process of preparing a report. And Drew Bewsher examined them all.

20 THE COMMISSIONER: Peer review and – yes.

25 MR CLOSE: Yes. That's right. So they've all gone through that process.

THE COMMISSIONER: And so the same would go, presumably, for whatever change, if there was any change, said to be a modelling reason for changing the - - -

30

MR CLOSE: I don't think there was a modelling reason for the change. I think the reason is that the change in the ecological target, you know?

THE COMMISSIONER: Right. Thank you. You don't know of any changes in ecological targets?

35

MR CLOSE: Well I – they had, obviously – if they had to say that, you know, there was only a 20 per cent chance of, you know, getting – yes. I mean, the targets – I mean, they have, obviously, been reviewed. And, as I said here, I don't believe there is a specific target, you know. And so it's a matter of selection - - -

40

THE COMMISSIONER: No. I see what you mean.

MR CLOSE: - - - what your target is. Perhaps they selected a different target, you know?

45

THE COMMISSIONER: Involved in those last answers is the notion of selecting a degree of confidence with which you will be content about achievement of the target. Is that right?

5 MR CLOSE: Well, partly that, but partly also what your target is going to be. One of the targets originally was to have a certain frequency of flows of 80,000 at the South Australian border.

THE COMMISSIONER: Yes.

10

MR CLOSE: To try and put on an artificial flood of 80,000 megalitres a day, you will drain Hume Dam within weeks, you know? It's just not feasible to actually generate some of these flow events using stored water. And so, you know, there was a realisation in this whole process that some of these targets that the ecologists came
15 up just could not be achieved, you know?

THE COMMISSIONER: In itself 80,000 at the border may or may not derive from ecological thinking, but it's not an ecological proposition, is it?

20 MR CLOSE: Well, to actually flood the floodplain Australia, 80,000 you require. Right?

THE COMMISSIONER: That is. That is, no doubt, ecological

25 MR CLOSE: Right. So if you're looking at maintaining that floodplain in South Australia and if that is an overall requirement, then you need to do it. But, you know, you can't do it just by releasing water from storage, you know?

THE COMMISSIONER: Okay. Thanks.

30

MR BEASLEY: You need it to rain.

MR CLOSE: You need it to rain but, you know – yes. But you're not going to get the natural – the natural sort of flow regime of that wetland - - -

35

THE COMMISSIONER: No.

MR CLOSE: - - - without getting rid of all irrigation or - - -

40 THE COMMISSIONER: Yes.

MR CLOSE: - - - 90 per cent of it or something like that.

45 THE COMMISSIONER: No. I understand the point entirely. That's why we have the notion of a Sustainable Diversion Limit. Yes.

MR CLOSE: But, again, it's not sustainable for that bit of the floodplain, is it?

THE COMMISSIONER: No. I understand. You're raising questions which are probably not ever capable of single correct answers - - -

MR CLOSE: That's right.

5

THE COMMISSIONER: - - - if any correct answers. Okay.

MR CLOSE: That's right.

10 THE COMMISSIONER: Yes.

MR BEASLEY: In paragraph 22 of your statement you say:

15 *The Authority didn't build into the model a logical way of releasing environmental water. They didn't build in the fact that there is an account for environmental water with a known volume of what has happened in the past or that what has happened in the past two to three months is also known.*

20 That's a reference, I assume, to the fact that they haven't built into the model the fact that there's now a Commonwealth Environmental Water Holder that holds a certain amount of – whatever it is, 2,000-odd gigalitres of water and engages in environmental watering using their own discretion.

25 MR CLOSE: That's right. And makes a decision based on the information they have at the time, you know, which is not forecast – not a good forecast what's going to happen for the rest of the season, and the fact that sometimes they will have to make a – they will take risks on meeting water entitlement and it might fail. You know, all of those things I don't believe, because of the way they modelled it - - -

30 MR BEASLEY: That's not factored into the historical data between 1895 and 2009.

35 MR CLOSE: It's factored into the data. I mean, the data's not changing in all these processes, just the decision that's made at 1 July or 1 September has to be based on information that the operators have at that time, whereas some of the way they've modelled it in the Guide in the Basin Plan is assuming – is – it's done outside the model. So they've run one model and they would see where they had to add water and they put that water in those times.

40 It may not be possible for operators to manage in such a way. And, in fact, I don't think it is possible to manage it in the way it has been modelled. And that's what I'm getting at, you know, that - - -

MR BEASLEY: Yes.

45 MR CLOSE: - - - because they've taken this shortcut they may have – they may have run the model in a way that couldn't be run possibly and maybe not – and some of the targets that they – that the modelling that they have done assumes they would

meet, they may not be able to meet, because of the – because of that –the fact that they haven't modelled that environmental management process as rigorously as they could have done.

5 MR BEASLEY: And I'm not sure whether you, you know, are able to talk to this, but we had Mr Papps here giving evidence yesterday. He was the former head of the CEWH who said that there's – he has concerns in relation to many of the modelling in relation to the supply measure projects, because it assumes that the CEWH will release water at certain times, which may be inconsistent with the obligations that the
10 CEWH feels it's under and the discretion the CEWH has to do what it wants or what it thinks is necessary in terms of environmental watering.

MR CLOSE: So when he's talking about the supply, he's talking about things like Menindee Lakes, is he?

15

MR BEASLEY: That sort of thing, yes. All those projects, yes.

MR CLOSE: I - - -

20 MR BEASLEY: Yes. Hydro-cues

MR CLOSE: Hydro-cues. Well, yes. I mean, to me one of the risks in the Basin Plan is how the environment – how the CEWH is going to manage their water. And, as a modeller, I think they should be developing rules and testing them on their
25 models and working out the probability of how much they achieve, rather than expecting to think that they can go year by year and make a decision now that's – you know, without looking what the probabilities of can happen in the future.

MR BEASLEY: Does that mean that the CEWH modellers and the Basin Authority
30 – well, the CEWH people and the Basin Authority people need to talk to each other to sort out - - -

MR CLOSE: I think they do. I mean, they're already talking a little bit, but I think they need to improve that communication.

35

THE COMMISSIONER: The river operators are critical in that exercise, as well, aren't they?

MR CLOSE: They are, yes.

40

THE COMMISSIONER: Pick a box is a slightly irreverent term for a process.

MR CLOSE: Yes.

45 THE COMMISSIONER: Does that accurately capture the idea that it was second best – understood to be a second best approach at the time?

MR CLOSE: as a bit of a laugh, but the process was a second best, yes.

THE COMMISSIONER: Yes.

5 MR BEASLEY: My question was going to be I still don't understand it, despite
your best efforts. Just looking at – well, 28, it's a spreadsheet. Okay. Which was
used to try to match the water available to as many targets as possible. I understand
that so far. Required manual input to select the flow events that would be targeted
10 for environmental releases. I understand that. The Authority did not have time to
develop comprehensive rules to build into the model rules which an operator could
then follow. Instead, they said, "Let's run the model, then take the output from that,
see in which years the targets are not the met, work out which of those years we're
going to target." So 1986 the target is not met. Right. So we now want to target it
so it's going to meet it, the environmental watering requirements for that year. So
15 then we feed those targets back into the model as an extra input. What does that
mean, feed more water in?

MR CLOSE: No.

20 MR BEASLEY: No.

MR CLOSE: The model, the MSN big model, the river models - - -

MR BEASLEY: Yes.

25

MR CLOSE: - - - they have a whole range of input files, typically, you know, what
was the flow in the Goulburn River, you know, what was the inflow to the Ovens
River in, you know - - -

30 MR BEASLEY: 1986.

MR CLOSE: - - - 1986. Right.

MR BEASLEY: Yes.

35

MR CLOSE: Yes. So here they've just increased the size of that input parameter
file by one and put in another column which is target flow at Yarrawonga in that
month. Right? And so the model will read it in. And instead of having a phone
process to calculate whether it puts the – it has that target on that day, it just reads in
40 this target of, you know, 30,000 megalitres a day or something like that and changes
the releases from Hume to try and meet that.

MR BEASLEY: I see.

45 THE COMMISSIONER: So it treats it as a target?

MR CLOSE: Treats it as a target, yes.

THE COMMISSIONER: And tells you what are the inputs necessary to achieve that?

5 MR CLOSE: It will work out how it needs to manage the river to achieve that target, but that target is read in, rather than calculated internally.

THE COMMISSIONER: I understand.

10 MR CLOSE: Yes.

MR BEASLEY: So we haven't reached the target in that year, so to do that we've now worked out we need this release from this storage to do it.

15 MR CLOSE: Well, the input is saying, "We need to achieve this flow at Yarrowonga." The modeller will work out how to achieve that flow.

MR BEASLEY: Right. Yes.

20 THE COMMISSIONER: With the risk – I don't know if it's a weakness, it might be a weakness, the risk you identify in your paragraph 35, namely that the operators not actually proceeding, how shall I say, as modelled. Even more obviously, neither will what happens in the future always conform.

25 MR CLOSE: That's right, yes.

THE COMMISSIONER: That's what makes it interesting, so to speak.

MR CLOSE: Yes.

30 THE COMMISSIONER: Mr Beasley, is it convenient if I move to floodplain harvesting?

MR BEASLEY: Yes.

35 THE COMMISSIONER: Paragraph 38, I wonder if you could just elaborate – it might help my understanding.

MR CLOSE: Right.

40 THE COMMISSIONER: The first sentence:

It wouldn't matter what the volume diverted by floodplain harvesting was at the time the cap was introduced as long as that volume didn't change.

45 Let me assume that whatever was being taken when the cap was introduced was going to reduce in order to make more water available for the environment.

MR CLOSE: When the cap was introduced in 1995m the aim was just to stop diversions from increasing.

THE COMMISSIONER: I understand that. I want you to assume - - -

5

MR CLOSE: Yes.

THE COMMISSIONER: - - - by the time the Basin Plan was being devised, in very, very general terms it could be said we've already imposed a cap, that is we've tried to stop taking more and more. Now the question is, according to the Commonwealth Parliament, how much should we reduce what we are taking - - -

10

MR CLOSE: That's right.

15 THE COMMISSIONER: - - - below the cap - - -

MR CLOSE: That's right.

THE COMMISSIONER: - - - in order to recover for the environment.

20

MR CLOSE: That's right.

THE COMMISSIONER: That reduction would most obviously be effected by reducing the amount that, say, irrigators are allowed to take.

25

MR CLOSE: That's right. It was – it was to be implemented by, largely, the purchase and existing water entitlement from those existing irrigators. Yes.

THE COMMISSIONER: And here's a heroic assumption, but I ask you to make it anyhow. Let's assume that all the irrigation take was being pumped and metered. Floodplain harvesting was not being metered or measured.

30

MR CLOSE: Yes.

35 THE COMMISSIONER: It's obviously the pumped water that is going to be the chosen administrative for the reduction.

MR CLOSE: That's correct, yes.

40 THE COMMISSIONER: Which would introduce what I've called a market or social distortion, namely that those who had more on-farm storage for floodplain harvested water would be sharing less, that is would not be bearing their fair share, of the reductions in water for irrigation; is that right?

45 MR CLOSE: But – that would be right, but the – but the process for reducing the diversions is to purchase from willing sellers, so not everyone – it's not actually imposing a restriction on everyone.

THE COMMISSIONER: I understand.

MR CLOSE: It's just purchasing. So - - -

5 THE COMMISSIONER: That's when you're doing buybacks. Yes.

MR CLOSE: Yes. That's buybacks. Yes. What the issue to me is that there is a degree of flexibility for an irrigator whether he diverts water through his pumps or whether he diverts it from floodplain harvesting, especially when there's a flood on,
10 and it's quite possible that they will divert more – well, they will divert the same amount of water, but call it floodplain harvesting rather than - - -

THE COMMISSIONER: You can't buy back floodplain harvested water.

15 MR CLOSE: You can't buy back, because it doesn't have an entitlement at the moment. Yes.

THE COMMISSIONER: Quite so. So it's opportunist prevention of the natural behaviour of the water; correct?
20

MR CLOSE: Yes, that's right.

THE COMMISSIONER: So you either alter the natural behaviour by encouraging it out of the channel more easily than would otherwise be the case, or more frequently
25 and more obviously, you prevent it from flowing back to the channel.

MR CLOSE: I don't know about that, whether that happens.

