
TRANSCRIPT OF PROCEEDINGS

MINING WARDEN'S COURT

GUNNEDAH

TUESDAY 31 MARCH 2009

(2nd day of hearing)

BEFORE HIS HONOUR MR BAILEY (MINING WARDEN)

B E T W E E N
ALCORN & ANOR
BROWN & ANOR

Applicants

- and -

COAL MINES AUSTRALIA PTY LTD

Respondent

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1 HIS HONOUR: Good morning, everyone. Continuing on with our
2 review of arbitrator's determination. We have the same
3 people as yesterday, other than Mr Long. You're here now
4 representing who?

5 MR LONG: (Indistinct.)

6 HIS HONOUR: Yes, thank you.

7 MR BEASLEY: Your Honour, Mr Banks and Mr Briese have completed
8 that conclave process that was discussed yesterday. Just
9 before we get to that though, Mr Long has told me that
10 his clients, Mr Clift and Mr and Mrs Bailey, don't
11 require a view. I mean, it's up to Your Honour as to
12 whether you have one, but they - and as I understand it,
13 the property is ready to have a view if the court wanted,
14 but they don't require it I think is - - -

15 HIS HONOUR: Thank you.

16 MR BEASLEY: Then there's the issue of Mr and Mrs Alcorn and
17 the view of Mr and Mrs Brown's property and what Your
18 Honour intends to do if it's still running.

19 HIS HONOUR: Well, yes. I'm not keen in travelling across
20 paddocks in the wet, but - - -

21 MR BEASLEY: I suppose there's two issues: (1) do we go if it
22 rains, and; (2) is it possible, even if we want to? As I
23 understand it, I don't have any proper instructions on
24 this, but as I understand it there may not be much
25 problem getting access to the Alcorns' property even if
26 it's raining. Whether there's an issue with Mr and
27 Mrs Brown I don't know.

28 MR BANNON: There's no problem with access at the moment for
29 both properties. If we delay and it rains more, there
30 may be a problem with ground.

31 HIS HONOUR: And if we delay and it stops raining it may be

1 better. I don't know. After the evidence we'll see what
2 - - -
3 MR BANNON: I'm not a weatherman and I can't predict what's
4 going to be happening tomorrow. But all I can say, Your
5 Honour, is today was set aside to go there.
6 HIS HONOUR: Yes, I know.
7 MR BANNON: We can get there now. We may not be able to go
8 tomorrow.
9 HIS HONOUR: Yes, that's true.
10 MR BANNON: And it's not a bad idea to see these things in real
11 life the way they are.
12 HIS HONOUR: After what was raised yesterday by one of the
13 witnesses in relation to the ridge area and drilling and
14 the lack of aquifers in the ridge area, I think it's
15 important to know where the drilling is going to take
16 place.
17 MR BANNON: Well, I didn't understand the evidence to be that
18 there was a lack of aquifers in the ridge area.
19 HIS HONOUR: Well, that's what they said. They said that -
20 that was my understanding of the evidence.
21 MR BANNON: Well, you'd better come out because there's a bore
22 which plugs into the aquifer on the ridge area on the
23 Alcorn - - -
24 HIS HONOUR: Well, there you go.
25 MR BANNON: So you can make - Mr Briese can go on all he likes
26 about the absence of aquifers, but there's one there.
27 HIS HONOUR: All right then.
28 MR BANNON: And the experts, you may remember, agreed to the
29 grouting procedure for all properties.
30 HIS HONOUR: Yes.
31 MR BANNON: So the attempt by Mr Briese to resile from that was

1 exactly that.

2 HIS HONOUR: Yes, I've got no problems with that. I've got no
3 problems with that.

4 MR BEASLEY: Well, Mr Banks and Mr Briese are here, Your
5 Honour.

6 HIS HONOUR: One can get up there and one in here.

7 <ERROL HAYDEN BRIESE, sworn and examined:

8 Just sit down and state your name for the record please?---

9 Errol Hayden Briese.

10 <ROBERT GORDON BANKS, affirmed and examined:

11 Please state your name for the record?---Robert Gordon Banks.

12 MR BEASLEY: Mr Briese's report is Exhibit 5 from yesterday,

13 but I think my friend needs to - - -

14 MR BANNON: I tender Mr Banks' report, which his a report - - -

15 HIS HONOUR: That's the one headed "Discussion of Soil and

16 Environmental Properties at a Proposed Exploration

17 Drilling Site of Goodjuwiri/Quirindi". Is that it?

18 January 2009. Is that the one?

19 MR BANNON: Yes.

20

21 #EXHIBIT 13 - Report of R.G. Banks dated January 2009.

22 MR BEASLEY: Your Honour, I don't have any specific objections

23 to this affidavit. In our written submission we say that

24 s.141(1) is permissive and that Your Honour wouldn't deal

25 with aspects of s.141(1)(e) relating to the environment

26 because of the conditions already imposed on my client.

27 I just put that objection on the record. I don't want to

28 say anything further about it.

29 HIS HONOUR: Thank you. And the report of Mr Briese is the

30 same one as yesterday?

31 MR BEASLEY: Exhibit 5, yes, Your Honour.

1 HIS HONOUR: Thank you.

2 MR BEASLEY: Mr Banks, you met with Mr Briese this morning?---

3 (No audible response.)

4 You're going to have to say yes or no - - -?---(MR BANKS) Yes.

5 - - - for the record. Yes, thank you. And you and Mr Briese

6 produced a document of aspects of agreement and

7 disagreement?---(MR BANKS) Yes.

8 Can I show you a document. Perhaps that can also be handed to

9 Mr Briese as well. Is that the document that reflects

10 the aspects of agreement and disagreement following the

11 conclave with Mr Briese this morning?---(MR BANKS) Yes,

12 it is.

13 You've signed it down the bottom?---(MR BANKS) Yes, I have.

14 Mr Briese, is that document in your handwriting?---(MR BRIESE)

15 It is.

16 It's the document that reflects the agreements and

17 disagreements following your meeting with Mr Banks this

18 morning?---(MR BRIESE) That's correct.

19 I'll tender that, Your Honour.

20

21 #EXHIBIT 14 - Document outlining outcome of meeting

22 between E.H. Briese and R.G. Banks.

23 If I can just ask a few questions to Mr Banks first. You

24 mentioned a chemical - sorry, do you have a copy of your

25 report, Mr Banks?---(MR BANKS) Yes, I do.

26 If you could just go to p.5. You mention a chemical called

27 Atrozine?---(MR BANKS) Yes.

28 Am I right in saying that's a chemical commonly found in

29 pesticides?---(MR BANKS) It's a herbicide.

30 It's a herbicide?---(MR BANKS) M'mm.

31 You've mentioned some evidence of Atrozine and Methyl-Atrozine

32 being found in the groundwaters of the Liverpool Plains?-

1 --That's correct.

2 I think in the agreement you've reached with Mr Briese, am I
3 right in saying that given that Atrozine appears to be
4 able to migrate from the surface to the deeper aquifer in
5 small amounts, you agree that if there's saline shallow
6 groundwater, that can make the same migration down to the
7 deeper aquifer?---(MR BANKS) I'm sorry, can you restate
8 that question?

9 You've got evidence in your report about Atrozine being found
10 in the groundwaters of the Liverpool Plains, correct?---
11 (MR BANKS) Yes.

12 And also a by-product called Methyl-Atrozine, correct?---(MR
13 BANKS) Yes.

14 You say that that is evidence of the fact that Atrozine has
15 passed through the soil layers from the shallow aquifers
16 down to the deeper aquifer, correct?---(MR BANKS) Yes.

