FEDERAL COURT OF AUSTRALIA

Globaltech Corporation Pty Ltd v Australian Mud Company Pty Ltd [2019] FCAFC 162

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| Appeal from: | *Australian Mud Company Pty Ltd v Globaltech Corporation Pty Ltd* [2018] FCA 1839 |
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| File number: | NSD 98 of 2019 |
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| Judges: | **KENNY, ROBERTSON AND MOSHINSKY JJ** |
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| Date of judgment: | 13 September 2019 |
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| Catchwords: | **PATENTS** – construction – where claims in suit comprised method claims and system claims for core sample orientation – where the method in claim 1 involved two timers, one in the downhole device and one on the surface – whether the primary judge erred in his construction of the patent – whether, on the true construction of claim 1, it required both the downhole timer and the surface timer to count with reference to the same initial reference time – whether the word “beyond” meant no more than “after” or “later than” – appeal dismissed |
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| Legislation: | *Intellectual Property Laws Amendment (Raising the Bar) Act 2012* (Cth)  *Patents Act 1990* (Cth), s 40  *Patents Regulations 1991* (Cth) |
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| Cases cited: | *Branir Pty Ltd v Owston Nominees (No 2) Pty Ltd* (2001) 117 FCR 424  *CCOM Pty Ltd v Jiejing Pty Ltd* (1994) 51 FCR 260  *Davies v Lazer Safe Pty Ltd* [2019] FCAFC 65  *Dincel Construction System Pty Ltd v AFS Systems Pty Ltd* (2018) 360 ALR 273  *Fei Yu (t/as Jewels 4 Pools) v Beadcrete Pty Ltd* (2014) 107 IPR 516  *H Lundbeck A/S v Alphapharm Pty Ltd* (2009) 177 FCR 151  *Interlego AG v Toltoys Pty Ltd* (1973) 130 CLR 461  *Jupiters Ltd v Neurizon Pty Ltd* (2005) 222 ALR 155  *Kimberly-Clark Australia Pty Ltd v Arico Trading International Pty Ltd* (2001) 207 CLR 1  *Lockwood Security Products Pty Ltd v Doric Products Pty Ltd* (2004) 217 CLR 274  *Martin v Scribal Pty Ltd* (1954) 92 CLR 17  *Monsanto Co v Commissioner of Patents* (1974) 48 ALJR 59  *Nichia Corporation v Arrow Electronics Australia Pty Ltd* [2019] FCAFC 2  *Ransburg Co v Aerostyle Ltd* [1968] RPC 287  *Rehm Pty Ltd v Websters Security Systems (International) Pty Ltd* (1988) 81 ALR 79  *Sigma Pharmaceuticals (Australia) Pty Ltd v Wyeth* (2011) 119 IPR 194  *Société des Usines Chimiques Rhône-Poulenc v Commissioner of Patents* (1958) 100 CLR 5  *Welch Perrin & Co Pty Ltd v Worrel* (1961) 106 CLR 588 |
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| Date of hearing: | 22 and 23 May 2019 |
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| Registry: | New South Wales |
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| Division: | General Division |
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| National Practice Area: | Intellectual Property |
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| Sub-area: | Patents and Associated Statutes |
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| Category: | Catchwords |
|  |  |
| Number of paragraphs: | 149 |
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ORDERS

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|  | | NSD 98 of 2019 |
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| BETWEEN: | GLOBALTECH CORPORATION PTY LTD (ACN 087 281 418)  First Appellant  GLOBALTECH PTY LTD (ACN 086 012 393)  Second Appellant | |
| AND: | AUSTRALIAN MUD COMPANY PTY LTD (ACN 009 283 416)  First Respondent  REFLEX INSTRUMENTS ASIA PACIFIC PTY LTD (ACN 124 204 191)  Second Respondent | |

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| JUDGES: | KENNY, ROBERTSON AND MOSHINSKY JJ |
| DATE OF ORDER: | 13 SEPTEMBER 2019 |

THE COURT ORDERS THAT:

1. The appellants’ application for leave to amend their notice of appeal be dismissed.
2. The appeal be dismissed.
3. The appellants pay the respondents’ costs of the appeal (including the costs of the appellants’ interlocutory application for leave to appeal (and an extension of time in which to seek leave to appeal) dated 1 February 2019), as agreed or assessed.

Note: Entry of orders is dealt with in Rule 39.32 of the *Federal Court Rules 2011*.

REASONS FOR JUDGMENT

THE COURT:

## Introduction

1. The first respondent, Australian Mud Company Pty Ltd, is the registered owner of a patent titled, “Core Sample Orientation”, being Australian Standard Patent Application No. 2010200162 C1 (the **Patent**). The second respondent, Reflex Instruments Asia Pacific Pty Ltd (**Reflex Instruments Asia**) is the exclusive licensee of the Patent. We will refer to Australian Mud Company Pty Ltd and Reflex Instruments Asia Pacific Pty Ltd together as **AMC**.
2. In the proceeding at first instance, AMC claimed that the appellants, Globaltech Corporation Pty Ltd and Globaltech Pty Ltd (together, **Globaltech**), had infringed claims in the Patent. The claims in suit were claims 1-4, 7-10, 16-17, 21-24, 27-28 and 65 (described in the Patent as method claims) and claims 33-40, 46-48, 54 and 65 (described as system claims) (the **claims in suit**). The Globaltech tools that were alleged to infringe the claims in suit are known as Orifinder tools. They consist of two components, known as an Oritool and an Oripad. There are, and have been, various versions of the Orifinder tool. The versions of the Orifinder tool that were, at first instance, alleged to infringe the claims in suit are known as the Orifinder v3A, the Orifinder v3B and the Orifinder v5 respectively. On appeal, only the Orifinder v5 is relevant.
3. At first instance, Globaltech filed a cross-claim challenging the validity of the claims in suit on a number of grounds.
4. Before trial, the primary judge made an order that issues of liability be heard and determined before issues of the quantum of any relief.
5. The version of the *Patents Act 1990* (Cth) and the *Patents Regulations 1991* (Cth) that is relevant is that in force prior to the ‘Raising the Bar’ amendments passed in 2012: see the *Intellectual Property Laws Amendment (Raising the Bar) Act 2012* (Cth).
6. The major issues in the infringement action at first instance concerned the construction of the claims in suit. The construction issues were also relevant to certain of the validity arguments. The primary judge resolved the construction issues in AMC’s favour. It followed that Globaltech’s Orifinder tools infringed the claims in suit and that, to the extent that Globaltech’s validity arguments depended on the construction issues, those arguments were rejected. The primary judge also rejected the other grounds upon which Globaltech contended that the Patent was invalid.
7. Globaltech appeals from part of the judgment of the primary judge. Globaltech challenges the primary judge’s approach to construction of the claims in the Patent and his conclusion that the Orifinder v5 infringed the claims in suit. Globaltech contends that, if the primary judge had properly construed the claims, in the manner identified by Globaltech, the primary judge would have found and held that the Orifinder v5 did not infringe the Patent. Globaltech also contends that the primary judge erred in finding and holding that the claims were clear, and in finding and holding that the claims were fairly based.
8. For the reasons that follow, in our view no error is shown in the primary judge’s construction of the claims in suit. It follows that no error is shown in the primary judge’s conclusion that the Orifinder v5 infringed the claims in suit. We also reject the other grounds raised by Globaltech on appeal. Accordingly, the appeal is to be dismissed.

## The Patent

1. The claims in the Patent claim priority from 3 September 2004 (the **Priority Date**). There was an issue at first instance as to whether this was the correct Priority Date. The primary judge found that 3 September 2004 was the correct Priority Date, and that finding is not challenged on appeal.
2. The following description of the Patent is substantially based on the description in the reasons for judgment of the primary judge (the **Reasons**). None of the parties took issue with that description.
3. The Abstract in the Patent describes a core orientation device by reference to Figure 1, and the way in which the device operates to provide a measure of the physical orientation of the device at a particular moment in time.
4. The Field of the Invention is said to relate to core sample orientation. More specifically, the invention relates to an orientation device for providing an indication of the orientation of a core sample relative to a body of material from which the core has been extracted, and also to a method of core sample orientation identification.
5. The specification contains a section titled “Background Art”, which commences with a statement that there is a need for core sampling in geological surveying operations. The section proceeds to describe conventional core drills and how they are operated to obtain core samples. It states that core drilling operations are typically performed at an angle to the vertical and that it is desirable for the purposes of analysing the sample to have an indication of the orientation of the core sample relative to the ground from which it is extracted. It states that it is, therefore, important that there is some means of identifying the orientation which the core sample had within the ground prior to it being brought to the surface. Core orientation devices are used to provide an indication of the orientation of the core sample.
6. The specification states that a common way of obtaining an indication of the orientation of a core sample is through the use of an orientation spear comprising a marker, such as a crayon, projecting from one end of a thin steel shank, the other end of which is attached to a wire line. The description of how the orientation spear is used to mark the core sample is as follows:

The orientation spear is lowered down the drill hole, prior to the inner tube assembly being introduced. The marker on the orientation spear strikes the facing surface of material from which the core is to be generated, leaving a mark thereon. Because of gravity, the mark is on the lower side of the drill hole. The inner tube assembly is then introduced into the outer tube assembly in the drill hole. As drilling proceeds, a core sample is generated within the inner tube assembly. The core sample so generated carries the mark which was previously applied. Upon completion of the core drilling run and retrieval of the core sample, the mark provides an indication of the orientation of the core sample at the time it was in the ground.

1. The specification states that there are also mechanical core orientation devices for marking a core sample prior to its extraction from the drill hole. Unlike the orientation spear, which is used before the inner tube assembly is introduced into the drill, the mechanical devices are typically adapted to be incorporated in the inner tube assembly for marking the core. An example of such a mechanical orientation device is said to be that disclosed in WO 03/038212. This reference number in the specification is incorrect. It should be WO 03/038232. This is the Ezy-Mark device which the primary judge describes in the Reasons.
2. The specification states that it is against this background, and the problems and difficulties associated therewith, that the invention has been developed.
3. The specification then contains a section entitled “Disclosure of the Invention”. Before discussing this section, it is convenient to set out the two relevant independent claims in the Patent and the two claims that immediately follow them, namely, claims 1 and 2 (method claims) and claims 33 and 34 (system claims). Claim 1 comprises an introductory phrase followed by five descriptive phrases that are indented from the margin. For ease of reference, the primary judge referred to these five descriptive phrases as “steps”. We will adopt the same approach.
4. Claim 1 is as follows:

1. A method of providing an indication of the orientation of a core sample relative to a body of material from which the core sample has been extracted, the method comprising:

drilling a core sample from a body of material with a core drill having an inner tube; (**step 1**)

recording the orientation of the inner tube at predetermined time intervals during said drilling, the time intervals being referable to an initial reference time; (**step 2**)

inputting the specific time beyond the reference time representative of when the core sample was separated from the body of material; (**step 3**)

removing the inner tube, with the core sample held therein in fixed relation to it, from the body of material; (**step 4**) and

relating the inputted specific time to the recorded time intervals to obtain an indication of the orientation of the inner tube and consequently the core contained therein at the specific time. (**step 5**)

(Bold text not in original.)