THE COMMISSIONER: Floodplain harvesting involves water from two sources, channel or run-off; correct?
30

MR CLOSE: Floodplain harvesting is – well, the pumps are generally set in the river channel.

35 THE COMMISSIONER: Yes.

MR CLOSE: When the flood comes it floods out over the floodplain, and - - -

THE COMMISSIONER: Out of the channel.
40

MR CLOSE: Out of the channel of the river, but onto the floodplain.

THE COMMISSIONER: And the floodplain gathers water which is run-off uphill and flood from the channel.
45

MR CLOSE: And also the pumps from the river pump up into channels that run to the irrigation property. When you have a flood, the water flows into those channels.

THE COMMISSIONER: Yes. Why then doesn't it matter what the volume was at the time of - - -

5 MR CLOSE: Doesn't matter if it doesn't change in terms of the cap, because the cap was – idea to hold diversions at '93, '94 levels of development. If it doesn't change then you've held it at that level. Even though you're not measuring it - - -

10 THE COMMISSIONER: Kind of a musical chairs approach that you just say, "Don't worry about the ecology of it, we will just say it's not going to increase."

MR CLOSE: Well, that was the aim of the cap in 1995, was just to prevent further increasing it.

15 THE COMMISSIONER: But the idea of the Water Act was to say, "And now we've got to reduce it."

MR CLOSE: Now, we've got to reduce it, that's right.

20 THE COMMISSIONER: But you say it somehow doesn't matter that the floodplain amount would not be reduced?

25 MR CLOSE: Well, if it doesn't – if the floodplain component doesn't change, then the reduction you make in the other use is still going to be reflected in the flow in the river. You will have increased flows in the rivers because you are reducing the others.

THE COMMISSIONER: So those benefit - - -

30 MR CLOSE: If – if - - -

THE COMMISSIONER: So those who benefit - - -

35 MR CLOSE: If you reduce the pump diversion and increase the floodplain harvesting, then you are not achieving that.

THE COMMISSIONER: No.

MR CLOSE: So therefore it depends on whether it increased or not.

40 THE COMMISSIONER: But without the increase it means, on what you've described, those who use floodplain harvested water – the opportunistic water that becomes available – are not contributing, by way of buyback, to the reduction.

45 MR CLOSE: But then someone who doesn't sell the water also doesn't contribute.

THE COMMISSIONER: That's a market mechanism. There isn't a market for floodplain harvested water.

MR CLOSE: No.

THE COMMISSIONER: Thank you. Well then, in paragraph 39 can you explain why it matters to have estimates of floodplain harvesting?

5

MR CLOSE: Because there's no guarantee that they won't – haven't changed or won't have changed.

THE COMMISSIONER: Right. And then it says:

10

These estimates are included in the SDL for the river valley.

So they are included in the amount that is subject to this legislated artificial definitive limit.

15

MR CLOSE: That's right, yes.

THE COMMISSIONER: But they are not available for the voluntary divestment by way of buyback.

20

MR CLOSE: No. That's right.

THE COMMISSIONER: Yes.

MR CLOSE: But also the modellers have put an estimate of what their flood-plain harvesting is into their model.

25

THE COMMISSIONER: And we don't know whether that's right.

MR CLOSE: We don't know whether it's right, because it's not measured, and we don't know if it's changing because we're not measuring it.

30

THE COMMISSIONER: Is it too late to do that measuring now, or is it better late than never?

35

MR CLOSE: It's certainly better late than never, yes, and we have looked at how you might do it and the most – the easiest thing to do is immediately go and meter everybody's on-farm storage so that you know when they're putting water in it and taking it out. It doesn't give you a - - -

40

THE COMMISSIONER: Did you say meter their on-farm storage?

MR CLOSE: Yes. Work out how much water they hold and how it's - - -

THE COMMISSIONER: You don't mean put an apparatus on. You mean do the calculations.

45

MR CLOSE: A level – a level record of it. So you work out whether the water level is going up or down and what volume they’re holding in their storages. That would be the – that would be the simplest way. It’s not foolproof, because they could be pumping their water straight onto their fields in which case you wouldn’t it, but it would at least give you a better idea about what’s going. And you can also estimate what people are – how much people are irrigating by remote sensing, and it would be possible I expect to go back and analyse, you know, historical records based on what the remote sensing information has got. But it hasn’t been done yet.

10 THE COMMISSIONER: It sounds like there’s a market for drones, doesn’t it?

MR CLOSE: True. Yes.

15 THE COMMISSIONER: What’s the systemic risk, as you see it, from continued ignorance of the extent of floodplain harvesting and associated on-farm storage?

MR CLOSE: Yes. Well, you just have to look at the growth in on-farm storage that’s occurred saying – to know that the more they build, the more they’re likely to be taking, you know? So you won’t have an effective method of managing the system unless you attempt to estimate what their – what these components of the diversion are.

20 THE COMMISSIONER: And is it significant in my thinking about that that the on-farm storage, by definition, prevents the water on the floodplain from returning to the channel?

MR CLOSE: Yes. Well, obviously, if you don’t have on-farm storage you only can be pumping when the flood’s there, you know?

30 THE COMMISSIONER: Yes.

MR CLOSE: But, typically, you will be pumping into your storage so you can use it this year or maybe the next year, you know?

35 THE COMMISSIONER: Quite. Quite. And at the moment your apprehension that you’ve explained to me in those parts of your statement is that management of that as part of the water resources requires a modicum of knowledge about what it is.

MR CLOSE:

40

THE COMMISSIONER: And we don’t yet have that. Is that what you’re saying?

MR CLOSE: That’s right. Yes.

45 THE COMMISSIONER: How difficult technically is it to measure, including by decent estimate, on-farm storage derived from floodplain harvesting?

MR CLOSE: Well, I don't think it would be very difficult to make sure that you have a level record on each of the on-farm storages in each of these areas. And I said that's not going to give you the full number, but it's at least going to give you a better estimate of what it is. With the remote sensing, we believe that there is a
5 capacity to monitor what's evaporating from everyone's crops on a regular basis. So in those areas where floodplain harvesting is an issue, you could set up a process for regularly assessing what their use is on the basis of this and remote sensing. It will, obviously, be expensive and expensive to set up, but once it's going it's probably not particularly, you know, difficult or expensive to do.

10 THE COMMISSIONER: Thanks.

MR BEASLEY: You wrote a chapter entitled 'Drought and Climate Change in the Murray Darling Basin, a Hydrological Perspective', which – that chapter is behind
15 tab 3 of your – was that in a – was the book called 'Drought in Arid and Semi-Arid Regions'?

MR CLOSE: I think so. I mean, I was - - -

20 MR BEASLEY: Just have a look at the bottom of – it has got page 281, it has got K. Schwabe et al - - -

MR CLOSE: Yes. That would be the - - -

25 MR BEASLEY: 'Drought in Arid and' – that's the book, is it?

MR CLOSE: That's correct. Yes.

30 MR BEASLEY: All right. Just in terms of the other authors of this document, all the other authors seem to be members of the CSIRO. Mr Kirby, what was his specialty?

MR CLOSE: He - - -

35 MR BEASLEY: Area of expertise.

MR CLOSE: He was, I think, looking at water policy was his area of expertise.

40 MR BEASLEY: Right. And, Mr Chiew, does he have expertise in climate change?

MR CLOSE: He's a hydrologist, so - - -

MR BEASLEY: Hydrologist. Right.

45 MR CLOSE: - - - he was an expert of sort on climate change and - - -

MR BEASLEY: And Mr Mainuddin if I've said that right.

MR CLOSE: I'm not sure what his - - -

MR BEASLEY: It could be Dr, by the way. I should be - - -

5 MR CLOSE: They probably are. Yes.

MR BEASLEY: Yes. Dr Young.

10 MR CLOSE: Bill Young. He was a modelling, basically, as with Jeff Podger, who was also a modeller.

MR BEASLEY: And Dr Podger. All right. And I see here that we have a drought in this country every 10 years. I just wanted to go to page 284. You've said:

15 *The aim of the chapter is to build upon the information gleaned from the Murray-Darling Basin Sustainable Yields Project.*

Now, that's the CSIRO project which actually did some modelling for likely climate change – for climate change projections out to 2030 and I think right out to – through
20 to 2070. The conclusion of which – and I know it's far more complex than this, because there's wet scenarios and dry scenarios, but the median scenario was at least for the southern Basin - - -

25 MR CLOSE: That's right.

MR BEASLEY: - - - hotter and dry. Just going over to page 285, it says:

30 *The sustainable yields modelled climate change projections were obtained by scaling the historic climate sequences.*

MR CLOSE: Yes.

MR BEASLEY:

35 *The scaling was performed at varying historical daily and season rainfall to match their distribution in the IPCC AR4 modelled rainfall.*

What's IPCC AR4 modelled rainfall a reference to?

40 MR CLOSE: That's the international something or other of climate change. That's sort of the - - -

MR BEASLEY: Right. Yes.

45 MR CLOSE: - - - global climate change organisation.

MR BEASLEY: Right. Yes.

MR CLOSE: Yes.

MR BEASLEY:

5 ...while preserving annual totals –

Etcetera. Now, at page 293 there's a reference to a publication by Dr Chiew in 2009 concerning the Millennium Drought and whether it was associated with global warming, when they concluded it's not – wasn't currently possible to separate global
10 warming signalled from large natural long-term climate variability, thus the drought could be associated with a global warming or return to the conditions the first half of the last century. This chapter was written in 2013. Do you know if that position has changed at all or if there's - - -

15 MR CLOSE: I'm not aware of whether it has changed at all.

MR BEASLEY: No.

MR CLOSE: No.

20

MR BEASLEY: Now, page 295, at the top of the page you talk about how rainfall declines – actually, I think, the proposition there is they amplify a reduction in run-off, because of changes to soil, etcetera. And then you express the opinion – you and the other authors express the opinion under the – in section 16.5:

25

*The experience of the recent drought,... the knowledge of the long-term cycles of water availability over the last 110 years and the projections for climate change have serious implications for the future management of the rivers and irrigation of the Murray-Darling Basin. The overriding conclusion is that
30 current water management approaches are inadequate to deal with the high variability in water availability.*

What's meant by “water management approaches” in that sentence?

35 MR CLOSE: I suppose the Basin Plan would classify - - -

MR BEASLEY: Yes. Right.

MR CLOSE: - - - as part of the water management process.

40

MR BEASLEY:

*Neither the irrigation sector nor the environment can be sustained to desired levels in drought as severe as the recent one or those that can be expected in
45 the future. New water sharing arrangements are subject of much debate at the time of writing.*

Do we take from this that your view is that climate change projections should have been put into the modelling for the Basin Plan?

5 MR CLOSE: Obviously, you need to take into account climate change when you're doing these sort of modellings. The issue with this – with the sustainable yield study is that although we're fairly clear that temperatures are increasing, we're not really all that clear on how the – how that affects rainfall. And so – so when we go to this estimate of climate change or the impacts of climate change, there is quite a bit of uncertainty in the – in the conclusions.

10 MR BEASLEY: Is – the sustainable yields projections are now 10 years old. So there's - - -

15 MR CLOSE: That's right.

MR BEASLEY: - - - probably 10 years more data. Is the fact that – I assume in relation to something like climate change and projections for it, there's always going to be a range and always going to be uncertainty, no matter how close the science is to the best science.

20 MR CLOSE: Yes, but - - -

MR BEASLEY: Is that uncertainty a reason not to factor it into modelling for something as significant as the Basin Plan?

25 MR CLOSE: There – as we've discussed before, there is a fair bit of uncertainty even about what's in the ecological state of level of take with the current climate. If you introduce the implications of going to – taking into account climate change, you get even more uncertainty into this whole process.

30 MR BEASLEY: Sure. So what do we do, then, in terms of - - -

MR CLOSE: Well, I think – I mean, the - - -

35 MR BEASLEY: - - - planning for climate - - -

MR CLOSE: - - - outcome of the sustainable yield study was that the best indication was that there would be a drying of the climate over the next 30 years or whatever it was at the time. And I still think that that's the most likely, you know, that the –
40 temperatures will get higher, the evaporation rates will get higher and the flows in the river will get lower. And that's what the sustainable yield study came up with.

MR BEASLEY: Yes.

