Federal Court  Cour fédérale

Date: 20111129

Docket: T-1327-05

Citation: 2011 FC 1323

BETWEEN:

WENZEL DOWNHOLE TOOLS LTD.
and WILLIAM WENZEL

Plaintiffs

and

NATIONAL-OILWELL CANADA LTD.,
NATIONAL OILWELL NOVA SCOTIA
COMPANY, NATIONAL OILWELL
VARCO INC., DRECO ENERGY
SERVICES LTD., VECTOR OIL TOOL LTD.
and FREDERICK W. PHEASEY

Defendants

AND BETWEEN:

NATIONAL-OILWELL CANADA LTD.,
NATIONAL OILWELL NOVA SCOTIA
COMPANY, NATIONAL OILWELL
VARCO INC., DRECO ENERGY
SERVICES LTD., VECTOR OIL TOOL LTD.
and FREDERICK W. PHEASEY

Plaintiffs by Counterclaim

and

WENZEL DOWNHOLE TOOLS LTD
and WILLIAM WENZEL

Defendants by Counterclaim

PUBLIC REASONS FOR JUDGMENT
(Confidential Reasons for Judgment released November 18, 2011)

SNIDER J.

I. INTRODUCTION

[1] Mr. William (Bill) Wenzel is the named inventor and Wenzel Downhole Tools Ltd. (Wenzel Tools) is the registered patent holder of Canadian Patent No. 2,026,630 (the '630 Patent). As stated in the '630 Patent, the patent relates to a “method of increasing the off bottom load capacity of a bearing assembly”. The bearing assembly designed by Bill Wenzel is a piece of equipment intended for use in the drilling of oil and gas wells.

[2] By Statement of Claim filed July 29, 2005 (Federal Court File No. T-1327-05), Bill Wenzel and Wenzel Tools (collectively, the Plaintiffs) claim that the Defendants have infringed the '630 Patent through the manufacture and sale or rental of bearing assemblies that are identical in all material respects to those protected by the '630 Patent. In their Statement of Defence and Counterclaim, the Defendants claim that the '630 Patent is invalid.

II. ISSUES AND SUMMARY OF DECISION

[3] Although the Statements of Claim and Defence and Counterclaim raise many issues, by the time the trial of this action was completed, only a few questions remained.

[4] The Defendants concede that, if the '630 Patent is held to be valid, the tools rented or sold by the Defendants, or some of them, infringe the '630 Patent. Thus, the following are the remaining overarching issues for consideration:

1. Are Claims 1 and 2 of the '630 Patent invalid for the reason that:

    a. the claims were anticipated by a drilling motor referred to as the “3103 assembly”, which was manufactured and rented to a third party for use in drilling an oil well in Texas prior to the relevant date of the '630 Patent;

    b. the claims were made obvious by the prior art existent at the relevant date; or

    c. the '630 Patent failed to have utility as promised by the '630 Patent?

2. In the event that the '630 Patent was valid and infringed, what remedies should be awarded to the Plaintiffs?

[5] For the reasons that follow, I have determined that Claims 1 and 2 of the '630 Patent are invalid either on the basis of anticipation or obviousness. Given these determinative findings, there is no need to consider the issues of utility or remedies.

III. TABLE OF CONTENTS

[6] To assist the reader, the following sets out a Table of Contents for these Reasons, containing references to the relevant paragraph numbers for each subject area.

IV. BACKGROUND

A. *The patent and the parties*

[7] In an Agreed Statement of Facts and Exhibits (collectively, Exhibit 1), the parties agreed to a large number of facts concerning the '630 Patent history and the parties to this litigation. In this section of the reasons, the facts that are material to the issues in this action are set out.

[8] Mr. Bill Wenzel applied for the '630 Patent on October 1, 1990. The patent application was published (or “laid open”) on April 2, 1992 and the '630 Patent was granted to Bill Wenzel on May 17, 1994. Bill Wenzel is the named inventor.

[9] By Assignment dated December 8, 1997, Bill Wenzel assigned his “entire right, title and interest” in the '630 Patent to Wenzel Downhole Tools Inc. By Assignment dated December 17, 1997, Wenzel Downhole Tools Inc. assigned its “entire right, title and interest” in the '630 Patent

to Master Downhole Canada Inc. On February 25, 1998, Master Downhole Canada Inc. changed its name to Wenzel Downhole Tools Ltd. (Wenzel Downhole), the second Plaintiff in this action.

[10] The corporate Defendants are all related corporations. Mr. Frederick W. Pheasey, who is a director of Dreco Energy Services ULC, successor in interest to Dreco Energy Services Ltd. (Dreco), is also a named Defendant.

[11] The ultimate parent corporation of all the other corporate Defendants is the Defendant National Oilwell Varco Inc. (Varco), a body corporate registered under the laws of the State of Delaware with its head office in Houston, Texas.

[12] The other corporate Defendants are:

- National-Oilwell Canada Ltd., a body corporate registered under the laws of Alberta and carrying on business in Alberta and elsewhere in Canada;

- National Oilwell Nova Scotia Company, a body corporate registered under the laws of Nova Scotia; and

- Vector Oil Tool Ltd., now known as Vector Oil Tool ULC (Vector), a body corporate registered under the laws of Alberta.

[13] Although not named as parties to this action, Griffith Oil Tool Ltd. (Griffith) and Mr. Kenneth (Ken) Wenzel, have played significant roles in the matters leading to this litigation.

[14] Ken Wenzel is Bill Wenzel's older brother. Griffith was a corporation incorporated in 1974 in which Ken Wenzel owned 10% of the shares and Dreco (or a predecessor) owned 90% of the shares. In approximately 1980, Ken Wenzel ceased to be a shareholder in Griffith. "Griffith Oil Tool" and "Griffith" have been trade names often used by Dreco and other affiliates of Varco to identify downhole drilling tool products, including positive displacement drilling motors, drilling jars and service tools, which Dreco and other affiliates of Varco sell, rent and maintain through various facilities worldwide.

[15] Ken Wenzel owns Kenneth H. Wenzel Oilfield Consulting Inc. (Ken Wenzel Consulting). In October 1986, Ken Wenzel Consulting entered into a contract with Dreco to provide Ken Wenzel's services in the design and development of drilling tools. Effective January 1, 1991, the obligation of Ken Wenzel Consulting to provide Ken Wenzel's services to Dreco was terminated.

[16] As a consequence of the settlement of litigation in Alberta Court of Queen's Bench (Action Numbers 0203 12910 and 0603-14265**)**, Ken Wenzel has agreed to pay a portion of damages awarded against Dreco or Vector in this action.

B. *The use of bearings in downhole drilling motors*

[17] The dispute between the parties to this litigation centres on a piece of oilfield equipment which facilitates the drilling of oil and gas wells. All of the expert witnesses assisted me in understanding the technical aspects of drilling operations and, in particular, the function of downhole drilling motors and the bearing assemblies in those motors.