17 Am I right in saying that at paragraph 4 of Exhibit 14, the
18 agreement document with Mr Briese, that the fact that
19 Atrozine is migrating downwards is also an indication
20 that there's the potential for simply the shallow saline
21 waters to naturally migrate down to the lower aquifer?---
22 (MR BANKS) That's correct.

23 You went out and did a site visit of Mr and Mrs Brown's
24 property, is that right, in January this year?---(MR
25 BANKS) Yes.

26 You say in your report that you noticed an irrigation drain
27 15 metres to the north of the proposed drilling site was
28 seeping shallow saline groundwater?---(MR BANKS) Yes,
29 that's correct.

30 I'd be right in saying that that was likely to have been the
31 result of significant rainfall shortly prior to your site

1 visit?---(MR BANKS) Excuse me, I'm just writing down
2 your question. If I may, there's been a significant
3 amount of work on shall saline groundwater in clay
4 systems in that plain and in other parts of the Goran
5 Basin and the Lower Liverpool Plains. And the shallow
6 saline groundwaters in that area frequently persist for
7 four to five years after saturation periods and therefore
8 they can be - it can be accepted that as a general
9 statement for that area, that shallow saline groundwater
10 will be encountered about 80 per cent of the time. So
11 it's quite persistent and it's quite common through that
12 area.

13 Have you finished?---(MR BANKS) Yes.

14 I take it that was not agreeing with my proposition that what
15 you observed there was the result of a recent rainfall
16 event?---(MR BANKS) No, in my experience that's not the
17 case.

18 You refer to some material safety datasheets in your report.

19 You prepared your report - these are observations in your
20 report or assumptions you've made based on some
21 instructions given to you, are they?---(No audible
22 response.)

23 I don't - - -?---(MR BANKS) Sorry.

24 - - - want you to answer the question if you haven't understood
25 it. I'm just not sure it's going to be necessary to
26 write down every question I ask. The only thing I was
27 asking you is this - I don't think it's a difficult
28 question - the information you put in your report about
29 material safety datasheets is as a result of some
30 assumptions you've been given by somebody?---(MR BANKS)
31 Sorry, I really don't understand the question.

1 All right, how do you know - p.6 of your report?---(MR BANKS)

2 Yes, I have it in front of me.

3 Do you see you've got references there to material safety data
4 sheets for driller's muds?---(MR BANKS) Yes.

5 Now, I take it somebody told you that these particular muds are
6 used?---(MR BANKS) That was the assumption of my client,
7 yes.

8 Were you given a letter from a firm of solicitors about this?--
9 -(MR BANKS) I don't know, I don't recall, sorry.

10 Who asked you to prepare your report?---(MR BANKS) Long
11 Howland.

12 Did they write you a letter asking you what they wanted a
13 report on?---(MR BANKS) The content of the report was
14 discussed in a meeting with Mr Long and Ms Weinthal at
15 their offices.

16 All right, was that meeting followed up by them engaging you by
17 way of a written - a letter?---(MR BANKS) I don't believe
18 so.

19 You don't believe you got any letter from Mr Long regarding
20 instructions in relation to your report?---(MR BANKS) I
21 had various email correspondences relating to its
22 content.

23 Do you have those emails?---(MR BANKS) No, I don't.

24 Can I call for those emails from Mr Long, please? I don't know
25 who's got them now because there's been a change of
26 solicitors, hasn't there?

27 HIS HONOUR: I'm sure they're in these files.

28 MR LONG: They're somewhere here, we'll produce them.

29 MR BEASLEY: All right, was it at the meeting you had with Mr
30 Long that he told you that these drilling products were
31 used?---(MR BANKS) I believe there was - I believe that

1 they weren't privy to what chemicals exactly were used -
2 - -

3 No, I'm asking you about what you were told, what were you told
4 by Mr Long were the drilling products used? Or were you
5 told anything by Mr Long about what drilling products
6 were used?---(MR BANKS) I was given a range of drillers
7 product MDSS to review, and I - - -

8 All right, who gave you those documents?---(MR BANKS) Long
9 Howland.

10 I'll leave this product for a moment until I get the emails
11 that I've asked for, and any other documents. So as far
12 as you're aware in terms of written documents, the only
13 written documents from Long Howland dealing with your
14 report are the emails you've mentioned, are they?---(MR
15 BANKS) Yes.

16 I take it you haven't received anything in writing concerning
17 your report from Kemp Strang solicitors, involving
18 instructions for your report?---(MR BANKS) No.

19 Thank you, all right. If you go to p.7 of your report, you're
20 giving some evidence that this area you believe is an
21 area that contains shallow groundwater, correct?---(MR
22 BANKS) Yes.

23 Would I be right in saying that if the area has shallow
24 groundwater, and a miner came along and started
25 constructing some sumps that are, if you can assume about
26 four metres by three metres by about 1.5 metres deep,
27 water is likely - the groundwater is likely to seep into
28 that excavated hole, would that be right?---(MR BANKS)
29 It's a possibility.

30 Likely?---(MR BANKS) It's a possibility, it depends on how the
31 sump is sunk, and whether there's been some degree of

1 partial casing off, with the bit, or not.

2 All right - - -?---(MR BANKS) With the physical activity of the
3 machine being used to dig the hole.

4 But in any event, you've had a discussion with Mr Briese, and
5 you've indicated an agreement that if plastic lined sumps
6 are used, that will minimise the risk for soil
7 contamination?---(MR BANKS) Yes.

8 It would significantly minimise the risk, wouldn't it?---(MR
9 BANKS) Provided all materials used are removed from site,
10 yes.

11 And assuming that the plastic lining is put in appropriately,
12 and there's proper bunding around the sumps, there should
13 be no risk of soil contamination in those circumstances,
14 do you agree with that?---(MR BANKS) No.

15 Well, what about that it would be a very, very low risk, if the
16 plastic lining was put in place correctly, and there was
17 bunding around the sumps?---(MR BANKS) I agree that risk
18 of contamination with a chemical, or contaminant would be
19 minimised by the use of a plastic lined sump, but that
20 does not then relate to the process of drilling itself -
21 - -

22 No, forget that, forget the drilling?---(MR BANKS) All right -
23 - -

24 I'm just talking about risk of contamination - - -?---(MR
25 BANKS) Through the sump - - -

26 Through the sump?---(MR BANKS) Yes.

27 Very low risk?---(MR BANKS) Low risk, yes.

28 Well, I'm suggesting to you a very, very low risk?---(MR BANKS)
29 Much less than using no plastic.

30 We could go on for a while, but I'll leave it there - - -?---
31 (MR BANKS) Yes.

1 Now, you've given some evidence in your report about cracking
2 in the soil, this is at p.7, down to about eight metres.
3 Would I be right in saying that if the soil had cracks
4 from the surface down to about eight metres, that would
5 be an indication that there's not shallow groundwater?---
6 (MR BANKS) As I tried to indicate before, there are
7 periods which the plain does dry out, a long drought, for
8 example, is a period where the soil will dry out to eight
9 metres, and the shallow saline aquifer can dry out during
10 those periods, and it is clay so it behaves in terms of
11 its ability to shrink and swell and crack, like the clay
12 above and below it.

13 When you talk about a continuously fractured plug, in paragraph
14 3.1 of your report, you're talking about some kind of
15 potential fracture, are you, to the cement grouting?---

16 (MR BANKS) If I may, my expertise relates to the top six
17 to eight metres of soil - - -

18 Yes?---(MR BANKS) And below this, despite any suggestions I
19 have made in my report, I also say that a hydrogeologist
20 should be consulted to comment on any depth beyond this.
21 So I don't feel that I can give a qualified answer.