1. Claim 2 is as follows:

2. A method as claimed in claim 1, comprising:

producing signals to indicate the orientation of the inner tube at any instant in time during said drilling;

processing the signals to determine data indicative of the orientation of the inner tube at various instants in time;

inputting a time measurement representative of the instant in time when the core sample is separated from the body of material and first held in fixed relation thereto; and

comparing the inputted time measurement to the instants in time and identifying the data indicative of the orientation of the inner tube and consequently the core sample at the instant in time.

1. Although not one of the claims in suit, AMC relied at trial (and relies on appeal) on claim 6 in connection with the construction arguments. Claim 6 is in the following terms:

6. A method as claimed in any one of claims 2 to 5, wherein the instant in time is representative of a duration of time relative to the initial reference time.

1. Claim 33 is as follows:

33. A core orientation system for providing an indication of the orientation of a core sample relative to a body of material from which the core sample has been extracted using a core drill, the core drill having an inner tube, the system comprising:

means for recording the orientation of the inner tube at predetermined time intervals during drilling by the core drill, the time intervals being referable to an initial reference time, and for inputting the specific time beyond the reference time representative of when the core sample was separated from the body of material; and

means for relating the inputted specific time to the recorded time intervals to obtain an indication of the orientation of the inner tube and consequently the core contained therein at the specific time.

1. Claim 34 is as follows:

34. A system as claimed in claim 33, comprising:

means for providing signals associated with the physical orientation of the inner tube of the core drill during drilling;

input means for inputting into the system a time measurement indicative of the time during drilling when the core sample is detached from the body of material from which it is taken and held in fixed relation to the inner tube;

one or more processing means for processing the signals to produce data indicative of the orientation of the inner tube;

one or more processing means for processing the data produced and the inputted time measurement to produce an indication of the orientation of the core sample relative to the material from which it is detached; and

display means for the indication of the orientation of the core sample relative to the material from which it is detached.

1. AMC contended at trial that claim 33 is a product claim, rather than a method claim, because the system to which the claim is directed is “a set of interacting components forming an integrated whole for a specific purpose, being in this case to orient a core sample”: Reasons, [26].
2. Returning to the section of the specification titled “Disclosure of the Invention”, the first paragraph identifies what is said to be the first broad aspect of the invention and it is in the same terms as claim 1. There then follows a series of consistory clauses for the rest of the method claims. The same observations apply to the disclosure of the invention insofar as it relates to the system claims, which is described in the specification as the second broad aspect of the invention. The third broad aspect of the invention is a core drill having a core orientation system according to the second broad aspect of the invention, and the fourth and final broad aspect of the invention is a combination of the method and system aspects of the invention.
3. The specification includes six drawings, which are described as Figures 1 – 6. It contains a brief description of each of the drawings, which depict one specific embodiment of the invention.
4. The final part of the body of the specification sets out the “Best Mode(s) for Carrying Out the Invention”. The primary judge referred to this as the “best method section”, and we will refer to it in the same way. This part of the specification extends over nine pages and refers to features that are shown in the drawings and are identified by numbers.
5. The best method section describes the core orientation device, the inner tube assembly, the outer tube assembly, and the relationship between these parts. According to the embodiment, the physical orientation of the core orientation device comprises rotational orientation about a longitudinal axis of the device. As AMC pointed out, this is referred to in the evidence as the “roll” orientation or “high side” orientation. Subject to some modifications that are not presently material, the core drill is described as being of conventional construction and operating in a conventional way.
6. The best method section contains a description of the process of using the core orientation device. The description begins with a reference to a “first step” which comprises moving the core drill, having the core orientation device forming part thereof, from a first location to a drilling location. The best method section refers to a “reference time” and contains a statement to the effect that the reference time corresponds to the time at which the core orientation device is started, and from which successive one minute intervals are timed.
7. The best method section states that in “this embodiment”, the core orientation device is started by pressing a particular key on the keypad. The best method section continues as follows:

It is also necessary to record the time duration between starting the core orientation device 10 and extracting the core sample. Typically this is achieved by starting an external stop watch at the time of starting of the orientation device 10. Other arrangements are of course possible.

The stop watch is started at the time that the orientation device 10 displays a signal on the display 31 indicating that operation of the orientation device 10 has started. This provides for added accuracy.

Once the orientation device 10 has been started and recording of the subsequent time duration commenced, the inner tube assembly 36 is inserted into a drill hole for reception in the outer tube assembly 13, and the core drilling operation commenced. During the drilling operation, a core is progressively generated within the inner tube assembly, as previous explained.

When the core is to be extracted, the core drill operator refers to the timer and notes the time duration involved. Specifically, the operator either notes the full minute that has previously elapsed or waits until the next full minute elapses, and then records that time (as it must be recalled later).

1. A little later in the best method section, there is a statement that, in the particular embodiment described, the core orientation device is rotated to reflect the measure of the orientation. This is achieved by inputting the time duration, as measured by the external stop watch, into the orientation device using the keypad. The section provides that the time measurement measured by the operator and entered into the keypad represents the duration of time between starting the orientation device and the point at which the particular drilling process was terminated in order to fracture the core sample from the body of material to which it is attached.
2. The third and second to last paragraphs of the body of the specification are in the following terms:

From the forgoing (sic), it is evident that the present invention provides an orientation device which does not require physical marking of a core sample prior to extraction thereof from the ground. Indeed, the orientation device according to the embodiment is particularly convenient for an operator to use. All that is required is for the operator to start the orientation device prior to the inner tube assembly 36 being inserted into the drill hole, and contemporaneously start a timer for recording the time duration before the drilling operation ceases to allow the generated core sample to be retrieved.

Modifications and improvements may be made without departing from the scope of the invention. For example in other embodiment the physical orientation does not comprise a rotational orientation but rather a measure of degrees above or below the horizontal plane.

## The proceeding at first instance

1. AMC called two experts at trial, Professor Jonathan Tapson and Mr Kelvin Brown. Globaltech also called two experts at trial, Mr Michael Ayris and Mr Adrian Edmonds. Each expert gave evidence-in-chief by affidavit. The parties formulated a list of issues before trial and each expert addressed the issues in a joint experts’ report.
2. Globaltech also called Dr Erik Blake, who gave evidence as to the facts and some expert evidence, and Mr Khaled Hejleh, the managing director of Globaltech Corporation Pty Ltd. Globaltech tendered an affidavit of Anthony Pullen, a patent attorney. Mr Pullen was not required for cross-examination.

## The Reasons of the primary judge

1. In the first part of the Reasons, which were published on 26 November 2018, the primary judge outlined the issues and provided a description of the Patent, which is largely reproduced above.

### Witnesses

1. The primary judge next identified the witnesses and summarised the qualifications and experience of the four experts who gave evidence in joint session. In relation to Professor Tapson, the primary judge noted, at [57], a submission by Globaltech that Professor Tapson had little experience in core orientation before the Priority Date. The primary judge said that it was true that Professor Tapson’s practical experience before the Priority Date was in *drill* orientation, but that Professor Tapson gave evidence, which the primary judge accepted, that that field is extremely close to *core* orientation. The primary judge said that it was also true that: Professor Tapson became aware of the orientation spear, Ezy-Mark and Ballmark devices (which are discussed in the Reasons) after the Priority Date; that he became aware of scribe knife methods after the Priority Date; and that he had no practical experience in drilling for oil and gas. The primary judge said that he had taken those matters into account in assessing Professor Tapson’s evidence. The primary judge stated that, generally, Professor Tapson’s evidence of the matters about which he had informed himself was reliable: Reasons, [57].
2. The primary judge also noted that it was suggested by Globaltech that Professor Tapson had a close association with AMC. The primary judge stated that it was true that Professor Tapson had acted for a number of years as an expert for AMC or its parent company, Imdex Pty Ltd. The primary judge stated that he had taken into account the fact that Professor Tapson had given evidence in previous proceedings and, in that sense, had had a long association with the family of patents that included the Patent. However, the primary judge was not persuaded that Professor Tapson’s independence had been compromised: Reasons, [59].
3. In relation to Mr Brown, after setting out his qualifications and experience, the primary judge noted Globaltech’s submission that Mr Brown’s evidence should be treated with some caution because of his employment relationship with Reflex Instruments Asia; Globaltech also asked the primary judge to take into account that Mr Brown had no practical experience in oil and gas. The primary judge stated that he had taken those matters into account and had, nevertheless, formed the view that Mr Brown was a good witness with considerable practical knowledge and experience in the relevant field. The primary judge considered Mr Brown’s evidence to be helpful. The primary judge did not consider that Mr Brown’s relationship with Reflex Instruments Asia coloured his evidence in any way: Reasons, [79].
4. The primary judge set out the qualifications and experience of Mr Ayris. The primary judge noted that AMC was critical of Mr Ayris’s failure to disclose that his business had been a distributor of orientation tools that either allegedly infringed the Patent or did, in fact, infringe other related patents. At trial, Mr Ayris acknowledged that he had an interest in the Patent being found to be invalid. The primary judge took this into account in assessing Mr Ayris’s evidence: Reasons, [97].
5. The primary judge also set out the qualifications and experience of Mr Edmonds.

### The person skilled in the art

1. The primary judge set out the applicable principles relating to the identification of the ‘person skilled in the art’ by referring to the leading authorities. Applying the principles, and having regard to the evidence given by the experts, the primary judge concluded that the person or persons skilled in the art would have experience or knowledge in electronics, software and drilling. The primary judge was of the opinion, on the balance of probabilities, that one person was unlikely to have all of the requisite experience and knowledge, and that it was more likely that the relevant ‘person’ would be a team of two, or possibly more, persons: Reasons, [113]. The primary judge considered that each of the four experts had varying levels of expertise relevant to areas or aspects of the task: Reasons, [114].

### The field of the invention

1. The main area of dispute at trial in relation to the field of the invention was whether the field was restricted to mineral exploration, or whether it also included petroleum exploration. This was relevant to determining the common general knowledge and prior art the skilled addressee would have and would consider relevant. The primary judge concluded that the field of the invention was mining for minerals: Reasons, [124].

### Common general knowledge

1. After setting out the applicable principles regarding the issue of ‘common general knowledge’, the primary judge described the relevant common general knowledge at [128]-[159] of the Reasons.
2. Relying on the evidence of Mr Brown, the primary judge described the core sample orientation process as follows, at [129]:

Core sample orientation is a process of obtaining and marking the orientation of a core sample from a drilling operation. The core is typically a solid cylindrical core of approximately three metres. Core orientation procedures are required to be carried out because, once detached from its parent rock and retrieved to the surface, the recovered sample will not reflect its original orientation underground. In order to reorientate the sample, it is typically necessary to include an orientation tool in the drilling assembly unit between the greaser unit and the inner core tube holding the core sample. The purpose of the orientation tool is to indicate the orientation of the core sample in its original underground orientation and provide that orientation data to the operator. The process of orientating drill samples allows geologists to correlate recovered samples with one another to reveal trends in rock strata and predict whether resource mining is worthwhile, and if so, where, in what direction, and how deep below the surface. Core orientation is an important process as it allows geologists to build a three-dimensional profile of subsurface resource deposits, such as iron ore or diamonds. As metal bearing deposits are often determined by the structural compositions of their enclosing rocks, it is important for the geologists to understand the structural elements in order to estimate the likely location of mineral bearing ore deposits and once located, determine the likely position, size and composition of the deposit. If a valuable ore seam is found, it is vital that the core has been orientated properly so that a true picture of the ore body can be investigated, located and estimated.