45 MR CLOSE: Whether you can – whether the way this has been modelled for the sustainable yields is reliable enough to go through the whole process of doing a Basin Plan with this study, I wouldn't get up and say it has to happen. I would say

that it would be wise to take into account that it could change. And I think it's built into the Basin Plan, also, that there will be regular reviews and a review of what's happening in the climate. You know, it doesn't preclude you from reviewing – this is in 2013 and saying, “Well, what has happened now is different from what was

5

MR BEASLEY: Is it prudent to – I mean, just if you go to page 297, I will - - -

MR CLOSE: Yes.

10 MR BEASLEY: The last paragraph there in your conclusions:

Policy and management should be prepared to cope with future droughts more severe than which we recently experienced. Climate change projections are uncertain and climate variability will no doubt result in wet and dry periods, but such preparations are prudent, will leave us able to cope with whatever the future holds.

15

Now, I suppose preparations may not be limited to what we do with the Basin Plan, but given that the Basin Plan is – deals with long-term averages, it would be possible, wouldn't it, to model for climate change?

20

MR CLOSE: It would. And that would say that when you get to 2030 you have to deal with 10 per cent less flow.

25 MR BEASLEY: Yes.

MR CLOSE: So whether you now say, well, let's – in 2009, let's set up the settings to be what they will be in 2030, or whether we set in the process that we're reviewing the Basin Plan over time and that by the time we get to 2030 we have a different level of take, you know?

30

MR BEASLEY: Well - - -

THE COMMISSIONER: So - - -

35

MR BEASLEY: - - - the Guide, I think, they factored in three per cent of the median for climate change. So that was one way of - - -

MR CLOSE: Yes.

40

MR BEASLEY: One approach. Is that approach wrong? I think the approach was there's going to be 10 per cent less run-off as a median, but we will factor in three per cent for the purposes of doing the Guide now.

45 MR CLOSE: Well, that would be an approach. Yes. Yes. And maybe that's a sensible approach. Yes. But - - -

MR BEASLEY: All right.

THE COMMISSIONER: It sounds like a translation of a concerned French mother. Be prudent, you say, in your paragraph 42.

5

MR CLOSE: Yes.

THE COMMISSIONER: And in the paragraph that Mr Beasley has quoted from, your 2013 publication. It's pretty good advice, I suppose.

10

MR CLOSE: Yes.

THE COMMISSIONER: But what does being prudent translate to if - - -

15 MR CLOSE: Well, you can be prudent in two different ways. You can be prudent on the basis of going on – impacting more on the environment or more on the community, or more on the irrigation community, couldn't you?

20 THE COMMISSIONER: Well, quite. So the Basin Plan as a matter of law has to be devised so as to address the risk of climate change. Parliament has commanded that.

MR CLOSE: Right.

25 THE COMMISSIONER: Like lots of things Parliament does in areas where it intersects with science, it's perhaps a bit more difficult than the legislators understood. But I have to report upon - - -

MR CLOSE: Right.

30

35 THE COMMISSIONER: - - - the merit and prospects of the Plan in this regard. And I'm – confess I found it very difficult to understand in concrete terms what will it mean in the Plan to take account of, address, the risk of climate change, because it doesn't matter how much consensus is commanded by various projections, they are all, so far as I can see, accompanied by very clear cautions about uncertainties, including about the, in some cases, even the direction of change.

MR CLOSE: Yes.

40 THE COMMISSIONER: Certainly the pace of change.

MR CLOSE: Yes.

45 THE COMMISSIONER: So what does a poor old Basin Planner, that is, if there was one person who had to make the Basin Plan, what's he or she meant to do?

MR CLOSE: Well, as I said, there's two options. One is to go for the three per cent, say it's going to be 10 per cent in 30 years and - - -

THE COMMISSIONER: So - - -

5

MR CLOSE: - - - go for three per cent. The other one is to say let's have a regular review process, so that - - -

THE COMMISSIONER: Yes.

10

MR CLOSE: - - - we can upgrade the Plan as it goes on.

THE COMMISSIONER: What are the intervals at which you think, with your experience and with your own understanding and appreciation of the climate change risk about which you wrote, what, now, five years ago, published five years ago – what do you think the appropriate interval would be for a review, including revisiting, improving your models, certainly including your hydrological data, and also your ecological indicators plus your – what I will call irrigation demand – what's the interval at which you think that, in order to meet climate change, there ought to be these fresh looks?

20

MR CLOSE: I think about every 10 years.

THE COMMISSIONER: 10 years. Yes. That's not too short, is it, for the language of climate change?

25

MR CLOSE: I mean, there's a hell of a lot of work involved. If you look at this sustainable yield study - - -

30

THE COMMISSIONER: Yes.

MR CLOSE: - - - they had a whole group working for a year and a half on it. So it's not cheap.

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THE COMMISSIONER: And one message I get from your evidence, correct me if I'm wrong, is that rush jobs are a real peril. Is that right?

MR CLOSE: Well, in some of the cases that's right. Yes. So, I mean, there's a lot of – I mean, the sustainable yield study did the best they could, but there's still a lot of areas there where you might say, well, that's not – you know, that's – there's no – you can't be confident in that, really.

40

THE COMMISSIONER: Now, this, I will call it a 10 year review, a decade review notion, would I be right in understanding that of the essence of such an exercise, if it is to be orderly and considered, is that there be a constant program of science, including basic observational data being gathered and analysis and multi-disciplinary consideration of it?

45

MR CLOSE: Yes. Well, as we speak when all of these – the 15 models that were used for this global language models that were used for this model, they've all been updated.

5 THE COMMISSIONER: Yes.

MR CLOSE: The estimates of what the CO2 levels, which is, obviously too, they're – you know, you're getting more data all the time about how they're changing.

10

THE COMMISSIONER: And do you have a view as to whether that is best done by a single in-house governmental body or by a combination of governments or by a combination of governments and universities and institutes of higher learning or the CSIRO or a new stand-alone authority? Do you have a view from your whole career as to the – what model you think would be best for ensuring that enough people with enough skills and enough different skills are constantly involved in the capacity every decade to see where we are, what we're facing and how we should change?

15

MR CLOSE: Well, when this – when this study was done it involved, you know, 20 modellers from all the different States and from the Authority, you know, to actually convert the climate change estimates into the outputs in the rivers. But, obviously, it has to be a multidisciplinary approach, because, you know, you have to have the people who know about the global climate change models and how accurate they are, which are the best ones. You need to have people who know about what the CO₂ is 25 doing. You need something like what was done before, which is under the – under CSIRO.

MR BEASLEY: You need an ongoing sustainable yields project.

30 MR CLOSE: You need another sustainable yields project, basically.

THE COMMISSIONER: Do we have the structures in this country, to your knowledge, to do that now? Is there a standing establishment that can do all of this now? Or is it always just ad hoc and cooperative?

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MR CLOSE: Well, because you've got the river modellers and the climate, you know, there's not a standing group that can do it.

THE COMMISSIONER: Should there be?

40

MR CLOSE: I – I'm not really expert on that, to say whether that – I mean, I think the CSIRO was – you know, did a good job with what they had available when they did this study. And they could, obviously, do it again if they have the funding for it. But whether that's the best organisation to do it, I'm not prepared to make a 45 comment, really.

THE COMMISSIONER: Thanks.

MR BEASLEY: We started early, so do you want - - -

THE COMMISSIONER: Yes.

5 MR BEASLEY: - - - morning tea now?

THE COMMISSIONER: Yes. Could we adjourn until 25 past. Thanks.

10 **ADJOURNED** **[11.08 am]**

RESUMED **[11.25 am]**

15 MR BEASLEY: When you're ready, sorry.

THE COMMISSIONER: I'm ready.

20 MR BEASLEY: Just finishing off that housekeeping from this morning, so for Mr Papps' evidence I also tender what was behind tabs I, J and M.

THE COMMISSIONER: Thank you.

25 MR BEASLEY: At least in my folder.

THE COMMISSIONER: Thank you.

30 MR BEASLEY: And also a MDBA publication called 'Managing Water in the Murray-Darling Basin Under a Variable and Changing Climate: Dealing with Climate Change in the 2012 Basin Plan and Into the Future' authored by Neave, McLeod, Raisin, and Swirepik, S-w-i-r-e-p-i-k. That was the – actually it's from a journal, 2AWA water journal 102, interesting paper that dealing with climate change means ignoring it. Paton – sorry, Professor Paton, I actually will just tender all of the
35 documents in that brief. So it's 1 to 27.

THE COMMISSIONER: Thank you.

40 MR BEASLEY: I should have said this morning, Commissioner, I adjusted my watch and my – I adjusted my watch to Sydney time so that we actually started at 10 instead of 9.30 as a rebellion against the fact that somehow in South Australia, rather than having Commissioners or Senior Counsel set the time, we start as set by solicitors. But anyway, obviously very different practice here in this state. Mr Close, I wanted to take you to the section in your statement commencing from
45 paragraph 48. I notice, paragraph 50, you say that one of the last things you retired was review the Barwon-Darling model used for the Northern Basin Review. That was obviously a task given to you.

MR CLOSE: That's right. As part of the management of the cap on diversions, the water working group, that's to review all the model reports for accreditation.

5 MR BEASLEY: And that was something you must have done – what time in 2013 would that have been?

MR CLOSE: I retired in March. That must have been about February, I yes.

10 MR BEASLEY: Right. Okay. And you recommended the model should not be approved?

MR CLOSE: That's right.

15 MR BEASLEY: The Commission already has in evidence some reports by Bewsher. I think it's probably Dr Bewsher, is it?

THE COMMISSIONER: Bewsher.

20 MR CLOSE: Bewsher.

MR BEASLEY: I'm sorry. I probably got it all wrong. Dr Bewsher.

MR CLOSE: I don't know whether he's a doctor, no.

25 MR BEASLEY: All right.

MR CLOSE: I don't think he's a doctor.

30 MR BEASLEY: Drew, I think, is his first name.

MR CLOSE: That's right. That's correct.

35 MR BEASLEY: Where he also makes some comments concerning, perhaps, the lack of reliability of this. You're familiar with those reports, I assume?

MR CLOSE: That's right.

40 THE COMMISSIONER: To get my mind back to it, this is the lack of reliability especially for the low flows?

MR CLOSE: I think they're more interested, at that stage, in how it compares with how the diversions were – how accurate the diversions were.

45 THE COMMISSIONER: Was it true, as you recall it, that there was a real problem of the use of the models, or the model for low flows?

MR CLOSE: I'm – as I said, we were interested in how well it reproduced the diversion figures.

THE COMMISSIONER: Yes.

5

MR CLOSE: The annual diversion figures, and so I didn't spend a lot of time and I can't tell you how well it complied with the low flows, but probably – it's probably not particularly good in the low flows, because they don't – they won't have much impact on the amount of water that's diverted, probably.

10

THE COMMISSIONER: So do I link that to your paragraph 52? Namely, that the irrigation community wouldn't be much interested in low flows. In your paragraph 53, the focus of the modeller affects the accuracy and it could be developed to focus, for example, on low flows. Depends on what the modellers consider to be most

15

MR CLOSE: That's right.

THE COMMISSIONER: All right.

20

MR CLOSE: And what was considered most important for cap accreditation was how well it modelled diversions.

THE COMMISSIONER: That's right, whereas low flows may be of great ecological significance.

25

MR CLOSE: That's right.

THE COMMISSIONER: Particularly for connectivity - - -

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MR CLOSE: That's right.

THE COMMISSIONER: - - - downstream.

35

MR CLOSE: Yes – yes – yes, absolutely.

THE COMMISSIONER: Thank you.

MR BEASLEY: And the matters you've referred to in paragraph 51, are they the full extent of the reasons that you recommended that the model should not be approved, or was it beyond - - -

40

MR CLOSE: Well, no. Because, I mean, when you looked at the Barwon-Darling system, in the first three or four years the diversions were above cap, and their cap limit, and we recommended that they be declared in breach. And if you looked at the – looked at the reasons behind that, the on-farm storage had increased by 50 per cent between 1993/94 and 2000, and that to me was what was saying this is what – this is

45

– this is the, you know, that explains that increase in diversion on the fact that they were over the cap and then they - - -

5 MR BEASLEY: They're taking more water out of the system and they're storing it.

MR CLOSE: That's right.

MR BEASLEY: Yes.