22 Does that mean that you're not expressing any view about the
23 likelihood of any water from the near - saline near
24 surface ground water reaching down to the alluvial
25 aquifer?---(MR BANKS) I'm expressing it as a possibility,
26 I'm also qualifying that with "Please consult a
27 hydrogeologist".

28 All right, do you know anything about the processes that the
29 mining company does to grout boreholes?---(MR BANKS) No.

30 So you have no experience in that?---(MR BANKS) Limited.

31 Are you aware about what products are used in the cement grout

1 that's used?---(MR BANKS) Yes. Mr Briese informed me
2 this morning.

3 Before Mr Briese talked to you this morning did you have any
4 knowledge about that?---(MR BANKS) Not an extensive
5 knowledge, no.

6 Are you familiar with a product called Bentonite?---(MR BANKS)
7 Yes.

8 Do you know what it's used for in cement?---(MR BANKS) Yes.
9 It's used to make the cement flexible and more plastic?---(MR
10 BANKS) Yes.

11 In other words, it's a product that's added to the cement to
12 ensure that the fracturing process you've mentioned as a
13 possibility doesn't occur?---(MR BANKS) I can only
14 comment on the top 6 to 8 metres, so - - -

15 No, I'm asking you about the cement grouting that's used?---(MR
16 BANKS) Right.

17 And the proposition I'm putting to you, which you can agree
18 with or not, is that Bentonite is added to the cement to
19 ensure that the fracturing process you're talking about
20 does not occur?---(MR BANKS) Bentonite will not cope
21 with the shrink/swell capacity of the soil in the top 6
22 to 8 metres because in fact the soil is mostly composed
23 of Bentonite and once you mix it with cement, it is
24 partially lime stabilised and therefore the soil around
25 it has a greater ability to shrink and swell and crack.

26 All right?---(MR BANKS) And therefore the soil mass may come
27 away from any new surface plug, as is frequently observed
28 in observation bores in that district.

29 You understand don't you that the way that the grouting is put
30 into the hole is that it's injected into the steel
31 casing? You understand that, firstly?---(MR BANKS) Yes.

1 You do. And then through pressure it goes out the bottom end
2 of the steel casing and goes up the sides of the annulus
3 of the steel casing under pressure, so that it goes out
4 into any cracks in the sides of the hole. Do you accept
5 that?---(MR BANKS) Yes, but that does not - does not
6 take account of the physical capacity for that soil to
7 shrink and swell around anything that's injected into it
8 at an unspecified moisture content.

9 It makes it highly unlikely that there's going to be any
10 fracture of the nature that you've said in your report
11 though, doesn't it?---(MR BANKS) No.

12 All right?---(MR BANKS) Not at all.

13 When you're talking about the wick drain in your report, wick
14 drain - what's that term mean to you?---(MR BANKS) A
15 wick drain to me, as was used by Land and Water
16 Conservation 10 years ago when I was in their employ, the
17 design of a wick drain was basically a hole connecting
18 deeper aquifers with surface waters. And that's how I
19 understand the word wick drain.

20 But what you're talking about in your report here is, would it
21 be fair to say, fairly minor cracking; not something that
22 really deserves the term wick drain?---(MR BANKS) To
23 behave as a wick drain, that's a possibility. Although
24 as to the strength of its capacity to convey water, I
25 can't comment.

26 When you say the strength of its capacity to invade water, you
27 mean the capacity of it to - if there is any cracking,
28 for it to drip down into the underlying alluvial
29 aquifers?---(MR BANKS) Yes. Sorry, I can't comment on
30 that.

31 All right, thank you?---(MR BANKS) Beyond the top few metres.

1 So you're not in your report expressing any opinion about risk
2 - let me withdraw that. Assuming you're right that
3 there's the possibility of some cracking in the top
4 8 metres - Mr Banks?---(MR BANKS) Yes.
5 Assuming there's the possibility of some cracking in the top
6 8 metres, you're not expressing any opinion as to risk in
7 relation to any of that upper level saline groundwater
8 ending up in the alluvial aquifers underneath?---(MR
9 BANKS) No.
10 Thank you?---(MR BANKS) Or any water.
11 All right?---(MR BANKS) And as I say, and I qualify my
12 comment, anything below 6 to 8 metres - - -
13 You want a hydrogeologist to - - -?---(MR BANKS) Yes, I want a
14 hydrogeologist to discuss.
15 Can I ask you this. Are you qualified to talk about the
16 quantities of water that exist in alluvial aquifers? Or
17 is that outside your area of expertise?---(MR BANKS)
18 Only in as far as I can look up gazetted publications and
19 peer reviewed publications and quote those figures.
20 You'd need to do that though to - - -?---(MR BANKS) Yes.
21 - - - address any questions I asked you about that?---(MR
22 BANKS) Yes.
23 Can I ask a question of Mr Briese. Mr Briese, in round terms
24 how many exploration drill holes have you worked on,
25 observed or consulted on over the years?---(MR BRIESE)
26 I've got 35 years' of experience. I started in the early
27 '70s as an exploration geologist and then after two years
28 moved in to hydrogeology. I've been on numerous mine
29 sites, probably thousands I would guess.
30 Are you aware from your experience of any cracking or fractured
31 plugs in the grouting used in the exploratory drill holes

1 causing contamination from one aquifer to another?---(MR
2 BRIESE) No, I haven't - we have not - the work I've done
3 we have had no complaints that we've cross-contaminated
4 aquifers.

5 There's some evidence in an affidavit from the Browns about the
6 amount of water they pump from their bores, and they
7 mention in the period September to April they have two
8 bores going continuously that are doing 60,000 and 40,000
9 gallons an hour of water, which I think is about - if
10 it's 24 hours, if that's what's meant by continuously,
11 that's about 2.4 million gallons of water a day which,
12 whatever that figure is in litres, is a lot. Are you
13 able to say what we're talking about in terms of the
14 amount of water in the alluvial aquifers?---(MR BRIESE)

15 It's a huge volume of water. That's - - -

16 Am I right in saying - sorry, go on?---(MR BRIESE) As I said
17 yesterday, and I guess I should have checked it last
18 night, I think the sustainable yield now determined by
19 the department is 16,000 megalitres a year from the -
20 that's the Mooki system. It's less for the Yarramin
21 system. I think it's about 4,000 or 5,000 megalitres a
22 year.

23 So we're talking about millions of litres of water per - - -?--

24 -(MR BRIESE) Thousands of - - -

25 - - - 100 metres squared?---(MR BRIESE) Per?

26 Hundred metres squared?---(MR BRIESE) A hectare?

27 Yes. Millions of litres of water in the aquifer?---(MR BRIESE)

28 Yes, quite - and - yes.

29 And we're talking about more than 100 square kilometres of

30 aquifer?---(MR BRIESE) Correct, yeah.

31 What impact then would a small fracture, even if we assumed

1 that a small amount of say shallow groundwater - saline
2 shallow groundwater through a crack ended up somehow
3 getting down to the alluvial aquifer, what impact would
4 that have on the alluvial aquifer?---(MR BRIESE) I would
5 doubt whether it would be detectable, given that there
6 is, as I said, dispersion and dilution as it moves
7 through the system. It's a miniscule amount that
8 actually seeps through the crack.

9 Would your answer be the same in relation to if a small amount
10 of diluted driller's mud got down into the alluvial
11 aquifer?---(MR BRIESE) That's correct.