1. The primary judge set out the following summary of downhole instrumentation at [132], based on the evidence of Mr Ayris:

Mr Ayris gave a helpful summary of downhole instrumentation which I accept. He said that the term referred to all kinds of tools that were used down boreholes and those tools included survey tools, core orientation tools, drilling tools, geophysical probes and gyroscopes. Mr Ayris said that a survey tool was a tool that provided information to plot borehole trajectory and path, usually including azimuth and direction and usually using a compass or a gyroscope or other deviation methods. He said that a core orientation tool was one that provided information as to the orientation of a core sample drilled from a borehole. He said that core orientation did not generally require a measurement of azimuth or direction. Mr Ayris described a drilling tool as a tool that has a drilling bit to cut or bore a hole.

1. The primary judge expressed the view, at [139], that the skilled addressee, in this case a team, would have a member who would have knowledge about core orientation tools and survey tools. The primary judge considered whether the team would have known about tools used in oil and gas. His Honour concluded that he was not satisfied that the team would have known about tools used in oil and gas, or at least would have had a detailed knowledge of such tools: Reasons, [141].
2. The primary judge found that, at the Priority Date, there were a number of mechanical core orientation devices that were known or used in Australia. These were the Downhole Spear, the Ezy-Mark device and the Ballmark device: Reasons, [143]. These devices were described in the following terms at [144] of the Reasons:

A general description of how all of these devices worked is that they mark the front-end of the core, that is to say, the end at which the drilling starts, rather than the back-end, that is the point where the drilling finishes. This distinguishes each of the devices from the device identified in the Patent and the Globaltech device. All of the devices were gravity-based contact tools which means that they would not function if they were unable to make contact with the stub of the core. In addition, all of these devices marked the low side, rather than the high side of the core.

1. The primary judge noted that the four experts were asked about their knowledge of electronic core orientation devices before the Priority Date. Only Mr Ayris said he was aware of a device, namely the Eastman Multishot. Despite his knowledge of its potential use as a core orientation tool, Mr Ayris had never used the Eastman Multishot tool in this way. The primary judge stated that there was no evidence that the tool was used in Australia as a core orientation tool: Reasons, [149].
2. At [150], the primary judge noted that the experts agreed that the term ‘single-shot’ refers to an instrument that makes a single recording (photographic or electronic) of survey data, and needs to be returned to the surface to be reset before it can make further recordings; by contrast, a ‘multi-shot’ instrument makes multiple recordings at fixed time intervals.
3. The primary judge noted, at [151], that there were electronic survey tools available at the Priority Date. The primary judge discussed the experts’ knowledge of these tools and how they worked. At [158], the primary judge stated that the experts as a group gave evidence that: the use of electronic multi-shot survey tools would have involved logging time on the surface; and this might have required the starting of two clocks simultaneously or a continuously running surface clock might have been used, by noting the time on the clock at various times in the survey.

### Infringement

1. The primary judge considered the issue of infringement at [160]-[333]. After noting that AMC’s case was that each of the relevant Orifinder tools (Orifinder v3A, v3B and v5) infringed the claims in suit, his Honour noted that the Orifinder v5 was the focus of AMC’s infringement claim. His Honour stated that the principal issue on AMC’s infringement claim was the proper construction of the claims in suit. As the appeal is concerned only with the Orifinder v5, it will be sufficient for present purposes to refer to the parts of the Reasons that relate to that tool.
2. At [163], the primary judge introduced the main construction issue. His Honour noted that Globaltech contended that, on the proper construction of the claims in suit, the Orifinder v5 did not fall within the claims. His Honour stated that, “[p]utting the matter broadly at this stage, Globaltech contends that the claims in suit all require the use of synchronisation with predetermined time intervals to determine the orientation of a core sample”. (The concept of synchronisation is discussed later in the Reasons, as set out below.) The primary judge noted that AMC appeared to accept that, if Globaltech’s construction of the claims in suit was the correct one, then the Orifinder v5 did not infringe those claims.
3. The primary judge described how the Orifinder v5 works at [171]-[179] of the Reasons. The primary judge noted that the experts addressed the features of the Orifinder v5 in the joint experts’ report. At [172], the primary judge set out the following description from the joint experts’ report of how the Orifinder v5 records orientation measurements:

The V5 Orifinder has four modes according to the Amended Product Description, and five according to its User Guide. The four modes are Hibernation, Standby, Running, and Orientating; the User Guide refers also to a Sleep mode. Hibernation mode extends the battery life when on the shelf. It switches from Hibernation to Standby when subject to movement, and goes back to Hibernation when in Standby and not subject to movement for four hours. On the surface, the Oritool is typically in Standby mode. When switched from Hibernation to Standby mode, the Oritool’s RTC (Real Time Clock) starts up from the factory reset value. *The Oripad RTC is always running and hence reflects the time since it was powered up with batteries. This means that the RTCs in Oripad and Oritool do not reflect the same starting time.*

The Oripad is switched on and then used to switch on the Oritool, which goes from Standby to Running mode. *This Oritool uses a watchdog timer (WDT), which starts up in Running mode. The WDT counts 12 mini-cycles of approximately 2 seconds each and performs an orientation measurement at the end of each approximately 24 second cycle.* Each of these measurements is time-stamped with the time of the Oritool RTC and stored in memory.

(Emphasis added by the primary judge.)

1. The primary judge also set out the following description from the joint experts’ report as to how the Orifinder v5 determines core orientation:

*When the driller wants to break the core, he stops the drill. The time of core break is recorded by pressing the “Mark” button on the Oripad – this triggers a Wait period of 33s, and then the time is recorded from the Oripad RTC (the Wait expiry timestamp).* When the Oritool is returned to the surface, the Oripad communicates with the Oritool and sets it into Orienting mode (this is started by pressing “Find” on the Oripad). At this time the Oritool stops recording data. *The Oripad sends the elapsed time since core break to the Oritool (the time since the Wait expiry timestamp), and the Oritool subtracts that elapsed time from its current RTC time to establish at what time on its RTC the core break happened.* It then recovers the most recent orientation data prior to core break and uses that as the core orientation data.

The user then rotates the Oritool, which is still connected to the core via the inner tube, and observes the flashing of its red LED, which flashes faster as the tool gets closer to the correct orientation angle, and then lights up continuously when the angle is correct. The Oritool performs this function by using its accelerometers to measure the current orientation of the tool and compare it to the original downhole orientation, and represent the difference by means of the flashing LED.

(Emphasis added by the primary judge.)

1. The primary judge stated that he had emphasised the features of the Orifinder v5 that were said to mean that it falls outside the terms of claim 1. The primary judge stated that there were three features of the Orifinder v5 that Globaltech submitted had the consequence that it falls outside the terms of claim 1. Only the first of these features is relevant for the purposes of the appeal. The primary judge summarised Globaltech’s submissions in this regard at [174]:

[Globaltech submitted that] claim 1 in the Patent is limited to a synchronised system and the Orifinder v5 does not employ such a system. As the experts have said in the case of the Orifinder V5, the Oripad sends *the elapsed time* since core break to the Oritool (the time since the Wait expiry timestamp), and the Oritool *subtracts that elapsed time from its current RTC (Real Time Clock) time to establish at what time on its RTC the core break happened.* As I will explain, unlike the Orifinder v3A, the respective RTCs in the Oripad and Oritool are not synchronised at the beginning of the process.

1. The primary judge noted that claims 1 and 33 are independent claims and the other claims are dependent claims. It follows that, if Globaltech has not infringed claim 1 on the basis that claim 1 is limited to methods involving synchronisation, then none of the dependent claims are infringed. The primary judge noted that the same issues arise in relation to claim 33 and its dependent claims, subject to one matter. That matter is not relevant for the purposes of the appeal.
2. The primary judge noted that Globaltech put additional arguments in relation to claims 2, 16 and 34. Globaltech does not challenge the primary judge’s conclusions in respect of these arguments. They can, therefore, be put to one side for the purposes of the appeal.
3. The primary judge set out the relevant principles for the construction of claims, referring to *Welch Perrin & Co Pty Ltd v Worrel* (1961) 106 CLR 588 (***Welch Perrin***) at 610; *Kimberly-Clark Australia Pty Ltd v Arico Trading International Pty Ltd* (2001) 207 CLR 1 (***Kimberly-Clark v Arico***) at [24]; *Jupiters Ltd v Neurizon Pty Ltd* (2005) 222 ALR 155 (***Jupiters v Neurizon***) at [67]; and *H Lundbeck A/S v Alphapharm Pty Ltd* (2009) 177 FCR 151 at 118-120. In addition to these statements of general principle, the primary judge referred to the principle of construction that claims in a patent are not to be narrowed by reference to the preferred embodiment, citing *Rehm Pty Ltd v Websters Security Systems (International) Pty Ltd* (1988) 81 ALR 79 (***Rehm v Websters Security Systems***) at 89. The primary judge also referred, at [184] of the Reasons, to the principle that it is not legitimate to construe a claim with reference to the alleged infringement, citing *CCOM Pty Ltd v Jiejing Pty Ltd* (1994) 51 FCR 260 (***CCOM v Jiejing***) at 267-268.
4. Under the heading “The Main Construction Issues”, the primary judge discussed three issues. Only the first of these issues, described as “Synchronisation”, is relevant for the purposes of the appeal.
5. In relation to this issue, the primary judge stated that there was no dispute that the method in claim 1 requires two timers, one in the downhole device and the other on the surface. His Honour also stated that it was not in dispute that inputting the specific time referred to in step 3 is an act carried out by the operator on the surface: Reasons, [185].
6. The primary judge then referred to the concept of ‘synchronisation’, as used in Globaltech’s defence and particulars of invalidity on the cross-claim. In these documents, Globaltech used the term ‘synchronisation’ to refer to a timer on the surface being *started contemporaneously* with the timer of the orientation device: Reasons, [186]-[187]. For example, the method adopted when a stop watch is used (as per the best method for carrying out the invention) may be described as ‘synchronisation’.
7. The primary judge also referred to the concept of ‘time correlation’. The use of two timers where the two timers are not started at the same time and then counted forward at the same rate might be called ‘time correlation’: Reasons, [188]. For example, there might be time correlation between two timers (A and B) if the time on an already running timer is recorded.
8. A further expression referred to by the primary judge is an ‘offset’. In order to identify what was meant by an ‘offset’, at [192] the primary judge set out the following passage from Professor Tapson’s evidence:

Suppose that the preferred embodiment described on pages 18 to 20 of the Patent were implemented with a clock indicating Greenwich Mean Time (GMT) in place of the stopwatch referred to in page 19, 1st paragraph. The operator notes the GMT time when he/she starts the orientation device (10) and notes the GMT time when he/she initiates core break (cf. Patent, page 18, 6th paragraph to page 19, 2nd paragraph). The operator determines the difference between the former GMT time and the latter GMT time, in minutes (cf. Patent, page 19, 4th paragraph). The operator inputs the time difference into the orientation device (10) through keypad (72) (cf. Patent page 19, 6th paragraph to page 20, 1st paragraph). This inputted specific time is representative of core break.

The operator has used the difference between two points in time (i.e., the two GMT times) to determine the inputted specific time, instead of using a stopwatch that is started contemporaneously with the orientation device (10). For that reason, the embodiment I have just described is not a “Synchronised Surface Timer” as that term is defined by the Respondents.