10 MR CLOSE: And they're – you know, I don't know what's happened after 2000. I haven't seen any figures at that, but it probably hasn't stayed still at that level. Although they've put in case – put in controls subsequent to that, none of those, I don't think, would ever lead to the paying back of any previous breaches of the cap, and when they came to do the modelling in 2013, surprise, surprise, the model was
15 showing that they're back within cap again. And to me the reason for that – I mean, given there has been this increase in infrastructure, I couldn't see how – that that explained why they should now be back in cap, under cap.

20 THE COMMISSIONER: That's without the cap altering.

MR CLOSE: That's right, yes.

MR BEASLEY: In other words, it's likely to be the model that's the problem.

25 MR CLOSE: The modelling might have been tweaked somehow or other, and I didn't get to the bottom of why that was, and that's why I was recommending that shouldn't be approved at that time.

30 THE COMMISSIONER: One hears this word “tweaking” being used and I - - -

MR BEASLEY: It sounds like underselling it.

35 THE COMMISSIONER: I emphatically don't wish to either be or sound cynical, but I need to understand the tweaking or even – to use the word neutrally – the manipulation, that is the conscious alteration of elements of the model. Am I correct in understanding that in order to preserve intellectual integrity that is done only in order to do one of two things: either to focus the model on the inquiry of interest or, second, to improve its calibration by reference to up to date data?

40 MR CLOSE: That would be correct, yes.

THE COMMISSIONER: Thanks.

45 MR BEASLEY: Can I ask a question that no doubt shows the poor level of my knowledge, but can you use – can a modeller be given a, “This is the outcome we want, now reverse engineer it.”

MR CLOSE: You could do, yes.

MR BEASLEY: You can. Right.

5 THE COMMISSIONER: But in a sense there may be nothing wrong with that if
you are – if, for example – because modelling doesn't apply only to hydrology – if
there is a result which must be achieved, for example, let's imagine it's pre-World
War I, "I need to get 80,000 infantry and their artillery to these following 12 places
in less than 4 hours. These are the railway carriages I've got, etcetera, etcetera." A
10 modeller can work back from what – from the 80,000 infantry and their artillery at
these locations, put in the variables of the railway routing and rolling stock, and work
out when they all have to be out of barracks and on the train; isn't that right?

MR CLOSE: That's right. That would be right, yes.

15

THE COMMISSIONER: There's nothing wrong with that.

MR CLOSE: There's nothing wrong with that.

20 THE COMMISSIONER: You work from your desired end point, and the modeller
will tell you well, with your resources or the things that you might be able to
command, this is what you can produce.

MR CLOSE: That's right. But if you were to say the train travels twice the speed
25 that it can travel that would be incorrect, wouldn't it? Yes.

THE COMMISSIONER: That one might be described as a bizarrely non-calibrated
model.

30 MR CLOSE: That's right. Yes.

THE COMMISSIONER: Thank you.

MR BEASLEY: Now, have you – in the time since I first had a conversation with
35 you, have you worked out how to explain coding to me in a simple way?

MR CLOSE: Coding?

MR BEASLEY: Don't worry.
40

THE COMMISSIONER: Really, don't worry about it. Can I ask you under the
heading 'Modelling Generally', for which I thank you by the way, on paragraph 59.

MR CLOSE: Sorry. Where are we looking? This - - -
45

THE COMMISSIONER: That's all right. Paragraph 59 concludes after your – your
paragraph 59.

MR CLOSE: Yes. Good. Yes.

THE COMMISSIONER: It concludes by saying:

5 *We are not yet at the stage of being able to answer with our modelling 2,750,
we will have x hectares of healthy Black Box, but at 2,500 that would decrease
to - - -*

MR CLOSE: Y

10

THE COMMISSIONER: To Y hectares. But isn't that the purpose of this kind of modelling?

MR CLOSE: Well, that would be an aim, but it's obviously very, you know - - -

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THE COMMISSIONER: I'm not doubting what you've said.

MR CLOSE: Yes.

20 THE COMMISSIONER: But that means that there's not yet a fulfilment of the basic task of the modelling.

MR CLOSE: Because they didn't have the science and the modelling to produce those numbers, they had to go back to these - - -

25

THE COMMISSIONER: Pick a box.

MR CLOSE: Well, had to go back to these binary targets. Right?

30 THE COMMISSIONER: Yes.

MR CLOSE: I think you can do better than that, but obviously there's a fair bit of development involved in getting to that stage, you know.

35 THE COMMISSIONER: The modelling can handle changes on a continuum without a simple binary yes/no.

MR CLOSE: Well, it does, yes. If you – it, on every day, tells you what – will calculate what the flow is and how you calculate those statistics on it.

40

THE COMMISSIONER: There are, so to speak, curves.

MR CLOSE: That's right, yes.

45 THE COMMISSIONER: Very well. Now in paragraph 60, talking about preference curves, the third sentence:

However, when the Murray Flows Assessment Tools score was calculated at different parts of the floodplain –

different parts of the floodplain –

5

the scores for all vegetation type –

so Red Gum, Black Box –

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were found to be highest closer to the river where the frequency of inundation was highest... Not appropriate for Black Box which is typically found on the outskirts of the floodplain.

Now, just pausing there, does that mean that the model, as it were, operated so as to count Black Box present where it wasn't present?

15

MR CLOSE: What – we've recently been able to get maps of the floodplain showing which bits are inundated at which particular flows and we also have maps of the vegetation and you can overlay the two.

20

THE COMMISSIONER: Yes.

MR CLOSE: What we did in this process was we sort of split the floodplain up into 100 different zones, each getting flooded at different levels, you know, so you started close to the river and then - - -

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THE COMMISSIONER: Graded elevation.

MR CLOSE: Graded, that's right.

30

THE COMMISSIONER: Or flow away from the channel.

MR CLOSE: That's right. And for each of those 100 zones we could calculate all these statistics or scores for all the four different types of vegetation. And you can then – you could then say – well, what you should be able to do then is to say – by overlaying those zones with the vegetation maps, you should say, "The Black Box does particularly well in this particular zone." And you could look at the flooding statistics of that zone and then you could develop a model which says wherever this flooding statistic occurs you will get Black Box, and that's what I was trying to do. When I used the preference curves in however, what what the model was saying was all the vegetation does best close to the river, and there was no sort of – there was no sort of calibration process to say - - -

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THE COMMISSIONER: It wasn't sensitive to the fact that Black Box don't grow next to the river.

45

MR CLOSE: Grow next to the river. That's right, yes.

THE COMMISSIONER: But – now, that’s - - -

MR CLOSE: So that’s sort of a calibration process - - -

5 THE COMMISSIONER: Quite so.

MR CLOSE: - - - that someone should go to so they could get – and if they did that, my belief is that they would then be able to come up with statistics that are more useful to managing the system, like where – how much areas of Black Box and how
10 much areas of Red Gum will be, and what I suspect is that – because we’ve reduced the flooding – we will get a – we will get a transfer of these zones, so the Black Box will grow close to the river and there will be smaller areas of Red Gum, and they might drop off grass might not grow at all, because it doesn’t get the right
15 flooding. So you will be able to then say, well, if we recover 2,750, this is what we’re likely to get.

THE COMMISSIONER: And then the - - -

MR CLOSE: Much more meaningful than saying we will meet these particular
20 targets.

THE COMMISSIONER: Thank you. Yes.

MR CLOSE: Yes.
25

THE COMMISSIONER: I’m obliged. Thanks. That’s all I wanted to ask. Yes.

MR BEASLEY: I don’t have any further questions. Thank you, Mr Close.

30 THE COMMISSIONER: Mr Close, is there anything you want to press upon me by way of emphasis or otherwise?

MR CLOSE: I don’t think so.

35 THE COMMISSIONER: I’m really very grateful. And I’m a bit less frightened of the than I might have been. I’m obliged to you. Thank you.

MR CLOSE: No worries.

40 MR BEASLEY: Thank you.

<THE WITNESS WITHDREW

[11.40 am]

45

MR BEASLEY: The next witnesses are here, Commissioner. Mr O’Flaherty is going to call them and I’m going to go back to the office, if I can be excused to do some work there.

5 THE COMMISSIONER: Yes, of course.

<MARK KENNETH JENKINS, AFFIRMED

[11.43 am]

10

<JASON MARK MODICA, AFFIRMED

15 MR O’FLAHERTY: Gentlemen, aside from a couple of biographical questions that I will just run through very briefly, the questions that we will be asking will be open to both of you. So feel free to both answer or – and elaborate on each other’s answer.

20 THE COMMISSIONER: Or contradict each other.

MR O’FLAHERTY: Or feel free to disagree with one another. Keep this lively as possible, I guess. Mr Modica, you are a councillor in the Mildura City Council. Am I right?

25 MR MODICA: Yes.

MR O’FLAHERTY: And you’ve been that since 2016.

30 MR MODICA: Yes.

MR O’FLAHERTY: You’re a tiler by trade.

MR MODICA: Ceramic tiler by trade, yes.

35 MR O’FLAHERTY: How is it that you’ve come to have an appreciation of the environment and the Murray-Darling Basin River system?

40 MR MODICA: I was lucky enough to grow up on the Creek in Gol Gol, New South Wales, which is across the river from Mildura. My father was a market gardener. His parents were Italian and Sicilian immigrants from the ‘20s and ‘30s. And was lucky enough to be around some very dynamic and hardworking people who always appreciated the resource, being water and the land, and with a big robust family, always very happy to have opinions – have an opinion and get involved in the debate. And then once I was lucky enough to become an apprentice and become
45 a tradesman, I just maintained an interest, and particularly to do with environmental matters.

MR O'FLAHERTY: In your – you've provided a submission personally, as well as – I would take it you were involved in the Mildura City Council's submissions, as well.

5 MR MODICA: Yes. I had a hand in the putting together the initial aspects of the council one with a – quite a few other councillors and staff.

MR O'FLAHERTY: Certainly, yes.

10 MR MODICA: And both Mr Jenkins and Mr Hawson and a few other staff members brought all of our information together and presented a great document, I think. And – sorry – just with my - - -

MR O'FLAHERTY: Sorry. Yes.

15

MR MODICA: I'm participating in the Australian Conservation Foundation River Fellowship.

MR O'FLAHERTY: Yes.

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MR MODICA: And that has given me a little bit of an opportunity with the more pressing issues about natural river flows and ecological issue with flora and fauna.

MR O'FLAHERTY: You anticipated my next question, because – describe - - -

25

MR MODICA: Should we change positions? I'm sorry.

MR O'FLAHERTY: Well - - -

30

MR MODICA: Sorry.

MR O'FLAHERTY: Some may agree with you. You described – well, you've got a tag line after your name, 'Healthy Rivers, Healthy Communities'. That's the fellowship?

35

MR MODICA: That is the group that I've built – built. But not really, because Mildura had an ACF group in the late '80s that helped integrate a lot of interesting regional perspectives to environmentalism in the community.

40

MR O'FLAHERTY: Yes.

MR MODICA: So tapped into some old standing thought processes and people who believed the environment should be brought to the fore, as well as the people much younger than me getting involved with the same questions.

45

MR O'FLAHERTY: Mr Jenkins, I understand you're the manager for Community Futures for the council. Is that correct?

MR JENKINS: That's correct.

MR O'FLAHERTY: Could you describe what that role entails?

5 MR JENKINS: Well, I suppose it includes things like social inclusion, community development, environmental sustainability, the arts and culture part of the organisation and also strategic land use planning.

10 MR O'FLAHERTY: And certainly by no means as an attempt to diminish the other aspects of your role, but for the purposes of today I would understand that your activities in environmental sustainability and planning matters would be the - - -

MR JENKINS: I think planning probably has been the main area of, you know - - -

15 MR O'FLAHERTY: Sure.

MR JENKINS: - - - our involvement here for sure, strategic planning.

20 MR O'FLAHERTY: And you've got qualifications in rural resources and land management - - -

MR JENKINS: That's correct.

25 MR O'FLAHERTY: - - - from the University of Sydney, I understand.

MR JENKINS: Yes, that's correct.

30 MR O'FLAHERTY: Gentlemen, Commissioner, I've decided to do something slightly different this morning – or at least the Commissioner has decided and I'm going to run with it, in the sense that I usually trawl through the submissions that should have been in front have a folder with you with both your gentlemen's names on it. Just to briefly identify those, Mr Modica, your submission is behind tab 1. The original submission from the Mildura Rural City Council is behind tab 2, dated 24 May 2018. And, as you no doubt will recall, members of the Council and 35 members of the Commission met in May of this year. And following that meeting a further document, which is behind tab 3, was produced to assist in the Commission's inquiries. Might as well do it now. I tender tabs 1 through 3 of this volume.