12 I'll ask this to both experts. The potential cracking - I'll
13 start with Mr Banks. The potential cracking that you've
14 talked about in the first nought to, I think it is
15 8 metres you say you've got - you want to keep your
16 expertise limited to. If cracks do appear at that level,
17 would I be right in saying there's a fair likelihood that
18 those cracks can self heal because of sediments and sands
19 in the waters themselves?---(MR BANKS) The cracks are a
20 result of the shrink swell capacity of the soil. The
21 soils are very high in clay and therefore - and a
22 particular type of clay, and in fact they swell more than
23 bentonite mixed with cement, but they have a massive
24 potential to swell by up to 60 or 70 per cent of their
25 own dry volume. So when they dry, they crack, and when
26 they wet up again, eventually, they seal. And it has
27 nothing to do with sediment falling in or out of the
28 cracks.

29 Do you have any comment on that answer, Mr Briese?---(MR
30 BRIESE) No, I agree with that, but I'd point out that the
31 cement grout is designed so it doesn't crack.

1 I don't have any further questions for the time being, Your
2 Honour, thank you.

3 HIS HONOUR: Yes, Mr Bannon?

4 MR BANNON: Mr Briese, you were asked some questions by my
5 learned friend about the extent - the volume of water in
6 the aquifers, in the E.L. region?---(MR BRIESE) That's
7 correct.

8 You don't suggest, do you, that steps shouldn't be taken to
9 avoid cross contamination of aquifers, do you?---(MR
10 BRIESE) I agree every reasonable step should be taken to
11 prevent cross contamination.

12 In fact you regard that as critical, don't you?---(MR BRIESE) I
13 do.

14 Any person seriously concerned about the environment would
15 regard that as critical, wouldn't they?---(MR BRIESE)
16 They would.

17 And that's critical notwithstanding that there are millions of
18 litres of water flowing anywhere, isn't that right?---(MR
19 BRIESE) That's correct.

20 So the fact that there are millions of litres of water is
21 irrelevant to any concern to prevent cross contamination
22 of aquifers, isn't it?---(MR BRIESE) The fact that
23 there's millions of litres of water means that if there
24 were a leakage, which we've taken all precautions to
25 prevent with best practice, if there were leakage, it
26 probably would not even be detectable, because there's
27 millions of litres of water there, but we don't want that
28 to occur, and we do use best practice to prevent it from
29 occurring.

30 You don't want it to occur, because environmental
31 considerations demand that it not occur, that's right

1 isn't it?---(MR BRIESE) That's correct, yes.

2 Why is it important not to have cross contamination?---(MR
3 BRIESE) Because you don't want mixing of the aquifer
4 waters.

5 Because it's damaging to the environment, isn't it?---(MR
6 BRIESE) In large amounts it is very damaging to the
7 environment.

8 Any amounts?---(MR BRIESE) In miniscule amounts, no. As I
9 said, I don't believe it would even be detectable. Do
10 you say to these people of this region, who have lived
11 off the Liverpool Plains and dependent as their primary
12 resource, these aquifers, do you say it's not a matter of
13 concern to avoid cross contamination of these aquifers?--
14 -(MR BRIESE) No, I say it is a matter of concern, and - -
15 -

16 But are you saying that it doesn't matter if there's a leakage
17 because - don't worry, it's not going to cause too much
18 trouble. Is that the attitude you present?

19 MR BEASLEY: I object to that, that doesn't represent the
20 answers the witness has been giving at all.

21 MR BANNON: Is the position you put for the people of the
22 Liverpool Plains area that they shouldn't be concerned if
23 there is cross contamination between aquifers? Is that
24 what you say to the people of Liverpool plains?---(MR
25 BRIESE) I say they should be very concerned about cross
26 contamination between aquifers, and the biggest risk is
27 the hundreds of irrigation bores in the area that have
28 been drilled in the past using cable tool methods, where
29 there is no grout seal around the steel casing, the upper
30 saline water corrodes the steel casing and allows cross
31 contamination of aquifers.

1 Why have you added that, Mr Briese? What's that got to do with
2 the question I was asking you?---(MR BRIESE) Because the
3 - - -
4 Are you blaming the people of Liverpool Plains themselves, are
5 you?
6 MR BEASLEY: I object - - -
7 HIS HONOUR: Mr Bannon - - -
8 MR BANNON: Are you blaming them for this?
9 MR BEASLEY: I object.
10 HIS HONOUR: Mr Bannon, please.
11 MR BANNON: Why did you bring that up?---(MR BRIESE) Because I
12 say that's - we are taking all precautions to prevent,
13 there shouldn't be cross contamination, we're using best
14 practice, but that would be a worry for me, that the
15 existing bores create more risk of cross contamination
16 than the work we are doing.
17 Now that you bring up the cable tool bores, you know very well,
18 and contrary to what you said yesterday, you can grout by
19 pressurising cement through a cable tool drill, can't
20 you?---(MR BRIESE) No, I do not believe you can do that.
21 You say you've had wide experience in the drilling industry,
22 but do you say you are unaware that it's a simple
23 procedure to grout using a cable tool drill?---(MR
24 BRIESE) I do not believe that you can grout the annulus
25 with a cable tool drill.
26 So if Mr O'Brien was to come along and tell the court that
27 that's exactly what he did in artesian bores - - -?---(MR
28 BRIESE) He used artesian bores - - -
29 That's exactly what he did in the artesian basin?---(MR BRIESE)
30 He used a cable tool rig in the artesian basin, it can't
31 be done.

1 There may be a test of experience here, Mr Briese, but what I
2 put to you squarely is that it's a simple procedure using
3 a cable tool to force cement up and around the annulus of
4 a steel casing in exactly the same way as you've
5 described, using a mud drill, that's right isn't it?---
6 (MR BRIESE) No, in my experience that's not right.
7 I suggest that if you've not experienced it, that is more a
8 reflection of your lack of experience in the drilling
9 area generally?
10 MR BEASLEY: I object.
11 WITNESS (MR BRIESE): I disagree with that.
12 MR BANNON: Mr Briese, while we're on this, you don't attend
13 every drilling site like you suggested yesterday,
14 undertaken by CMAL, do you?
15 MR BEASLEY: He didn't suggest that - - -
16 WITNESS (MR BRIESE): I didn't say I attend every drilling site
17 - - -
18 MR BEASLEY: Look, I object to this, if my friend - - -
19 MR BANNON: Well, explain yourself, explain yourself - - -
20 MR BEASLEY: No, I'm making an objection.
21 HIS HONOUR: Yes?
22 MR BEASLEY: If my friend is going to - - -
23 MR BANNON: Well, I withdraw the question. Do you say you
24 attended every drilling site undertaken by CMAL?---(MR
25 BRIESE) No - - -
26 Or these explorations?---(MR BRIESE) I said the alluvial
27 aquifer drilling, and I said there may be three sites
28 where I couldn't attend, and one of my hydrogeologists
29 from my firm attended.
30 And if you had attended these sites, you would have noticed
31 spillages of the drilling mud during the drilling process

1 on the surface, wouldn't you?---(MR BRIESE) There is
2 minor spillage of drilling mud, the drilling mud flows
3 from the bore hole into the pits. The drillers shovel
4 out the cuttings, if the drain blocks, and so there is
5 minor spillage on the surface.
6 There's spillage around the drill hole, isn't there?---(MR
7 BRIESE) It overflows from the drill hole into the drain
8 that drains the mud into the sump.
9 But not everything gets into the sump, does it?---(MR BRIESE)
10 The mud around the drill hole and in the drain, there's
11 some spillage on the surface.
12 You don't presently propose to bund, or the company doesn't
13 presently propose to bund around the drill hole, does
14 it?---(MR BRIESE) The company does bund around the drill
15 hole, because they don't want mud all over the ground,
16 around where people are working, it's a health and safety
17 issue, apart from anything else.
18 So there's no difficulty in the company, as far as you are
19 concerned, agreeing to put a bund around the exploration
20 hole?---(MR BRIESE) No.
21 It is important to minimise spillage of the drilling mud around
22 the drilling hole, isn't it?---(MR BRIESE) That's
23 correct.
24 And it is important to avoid spillage or seepage from the sump
25 into the surrounding area, isn't it?---(MR BRIESE) It is,
26 yes.
27 Because it poses an environmental risk, correct? That's the
28 reason you're concerned about it?---(MR BRIESE) The
29 drilling muds, as I said yesterday, they have been
30 certified as safe, the potassium chloride has high
31 salinity, if they use potassium chloride, but yes, we

1 don't want drilling mud moving away from the bore site,
2 or from the drilling site.