[18] Oil and gas wells are drilled through earth and rock by rotating a drill bit on the bottom end of drill pipe. For deeper wells and wells that deviate from vertical – known generally as directionally or horizontally drilled wells – the drill bit is often rotated by means of a downhole drilling or "mud" motor which is located close to the drill bit. The mud motor uses the energy of flowing drilling mud in the wellbore to turn a shaft that is connected to the drill bit and, thus, makes it possible to drill a well without the need for the entire drill stem to rotate during the drilling operation.

[19] Bearings are not unique to the oilfield; they are useful whenever there is relative movement between two parts of a machine or apparatus. Bearings (such as balls or rollers) are usually located between two races. Because the bearings are able to move more freely within the constraints of their races than the surrounding components, they have a much lower coefficient of friction than if two flat surfaces were rotating against each other. They can, thus, reduce rotational friction and support radial and axial loads.

[20] “Bearing assembly” is the term used to describe the entire design context within which the bearings are placed. A bearing assembly may include a number of different components such as races, springs and washers to assist in the handling of the specific loads for a given application or to enhance durability of the bearing assembly. Bearing assemblies can be designed to support loads perpendicular to the axis (“radial loads”) or parallel to the axis (“axial loads”). Axial load-bearing assemblies are commonly referred to as “thrust bearings”. Bearing assemblies that are intended to handle both compression and tension loading are known as “bi-directional thrust bearing assemblies”.

[21] In the context of downhole mud motors and oil and gas well drilling, axial loads (acting parallel to the drill stem) are the main forces on the drilling apparatus. Axial loading can be in one of two directions:

i) compression load – also referred to as on-bottom load – created as the bit and drill stem are forcing through the earth or rock; or

ii) tension load – also referred to as off-bottom load – created as the bit and drill stem are lifted.

Although the main loads in drilling a well would be axial, radial loads will also be encountered, particularly where deviated wells are drilled.

[22] The bi-directional thrust bearing assembly designed and patented by Bill Wenzel is an example of a bi-directional thrust bearing assembly for use in downhole drilling motors.

C. *Witnesses*

[23] During nine days of evidence, a number of fact and expert witnesses appeared. A brief summary of the witnesses and the areas their testimony addressed is described in this section of the reasons.

(1) Plaintiffs' witnesses

[24] Mr. Bill Wenzel was the only fact witness for the Plaintiffs. He is a machinist and a designer of downhole drilling tools. He is listed as the inventor or co-inventor on approximately 30 US and Canadian patents for downhole drilling tools, including the '630 Patent. In his testimony, Bill Wenzel spoke to a number of topics including:

- his business relationships with his brothers, Ken, Doug, and Bob Wenzel;
- the mechanics of downhole drilling and downhole drilling tools;
- the development of the '630 Patent and its operation;
- prior art;

- a previous infringement action; and

- damages.

[25] Mr. Brian Thicke is a professional engineer, currently employed by a consulting engineering firm in Edmonton. Of relevance to this case, Mr. Thicke has experience in the oil and gas industry and with downhole tools. He has also worked with bearings and bearing assemblies in a variety of applications. Mr. Thicke was qualified by the Court as an expert regarding the design and operation of mechanical devices, including bearings, bearing assemblies and downhole earth drilling tools. Mr. Thicke provided his expert opinion on the issues of claims construction, infringement, anticipation, obviousness, utility and the promise of the patent, the person of ordinary skill in the art and the general knowledge at the relevant time.

(2) Defendants' witnesses

[26] Mr. Ken Wenzel was a key fact witness for the Defendants. Ken Wenzel holds several patents related to the oil and gas industry. He spoke to a number of topics including:

- His business relationships with his brothers;

- his involvement in a number of different companies in the downhole drilling tools industry;

- the development and use of the 3103 assembly (described later in these Reasons); and

- his knowledge of the '630 Patent.

[27] Mr. David Kutinsky was a fact witness for the Defendants. He is a draftsman in the oil industry and he has worked with a number of downhole drilling tools including drilling jars, shock tools, mud motors and their components. Of particular relevance, Mr. Kutinsky worked with Mr. Ken Wenzel at Griffith. His testimony included the following topics:

- the operation of a bearing assembly;

- his working relationship with Ken Wenzel;

- the development of the 3124, 238, 3103, and 3104 bearing assemblies; and

- the design process, including document dating procedures.

[28] Mr. Wayne Kanak, a fact witness for the Defendants, is an intellectual property lawyer for Schlumberger Canada Limited (Schlumberger). He previously acted as patent counsel for that company. Mr. Kanak gave evidence regarding the operations of Anadrill, a former division of Schlumberger and his investigation into the allegation of infringement of Bill Wenzel's US patent for the '630 bearing assembly.

[29] Mr. Michael Finnie is a digital forensic specialist. His work involves identifying, collecting, preserving and analyzing digitally stored evidence, often in the course of litigation. He is also an instructor at the University of Washington in the Computer Forensics certificate program. The Court qualified Mr. Finnie as an expert in digital forensics to give evidence regarding the collection, preservation, and analysis of digitally stored media, software and files, including the forensic analysis of electronic discovery and the assessment and analysis of metadata and encrypted information on digitally stored media, software and files, including items such as dates. Mr. Finnie spoke to the nature of metadata and his analysis of the creation date of various AutoCAD files of the Defendants.

[30] Mr. Allan Nelson is a professional engineer with a consulting firm. He has been involved in drilling and service rig repair, design and operation since obtaining a degree in mechanical engineering in the design field. Mr. Nelson’s consulting work includes drill pipe and bottom hole tool failure analysis, downhole equipment design, and general machinery design. Mr. Nelson has done patent analysis work and he has also worked with bearings, bearing assemblies, tubular members, axial and radial forces, and relative rotation dynamics. Mr. Nelson was qualified by the Court as an expert mechanical engineer regarding the construction and scope of the '630 Patent, prior art relating to the '630 Patent, specifically regarding anticipation and obviousness, and the characteristics of a person of ordinary skill in the art. Mr. Nelson provided opinions on the person of ordinary skill in the art, claims construction, prior art, obviousness, inventiveness, and utility.

[31] Dr. Gary Wooley is a consulting petroleum and mechanical engineer and a registered professional engineer in Texas. He holds a PhD in engineering science. The Court qualified Dr. Wooley as an expert in petroleum and mechanical engineering to give expert opinion evidence on the construction and scope of the '630 Patent, prior art relating to anticipation and obviousness, and the characteristics of a person of ordinary skill in the art. Dr. Wooley spoke to all of those issues, particularly prior art and the common general knowledge of the person of ordinary skill in the art. Dr. Wooley also provided assistance to the Court on the issue of utility.

