

DISTRICT COURT OF QUEENSLAND

CITATION: *Drill Engineering & Pastoral Company Pty Ltd v Seymour & another* [2022] QDC 136

PARTIES: **DRILL ENGINEERING & PASTORAL COMPANY
PTY LTD**

(Plaintiff)

V

ANNE SYEMOUR

(First Defendant)

AND

MICHAEL SYEMOUR

(Second Defendant)

FILE NO: 21/2020

DIVISION: Civil

PROCEEDING: Trial

ORIGINATING COURT: Brisbane District Court

DELIVERED ON: 16 June 2022

DELIVERED AT: Brisbane

HEARING DATE: 14, 15, 16 and 24 March 2022

JUDGE: Porter QC DCJ

ORDERS: **1. The defendants pay the plaintiff \$335,896.00**

CATCHWORDS: CONTRACTS – CONSTRUCTION OF COMMERCIAL
CONTRACT TERMS – Where the plaintiff claims for sum
due under an informal contract to drill a water bore – Where
the plaintiffs gave no warranty that an aquifer would be
intersected – Where no aquifer was tapped – Where the
defendants contend that the plaintiff failed to perform the
contract by not drilling to a true vertical depth of
approximately 1,200 metres – Whether the plaintiff undertook
the drilling work with reasonable care and skill – Whether the
contract was an entire contract – Whether the parties agreed
to end the drilling works or the plaintiff abandoned the works

EVIDENCE – ADMISSIBILITY – EXPERT OPINION

EVIDENCE – Whether the witness is an expert in a field of specialised knowledge – Where the witness lacked expertise to give expert opinion evidence on the subject matter of the issues at trial

COUNSEL: S. B. Whitten and Y. Araki for the Plaintiff
G. Allan for the First and Second Defendants

SOLICITORS: Swanwick Murray Roche for the Plaintiff
W J Markwell & Associates for the First and Second Defendant

Contents

Summary	3
The facts	4
The Seymour’s buy Windemere.....	4
Artesian aquifers in the Winton area.....	4
The Seymours’ investigations	5
Depco is retained.....	6
The development permits	8
Stage 1 of the drilling: 4 to 24 July 2017	9
Stage 2 of the drilling: 31 July to 9 September 2017.....	10
The decision to terminate drilling	11
The evidence	11
Analysis.....	17
The depth and direction of the bore hole	22
The issues	22
Mr Mann’s evidence	22
Mr Mann’s qualifications and area of expertise.....	22
The first report.....	24
The second report.....	25
The third report	26
The fourth report	26
The fifth and sixth reports	27
The seventh report.....	27
Depco’s experts.....	27
Depco’s lay witnesses	28
Evidence in chief.....	29
Cross examination.....	31
Admissibility of Mr Mann’s evidence	31
Cross examination	31
Parties’ submissions	33
Relevant principles.....	34
General observations on Mr Mann’s evidence.....	36
The inferred bore hole evidence.....	40
The admissibility of the wireline evidence	41
Findings.....	42

The contract.....	45
The character of the contract.....	45
Facts relevant to construction.....	45
The parties' contentions	46
Analysis.....	47
Areas of consensus	47
Did Depco drill with 'reasonable care'?	48
The entire agreement issue.....	49
Disposition of the proceedings.....	49

SUMMARY

- [1] The plaintiff (**Depco**) drills water bores. Its principal, Mr Riddell, has been involved in that business for many years. The defendants (the **Seymours**) are graziers. They have been involved in that business for many years. In about late 2016, the Seymours purchased an additional property near Winton called Windemere. They hoped to access artesian water.
- [2] In about mid-2017, the Seymours and Mr Riddell negotiated for Depco to drill a bore on the property on terms, broadly, that Depco would drill to a depth of approximately 1200 meters and that the Seymours would pay Depco \$265 per meter plus GST for that work. The objective was to tap an artesian aquifer, though Depco made no promise that it would succeed in doing so. Over some weeks, Depco drilled a bore on the property to a length of 1388m but did not tap an artesian aquifer. Depco ceased drilling on 9 September 2017 and left the property. It issued an invoice for the drilling work. That invoice was not paid. Depco brought these proceedings.
- [3] The principal issues can be summarised as follows.
- [4] Depco claims payment of \$335,896.00 pursuant to a contract with the Seymours on the terms alleged. If that contract is uncertain, Depco claims in the alternative an equivalent sum as restitution.
- [5] The Seymours deny that Depco is entitled to any payment for the drilling work on the following grounds:
- (a) The contract between the parties was an entire contract which required Depco to drill "as nearly as possible" to 1200m true vertical depth (**TVD**) and Depco did not drill to that depth. Rather, the bore hole diverted significantly from true vertical;
 - (b) The Seymours did not direct Depco to cease the drilling works. Rather, Depco abandoned the works and thereby repudiated the contract, which repudiation was impliedly accepted by the Seymours; and
 - (c) Further, as the contract was an entire contract and not performed, no right to restitution can arise.
- [6] Depco replies that:

- (a) The contract was not an entire contract;
- (b) In any event, Depco did not promise to drill to 1200m TVD but rather to drill with reasonable care and skill for approximately 1200m, which it did; and
- (c) The Seymours directed Depco to cease the drilling works when the bore reached 1388m, and thereby agreed to the termination of the drilling work.

[7] For the reasons which follow, I have concluded that Depco is entitled to the sum it claims under the contract.

THE FACTS

[8] The areas of factual dispute are confined. It is convenient to set out the uncontentious narrative, with areas of factual dispute noted for later resolution.

The Seymour's buy Windemere

[9] The Seymours own and operate several grazing properties in the Winton, Blackall, and Mt Isa regions, as they have done for their nearly 40 years of marriage. They purchased Windemere station in December 2016 and decided to reside there. Windemere lacked sufficient surface water to be fully productive. It had brackish sub-artesian water only. The Seymours decided to investigate tapping an artesian aquifer on the property.

Artesian aquifers in the Winton area

[10] An artesian aquifer is an underground freshwater formation under pressure. If an artesian aquifer is intersected by a bore hole, the bore will flow without pumping because of the water pressure. Such bores are called artesian bores or flowing bores. A sub-artesian aquifer is an underground freshwater formation not under pressure. If a sub-artesian aquifer is intersected by a bore, the bore requires pumping to extract water.

[11] There are a series of recognised artesian aquifers in the Winton area: the Toolebuc, the Hooray, the Adori and the Hutton. Those aquifers are located at different depths, and in broad terms, the above list identifies them from shallowest to deepest. However, the formations are underground geological formations and vary in depth and in other characteristics from place to place. The Adori and Hutton are the relevant aquifers in this case.¹ In the Winton area, the Adori was generally located in a range between 850 and 1100m and the Hutton below it. Artesian drilling requires a development permit to be lawful, and the development permit usually identifies the formation to be tapped.

[12] Artesian water is found in sandstone formations. When drilling for artesian water, the first indicator of success is that the drill starts to perform differently, with less load, and starts to return material which indicates that the drill is on sandstone.

¹ Mr Riddell at TS1-70 to 71

- [13] Before the Seymours investigated drilling contractors, they undertook their own investigations of artesian aquifers which might be able to be tapped from Windemere. Such investigations can be readily undertaken by the informed lay persons because of the availability of information in the register of bores maintained by the Queensland Government which records detailed particulars of all registered water bores and other bore holes created in the petroleum, gas and resources industry and others. These records include particulars of bores drilled over 100 years ago, presumably because geological formations do not usually change much on that time scale. Examples of bore reports from the register are exhibited to the affidavit of Mr Lee White (a driller employed by Depco).² Amongst other information, these show the recorded date, depth, location, responsible driller, casing, strata and the aquifer tapped (at least in the opinion of the driller recording the data).
- [14] It was accepted by all witnesses that there is no guarantee that a bore will tap a particular artesian aquifer, even if it is drilled near a successful bore.³

The Seymours' investigations

- [15] An artesian water supply is a valuable asset. The basic facts about artesian supply set out above are well known to persons working in the water drilling industry and officers of the relevant State government department (**DERM**). They are probably widely known in the grazing community, though it is likely that unless a particular grazier has had cause to investigate the prospect of securing artesian water, he or she might be unaware of many of the details set out above.
- [16] The Seymours gave evidence that they were initially in the category of graziers who had not investigated artesian water when they acquired Windemere. However, by the time they obtained the Depco quote in May 2017, they were better informed because of their investigations into artesian supply for Windemere.
- [17] The Seymours consulted other local landholders on where other artesian bores were located in the area. They also did searches on the register of bores referred to above for other local artesian bores. They also sought advice from the local DERM office about obtaining a drilling permit. Mr Seymour also gave evidence that he took advice from a hydrogeologist called Mr Larsen.⁴
- [18] The Seymours investigations provided them with sufficient information to seek a development permit for the proposed bore at Windemere. The permit application was lodged on 18 May 2017 and approved on 31 May 2017 (the **first DP**). The first DP, relevantly:
- (a) Authorises a water bore “constructed to tap only the” Hutton aquifer; and
 - (b) Requires the water bore to be constructed in accordance with the DERM *“Minimum Standards for the construction and reconditioning of water*

² Exhibit 16 LW1 to LW3

³ Mr Riddell at TS1-67; Mr Seymour at TS 2-67.35; Mrs Seymour at TS2-34.46

⁴ TS2-70

bores that intersect the sediments of artesian basins in Queensland” (see paragraph [28] below).⁵

- [19] The application was not in evidence, but I infer that it sought a permit to tap the Hutton aquifer. Mrs Seymour gave evidence that the application for the first DP was completed at the DERM office at Longreach and that it was officers at DERM who nominated the Hutton aquifer.⁶ The Seymours also obtained finance from their bank for the drilling work up to \$500,000, which was ample given the likely cost.
- [20] Based on his research, Mr Seymour decided where the bore was to be drilled without seeking input from Depco. It was not in dispute that the Seymours specified where the bore was to be drilled and that Depco made no promise as to whether or when artesian water would be tapped.
- [21] Although the precise particulars of the investigations undertaken by the Seymours were not particularised, there is no doubt in my mind that Mr Seymour at least (and probably Mrs Seymour) knew the matters in paragraphs [10] to [14], and probably a good deal more. That knowledge is demonstrated from time to time in their evidence and inferred from their confidence in obtaining development permits, obtaining and assessing drilling quotations and nominating the place for drilling.

Depco is retained

- [22] The Seymours sought quotations for the drilling of the water bore from three drillers. There is no evidence as to the information they provided to Depco, if any.
- [23] Depco provided a quotation on 3 May 2017 in the following terms (the **quotation**)⁷:

Hi Mick,

I have compiled all the relevant information for your proposed water bore on Windermere Station and have processed the following quote for your perusal.

Due to the bores being situation in the Great Artesian Sediments these bores are required to be constructed to the Minimum National Construction Standards. This standard stipulates the type and amounts of casing that are to be used and the amount of grouting which must be incorporated into the borehole.

We expect the Bore will be constructed from 1,200 meters approximately.

Our pricing includes mobilisation...and all other drilling relates activities.

Our prices are as follows \$265 per meter + GST (6’’ IS Steel Cased Bore).

➤ Please provide accommodation, meals, water access, drill sumps and a clear area.

Should any activity be required or negotiation which is outside the scope of the Principals [sic] original request, proposal or tender document, the Company will charge for such additional work at the current standard hourly rates of personnel and equipment.

⁵ Exhibit 4

⁶ TS2-24

⁷ Exhibit 9 page 7

- [24] I make the following observations.
- [25] **First**, no witness gave any evidence in chief (which was by affidavit) that I could locate as to how this quotation was developed. However, in cross examination, Mr Riddell provided some background. He said he was generally aware of the likely approximate depth of the Adori and Hutton aquifers from the information available on the Winton town bores. He said that he was targeting the Adori aquifer for the Seymours' bore because it was shallower. He understood the Adori was likely to be at 850 to 1100 meters. He said he calculated his approximate depth of 1200 to provide some leeway above his estimate as to the likely depth of the Adori.
- [26] It was put to Mr Riddell that Mr Seymour gave the figure of 1200m to Mr Riddell. Mr Riddell said he did not get the figure from Mr Seymour. Counsel for the Seymours then suggested that Mr Riddell had told a lie. Mr Riddell rejected that suggestion.⁸ I could find no evidence from Mr or Mrs Seymour that they had nominated the figure of 1200m to Depco, much less to Mr Riddell.⁹ I see no basis for the suggestion by counsel that Mr Riddell had lied.
- [27] However, as I have found, the Seymours acquired considerable knowledge about the artesian aquifers in the area which included the approximate depth of the Adori formation. Accordingly, it would not be surprising that Mr Seymour considered 1200m a reasonable estimate of the maximum depth which would need to be drilled.
- [28] **Second**, the quotation identifies that the bore had to be built to the Minimum National Construction Standards. It was common ground that this referred to the *Minimum Constructions Requirements for Water Bores in Australia* (February 2012, 3rd Edn) published by the National Uniform Drillers Licensing Committee 2011 fund by the National Water Commission) (the **Australian standards**).¹⁰ There are separate Queensland Government standards which regulate construction and reconditioning of water bores in the Queensland artesian basin, though they do not feature in this trial (the **Queensland standards**).¹¹ The Queensland standards prevail where there is inconsistency with the National standards. The Queensland standards, and much of the National standards, are concerned with the manner of construction of water bores, as the quotation suggests.
- [29] **Third**, it is central to the Seymours' case that it was an implied term of the contract that "*the estimated depth of 1,200 metres that the bore was to be drilled to was the approximate True Vertical Depth of 1,200 metres*".¹² It might unintentional, but this allegation might suggest that the contract imposed an obligation for the bore to be drilled to a certain TVD (albeit an estimated one). The express words of the contract contain no such obligation, nor do they imply one. The quotation refers to

⁸ TS1-74.43 to .46

⁹ If there is no such evidence, it is difficult to see how the suggestion of lying was reasonably justified by material available to counsel: see Rule 60(a) *Barristers Conduct Rules*.