3 You advise the company that steps should be taken to contain
4 the drilling mud in sumps, don't you?---(MR BRIESE) Yes.
5 And you advise the company to take all reasonable steps to
6 avoid spillages from the sumps, don't you?---(MR BRIESE)
7 I don't personally advise; that's part of the drilling
8 procedure. My advice is - - -

9 You approve of that?---(MR BRIESE) - - - (indistinct). Yes, I
10 approve.

11 The reason you approve of those procedures is because of
12 environmental concerns, correct?---(MR BRIESE) Correct.
13 One of the risks, even if you plastic line the sump, is
14 overflow, isn't it?---(MR BRIESE) It is a risk and steps
15 have been taken to minimise that, yes.

16 Such as?---(MR BRIESE) Bunding, freeboard.
17 And how do you stop the rain?---(MR BRIESE) You don't.
18 You don't. If it rains heavily, you've got an overflow problem
19 don't you?---(MR BRIESE) If you haven't allowed enough
20 freeboard. The procedures state that you allow at least
21 20 centimetres freeboard if you're going away overnight,
22 or if you're going away for a weekend you allow
23 30 centimetres of freeboard. And I understand the
24 environmental consultants have come up with those figures
25 based on analysis of rainfall intensity events.

26 On average figures of rainfall, correct?---(MR BRIESE)
27 Rainfall intensity.

28 Yes, average?---(MR BRIESE) I'm not sure. It's rainfall
29 intensity, maximum rainfall. It's not an average
30 rainfall, it's a rainfall intensity that occurs over a
31 period of time.

1 Yes, so you can get heavier rains than predicted and you have a
2 problem?---(MR BRIESE) I guess if the rainfall intensity
3 is higher than historical records then you may have a
4 problem.

5 And the way to solve that is to have sumps with lids?---(MR
6 BRIESE) With?

7 With lids; contained sumps, off the ground sumps. That solves
8 that problem doesn't it?---(MR BRIESE) I don't -
9 practically I don't know how that would work with the
10 drilling process. But certainly something with a lid on
11 would stop rainfall entering it.

12 So you're not familiar with above ground sumps with lids on
13 them?---(MR BRIESE) I'm familiar with transportable
14 sumps where a driller has a sump for drilling relatively
15 shallow bores that are above ground. But deep drilling,
16 deep holes, I haven't seen any above ground sumps.

17 Have you ever heard of a document called "Guidelines for
18 Environmentally Responsible Exploration in New South
19 Wales"?---(MR BRIESE) Yes, I've heard of it.

20 Are you aware that it includes this statement: "Preferentially
21 use above ground sumps where possible"? Are you familiar
22 with that?---(MR BRIESE) Yeah, I - - -

23 Do I need to show you that, or is this something - - -?---(MR
24 BRIESE) No, I - - -

25 - - - which is part of your - - -?---(MR BRIESE) I'll take
26 your word for it, yeah.

27 Do you want to look at it?---(MR BRIESE) No. It says "where
28 possible".

29 So what's the absence of possibility here?---(MR BRIESE) It's
30 the depth of the hole, the volume of the sump that's
31 required. As I said a minute ago, I don't think it would

1 be practical for this situation. For shallow bores, yes,
2 drillers have portable sumps. For deep bores you need a
3 much larger sump.

4 What, is this because of the volume that you need a more
5 substantial sump?---(MR BRIESE) Sorry?

6 You need a substantial sump?---(MR BRIESE) You need a more
7 substantial sump, yeah.

8 MR BEASLEY: My friend should really read out the rest of what
9 he just read to Mr Briese because it has a qualification
10 after it talks about above ground sumps.

11 MR BANNON: I'm happy to read that. (To witness)

12 "Alternatively, lined in-ground sumps with plastic to
13 ensure all cuttings and fluids do not escape into the
14 groundwater and/or contaminate the soil". Are you
15 familiar with that part of it as well?---(MR BRIESE) I -
16 - -

17 Perhaps I should show - - -?---(MR BRIESE) No, I understand
18 what - - -

19 Perhaps I should show you a copy of the document. I'll show
20 you a whole copy of the document, but p.39 of the
21 document is the part which is highlighted and you can
22 look at?---(MR BRIESE) I've read it.

23 So is your position that the possibility - it's only possible
24 where you have, what, less substantial drilling?---(MR
25 BRIESE) My experience is that portable sumps are used
26 for relatively shallow bores. But for cases where we've
27 got - you've got deep bores, up to 400 or 500 metres
28 here, where you need much larger sumps, the alternative
29 lined in-ground sumps is what we use.

30 So, what, there are no portable sumps of the size of these
31 swimming pool type in-ground ones?---(MR BRIESE) I'm not

1 saying that there are no portable sumps. I - but here
2 this is alternatively what we're doing is according to
3 the guidelines.
4 Sorry, I thought you said it's not possible to use the portable
5 sumps for this drilling?---(MR BRIESE) I - - -
6 Perhaps I can complete my question. I thought the reason for
7 the possibility you suggested was the volume of material
8 being produced. Have I misunderstood your evidence?---
9 (MR BRIESE) I'm not saying it's impossible to use above
10 ground sumps. I'm saying the drilling procedures adopted
11 - I - you'd have to talk to the drilling company how
12 possible or not possible it is.
13 So the true position is you can't actually put forward any
14 reason why above ground sumps wouldn't be used?---(MR
15 BRIESE) I'm not an expert in that area. I cannot
16 comment on the feasibility, the practicality of doing
17 that.
18 So I'll put it again. The true position is you can't put
19 forward any sensible expert opinion to His Honour as to
20 whether it's possible or otherwise to use above ground
21 sumps. That's the position isn't it?---(MR BRIESE) No,
22 I don't have the expertise to say how practical that is.
23 To the extent you may have suggested in earlier answers to His
24 Honour, to my questions, that it wasn't a possibility,
25 you retract those statements I take it?---(MR BRIESE) If
26 I said it wasn't a possibility, I retract that statement.
27 I'm saying now that I'm not an expert and I don't know
28 how practical it would be.
29 Could I come back to this question of the shrinkage of the clay
30 in the upper reaches of the surface. Could I just
31 attempt to clarify this: do you dispute Mr Banks'