40 THE COMMISSIONER: Thanks. Mr Jenkins, you, I take it, had a hand in assisting in those last two documents. Is that correct?

MR JENKINS: That's correct. Yes.

45 THE COMMISSIONER: Perhaps we can start with you. What I would like to do is just to give you the opportunity – you can assume, because it's true, that I've read these and I'm interested in them and I probably will have some questions. But I'm actually more interested to hear what you would like to flag by way of particular

emphasis. So you don't need to, as it were, touch on everything, but are there one or more points that you really think I should focus on with respect to, as it were, the message from Mildura?

5 MR JENKINS: Yes.

THE COMMISSIONER: And then I will ask Mr Modica the same question.

10 MR JENKINS: Okay. Well, I suppose a bit of background would be good about land use planning. And, generally speaking, our role is around ensuring, you know, land is appropriately zoned in – particularly, this is talking about the farming zone. So this came out from what's called nine, which actually dealt with what we call the Mildura Old Irrigation Area. And Mildura – in fact, that's the irrigation district that's the – basically was MFIT, Chaffey original development. And a lot of the
15 work we did there was actually around housing, about the extension of housing in and around Mildura, and about dwellings located in that irrigation area. And also out of that bit of work it became obvious that sustainable horticulture in a farming zone, where you want to encourage farming and have farming to be sustainable, Council made a decision to do some further work which was around – we called horticultural
20 sustainability development strategy.

And that was to be developed in two stages. So we did a scoping strategy first, or study, which has not yet been adopted by the Council, which I discussed before. And then subsequently the Council may choose to do some further work on
25 sustainable horticulture in that farming zone. So that's a bit of the background to where – how that got that – us got to that point. And generally speaking that's not something we normally got involved in generally, but it's important to ensure that that activity in Mildura is sustainable and ongoing. It's an important part of the community.
30

THE COMMISSIONER: And it affects planning down to the level of zoning, does it?

35 MR JENKINS: Well, the farming zone is a general zone for farming, so if you're running – in the Mildura case, as is probably outlined post the drought, in say 2007/2009 a lot of land became vacant in the farming zone.

THE COMMISSIONER: By which you mean unused.

40 MR JENKINS: Unused, I call it vacant. It wasn't irrigated, and there's various reasons why, and obviously that created, you know, concern in the community for various reasons whether it would come back, how fast it would return.

45 THE COMMISSIONER: Were the entitlements permanently removed in most cases or were they simply not available?

MR JENKINS: In some cases, under the Federal scheme, there would have been some - - -

THE COMMISSIONER: Buyback.

5

MR JENKINS: - - - buyback yes, in Mildura and there would be a there would be a range of reasons why people might have had the entitlements in place, but chose not to continue for various reasons, there would be a range of scenarios there that I can't really - - -

10

THE COMMISSIONER: And has any of the land that you described as becoming vacant during the drought gone back into irrigated production?

MR JENKINS: Yes. I think there would be – you know, there's a slow return to – you know.

15

THE COMMISSIONER: Of a significant proportion or not?

MR JENKINS: I think it's still – you have to say it's still on the up, it's slowing coming back, yes. There is still vacant land in many areas.

20

THE COMMISSIONER: But it's nowhere near 100 per cent.

MR MODICA: I think there was 30 per cent out of production after '09, and it's below 20 now, so it's added back 10 per cent into production.

25

THE COMMISSIONER: That's 10 per cent of the whole, though?

MR JENKINS: Of potential, yes.

30

THE COMMISSIONER: So 30 per cent was lost.

MR MODICA: Yes.

THE COMMISSIONER: 10 per cent has come back.

35

MR MODICA: Yes.

THE COMMISSIONER: So - - -

40

MR JENKINS: In very round figures.

THE COMMISSIONER: So a third this of that which was lost has been recovered.

MR JENKINS: Yes.

45

MR MODICA: And still studies going on – there has been quite a resurgence in agriculture in the region in the last - - -

MR JENKINS:

5

MR MODICA: - - - four to eight years.

MR JENKINS: Yes.

10 THE COMMISSIONER: Has it been the same kind of agriculture as preceded the drought or is there – are there differences in crops or methods?

MR MODICA: No, I – within our document there is the area of concern is - - -

15 MR O’FLAHERTY: You mentioned – is this on page 8?

MR MODICA: Page 7.

MR O’FLAHERTY: 7 to 8.

20

MR MODICA: Increased irrigation demand anticipated from continued growth and permanent plantings, mostly almonds, of which 4,500 hectares were planted last winter.

25 THE COMMISSIONER: That’s the biggest change.

MR MODICA: And a lot of that – a lot of that development is operating through going in outside of the Mildura Older Irrigation Area on larger farms with their own access to pumping off the river.

30

MR JENKINS: There would be – I will just clarify that. There’s probably a big expansion in almonds, which will call – which is not in the not near Old Irrigation Area.

35 THE COMMISSIONER: Is it mostly downstream of Mildura?

MR JENKINS: Well, almond development, I suggest is mainly upstream of Mildura.

40 THE COMMISSIONER: Upstream.

MR JENKINS: And then we’ve got – you know, there has been a bit of a focus on table grapes in the irrigation – in the pump district. Certainly citrus is on the rise again, so some industries have certainly come back online.

45

THE COMMISSIONER: And they’re all permanent plantings that you’ve just described?

MR JENKINS: They're all permanent plantings, yes.

THE COMMISSIONER: Has that been – apart from the almonds, has there been a move to permanent plantings or is it about the same mix?

5

MR JENKINS: Generally speaking I think it has been permanent plantings, historically. The majority - - -

THE COMMISSIONER: In fact, I'm trying to think, what is around Mildura - - -

10

MR JENKINS: Table grapes.

THE COMMISSIONER: - - - that is annual?

15

MR JENKINS: Be vegetable growers.

MR MODICA: Yes. There was always a lot of melons, pumpkins, beans - - -

MR JENKINS: yes. There would be some vegetable growers.

20

MR MODICA: - - - zucchinis, broccoli in spots in the winter.

THE COMMISSIONER: Thanks.

25

MR JENKINS: And that has become – you know, apparent in locations during the period since the drought to now. There's been evidence of that come and go a bit, too.

THE COMMISSIONER: Yes. The annual planting. Yes. So is there anything more you want to add by way of emphasis?

30

MR JENKINS: I think from – I suppose the way the document is structured, as you would gather, is that that work we did originally on the scoping study identifies areas of concern that Council raised out of that document that we think requires further investigation, and one thing probably of interest, you probably touched on that, and it has been mentioned in this initial document, I think, and the follow-up one, is a question around delivery. And during periods – I think the major concern would agree, I think, that locally is delivery of water during peak demand periods.

35

40

THE COMMISSIONER: So this is a constraints question?

MR JENKINS: And also delivery of water during dry periods. And that refers back to that period 2007/2009 when it went down to 30 per cent allocation and obviously people – it had dire effects on – locally and other places.

45

THE COMMISSIONER: So what's the position that you want to draw to my attention, first of all about delivery in times of high demand, high water, where constraints come into play? What do you want me to consider in that regard?

5 MR JENKINS: I think, generally speaking, is – there's from growers and from the Council was around new development upstream potentially – would potentially draw more water during periods that could be – could be during a drought or during high demand.

10 THE COMMISSIONER: Which would – may have an effect on the market price of temporary water, of course.

MR JENKINS: One could, yes, and the other could basically mean if you haven't got what you need at that critical time.

15 THE COMMISSIONER: Simply because the aggregate of the demand as desired by growers will exceed the channel capacity.

MR JENKINS: Potentially. Our critical - - -

20 MR MODICA: Yes. To deliver into the weir pool, and I believe - - -

MR JENKINS: The critical issue, you might have a licence, you might own the water, but you can't – it's not available.

25 THE COMMISSIONER: As it were, you can't get a booking.

MR MODICA: Yes.

30 THE COMMISSIONER: Is that right?

MR MODICA: I believe in January there was 10 days over 35 degrees, and that became quite apparent that the weir pool was getting quite small. People were all trying to water to get prepared to pick, and the concern – that is on page 72 above development, 7,000 megalitres per day, during the recent heatwave conditions is coupled with existing increased irrigation demand anticipated for the continued growth. And then it goes on to the discussion of the almonds.

40 THE COMMISSIONER: This is where the private business decisions of people who plant, the public planning decisions of governing land use regulation and, probably more to the point, the river operating rules coincide, or perhaps don't coincide well enough. That's the problem you want to draw to attention.

45 MR MODICA: Definitely to – where is a natural point where Municipal, State or Federal governments begin address the mean amount of megalitres that go into the river every year and the ability to deliver to new and open land? And we're only discussing our municipality. It's happening across the river in New South Wales and

in South Australia too. So there's a – you know, some people have said it's a little bit of a perfect storm in regard to coming to a boom in agriculture, believing that continual growth – the continued growth mantra will be beneficial for everybody where in essence there's only a limited amount of water in the system, and that will come to a head at some point.

5
THE COMMISSIONER: Now, the system at the moment is dedicated to the proposition – among others, of course – that the market, particularly for temporary water, will determine the highest value use of the water. Now, leaving aside – not because it's irrelevant, but because it's beyond my terms of reference – whether that is the summit of wisdom, have you experienced what appears to be a market induced effect on planting patterns?

15
MR JENKINS: It's hard for us to comment on that, I think, but certainly you've seen the effects of price happened the last drought. Certainly there's a history of when it gets tight, supply, what the price tends to head. And I think one of the concerns written here in that first submission - - -

20
THE COMMISSIONER: Yes.

MR JENKINS: - - - in page 7 is that – is probably around two existing versus new and who can carry the risk of new.

25
THE COMMISSIONER: Well, those who have the entitlements from which they can sell temporary rights - - -

MR JENKINS: That's right.

30
THE COMMISSIONER: - - - have a red producing asset.

MR JENKINS: And there's a whole - - -

THE COMMISSIONER: That's they can make money without growing anything.

35
MR JENKINS: This doesn't deal with it, as you said before, but the question is around, I think, to some – if you were to develop with a high risk strategy around the water availability and then you rely on that market to run the business, then the price was to be affected. It would depend, I think, on how originally it was structured in the first place.

40
THE COMMISSIONER: Well, appetites for risk usually vary according to the prospect of the - - -

45
MR JENKINS: Yes. So I think - - -

THE COMMISSIONER: - - - size of the reward.

MR JENKINS: - - - it would vary a bit in terms of how - - -

THE COMMISSIONER: Yes.

5 MR JENKINS: - - - it was structured.

MR MODICA: I was at the Murray-Darling Association AGM last week in Lytton and the cotton – sorry – the rice growers were saying at about \$350 there's no real room to make any great money in that situation. So I'm sure that could be
10 applied to any product that needed to be - - -

THE COMMISSIONER: So they reach what might be called a rational - - -

MR MODICA: Yes.

15

THE COMMISSIONER: - - - self-interested position that the market takes as a premise that if the input constituted by water exceeds a certain price, then they shouldn't go to the trouble and other expense of planting that crop. Isn't that right?

20 MR MODICA: Yes, but also I think - - -

THE COMMISSIONER: As I understand it, that's how it's meant to operate, so to speak.

25 MR MODICA: Yes. But I also think that there's a lag period between coming out of the last downturn and operating on the belief that the growth will go on to – forever, that you may well overstep the mark and there will be people out there who have invested at the wrong time and there won't be water for them to irrigate, particularly if they're speculating on the water trade.

30

THE COMMISSIONER: The prospect of this Royal Commission dealing with the perennial difficulty of agriculture gluts is zero, and so I take your point.

MR MODICA: But leave it alone. Thank you.

35

THE COMMISSIONER: I don't say it's not important. It's, obviously, critical to the wellbeing, individually and socially of a lot of these enterprises, but I can't add anything useful to that, I'm sure. What you say is correct, no doubt and affects the capacity of people to evaluate whether the price of water is right or wrong for their
40 plans. I agree.