¹⁰ Exhibit 5

¹¹ Exhibit 4

¹² Second Amended Defence at 14(b)

an expectation as to the approximate distance the bore will be constructed. This sentence must be understood in the context of the common knowledge of the parties that drilling for artesian water is an uncertain activity. It must also be understood in the context of a quotation for drilling work. The key figure in that quotation is a rate per metre. It is unsurprising therefore that the quotation indicates what the Seymours might expect so as to indicate the order of magnitude of the likely price.

[30] Mrs Seymour responded to the quotation on 10 May 2017 by email stating¹³:

Hi There
 Just letting you that we have submitted the Permit to drill in Longreach
 So will keep you in the loop...as when its all OK it's GO for your lot
 Anne Seymour

[31] Mr Riddell responded that day, though only to confirm the message, though it might be doubted that Mrs Seymour's email comprised a binding acceptance. However, both Seymours gave evidence that they decided to accept the Depco quotation. Mr Seymour said that while price was relevant, he also considered that the Seymours had previously retained Depco to drill a sub-artesian bore elsewhere which had been a successful project.

[32] The evidence diverges as to how that acceptance was communicated. It was put to Mr Riddell that the quotation was accepted by Mrs Seymour in a telephone call on 13 May 2017. Mr Riddell said he did not take the call but knew that the quotation had been accepted. Mrs Seymour said that she understood Mr Seymour rang to accept the quotation but did not hear that occur. Mr Seymour disavowed having any conversation accepting the quotation.¹⁴ No doubt something occurred to communicate acceptance, as all parties proceeded on the basis that the quotation had been accepted. However, there is no evidence of any discussions relevant to the content of the contract at the time of acceptance.

[33] It is difficult to know in that context what to make of the 21 June 2017 email Mrs Seymour sent to Mr Riddell stating, "*Just waiting on another quote to satisfy the bank will let you know*". However, there is no dispute that the Seymours did accept the terms of the quotation at some point.

The development permits

[34] The work could not commence until a development permit was granted.¹⁵ As noted, the first DP was granted on 31 May 2017 to tap the Hutton aquifer. However, in about late June 2017, Mrs Seymour applied for a revised development permit. On 4 July 2017, the second development permit was issued (the **second DP**).¹⁶ It differed from the first DP in two material respects;

¹³ Exhibit 9 page 8

¹⁴ TS1-51; TS2-24; TS2-71

¹⁵ TS1-70.2

¹⁶ Exhibit 19 pages 28 to 32

- (a) It expressly authorised use of potassium chloride based drilling fluid; and
- (b) It altered the permitted aquifer to the Adori from the Hutton.

[35] There were two drillers who worked on the bore hole who gave evidence. The first was Mr Lee White. Mr White worked on the bore from the beginning of operations until 1 August 2017. After he left the site, Mr Keith Wall began working on the site. Mr Wall gave evidence about the work on site from Mr White's departure until Depco left the site on 10 September 2017. Other persons worked on the bore from time to time.

[36] Mr White was involved with the preparation to begin drilling operations during which he called Mrs Seymour and requested that the first DP be changed so as to permit the use of potassium chloride because of its efficacy in relation to underground conditions he expected to encounter.¹⁷ Mr White had considerable experience with bore drilling in that area.¹⁸ Mr White did not recall asking Mrs Seymour to change the aquifer. However, Mr Riddell said that the proposal came from him, via Mr White, which probably explains why Mr White did not recall this. As noted above, Mr Riddell's assumption in preparing the quotation was to target the Adori, so it is not a surprise that he suggested the change.

Stage 1 of the drilling: 4 to 24 July 2017

[37] Depco mobilised its drilling equipment in early July. The Seymours nominated the location for the drilling of the bore. All parties seemed to have acted on the basis that drilling could not commence until the approval of the second DP (though the first DP appeared to remain in effect). Work commenced on 4 July 2017. Mrs Seymour took the second DP to the site on the day it was issued so that work could commence. Hopes were high.

[38] The work was carried out by a team of three, initially Mr White along with a Mr Farnes (another driller) and another worker known as Tim. Work proceeded for 12 hours a day. The set up and operation of the drill is central to issues in the proceedings and is dealt with separately from paragraph [118] below.

[39] There is a licensing regime for drilling water bores. Mr White holds a class 2 drilling licence. He had previously been involved in drilling five previous bores in the area, all of which tapped an artesian aquifer. The expectation of Mr White, based on his experience, was that the drill would encounter shale and other layers before striking sandstone at about a depth of 1000m. Striking sandstone was important because it is an established marker for an artesian aquifer. Mr White explained that the material drilled was returned to the surface by the drill and was laid out on the ground for examination. The observations of the driller were then logged. Sandstone is much easier to drill than the surrounding layers. Accordingly, when a drill strikes sandstone, the operator can tell because the

¹⁷ Exhibit 15 paragraph 9

¹⁸ TS1-113

pressure on the drill decreases and the load on the pump decreases, making it run more quietly.

- [40] The drilling continued for three weeks until 24 July 2017. At that point, the team took a one-week break. The drill head and rods were removed, which is standard practice. At that time, Mr White believed that the bore was at a depth of about 1212m and told Mrs Seymour that. (This figure was calculated by counting the number of rods in use and multiplying by their 6m length.) Sandstone had not been encountered.
- [41] There is a difference in the evidence between Mrs Seymour and Mr White as to how smoothly the removal of the drill head and rods proceeded. Mrs Seymour said that when she walked over to the drill hole, she could see that the drillers were having trouble getting the equipment out of the hole, and heard the drillers say so over mealtimes. Mr White did not recall any unusual difficulties in removing the equipment. I suspect that if the drillers were expressing frustration in Mrs Seymour's hearing, it was no more than is normal for performing the particular task. If things were as bad as Mrs Seymour perceived it to be, I think Mr White would have recalled it. Mr White was not cross examined on this issue. It should be recalled that Mrs Seymour had had limited experience with bore drilling and had very little ability to assess what was normal and what was unusual in a drilling operation.
- [42] Mr White expected to hit sandstone by about 1000m. That was consistent with the general view as to the depth of the Adori formation. When the drill team took a break, they believed they were at 1212m.

Stage 2 of the drilling: 31 July to 9 September 2017

- [43] Mr White returned to site on 31 July 2017. There was some mud and silt in the bottom 30m of the bore which was removed. However, Mr White had to leave the site suddenly a couple of days later for personal reasons. His replacement was a Mr Keith Wall, who arrived on 2 August 2017 and remained on site until the end of drilling.
- [44] At that time there appears to have been some concern as to whether the Adori formation had been by passed, because Mrs Seymour made a further application for a development permit for the Hutton. She demonstrated a good understanding of the broad location of those aquifers in evidence.¹⁹ On 4 August 2017, DERM sent Mrs Seymour an email which informally approved tapping any artesian aquifer with the development permit to be provided afterwards.²⁰
- [45] Like Mr White, Mr Wall was an experienced driller and a long standing employee of Depco. He held a Class 1 Water Borer's License. At the relevant time he had drilled three other successful artesian bores in the area. He agreed with Mr White's explanation of the importance of hitting sandstone and of how the driller could tell

¹⁹ TS2-34 to 35

²⁰ Exhibit 19 page 41

when that occurred from the performance of the drilling rig. He was not cross examined on his expertise or experience.

- [46] There were significant difficulties in carrying on drilling operations after the resumption on 31 July 2017. Those difficulties primarily arose from bacterial infection in the drilling mud used in the drilling process. It required specialist assistance to resolve, which was obtained by Depco. The specialist adviser counselled drilling continuously. Accordingly, over the last stage of the drilling, the rig operated 24 hours with the drillers working 12 hour shifts. Despite these difficulties (or perhaps because of them), the bore reached a length of 1388m by 9 September 2017. No artesian aquifer had been tapped.

The decision to terminate drilling

- [47] On 9 September 2017, Depco ceased operations. The circumstances in which that event occurred is hotly contested. Depco's witnesses gave evidence that Mrs Seymour told them to cease work, and that based on that instruction, they did so and packed up. The Seymours say that Depco that decided to cease work, and that they did not understand Depco was terminating drilling works until weeks later. It is necessary closely to analyse the evidence of each witness on this key issue.

The evidence

Mr Riddell

- [48] Evidence in chief was given by affidavit. Mr Riddell swore four affidavits which were tendered. Only one affidavit dealt with this issue²¹, and did so in brief terms:
11. On or around 9 September 2017, I was advised by the Plaintiff's staff who were on site that drilling had reached a depth of 1388 meters but could not locate any water.
 12. On 9 September 2017, Mrs Seymour phoned me and she [sic I?] advised her [sic me?] of the above.
 13. In that conversation, she said to me words to the effect that she had seen firsthand that no sandstone had been struck, and hence the fact that the bore was dry was through no fault of the Plaintiff.
 14. I then said words to the effect that with the benefit of hindsight we probably should have stopped drilling around the 1,200 metre mark, to which she agreed.
 15. Mrs Seymour further acknowledged that the "boys had done a great job".
 16. Further, Mrs Seymour instructed the plaintiff to leave the hole open (i.e., not to cement it) in case they made a later decision to perform further work.
- [49] Mr Riddell was briefly cross examined on this evidence²²:

Now, the site was, I suggest to you, abandoned by the Depco drillers on the 9th of September 2017? How do you mean abandoned?

²¹ Exhibit 9

²² TS1-58.32

They left the site with the works uncompleted? No. We were asked that they – end of hole. They didn't want to go any further.

They – I beg your pardon? I was told they didn't want to go any further. Anne Seymour rang me and said she did not want to continue the hole. And then Keith rang me and said, "Is that confirmed?" I said yes, so he pulled out of the hole and we packed up.

I suggest to you that the evidence that you've just given, that Anne Seymour, in fact, rang you, is a lie? I only spoke to Anne Seymour once, and that was when she – she – when she booked the bore, she spoke to girls in the office. I never spoke to her. And she rang me at – at the end of hole and said, "I don't want to go any further."

I suggest to you that that evidence that you've just given is a lie...? No. It's not.

And, in fact, what occurred, Mr Riddell, was that the only occasion that, in fact, Mrs Anne Seymour spoke to you by telephone, or at all, in the whole of the period that Depco was on Windermere Station, was earlier, in early August, when the drilling team members changed – that is, Lee White left and Keith Wall came in. That's what I'm suggesting to you? No.

And, in fact, during that conversation Mrs Seymour said words to the effect that she wanted to thank you because Keith, who had replaced Lee, was a welcome part of the drilling team. Do you recall her saying words to that effect? Not before the last – the only conversation I've ever had with Anne Seymour is when she rang me and she said she'd like to cancel the hole. She didn't want to finish it. That's the only time that I've ever spoken to Anne Seymour.

Mr Wall

[50] Mr Wall's affidavit relevantly stated²³:

3. In probably around 4-8 September 2017, or in any event the few days prior to drilling works finishing on the bore, I had suggested to Mrs Seymour that it was becoming a fruitless task to continue drilling.
4. On around 9 September 2017, Anne Seymour approached me and said words to the effect of "Mick and I have decided that we didn't want to go any further".
5. After Mrs Seymour said the above to us, myself and the rest of the drilling team stopped drilling. We then began to pack up our equipment.
6. At no time during packing up our equipment did Mr or Mrs Seymour approach me and ask what we were doing, nor did I observe them do or say anything similar to any other member of our team. To the best of my recollection we were left alone.
7. ...
8. I can recall on our final morning before departing Windermere having a coffee underneath the house with both Mr and Mrs Seymour.

[51] Mr Wall was cross examined briefly on this evidence²⁴:

Mr Wall, in your affidavit of 11 March 2022, at paragraph 4, you say that on or around 9 September 2017, Anne Seymour approached you and said words to the effect of, "Mick and I have decided that we didn't want to go any further"? That's correct.

Right. Now, I suggest to you that Anne Seymour did not approach you and say those words and that what you have stated there is a lie. You must answer? Pardon?

²³ Exhibit 17

²⁴ TS1-116.30; 117.42

I'm suggesting to you that what you said at paragraph 4 is a lie? No, it's not.

And at paragraph 5, you say:

After Mrs Seymour said the above to us, myself and the rest of the drilling team stopped drilling. We then began to pack up our equipment.

And again, I suggest in respect of the words that caused you to back up – pack up the drilling equipment that Mrs Seymour never said that to you and, in fact, you packed up the drilling equipment on the instructions of Mr Riddell? No, that's not correct.

Right. Did you take orders from Mr Riddell during the course of the drilling operation whilst you were working on the Windermere bore site? Correct.

And as his employee, you obeyed his orders? Correct.

Right. And did you get an order, then, based on what you've said in paragraph 5 of your affidavit, from Mr Riddell to pack up the drilling equipment because of what Mrs Seymour said? That's correct.

...

MR ALLAN: Yes. I'm not – I'm – yes. Yes. I – just put that document to one side. Just close that document, thanks, Mr Wall. Now, I suggest to you that on or about the 9th of September 2017, that you had a conversation with Mr Seymour at that time and told him that you were not going to go any deeper, meaning, dig any deeper the bore hole at Windermere Station? No. That's not correct.

And you further told him that you were concerned about the ability of the drill rig to go any further? Yes. I have had that conversation with them. But I don't know whether it was on the 9th of December – 9th of August, or September, or whenever it was.