In the last sentence of the above passage, reference is made to a “Synchronised Surface Timer”. This expression is used in various places in the Reasons. It appears from [186] of the Reasons, which includes a quotation from Globaltech’s Particulars of Invalidity on the cross-claim, that the expression “Synchronised Surface Timer” refers to a timer at the surface that is started contemporaneously with the timer of the orientation device prior to the inner tube assembly being inserted into the drill hole.

1. At [195]-[197] the primary judge summarised the rival construction contentions:
2. Globaltech’s primary contention was that the claims are restricted to synchronisation. The primary judge treated this contention as referring to ‘synchronisation’ in the sense described in [60] above (although, as the primary judge recognised, there was a debate as to the meaning of synchronisation).
3. Globaltech’s secondary contention was that claim 1 is limited to synchronisation and time correlation where the two timers are counting forwards and the relevant calculation is made from the start to the relevant point, which is core break. While acknowledging that it was somewhat imprecise, the primary judge referred to this construction as “counting forwards” (an expression used in the evidence and submissions).
4. AMC submitted that, although claim 1 is limited to synchronisation and time correlation, the latter phrase means where two timers are used and the relevant calculation is made *either* from the start to the relevant point *or* from the end back to the relevant point. While again acknowledging that it is somewhat imprecise, the primary judge referred to this construction as “counting forwards or backwards”.
5. The primary judge considered the body of the specification at [203]-[204] of the Reasons. His Honour did not consider it to provide a great deal of assistance.
6. The primary judge referred to Mr Ayris’s opinion to the effect that claim 1 is limited to synchronisation. (The primary judge treated this evidence as referring to ‘synchronisation’ in the sense described in [60] above). The primary judge did not consider this construction to be correct, for the following reasons (at [207]):

I do not consider that Mr Ayris is correct in construing claim 1 as limited to synchronisation. The word “synchronisation”, is not used in the body of the Specification or in the claims. The reference in the best method section to other arrangements being possible (i.e., other than an external stop watch) suggests, at the least, the use of a clock or wristwatch, neither of which would involve synchronisation. Neither Professor Tapson nor Mr Edmonds considered that synchronisation in a strict sense was a necessary feature of the claims. Finally, there does not appear on the whole of the evidence to be any reason why claim 1 would be limited to synchronisation.

1. The primary judge then turned to what he considered to be the more substantial argument, namely whether Globaltech’s second construction argument (i.e., synchronisation and counting forwards) or AMC’s construction argument (i.e., synchronisation and counting forwards or backwards) is correct.
2. Before turning to the evidence and the words of claim 1, the primary judge dealt with two particular submissions made in relation to AMC’s experts, Mr Brown and Professor Tapson: see the Reasons at [209]-[238].
3. The primary judge then directly addressed the main construction issue, at [239]-[266]. At [241], the primary judge stated that, in his opinion, the issue turned primarily on the meaning of certain words and phrases in steps 2, 3 and 5 of claim 1 and, more particularly, the phrases “predetermined time intervals” and “initial reference time” in step 2, and “inputting the specific time beyond the reference time” and “representative” in step 3.
4. In relation to the words “predetermined time intervals” and “initial reference time” in step 2, the primary judge set out the parties’ contentions, then reasoned as follows:

248 The construction issues in this case are by no means easy. At first blush, there is a good deal of attraction in Globaltech’s submission that in a context in which it is agreed on all sides that the method involves two timers, one on the surface and one in the hole, the reference to “initial reference time” would suggest a time to which both timers referred, and in its submission that in practical terms the only context provided by the Specification in the best method section and its reference to a synchronised or at least counting forwards method.

249 It seems to me that the meaning of “initial reference time” in step 2 is linked to the construction of the next step and, because of that link, I will set out my reasons in that context. I have reached the conclusion that the initial reference time includes the starting of a timer in the downhole device and may, but there is no requirement that it must, also be the time at which the surface timer starts or a note of the time it shows is made. Predetermined time intervals are part of the methods or systems in the Orifinder v3B and Orifinder v5 just as they are part of a synchronised system or counting forwards.

1. In relation to the words “inputting the specific time beyond the reference time” and “representative” in step 3, the primary judge set out the rival submissions and discussed the evidence of the experts. His Honour concluded his reasoning on this aspect as follows:

258 I do not accept the opinions expressed by Globaltech’s experts. In my opinion, their construction involves reading words into the claims. There are recordings of the orientation taken at predetermined time intervals in the case of the Orifinder v3B and Orifinder v5 and those time intervals are referable to an initial reference time being the start of the timer in the device. They are referable to the initial reference time in the sense of initial reference time plus, for example, 1 minute and then a further minute and so on. As I have said, Mr Edmonds agreed that pressing the MARK button as is done with the Orifinder v3B and Orifinder v5 is inputting a specific time as per the words of step 3. Mr Edmonds placed emphasis on the word “beyond” and said that “it needs to know what the initial reference time is, to know that it’s beyond it”. I do not accept this opinion. In my opinion, “beyond” means no more than after and the operator would know that step 3 was carried out after the initial reference time. This conclusion is supported by claim 6, which is not a claim in suit. It refers to a duration of time. It is a narrower claim than claim 1. I reject Globaltech’s submission that claim 6 is no more than a widening of claim 2.

259 Step 3 requires the specific time beyond the reference time to be *representative of when the core sample was separated from the body of material*. The dispute between the parties on this issue is between, on the one hand, a time which is representative of an event which is a process and of which the person required to perform the act of inputting cannot know for certain, which is AMC’s construction, and an exact time or specific time, which is Globaltech’s construction. Professor Tapson gave evidence in support of AMC’s construction and, in my opinion, it is the preferable construction.

1. The primary judge then discussed step 5 and some of the expert evidence in relation to that step. In relation to the main construction issue, his Honour concluded as follows (at [265]):

In conclusion, the claims are not limited to the use of a Synchronised Surface Timer and the major issue is whether the claims are limited to a method which counts forwards or includes a method that counts forwards or backwards. I accept Professor Tapson’s evidence that “initial reference time” in step 2 includes the start of the timer in the downhole device. I do not see any reason to limit the phrase to the start of two timers or the start of one timer and the recording of the time shown on another timer. I accept the evidence, particularly in light of the acknowledgments or concessions made by Mr Edmonds, that the Orifinder v5 involves an inputting of a specific time within step 3 and falls within step 5 when that step is considered alone. That really leaves for consideration the word “beyond” in the phrase “beyond the reference time” in step 3. I do not think it means anything more than after or later than.

1. His Honour stated that, in his opinion, subject to issues 2 and 3 (which are not presently relevant) all three Orifinder tools fell within claim 1: Reasons, [266]. Issues 2 and 3 were determined against Globaltech, thus leaving intact the conclusion provisionally expressed in [266] that all three Orifinder tools fell within claim 1.
2. His Honour then considered Globaltech’s submissions that, if claim 1 is not restricted to a Synchronised Surface Timer or counting forwards, then the claims lack clarity, internal fair basis and utility. On appeal, Globaltech challenges his Honour’s conclusions in relation to lack of clarity and lack of fair basis, but not his conclusion in relation to lack of utility. That aspect can, therefore, be put to one side.
3. In relation to *clarity*, the primary judge referred to *Monsanto Co v Commissioner of Patents* (1974) 48 ALJR 59 (***Monsanto***), and stated at [286]:

It seems to me that I have answered the clarity point in the course of my discussion on construction. It is common ground that there must be two timers, one on the surface and one in the downhole tool. Step 3, inputting the specific time, is performed on the surface. The claim is limited to a Synchronised Surface Timer and counting forwards or backwards.

1. There is a difference between the parties on appeal as to the correct interpretation of the last sentence of the above paragraph. Globaltech submits that his Honour was saying that claim 1 requires the presence of *both* a Synchronised Surface Timer *and* a system of counting forwards or backwards. AMC submits that the last sentence is referring to alternatives, each of which is within the claim. Read in the context of the Reasons as a whole, AMC’s submission is clearly correct. It would be inconsistent with the whole thrust of the earlier reasoning (see, eg, [207], [249], [265]) to read the last sentence of [286] as a conclusion that claim 1 requires *both* a Synchronised Surface Timer *and* a system of counting forwards or backwards. It is clear, in our view, that his Honour was referring to alternatives, either of which would fall within claim 1.
2. In relation to *fair basis*, the primary judge noted Globaltech’s submission that if the claims in suit are not limited to a Synchronised Surface Timer and counting forwards and include, for example, the method or system of the Orifinder v5, then there is no real and reasonably clear disclosure in the body of the specification as to what is claimed: Reasons, [287]. The primary judge referred to *Lockwood Security Products Pty Ltd v Doric Products Pty Ltd* (2004) 217 CLR 274 (***Lockwood (No 1****)*) at [68]-[69] and [99] and *Sigma Pharmaceuticals (Australia) Pty Ltd v Wyeth* (2011) 119 IPR 194 at [89]-[91]. The primary judge concluded that the lack of fair basis contention was not made out. His Honour stated that the claims follow the terms of the consistory clauses and there is nothing in any other part of the specification suggesting that the invention is narrower than what is set out in the consistory clauses: Reasons, [292].
3. The primary judge rejected a claim made by AMC for additional damages: Reasons, [328]-[333]. There is no cross-appeal from this aspect of the judgment.

### Validity

1. The primary judge dealt with Globaltech’s challenge to the validity of the Patent at [334]-[523] of the Reasons. The grounds of invalidity relied on by Globaltech and dealt with in this section of the Reasons were lack of novelty and lack of inventive step. The primary judge rejected each of these grounds. Globaltech does not challenge the primary judge’s conclusions on lack of novelty and lack of inventive step.

## Declarations and orders made by the primary judge

1. On 14 December 2018, the primary judge made declarations, including a declaration to the effect that Globaltech had infringed the claims in suit. The primary judge also made an order permanently restraining Globaltech from infringing the Patent in Australia during the term of the Patent, including by, without the licence of AMC, engaging in certain conduct specified in the order (paragraph 4 of the orders). The primary judge also made orders: for destruction of certain Orifinder tools (paragraph 6 of the orders); that there be an inquiry as to damages or profits (paragraph 8); and that Globaltech pay AMC’s costs of the proceeding to date (paragraph 9). Subsequently, the primary judge made a lump sum costs order in relation to these costs.

## The appeal

1. Globaltech appeals from part of the judgment given on 26 November 2018 and paragraphs 4, 6, 8 and 9 of the orders made on 14 December 2018. Out of an abundance of caution, Globaltech filed an interlocutory application seeking leave to appeal (and an extension of time in which to seek leave to appeal), in case the orders of the primary judge were considered interlocutory. At the hearing of the appeal, the Court granted Globaltech leave to appeal (and an extension of time) insofar as necessary.
2. The grounds in Globaltech’s notice of appeal (omitting particulars) are as follows:

1. The primary judge erred (at J [266]) in finding and holding that the Orifinder v5 infringed claims 1, 2-4, 7-10, 16-17, 21-24, 27-28, 33-40, 46-48, 54 and 65 of Australian Standard Patent No. 2010200162 (the **Patent**).