MR JENKINS: I think, too, maybe on that price of water, my take on our previous work was that where we go during those tight periods, more than – because of this, because of demand, it will be potentially higher, so where the price would invariably
45 head - - -

THE COMMISSIONER: Well, as I understand it, the system with market trading of water is intended to achieve the result. I'm being a bit cruel here, but this is how I understand it – is intended to achieve the result that if somebody miscalculates they will not be able to afford ultimately to buy enough water to keep their permanent
5 plantings alive and they will lose them, which is meant to be the invisible hand's chastisement of those who have taken a risk that turned against them. You may gather from the way I've expressed it that I may not be fully on board with this social theory, but it is I think clear to demonstration that the requirement for the Basin Plan to operate according to traded water involves that kind of consequence.

10 MR JENKINS: Particularly for permanent plantings.

THE COMMISSIONER: That is the – there needs to be demonstration of what happens when risk materialises in order for risks to be a motivator. So don't get me
15 wrong, I do fully appreciate, I hope, the force of what you've said about the community and social and local economic aspects of the allocation and availability of irrigation water. But I'm bound to observe that the failure of individual farming enterprises seems to be not an unlooked for consequence, but positively an integral part of the market mechanism. To put it another way, if nobody fails, it suggests that
20 everybody is taking insufficient risk, if you can see what I mean.

I think I gathered on the very instructive consultation we had in Mildura – I think I gathered that, however, Council is a long way from seeing any future in what I might call detailed land use governmental control in terms of who farms what where.
25

MR JENKINS: That's correct, yes. I'm not aware that there's anything in place at the moment.

THE COMMISSIONER: Yes. And I haven't come across that being a serious
30 suggestion anywhere. It's one answer, of course, and it involves what might be called a directed economy, as opposed to a market economy, yes.

MR JENKINS: Yes.

35 THE COMMISSIONER: Yes. Thanks. Now, Mr Modica, what do you want to add? And feel free. See yourself as let off the rein.

MR MODICA: Yes. I would like to add a lot, but I don't know whether it's
40 appropriate.

THE COMMISSIONER: If you run out of time, I will tell you. I'm very interested just to listen to what you want to say.

45 MR MODICA: Yes. As a councillor, I support everything that we've said in regard to trying to work out where we fit and to try and present a document that asks questions about how, you know, the ecological and environmental and economic benefit comes to within our community. But I think, as you well know, that there's

such a vast and dynamic ecological footprint, the Basin, that everywhere you look there's a different expression of a similar problem, if that makes sense.

THE COMMISSIONER: It does.

5

MR MODICA: So to sit at the junction of the Murray and the Darling and look upstream and downstream and then up the Darling River you –I find, as a councillor, to try and distil the larger debate becomes really, really peculiar, because of vested interests or localised interests. One of the things that came out of the MDBA meeting last week from that bloke from Shepparton, he said 40 per cent of their water had been traded out of the Shepparton area in five years, because of that market driven process that we've just discussed. That's definitely of concern in one way for Shepparton, because they're losing business. It's of concern for us, because we may be attracting too much business. And what is the overall effect, if the market does operate in a way that people aren't familiar with.

THE COMMISSIONER: On the other hand, those people with something that they own, the value of which comes from the fact that you can trade it, would not take kindly to being told that they're not allowed to trade it or that their neighbour having sold they can no longer sell.

MR MODICA: Yes. I think there's a bit more nuance in the phrase not being able to trade. It's what the premise of what you can trade. Where's my little notepad? The environmental level of sustainable take.

25

THE COMMISSIONER: Yes.

MR MODICA: And that reflects back on a lot of the things you've heard here in regard to – is the 2,750 – sorry –to get into the giga babble, but it was going to come, wasn't it?

30

THE COMMISSIONER: Yes.

MR MODICA: Is the 2,750 a scientifically agreed upon number to give the health to the river that it deserves as a unique functioning environmental entity?

35

THE COMMISSIONER: That, I can assure you, is the question that we're looking at.

MR MODICA: Yes. So, within our region, I think the document that we've presented as a council represents a whole lot of questions that we're happy to put to you that we're discussing as a community right across the spectrum, from a deep ecologically respectful view of the land and a very tip your hat to the hardworking people who go out there and farm trying to make a living in that very risky environment. For me, this is one of the most important things that anyone can get involved with, because if we can bring those two groups of people together to try and understand that there can be a decent outcome - - -

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45

THE COMMISSIONER: The two groups being.

MR MODICA: Being - - -

5 THE COMMISSIONER: The farmers on the one side - - -

MR MODICA: Yes.

THE COMMISSIONER: - - - and?

10

MR MODICA: Environmentalists or people that see the river as being disengaged with or overlooked. Maybe, you know, colonisers want just to have more profit –that we can identify what is the base level of health the river system needs. And I think you know more than anyone how difficult and diverse an opinion comes from that question, anyway.

15

THE COMMISSIONER: Farmers aren't monolithic, for a start.

MR MODICA: No. I think there's a 'Farmers Against Climate Change' rally in Canberra tomorrow. And there's some very dynamic people going there to discuss what it will be like to be a farmer in 10, 15, 25 years in a country who may well be receiving less water into its catchments on the top of lot of overdevelopment – sorry – development that may become overdevelopment. Am I allowed to make that distinction?

20

THE COMMISSIONER: Yes. No, I understand.

MR MODICA: So the other thing that I thought our document really talked about well is Water Ombudsman and governance. One of the things when you do reflect on the document, the Murray-Darling Basin Plan or the intricacies of how it works, is the traditional positions each of the states plays within those – you know, almost every state has a fall-back position, you know, "We need to protect this group of people or that group of people." How municipal, state and federal politicians deal with those long-held beliefs is quite fascinating to think about, but hopefully from a municipal level, from all my colleagues that I keep meeting and talking to about it, we can create a debate to say, you know, what can we build for a – can we build for a future river that is ongoing and sustainable, and I think our statement about the Water Ombudsman and governance is important to that. I think we passed a particular thing at the Murray-Darling Association meeting last week, calling for exactly the same thing proposed by Wentworth Council. So - - -

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35

40

THE COMMISSIONER: Can you elaborate on the desirable scope of function and operations of an ombudsman?

45 MR MODICA: Of?

THE COMMISSIONER: An ombudsman.

MR MODICA: I will just read ours and then I will go on:

5 *There needs to be an increased level of public reporting on the elevation and outcomes of the use of water readily available to the community. A transparent process that allows the community to be aware water is being used, how much is used, and the environmental and economic benefits. Would provide a broader community understanding of the process and outcomes. There needs to be an increased level of confidence in the system and a commitment to ensuring appropriate monitoring and enforcement where appropriate.*
10 *Introduction of an independent body such as a Water Ombudsman that has the power to investigate environmental water issues and more broadly any water related issue would provide increased community confidence and compliance in how water is used and managed by government bodies and licensed users.*

15 THE COMMISSIONER: See, that's a personage whose powers would need to extend across state boundaries.

MR MODICA: Yes. So it would be a national Ombudsman for Water, who would be able to address any water issues from any of the states.

20 THE COMMISSIONER: Presumably, being an Ombudsman could make recommendations to solve disputes. In this country, such a person can't be a judge without being a judge federally.

25 MR MODICA: Yes.

THE COMMISSIONER: But would otherwise report to Parliament or the parliaments?

30 MR MODICA: Yes. I would imagine to Parliament and hopefully with the right to enforce. I think the Murray-Darling Plan maybe got it close, but is there someone with a stick who can chastise when it comes?

35 THE COMMISSIONER: And ultimately, as Mr O'Flaherty will hasten to tell you we could talk for three weeks on, that involves problems under the chapter 3 of the Commonwealth Constitution in terms of - - -

MR MODICA: I will look into that.

40 THE COMMISSIONER: Yes. And I don't want to go there today.

MR O'FLAHERTY: You would be aware, of course, of the existence and then the abolishment – abolition, rather, of the National Water Commission. How does the – your proposal of – or the Council's proposal of a Water Ombudsman differ or how is it aligned with that former entity?
45

MR MODICA: I think it could be along similar lines. As I said, I probably could have done a little more research in that area but a lot of the older – or people with longer histories in water than myself have suggested that that entity was a very good entity and it worked quite well. And some had concerns when it was
5 decommissioned and changed into – or just ceased to exist. So I have heard back anecdotally that that is a point when there was a bit of a loss of being able to implement the right – you know, punishment for – too strong a word – for something that had gone wrong. So yes, something along those lines, definitely.

10 MR O’FLAHERTY: You said there needs to be – or sorry, the Council’s submission says there needs to be an increased level of public reporting. What sort of public reporting do you refer to there?

MR JENKINS: We did some work, originally on environmental water, previous to
15 this.

MR O’FLAHERTY: Yes.

MR JENKINS: And we felt that with that – how that was used and reported, we
20 were making the assertions about whether it was good bad or indifferent, but it would be good to be able to find information about these matters and actually people can judge for themselves. I think that’s where it came from environmental water.

THE COMMISSIONER: So greater - - -
25

MR JENKINS: So applying that thinking, we thought in this case it would be very much – it would be much easier to make your own decisions on things, you could see in principle what was available to see, in terms of - - -

30 THE COMMISSIONER: Well, there are annual reporting requirements - - -

MR JENKINS: Yes, there is.

THE COMMISSIONER: - - - on a number of entities. I gather - - -
35

MR JENKINS: I think in terms of the – say, for example, environmental water, as an example, seeing the actual benefits that were – you know, assessed independently even about how the benefits, and was it working or not? I’ve – you do - - -

40 THE COMMISSIONER: Someone other than the Authority that did the work, you mean?

MR JENKINS: Potentially. And - - -

45 THE COMMISSIONER: Or locally, I gather.

MR JENKINS: I think also, using the word Ombudsman, we used that word in that submission, but I think the underlying principle again is that it would be good if something – if someone somebody did something wrong, that the community was confident it had been investigated and followed up. So it does – I think we probably
5 could – others could decide how that would happen, but I think the underlying principle is - - -

THE COMMISSIONER: I'm not suggesting it can't be done.

10 MR JENKINS: That's right. But I think that it would be good, I think for the community, to feel that it was – confidence that that was to happen. Which it won't happen.

THE COMMISSIONER: It's something I'm probably not going to consider very
15 seriously, but exists in the general area of environmental regulation, what's called open standing provisions. And I don't want to be misunderstood, I'm a litigator by trade and I'm not here to drum up business, but open standing provisions have that as their driving element. That is, all restrictions that the law would otherwise impose on who can sue to enforce a public law are removed so that anyone can sue to do it.
20 New South Wales has this famously in – under its Environmental Planning and Assessment Act. You can come – and you're both welcome, you can come to New South Wales and say, "So-and-so is breaching an environmental law and I want an injunction against it."

25 You wouldn't get quite a friendly reception if you said you wanted them to be tried criminally, but if you wanted a civil injunction, you could turn up and no court would be entitled to say, "Well, who are you, why is this of any concern to you, you're just a busybody." And one model of environmental law enforcement which can easily be understood as potentially of applying to the regulation of the allocation of water
30 between the environment and irrigation under the Basin Plan would be to have open standing so anybody could sue. I do stress I am not going to seriously consider that, because it is far too vast and revolutionary a notion for it to be useful as an idea.

It will, if it has any reference in my report, be mentioned as something which I am
35 not recommending should be seriously pursued. I'm not saying it shouldn't be. I'm just saying at the moment it's not something worthy of sufficient. But if you don't do something like that, then there's a real problem who can enforce and the short, usually unsatisfactory, answer is the Attorney-General. If the Attorney-General is a member of a government whose conduct is the subject of the complaint, I wouldn't
40 hold your breath on that being a very fruitful avenue. Technically, we have what are called actions where the Attorney-General can grant what's called a fiat, a permission for somebody to sue in the name, as it were, of the Attorney-General. Again, as I'm sure Mr O'Flaherty will confirm, you wouldn't – you wouldn't bet any
45 vital body parts on that happening.

So that at the moment at least litigation, which at Commonwealth level, is the only means by which ultimately a law can be enforced, it has to be enforced in a court

with a chapter 3 judge, that is a very theoretical only avenue. Which is why I'm interested in your Ombudsman idea, but I simply note it has these constitutional structures that it has to accommodate to. Enforcement may not be ultimately capable of being achieved other than by litigation, and litigation has the problems I've just
5 sketched for you, which is why I was interested to hear you talk more about the ombudsman idea.