1 opinion - or disagree, perhaps more precisely, with
2 Mr Banks' opinion that there is likely to be significant
3 shrinkage of - sorry, very high shrink - I'll start
4 again. Do you disagree with Mr Banks' opinion that the
5 soils in the alluvium area of the Brown property - so
6 that's the Brown property - are very high shrink and
7 swelling soils, at least in the upper reaches of the
8 surface?---(MR BRIESE) No, I don't disagree with that.
9 Do you accept that such soils are likely to shrink from time to
10 time in different conditions?---(MR BRIESE) When the
11 soils dry out they will shrink.
12 When you addressed this question in your report at p.23, under
13 the heading 5.3.3, and the second paragraph on that page,
14 you say "It's my opinion that while the surface clays may
15 shrink and swell to a depth of eight metres as stated by
16 Mr Banks, this does not occur at depth, and therefore
17 there is between 15 to 20 metres of casing which
18 effectively seals off the gravel layers from the shallow
19 groundwater, and the sumps. That's a reflection of the
20 fact - you don't dispute that there's the potential for
21 shrinkage of the upper soils, firstly?---(MR BRIESE)
22 That's correct, up to maybe eight metres depth.
23 You don't dispute, do you, that that shrinkage is likely to
24 disrupt the cement plug by moving it or cracking it at
25 those high levels?---(MR BRIESE) In the higher levels, as
26 I said, the cement has bentonite in it so it acts more as
27 a very stiff plasticine.
28 Yes?---(MR BRIESE) The shrinking and swelling in the upper six
29 or eight metres, it doesn't really matter if that cement
30 plug in the upper six to eight metres does crack,
31 although we don't believe it will because of the

1 bentonite. It's what the cement plug does below eight
2 metres that really counts. Because the soil itself in
3 the six to eight metres is permeable, so a tight cement
4 plug around the casing in the top eight metres really
5 doesn't matter in that section, because the soil is
6 shrinking and swelling.

7 You don't mention in p.23 any alleged impact of bentonite, do
8 you?---(MR BRIESE) Any - - -

9 Impact of bentonite, as saving or avoiding the problem to which
10 Mr Banks refers?---(MR BRIESE) I don't mention it there,
11 but it's throughout my early part of the report, in the
12 procedures.

13 If you seriously thought the bentonite would be a guard against
14 the forces of shrinkage of clay, this would have been the
15 place to mention it in your report, do you agree?---(MR
16 BRIESE) No, it's in my report.

17 Do you say, faced with the opinion of Mr Banks, that the clay
18 shrinkage could lead to fracturing and separation from
19 the plug? Your response there at 5.3.3, is not your
20 complete response?---(MR BRIESE) No, it's my complete
21 response, but what I'm saying is that the case is sealed
22 at the surface, I acknowledge that the top eight metres,
23 there will be shrinking and swelling clay. If the cement
24 plug in that top eight metres were to crack, because - or
25 come away because of the shrinking and swelling clay,
26 it's irrelevant. It's what happens to the cement plug
27 below eight metres, where you don't have the shrinking
28 and swelling clay, the cement plug is not affected. The
29 cement plug below eight metres prevents any movement down
30 the annulus between the casing and the bore hole. So the
31 integrity of the cement plug is not impacted below eight

1 metres, and I doubt if it is above eight metres, but if
2 it were it would be irrelevant because the soil is so
3 permeable itself.

4 This doubt as to whether it is impacted above eight metres, is
5 not a doubt you chose to express in your report?---(MR
6 BRIESE) No, I said that the doubt is that it shrinks and
7 swells to a depth of eight metres, as stated by Mr Banks,
8 this does not occur at a depth below 15 - therefore,
9 sorry, this does not occur at depth, and therefore there
10 is between 15 to 20 metres of casing which in hindsight,
11 although I've said it in the beginning of the report, is
12 cement grouted which effectively seals the gravel layers,
13 so there's still 15 to 20 metres below eight metres,
14 where there's no shrinking and swelling clay, there's the
15 integrity of the grout remains intact, and which seals
16 off the deeper gravel aquifers from the more saline
17 material in the upper path.

18 Mr Banks, you indicated that bentonite wouldn't have a saving
19 effect, to prevent the cracking or separation which you
20 referred to, and you said that by reference to its
21 existence in the clay already. Could you just explain
22 that a bit more please?---(MR BANKS) Yes, bentonite is
23 used to seal things because of its swelling capacity,
24 when it gets wet it swells and fills holes, and the clays
25 on this part of Liverpool Plains are substantially
26 comprised of bentonite, so they're the same compound,
27 doing what bentonite does, which is shrink and swell. If
28 you were to lime stabilise bentonite, that is to mix it
29 with cement, or hydrated lime, and reduce its shrink and
30 swell capacity, then its shrink and swell capacity will
31 be less than that of the soil around it, and therefore in

1 the zone of soil which wets and dries, the soil will be
2 able to shrink away from the cement and bentonite mixed,
3 and then swell again around it as it wets up.

4 I understand that, so the bentonite which is in the cement,
5 because of its mixture in the cement, it has a lower
6 swell and shrinkage capacity as the bentonite naturally
7 occurring in the clay?---(MR BANKS) That's correct.

8 That's the reason why the bentonite in the cement won't save or
9 prevent the effect you've referred to?---(MR BANKS) It
10 won't stop the upper casing coming away from the soil, in
11 dry times.

12 You also indicated that you had made - in answer to a question
13 from my learned friend, a number of observations - that
14 there had been a number of observations of the phenomenon
15 of shrinkage, as I understand that evidence? Did I give
16 that answer correctly?---(MR BANKS) Yes.

17 Can you just explain what those were, or what you're referring
18 to?---(MR BANKS) Sorry, can you elaborate, was that with
19 respect to - - -

20 An answer you gave to a question from my learned friend this
21 morning, and I didn't get a full note of it, but I
22 thought you said something to the effect that there had
23 been - when it was suggested to you that this wasn't
24 likely to happen, and I think you said there had been a
25 number of observations?---(MR BANKS) Yes, many of the - -
26 -

27 That was the only word I got, and you may have added to it, I
28 just wanted to understand, or get you to clarify what you
29 were referring to, if you can remember?---(MR BANKS) Yes,
30 many of the groundwater observation bores in the district
31 of the Liverpool Plains, and in the Yarramin plain in

1 question, the seal at the top of the bore, the casing and
2 collar around the bore can often come away from the soil
3 during dry times, and this is, as I said before, because
4 the soil has a capacity to shrink by 60 per cent of it's
5 wet volume, when it dries out.

6 These are - when you say these bores you've observed, they're
7 on the very area we're talking about here?---(MR BANKS)
8 They're in that vicinity, they're government groundwater
9 observation bores.

10 When you say they're sealed at the top?---(MR BANKS) The
11 intention is that they are sealed in a similar fashion,
12 they're backfilled, they don't want a cross contamination
13 of the aquifers that they're measuring, so they try as
14 best as possible to plug them with clay, with Bentonite
15 and cement at the top. But it doesn't work for the top 6
16 to 8 metres. Very ineffective.

17 And when you say those things are plugged - sorry, are sealed,
18 does that mean they've got the same sort of cement grout
19 around the outside, as you understand it? Or as you've
20 observed it?---(MR BANKS) They have a poured cement
21 collar and I'm unaware as to the exact nature of the
22 material which is used to case around the casing below
23 the cement collar.

24 In any event, how many observations of those have you seen?---
25 (MR BANKS) In my 19 years in this district probably 40
26 or 50 cases where the clay has come away from the collar.
27 You say that the clay shrinks, did you say up to 60 per cent of
28 its volume?---(MR BANKS) Sorry, I should qualify that.
29 It is referred to in my report where there's an extract
30 from this Soil Landscape book.