2. The primary judge erred in his approach to construction of the claims of the Patent.

3. The primary judge erred in finding and holding (J [207], [258], [259]) that claim 1 was not limited to a system involving two timers that each noted the same initial reference time at the beginning of drilling operations and counted from that time. Further:

(a) The primary judge erred in finding (J [207]) that claim 1 was not so limited because the specification and claims did not use the word “synchronisation”.

(b) The primary judge erred (eg. J [242]-[265]) in construing individual phrases (such as “initial reference time” and “inputting the specific time beyond the reference time”) in claim 1, rather than construing claim 1 having regard to all of its integers and the specification as a whole.

(c) The primary judge erred in finding (J [249], [258], [265]) that the “initial reference time” in step 2 of claim 1 included the start of the timer in the downhole device but did not necessarily refer to the start of the surface timer (cf J [286]).

(d) The primary judge erred in not construing the term “specific time”, despite commenting that “a question arises as to the meaning of ‘specific time’” (J [250]).

(e) The primary judge erred in finding (J [265]) that the Orifinder v5 involved the inputting of a specific time within step 3 of claim 1 and fell within step 5 of claim 1 “when that step is considered alone”.

(f) The primary judge erred in finding (J [258], [265]) that the word “beyond” in the phrase “beyond the reference time” in step 3 of claim 1 did not mean anything more than after or later than, such that the inputted specific time was not referable to the initial reference time.

(g) The primary judge erred by reading words into claim 1 to limit the initial reference time to only one of the two timers, being the downhole timer (cf J [247]).

(h) The primary judge erred in not accepting the opinions expressed by the Appellants’ experts (J [258]).

(i) The primary judge ought to have found that Professor Tapson’s evidence that “instants in time” in claim 2 were time-stamped data records (J [302]) supported the Appellants’ construction of claim 1 and that dependent claim 6 requires (as for claim 1) the inputting of a ‘specific time beyond the reference time’.

4. The primary judge ought to have found and held that the Orifinder v5 did not infringe claims 1, 2-4, 7-10, 16-17, 21-24, 27-28, 33-40, 46-48, 54 and 65 of the Patent.

5. The primary judge ought to have found and held that:

(a) When construed in the context of the specification as a whole and the state of the art, claim 1 is to a system involving two timers that each note the same initial reference time at the beginning of drilling operations (cf. J [248]).

(b) The only reasonable construction of the words “initial reference time” in claim 1 (cf. J [247]) is that they refer to the same time on each of the downhole timer and the surface timer, which does not involve reading words into the claim.

(c) The only reasonable construction of the words “inputting the specific time beyond the reference time” in claim 1 (cf. J [250 ff]) is that they refer to a time which is referable to the initial reference time, which does not involve reading words into the claim.

6. If the primary judge had properly construed claim 1 as contended for by the Appellants, the primary judge would have found and held that the Orifinder v5 did not infringe the Patent (J [163]).

7. The primary judge erred in finding and holding (J [286]) that the claims were clear.

8. The primary judge erred in finding and holding (J [292]) that, when the claims are construed as including systems that do not involve two timers that each note the same initial reference time at the beginning of drilling operations and count from that time, the claims were fairly based.

1. At the hearing of the appeal, Globaltech sought leave to amend its notice of appeal. The only change sought to be made was to insert the following particulars under ground 1:

(a) The primary judge erred in accepting the Respondent’s construction of claim 1 of the Patent (see paragraphs 2 to 6 below).

(b) Further or alternatively:

(i) having found that claim 1 of the Patent was “*limited to a Synchronised Timer Device and counting forwards and backwards*” (J [286]), the primary judge erred by failing to find that the Orifinder v5 did not infringe the Patent given his finding that the Orifinder v5 does not involve use of “*synchronisation*” (J [174]);

(ii) ...

Paragraph (b)(ii) has been omitted from the above quotation as Globaltech indicated at the hearing (and by email to the Court before the hearing) that it no longer sought to rely on that paragraph.

1. At the hearing of the appeal, we heard argument on whether leave to amend the notice of appeal should be granted, and on the additional particulars (if leave were granted). We indicated that we would deal with the application in our judgment. AMC did not oppose the application for leave to amend.
2. In relation to proposed paragraph (a), this merely picks up other grounds in the notice of appeal, and therefore does not add anything of substance. In relation to proposed paragraph (b)(i), this depends on a particular interpretation of the last sentence of [286] of the Reasons (set out at [74] above), namely that the primary judge found that claim 1 requires the presence of *both* a Synchronised Surface Timer *and* a system of counting forwards or backwards. However, for the reasons given at [75] above, we consider it clear that his Honour was referring to alternatives, each of which is within the claim. Accordingly, no useful purpose is served by granting leave to amend the notice of appeal, and the application for leave to amend the notice of appeal is to be dismissed.
3. AMC has filed a notice of contention, which relates to a matter raised in paragraph (b) of the particulars under ground 7 of the notice of appeal. That paragraph of the particulars reads:

Given the primary judge held that the method of claim 1 “is limited to a Synchronised Surface Timer and counting forwards or backwards” (J [286]), it is not clear to the person skilled in the art whether or not a product falls within the claim because the Orifinder v5 was found and held to fall within the claim even though it does not include a Synchronised Surface Timer.

1. This paragraph is premised on Globaltech’s interpretation of the last sentence of [286] of the Reasons. For the reasons given above, we reject that interpretation.
2. In its notice of contention, AMC states that if, by paragraph (b) of the particulars under ground 7, Globaltech contends that claim 1 is limited to a method involving the use of a Synchronised Surface Timer, being a surface timer that is started contemporaneously with a timer of a downhole orientation tool, AMC says that:
3. on a fair reading of the Reasons as a whole, his Honour found that claim 1 was not so limited (see, eg, the Reasons at [207], [249], [265]); and
4. in the alternative, his Honour ought to have found that claim 1 is not so limited.
5. It follows from our rejection of the premise of paragraph (b) of the particulars under ground 7 that the notice of contention falls away.

## The correct construction of claim 1 (grounds 1 to 6)

1. Grounds 1 to 6 of the notice of appeal all relate to the correct construction of claim 1 of the Patent. Both parties approached the construction issues on the basis that it was sufficient for the purposes of the appeal to construe claim 1 of the Patent. In brief summary, the contentions of the parties can be summarised as follows:
2. Globatech contends that the primary judge erred in his construction of claim 1. Globaltech submits that claim 1 requires both the surface timer and the downhole timer to count by reference to *the same initial reference time*, the surface timer to note a *specific time* when the core sample is separated from the body of material, which time corresponds to when the downhole timer takes an orientation measurement; these times are then ‘related’ to identify the orientation measurement taken at the time when the core sample was separated.
3. AMC supports the primary judge’s construction of claim 1. In summary, the primary judge held that the “initial reference time” in step 2 includes the start of the timer in the downhole device; it is not limited to the start of two timers or the start of one timer and the recording of the time shown on another timer (Reasons, [265]). His Honour also did not consider that the word “beyond” in step 3 means anything more than after or later than (Reasons, [265]). In other words, in his Honour’s view, claim 1 is not limited to a method that counts forwards; rather, it includes a method that counts forwards or backwards.
4. As grounds 1 to 6 all relate to the correct construction of claim 1, it will be convenient to deal with these grounds together, rather than each ground separately.

### Applicable principles

1. There is no dispute between the parties as to the principles concerning the construction of patent claims. It is sufficient, therefore, to refer to the following authorities.
2. In *Jupiters v Neurizon*, the Full Court of this Court (Hill, Finn and Gyles JJ) summarised the principles as follows (at [67]):

There is no real dispute between the parties as to the principles of construction to be applied in this matter although there is some difference in emphasis. It suffices for present purposes to refer to the following:

(i) the proper construction of a specification is a matter of law: *Décor Corporation Pty Ltd v Dart Industries Inc* (1988) 13 IPR 385 at 400;

(ii) a patent specification should be given a purposive, not a purely literal, construction: *Flexible Steel Lacing Co v Beltreco Ltd* (2000) 49 IPR 331; [2000] FCA 890 at [81] (*Flexible Steel Lacing*); and it is not to be read in the abstract but is to be construed in the light of the common general knowledge and the art before the priority date: *Kimberley-Clark Australia Pty Ltd v Arico Trading International Pty Ltd* (2001) 207 CLR 1; 177 ALR 460; 50 IPR 513; [2001] HCA 8 at [24];

(iii) the words used in a specification are to be given the meaning which the normal person skilled in the art would attach to them, having regard to his or her own general knowledge and to what is disclosed in the body of the specification: *Décor Corporation Pty Ltd* at 391;

(iv) while the claims are to be construed in the context of the specification as a whole, it is not legitimate to narrow or expand the boundaries of monopoly as fixed by the words of a claim by adding to those words glosses drawn from other parts of the specification, although terms in the claim which are unclear may be defined by reference to the body of the specification: *Kimberley-Clark v Arico* at [15]; *Welch Perrin & Co Pty Ltd v Worrel* (1961) 106 CLR 588 at 610; *Interlego AG v Toltoys Pty Ltd* (1973) 130 CLR 461 at 478; the body of a specification cannot be used to change a clear claim for one subject matter into a claim for another and different subject matter: *Electric & Musical Industries Ltd v Lissen Ltd* [1938] 4 All ER 221 at 224-5; (1938) 56 RPC 23 at 39;

(v) experts can give evidence on the meaning which those skilled in the art would give to technical or scientific terms and phrases and on unusual or special meanings to be given by skilled addressees to words which might otherwise bear their ordinary meaning*: Sartas No 1 Pty Ltd v Koukourou & Partners Pty Ltd* (1994) 30 IPR 479 at 485-6 (*Sartas No 1 Pty Ltd*); the court is to place itself in the position of some person acquainted with the surrounding circumstances as to the state of the art and manufacture at the time (*Kimberley-Clark v Arico* at [24]); and

(vi) it is for the court, not for any witness however expert, to construe the specification; *Sartas No 1 Pty Ltd* at 485-6.

1. The leading authority on the principle that the claims are to be construed in the context of the specification as a whole is *Welch Perrin*. In that case, the High Court (Dixon CJ, Kitto and Windeyer JJ) stated at 610:

If it is impossible to ascertain what the invention is from a fair reading of the specification as a whole, that, of course, is an end of the matter. But this objection is not established by reading the specification in the abstract. It must be construed in the light of the common knowledge in the art before the priority date. The general principles governing the construction of specifications are well known, and no lengthy reference to them is necessary. It is, however, fitting that we remind ourselves of the criterion to be applied when it is said that a specification is ambiguous. For, as the Chief Justice pointed out in *Martin v. Scribal*, referring to Lord Parker’s remarks in *National Colour Kinematograph Co. Ltd. v. Bioschemes Ltd*., we are not construing a written instrument operating *inter partes*, but a public instrument which must, if it is to be valid, define a monopoly in such a way that it is not reasonably capable of being misunderstood. Nevertheless, it is to be remembered that any purely verbal or grammatical question that can be resolved according to ordinary rules for the construction of written documents, does not, once it has been resolved, leave uncertain the ambit of the monopoly claimed (see *Kauzal v. Lee*). The specification must be read as a whole. But it is a whole made up of several parts, and those parts have different functions. Courts have often insisted that it is not legitimate to narrow or expand the boundaries of monopoly as fixed by the words of a claim by adding to those words glosses drawn from other parts of the specification. Similarly, if a claim be clear it is not to be made obscure simply because obscurities can be found in particular sentences in other parts of the document.