[32] Mr. Jack Miller is a professional mechanical engineer. He has experience in the field of mechanical design, including the design of a mud motor driven core barrel. Several patents have been filed in his name. Mr. Miller was qualified by the court as an expert mechanical engineer to give expert opinion evidence on the construction and scope of the '630 Patent, prior art, obviousness, utility, and characteristics of a person of ordinary skill in the art. Mr. Miller provided opinions on all of these issues, particularly prior art and the terminology used in the '630 claims. Mr. Miller also considered the Canadian and US file wrappers and spoke to the availability of the prior art.

V. CLAIMS CONSTRUCTION

A. *Applicable principles of claims construction*

[33] Before turning to the issues of invalidity and infringement, as taught by the Supreme Court of Canada, I must construe the relevant claims of the '630 Patent (*Whirlpool Corp v Camco Inc*, 2000 SCC 67 at para 43, [2000] 2 SCR 1067 [*Whirlpool*]; *Free World Trust v Électro Santé Inc*, 2000 SCC 66 at para 15, [2000] 2 SCR 1024 [*Free World Trust*]).

[34] In construing this patent, I am mindful of the guidance from the decisions of the Supreme Court of Canada (*Whirlpool*, above; *Free World Trust*, above). These cases teach that patent claims are to be construed in an informed and purposive fashion and that excessive literalism is to be avoided. As Justice Binnie explained in *Whirlpool*, above at paragraph 45:

> The key to purposive construction is therefore the identification by the court, with the assistance of the skilled reader, of the particular words or phrases in the claims that describe what the inventor considered to be the “essential” elements of his invention.

[35] Construction of the patent must be done through the eyes of a person of ordinary skill in the art. My first task is to determine the attributes of such a person. The Supreme Court offered the following guidance on the identification of the person of ordinary skill in the art in *Whirlpool*, above at paragraph 53:

> [T]he patent specification is not addressed to grammarians, etymologists or to the public generally, but to skilled individuals sufficiently versed in the art to which the patent relates to enable them on a technical level to appreciate the nature and description of the invention: H. G. Fox, *The Canadian Law and Practice Relating to Letters Patent for Inventions* (4th ed. 1969), at p. 185.

[36] In *Free World Trust*, above at paragraph 44, Justice Binnie stated as follows:

> The patent is not addressed to an ordinary member of the public, but to a worker skilled in the art described by Dr. Fox [in Fox, Harold G. *The Canadian Law and Practice Relating to Letters Patent for Inventions*, 4th ed. Toronto: Carswell, 1969, at 184] as
>
> > a hypothetical person possessing the ordinary skill and knowledge of the particular art to which the invention relates, and a mind willing to understand a specification that is addressed to him. This hypothetical person has sometimes been equated with the "reasonable man" used as a standard in negligence cases. He is assumed to be a man who is going to try to achieve success and not one who is looking for difficulties or seeking failure.
> >
> > (Fox, *supra*, at p. 184)

[37] For purposes of claims construction, the relevant date is the date of the publication or the date upon which the patent was laid open (*Free World Trust*, above at paras 53-54). In this case, that date is April 2, 1992.

[38] In general, what makes an element essential? A useful explanation was provided by Lord Diplock in the House of Lord's decision in *Catnic Components Ltd v Hill & Smith Ltd*, [1982] RPC 183 at 242-243 (cited in *Whirlpool*, above at para 44):

> My Lords, a patent specification is a unilateral statement by the patentee, in words of his own choosing, addressed to those likely to have a practical interest in the subject matter of his invention (i.e. "skilled in the art"), by which he informs them what he claims to be the essential features of the new product or process for which the letters patent grant him a monopoly. It is those novel features only that he claims to be essential that constitute the so-called "pith and marrow" of the claim. A patent specification should be given a purposive construction rather than a purely literal one derived from applying to it the kind of meticulous verbal analysis in which lawyers are too often tempted by their training to indulge. The question in each case is: whether persons with practical knowledge and experience of the kind of work in which the

> invention was intended to be used, would understand that strict compliance with a particular descriptive word or phrase appearing in a claim was intended by the patentee to be an essential requirement of the invention so that *any* variant would fall outside the monopoly claimed, even though it could have no material effect upon the way the invention worked.
>
> [Italics in original; underlining added].

[39] In very succinct terms, an essential element is one that, if it were changed, would affect how the invention works.

[40] A difference of opinion has arisen in this case as to the extent to which the patent specification may play a role in the construction of the claims. The question is always what the person skilled in the art would have understood the language of the claim to mean. For this purpose, the language the patentee has chosen is usually of critical importance. However, the jurisprudence teaches that, where necessary, the whole of the patent, and not only the claims, should be considered (*Eli Lilly Canada Inc v Apotex Inc*, 2008 FC 142 at para 25, 323 FTR 56; *Eli Lilly Canada Inc v Novopharm Ltd*, 2007 FC 596 at para 103, [2008] 2 FCR 749). The Court should construe the claims in light of the description in the specification, assisted by experts as to the meaning of technical terms if such terms cannot be understood by the Court from reading the specification (*Shire Biochem Inc. v. Canada (Minister of Health),* 2008 FC 538 at para 22, 328 FTR 123 ; *Whirlpool*, above at para 45). But, as strongly cautioned by the jurisprudence, the specification may not be used to expand or contract the substance of what is claimed (*Whirlpool*, above at para 52; *Janssen-Ortho Inc v Canada (Minister of Health),* 2010 FC 42 at paras 115-19, 361 FTR 268).

[41] With these principles in mind, I turn to the '630 Patent. I will begin by defining our person of ordinary skill in the art. I will then move to the patent description and claims, focusing on the points of disagreement between the parties. Finally, in light of the analysis, I will set out what I believe would be seen as the essential elements of the '630 Patent.

B. *Person of ordinary skill in the art*

[42] As noted above, the relevant claims of the '630 Patent must be construed from the point of view of a person of ordinary skill in the art. The Plaintiffs correctly highlight the word "ordinary" in the context of describing our notional person of ordinary skill in the art. I agree that persons such as the experts who presented their opinions during this trial and the inventor, Bill Wenzel, and his brother, Ken Wenzel, should not be considered to be the person of ordinary skill to whom the patent is addressed. However, also correctly, the Defendants emphasize that this person must have "skill in the art".

[43] Each of the experts provided me with their criteria for the skilled person. Dr. Wooley, in his expert report described the person of ordinary skill in the art as follows (Exhibit 1, Tab 59, s 1.2.1.).

> In my experience with directional drilling and the mechanics of downhole tools such as mud motors, persons skilled in the art that might try to understand the Wenzel 630 Patent and other similar devices would be a person with mechanical aptitude and experience, some understanding of downhole conditions and operations, and a reasonable amount of training, but may not be a degreed engineer.

In his Rebuttal Report, Mr. Thicke, the expert retained by the Plaintiffs, agreed with this description (Exhibit 1, Tab 54, Appendix 12).