Mrs Seymour

[52] The evidence of the Seymours was given for the most part in the form of adoption of other statements and affidavits made in previous proceedings or in previous applications. Much of it was irrelevant. This was particularly so for Mrs Seymour's evidence which included statements prepared for use in a prosecution of Mr Riddell for operating the drill rig at times without a driller with the appropriate license. (In short, an artesian bore must be supervised by a driller with a class 3 licence. Mr Fardon had such a licence, but the other drillers did not and nor did Mr Riddell. During the 24 hour drilling period, Mr Fardon was not always present. Mr Riddell pleaded guilty to the offence. I did not find these events to be of any use in resolving these proceedings.)

[53] Mrs Seymour's version in chief of events around 9 September was²⁵:

38. I recall that they continued to drill around the clock for 24 hours until Saturday 9th September 2017. On that day I walked over to the job site at about 4pm. Keith was on the drill rig drilling at that time and the only other persons present were Laurie and the offsider. Because the drill rig was operating I had a brief conversation with Keith and I asked him how it was going. Keith replied words to the effect, "Up the shit". It was at this time that Mick who was at Split Rock working telephoned Keith and I walked away to let them have their conversation. (*I knew the conversation was about when to stop work on the hole as I had discussed this issue with Mick earlier*).

²⁵ Exhibit 19 page 13

...

40. As they were departing the job site Keith, Laurie and the off-sider came over to me and gave me a "Thank you" card. I later opened the card and I saw that it said, "Thanks for all the great food and laughs. Hope I bit of good old Irish luck comes your way." It was signed "the Day Shit Crew". The card also contained a Gold Lotto ticket.

[54] In cross examination, Mrs Seymour denied Mr Riddell's version. She denied that she had looked at sediments deposited from the drilling, saying that she did the house and the administration and had nothing to do with outside, only approaching the drilling site to deliver meals.²⁶ She denied any executive role in the events, saying she only did administration under instructions from her husband. She repeated that proposition several times in her evidence.²⁷

[55] She denied knowing that the drillers were aiming to hit sandstone and denied any discussion with Mr Seymour about aquifers and the prospects of finding water. She denied discussing the research obtained from DERM and other sources or the location for the bore. She said she had no experience with artesian aquifers or the likely cost of them. This seemed inconsistent with her affidavit which said, "we knew from experience that the costs of an artesian bore may run from 300 to 500 thousand dollars". She said the experience she referred to was obtained from talking to people in the district.

[56] She was cross examined about 9 September 2017. The initial questioning was as follows²⁸:

Now, this is the events that occurred on the 9th of September 2017 that you were talking about there. It's the case though that prior to the 9th of September 2017, you and Mick had discussed the drillers stopping work? No, we hadn't.

[57] The inconsistency with the last paragraph 38 of her statement is stark. Her attempts to explain the inconsistency were muddled, though she did concede ultimately, she had a conversation with Mr Seymour that morning at about 7 am.²⁹ Mrs Seymour went on to conceded that she did not know that the call to Mr Wall referred to in paragraph 38 was Mr Seymour at all (again contrary to her evidence in the affidavit).³⁰

[58] She rejected Mr Riddell's version of events when put to her and particularly said that she did not talk to him at all at this time.³¹ When pressed, Mrs Seymour said³²:

Well, I put it to you that you did have that conversation and in addition, in that conversation, you suggested – you told Wayne Riddell that he was to leave the hole open in case you later decided to do more work with it? Please, sir, I'm an interior decorator. I have got no idea. I was born and bred in Sydney. I have no idea.

²⁶ TS2-13.45

²⁷ TS2-28

²⁸ TS2-42.1

²⁹ TS2-43 to 46.10

³⁰ TS2-42

³¹ TS2-48

³² TS2-49.34

[59] She was cross examined about her understanding of the circumstances when drilling ended, and the goodbye card was given to her on Sunday 10 September. She said that she did not understand that the work was coming to an end. She said she did not discuss with Mr Seymour what he had said to Mr Wall. Amongst other things, she said³³:

MR WHITTEN: And so while you were having coffee under the house? Yes, sir.

Receiving the thank you note, was there any discussions about whether the boys were going to continue to come back – going to come back at any stage? Well, Keith actually gave indication that they might come – he doesn't – doesn't – didn't know what was going on. And – and I knew that they were having problems with the gear, but it was just general thank you and all the very best. I know Dylan was expecting a baby, so I wished her – but it was just – that was when I – but then I left – I left that conversation early because I had a – I had another meeting to go to.

[60] Mrs Seymour was further cross examined on her evidence that she did not understand work was finished. She agreed that she took no step by email or telephone to inquire with Depco when they would be returning over the next month but maintained she did not know they were not returning. She denied discussing the depth of 1388 with Mr Wall or Mr Riddell, or stopping at 1200m, though she did recall discussion of 1200m at the beginning of the job.³⁴

Mr Seymour

[61] Mr Seymour's relevant evidence in chief was comprised in a summary of concerns document he prepared in December 2017 and a witness statement he gave to the prosecution on 6 February 2018.

[62] The former states³⁵:

Concerned about size of Drilling Rig '1200' was told it was capable of doing the job required. Asked Drillers if they were staying on the job until it was completed, they assured me they would be. (Had trouble at Allawah Tambo on previous job with change of staff)

After 3 weeks I was at Split Rock Mount Isa mustering, Lee (driller) rang me to say they were at 1212 mts and were "on the sandstone".

The drillers then pulled the bit and rods out and went for a week's break leaving the Bore hole unstable (section 3.1.2.) minimum standards GAB

After returning in 2 days Lee (driller) left owing to personal matters. Never to be seen or heard from again even with phone calls and text messages from us.

[63] There is then a detailed account of the difficulties in progress after drilling was resumed in early August 2017. Mr Seymour continued³⁶:

After many breakdowns to the pump that supplies mud to the drill rig they continued to supposedly drill to 1388mt mark.

³³ TS2-51.29

³⁴ TS2-53 to .54

³⁵ Exhibit 21 page 6

³⁶ Ibid page 9 to 10

Keith then advised me that he was no going any deeper as he was concerned about the ability of the drill rig to go any further as there was a likelihood of bogging the rod and bit in the hole and this would not be good for his reputation and the cost involved of recovery or loss. (Phone call from Split Rock)

They then pulled the bit and rods from the hole. They took the drill rig and mud pump back to Rockhampton to so some work on it as both were in pretty bad repair.

They did not cement off the top of the hold as quoted on the drillers log form (section remarks)

[64] Mr Seymour's witness statement corrects the reference to being on the sandstone in his summary of concerns to a reference to being on the siltstone.³⁷ It also changes the account of the departure of Mr White, saying the following³⁸:

I recall that Lee had only been back for 1 day and he then told us that night that he had to go for personal reasons. Lee told us that someone would be replacing him and that he was a driller. The next day I recall that a person by the name of Keith arrived while Lee was still here. Lee then left in his vehicle.

[65] He then deals with the events around 9 September 2017³⁹:

32. I remember on Saturday 9th September 2017 at about 4pm I got a call from Anne and she told me something (She said that there was a problem going on and that they had quit the hole). I was at 'Split Rock' mustering. I then telephoned Keith and I said that I would be down and he said that they would still be on site until I arrived. I then left 'Split Rock' and drove home. I got home about midnight. I then had a few hours' sleep, then I went over in the morning and saw Keith at the site. Keith then told me that they were pulling out at that depth. I remember he said they were at 1388 metres. He also said that the rig was having trouble with the pull back and he didn't want to lose the gear and his credibility as a driller.

33. After Sunday 10th September 2017, they had ceased drilling on the site and the equipment on the drill site was partially packed up. The rig had been taken away and some of their vehicles...other equipment remained on site which gave us the impression that the job wasn't finishing and that they were returning to finish the job at a later date with a bigger rig and better mud pump.

[66] Relevantly in cross examination, Mr Seymour said that big decisions involving the business outside the "house yard" were made by him. Mr Seymour was then cross examined on his evidence about 9/10 September. He confirmed he spoke to Mr Wall on 9 September but denied Mr Wall told him the drill had reached 1388m then or later. He said he spoke to Mrs Seymour at 4pm on 9 September but would not have spoken to her at 7am. He said he called at 7pm when he was away. He denied that he and Mrs Seymour discussed the drillers stopping work at any time on 9 September. It took some time for Mr Seymour to clearly deny that proposition. I found his evidence in this respect doubtful.⁴⁰

³⁷ Exhibit 21 page 13 paragraph 18

³⁸ Ibid paragraph 21

³⁹ Ibid paragraph 32

⁴⁰ TS2-74

[67] He was then cross examined about the circumstances in which Mr Wall and the other drillers left on Sunday 10 September⁴¹:

Okay. All right. We'll leave it alone. You were under no illusion at the time that Depco were not going to continue drilling as of Sunday, the 10th of September 2017? Could you rephrase that again.

You had no doubt that Depco were not going to continue drilling from the 10th of September 2017? No. I thought they were coming back to complete the job.

And you had no basis for that thought, though, did you? I only discussed it with Keith, and they left all the other gear behind. Didn't take it with them because I thought they'd come back to complete the job.

So you were here in court yesterday when Mr Wall was giving evidence, weren't you?
That's correct

And you heard your barrister cross-examine him, didn't you? Yes, correct.

And yet nothing of what you just said in that conversation with Keith Wall was put to Mr Wall by your barrister? That's his job, not mine, sir.

Analysis

The witnesses

[68] Based on my observations, Mr Riddell, Mr White and Mr Wall were doing their best to tell the truth. I reject the suggestion by counsel for the Seymours that they were lying, and frankly I cannot see any proper basis for that suggestion. Nor was there any aspect of their demeanour or their account which was improbable or inconsistent or suggested that their evidence was not reliable. That is not to say that I necessarily accept every detail of their evidence. Many years have passed since the events they were narrating, and it does not appear there was any contemporaneous records kept, apart from the brief notes in the drilling log. However, I consider they were generally reliable historians.

[69] The same cannot be said for the evidence of the Seymours.

[70] The unsatisfactory aspects of Mrs Seymour's evidence were as follows.

[71] **First**, there was the inconsistency about talking to Mr Seymour when to stop work on the bore before 9 September: see [56] and [57] above. That was a stark inconsistency on a central issue. Further, Mrs Seymour's response in cross examination to the inconsistency was evasive. This alone significantly affected her reliability.

[72] **Second**, I was troubled by her insistence on her purely administrative role in the water bore. She continually tried to minimise her understanding of the process and decision making in relation to the project, despite being involved in dealing with DERM and obtaining the development permits. She is obviously an intelligent woman. She swore (as was the fact) that she had been a grazier for 40 years. Even

⁴¹ TS2-76.9

in her “administrative” role she clearly had to write and read all correspondence that passed through the grazing business. She also regularly spoke to Mr White and Mr Wall.⁴² The idea that she did not understand the basic parameters of the process underway in the artesian bore is not credible. Yet under cross examination about a key allegation by Mr Riddell (that she rang and spoke to him about Depco pulling out), she told the Court she was an interior decorator from Sydney. That glib comment reflected poorly on her reliability. In my view it was said to avoid dealing properly with the question put by counsel.

- [73] **Third**, linked to the second point was her evidence that she did not discuss key events in the drilling project with Mr Seymour, even when on the telephone to him (such as in the call on about 8 September or the implications of the departure of Depco’s staff in September 2017). Even if Mrs Seymour’s writ ran only in the home paddock, it was plain that the Seymours were engaged in a joint undertaking in their grazing business. The move to Windemere included taking up residence. The bore was important. The idea that they did not discuss the project, its status and prospects in detail is not credible.
- [74] **Finally**, she gave evidence that she did not know the drillers were looking to hit sandstone.⁴³ For the reasons in paragraph [72] above, that is extremely improbable. But further, in her witness statement exhibited to her affidavit she swears that Mr White told her he had struck sandstone.⁴⁴ Even if that is an error and was meant to be a reference to siltstone (see the drilling log), that evidence shows she was quite familiar with the word in the context of the drilling project.
- [75] There were also unsatisfactory elements of Mr Seymour’s evidence.
- [76] **First**, in his initial complaint he commented: “*After returning in 2 days Lee (driller) left owing to personal matters. Never to be seen or heard from again even with phone calls and text messages from us.*” This comment painted Depco in a bad light. It was also unjustified and misleading. Depco’s other drillers remained on site and Mr White was replaced by Mr Wall in less than 48 hours. There was no opportunity for phone calls or text messages and no interruption in Depco’s staffing or operations. Further, Mr Seymour swore to the opposite situation in his witness statement: see [64].
- [77] **Second**, in Mr Seymour’s witness statement he swore that Mr Wall told him that the drill was at 1388m. However, in cross examination Mr Seymour refused to accept that Mr Wall made that statement and did so in a manner which I found evasive.⁴⁵ This is no irrelevant slip on a minor detail. Mr Seymour knew the approximate expected depths of the Adori and Hutton aquifers; that information was almost notorious in the area and Mr Seymour is the one who did the research and spoke to the hydrogeologist and determined where to drill. He knew that the contract contemplated drilling to 1200m. So, his knowledge that the drill was at

⁴² See paragraphs 22 and 35 of her witness statement: Exhibit 19 and the findings at [41]

⁴³ TS2-14.32

⁴⁴ See paragraph 22 of her witness statement: Exhibit 19

⁴⁵ TS2-73.12

1388m would make it harder to sustain the proposition that he did not know the drillers were terminating their drilling efforts, and I consider he denied knowing that fact to try to bolster his account.