(Footnotes omitted.)

See also *Interlego AG v Toltoys Pty Ltd* (1973) 130 CLR 461 at 478-479 per Barwick CJ and Mason J; *Kimberly-Clark v Arico* at [15] per Gleeson CJ, McHugh, Gummow, Hayne and Callinan JJ; and *Davies v Lazer Safe Pty Ltd* [2019] FCAFC 65 at [42]-[45] per Greenwood, White and Burley JJ.

1. It has been said, and we accept, that it is usually not legitimate, in the absence of an express reference in the claim itself, to import into a claim features of the preferred embodiment. In *Rehm v Websters Security Systems*, Gummow J stated at 89:

The settled rule is that in ascertaining the width of a particular claim, it is not permissible to vary or qualify the plain and unambiguous meaning of the claim by reference to the body of the specification; provided that if an expression in the claim is not clear, then it is permissible to resort to the body of the specification to define or clarify the meaning of the words used in the claim: *Interlego AG v Toltoys Pty Ltd* (1973) 130 CLR 461 at 478–9. The use of the word “for” in patent claims to introduce expressions such as “for generating” and “for storing” has been deprecated: Blanco White, *Patents For Inventions*, 4th ed, § 2–213. However, the present is not a case which illustrates the concerns expressed by the learned author. Further, whilst resort may be had in the circumstances I have indicated to the body of the specification, it also must be remembered that it usually is not legitimate, in the absence of an express reference in the claim itself, to import into a claim features of the preferred embodiment. The preferred embodiment cannot properly be used to introduce into the definite words of a claim an additional definition or qualification of the patentee’s invention: *Erickson’s Patent* (1923) 40 RPC 477 at 491.

1. It is established that a patent specification is not to be read in the abstract, but is to be construed in light of the common general knowledge and the art before the Priority Date. This principle was expressed by the High Court in *Kimberly-Clark v Arico* at [24]:

It is well settled that the complete specification is not to be read in the abstract; here it is to be construed in the light of the common general knowledge and the art before 2 July 1984, the priority date; the court is to place itself “in the position of some person acquainted with the surrounding circumstances as to the state of [the] art and manufacture at the time”.

(Footnotes omitted.)

1. It is also established that the claims in a patent are not to be construed with reference to the alleged infringement: *CCOM v Jiejing* at 267-268 per Spender, Gummow and Heerey JJ, citing *Ransburg Co v Aerostyle Ltd* [1968] RPC 287 at 297 (House of Lords). See also *Fei Yu (t/as Jewels 4 Pools) v Beadcrete Pty Ltd* (2014) 107 IPR 516 at [24]-[25] per Dowsett, Middleton and Robertson JJ.

### Globaltech’s submissions

1. Globaltech submits that the primary judge erred in three principal respects in his approach to construction. Globaltech contends that the primary judge:
2. did not construe the claims in the context of the specification;
3. did not construe the claims in view of the state of the art; and
4. construed the claims having regard to Globaltech’s allegedly infringing products.
5. In relation to the first alleged error, Globaltech submits that: the primary judge found that the body of the specification was not “a great deal of assistance” in construing the claims and did not consider that the description of the embodiment “advances the task of properly construing the claims” (Reasons, [203]); had the primary judge properly taken into account the context of the specification in construing the claims, he would have found that the claims were to a system for determining the orientation of a core sample that involves two timers that each note the same initial reference time at the beginning of drilling operations; and as a consequence, the Orifinder v5 would not have infringed the claims in suit.
6. Globaltech submits that: after a description of the background art, the specification sets out a series of consistory clauses over 11 pages (in the same terms as the claims); the specification then describes a single embodiment (together with figures illustrating it) over seven pages; and the embodiment involves the use of two timers, one at the surface (a surface timer, specifically a stop watch) and one on the orientation device (the downhole timer), with both timers being started at the same time.
7. Globaltech submits that: when claim 1 is construed as generally describing such a system, its meaning is clear, namely: there are two timers (which the primary judge accepted); the “initial reference time” is the time noted on the surface timer, which corresponds to the time when the orientation device was started; and the “inputted specific time” is the time noted on the surface timer when drilling is stopped and the core sample is taken. Globaltech relies heavily on the third last paragraph of the specification (set out at [31] above), and submits that the primary judge erred in finding (at [204] of the Reasons) that that passage was part of the description of the only embodiment. Globaltech further submits that, even if the primary judge was correct that the third last paragraph of the specification was part of the description of the one embodiment, his construction was still incorrect as the specification only describes such a system. In its reply submissions, Globaltech states that it agrees with AMC that the embodiment is illustrative and non-limiting. Globaltech states that it has never argued that claim 1 should be limited to the only embodiment; its argument is that the primary judge did not follow the approach in *Welch Perrin* of examining the whole of the specification to ascertain the invention before turning to construe the claims; had he done so, he would have construed claim 1 consistently with the embodiment.
8. In relation to the second alleged error, Globaltech relies on the primary judge’s finding that the skilled team would include a member who had knowledge about core orientation tools *and survey tools* (Reasons, [139]). Globaltech submits that the experts agreed that all electronic survey tools used a surface timer (as well as a downhole timer), with the time being noted at various times in the survey on both timers (Reasons, [157]-[158]). Globaltech submits that the primary judge did not take into account this aspect of the common general knowledge in the relevant art in construing the claims.
9. In relation to the third alleged error, Globaltech submits that: the primary judge considered Globaltech’s products in detail *before* construing the claims (Reasons, [164]-[179]); and this was contrary to the fundamental principle that claims must be construed through the eyes of the skilled addressee without regard to the allegedly infringing article. Globaltech submits that: there is nothing in the Patent to suggest that the ‘invention’ contemplated a device that worked in the same way as the Orifinder v5; although the primary judge did not consider that Professor Tapson’s evidence in the previous proceeding (referred to in the Reasons as “Coretell First Instance”) affected the weight of his evidence in the present case, it is clear from the evidence that Professor Tapson did not construe the claims in a way that encompassed the Orifinder v5 until *after* he had seen that product (Reasons, [216]-[218]); the primary judge’s finding at [238] that Professor Tapson had not “deliberately changed his evidence from the previous proceedings to this proceeding in order to further AMC’s cause” was not the point – he *only* construed the claims in a manner that applied to the Orifinder v5 *after* he had seen that product; and the same applies to the reasoning of the primary judge – there is nothing to suggest that he would have construed the claims in the way AMC contended for without knowledge of the Orifinder v5.
10. Globaltech also makes submissions in relation to particular construction issues. In brief summary, Globaltech’s submissions are as follows:
11. First, it is contended that the primary judge erred by finding that the invention was not limited to a method/system involving two timers that each noted the same initial reference time at the beginning of drilling operations, with both timers counting from that time.
12. Secondly, it is contended that the primary judge erred by finding that the “initial reference time” in step 2 of claim 1 included the start of the timer in the downhole device, but did not necessarily also refer to the start of the surface timer.
13. Thirdly, it is contended that the primary judge erred by failing to find that the words “inputting the specific time beyond the reference time” in claim 1 referred to a time that is referable to the initial reference time.
14. Fourthly, it is contended that the primary judge wrongly accepted AMC’s submission that claim 6 supported its construction of “beyond” in claim 1 as meaning no more than “after” the initial reference time.
15. AMC supports the primary judge’s construction of claim 1. It is not necessary to set out AMC’s submissions in detail as they are largely accepted in the discussion that follows.

### Consideration

1. The issue is the correct construction of claim 1 of the Patent. This is a matter of law in respect of which there can be only one correct answer. The appeal to this Court is an appeal by way of rehearing. If this Court on appeal were of the view that the correct construction of the claim were that contended for by Globaltech, it would follow that the primary judge erred: see *Branir Pty Ltd v Owston Nominees (No 2) Pty Ltd* (2001) 117 FCR 424 (***Branir***) at [25] per Allsop J (as the Chief Justice then was); *Dincel Construction System Pty Ltd v AFS Systems Pty Ltd* (2018) 360 ALR 273 (***Dincel***) at [50] per Besanko and McKerracher JJ (Kenny J agreeing).
2. However, in considering the correct construction of claim 1, it is appropriate to recognise certain advantages enjoyed by the primary judge, consistently with the principles discussed in *Branir* at [21]-[30] (followed in *Dincel* at [50]). In the present case, the primary judge heard expert evidence about the common general knowledge and the art before the Priority Date. This evidence was relevant to the task of construction, given that the Court is to place itself in the position of a person acquainted with the surrounding circumstances as to the state of the art and manufacture at the time (*Kimberly-Clark v Arico* at [24]). That said, none of the experts alone represented the person skilled in the art (in this case, a team). Further, it was not suggested that claim 1 contains technical or scientific terms and phrases, or words that have unusual or special meanings, matters in respect of which expert evidence may be significant.
3. It is convenient to start by addressing the three alleged errors of approach relied upon by Globaltech (see [97] above).
4. The first alleged error is that the primary judge did not construe the claims in the context of the specification. We do not accept that the primary judge made any such error. In the early part of the Reasons, at [14]-[38], the primary judge described the specification in some detail. In the section of the Reasons dealing with what his Honour described as the synchronisation issue, the primary judge noted at [202] that both parties referred to “the body of the Specification” and the claims themselves. His Honour then stated, at [203], that he would “start with the body of the Specification”. Although his Honour indicated that he did not consider the specification to provide a great deal of assistance ([203]), he nevertheless discussed it in some detail at [204].
5. Globaltech’s submissions emphasise that the one embodiment described in the specification involves the use of two timers that are started contemporaneously. The primary judge had regard to this in his discussion of the specification at [204] of the Reasons. His Honour noted that the specification states (in relation to the embodiment) that it is necessary to record the time duration between starting the core orientation device and extracting the core sample, and that this is followed by a statement that, typically, this is achieved by starting an external stop watch at the time of starting the orientation device (Patent, pp 18-19). However, as noted by the primary judge, the specification then states that “[o]ther arrangements are of course possible” (Patent, p 19). Of this statement, his Honour observed that it did not advance the argument that synchronisation is required. We accept that the one embodiment described in the specification uses two timers that are started contemporaneously or, at least, a counting forwards system. However, his Honour plainly had regard to this in the discussion at [204].
6. The primary judge also discussed, at [204], the third last paragraph of the body of the specification (Patent, p 21). For ease of reference, we set out that paragraph again:

From the forgoing (sic), it is evident that the present invention provides an orientation device which does not require physical marking of a core sample prior to extraction thereof from the ground. Indeed, the orientation device according to the embodiment is particularly convenient for an operator to use. All that is required is for the operator to start the orientation device prior to the inner tube assembly 36 being inserted into the drill hole, and contemporaneously start a timer for recording the time duration before the drilling operation ceases to allow the generated core sample to be retrieved.

The primary judge noted that Globaltech sought to rely on this passage in support of an argument that it limited the claims. His Honour stated that he did not accept this argument, noting that the statements in the second and third sentences “are clearly made by reference to the particular embodiment”. In our view, his Honour was correct to so state. Although the first sentence of the paragraph refers to “the present invention”, this sentence does not refer to the timers being started contemporaneously. The part of the paragraph that refers to the timers being started contemporaneously is the second and third sentences. The second sentence refers to the orientation device “according to the embodiment” and the third sentence is to be read in the same way. Accordingly, as his Honour concluded, the paragraph is relevantly concerned with the particular embodiment.