[44] When asked during his examination-in-chief, Mr. Miller provided an excellent description of the skilled person's attributes:

> Well, it would obviously be someone who is -- who is [in the] business is to develop downhole tools and that it would be somebody who has had to struggle with packaging bearing assemblies, maybe someone who has -- has actually seen a service problems, has experience with service problems with bearings and one who would be on the lookout for a bearing assembly that might work for him.
>
> As far as how technically talented they are, I think they would be very technically talented. Education is no certification of that, in my opinion. So it could be somebody who has worked in the shop, although not likely, is probably someone who actually had to do the layouts of how these things all fit together on paper, you know. So it's not likely to be somebody who just -- who is a service hand, so to speak. It will be somebody who is inclined to understand and appreciate how these tools work.

[45] While the other experts who opined on the skilled person used somewhat different language, their views did not diverge substantially from those of Dr. Wooley, as further refined by Mr. Miller.

[46] Taking all of these comments into account, I am satisfied that, while our skilled person may not have much formal education, he (or she) has the ability to understand the drawings and claims of a patent in the field. From his experience, he would have a working knowledge of many mechanical devices – how they are constructed, used and how they work. This knowledge would extend to an understanding of how oil and gas wells are drilled, including the various

drilling environments. He would also have a basic (albeit not highly technical) comprehension of the forces that are in play under different conditions. He may have some experience adapting or modifying existing tools to meet a need; to that extent, he would have some limited ability to design devices. The characteristics of the person that I have described, in my view, strike a balance between someone who is merely "ordinary" and someone who brings inventiveness to the task at hand.

C. *The '630 Patent*

[47] In assessing the claims of the patent, it is useful to begin with an overview of how the bearing assembly of the '630 Patent is intended to work. In this regard, the experts did not disagree. The diagram below is a replication of Figure 2 from the patent, with the addition of label "14" to depict the inner tubular member. Figure 2 is a close-up version of the bearing assembly set out in Figure 1 of the '630 Patent.

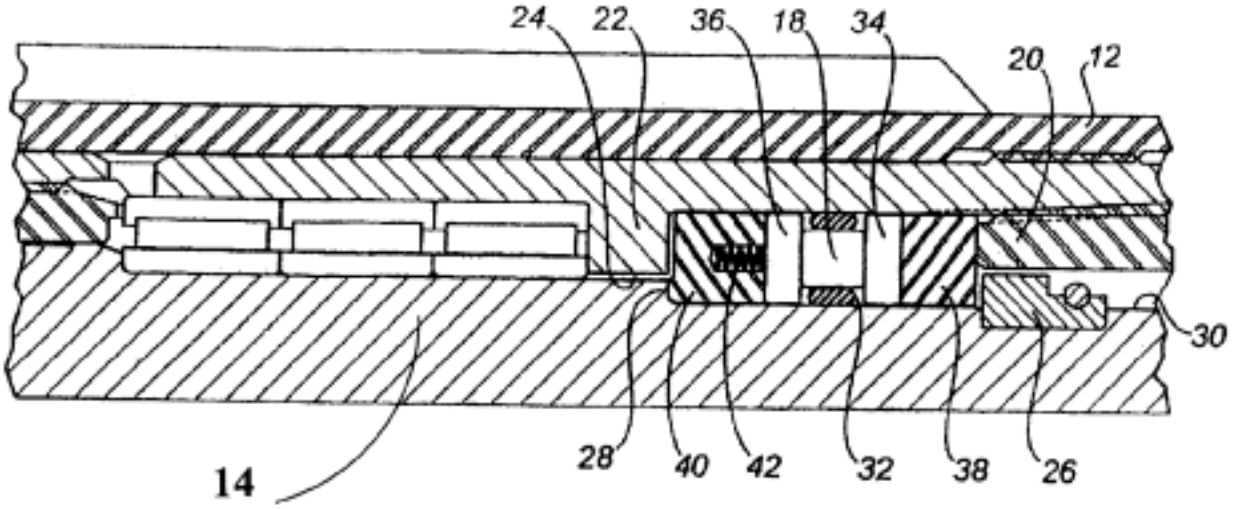


FIG. 2

[48] The operation of the assemply depicted in Figures 1 and 2 is set out at page 7 of the Patent and was described in clear terms by Mr. Miller (Exhibit 1, Tab 58B at 3) as follows:

> Figure 1 illustrates a schematic of the bearing chamber described in the 630 Patent defined by the downwardly facing outer shoulder 20, the downwardly facing inner shoulder 26, the upwardly facing outer shoulder 22, and the upwardly facing inner shoulder 28. What is described and depicted in the figure is simply a four-shouldered thrust bearing containment chamber 32 formed between the outer tubular member 12 and the inner tubular member 14. The containment chamber is also described (or defined) in claims 1a, 1b, 2a, and 2b of the 630 Patent.
>
> The thrust bearing assembly inclusive of races and rollers is shown in Figure 1 as items 34, 36, and 18.
>
> [diagram omitted]
>
> As the inner tube 14 (mandrel) moves upward with respect to the outer tube 12 (housing) (the "on-bottom" condition, meaning while drilling on the well bottom) from the neutral position, the chamber between the closing shoulders becomes shorter. Similarly, as the inner tube moves downward with respect to the outer tube (the "off-bottom" condition, meaning the assembly is lifted from the on-bottom position) from the neutral position, the chamber between the shoulders also becomes shorter.
>
> Since the thrust bearing spans across the inner and outer shoulders, it is obvious that the motion in either direction (i.e., compression or tension) loads the bearing in compression. The stated advantages of this arrangement are that it allows for a single bearing assembly to be used for both thrust directions and, therefore, the assembly may be shorter than would be possible if using separate bearings for upward thrust loads and downward thrust loads.

D. *The claims*

[49] The '630 Patent makes three claims. Only Claims 1 and 2 are in issue in this trial.

[50] Claim 1 of the '630 Patent is a claim to a method of operating a bearing assembly using the known components set out in the introduction and the novel steps described in sub-items a, b and c of Claim 1:

> 1. A method of increasing the off bottom load capacity of a bearing assembly having an outer tubular member, an inner tubular member telescopically received within the outer tubular member, and bearings disposed between the inner tubular member and outer tubular member to facilitate relative rotation of the outer tubular member and inner tubular member while accommodating radial and axial loads, comprising the steps of:
>
> a. firstly, forming a first shoulder and a second shoulder in opposed spaced relation on an interior surface of the outer tubular member;
>
> b. secondly, forming a first shoulder and a second shoulder in opposed spaced relation on an exterior surface of the inner tubular member, the shoulders on the inner tubular member being generally aligned with the shoulders on the outer tubular member thereby defining a containment chamber; and
>
> c. thirdly, placing at least one thrust bearing in the containment chamber, the thrust bearing having a first side race and a second side race, such that when the bearing assembly is placed in compression the first shoulder of the outer tubular member bears against the first side race and the second shoulder of the inner tubular member bears against the second side race, and when the bearing assembly is placed in tension the second shoulder of the outer tubular member bears against the second side race and the first shoulder of the inner tubular member bears against the first side race.