[78] **Third**, Mr Seymour denied that Mrs Seymour discussed the drillers stopping work in their call on 8 or 9 September. I found his evidence to that effect to be unpersuasive. My strong impression is that Mr Seymour did not really recall whether such a conversation happened or not and was reluctant to concede that it could have.⁴⁶

[79] **Finally**, as will be seen, their version is generally less consistent with the uncontroversial evidence and the likely course of events.

Findings

[80] I find that the events leading up to Depco leaving Windemere are as follows.

[81] I accept Mr Wall's evidence that in the days prior to drilling works finishing on the bore, he suggested to Mrs Seymour that it was becoming a fruitless task to continue drilling. That evidence is entirely consistent with the objective circumstances. The bore was supposed to tap the Adori well above 1388m. The drill rig was at the limit of its operations with a bore of that length. No sandstone had been encountered at any point. The bore had been difficult and absorbed considerable resources since early August but was only 160m deeper than it was after the first three weeks. It would be astounding if Mr Wall did not think that it was time to stop and the person, he would have told was Mrs Seymour, who he saw regularly and had a good relationship with.

[82] I also find that Mrs Seymour rang Mr Seymour and told him about Mr Wall's opinion and that she and Mr Seymour decided to finish up work on the bore, as Mrs Seymour said in her witness statement. Apart from Mrs Seymour's witness statement, there are three other factors strongly favouring that finding:

- (a) As I have explained, I did not find Mr Seymour's evidence denying this occurred persuasive.
- (b) For the reasons set out in the previous paragraph, both Seymours would have been aware that the bore was well below a level where it was objectively likely to strike an artesian aquifer, and it is likely that they would have been considering the future of the drilling; and
- (c) The Seymours were partners in the project and in their grazing business. Even if Mr Seymour was the ultimate decision maker, Mrs Seymour was his eyes and ears on the project in his absence. It is extremely likely then that she would have told Mr Seymour of Mr Wall's opinion and discussed ending the work in one of their regular calls.

⁴⁶ TS2-74

[83] Accordingly, I find that the Seymours had agreed that the drilling work should stop in a telephone conversation prior to 9 September 2017.

[84] The next question is what communications there were between the Seymours and Mr Riddell and Mr Wall thereafter. I find that Mrs Seymour told Mr Wall on 9 September 2017 that the Seymours had decided to end the drilling after agreeing to that course with her husband. I also find that that was communicated to Mr Riddell. Apart from Mr Wall and Mr Riddell's evidence, there are a number of matters which objectively support that finding:

- (a) **First**, once the decision was made to end the drilling, it is highly likely that Mrs Seymour would have communicated this to Mr Wall, especially as they appear to have had on-going discussions and a good relationship. Even if Mr Seymour was (as he believes) the primary decision maker, it is plain from Mrs Seymour's role in the project that she would have been comfortable communicating the decision. Further, I do not think that Mr Seymour's quick return from Split Rock suggests the contrary. The ending of drilling and packing up is a process which it is understandable he might have wished to be on hand to manage if required.
- (b) **Second**, all witnesses agreed that Mr Wall and the other drillers had started packing up on Saturday 9 September, before Mr Seymour had returned to Windemere. That is exactly what he would have done if told by Mrs Seymour on that day that the Seymours agreed that work should be brought to a stop.
- (c) **Third**, the alternative account of the Seymours has Mr Wall unilaterally deciding to pack up and leave the site. The Seymours give no evidence of any discussion by them with Mr Riddell about that, though they knew that Mr Riddell was the boss. It is highly improbable that the drilling activities would have ended without a discussion with Mr Riddell.
- (d) **Fourth**, once those matters are recognised, it is highly probable that there was a conversation of the kind described by Mr Riddell with Mrs Seymour, once Mr Riddell was informed by Mr Wall of the Seymour's decision. Further, the conversation described by Mr Riddell is one which seems objectively likely to have occurred given the progress of the drilling over July to September. There is nothing improbable about Mrs Seymour referring to the 1388m depth because that figure was undoubtedly mentioned by Mr Wall. And the comment about the workers having done a good job from Mrs Seymour rings true. I accept Mr Riddell's account of that conversation is substantively accurate.

[85] I accept that it is possible that Mr Wall had a conversation with Mr Seymour on the telephone at some point before Sunday 10 September in which Mr Wall made comments of the kind described by Mr Seymour. After all, it is objectively true that the rig was close to its operating limits at 1388m, and it is understandable that Mr Wall would have had concerns about the operational implications of continuing.

However, the fact that some such conversation might have occurred and been forgotten by Mr Wall is unremarkable given that the key conversations were with Mrs Seymour, and it is those he is more likely to recall.

[86] I now turn to the last day of Depco's presence at Windemere and the events on that day. I make the following findings.

[87] I do not accept that Depco negligently left the hole uncovered. I accept Mr Riddell's evidence that the Seymours asked for the hole to be left open in case the Seymours wanted to do further work. Not only does Mr Riddell testify to this, but that evidence is consistent with one of the few contemporaneous documents relating to the work: the bore log prepared by Mr Fardon which observes "plugged for possible future development" (as opposed to cemented over for permanent remediation). This language shows a deliberate decision was made not to cement the hole and for the purpose referred to by Mr Riddell. The language is quite inconsistent with Depco coming back to continue its work; that is not suggested by the idea of possible future work.

[88] The consequence of this finding is that there was discussion about potential future work at the time that Depco pulled out. It might be this discussion which the Seymours have built up in hindsight to justify their evidence that they believed that Depco was returning with larger equipment. However, I reject the proposition that any reasonable person in their position could have concluded that was going to happen for the following reasons, and I do not accept that they believed that at the time at all:

- (a) **First**, it was plain that the prospect of hitting an artesian aquifer below 1400m in that region was remote and the Seymours knew that.
- (b) **Second**, Depco had made a significant effort post July to give the bore hole every prospect of success, undoubtedly at considerable cost, without having extended the bore hole by much. It is objectively unlikely that Depco would then return with even more expensive equipment to continue;
- (c) **Third**, the idea that Mr Wall did not seem to know what was going on when they packed up their equipment is inherently improbable. It was uncontentionous that Mr Wall frequently called Mr Riddell. He would not have packed up Depco's equipment not knowing what was intended. Further to that, of course, is the thank-you card and the tenor of the Sunday farewell coffee, which was clearly that Depco's work on Windemere was over.
- (d) **Fourth**, while I accept that things might move a little more slowly in Western Queensland, given the distances involved, it is hard to believe that the Seymours believed that Depco was coming back and yet made no contact with them for the next month.

THE DEPTH AND DIRECTION OF THE BORE HOLE

The issues

- [89] There are two primary issues upon which opinion evidence is relevant:
- (a) First, the depth and direction of the bore hole drilled by Depco; and
 - (b) Second, whether Depco carried out its contract to drill the bore hole with reasonable care and skill and in particular, with taking reasonable care to keep the hole as vertical as possible.
- [90] These points are related. The Seymours allege in broad terms that Depco is not entitled to any payment under the contract because, on its proper construction, it was an entire contract to drill approximately 1200m measured as the true vertical depth (TVD) of the bore. It is not contentious that the bore measured 1388m long when Depco ceased work. The Seymours therefore seek to prove that although the bore might have been 1388m long, it was not approximately 1200m TVD. They rely on expert evidence of Mr Edward Mann to make good that proposition. Depco relies on expert evidence of a Mr Rossiter and Mr Jordan by way of critique of Mr Mann's method of determining the ultimate TVD of the bore hole.
- [91] Depco alleges that on the proper construction of the contract, Depco was only required to drill the bore hole with reasonable care and skill to keep the bore hole vertical, not that it was required to reach a certain TVD. They rely on opinion evidence in that regard from their two experts and on opinions from Mr Riddell, Mr Wall and Mr White. They also rely on evidence from the Depco witnesses as to the steps taken to keep the bore hole vertical.
- [92] The Seymours respond to this evidence with further expert evidence from Mr Mann.
- [93] These two issues of fact engage both expert evidence and lay evidence. It is convenient to approach the matter first from the perspective of what evidence from the Seymours' witness Mr Mann is relevant and admissible.

Mr Mann's evidence

Mr Mann's qualifications and area of expertise

- [94] Mr Mann's areas of expertise was described by him as in this way⁴⁷:
2. I am a 'wireline engineer' who amongst other things, collects data from below ground since 4 July 2005. The description of a 'wireline engineer' is widely accepted within the petroleum exploration industry and also in the water drilling industry. The term 'wireline' is the methodology for collecting this data. My curriculum vitae is contained to in Annexure A of Report No. 1. My experience and expertise is in the following areas and disciplines:- wireline data collection, processing and interpretation (including deviation analysis); geophysics, namely, the study and interpretation of the physical properties of geological formations; environmental

⁴⁷ Exhibit 22.2

science (including water and microbiology sampling); hydrogeology, namely, the study and interpretation of the distribution and movement of groundwater in rock and; bore condition assessment which includes investigating and determining the integrity of the casing, the cementing of the bore and the performance and functioning of the bore.

3. The minimum qualifications for wireline engineers employed by multi-national and national companies are a STEM (Science, Technology, Engineering and Mathematics) degree. I estimate that in Queensland, those persons working in the national and multi-national companies that have equivalent expertise to my own based on the STEM qualifications and training, there would be approximately fifty (50) people. Insofar as my expertise include water bore construction investigations, to the best of my knowledge and belief, I am the only person undertaking this type of work routinely at present within the Great Artesian Basin area.
4. As part of my training as a wireline engineer, I completed (as is recorded in my curriculum vitae) a period of twelve (12) months intensive, structured training and development with Weatherford. Weatherford is one of the top four (4) providers of the wireline industry.

[95] Mr Mann’s university education was in biotechnology. His expertise was said to arise from his work as a wireline engineer. Despite that description, Mr Mann is not a professional engineer registered under the *Professional Engineers Act 2002*. He has no engineering qualifications. His curriculum vitae from 2020 reveals that he was studying for a Masters of Petroleum Engineering, but had been doing so since 2010.

[96] Paragraph 4 requires some closer consideration. While it suggests that the twelve months training was only part of Mr Mann’s training, nothing in his Education or Accreditation sections of his CV suggests any other substantive or sustained study or training. Twelve months with an industry supplier (Weatherford) is a rather short period of instruction to become an expert in so many fields, all of which are themselves separate areas of expertise based in specialised university education. However, it is unclear that there was even 12 full months of training. In evidence Mr Mann described “*training with Tier 1 Service Company, Weatherford. I’ve completed approximately 20 weeks of training in America. Probably half of that was involved in the theory of measurement of the wireline tools and the interpretation of that data. There’s both simple and advanced interpretation classes as part of that training.*”⁴⁸ Perhaps there was another 30 weeks training at some other time, though the tenor of this evidence is to the contrary and he never said there was. The reference to a ‘Tier 1’ company seems only to mean a relatively large corporate supplier of wireline products.

[97] Mr Mann’s work appears to involve placing various forms of sensor into bore holes using a wireline to control the sensor in the bore hole and then interpreting the results. Different kinds of sensor can be used to obtain different kinds of information. Sensors can be used which purport to identify, in broad terms, the direction in three dimensions of the bore hole. Sensors can be used to identify the likely geological characteristics of the strata through which the sensor passes.

⁴⁸ TS 3-76.1 to .5

Sensors can be used to inspect and assess the casing of the bore hole. There might be other possibilities.

- [98] Mr Mann's experience as I understood it appears to be in setting up and operating a wireline system with different sensors and interpreting the results of those sensors. He also appears to draw on experience in using wireline systems to interpret other characteristics of a bore hole, such as the implications for the character of bore hole blockage from the physical reaction of the wireline system when encountering the blockage.⁴⁹ As at the date of trial, Mr Mann had been working as a 'wireline engineer' since 2005. However, his role from 2015 to 2019 reads as a managerial and marketing role and from 2019 he seems to be working at least part time in environmental science, a field in which he has relevant university qualifications. Indeed, his experience from 2010 to 2014 also appears to involve a significant marketing and client relations component.⁵⁰
- [99] I also note in paragraph 3 that Mr Mann claims expertise in bore construction and claims a special distinction in that regard. I am uncertain what is meant by that. If it means he has expertise in the drilling of bore holes, that expertise does not arise from any formal education or training disclosed in his CV, nor is it based on any practical experience in drilling. His CV discloses no drilling licence of the kind held by the Depco witnesses, nor any work experience in drilling.
- [100] Mr Mann's range of reports, however, disclose his confidence in the range of his expertise. He provided seven reports and affidavits.⁵¹

The first report

- [101] Mr Mann's first report reflects perhaps an orthodox view of the expertise which he is perceived to have by experienced drillers. He was retained at the request of a driller retained by the Seymours to run a series of identified sensors or 'tools' down the bore hole to determine the strata and the characteristics of the casing. His initial observations led to a further task: to identify the direction in three dimensions of the bore hole.
- [102] The first report considered various matters not proved at trial (see paragraphs 10, 11 and 12 and 35). Leaving that to one side, his conclusions on the key issue for this trial were his conclusions on the direction in three dimensions of the bore hole. He found⁵²:
- I. The completion type and total drilled depth were unable to be verified due to a blockage located at 797.55 metres;
 - II. The intermediate casing is in near new condition below the standing water level, with moderate corrosion above the standing water level to surface;

⁴⁹ See for example paragraph 20 of the report at Exhibit 22.1

⁵⁰ Annexure A to Exhibit 22.1

⁵¹ Exhibit 22.1 to 22.7

⁵² Exhibit 22.1

- III. The cement bond log demonstrated a lack of zonal isolation from 650.00 metres to the standing water level;
- IV. Geological marker formations such as the Toolebuc or Westbourne formations were not identified above the blockage;
- V. The wellbore inclination increased from 0 degrees (vertical) at surface, to 54 degrees (non-vertical at 797.55 metres).