1. Further, at [204], his Honour accepted that it could be said that the statements in the best method section (i.e., the section describing the preferred embodiment) contemplate synchronisation or, at least, counting forwards. His Honour then stated that “as the principles make clear, one does not introduce into the claims, limitations based on the preferred embodiment”. This statement was in accordance with the applicable principles. It also demonstrates one of the difficulties with Globaltech’s submissions: although Globaltech accepts that the embodiment is illustrative and non-limiting, and says that it has never argued that claim 1 should be limited to the only embodiment, its submissions come close to doing so.
2. The second alleged error (see [97] above) is that the primary judge did not construe the claims in view of the state of the art. In our view, the Reasons make clear that his Honour did construe the claims in light of the common general knowledge and the state of the art. In the early part of the Reasons, his Honour made detailed findings regarding the common general knowledge: see the Reasons at [128]-[159]. This included a discussion of survey tools: see [138]-[139], [151]-[159]. In his statement of the relevant principles, the primary judge quoted *Jupiters v Neurizon* at [67], which includes the statement that a patent specification “is not to be read in the abstract but is to be construed in the light of the common general knowledge and the art before the priority date”. His Honour directly addressed the main construction issue at [239]-[266]. At the commencement of this part of the Reasons, at [239], his Honour stated, correctly, that the issue was one of construction and that is a matter for the Court to resolve. His Honour then stated that he had had the “benefit of evidence as to the relevant common general knowledge” and the opinions of experts as to the meaning of the claims. In light of these matters, it is apparent that his Honour did construe the claims in light of the common general knowledge and the state of the art, including the aspects concerning survey tools.
3. The third alleged error (see [97] above) is that the primary judge construed the claims having regard to Globaltech’s allegedly infringing products. We do not consider that his Honour made any such error. At [184] of the Reasons, his Honour specifically referred to the principle that it is not legitimate to construe a claim with reference to the alleged infringement, citing *CCOM v Jiejing* at 267-268.
4. It is true that, in the section of the Reasons dealing with infringement (commencing at [160]), his Honour described in some detail each of the Orifinder tools. In particular, the primary judge set out a description of the Orifinder v5 drawn from the joint experts’ report at [172] of the Reasons. It was appropriate for his Honour to consider how Globaltech’s products worked in order to frame the construction issues that needed to be determined. This appears to be what the parties did in framing the issues of construction for his Honour. There is no requirement that the Court shield itself from any knowledge of an allegedly infringing product until it has reached a final conclusion about construction. It would be impossible to conduct a trial and write a judgment on that basis.
5. Globaltech submits that his Honour’s finding at [238] in relation to Professor Tapson’s evidence was not to the point. At that paragraph, his Honour stated that he was not persuaded that Professor Tapson had deliberately changed his evidence from the previous proceedings to this proceeding to further AMC’s cause. Globaltech submits that the real point was that Professor Tapson *only* construed the claims in a manner that applied to the Orifinder v5 *after* he had seen the product. We are not persuaded that the primary judge missed the point that had been made by Globaltech. To the extent that Globaltech submitted that Professor Tapson *only* construed the claims in a manner that applied to the Orifinder v5 *after* he had seen the product, this was considered by his Honour. The primary judge addressed this at [238]:

It seems to me that in the previous proceedings, Professor Tapson was focused on the alleged infringing product in those proceedings or the preferred embodiment of the claims in suit. A method involving synchronisation clearly falls within the terms of the claims and that was the focus of Professor Tapson’s consideration in the previous proceedings. I do not think that it can be said from the passages I have identified that Professor Tapson identified the metes and bounds of the claims and has now changed his mind with a view to giving evidence that the Orifinder v3B and Orifinder v5 fall within the terms of the claims. That is not to say that the boundaries of claim 1, for example, as now stated by Professor Tapson were in his mind at the time of the previous proceedings.

This passage demonstrates that his Honour had regard to the evidence given by Professor Tapson in the previous proceedings, and had regard to the points raised by Globaltech.