[51] Claim 2 is a claim to an improvement in a bearing assembly. The improvement consists of sub-items a, b and c. It is significant that Claim 2 is not a dependent claim; apparently, the inventor intended that each of the two Claims could stand on its own.

> 2. An improvement in a bearing assembly having an outer tubular member, an inner tubular member telescopically received within the outer tubular member, and bearings disposed between the inner tubular member and outer tubular member to facilitate relative rotation of the outer tubular member and inner tubular

> member while bearing radial and axial loads, the improvement comprising:
>
> a. a first shoulder and a second shoulder in opposed spaced relation on an interior surface of the outer tubular member;
>
> b. a first shoulder and a second shoulder in opposed spaced relation on an exterior surface of the inner tubular member, the shoulders on the inner tubular member being generally parallel to the shoulders on the outer tubular member thereby defining a containment chamber; and
>
> c. at least one thrust bearing disposed in the containment chamber, the thrust bearing having a first side race and a second side race, such that when the bearing assembly in placed in compression the first shoulder of the outer tubular member bears against the first side race and the second shoulder of the inner tubular member bears against the second side race, and when the bearing assembly is placed in tension the second shoulder of the outer tubular member bears against the second side race and the first shoulder of the inner tubular member bears against the first side race.

[52] Other than a grammatical change of tense to reflect the difference between a “method” (Claim 1) and an “improvement” (Claim 2), there is little difference between the two claims.

[53] Claim 3 is not directly in issue. This claim refers to a biasing means (spring) added to the containment chamber referred to in Claims 1 and 2. In other words, Claim 3 is a dependent claim. Thus, if I conclude that Claims 1 and 2 are invalid, Claim 3 will necessarily fail.

[54] The question of the appropriate claims construction focused on a number of specific terms and issues:

(a) Do the claims support a meaning that would limit their application to a downhole drilling motor?

(b) What is the meaning of “telescopically received” in Claims 1 and 2?

(c) What if anything is the significance of the use of the words “generally aligned” in Claim 1 as opposed to “generally parallel” in Claim 2?

(d) Does the term “inner tubular member” encompass both a cylindrical tube and a shaft?

[55] I will consider each of these questions.

(1) Application of the claims to a downhole drilling motor

[56] A major point of disagreement on claims construction is the question of the field of endeavour to which the claims relate. In the view of the Defendants, the claims are non-industry and non-product specific. In contrast, the Plaintiffs submit that the claims are related to a bearing assembly used in downhole earth-drilling.

[57] The Defendants rely on the testimony of Bill Wenzel to support their view that the claims are not limited to any industry-specific application. In particular, they point to the following exchange that took place during the cross-examination of Bill Wenzel by counsel for the Defendants:

> Q So are there any -- let's put it this way. Can I -- would you agree that the essence of your claimed invention is -- consists of the following. First of all, you've got four shoulders forming a containment unit?
>
> A That's correct.
>
> Q Secondly, you've got bearings in that containment unit?
>
> A Correct.
>
> Q One or more bearings, at least one bearing?
>
> A That's correct.
>
> Q You've got races?
>
> A That's correct. That's part of the bearing.
>
> Q Goes on either side of the bearing, is that it?
>
> A Yes, a bearing consists of basically three parts: a race, rollers and a race.
>
> Q Well, a bearing can be a ball bearing as well?
>
> A Yes, but it still has races on both sides.
>
> Q No, I don't dispute that. Just trying to suggest to you that a bearing could be either a roller bearing or a ball bearing?
>
> A Well, absolutely.
>
> Q So bearings and races, or if you want to say bearings including races, we're in agreement on that?
>
> A Yes.

> Q Okay, and then there's relative rotation between the outer and the inner tubular members; right?
>
> A That's correct.
>
> Q And that fancy term, outer and inner tubular members, is really simply a technical way, if you like, of describing a tube?
>
> A That's correct.
>
> Q A cylinder maybe?
>
> A Yes.
>
> Q Okay, so if you have those four things, if we can just go through them: the shoulders creating -- the four shoulders creating a containment unit; the bearings and races, if you include that as part of the bearings, or separately if you don't, but, in any event, and you've got relative rotation between the cylinders. Is that the essence of your claimed invention?
>
> A I guess, yes. Yes.

[58] The problem with the Defendants' reliance on Bill Wenzel's opinion for the construction of the patent is that Bill Wenzel is neither an expert entitled to provide me with opinion evidence nor a person of ordinary skill in the art through whose eyes I am to read the claims. For one thing, Bill Wenzel's simple description of the essence of his invention did not include certain of the components or elements identified by the experts. Specifically, a person of ordinary skill in the art would read the claims to include the placement and special relationship between the shoulders and the tubular members. Bill Wenzel's description of his invention is not of particular assistance on the question of claims construction.

[59] I acknowledge that the words of Claim 2 do not explicitly use the words "downhole" or "oil and gas" or "mud motor". Would that lead a skilled reader to the conclusion that the claims

– and, in particular, Claim 2 – are non-industry and non-product specific? I do not think that it would.

[60] As observed by the Defendants, the “preamble” to both Claim 1 and Claim 2 is a statement of the state of the art; the elements of the invention that are allegedly new and novel are set out in sub-claims a, b and c of each of the claims. In the preamble to Claim 1, the term “off bottom” is used. As confirmed by Mr. Thicke, this is a term normally associated with earth drilling. Yet, in an almost identical Claim 2, the term “off bottom” is not used. In light of this odd omission, my view is that the skilled reader would look to the specification for assistance in ascertaining the purpose and meaning of the claims.

[61] To give a purposive construction to the claims of a patent, it seems to me that one should understand the purpose of the invention and the problem that the invention sought to address. For the most part, inventors come to their patentable inventions in order to solve a problem. What was the problem that the '630 Patent was intended to address?

[62] As set out in the specification of the '630 Patent, until Bill Wenzel’s invention, it was the practice in the industry to have two separate groups of thrust bearings – one to take compression loading and the other to take tension loading – in a downhole drilling motor. According to Bill Wenzel’s description, because compression loading is normally much greater than tension loading, the off-bottom bearing was usually designed to take much less load than the set or group of on-bottom bearings. Bill Wenzel, in his patent, described this practice as a “weak link in the

design of bearing assemblies" (Patent, p. 1, lines 30-31). However, Bill Wenzel points out at pages 1-2 of the Patent that:

> [S]hould the drill string temporarily become stuck in the bore hole the upwardly jarring force used to dislodge the drill string often exceeds the load capability of the off bottom bearing and damages the bearing assembly.

[63] In his invention summary, Bill Wenzel indicates that his invention offers a "method of increasing the off bottom load capacity of a bearing assembly without increasing the length of the tool" (Patent, p. 2, lines 12-14). In sum, this then was the "problem" that was solved by the '630 Patent. The problem identified by Bill Wenzel was not a general one; it was unique to the use of a bearing assembly as part of a downhole drilling motor. The claims, if read as being more broadly framed, are not consistent with that purpose.