31 Yes?---(MR BANKS) The data associated with that landscape

1 description shows that it's - the material's volume
2 expansion, that is from its dried to wet phase, from dry
3 to saturated is between 38 and 61 per cent. So
4 conversely if you, you know, reverse those figures you
5 get a similar shrinkage as it dries out.

6 So we're talking about a volume of soil which is down to a
7 depth of, what, about 8 metres? Or does it vary?---(MR
8 BANKS) The soil material which occurs across the plain
9 there can be up to a depth of 40 metres that I'm aware
10 of. However, I'm claiming that my expertise relates to
11 the zone which wets and dries; that is, the soil in the
12 top 6 to 8 metres. And below that it tends to be more
13 moisture stable. It's often the very same material until
14 you encounter sand and gravel lenses. But as I say, that
15 is a hydrogeologist's job to deal with that.

16 So that the 6 to 8 metres of soil surrounding one of these
17 plates moves - or can move to the extent that you've
18 referred to in those percentages a minute ago?---(MR
19 BANKS) Yes.

20 Am I right in thinking that that is a potentially massive
21 amount of force, that amount of soil shaking or moving
22 the top of such a structure?---(MR BANKS) It is a
23 substantial force and the ground surface there can rise
24 and lower by 30 centimetres through the wetting and
25 drying of the soil. So there's substantial - well, the
26 clay has a lot of power to move things, which is why
27 there's very special recommendations for footings for
28 houses, for example, on that type of material.

29 So that in effect when you get that sort of movement you can
30 move the weight of a whole house in effect?---(MR BANKS)
31 Easily.

1 And a house can collapse?---(MR BANKS) Mm.

2 Is the concern in effect you've expressed, although you've
3 quite rightly limited yourself to the first 6 to
4 8 metres, is that the amount of that force when applied
5 to the top of a single structure plug which goes from the
6 top down many metres has the potential, just like shaking
7 the top of a goal post which may be buried long into the
8 ground, of having an effect a fair way down?---(MR BANKS)
9 That's what I was trying to indicate.

10 Just coming back to you, Mr Briese, do you discount - and if
11 so, why - the potential for what is obviously a very
12 powerful force being applied to 6 to 8 metres of a single
13 unitary structure which extends throughout that 6 to
14 8 metres down into the ground having any impact lower
15 down? Do you discount that do you?---(MR BRIESE) I'm
16 saying we're using best practice, we use a cement
17 Bentonite mix which is highly - like a stiff plasticine.
18 It's what is required. It is best practice.

19 To be fair to you, Mr Briese, would you agree this question of
20 the impact of the force of 6 to 8 metres of a large
21 amount of clay soil operating on the top end of a single
22 unitary concrete structure, the impact of that lower down
23 is not a matter for a hydrogeologist. It's really a
24 matter for somebody who knows what the likely impact of
25 forces on a structure like that is. Would you agree?---

26 (MR BRIESE) It would be an engineer who'd need to look
27 at that. But I would - - -

28 So that you can't - - -?---(MR BRIESE) I don't know of any
29 documented cases where that's been shown to occur, where
30 - - -

31 But putting it - I mean, you accept - well, not accept, but you

1 accept - or acknowledge that the potential for this force
2 to be exerted on the upper half - I shouldn't say half,
3 the upper 6 to 8 metres of this structure? You
4 acknowledge that?---(MR BRIESE) I accept what Dr Banks
5 has said.

6 You haven't, and I'm not - - -?---(MR BRIESE) No, I mean - - -
7 I'm not being critical of you. You haven't made a study of
8 that?---(MR BRIESE) No.

9 Equally, you haven't made any attempt to study - and, again,
10 I'm not being critical - of what the effect of that force
11 would be on that structure lower down? That's right
12 isn't it?---(MR BRIESE) No, I haven't.

13 You don't know anybody within Coal Mines Australia having been
14 asked to undertake that exercise, that's right?---(MR
15 BRIESE) I don't know of anyone.

16 So it's a matter of speculation as to what the impact of that
17 force would be lower down, from your point of view?---(MR
18 BRIESE) From my - - -

19 I shouldn't say speculation. It's a matter outside your
20 expertise as to what the impact of that force may be
21 lower down. Would you agree?---(MR BRIESE) Correct.

22 But what you do acknowledge is that if it did have an impact
23 lower down - as to that matter you can't comment one way
24 or another - you would accept that as a general
25 proposition cross-contamination of aquifers is a thing to
26 be avoided?---(MR BRIESE) I - is to - - -

27 Avoided?---(MR BRIESE) Cross-contamination of aquifers is a
28 thing to be avoided, yes.

29 Thank you.

30 HIS HONOUR: There's just a couple of matters I want to raise
31 firstly with Mr Banks. You say on p.4 of your report

1 that there is in the area that we're looking at some
2 shallow groundwater table within 5 metres of the surface
3 and that is highly saline?---(MR BANKS) That's correct.
4 If we've got a drought and we've got a cracking down to
5 8 metres and it was in an area where this groundwater was
6 within 5 metres of the surface, certainly it wouldn't
7 crack unless all that groundwater was gone?---(MR BANKS)
8 This is a very difficult concept to explain because the
9 groundwater is slightly transitory. If you have very
10 prolonged drought, it will disappear. The groundwater is
11 also bound in very saline clay and so as the water
12 evaporates, you're left with saline clay. So at the end
13 of a drought period you have very salty subsoils and very
14 shortly after wetting up again you have a water table
15 sitting in that saline clay. So it is there most of the
16 time and it's referred to in several government
17 publications as being there. And with my experience of
18 digging holes with excavators and so on across that plain
19 and to the north at Goran Lake over towards Breeza,
20 probably about 70 per cent of the time if you were to dig
21 a hole to 3 metres with an excavator you would have
22 saline groundwater come into that hole. So I'm saying
23 it's there, it's transitory, so the - during very dry
24 phases you're left with a saline band in the soil.
25 But no water?---(MR BANKS) But no water. And even during
26 times of moderate rainfall and weather, quite often it's
27 still - it's there because the cracks no longer extend
28 down to such great depth, and because the water is too
29 saline for plants to use, so it tends to stay there until
30 cracking reaches the top of it, and some evaporation
31 occurs. It takes a very long time for that shallow

1 saline water body to disappear, as the weather dries out.
2 So you're talking to the order of years rather than
3 months.

4 You won't get cracking until all that disappears, of course?---

5 (MR BANKS) You'll get cracking down to the top of the
6 wetter - to the wet clay, yes.

7 Then it won't go under it back - if it's at the five metre
8 level, until it completely dries out, it won't go any
9 deeper than the five metre level?---(MR BANKS) That's
10 correct.

11 So if there is some interference with the seal that's been put
12 in the bore hole, we don't know as to whether - well,
13 nothing's impossible, we know that. Once it starts to
14 rain again, the saline that's stuck in the soil will
15 become moist, the cracks will fill up, as you say,
16 because of the soil. If there are any fractures, would
17 they not seal up once it starts raining again?---(MR
18 BANKS) These soils can take up to 300 days to get wet
19 enough to seal, because they take that long to swell.

20 All right - - -?---(MR BANKS) During which phase there's space
21 between the particles of soil, or the aggregates of clay.
22 So there's quite a lot of what they call through flow
23 until that occurs, and once it is swollen and that
24 shallow saline groundwater is there, as I referred to in
25 my report, even without a bore hole there is still some
26 potential for cross mixing of deeper ground waters and
27 shallow ground waters. It is documented by people who
28 worked in that field in the 1990s, they measured cross
29 contaminations with salts, with Atrozine and ages of
30 water.