1. For completeness, we note that at the hearing of the appeal senior counsel for Globaltech relied on a passage from the evidence of Professor Tapson (trial transcript, pp 378-379; AB Pt C pp 864-865). However, this does not appear to take the matter any further. In the passage, Professor Tapson was asked about evidence he had given in [234] of an affidavit in a previous proceeding. While Professor Tapson accepted that that evidence related to the integers of the relevant claim, and not merely the embodiment, the wording of the phrase being considered was “inputting the selected time interval”, which is different from the wording of claim 1.
2. For these reasons, none of the three alleged errors identified by Globaltech is made out.
3. It is convenient, next, to identify the construction of claim 1 that we prefer. We will then address the particular construction issues raised in Globaltech’s submissions, as identified in [103] above.
4. The Patent has been described earlier in these reasons: see [9]-[31] above. Claim 1 has been set out at [18] above. The following matters should be noted. First, the claim is directed to a method of orienting a core sample, not to a device to be used in doing so. No particular core orientation device is defined. Secondly, to the extent that the claim does refer to any equipment to be used in the method, this is limited to a core drill having an inner tube, which was conventional before the Priority Date. Thirdly, although the steps of the method include the recording, inputting and relating of time measurements, no particular means for carrying out these steps are defined. While it is apparent that such means must be used, the detail of these means is left to the skilled person to determine.
5. It was common ground at trial that two timers would need to be used, one downhole (where the orientation measurements would be recorded) and one on the surface (where the person using the method would be). However, the claim does not refer to these timers or how they are to be operated. In particular, it does not refer to the two timers being ‘synchronised’, or to the two timers being started at the same time.
6. The steps of claim 1 that deal with the recording, inputting and relating of time measurements are steps 2, 3 and 5. As the primary judge recognised, these steps cannot be considered in isolation from each other.
7. Step 2 refers to recording the orientation of the inner tube at predetermined “time intervals” during the drilling, the time intervals being “referable to an initial reference time”. This occurs downhole, where the orientation measurements are recorded, and thus involves the use of the downhole timer. The time intervals at which the orientation measurements are recorded are “referable to” an initial reference time on that timer.
8. Step 3 refers to inputting “the specific reference time beyond the reference time”, which is representative of the time at which the core is broken. It was common ground below that this step occurs on the surface. In contrast to step 2, the “specific time” inputted in this step is not said to be “referable to” the initial reference time. It need only be “beyond” the initial reference time. As a matter of ordinary language, this may simply mean that the “specific time” occurs after or later than the initial reference time. This issue is discussed further below.
9. Step 5 refers to “relating the inputted specific time to the recorded time intervals” to obtain an indication of the core orientation at the specific time. This is the step of the method at which the two sets of time measurements (downhole and surface) are related to each other, so as to enable the orientation of the core sample at the time of core break to be determined. The word “relating” is a broad term. In this context, it encompasses any means of relating the inputted specific time to the recorded time intervals so as to obtain an indication of the orientation of the core sample at the specific time.
10. In our view, in light of the above matters, and having regard also to the further matters discussed below, the correct construction of claim 1 is that: step 2 involves the recording of time measurements downhole, while step 3 involves the inputting of a time measurement at the surface; the step in which these time measurements are related to each other is step 5, which occurs later, after the inner tube with the core sample contained in it has been removed from the ground and brought to the surface (see step 4); there is no requirement that the time measurements be related to each other prior to step 5 (by the use of a common initial reference time); that work is done by step 5, which involves “relating” the time measurements to each other.
11. This construction is supported by other aspects of the Patent. First, the specification, after referring to a preferred method comprising (inter alia) inputting a time measurement representative of the instant in time when the core sample is separated from the body of material (Patent, p 4, lines 16-17), states that “[p]referably, the instant in time is representative of a duration of time relative to the initial reference time” (Patent, p 5, lines 4-5). Secondly, the Patent contains a number of narrower claims that use the same or similar language (claims 6, 26 and 52). For example, claim 6, which is dependent on claim 2, requires the instant in time (referred to in claim 2) to be “representative of a duration of time relative to the initial reference time”. These parts of the specification and these claims suggest that when the patentee intends to indicate that the time of a core break is to be measured in a way that is referable to the initial reference time, it says so expressly.
12. While it may be accepted that the best method section (which describes one embodiment) contemplates a system of synchronisation, or at least counting forwards, as discussed above it is not usually legitimate, in the absence of an express reference in the claim itself, to import into a claim features of the preferred embodiment. In the present case, the claim itself does not contain an express reference to a system of synchronisation or counting forwards, and we do not consider there to be a proper basis to import this aspect of the preferred embodiment into the claim.
13. We will now address the particular construction issues raised by Globaltech (see [103] above).
14. *First*, Globaltech submits that the primary judge erred by finding that the invention claimed was not limited to a method/system involving two timers that each noted the same initial reference time at the beginning of drilling operations, with both timers counting from that time. In particular, Globaltech submits that the two timers record time by reference to the same initial reference time, and the times on the two timers are matched when the specific time is inputted into the surface timer to determine the orientation of the core sample. Globaltech submits that the primary judge erred in construing two critical phrases in step 2 (“initial reference time”) and step 3 (“inputting the specific time beyond the reference time”). Globaltech submits that the primary judge considered these phrases in isolation from the other integers of the claim. Further, it is submitted that the primary judge did not pay sufficient, or any, regard to certain words of the claim – as a result, he read some words into the claim and read some words out of the claim. Globaltech also submits that the primary judge erroneously considered the steps of claim 1 separately, for example finding that the Orifinder v5 “falls within step 5 when that step is considered alone” (Reasons, [265]).
15. We do not accept these submissions. Critically, Globaltech’s submissions do not reflect the language of claim 1. The claim does not require the use of two timers that “record time by reference to the same initial reference time”. As noted above, only step 2 (involving the downhole timer) requires that the time intervals be “referable to” the initial reference time; step 3 (at the surface) merely requires that the inputted specific time be “beyond” the reference time. Further, the claim does not, as Globaltech submitted, provide that “the times on the two timers are matched when the specific time is inputted into the surface timer to determine the orientation of the core sample”. As noted above, step 3 deals with the “inputting” of the specific time at the time of core break (at the surface); step 5, which occurs later, is the step in which the measurements are related to each other so as to obtain an indication of the orientation of the core sample.
16. Further, it is plain from a consideration of the Reasons that the primary judge did not consider the steps of claim 1 in isolation from each other. For example, at [241] his Honour stated that the construction issue turns primarily on the meaning of certain words and phrases in “steps 2, 3 and 5” of claim 1. In [249], the primary judge expressed the view that the meaning of “initial reference time” in step 2 “is linked to the construction of the next step” and, because of that link, he would set out his reasons in that context.
17. We also do not accept that the primary judge read some words into the claim and read some words out of the claim. Rather, his Honour considered the meaning of the words used in the claim, read in the context of the specification, and in accordance with the other applicable principles. Insofar as Globaltech criticises the statement at [265] of the Reasons that the Orifinder v5 “falls within step 5 when that step is considered alone”, this needs to be read in context. His Honour was describing the particular concession made by Mr Edmonds about step 5: see the Reasons at [264]. His Honour did not consider step 5 in isolation from the other steps for the purposes of considering the construction of claim 1.
18. *Secondly*, Globaltech submits that the primary judge erred by finding that the “initial reference time” in step 2 of claim 1 includes the start of the timer in the downhole device but does not necessarily also refer to the start of the surface timer. Globaltech submits that, given that claim 1 requires the use of two timers, the only reasonably open construction of step 2 is that the initial reference time refers to the same start time on *both* timers. It is submitted that, if “initial reference time” does not refer to the starting time on *both* timers, it cannot be known whether the initial reference time refers to a time on the surface timer *or* the downhole timer. Globaltech submits that AMC’s construction involves reading “initial reference time” so as to exclude the surface timer and, in effect, impermissibly reading into the claim the words “on the downhole device”.
19. We do not accept these submissions. Step 2 refers to recording the orientation of the inner tube at predetermined time intervals during the drilling, “the time intervals being referable to an initial reference time”. This recording takes place on the downhole timer. It is therefore apparent that step 2 refers to, at least, the downhole timer. The real issue is whether the time recorded on the surface timer must also be referable to the initial reference time. While there are arguments in favour of that construction, we consider the preferable construction to be that this is not required. In resolving this issue, step 2 cannot be considered in isolation. It is necessary to consider the other integers of the claim, in particular, steps 3 and 5. Step 3 does not in terms require the time on the surface timer to be referable to the initial reference time. Rather, it refers to inputting the specific time “beyond” the reference time. Step 5 is the stage at which the inputted specific time is related to the recorded time intervals. Having regard to these steps, in addition to step 2, the preferable construction is that the claim does not require the time recorded on the surface timer to be referable to the initial reference time. Contrary to Globaltech’s submissions, this construction does not involve reading words into the claim; rather, it involves construing the words of the claim.
20. Globaltech criticises AMC’s construction as set out in the first sentence of [246] of the Reasons. In that sentence, the primary judge stated that AMC submitted that the initial reference time “means no more and no less than a reference time that may be referenced time”. It appears that this sentence contains a typographical or reproduction error. AMC’s submission at trial was that the phrase “initial reference time” in claim 1 “means nothing more than a reference time that may be referenced against another time”. When the submission is put in these terms, Globaltech’s criticism falls away.
21. Globaltech’s submissions seek to draw support from what it describes as a “finding” in [248] of the Reasons. That paragraph is set out at [69] above. Globaltech relies on the second sentence, in which the primary judge stated that “[a]t first blush, there is a good deal of attraction in Globaltech’s submission …”. It is not accurate to describe this as a finding. It is merely an indication, as part of the reasoning process, that Globaltech’s construction had some initial attraction. Ultimately, for the reasons he gave, the primary judge did not accept that construction.
22. *Thirdly*, Globaltech submits that the primary judge erred by failing to find that the words “inputting the specific time beyond the reference time” in step 3 refer to a time that is referable to the initial reference time. Globaltech submits that the primary judge said that “a question arises as [to] the meaning of ‘specific time’” (Reasons, [250]), but did not resolve this question. Globaltech submits that, given the primary judge accepted that the “reference time” in step 3 is the “initial reference time” in step 2 (Reasons, [250]), it should have followed that the only reasonable construction of this step, in the context of claim 1 and the rest of the specification, was that the specific time inputted into the surface timer is referable to the initial reference time. It is submitted that AMC’s construction gives the word “beyond” a meaning in isolation from its context; it ignores that the steps of claim 1 are in chronological sequence – in particular, when step 2 is read with step 3, there is a clear link between the initial reference time and the inputting of the specific time; it ignores the word “reference” in the phrase “the reference time”, which indicates that the initial reference time is used as a *reference point in time*.
23. We do not accept these submissions. First, contrary to Globaltech’s submissions, the primary judge did construe the words “specific time”. His Honour considered what the “specific time” represented at [250]. His Honour also considered how the “specific time” was required to be measured or expressed at [258]-[259]. Secondly, while there are arguments in favour of Globaltech’s construction of the words “inputting the specific time beyond the reference time” in step 3, we consider the preferable construction to be that “beyond” does not mean anything more than “after” or “later than” and that the words do not require the inputted specific time to be referable to the initial reference time. The word “beyond”, on a natural reading, does not mean “referable to”. The wording of step 3 may be contrasted with that of step 2, which requires in terms that the time intervals be “referable to” the initial reference time. AMC’s construction is supported by other aspects of the claims, in particular claim 6 (discussed further below).
24. Globaltech relies on the fact that the steps of claim 1 are in chronological sequence. However, this is consistent with “beyond” being construed as meaning no more than “after” or “later than”. Further, the chronological nature of the steps tends to confirm that the step of “relating” the respective time measurements to each other in step 5 only occurs later, after steps 2 and 3 have been carried out.
25. Globaltech submits that the primary judge’s construction disregards the word “reference” in step 3. We do not accept this. As the primary judge accepted, the “reference time” in step 3 is the “initial reference time” referred to in step 2. That gives effect to the word “reference”. As AMC submits, the specific time inputted in step 3 is not required to be “referable to” that reference time. Step 2 specifically states that the time intervals are “referable to an initial reference time”; step 3 does not. It is apparent that when the patentee means to say that one time is referable to another, it does so expressly.
26. Globaltech relies on the evidence of its experts, Mr Ayris and Mr Edmonds, to the effect that the inputted time in step 3 is referable to the initial reference time. Globaltech submits that the primary judge rejected the opinions of Globaltech’s experts on the basis that they involved reading words into the claim, but he did not identify any words that needed to be read into the claim (Reasons, [258]). It is submitted that the primary judge erred in not accepting this evidence, as it only involved a plain reading of the phrase in context. In our view, to the extent that the evidence of the experts was of relevance in the process of construction, it was open to the primary judge not to accept the opinions expressed by Globaltech’s experts for the reasons he gave at [258] (set out above). In that paragraph his Honour noted that Mr Edmonds placed emphasis on the word “beyond” and said that “it needs to know what the initial reference time is, to know that it’s beyond it”. The primary judge stated that he did not accept this, based on the meaning of the word “beyond”. Although not expressly stated, it is apparent that the primary judge considered Globaltech’s experts’ opinions to involve reading in words to the effect that the inputted time in step 3 must be referable to the initial reference time.
27. *Fourthly*, Globaltech submits that the primary judge wrongly accepted AMC’s submission that claim 6 supported its construction of “beyond” in step 3 of claim 1 as meaning no more than “after” or “later than”. Globaltech notes that claim 2 (set out at [19] above), which is dependent on claim 1, requires the inputted time measurement to be representative of the instant in time when the core sample is separated from the body of material and first held in fixed relation thereto. Globaltech submits that: this time must be measured by reference to the initial reference time, as required by step 3 of claim 1; claim 6 (set out at [20] above), which is dependent on claims 2 to 5, specifically requires the instant in time to be representative of a duration of time relative to the initial reference time; thus, in each of claims 2 and 6, the inputted time is measured by reference to the initial reference time. Globaltech submits that claim 6 alone does not answer the central question of construction as to whether claim 1 is limited to the use of two timers, both being started at the same time, referring to *Nichia Corporation v Arrow Electronics Australia Pty Ltd* [2019] FCAFC 2 (***Nichia v Arrow***) at [40]-[41].
28. In our view, contrary to these submissions, claim 6 provides some assistance in resolving the construction issue concerning claim 1. Globaltech submits that claim 2 requires the inputted time to be measured by reference to the initial reference time. However, claim 2 does not state this. Rather, as with claim 1, there is an issue as to whether the inputted time needs to be referable to the initial reference time. Claim 6 does in terms require a relationship between the inputted time and the initial reference time, by stating that the instant in time (referred to in claim 2) is “representative of a duration of time relative to the initial reference time”. As stated above, this suggests that when the patentee intends to indicate that the time of a core break is to be measured in a way that is referable to the initial reference time, it says so expressly. Globaltech’s reference to *Nichia v Arrow* does not assist. Here, the two claims under consideration (claims 1 and 6) do not raise the “same issue of construction”, but rather use materially different wording.
29. For these reasons, we consider the construction of claim 1 adopted by the primary judge to be correct. We reject grounds 1 to 6 of the notice of appeal.

## Clarity and fair basis (grounds 7 and 8)

1. Globaltech submits that, given that it is accepted that there must be two timers, one on the surface and one in the downhole tool, if the “initial reference time” in step 2 of claim 1 does not refer to both timers, the claim is not clear for the purposes of s 40(3) of the *Patents Act* (as in force at the relevant time). Specifically, Globaltech submits that it is not clear whether the term “initial reference time” refers to the time on the surface timer *or* the downhole timer. It submits that, in these circumstances, it cannot be said that the claim is sufficiently clear to enable a third party to ascertain whether or not what he or she proposes to do falls within the claim: *Monsanto* at 60; see also *Martin v Scribal Pty Ltd* (1954) 92 CLR 17 at 59; *Welch Perrin* at 610.
2. In our view, the primary judge did not err in concluding that the claims, as construed by his Honour, are clear. On the basis of his Honour’s construction (which we accept), it is clear that the term “initial reference time” in step 2 refers to a time on the downhole timer, but not necessarily also to the time on the surface timer.
3. In relation to fair basis, Globaltech submits that the primary judge ought to have found that, when construed as AMC contended (and the primary judge accepted), none of the claims in suit was fairly based on the matter described in the specification: see *Patents Act*, s 40(3) (as in force at the relevant time); *Lockwood (No 1)* at [69], [71]; *Société des Usines Chimiques Rhône-Poulenc v Commissioner of Patents* (1958) 100 CLR 5 at 11. Globaltech submits that the consistory clauses cannot answer the question of fair basis because they do not provide a “real and reasonably clear” disclosure of the claims *as construed by the primary judge*; they are entirely neutral as to this question. Globaltech submits that there is nothing in the specification that supports the primary judge’s construction of the claims as including systems other than systems that involve two timers that each note the same initial reference time at the beginning of drilling operations. It is submitted that, in *Lockwood (No 1)* at [92], the High Court recognised that, where a consistory clause is in the same terms as a claim, the claim may not be fairly based “if nothing else in the specification supported the consistory clause”. It is submitted that the present case is analogous to *Nichia v Arrow*: see at [64].
4. In our view, the primary judge did not err in concluding that the claims are fairly based. The specification contains a “real and reasonably clear” disclosure of the invention: *Lockwood (No 1)*. The claims follow the terms of the description in the “Disclosure of the Invention” section of the Patent, and there is nothing in the balance of the description suggesting that the invention is narrower: see *Lockwood (No 1)* at [99]. The detailed description in the best method section does not provide any inconsistency. The statement in *Lockwood (No 1)* at [92], relied on by Globaltech, needs to be read in context. The High Court merely said that a particular contention “might have force” if nothing else in the specification supported the consistory clause. Further, at [93], the High Court noted that there were examples of cases in which courts have treated the consistory clause as disclosing the invention. We do not agree with the submission that the present case is analogous to *Nichia v Arrow*. The wording of the claim and the issues are quite different. Additionally, the paragraph relied on by Globaltech ([64]) did not involve a decision on the issue.

## Conclusion

1. For these reasons, the appeal is to be dismissed. There is no apparent reason why costs should not follow the event. We will also make a costs order to this effect.

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| I certify that the preceding one hundred and forty-nine (149) numbered paragraphs are a true copy of the Reasons for Judgment herein of the Honourable Justices Kenny, Robertson and Moshinsky. |

Associate:

Dated: 13 September 2019