[64] Moreover, the '630 Patent bears the title of "Method of Increasing the Off Bottom Load Capacity of a Bearing Assembly" and, as directly stated in the patent specification, relates to that purpose. At page 1 of the Patent, at line 6, the inventor refers to his invention as a "downhole bearing assembly used in earth drilling". Other references in the Patent also speak to the field of the Patent; for example:

- Figures 1 and 2 both clearly depict the bearing assembly in the context of a downhole drilling motor.

- At p. 1, lines 15-18, the statement is made that “compression loading is the greater of the two in an earth drilling application as the weight of the drill string is brought to bear on the bearing assembly” [Emphasis added].

[65] As stated by Dr. Wooley in his expert report (Exhibit 1, Tab 59, s 3.1.1), “[c]learly the Wenzel 630 Patent is designed for downhole tools used for drilling …”. I agree. The '630 Patent is directed to a downhole drilling motor and, in my view, there is no doubt that the skilled reader would read the claims in that context. Stated in the negative, a skilled reader would not conclude that this Patent is directed to a bearing assembly such as that seen, for example, in a railway wheel or a bearing assembly for use in any other oilfield application.

[66] In sum, reading the claims in a purposive manner, consistent with the specification and the drawings, would lead the reader inextricably to a bearing assembly for a downhole drilling motor. To read the claims in a manner that included any bearing assembly application, as suggested by the Defendants, would expand the claims beyond the scope of the '630 Patent.

(2) “Telescopically received”

[67] There was some discussion about the term “telescopically received” in Claims 1 and 2. Having heard the expert testimony on this issue, it appears to me that the words “telescopically received” add nothing whatsoever to the claims. These are not claims that speak to the assembly of the bearing assembly. Nor does the bearing assembly operate to facilitate movement of one

tubular member up and down while the other stays stationary; the movement accommodated is a rotational movement of one tubular member in relation to the other member.

(3) "Generally aligned" vs "generally parallel"

[68] In Claim 1, the inventor uses the words "generally aligned" to describe the relative placement of the shoulders on the inner tubular member with the shoulders on the outer tubular member. In Claim 2, the words "generally parallel" are used. This is an odd difference. It is clear that something that is aligned may not be parallel to the opposing object. The term "parallel" has a precise mathematical meaning; "aligned" does not.

[69] When asked about this difference, Mr. Miller responded as follows:

> It's a mystery to me. . . . You can have parallelism without being aligned. So you know, technically speaking, [its] parallelism wouldn't be enough to -- would not be enough to form the containment chamber as envisioned.

Further on in his testimony, Mr. Miller acknowledged that, taking into account the drawings and sketching out all of the elements, one could come to the conclusion that the use of the word "parallel" means the same thing as "aligned". I agree that this interpretation would give the most purposeful meaning.

[70] Reading the words "parallel" and "aligned" in context is also helpful. As stated in each of the claims, whether the shoulders are aligned or parallel, the object is to position the shoulders such that they define a containment chamber. It may be that the words "parallel to" and "aligned

with” could be replaced with the word “positioned next to”. The important thing is that the shoulders are positioned in such a manner as to form a containment chamber.

[71] In addition, I note the use of the adverb “generally” to modify both “aligned” and “parallel”. That word connotes a relaxation of any strict requirement of either “aligned” or “parallel” leaving our notional skilled person (and this judge) to conclude that the better view is that “generally aligned” has the same meaning as “generally parallel”. In either case, the word “generally” means that some small variations could be made or that the majority – but possibly not all – of the surfaces of the shoulders are aligned with the other shoulders.

(4) “Inner tubular member”

[72] The Defendants submit that the term “inner tubular member” could include both a cylinder with a hole through the centre or a solid shaft. For purposes of construction of the claims, I do not agree.

[73] As stated above, I am satisfied that a purposive construction of the '630 Patent claims limits their applicability to a downhole drilling motor. In that context, “inner tubular member” cannot refer to a solid shaft. The use of a solid shaft would not permit the drilling motor to operate as intended. The term “inner tubular member” must mean a cylinder with a hollow centre.

E. *Essential elements*

[74] In view of the foregoing analysis, what are the essential elements of Claims 1 and 2 of the '630 Patent? In his expert report (Exhibit 1, Tab 59, s 3.3.1), Dr. Wooley provided a comprehensive list of the individual components of these two claims:

1. An outer tubular member.

2. An inner tubular member telescopically received within the outer tubular member.

3. Bearings between the inner tubular member and outer tubular member to facilitate relative rotation of the outer tubular member and inner tubular member while accommodating radial and axial loads.

4. A first shoulder and a second shoulder in opposed spaced relation on an interior surface of the outer tubular member.

5. A first shoulder and a second shoulder in opposed spaced relation on an exterior surface of the inner tubular member.

6. The shoulders on the inner tubular member being generally aligned (or parallel - claim 2) with the shoulders on the outer tubular member thereby defining a containment chamber.

7. At least one thrust bearing in the containment chamber.

8. The thrust bearing having a first side race and a second side race such that when the bearing assembly is placed in compression the first shoulder of the outer tubular member bears against the first side race and the second shoulder of the inner tubular member bears against the second side race.

9. When the bearing assembly is placed in tension the second shoulder of the outer tubular member bears against the second side race and the first shoulder of the inner tubular member bears against the first side race.

[75] Mr. Thicke agreed with this list of components (Exhibit 1, Tab 54, Appendix 12). While I agree that these are the components of the '630 Patent, we still must determine the essential components of the Claims.

[76] The first three components are, as acknowledged by the inventor in the specification and as set out in Claims 1 and 2, simply references to the state of the art that existed at the time of Bill Wenzel's invention. The "inventive" or essential components to the invention are found in components 4 to 9 of the above list.

F. *Conclusion on claims construction*

[77] In summary on the issue of claims construction, I conclude that Claim 1 (the method) and Claim 2 (the improvement) are directed to a downhole drilling motor that includes an outer tubular member, an inner tubular member and bearings between the inner tubular member and outer tubular member to facilitate relative rotation of the outer tubular member and inner tubular member while accommodating radial and axial loads. The inner tubular member is a cylinder with a hollow centre. The essential elements of the invention disclosed by Claims 1 and 2 are as follows:

1. A first shoulder and a second shoulder in opposed spaced relation on an interior surface of the outer tubular member.

2. A first shoulder and a second shoulder in opposed spaced relation on an exterior surface of the inner tubular member.

3. The shoulders on the inner tubular member being generally aligned (or parallel) with the shoulders on the outer tubular member in such a manner as to define a containment chamber.

4. At least one thrust bearing in the containment chamber.

5. The thrust bearing having a first side race and a second side race such that:

(a) when the bearing assembly is placed in compression the first shoulder of the outer tubular member bears against the first side race and the second shoulder of the inner tubular member bears against the second side race; and

(b) when the bearing assembly is placed in tension the second shoulder of the outer tubular member bears against the second side race and the first shoulder of the inner tubular member bears against the first side race.