[103] The first report went on to express further opinions⁵³:

- (a) That despite the blockage at 797.55m that prevented further wireline examination, Mr Mann projected the course of the bore hole underground and estimated that the TVD of the bore hole at 1212m was 960m and the TVD of the bore hole at 1388m was 1061.37;
- (b) That the deviation of the hole was the reason that no artesian aquifer was encountered; and
- (c) That Depco had not complied with the Australian standards because (in effect) the bore hole was not constructed straight and as close to vertical as possible, a stabiliser was not used; and a drift direction survey was not undertaken. And if Depco had complied with those standards, there would have been a high probability of intersecting the Adori then Hutton aquifers.

The second report

[104] Mr Mann's second report was in response to instructions from the Seymours' solicitors to explain detail how he had reached his conclusions as to the depths of the geological formations under the Windemere bore (that supported the conclusion summarised in paragraph [103](b)).

[105] The second report purported to produce detailed maps of exactly where and at what depths the Adori and Hutton formations were in the vicinity of the Windemere bore. It referred to a report of a Mr Larsen which dealt with the same question. That report was objected to and ruled inadmissible. However, one might note that the author is a Principal Project Officer (Hydrology) at DERM with 21 years' experience in the assessment of groundwater systems, with education and experience to match. Mr Mann has no such qualifications. Mr Mann's report also relied on drawing inferences from bore hole data.

[106] He reached the conclusions as follows⁵⁴:

- 22. My estimated formation depths at the Windemere New Bore location as shown in each of the contour maps in Annexure D are;

Formation	Depth From Surface
Toolebuc	680 metres
Cadna-owie / Hooray	980 metres
Adori	1,060 metres
Hutton	1,140 metres

⁵³ Exhibit 22.1 paragraphs 31, 34 and 37 to 39

⁵⁴ Exhibit 22.2

[107] He then made these depths deeper by 35m for a reason which was difficult to understand. He said⁵⁵:

30. The estimated depth of the Toolebuc, as well as the other formations should be deepened by 35 metres. The depth of 35 metres is used because it is the difference between the estimated depth of the Toolebuc formation and the deepest depth that my wireline logging reached.
31. The revised formation depth are shown in the table below:

Formation	Depth From Surface
Toolebuc	715 metres
Cadna-owie / Hooray	1,015 metres
Adori	1,095 metres
Hutton	1,175 metres

The third report

[108] Mr Mann's next document is an affidavit filed in a summary judgment application by the plaintiff (called the **third report** for convenience). It purports to respond to affidavits of Mr Riddell and Mr Wall (dealt with below) which express their opinions that the bore hole could not be inclined as alleged in the first report because of technical limitations in the drilling components. He gives technical and opinion evidence which contradicts the evidence of Mr Riddell and Mr Wall though he has no evident expertise to do so.

The fourth report

[109] Mr Mann's next document is an affidavit which identifies source documents referred to in his third report. It disclosed, inter alia, that Mr Mann had relied on an expert opinion from a third party. That was objected to successfully (along with other parts of the reports).

The fifth and sixth reports

[110] As will be seen, Depco obtained expert reports from two men: Mr Glenn Jordan⁵⁶ and Mr Huw Rossiter.⁵⁷ I will review their reports presently. They were not called for cross examination. Both gentlemen considered, inter alia, that a gyroscopic survey tool should have been used to identify the borehole inclination and direction. Mr Mann had not used such a tool.

⁵⁵ Ibid

⁵⁶ Exhibit 3

⁵⁷ Exhibit 2

[111] Mr Mann's fifth and sixth reports respond to the specific issues raised by Mr Jordan and Mr Rossiter respectively, generally to disagree with their critiques. However, a gyroscopic survey was completed, nonetheless.

The seventh report

[112] Mr Mann's seventh report contains the results of a gyroscopic deviation analysis of the bore hole. The survey was completed to the blockage at 790m. He reports that at that length, the bore is 42.5m south and 272.07m east of the origin or 275.37m from the origin. He found those results substantially the same as his result in his first report. He calculated the course of the bore hole beyond that blockage in the same way as in the first report, assuming continuing progress in the direction identified for the hole from 650 to 750m. This resulted in the substantively the same outcome as in the first report, with the hole at 1071.15m at 1388m.

Depco's experts

[113] Mr Jordan is a civil engineer who has undertaken bore hole logging work since about 2004. He was instructed to express an opinion on the accuracy of the conclusions about the depth and direction of the bore hole. He expressed four reservations about the accuracy of Mr Mann's conclusions, which are sufficiently stated as follows⁵⁸:

10. I query the assumptions made for the borehole angle past the blockage/the end of the measurements taken. As Mr Mann has inferred, with angles greater than 5 degrees it will often remain on the trajectory. However, in my experience, I have regularly seen bore holes do the unexpected with holes spiralling in and out and around in circles or coming back to vertical from what was initially a large deviation.

Summary

11. In summary, the concerns I have with respect to Mr Mann's report are that:
 - a. There is no calibration data;
 - b. There has been no repeat run; and
 - c. The azimuth recorded is irrelevant (due to it being magnetic);
 and so I would not be confident in the deviation data that has been recorded.
12. Further, after the end of the measurements, assumptions have been made only from the general pattern of borehole behaviour, and may not necessarily hold true.

[114] As noted, he also called for a gyroscopic survey.

[115] Mr Rossiter holds an engineering degree in industrial geology and has actively worked in bore hole logging since 1998. He has presented papers at a number of professional conferences. He expressed reservations about the methodology used and the scope of Mr Mann's expertise. The following points are relevant to the issues in the proceedings.⁵⁹

b. Comment on any potential issues with the methodology used

⁵⁸ Exhibit 3

⁵⁹ Exhibit 2

- 7.7 In my experience, I would expect the bore to maintain or build angle (i.e. maintain or increase inclination rather than reduce inclination), but I am not a trained directional driller. A trained directional driller would be the appropriate person to make comment on whether the bore would likely have increased, held a consistent, or even potentially decreased inclination, and therefore the appropriate hole angle projection to the end of the hole.

c. Comment on the conclusion reached; and

- 7.8 Point 29 made in Mr Mann's expert report is inaccurate. There is no data to support the interpretation that a wellbore maintains azimuth (direction) when inclination is above 5 or 10 degrees from vertical (vertical being zero degrees and horizontal being ninety degrees). It is very common for bores to "walk" or turn to the right in deviated boreholes due to forces imposed by the drill-bit as it rotates to the right whilst drilling in rotary mode (rotating the drillstring).

d. Offer comment on any other matters that may affect the reliability or accuracy of the opinions offered in the Documents.

- 7.9 Whilst Mr Mann is an experienced wireline operator, I find his assertions on the regional geology are an overreach. An expert on the regional geology working in conjunction with a trained log analyst or petrophysicist would be appropriate for comments regarding the interpretation of the geology from geophysical bore logs.

2. Address the accuracy of the statement proffered by Mr Mann in the Documents that:

a. The True Vertical Depth ("TVD") of the bore is 1061.37 metres below ground level, and not 1,388 metres as certified the Plaintiff's employee, Dylan Farnes;

- 7.10 Given that the last borehole inclination was measured at 797.55 m, the actual TVD cannot accurately be determined. The assumption that a consistent hold inclination was maintained is not backed up by any measurements; it is made on assumptions and projections.

[116] He considered Mr Mann did not have the expertise to make assertions about regional geology (the second report).

[117] These witnesses were not cross examined.

Depco's lay witnesses

[118] Depco's lay witnesses addressed the propositions advanced by Mr Mann that the bore had deviated to such an extent that it reached only 1071m in depth, and was at an inclination of 54 degrees at 790m and that they had not followed the Australian standards relating to hole inclination.

Evidence in chief

[119] Mr White was an experienced driller. He set up the drilling rig, which was a UDR1200 drill rig which he had used many times before. He said⁶⁰:

14. My usual process in setting up the rig is to verify that the angle of the drill mast (which is what the drill head is connected to) to ensure it is level. Measuring against

⁶⁰ Exhibit 15

the mast is also more reliable than measuring against the rig itself. I would verify this with a spirit level, and I would check with the spirit level in a number of positions (e.g. vertical, then horizontal) in case there was a failure of the spirit bubble.

15. The only time the mast would move from a vertical position is if the locking device failed or if the whole rig dipped (e.g. if the ground subsides). At no time did I notice the locked device fail or the whole rig dip. At 54 degrees, it would have been plainly obvious if this had occurred.

[120] He specifically responded to Mr Mann's opinion that the bore has an inclination of 54 degrees to the bottom. He said in his experience it would be highly unlikely that the bore was at that inclination because⁶¹:

- (a) At that inclination the load would be greater and at no stage did he observe the load go above pressure he set for the drill to operate ('150 bar'). The pressure was pre-set so if it increased due to greater load, the drill would have stopped and it did not;
- (b) At that inclination the rods and hole assembly would have caught on the side of the bore when removed, but that did not happen;
- (c) At that inclination he would have expected the drill rods to snap when removed. That did not happen; and
- (d) At that inclination the drill rods visible on the surface would have been at an angle and rubbed the guards, but that did not happen.

[121] Mr Wall also rejected Mr Mann's findings:

- (a) He made, in broad terms, the same points as Mr White's first three points above;
- (b) He also referred to the mast as follows⁶²:
 22. Finally, the rig was set up with its mast set in the vertical position at the outset of the job. This as verified with a spirit level.
 23. The only time the mast would move from a vertical position is if the locking device failed or if the whole rig dipped (e.g. if the ground subsided) . At no time did I notice the locking device failed or the whole rig dip. At 54 degrees, it would have been plainly obvious if this had occurred.
- (c) He also made this additional point in relation to casing:
 24. I inserted 900 metres of 6" butt welded steel casing into the $7\frac{7}{8}$ inch hole. To attempt to insert this casing at a 54 degree angle would have required brute force, and I would have experienced multiple hang-ups.
 25. The casing was easily inserted, which suggested to me that it was drilled more-or-less plumb. We inserted it over three shifts, which is standard for casing of this size installed with the UDR1200 rig.
- (d) He concluded:

⁶¹ Exhibit 15 paragraphs 28 to 36

⁶² Exhibit 18

26. There is nothing from my use of the rig at this job that would make me think that we drilled at an excessive inclination (be it 54 degrees or some other figure), nor do I think it was reasonably possible for this to have occurred.

- [122] Each of Mr White and Mr Wall said that stabilisers had been used on the drill rig.⁶³
- [123] Mr Riddell also responded to Mr Mann's findings. He made the following points.
- [124] **First**, he made the same point about the impact of a 54 degree inclination on the pressure on the drill as Mr White and Mr Wall.
- [125] **Second**, he made the same point about the impact of that inclination down to 1388m on the pull back load of the drill. He calculated that at that depth there would only have been a 3 tonne margin before the pull back limit of the particular rig was reached. He said that it would be likely that the rods or head would catch at that inclination which would take the load well over the limit.
- [126] **Third**, he also agreed that at an inclination of 54 degrees, the welded steel rods used could not have bent sufficiently, they would have snapped. Such rods do not bend.
- [127] He concluded that in his experience, a bore hole cannot be drilled at more than 20 to 25 degrees for the reasons he gives. He had never heard of a hole being drilled at 54 degrees with kind of rig in use at Windemere in the kind of strata located there.
- [128] He also responded separately to the finding of Mr Mann in his first report that the drillers had not complied with the requirements of the Australian standards:
- (a) As to stabilisers, he explained what a stabiliser is and how it is used to keep the bore hole straight.
 - (b) As to plumbness, he explained that that could be checked by reference to the rod guards (as Mr White also referred to);
 - (c) Finally, he said that a drift direction survey would indicate direction and inclination and an example was a gyroscopic survey but that not one had ever been obtained in his 43 years of drilling.

Cross examination

- [129] Mr White and Mr Wall were briefly cross examined on their statements that there were stabilisers used with the rig, but without effect. They were otherwise not challenged on any of their evidence in cross examination.
- [130] Mr Riddell was cross examined to suggest that he was never told by the drillers on site that they had used stabilisers. Ultimately, after insisting they would have been used, he accepted he had not actually been told that. This was a concession made where Mr Riddell recognised that the particular matter put to him by Mr Allen had

⁶³ Exhibit 16 paragraph 5; Exhibit 17 paragraph 6

to be conceded.⁶⁴ Importantly, while Mr White and Mr Wall said they were used, they did not ever say they told Mr Riddell. The reality of the situation is reflected I think in the fact that all three considered stabilisers were essential, and it was not something that required specific discussion. In context, the exchange about stabilisers does not affect Mr Riddell's reliability. Mr Riddell was also asked if he accepted that Mr Mann's gyroscopic survey accurately showed the bore path. He said no.

[131] I was not given any reason to doubt their evidence on this issue by the cross examination. The issues were barely touched.

Admissibility of Mr Mann's evidence

Cross examination

[132] The principal parts of Mr Mann's cross examination were as follows. Mr Mann was cross examined about the omission from his detailed reading for the gyroscopic survey in the seventh report at pages 20 to 23 of the output of the survey tool relevant to the quality field. Mr Mann said that he had checked for flags in the quality field when downloading the data but did not include it in the material presented in his report. He agreed that on the face of his report, the Court could not tell if there were any quality issues flagged. He said he had used this particular tool twice before and similar tools some 20 to 30 times. Mr Mann then agreed that from about 420m measured, the bore hole began to turn from east to south in a curve, though less so as it approached 790m.⁶⁵

[133] Mr Mann was then cross examined at length about the mapping of the formations which underpinned his opinion that if the bore hole had been drilled to TVD it would have intercepted an artesian aquifer. The process whereby he prepared his maps showing his opinion as to the location of the four artesian aquifers⁶⁶ was extensively examined. This part of Mr Mann's cross examination reflected poorly on his understanding of the limits of his own expertise.