31 So would it be possible for you to have a saline - well it is,

1 certainly, within five metres of the ground water which
2 is highly saline, within five metres, and would it then
3 be possible within eight metres under that to have -
4 within eight metres of the surface, but under the saline
5 ground water to have some good quality water that close?--
6 --(MR BANKS) Absolutely, it's not common in that area for
7 it to be so close, but if I understand what the
8 hydrogeologists have written for that area, it's possible
9 to have a gravel lens within say, five to 20 metres of
10 that saline shallow aquifer, which has potable water in
11 it. Or water of a higher quality.

12 Five to 20 metres, but if it's five metres, and it's 10 metres,
13 which is past the eight metre area that will crack?---(MR
14 BANKS) M'mm.

15 So you're saying that there's no studies that you're aware of
16 that indicates that there are good ground water within
17 eight metres of the surface?---(MR BANKS) None for that
18 district, that I am aware of.

19 Because what I was thinking of was that if the top dried out,
20 you've got the saline in the soil, you've got cracks down
21 to eight metres, and if that went into the good water, as
22 the rain came, and before the cracks fully sealed up, it
23 would take some saline down into the good water?---(MR
24 BANKS) That's been known to happen during recharge events
25 in the Liverpool Plains, where physical amounts of salt
26 in the water increase after a prolonged dry spell,
27 because there has been some leaching during the recharge
28 event, of salt.

29 That's a natural event which you can't prevent, of course,
30 that's nature?---(MR BANKS) Yes.

31 Taking its course?---(MR BANKS) Yes, however additionally with

1 irrigation from those aquifers, the pressure head appears
2 to have been taken off, and as I say, I'm not a
3 hydrogeologist, but some of the monitoring data from DNR
4 for the Liverpool Plains, or the water department,
5 indicates that the salinity levels in the irrigation
6 water is rising, indicating that there is a connection at
7 least in part not well understood between those two
8 layers.

9 Has anyone got any questions on that?

10 MR BEASLEY: Just a couple for Mr Briese. After the drilling
11 process is finished, the site has to be remediated,
12 correct?---(MR BRIESE) That's correct.

13 Am I right in saying that the cementing, the grouting is
14 actually cut off below the top surface of the soil?---(MR
15 BRIESE) For an abandoned hole?

16 Yes?---(MR BRIESE) It's cut off below - I think a metre below -
17 - -

18 Would it be two metres, does that sound right?---(MR BRIESE)
19 That's my understanding, yes.

20 So then soil was actually compacted on top of that?---(MR
21 BRIESE) That's right.

22 So we're not talking about grouting in any event through the
23 first eight metres, because the top two metres aren't
24 grouted through the remediation process?---(MR BRIESE)
25 Yes, at whatever depth the steel casing is cut off below
26 ground level.

27 Thank you.

28 MR BANNON: Just on that, you don't know what level it is cut
29 off at?---(MR BRIESE) I - - -

30 My friend put two metres - - -?---(MR BRIESE) I thought it was
31 a metre.

1 HIS HONOUR: Well I think that was a standard thing there, some
2 report saying that they're happy to cut it off at two
3 metres, but I get an impression that you were saying in
4 your report that if they cut it off at eight metres, I
5 don't know whether that's possible, that there would be
6 no possible interference with the cement plug?---(MR
7 BRIESE) No, I didn't state that at all.

8 All right, thank you. No other matters? Thank you, gentlemen,
9 you can stand down, if you need to be excused, you
10 certainly are.

11 <(THE WITNESSES WITHDREW)

12 MR BEASLEY: I was told it was clearing up.

13 HIS HONOUR: It looks like it's clearing up, which is good, so
14 we'll talk about viewing now.

15 MR BEASLEY: Firstly, Your Honour, one question I had, are we
16 entitled to change into casual clothes?

17 HIS HONOUR: Yes, I haven't brought any with me, but I want to
18 duck back because - - -

19 MR BEASLEY: I take it counsel can change into casual clothes -
20 - -

21 HIS HONOUR: Yes. So do we meet back here in half an hour or
22 something, give us time for a cup of tea or - - -

23 MR BEASLEY: Yes - - -

24 MR BANNON: Could I just - we asked for the procedure on the
25 view, there will be an occasion for things to be pointed
26 out, I think?

27 HIS HONOUR: Yes.

28 MR BANNON: And perhaps even comments from people who are going
29 to give evidence, what I was going to suggest - well,
30 obviously I'm guided by Your Honour's normal practice,
31 but if say somebody such as Mr Alcorn or Mr Brown makes a

1 comment, it's obvious that he's not on oath at the time,
2 but when they come back in - - -

3 HIS HONOUR: No, it won't be recorded, but we should all
4 remember that and if you want it as part of the
5 procedure, put it to them when they get in the witness
6 box.

7 MR BANNON: When they get - OK.

8 HIS HONOUR: That's about the only way I can handle it.

9 MR BANNON: I think so, because there will be things they want
10 to point out, I think.

11 HIS HONOUR: Yes.

12 MR BANNON: And it's only really you can do it while you're all
13 there and looking.

14 HIS HONOUR: That's right. Mr Long?

15 MR LONG: Your Honour, I just ask if Ms Weinthal might be
16 excused until the court resumes back here?

17 HIS HONOUR: Yes, if we're not going to look at the property of
18 your clients.

19 MR LONG: Those landholders have - - -

20 HIS HONOUR: I don't know how it's all going to take, whether
21 we'll have the rest of the day up there, we're only doing
22 two but it's what, 50 ks out or something or other - so
23 what I'm wondering, you know, do we grab an early lunch,
24 because it's - hungry out there and there's not many
25 takeaways out at these places.

26 MR BANNON: That's a good idea, Your Honour.

27 HIS HONOUR: Whether we have an early lunch, meet back here at,
28 say, 12.30, in an hour's time.

29 MR BANNON: I'll just bring in my logistics man, he'll - - -

30 HIS HONOUR: Yes.

31 MR BANNON: We're happy with that, we're just checking to make

1 sure the conditions out there are the same as here, make
2 sure it's not worse out there than here.

3 HIS HONOUR: OK, is any - - -

4 MR BANNON: We'll come back here on the assumption it's going
5 to be OK, but if it's not I suppose we'll have to
6 regroup.

7 HIS HONOUR: Yes. Has anyone got any idea - OK, 50 ks is going
8 to take us - - -

9 MR BANNON: I think it's more like 50 minutes to get out there
10 - - -

11 HIS HONOUR: 50 minutes, is it?

12 MR BANNON: We'll do Alcorn, then Brown, it's about 75 ks to
13 Alcorn, then another, say, 35 ks between the two
14 properties.

15 HIS HONOUR: All right.

16 MR BANNON: Then from the Browns' back here is about 75 ks.
17 That's not the road we came back on the other day.

18 HIS HONOUR: It's a fair bit of driving, and then some time on
19 the property?

20 MR BANNON: Exactly, yes, so it's probably - I think Your
21 Honour is suggesting a sensible - - -

22 HIS HONOUR: I don't think we'll be seeing you again today, Mr
23 Long. But are you happy to come back at 12.30?

24 MR BANNON: Yes.

25 HIS HONOUR: Time to get an early lunch and back here in some
26 suitable clothes, and then we'll go in convoy.

27 MR BANNON: Thank you.

28 MR BEASLEY: Thank you, Your Honour.

29 HIS HONOUR: Thank you, adjourn the court, please.

30 ADJOURNED UNTIL WEDNESDAY 1 APRIL 2009