[78] This then is the construction that will inform my analysis of the remaining issues in this litigation.

VI. ANTICIPATION

[79] The Defendants submit that the '630 Patent is invalid for anticipation. Specifically, they claim that the invention of the '630 Patent was anticipated by:

- a drilling motor bearing assembly (the 3103 assembly) designed by Ken Wenzel, built by Griffith Oil Tool and used in a drilling operation prior to the '630 Patent filing date of October 1, 1990; or

- a core barrel, which is a device used in coring, an operation often part of drilling an oil or gas well and which device was well known in oil and gas operations for many decades prior to the '630 Patent.

A. *General principles*

[80] I begin this section of the Reasons by referring to the general legal principles of anticipation.

[81] The concept of anticipation arises from s. 28.2 of the *Patent Act*, RSC 1985, c P-4 [*Patent Act* or *Act*]. In short, this provision requires that the "subject matter defined by a claim" must not have been disclosed to the public before the claim date "in such a manner that the subject-matter became available to the public in Canada or elsewhere". Section 28.2(b) is the relevant provision; it states:

Subject-matter of claim must not be previously disclosed	Objet non divulgué
28.2 (1) The subject-matter defined by a claim in an application for a patent in Canada (the "pending application") must not have been disclosed	**28.2** (1) L'objet que définit la revendication d'une demande de brevet ne doit pas :
. . .	. . .
(*b*) before the claim date by a person not mentioned in paragraph (*a*) in such a manner that the subject-matter became available to the public in Canada or elsewhere;	*b*) avant la date de la revendication, avoir fait, de la part d'une autre personne, l'objet d'une communication qui l'a rendu accessible au public au Canada ou ailleurs;

[82] The leading case on the question of anticipation is the Supreme Court's decision in *Apotex Inc v Sanofi-Synthelabo Canada Inc*, 2008 SCC 61, [2008] 3 SCR 265 [*Sanofi-Synthelabo*]. In that case, the Supreme Court concluded that the issue of whether an invention is anticipated by the prior art requires that the Court have regard to two questions:

1. Was the subject matter of the invention disclosed to the public by a single disclosure?

2. If there has been such a clear disclosure, is the working of the invention enabled by that disclosure?

[83] At the first step of the analysis, the Supreme Court provided the following guidance at paragraph 25:

> When considering the role of the person skilled in the art in respect of disclosure, the skilled person is "taken to be trying to understand what the author of the description [in the prior patent] meant" (para. 32). At this stage, there is no room for trial and error or experimentation by the skilled person. He is simply reading the prior patent for the purposes of understanding it.

[84] Once disclosure has been made out, the question of enablement arises. Enablement was described by the Supreme Court at paragraph 27:

> Once the subject matter of the invention is disclosed by the prior patent, the person skilled in the art is assumed to be willing to make trial and error experiments to get it to work. While trial and error experimentation is permitted at the enablement stage, it is not at the disclosure stage. For purposes of enablement, the question is no longer what the skilled person would think the disclosure of the prior patent meant, but whether he or she would be able to work the invention.

[85] The evidence relevant to anticipation consists solely of the prior art as understood by the skilled person (*Weatherford Canada Ltd v Corlac Inc*, 2011 FCA 228 at para 42, [2011] FCJ No 1090 (QL), rev'g on other grounds 2010 FC 602, 370 FTR 54 [*Weatherford FCA*]).

[86] In this case, the key question is whether the 3103 assembly was disclosed "in such a manner that the subject-matter became available to the public in Canada or elsewhere". With respect to this issue, the case of *Baker Petrolite Corp v Canwell-Enviro Industries Ltd*, 2002 FCA 158, 211 DLR (4th) 696 [*Baker*] is helpful. In that case, at paragraph 42, the Court of Appeal presented a non-exhaustive list of eight principles relevant to disclosure by prior use or sale. While *Baker* predates the Supreme Court's decision in *Sanofi-Synthelabo*, the first and second principles articulated by Justice Rothstein (as he then was) in *Baker* arguably presage *Sanofi-Synthelabo*. Principles three and six are of particular relevance to the case at bar:

> 3. The prior sale or use of a chemical product will constitute enabling disclosure to the public if its composition can be discovered through analysis of the product ….
>
> 6. It is not necessary to demonstrate that a member of the public actually analyzed the product that was sold. In *Lux, supra*, Aldous J. stated at page 133:
>
> > Further it is settled law that there is no need to prove that anybody actually saw the disclosure provided the relevant disclosure was in public. Thus an anticipating description in a book will invalidate a patent if the book is on a shelf of a library open to the public, <u>whether or not anybody read the book</u> and whether or not it was situated in a dark and dusty corner of the library. If the book is available to the public, then the public have the right to make and use the information in the book without hindrance from a monopoly granted by the State. [Emphasis added]

> Although the comments of Aldous J. use the example of prior publication to make the point, *Lux* was a prior use case and the principle derived from his example is equally applicable to prior use or sale as well as prior publication.
>
> [Underlining and italics in original.]

[87] More recently, in *Bauer Hockey Corp v Easton Sports Canada Inc*, 2010 FC 361 at para 220, 366 FTR 24, aff'd 2011 FCA 83, 414 NR 69 [*Bauer FC*] [emphasis in *Bauer FC*; footnotes omitted], this Court adopted the test for disclosure by prior use or sale of a machine articulated by Justice Aldous in *Lux Traffic Controls Limited v Pike Signals*, [1993] RPC 107 (Pat Ct) at 134 [*Lux*]:

> In the case of a written description, what is made available to the public is the description and it is irrelevant whether it is read. In the case of a machine it is that machine which is made available and it is irrelevant whether it is operated in public. A machine like a book can be examined and the information gleaned can be written down. Thus what is made available to the public by a machine, such as a light control system, is that which the skilled man would, if asked to describe its construction and operation, write down having carried out an appropriate test or examination. <u>To invalidate the patent, the description that such a man would write down must be a clear and unambiguous description of the invention claimed.</u>

[88] What is made available to the public will depend on the type of examination possible in the circumstances — for example, whether the article is in the possession, of the public or whether the public can only look at it (*Lux*, above at 134). This principle is illustrated by *Bauer Hockey Corp v Easton Sports Canada Inc*, 2011 FCA 83 at paras 64-71, 414 NR 69, aff'g 2010 FC 361 [*Bauer FCA*], where the Court of Appeal upheld the trial judge's finding that there was no public disclosure at a Test League game because the prototype skates were only available for visual inspection, and neither testing nor close examination was possible. As a result, the

essential elements of Bauer's patent would not have been revealed to a skilled person attending a game and observing the skates worn by the participants.