[134] His process involved drawing inferences from 55 bore holes recorded in public records over a 20,000km² area, some of which were relevant only to some of the relevant aquifers and almost none of which have been surveyed for direction or true depth. He accepted that his work had not been reviewed by or done in consultation with a geologist, a hydrogeologist or geophysicist.⁶⁷ He had no knowledge of, nor seemingly understanding of, whether there was scientific research which informed the reliability of the process he was undertaking bearing in mind the sparse and patchy bore reports he was using.⁶⁸ He also seemed not to understand that being able to interpret what the wireline tools report as to the formations located in the bore and knowing that the tools used gamma radiation to generate the information

⁶⁴ TS1-81

⁶⁵ TS3-65.17

⁶⁶ TS3-68 to .88

⁶⁷ TS3-81

⁶⁸ TS3-84.36 to .85.6

is not the same as having the scientific knowledge and training to understand that process and actually develop and apply the theories which underpinned the diagnostic software in the wireline tool.⁶⁹ Ultimately, the expertise he relied upon was his experience in handling and using wireline data and experience in generating correlations from bore hole to bore hole.⁷⁰ Of course, correlation is not causation.

- [135] Mr Mann also appeared to agree that based on his maps and his projection of the TVD, the bore hole would have intercepted the Adori formation. He accepted that an artesian formation did not necessarily generate water under pressure and might give rise to sub-artesian water. It was not in dispute that the bore hole did encounter water. It was difficult then to understand the point of his conclusion in his first report that if the bore hole had been drilled to TVD of 1388 it would have hit an artesian aquifer, given that on his own evidence it was a distinct prospect it did.
- [136] Finally, I have referred to his evidence of his formal training in paragraph [96] above.
- [137] In re-examination, the Seymour's counsel sought to establish Mr Mann's expertise beyond administering and interpreting the output of a wireline tool (presumably only those tools in which he has the necessary training and experience). Mr Mann said (or at least agreed with counsel) that he works with many different disciplines as part of his job. He agreed that the public record of bore information was used by all those disciplines.⁷¹ He also gave evidence (as is the case) that the results of the magnetic and gyroscopic surveys as to direction and depth were largely the same.

Parties' submissions

- [138] Depco objected to the whole of Mr Mann's evidence on the basis that he was not qualified as an expert to give any of the evidence adduced. It is convenient to set out the concise statement of the synoptic objections from the written objections⁷²:

All of Mr Mann's evidence as lacking the qualifications, expertise regarding:

1. The location and formation of the artesian or other aquifers;
2. The total vertical depth of the bore (TVD);
3. The distance of the completion of the bore from the vertical depth at commencement (horizontal departure or displacement);
4. The azimuth of the bore;
5. The method of the works conducted by the plaintiff;
6. Compliance or otherwise by the plaintiff with the [Australian standards]
7. Whether compliance with the [Australian standards] referred to above would have produced a different result.

⁶⁹ TS3-75.40 to .76.12

⁷⁰ TS3-82.5 to .14

⁷¹ TS3-92.36 to 94.8

⁷² MFI-A page 2-3

All of Mr Mann's evidence about the inclination of the bore hole, particularly past the depth of 797.55m as speculative and beyond his area of expertise.

[139] Those objections were fully argued, and the expertise issues were covered in cross examination (as summarised above). I reserved my decision on these synoptic objections. I did so conscious of the following warning⁷³:

As a general rule, trial judges confronted with an objection to admissibility of evidence should rule upon that objection as soon as possible. Often the ruling can and should be given immediately after the objection has been made and argued. If, for some pressing reason, that cannot be done, the ruling should ordinarily be given before the party who tenders the disputed evidence closes its case. That party will then know whether it must try to mend its hand, and opposite parties will know the evidence they must answer. It is only for very good reason that a trial judge should defer ruling on the admissibility of evidence until judgment...

[140] However, the issues which arose were novel and closely related to the underlying issues in the proceedings. Both counsel were aware that the matter had been reserved and that evidence could be given, going to weight and admissibility, in the course of Mr Mann's evidence. Both counsel agreed to the reservation of the issue. Given the way expert evidence was handled at trial (with Depco's experts not called for cross examination), it caused less disruption than might otherwise have been the case.

[141] The gravamen of Depco's submission was that there was nothing in Mr Mann's professional background or education which demonstrated that by reason of specified training, study or experience he developed expertise in any field of expertise which would qualify him to give opinions on any of those matters. Rather, they were matters which required specific expertise in relevantly (as I understood it):

- (a) For opinions about the geology underlying the bore hole (especially the location and depth of the artesian aquifers), a geophysicist, log analyst or petrophysicist or geologist with a background in local geology. To this might be added, for inferring the location and behaviour of the artesian aquifers, a geohydrologist; and
- (b) For opinions about the performance of the bore hole after the blockage, including drawing inferences as to the likely path thereafter, a trained directional driller.

[142] It might be added that for opinions about the method of works conducted by Depco and their compliance with the Australian standards, expertise in drilling water bores was called for.

[143] The Seymours accepted that Mr Mann was not an expert specifically in any of the areas identified by Depco. However, they argued in response that Mr Mann had sufficient experience arising from his work as a wireline engineer to express opinions on all of the matters covered by his opinions because, to carry on his work

⁷³ *Dasreef Pty Ltd v Hawchar* (2011) 243 CLR 588 at 599 [19] to [20]

as a wireline engineer, he has to be familiar with a substantial amount in a number of different disciplines. So while he was not an expert in any of the specific disciplines identified by Depco, he had sufficient training and experience to give expert opinion evidence on each of the matters covered by his reports. It was explained by Mr Allan for the Seymours at one point as follows⁷⁴:

There seems to be a fundamental misapprehension that underlies all of the submissions that you've just heard that that because you haven't got a specific qualification from a university, you can't be a field engineer, for example, training through an apprenticeship and then having expertise and developing it in that way. And in this particular case, because of the novelty, which is explained in Mr Mann's evidence, that is, that the very limited number of people that undertake this type of work, it seems that his fault, as relied upon by the plaintiff, is that he requires, as I said, to wear quite a number of hats to be able to undertake the analysis that he does.

- [144] The argument was that a person cannot do Mr Mann's job without knowing a substantial amount in a number of disciplines. At one point he was compared to a general practice doctor. In respect of the specific example of how his general experience made him able to give expert evidence on bore drilling techniques (despite never having actually drilled a bore himself), it was submitted that he developed that expertise from having observed the end result of drilling of water bores in the course of doing wire line analysis.

Relevant principles

- [145] It is convenient to recall the well-known statement of principle by Heydon JA, as his Honour then was, in *Makita v Sprowles* at [85]⁷⁵:

In short, if evidence tendered as expert opinion evidence is to be admissible, it must be agreed or demonstrated that there is a field of "specialised knowledge"; there must be an identified aspect of that field in which the witness demonstrates that by reason of specified training, study or experience, the witness has become an expert; the opinion proffered must be "wholly or substantially based on the witness's expert knowledge"; so far as the opinion is based on facts "observed" by the expert, they must be identified and admissibly proved by the expert, and so far as the opinion is based on "assumed" or "accepted" facts, they must be identified and proved in some other way; it must be established that the facts on which the opinion is based form a proper foundation for it; and the opinion of an expert requires demonstration or examination of the scientific or other intellectual basis of the conclusions reached: that is, the expert's evidence must explain how the field of "specialised knowledge" in which the witness is expert by reason of "training, study or experience", and on which the opinion is "wholly or substantially based", applies to the facts assumed or observed so as to produce the opinion propounded. If all these matters are not made explicit, it is not possible to be sure whether the opinion is based wholly or substantially on the expert's specialised knowledge. If the court cannot be sure of that, the evidence is strictly speaking not admissible, and, so far as it is admissible, of diminished weight. And an attempt to make the basis of the opinion explicit may reveal that it is not based on specialised expert knowledge, but, to use Gleeson CJ's characterisation of the evidence in *HG v The Queen* (at 428 [41]), on "a combination of speculation, inference, personal and second-hand views as to the credibility of the

⁷⁴ TS2-124.10

⁷⁵ (2001) 52 NSWLR 705.

complainant, and a process of reasoning which went well beyond the field of expertise”.

[underlining added]

[146] This statement has been accepted and applied in Queensland.⁷⁶ The pre-conditions to admissible expert evidence challenged by Depco are the first two, underlined:

- (a) It must be agreed or demonstrated that there is a field of “specialised knowledge; and
- (b) There must be an identified aspect of that field in which the witness demonstrates that by reason of specified training, study or experience, the witness has become an expert

[147] The expert evidence is tendered by the Seymours. They therefore bear the onus of demonstrating both matters in respect of Mr Mann’s evidence. As to the first, it must be recalled that not every area in which science engages in research or study qualifies as a field of specialised knowledge which can be the subject of expert evidence in a Court. The point is sufficiently articulated as follows⁷⁷:

A series of Australian decisions has confirmed that an exclusionary condition precedent probably exists at common law in relation to admissible expert evidence. In the context of accident investigation, Dixon CL in *Clark v Ryan* (196) 103 CLR 486 at 491 held that experts could not testify on areas which were not part of a formal sphere of knowledge, expressly approving of the way in which the matter was put by J W Smith (1876, p 677) in his notes to *Carter v Boehm* (1766) 1 per Smith LC:

On the one hand it appears to be admitted that the opinion of witnesses possessing particular skill [*the expertise criterion*] is admissible whenever the subject matter of inquiry is such that inexperienced persons are unlikely to prove capable of forming a correct judgment on it without such assistance [*the common knowledge criterion*], in other words, when it so far partakes of the nature of a science as to require a course of previous habit, or study, in order to the attainment of a knowledge of it [*the expertise criterion*]. ... While, on the other hand it does not seem to be contended that the opinions of witnesses can be received when the inquiry is into a subject matter the nature of which is not such as to require any particular habits or study in order to qualify a man to understand it.

In 1984 in *R v Bouyhton* (1984) 15 A Crim R 364 at 366, a case dealing with the admissibility of police handwriting evidence, King CJ was explicit as to the tests to be applied because admission of expert evidence (emphasis added):

The judge must consider and decide two questions. The first is whether the subject matter of the opinion falls within the class of subjects upon which expert testimony is permissible. The first question may be divided into two parts: (a) whether the subject matter of the opinion is such that a person without the assistance of witnesses possessing special knowledge or experience in the area; and (b) *whether the subject matter of the*

⁷⁶ *R v Mackenzie* [2016] QCA 277 at [37]; *Speets Investment Pty Ltd v Bencol Pty Ltd* [2020] QCA 247 at [139] to [140] per Callaghan J with whom Sofronoff P agreed. Callaghan J adopted the rearticulation of the propositions in *Makita* by Bond J in *Sanrus Pty Ltd & Ors v Monto Coal 2 Pty Ltd & Ors (No 5)* [2019] QSC 210. Since Bond JA was the other Judge hearing *Speets* and his Honour generally agreed with Callaghan J, it is probably safe to assume all members of the Court agreed with the articulation in *Sanrus*.

⁷⁷ I Freckelton & H Selby, *Expert Evidence* (Thomson Reuters (Professional) Australia Limited, 2013, 5th ed) at 62

opinion forms part of a body of knowledge or experience, which is sufficiently organised or recognised to be accepted as a reliable body of knowledge or experience, a special acquaintance with which by the witness would render his opinion of assistance to the court.

Thus, there is a focus upon the need for a body of knowledge or experience to be accepted (in some way which is not defined) as reliable (see also Cole (2022)). In relation to “new or unfamiliar techniques or technology”, King CJ held (at 366, emphasis added):

[T]he court may require to be satisfied that such techniques or technology have a sufficient scientific basis to render results arrived at by that means part of a field of knowledge which is a proper subject of expert evidence

Unfortunately, his Honour did not proceed to the next step and articulate the criteria to be applied in reaching such satisfaction.

- [148] It has been recognised that some areas of training, study or experience are not properly fields of specialised knowledge for the purposes of admitting expert evidence because the field of specialised knowledge remains contested and/or there is no universal view amongst relevant scholars, scientists or other community of educated or trained persons as to the reliability of the techniques or practices to be relied upon.

General observations on Mr Mann’s evidence

- [149] For the purposes of this analysis, it is convenient to record the areas in which Mr Mann has purported to give expert evidence:
- (a) The direction and depth of the bore hole to the blockage based on operation of certain wireline tools and the interpretation of the results produced by those tools (the **wireline evidence**);
 - (b) The geological strata and the depth and location of artesian aquifers in the vicinity of the bore hole (the **geological evidence**);
 - (c) The determination by inference of the direction and depth of the bore hole after the blockage which prevented wireline investigation (the **inferred bore hole evidence**);
 - (d) The lack of compliance by Depco with the Australia standards in its drilling operations (the **drilling practices evidence**).
- [150] I do not accept that Mr Mann has become an expert in any field of specialised knowledge which could sustain his evidence on any of these matters except the wireline evidence. I form that view for the following reasons.
- [151] **First**, Mr Mann has no university education which gave him expertise in any field to give any of the evidence identified above except the wireline evidence. His undergraduate training is in biotechnology. It does not comprise study which gave rise to expertise in any of the fields in which he purported to give evidence. Its only relevance appears to be to the wireline evidence and only because the entry point for industry based training in wireline operation is a STEM degree. I infer

that is because any STEM degree is likely to equip a trainee with familiarity with basic scientific and mathematical skills.