MR MODICA: And I think it is a genuine result coming out of the community because of what has happened in and around our region, particularly up the Darling,
10 and how people on the ground get to interpret or hear about the real processes of legal enforcement, once you actually know those parameters that have been explaining to me. It doesn't make perfect sense, but I'm beginning to understand how - - -

15 THE COMMISSIONER: It's not a straightforward problem - - -

MR MODICA: No.

THE COMMISSIONER: - - - because we start, first of all, with something that
20 won't be altered in my lifetime, I'm sure, and that is that for federal law the only ultimate way can be enforced, when push comes to shove and people don't agree about it, is in a court.

MR MODICA: So my deeper concerns there are for people who have suffered or
25 are suffering in regions that are overlooked politically will only ever come to understand as even more difficult what you've just explained to give some form of redress from what has gone on.

THE COMMISSIONER: But I would encourage you to continue to puzzle about
30 the problem. It's a serious - I mean, it's a serious matter and it may mean that we need to, if you like, tone down our calls for enforcement, which is the ultimate expression of law where there is dispute about it, and, rather, to talk about methods of community consultation, participation and administrative decision-making, which
35 must take those processes into account. It may be that that's not a substitute for, but some consolation in place of, the unrealistic hope that we can tie the courts up with allocating water, which is not going to happen and nor should it happen. Believe me, litigation is not a way to live life at all. Right. So that's ombudsman and constitutional problems that has working behind it. What else do you want to raise?

MR O'FLAHERTY: Well, just to touch on the communication aspects that the
40 Commissioner was just pointing out and in respect of the public reporting on environmental watering activities and the decision-making processes that were just mentioned, in your - in the Council's original submission in the context of water
45 resource planning there's a submission that councils - individual councils should be - I'm paraphrasing here - perhaps better integrated into the - into that process. Am I right in thinking that there's two parts to that? There's that consultation and that public communication aspect of that process by which the Council can facilitate

consultation, but also be a party which consultation is given. But, also, is there another aspect of the decision-making process of the water resource plans and environmental watering plans, as well? Or is it more one than the other?

5 MR JENKINS: I think, in essence, when we looked at the terms of reference for this Royal Commission we identified the fact that (a) Government is probably the closest level of government to community and (b) - - -

MR O'FLAHERTY: Yes.

10

MR JENKINS: - - - we're very aware of it in the first place, water plans. And I suppose in thinking about, well, what would be a good way to be involved, and that we should be – be involved, and if the opportunity arose, it would be involved. But we weren't sort of actually aware of any opportunity or whether that would
15 actually happen or not. I think, probably in very basic terms, that's, I think, where it came from. Because it was actually – those terms of reference actually identified the opportunity to us, really, where something – we probably should take an interest in.

20 MR O'FLAHERTY: Yes.

MR JENKINS: And, again it comes from our involvement in that HSDS-type discussion we had before with our awareness of water and issues it probably increased over – you know, in recent times.

25

MR O'FLAHERTY: Yes.

MR JENKINS: Yes.

30 MR O'FLAHERTY: And it comes as a capability concept, as well, that a local council is used to dealing with local issues and the community, which water planning is clearly an important part – important matter for that community, such that the council has those capabilities of facilitating that. Is that fair?

35 MR JENKINS: And might have a contribution – or council might have a view or, you know, there need to be some, you know – at a local level for sure.

MR O'FLAHERTY: Yes.

40 MR JENKINS: Yes.

MR O'FLAHERTY: You do – you mentioned the Murray-Darling Association, Mr Modica, a bit earlier. And it's mentioned in the second submission of the Council under the heading 'Advocacy'. My take on that is that it's not a – you don't
45 necessarily criticise the Murray-Darling Association – it's an important advocacy body – but that that shouldn't be – just as the Commissioner noted, farmers are not homogenous; neither are Councillors.

MR MODICA: No, not at all. And that was very much expressed last week where people had, you know, as I said very – similar versions of their own discontent, whether it was with the Plan or access or where – once that market is open, where the water actually goes to and where it can go to.

5

MR O'FLAHERTY: The other thing I wanted to ask you about in the discussion about the governance of the system in the context which you are raising in the – in respect of the Water Ombudsman. Mr Modica, in your submission you refer to the lack of independence or the lack of appearance of independence, at the very least, of the MDBA. I'm not – you probably haven't read it and I will confess I haven't read all of it yet. The draft Productivity Commission's report has recently been released which suggests a splitting of the two entities – of the functions of the MDBA, one where it's a – essentially, a service delivery corporation and one in which there is a regulator. In your mind, would that address some or all of the concerns you have. And, perhaps in answering that, are you able to elaborate what those concerns are?

MR MODICA: Yes. I think splitting it would be a start to try to address the larger problems of who has the ear of a Minister or the lobbying power to implement what they see as the right direction for water use, and development, if you want to put it that way. To go a step further, I think there was – this is speaking on behalf of Healthy Rivers, Healthy Communities – is that when the water as a body constitutionally went from the Environment Department to the Agricultural Department I think there was a natural – sorry – a change in the way the water was looked as a resource because of, you know, the National Party's affinity with farming, obviously, and the resource just being looked at for something to be used, rather than to maintain the health of a complete system. So I think those things, you know, I would like them to be looked at and I think that is a good point to begin. Yes.

MR O'FLAHERTY: Yes. Now, I think we've diverted from our plan to let you speak on the topics you wanted to speak. So if we can perhaps - - -

MR MODICA: That's fine.

MR O'FLAHERTY: - - - go back to that. What were some of the other aspects or topics you wanted to raise?

THE COMMISSIONER: Bear in mind we've read – studied your written material, so don't feel the need to mention everything in there. We're giving you the opportunity to add by way of emphasis or responding to what you think that Mr O'Flaherty and I may have indicated are our interests. Whatever. I just want you to feel free to tell us.

MR MODICA: From the – I think - - -

MR JENKINS: Yes. I've probably covered mine.

MR MODICA: Covered mine. As I said before, I think it's important that councils do get involved and do participate. But as – from the other, from Healthy Rivers and Healthy Communities, it's a deeper look at how the corporatisation of farming and water begins to reflect within communities, how that information is looked at and
5 pulled apart and discussed in honest and open ways to see if there is deeper benefit when a resource is – maybe a system is gained or rules are changed to benefit people maybe upstream, like the rules were changed in the 2012 Water Act on the Barwon-Darling I think.

10 To me, particularly through the report from Healthy Rivers, Healthy Communities, there is a deeper concern that a capital is really running wild in regard – and how it interactions with the genuine concerns of people on the ground. I think it's reflected through the National Party's want to access, possibly illegally, water during the drought. I'm probably drifting a little bit, but it shows that there are certain political
15 wants and needs within politics that sees water as that resource for farming and not as something to be shared and combined. As I said before, the MDBA Plan is based on the 2007 Water Act. I think you've got it in front of you there. And there has been much discussion on it. Is it the environmental – was it the ELST?

20 THE COMMISSIONER: Environmentally Sustainable Level of Take.

MR MODICA: Yes. And I think the complexity of the Basin Plan, and then based on that, which you know much more than me, I'm intrigued - - -

25 MR O'FLAHERTY: We're getting tattoos of it.

THE COMMISSIONER: Yes.

MR MODICA: Of the whole document. I believe – and correct me if I'm wrong,
30 and this is tapping into that idea of how we get that balance between development, community access, and seriously in regard to the Lower Darling just the killing or the ignoring of a river that if the – if the river doesn't show any sign of health and coming back, within the 2024 assessment, water can be just taken to put it back into the river; is that – is that correct?

35 THE COMMISSIONER: Yes. I was going to raise that because of the material you've supplied to us in relation to what I will call socioeconomic impacts. Yes, supposedly in 2024, unless there's an extension, there is a so-called reconciliation with respect to the Sustainable Diversion Limit adjustments on account of measures
40 including so-called supply measures which, to paraphrase, are required to produce environmental or ecological outcomes of a particular quality and extent that justifies having increased the Sustainable Diversion Limit, that is reduced the amount of water to be recovered for the environment.

45 And you're right, there is a review provided for – an occasion or juncture provided for at which, I stress in theory, if those environmental or ecological outcomes have not been achieved – query if they don't seem to have much of a prospect of being

achieved, if it's a bit early to test – I stress in theory, at that point, more water is to be recovered for the environment. Which, of course, means less available for irrigation. One of the socioeconomic matters that you've drawn to attention in the material you've given me is the financial, but also moral and psychological, impact of uncertainty for farmers, bearing in mind that kind of possibility.

I personally think that's of massive significance, and not only for the – what might be called the hard edged question of how will banks value the collateral constituted by water rights if they may be reduced in their agricultural potential. It's very difficult, I think, to avoid that as being a looming question, and I'm grateful for what you've drawn to attention in that regard. And my report will be looking at that. In that regard, you've both mentioned what I will call the corporatising of agriculture, particularly irrigated agriculture, which links with what we were talking about earlier, the market for water, where in order for the market to operate appropriately, according to the ideology that informs it, is that you don't reduce the number of eligible participants.

And if an investor – or some might call them a speculator wishes to participate – well, that's a way of value being discovered through the operation of a market. Discovered or displayed. The material you've given me, I think – am I right – amounts to saying that in general terms that's a set of circumstances which disadvantages the smaller family farms because – it need not always be so, but overall that's your observation; is that right?

MR MODICA: Well, you know, historically Mildura was developed on sort of 8 to 12 acre blocks.

THE COMMISSIONER: And what a single family on a block?

MR MODICA: A single family on a block.

THE COMMISSIONER: But with some workers.

MR MODICA: Yes. Or sharing, you know, sharing labour. Particularly, you know, 100 years ago. But then by the time I was in my early teens most people who had farms were looking at 40 to 60 acres.

THE COMMISSIONER: So they bought out neighbours, in effect.

MR MODICA: Yes. And then probably in the – when the millennium turned over – 80 to 100, and now a lot of people – particularly the ones in fresh fruit – some of them have up to 300 acres with four or five families on them. But it's very – you know, my father's property that he sold 10 years ago, he raised a family on – you know, 15 acres of beans, broccoli and zucchini. That would just be absolutely impossible now. He inherited his water and land from his father, so that very much helped, but to actually stump up the money, buy the land, then buy the water.

THE COMMISSIONER: And get a return.

MR MODICA: And get a return. As I was saying, the MBA guys in rice, 350 a temporary meg, you're not going to go there. So what's happening in Mildura, to tap
5 into the development, is it's large corporate money coming in. They usually buy out on the edge of town, it's very – they're big. And it's – you know, the – and it's a bit romantic, the family farm, you know, the mothers bringing up smoko, cups of tea, and biscuits and stuff like that. It's not like it anymore. It's the true corporatisation or industrialisation of farming.

10 THE COMMISSIONER: Has that actually reduced the density of inhabitants on the land or is it just simply changed their identity?

MR JENKINS: There would be two aspects to that. On broad acre farm, non-
15 irrigated, I think that's true.

THE COMMISSIONER: So dry land farming.

MR JENKINS: For sure.
20

THE COMMISSIONER: Yes. Mechanising, chemicals, fertilisers, has a big effect.

MR JENKINS: I think it's more family corporatisation. I thought the bigger family
25 business, or it might go corporate, but certainly in irrigator horticulture, in our experience under constant pressure has always been dwellings. Like, people want to live – people want to live in them – live in them.

THE COMMISSIONER: So leave aside what poor old Sydney has suffered, all the
30 terrific agricultural land is now housing subdivisions.

MR MODICA: Housing. Yes, that's happening in our area too.

THE COMMISSIONER: So leave that aside. In terms of the irrigated agriculture
35 which is still being conducted, which is a mixture of – as I understand it – corporates and families still.

MR MODICA: Yes.

THE COMMISSIONER: I don't want to assume something that you can observe
40 and tell me about. Does the phenomenon of corporatising first of all typically increase the land size of each operation? Yes? No? Used to be called consolidation, when I was a boy.

MR JENKINS: I think it's clearly in dry land farming. Irrigated horticulture on
45 new developments it's a bit – again clearer. It's always difficult – I think there's difficulty in the old irrigation areas because of the lot sizes that exist. So most of them are 10 acres lots, and consolidation is always a bit more challenging because of

multiple ownership and – you know, an existing structure of how it’s laid out, basically.