- [152] Some weight was placed by the Seymours on Mr Mann's enrolment in a Masters of Petroleum Engineering in 2010. As of 2020 his CV said he was currently undertaking that degree. There was no suggestion he has completed it since. One wonders what 'currently undertaking' means in that context. Further, there was no suggestion that the content of that course gave rise to expertise in a relevant field, much less an aspect of such field relevant to the evidence he gave.
- [153] Mr Mann himself relied on his training with Weatherford. I do not consider that training made him an expert in any area other than (to some degree) wireline operation and interpretation. As explained, this was training by a commercial wireline tool provider. Mr Mann presented this as one year of study. Cross examination revealed that it comprised 20 weeks of training. Mr Whitten also pointed out, correctly, that it was not fully explained what was covered in this training. The suggestion that it gave Mr Mann the foundation necessary to express all of the expert opinions he ventured was misconceived. Mr Mann's advocacy on his own behalf⁷⁸ (which he swore was 12 months of intensive training⁷⁹) based seemingly on this 20 week of training, reflects poorly on his understanding of what is required to develop real expertise in an area of specialised study.
- [154] **Second**, there was no evidence which persuaded me that Mr Mann had other specific training, study or expertise outside of university study which gave rise to expertise in a relevant field, much less an aspect of such field relevant to the evidence he gave (other than the wireline evidence). Some specific matters need to be dealt with in that regard.
- [155] I understood the Seymours' counsel accepted that Mr Mann did not have specialist training, study or experience training in any relevant area (apart from the wireline operation and analysis) but contended that his evidence outside wireline operation could be properly based on his expertise derived from doing wireline operations and analysis. The argument is set out fully at paragraph [143]. Its premise is that one can become an expert in fields of specialist knowledge from your familiarity with those areas resulting from your use and deployment of such specialist knowledge in your own area of expertise.
- [156] As a general proposition, that is wrong. Barristers dealing with areas of specialist knowledge frequently must become very familiar with areas of specialist knowledge. However even the most experienced of personal injuries barristers are not experts in the medial fields in which they practice. That is because there is a fundamental difference between being sufficiently familiar with an area of specialised study to be able to deploy its principles and language during one's own profession on the one hand and having the level specialised knowledge that allows one to give admissible expert evidence on that area on the other. There was

⁷⁸ TS3-61

⁷⁹ Exhibit 22.2 paragraph 4

evidence from Mr Rossiter, an experienced wireline engineer, that the geological evidence was the preserve of various geological and related disciplines and that the inferred bore hole evidence was a matter for a directional driller. I see no reason to disagree with those views.

[157] As to Mr Mann's specific training and experience, there was no evidence that persuaded me that his particular training and experience with wireline operation and interpretation made him an expert in the areas covered by the geological, inferred bore hole or drilling practices evidence. On the contrary, the material led to the contrary conclusion:

- (a) A good example of the weakness on this point was the submission that Mr Mann was an expert who could give the drilling practices evidence because he had seen the results of drilling on many occasions when logging bore holes.⁸⁰ There was no evidence Mr Mann had ever actually drilled a bore hole. The idea he could give expert evidence on drilling practices was nonsense.
- (b) Mr Mann's CV contains an assertion which might be thought to be relevant to his expertise to give the geological evidence but has rather the opposite effect. In the face of a suggestion from Mr Rossiter that the geological evidence was an overreach, Mr Mann asserted, inter alia, that he met the requirements of professional membership of the Australian Society of Exploration Geophysicists.⁸¹ But he is not a member. Assuming that society is a learned society with qualifications and experience entry criteria (and if it is not, why is it relevant to mention it), it says much about the reliability of Mr Mann's claims to expertise that he effectively bestows that honour on himself, without possessing it.
- (c) I have already observed that Mr Mann's career in actually conducting wireline operations is not, in the scheme of things, very long, having only started in 2005. I also observe that the content of the work he actually did (beyond using and interpreting the results from a wireline tool) is not stated.
- (d) The ultimate conclusion of Mr Mann's geological evidence was that if the bore hole had been drilled closer to true vertical, it would have struck an artesian aquifer. All witnesses agreed such a thing could never be assumed. This did not seem to occur to Mr Mann as a relevant factor in stating his opinion about what would have happened with this particular bore hole.

[158] Mr Rossiter described Mr Mann as a wireline operator. Mr Mann insisted on designating himself as a wireline engineer. He asserted that the difference is that a wireline engineer is trained over a longer duration and to a higher standard.

⁸⁰ TS2-135

⁸¹ Exhibit 22.6 paragraph (ii)

However, the only concrete training he refers to seems to be the 20 weeks I have identified.⁸² I consider Mr Rossiter's characterisation to be more accurate.

[159] **Third**, I formed the view from the whole of Mr Mann's evidence that he does not fully grasp the difference between a person who expresses an opinion (even an informed opinion) and a person who is able to express an expert opinion because of their education, training and experience in field of specialised knowledge. Examples of matters which led me to reach that conclusion include the following:

- (a) Mr Mann appeared to have no inkling as to whether, and to what extent, the 55 bore holes he chose to create his detailed maps of the strata under the bore hole were sufficient to draw the very specific conclusions he reached.⁸³ Rather, he asserted that the task he carried out was relatively straightforward;
- (b) On the same topic, Mr Rossiter's evidence was that the analysis of bore hole data (seemingly to sustain the geological evidence) required a range of specialist disciplines to be involved. Mr Mann responded by opining that this would be expensive and that the reports might contradict one another;⁸⁴
- (c) Mr Rossiter also did not seem to perceive the difference between being able to use a wireline diagnostic program to map strata based on gamma radiation analysis on the one hand and having the scientific training and experience to understand the materials science which lies behind such analytic software;⁸⁵
- (d) The other matters already mentioned in relation to Mr Mann's CV and evidence also support that conclusion: see paragraph [98] above.

[160] For the above reasons, I do not accept that Mr Mann had the expertise to give any of the evidence he proffered except in relation to the wireline evidence.

[161] It appears that the geological evidence was irrelevant in any event. That evidence seemed to be relevant only to the conclusion that but for the alleged wandering of the bore hole, the bore would have struck an aquifer. That was not an issue on the pleadings and was not relied upon in final submissions by the Seymours. What, one might then ask, was the point of it all?

The inferred bore hole evidence

[162] Unlike the geological evidence, Mr Mann's inferred bore hole evidence is central to the Seymour's case. It requires some specific attention.

[163] Mr Rossiter's evidence was that the actual TVD of the bore hole could not be determined. He noted that the assumption that a consistent hole inclination was

⁸² Exhibit 22.6 page 4

⁸³ See paragraph [134] above

⁸⁴ Exhibit 22.6 response to paragraph 8.2 on page 7

⁸⁵ TS3-75 to 76

maintained was not backed up by measurements, but on assumptions and projections. Importantly, while his experience suggested he would expect the bore hole to maintain or build angle⁸⁶:

I am not a trained directional driller. A trained directional driller would be the appropriate person to make comment on whether the bore would likely have increased, held a consistent, or even potentially decreased inclination.

- [164] Mr Rossiter’s qualifications are more directly relevant and his experience much longer and broader than Mr Mann’s. He has presented papers in his area of expertise. He was not cross examined. Mr Mann’s responses to those parts of Mr Rossiter’s report were unpersuasive:
- (a) He adopts Mr Rossiter’s observations about his experience but then fails to deal with Mr Rossiter’s observation that Mr Rossiter does not consider he (with his greater experience and qualifications) is able to express the opinion that Mr Mann does express;
 - (b) Rather, Mr Mann states that he has explained the methodology, as if that means that exposing reasoning alone is sufficient;
 - (c) He disagrees that a directional driller would be an appropriate person to give evidence on the likely future behaviour, but without any apparent expertise to comment on what a directional driller would be able to explain. And he does so without any experience of ever drilling any bore hole, much less a directional bore hole.
- [165] Again, I find Mr Mann’s evidence shows lack of insight into what it means to be an expert in a field of specialised knowledge. It is not sufficient that Mr Mann can express a rational opinion on the question, it is necessary that his expertise is such that he can express an opinion based on a field of specialised knowledge.
- [166] The defects in his evidence on this point are demonstrated by the fact that he gives no reasoned opinion based on specialised knowledge about the performance of bores under deviation for his choice of bore direction after the blockage. He merely picks the “conservative approach”. (Of course, a truly conservative approach from Depco’s perspective might more properly be to assume that the drill went straight down from the blockage.) Indeed, unless one completely rejected the evidence of Depco’s very experienced drillers, it is improbable that the bore hole continued to increase its inclination. I have not overlooked in making that comment that the drillers’ evidence on this issue can be questioned on the basis that bore holes are not regularly logged so that their experiences can be tested against data.
- [167] I prefer Mr Rossiter’s evidence that direction and depth of a bore hole which is deviating and cannot be logged is a matter for a directional driller. It is certainly not something which is within Mr Mann’s expertise and his evidence on this issue was inadmissible.

⁸⁶ Exhibit 2 at paragraph 7.7

The admissibility of the wireline evidence

- [168] The limitations in Mr Mann's understanding as to the expertise required to be an expert in a field of specialised knowledge might give one cause to wonder whether he can give admissible evidence on the output of the wireline tools used in this case. It must be recalled that it is not sufficient to give expert evidence that one demonstrates expertise in a field of specialised knowledge. As noted above, the expertise must also relate to the area in that field which is the subject of the opinion evidence.
- [169] Wireline is a process by which diagnostic tools can be used to assess different characteristics of bore holes over their length. It is apparent that there are different tools which can be used to assess different characteristics and it is likely that for many of them, specific instruction and training is required to operate the tool and interpret the results. So much is clear from the evidence given by Mr Mann about the use and interpretation of results from the gyroscopic survey described in exhibit 22.7. It is not necessarily the case that experience in operation and interpretation of one tool means expertise in another.
- [170] However, Mr Mann gave evidence that he had used the gyroscopic tool in question on a couple of occasions before and had done this kind of survey on 20 to 30 occasions. In cross examination, it appeared to me that he did understand the processes and output of the magnetic and gyroscopic tools. He certainly has experience and training in the use and interpretation of wireline tools. And neither Mr Rossiter nor Mr Jordan suggested that he did not have the expertise to use the magnetic tool, just that he was seemingly not aware of its limitations.
- [171] I consider he was demonstrated to have sufficient training and experience in the use and interpretation of the wireline tools used to determine the direction and depth of the bore hole based on data produced from operation of those wireline tools. What weight to give his evidence is another matter.

Findings

- [172] Depco relies on three very experienced drillers who give evidence on two matters:
- (a) **First**, that they followed normal procedures for ensuring that the bore hole was vertical and that they did not observe any of the normal indications of the bore hole going significantly off the vertical; and
 - (b) **Second**, that it would have been impossible for the bore hole to end up at an angle of 54 degrees from top to bottom because the drilling rig would not have been able to draw up the drill head, at least not without very significant difficulties which they did not in fact encounter.
- [173] I have been given no reason to doubt their credibility and reliability, whether in respect of this issue or generally, either as witnesses of fact or as experienced drillers. Quite the opposite. As to the first point, the Seymours have no admissible evidence to contradict their accounts of the normal procedures adopted nor that

they in fact adopted them in this case. Indeed, they were not challenged on this in cross examination. I accept their evidence in that regard.

[174] Accordingly, I find the following:

- (a) Mr White and Mr Wall verified the angle of the drill mast on setting up the rig (or restarting rig in Mr Wall's case) in the manner described by them;
- (b) Neither Mr White nor Mr Wall observed changes in the mast which in their experience were indicative of significant deviation of the bore;
- (c) At no stage did Mr White or Mr Wall observe other physical indicia in the operation of the drill rig which in their experience were indicative of significant deviation of the bore;
- (d) It is part of the ordinary practice of drillers to use stabilisers to keep a drill rig drilling vertically and stabilisers were used in drilling at Windemere; and
- (e) Each of the above findings reflect the approach of bore drillers exercising reasonable care to keep a bore hole vertical.

[175] The second point is more difficult. While I have accepted the drillers as experienced drillers and reliable witnesses, I must consider their evidence in the light of Mr Mann's evidence on the direction and depth of the bore hole at 790m. Mr Mann found that the true depth was 710.96m and the angle of the bore hole measured between the top and the final location was 52.17 degrees.

[176] I have concluded that this evidence is admissible expert evidence based on Mr Mann's training and experience in operating wireline diagnostic tools. That does not necessarily mean that it will be accepted. I have identified many deficiencies in Mr Mann's evidence which might give one reason to doubt his reliability as an expert in any area. However, I have concluded on the balance that I do accept his conclusions on the depth and angle of the bore hole at 790m. I do so for the following reasons.

[177] **First**, Mr Rossiter and Mr Jordan both reviewed the magnetic survey reported in exhibit 22.1. While they were critical of the reliability of such a survey, they did not critique the technical aspects of the performance of the survey by Mr Mann.⁸⁷

[178] **Second**, the primary critique of Depco's experts of the survey work was that a gyroscopic survey was necessary for reliable results. However, Mr Mann did such a survey, and the results largely tracked the results from his first survey. Having done that work, Depco did not call any expert evidence to impugn the reliability of the analysis. There was no reason given why that could not have been done if Depco wished to dispute the quality or reliability of the analysis.

⁸⁷ Although the Seymours' submission that Mr Rossiter agrees with Mr Mann is not supported by the evidence: see their Trial Submission at paragraphs 78 to 79

- [179] **Third**, the Seymours submitted that Mr Riddell made an '*unqualified admission*' of the TVD and inclination as found by Mr Mann. The italics are in the Seymours' written submission. While reasonable minds can differ, I find it distracting when written submissions use frequent changes in font to emphasise points.
- [180] Further, I do not think that the position was quite as clear as the Seymours submissions assert. To my mind, watching the evidence referred to in the Seymours' trial submissions at paragraphs 73 to 77, Mr Riddell was giving evidence which assumed the accuracy of the logged results, rather than unequivocally admitting the accuracy of Mr Mann's conclusions. However, it remains the case that Mr Riddell did not identify any obvious flaws in the results.
- [181] **Fourth**, the real incongruity in the evidence which must be dealt with is the apparent inconsistency between the experience of the drillers and Mr Mann's logged results. They give evidence that they adopted the normal processes and that those did not show a problem with direction. Mr Mann's wireline analysis suggests the opposite. However, I have concluded that, at least to the blockage at 790m, the Depco witnesses' evidence is not sufficient to persuade me not to accept Mr Mann's evidence up to the 790m mark. That is for the following reasons:
- (a) The evidence was that very few bore holes are logged. This means that it is difficult to be confident that the Depco witnesses are drawing on experience which is informed by accurate data as to the inclination on the holes they are drilling, at least where the inclination is relatively shallow compared to the capacity of the drill rig; and
 - (b) Their evidence as to the implications for operating the drill rig at the inclination alleged by the Seymours was directed specifically at the inclination and depth alleged as the final position of the bore hole. That is a significantly more challenging proposition for the drill rig in use than the position identified by Mr Mann at the 790m mark. They did not specifically address the possibility of that less extreme evidence being correct.
- [182] Accordingly, I find that at a depth of 790m, the bore hole was at a TVD of 711m and 52 degrees inclination.
- [183] That leaves one issue to resolve: the depth and direction of the bore hole, from 790m measured length to 1388m measured length.
- [184] It is not possible to make a finding as to the precise end point of the bore hole on the evidence before the Court. I do not accept that Mr Mann has the expertise to express an expert opinion on that subject, and his evidence is inadmissible for that purpose. His evidence does, however, identify some of the possibilities which are rationally available. There are of course others: they include that the bore hole continued more or less straight down, that it corkscrewed down from that starting

point (as suggested by Depco's experts was a possibility⁸⁸), or actually straightened.

- [185] The evidence of Depco's drillers supports one of the options in the previous paragraph. While I did not consider their evidence answered the survey evidence at 790m, it must be recalled that they were expressing an opinion about a 1388m bore hole at 54 degrees all the way to the bottom. The difference between the starting point and the end point measured laterally is a great deal more at 1388m than at 790m. And at 1388m the drill rig was almost at its maximum operating depth, meaning maximum weight in the rods. I accept the evidence of Depco's drillers in that context that it was highly unlikely that the bore hole continued at 54 degrees or anything like it.
- [186] No calculations were put before me as to the TVD on different scenarios as to direction from 790m. However, it is obvious that assuming the bore went directly down from that point, the bore hole would have deviated 80m over 1388m, a deviation of 5.7%, and reached a TVD of about 1300m.⁸⁹ I am not finding that this occurred. I merely observe that on that assumption, the bore hole would have gone well past the lowest estimate for the Adori formation and would not have excessively deviated.
- [187] The findings I do make are that:
- (a) I am not satisfied that the bore hole continued at an average inclination of 54 degrees or anything like it; and
 - (b) I am satisfied that on the balance of probabilities, the bore hole straightened to some degree to reduce the average inclination from 54 degrees at 790m; and
 - (c) I am satisfied on the balance of probabilities that in those circumstances, the TVD would have materially exceeded the 1071m contended for by the Seymours.

THE CONTRACT

The character of the contract

- [188] Finally, these reasons arrive at the central question in the trial: what was the contract between the parties and what rights arise under it? The contract was informal, made with minimal documentation, as might be expected given the subject matter and context of this contract. The process of identification of the terms of the contract and the proper construction of those terms is therefore more flexible than for a contract prepared entirely in writing. However, it remains a commercial contract made between parties who were very experienced in their respective commercial areas of operation. Principles informing the approach to commercial contracts apply.

⁸⁸ See Depco's trial submissions at paragraph 106

⁸⁹ TVD = 710m + (1388m - 790m).

Facts relevant to construction

[189] Further, this contract was made by parties in a very distinctive context, being the drilling of water bores in Western Queensland. There was a number of key facts providing the context to the contract which were either actually known to both parties, or notorious in the water boring business. They provide guidance as to the identification and construction of the terms of the contract. Let us begin with those.

[190] **First**, both parties knew, or would be taken to know as of May 2017, the basics of artesian bores, as follows:

- (a) An artesian aquifer was under pressure and would not require pumping if it was tapped effectively;
- (b) There were at least two artesian aquifers in the area of the bore, the Adori and the Hutton;
- (c) The Adori was generally located from about 850m down to about 1100m and that the Hutton was deeper than the Adori;
- (d) Sandstone was an indicator that an artesian formation was being drilled; and
- (e) Drilling occurs in underground conditions which cannot be predicted with accuracy. The conditions could vary and there was no guarantee that any bore hole would succeed in tapping an artesian aquifer even if drilled very close to a successful bore.

[191] **Second**, the object of drilling an artesian bore is to tap into an artesian aquifer. There is no purpose achieved by continuing drilling once a flowing bore is established. (The only exception to this is where there is reason to believe that the aquifer tapped is not the one authorised by the development permit, though in that case, the evidence suggests that an amended development permit might be obtained where a bore only intercepts one aquifer successfully). It is a corollary of that object that the parties would have assumed that the drilling would stop (and the liability to pay the rate per meter would end) once a flowing bore was tapped.

[192] **Third**, it was notorious in the industry that surveys of water bore holes were almost never obtained. That finding is based on Mr Riddell's evidence and also Mr Mann's evidence as to how few of the bore holes in the records were surveyed.

The parties' contentions

[193] The parties' key contentions as ultimately advanced in the trial submissions can be summarised briefly. It is convenient to state the Seymours' case first.

[194] The Seymours contend that:

- (a) The contract obliged Depco to drill "as nearly as possible" to 1200 TVD or until water was struck, whichever came first;

- (b) The contract was an entire contract such that if Depco did not perform those obligations, it was not entitled to any payment unless released by the Seymours from further performance;
- (c) The bore hole at 1388m measured length reached only 1071m TVD which was not as nearly as possible to 1200 TVD;
- (d) The Seymours did not release Depco from further performance because Depco simply abandoned the works; and
- (e) Accordingly, Depco is not entitled to any sum under the contract.

[195] Depco contends that:

- (a) The contract obliged Depco to drill with reasonable care using equipment adequate and appropriate for the work to keep the bore hole straight and plumb within practical limits to approximately 1200m;
- (b) The contract was not an entire contract, at least in requiring 1200m TVD to be reached, but rather analogous to a schedule of rates contract;
- (c) The bore hole was drilled to a length well over the expected length, and with reasonable care as to direction, as shown by the evidence of the drillers. Mr Mann's evidence did not establish the contrary;
- (d) Depco did not abandon the works but rather left on the direction of the Seymours;
- (e) Accordingly, Depco is entitled to sum claimed under the contract.

Analysis

Areas of consensus

[196] The parties are not so far apart on some key issues.

[197] **First**, both parties agree that the contract included a term that if Depco tapped an artesian aquifer, it would stop drilling and was entitled to payment under the contract at the contractual rate. It matters little how this term is characterised: as a term arising from the dealings of the parties or a term implied to give business efficacy. It was so obvious it went without saying.

[198] **Second**, neither party contends that, in the event Depco did not tap an artesian aquifer, it had to drill 1200m TVD to become entitled to payment. That is understandable. The quotation does not contain such a term and nor could the words in their ordinary meaning be construed as stating that strict obligation as explained in paragraph [29] above.

[199] Further, the following matters of context known to both parties were directly against that conclusion:

- (a) It was impossible to know what was under the ground, and what kind of geological formations the drill would strike from time to time;
- (b) It was impossible to be confident when and where a flowing bore would be tapped within a wide range of depths; and
- (c) There was no provision expressly or by implication, for a survey of the bore hole and no objective expectation that one would occur (failing which TVD would be impossible to assess).

[200] The Seymours recognised those compelling considerations both in their pleading (where they articulated the obligation as the “approximate TVD”) and final submissions (“as nearly as possible” to the TVD). The formulation in final submissions seems more permissive.

[201] So the difference between the parties on this point is the difference between “as nearly as possible to TVD” and “reasonable care to keep the hole as vertical as possible within practical limits using appropriate equipment”. The Seymours formulation seems to invoke notions of reasonableness. The concession by Depco that the hole should be as vertical as possible using appropriate equipment approaches the obligation asserted by the Seymours. The difference in the two formulations does not seem that great. Indeed, at one point the Seymours’ submissions are articulated in almost identical terms to the Depco submission.⁹⁰

[202] Although the difference is not great, I consider that the obligation when drilling is as articulated by Depco. It has the advantage of being sourced in the Australian standards, which are identified in the quotation. It also has the advantage of being articulated in a document with statutory force which is concerned with the way artesian bores are to be developed.

[203] The question is whether it has been established that Depco failed in that regard.

[204] Before dealing with that issue, it is convenient to deal with the evidence given by Mr Riddell in response to my questioning which is relied upon by the Seymours in their written submissions. The exchange in question was as follows⁹¹:

MR ALLAN: Thank you. Thank you. That is the cross-examination. Thank you, your Honour.

HIS HONOUR: Just one second

MR WHITTEN: Thank you, your Honour.

HIS HONOUR: ...while I think about whether I’m going to ask a certain question or not. Just give me a second, hey. Yes.

So here’s my question, Mr Riddell. Is it the practice in the industry for drilling for subsurface water in Queensland that when a contract specifies a drilling depth, people in the industry would assume that that was a true vertical depth, subject to minor deviation? Yes.

⁹⁰ Seymours’ trial submissions at paragraphs 64 to 65

⁹¹ TS1-84.28 to .41

[205] The Seymours understandably rely on this answer to sustain their, perhaps stricter, articulation of the obligation to reach a TVD of as nearly as possible to 1200m. They rely on this answer as supporting that construction because it amounts to a term implied by custom. I do not think it does. The issue did not arise on the pleadings and had not been raised by either counsel at all. It was a leading question asked by the trial judge. Mr Riddell gave further context to his answer in re-examination which revealed I think the kind of considerations which informed the qualification which I stated as minor deviation⁹², which was more consistent with the position adopted by Depco.

Did Depco drill with ‘reasonable care’?

[206] The subheading uses the phrase reasonable care as short-hand for the implied obligation articulated by Depco: that the contract obliged Depco to drill with reasonable care using equipment adequate and appropriate for the work to keep the bore hole straight and plumb within practical limits.

[207] Failure to comply with this obligation would involve a breach of contract. The onus lay the Seymours to establish the breach. They have failed to do so. Indeed, even if the onus lay on Depco somehow to establish that they had drilled in accordance with that obligation to become entitled to payment, the evidence establishes that conclusion.

[208] **First**, the evidence of the experienced drillers that they drilled using reasonable care to keep the bore hole straight and plumb within practical limits was not contradicted by any admissible evidence and not challenged in cross examination.

[209] **Second**, the mere fact that the bore hole deviated as identified by the wireline survey at 790m does not lead to the conclusion that Depco did not meet its obligations. Given the uncertainties of underground drilling and the unchallenged evidence of Depco’s drillers, *res ipsa loquitur* does not apply (though the Seymours did not submit that it did). There is no other reason to conclude from the proved deviation that Depco did not meet its contractual duty.

[210] **Third**, there was also no evidence to suggest that the drill rig used was not adequate and appropriate for the work. Indeed, the opposite was established on the evidence. The rig managed to drill to 1388m in length (if not in true depth) and to be capable of continuing to drill despite the difficulties after the break in drilling in July.

[211] **Fourth**, the evidence did not establish that it was an essential requirement for meeting the contractual duty that directional surveys were undertaken. It was uncontentious that this was expensive and almost never done in practice. Section 8 of the Australian standards is not articulated in terms which would make such surveys a necessary condition to competent drilling.

⁹² TS1-85 to .86

- [212] **Fifth**, for the reasons given in paragraphs [184] to [187] above, I am not satisfied that the progress of the bore hole after 790m sustains any failure to comply with the obligation articulated by Depco. If anything, those findings sustain the opposite conclusion.
- [213] I should add that even if one adopted the term articulated by the Seymours (as nearly as possible to TVD), the above considerations would still lead to the conclusions in [207] above.

The entire agreement issue

- [214] The dispute on the entire agreement is moot. The Seymours accept that Depco had not warranted that it would drill 1200 TVD but rather that it would “as nearly as possible” to TVD. As I have said, as nearly as possible necessarily imported notions of reasonableness and reasonable care and skill. There was never any dispute that Depco drilled well over 1200m, the question was whether they did so while complying with their obligations to drill with reasonable skill (however articulated).
- [215] Further, it is a necessary element of the Seymours’ case on the entire agreement argument that Depco abandoned the bore hole without the Seymours’ consent. I have found already that the Seymours initiated the termination of the drilling efforts. It is unnecessary to say any more on this subject.

DISPOSITION OF THE PROCEEDINGS

- [216] The consequence of my findings is that Depco has succeeded on its claim under the drilling contract. I order judgment in favour of Depco for \$335,896.00. I will hear the parties on interest and costs.