5 MR O’FLAHERTY: So a corporate entity may own a number of plots rather than consolidate those plots into one.

10 MR JENKINS: Could – it could do. A large family operation, we call that a large family business, they would potentially own the whole range – as Jason said, a whole range of lots.

15 MR MODICA: But I would agree that they all would – they all would have consolidated in one way or another, but still quite a varied – you know, as I said, from 60 acres right through to three or 400.

20 MR JENKINS: The principle is the same, though, I think. Yes. They’re still – but when you’ve got other challenges. So that’s the bit about the about the housing strategy, when you’ve got dwellings interspersed with this land, that is the challenge it’s not as clear-cut as land that has no dwellings on it, for example. That would be just agricultural land and no dwellings. So it’s quite desirable, I think, to live in the irrigated horticultural area. That’s what my observation would be, people like to live in that area, be it on a non – on smaller lot living in that sort of environment. It’s popular in our area, anyway.

25 MR MODICA: Very much so.

MR JENKINS: But that in itself creates a lot of challenges, because actually that is the underlying challenge: having dwellings alongside agriculture.

30 MR MODICA: Agriculture.

THE COMMISSIONER: None of which seems to be affected, one way or the other, by whether there’s a Basin Plan or not.

35 MR JENKINS: No.

THE COMMISSIONER: It’s just the pressure of market and agriculture.

40 MR JENKINS: probably more a local issue that we – that we have to deal with, yes.

THE COMMISSIONER: Yes. Thanks.

45 MR O’FLAHERTY: I wanted to ask you some questions about, in a sense, Mildura’s unique position in the Basin and where it essentially sort of – you can see upstream issues flowing down, and then downstream issues from it. And particularly in relation, I think – we touched briefly upon the impact of the Lower Darling and the – there’s – the submissions talk about the pipeline up to Broken Hill and the work

done on the Menindee Lakes themselves. There's a reference, I think, to the fact that there wasn't a business case publicly released, I understand, for the pipeline. We will get to the Menindee Lakes themselves, but do I take it that there was no consultation or involvement of the Mildura Council in that project?

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MR JENKINS: Not that I'm aware.

MR MODICA: There's – no, no, I don't believe there was any consultation.

10 MR JENKINS: No, I don't believe so.

MR O'FLAHERTY: And my understanding of the concern – and please feel free to correct or elaborate on this – is that any drawdowns from the Murray River from a pipeline of that – like that, will have impacts on irrigation industries, Mildura and upstream in the sense that there may be greater demand for flows to fulfil that pipeline's demands. Or is that - - -

15

MR JENKINS: they will need supply.

20 MR MODICA: Look, I think there's – they will, but I think there's two aspects.

MR O'FLAHERTY: Yes.

MR MODICA: Two ways to answer that is in the regard to why the pipeline is there and the 20 or 23 per cent of water that traditionally comes into South Australia from the Darling. Where will that – so that's one question. And then the other one is what will be the extra pressure on the Murray once that pipeline starts pumping water to Broken Hill? So, you know, I think one of my fish ecologist friends said, you know, there's no water in the Macquarie River, there's hardly any water coming from the Murrumbidgee into the Murray, and the Darling has had the 15 cease to flow events since 200. You know, what's the next big river that's going to suffer from the same disengagement from reality or over allocation, or however you want to put it? And it's the Murray. So I think the pipeline exerts enormous pressure, whether it's pumping water out or stopping water coming down the Darling. And I don't think it's a natural outcome of anything for a river to stop flowing, really, so it's a pretty diabolical scenario.

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THE COMMISSIONER: It's a question of frequency and degree, isn't it, with the Darling?

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MR MODICA: Yes. And I think there's a little bit of – from what – from the people that have talked to me about their studying of fish, and the flows, in my proposal from healthy rivers healthy communities, two cease to flows in the last millennium, 17 cease to flows from – as I said, from 2000 to now, a corresponding overdevelopment in the upper catchments of the Darling, you know, a 50 per cent reduction in our icon fish, golden perch and cod. There is a whole lot of serious

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questions about managing unique natural resources that seem to have been overlooked for the want of a pipeline that possibly goes past mining sites.

5 You know – just so it’s been on my social media feed all morning that there’s a big dam next to the top of the pipeline going into Broken Hill that supposedly will be used for the mine up there straightaway. So, you know, the pipeline from the Menindee Lakes to Broken Hill had served it from 1959 and earlier. Are the demands being exerted from elsewhere, is my question?

10 MR O’FLAHERTY: The – in the Council’s submission there’s a reference to horticulture on the Lower Darling and the – this is on page 7 of the Council’s original submission. Do I take it that, and we’ve certainly heard evidence from horticulturalists on the Lower Darling, there’s a distinct connection between those enterprises, I understand, and Mildura, Mildura being the largest population centre
15 and probably where they trade their produce.

MR JENKINS: In the broader area that would be true. You know, across the river Wentworth and north for sure. Mildura is a large centre, apart from Broken Hill, which is - - -

20 MR MODICA: Three hours away.

MR JENKINS: - - - three hours away from Wentworth to Mildura.

25 MR O’FLAHERTY: And that in a sense, I take it, reinforces the need to recognise not only that hydrologic connectivity of the Lower Darling to communities such as Mildura, but the social and economic connectivity, which would reinforce the need for stakeholders including the Council being consulted and involved in the processes of projects such as the pipeline and the Menindee Lakes.

30 MR MODICA: Yes.

MR O’FLAHERTY: We – you’ve referred to the increase in permanent plantings, and particularly almonds. Is that linked with the irrigation efficiency projects that
35 are referred to in your submission? Has that – are you able to draw a link between the implementation of those efficiency projects and the increase in permanent plantings on the ground?

40 MR JENKINS: I don’t think so, no. I think, yes, I think permanent planting is quite distinct, I think – observation.

MR O’FLAHERTY: The reason I ask is that we do have – we have heard evidence recently, and also before, that there is a – sometimes an affect that a – a – when water efficiencies or efficiencies are implemented, far from seeing a decrease in water - - -

45 MR JENKINS: Okay.

MR O'FLAHERTY: - - - what is in fact seen is an increase in – in this case in production in farm - - -

5 MR JENKINS: Do you mean - - -

MR O'FLAHERTY: Areas planted.

10 MR JENKINS: - - - people might use water savings for efficiency for more plantings?

MR O'FLAHERTY: Yes.

MR JENKINS: Well, that sort of makes sense that would happen. But - - -

15 MR O'FLAHERTY: But you're not in a position to be able to say - - -

MR JENKINS: To – to really – no.

20 MR O'FLAHERTY: Explicitly.

MR JENKINS: Our comment is more around the fact that they're sort of ad hoc – we're aware that there's substantial development upstream.

25 MR O'FLAHERTY: Yes.

MR JENKINS: And that's probably – and that information we provided I think had a reference point – just – it wasn't very hard to find that one, I don't think, but there's actually lots of information around about that – you know, the rates of growth in other areas.

30 MR O'FLAHERTY: Yes, you – the Council points to upstream development - - -

THE COMMISSIONER: Page 2.

35 MR O'FLAHERTY: - - - in the context of tree clearing in Queensland.

MR JENKINS: Yes. A range of issues.

40 MR O'FLAHERTY: As well as in terms of broader issues - - -

MR JENKINS: Yes.

45 MR O'FLAHERTY: - - - in the second document but as well as irrigated agriculture upstream. And I – do I take it that the primary area which is seeing that development would be the Goulburn-Murray Irrigation District?

MR JENKINS: I think there would be a range. I think – do you want to answer the question.

MR MODICA: No, no

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MR JENKINS: I think it's a range of areas.

MR O'FLAHERTY: Yes.

10 MR JENKINS: It wouldn't – just one wouldn't - - -

MR O'FLAHERTY: So clearing up the Murrumbidgee as well.

15 MR JENKINS: Wouldn't be one location, yes, it would be a range. I think it really comes back to the fact that the original discussion we had around risk, what is the risk of that happening.

THE COMMISSIONER: Yes.

20 MR JENKINS: And that's where I think you touch on that – which I thought was good – around that, link to social – you know, health and wellbeing of people having ongoing concerns about these issues with no real, I suppose, real clear answer about what the – where they stand.

25 THE COMMISSIONER: Yes. It does occur to me, from things you've told me this morning, that – today I should say – that the formal inclusion, by way of mandatory consultation with local government, may be a readily available system – systematic way of including some of those perspectives better than they have been. Do I gather that that's what you two think on that?

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MR MODICA: Yes.

MR JENKINS: Yes. That's our – sort of, I think some of the themes that were written previously, yes. Not – I think it's not the panacea to all problems, but I
35 certainly think that - - -

THE COMMISSIONER: No, no, no.

MR JENKINS: - - - more involvement would be.

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THE COMMISSIONER: You won't get that conclusion from me.

MR JENKINS: Would be beneficial, I think. Would have some benefit, yes, on some specific issues.

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THE COMMISSIONER: There's an upstream/downstream thing that plays in all of these consultation questions. There is a technical lay problem, water resource plans

are not going to be the stuff of much sort of chat in the streets, they're pretty formidable documents. But they are dealing with a matter that really is appropriately for conversation in the street. So anyhow, I will consider that. Thanks. Does that cover everything you wanted to - - -

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MR O'FLAHERTY: I didn't have any other specific questions but, again, are there other matters or topics you wanted to particularly emphasise or expand upon?

10 MR MODICA: Just finally for me, from the – not the councillor position but from the other presentation is the remoteness of the Darling, the – that wonderful stretch of river that, you know, should be – you know, an iconic piece of river in our country from Wentworth to Wilcannia. You know, there's very few people out there, there's very few politicians, it's out of the public eye, and it probably reflects on how easily certain members of our communities – and not just in river politics – can be
15 overlooked by geography and the serious issues about the Darling river which definitely affect – will affect Mildura in the long run, and the Murray Mallee.

There has been serious questions and complaints coming out of that region for five or six, seven years. So it's not a new argument, it's ongoing. As you said, it's complex,
20 and starting to become well considered, but I just – I would just like to say that the – the dialogue that's coming out from very, very hardworking, thoughtful people from the indigenous communities who are really trying hard to identify that this place is some people – it's people's homes, it's their livelihoods.

25 THE COMMISSIONER: We've had Mr Bates in particular.

MR MODICA: Badger, yes, he's a great guy. To – for politicians to brush that aside from the region is quite disappointing, and it's great to see all the communities – communities, and through the ACF there's dozens of small groups like healthy
30 rivers, healthy communities from Dubbo to the Coorong to southern Queensland that are actually trying very hard to articulate a more environmental overview on how that – the Murray-Darling Basin Plan, through the Water Act, is implemented.

35 THE COMMISSIONER: Thank you very much. Gentlemen, I'm obliged for the travel you must have undertaken and for the time, and in particular for the care with which you and the Council have assembled the material. It will all be carefully considered and I'm again very grateful for your help and attention.

40 MR MODICA: Thank you.

MR JENKINS: Thank you.

THE COMMISSIONER: We will adjourn.

45 MR O'FLAHERTY: Commissioner, just one of the many matters that Senior Counsel has delegated to me is tendering tabs 1 through 4 of the Andy Close brief.

THE COMMISSIONER: Thank you very much. It's done. Didn't he delegate changing his watch back or whatever?

MR O'FLAHERTY: I wouldn't dare.

5

THE COMMISSIONER: Right. Now - - -

MR O'FLAHERTY: I think we're adjourning to a date to be fixed.

10 THE COMMISSIONER: We're adjourning to a date which will be fixed, at least ostensibly, by me. And it will be advised on the website.

MR O'FLAHERTY: Indeed.

15 THE COMMISSIONER: Thank you. We will adjourn.

MR MODICA: May I ask one more question.

THE COMMISSIONER: Yes, of course.

20

MR MODICA: My colleagues that I went to Leeton with, who proposed the ombudsman motion that passed at the MDA, has asked if she could submit that to you.

25 THE COMMISSIONER: Yes, of course.

MR MODICA: Okay, excellent. Thank you very much.

30 THE COMMISSIONER: And with a minimum of formality. If she's in touch with the Commission staff they will facilitate that.

MR MODICA: Excellent. Thank you very much. Thank you.

THE COMMISSIONER: Thank you.

35

<THE WITNESSES WITHDREW

[12.53 pm]

40 **MATTER ADJOURNED at 12.53 pm ACCORDINGLY**

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