[89] The "public" has been defined as "a person who [is] free in law and equity to use the information" (*Lux*, above at 132). Whether a purchaser decides to keep the analysis confidential is not a relevant consideration; the unconditional sale of the product by itself makes the product available to the public (*Baker*, above at para 97). Accordingly, a disclosure will not make an invention "available to the public" if it occurs in circumstances giving rise to a duty of confidentiality (*Weatherford FCA*, above at para 52). This is because "[t]he receipt of confidential information in circumstances of confidence establishes a duty not to use that information for any purpose other than that for which it was conveyed" (*Lac Minerals Ltd v International Corona Resources Ltd*, [1989] 2 SCR 574 at para 135, [1989] SCJ No 83 (QL) [*Lac Minerals*]; *Weatherford FCA*, above at para 52).

[90] An experimental use may also fail to establish public disclosure. However, a use will only be experimental if it is so in the mind of the user (*Gibney v Ford Motor Co of Canada*, 52 CRP 140 at 163, [1967] 2 ExCR 279 [*Gibney*]). The placing of a single device in the hands of a customer without restrictions as to its use or requirement of secrecy has been held to constitute prior use so as to invalidate a patent (*Gibney*, above at 161-4).

B. *Application to the evidence*

[91] With this guidance from the jurisprudence, I turn to the evidence and arguments before me in this litigation.

[92] I begin with the assertion by the Defendants that the bearing assemblies contained in core barrels – devices used in the oil and gas industry for decades – anticipated the subject-matter of the '630 Patent. In the section of these Reasons dealing with obviousness (beginning at paragraph 147), I discuss the differences between a core barrel (as presented by the Defendants) and the '630 Patent bearing assembly. In my view, those differences are sufficient to conclude that the core barrel does not contain the subject matter defined by Claims 1 or 2 of the '630 Patent. Accordingly, the claim of anticipation fails with respect to the core barrel as prior art. The differences are discussed at greater length in the section of these Reasons on obviousness.

[93] The 3103 assembly presents a much different situation. The 3103 bearing assembly was designed and built for use in a downhole drilling motor. The Defendants claim that it was designed by Ken Wenzel sometime around August or September of 1989. Ken Wenzel testified that the 3103 assembly was a short tool with a sealed bearing assembly and four shoulders forming a containment chamber with a single bearing that accepted both on- and off-bottom forces. According to Ken Wenzel, Griffith Oil Tool constructed 3103 assemblies and rented them to Ensco Technology Company (Ensco), which used them on a job for Oryx Energy Company (Oryx) in Dilley, Texas in early 1990 (Exhibit 1, Tab 16). Most importantly, the unpatented 3103 assembly fulfils exactly the same function as the bearing assembly described in

the '630 Patent. The Defendants submit that the subject matter of the '630 Patent was clearly anticipated by the 3103 assembly.

[94] The first branch of the test is disclosure. The question of disclosure raises three distinct sub-issues:

1. Does the prior art contain the subject matter defined by the '630 claims?

2. Was the prior art disclosed before the ‘630 Patent claim date?

3. Was the disclosure of the subject matter of the '630 Patent available to the public?

[95] Only if the answer to all of these questions is affirmative, will the Defendants be able to establish the first branch of the test set out in *Sanofi-Synthelabo*, above.

(1) Does the 3103 assembly contain the subject matter of the '630 Patent?

[96] The '630 Patent will only be anticipated if a piece of prior art contained the subject-matter defined by its claims. The prior art need only disclose the invention, and not the exact product (*Baker*, above at paras 42 #8, 77).

[97] The essential elements of Claims 1 and 2 of the '630 Patent are set out above, at paragraph 77.

[98] Having heard the experts and reviewed the evidence before me, I am satisfied that there is only one difference between the 3103 assembly and the '630 Patent that is remotely relevant. That difference is the existence of bevels on the shoulders in the 3103 assembly; the '630 Patent does not explicitly refer to beveled shoulders.

[99] None of the experts suggested that the '630 Patent prohibited beveled shoulders. On cross-examination, Mr. Thicke conceded that the '630 Patent does not specify a design for the four shoulders, nor does it prohibit beveled shoulders.

[100] Both Mr. Nelson and Dr. Wooley testified that the claims of the '630 Patent do not specify whether its shoulders must be straight or angled. Mr. Nelson opined that the angled shoulders of the 3103 assembly were parallel, although he characterized them as “parallel and interactive” because the shoulders form the transmission of the load from the inner and outer members to the bearing assembly. Mr. Nelson explained that the shoulders were parallel because the tapers of the shoulders were parallel to each other. In other words, there were two sets of parallel shoulders. Mr. Nelson opined that this arrangement satisfied the requirements of the '630 Patent, and concluded that the 3103 assembly contains all the elements of the '630 Patent.
Dr. Wooley similarly testified that the claims of the '630 Patent do not require that the shoulders be parallel at a 90-degree angle to the axis. Dr. Wooley explained that the bevelled shoulders of the 3103 assembly perform the same function even though they are not 90 degrees to the axis, and that they are still parallel shoulders. Dr. Wooley also concluded that the 3103 assembly “essentially contains all of the elements from the '630 patent claims”. I agree with Dr. Wooley and Mr. Nelson.

[101] As found in the analysis of claims construction, the use of the word “generally” to modify “parallel” and “aligned” in Claims 1 and 2 permits small variations to be made to the majority, but perhaps not all, of the shoulder surfaces of the '630 Patent. The '630 Patent accordingly does not require square shoulders. I am satisfied that the existence of beveled shoulders on the 3103 bearing assembly does not detract from a conclusion that the 3103 assembly contains all essential elements of the '630 Patent.

[102] This conclusion is supported by Mr. Thicke’s testimony that it would be fairly straightforward to turn the 3103 assembly into the '630 Patent by flattening the shoulders. Mr. Thicke’s analysis supports the conclusion that the 3103 assembly would infringe the '630 Patent had it been constructed at a later date.

[103] Mr. Thicke also pointed out a few other differences between the two assemblies. Specifically, he opined that the '630 Patent has firmer shoulders and separates the radial bearings from the load path, and that the '630 assembly contains an integral lower shoulder, while the 3103 assembly has a weaker support structure on the lower support. None of these minor differences was shown to make any material difference to the operation of the 3103 assembly. Moreover, none of these alleged variations is reflected in the claims of the '630 Patent, as construed earlier in these Reasons.

[104] I find that the 3103 assembly, therefore, contains the subject matter defined by the claims of the '630 Patent. Quite simply, if a skilled person were to make a bearing assembly in

accordance with the design for the 3103 bearing assembly, he would be making a bearing assembly that falls within the scope of Claims 1 and 2 of the '630 Patent.

(2) Did the 3103 assembly pre-date the '630 Patent?

[105] The next question is whether the 3103 assembly pre-dated the '630 Patent claims. The relevant date for the anticipation analysis is October 1, 1990, the claim date of the '630 Patent. The '630 Patent will only be invalid if the prior art was disclosed before that date. Since Ken Wenzel never applied for a patent for the 3103 assembly, we must closely examine the facts to establish whether it was designed and put into use before the claim date of the '630 Patent.

[106] The parties disagree on the date of the creation of the Defendants' 3103 assembly. Ken Wenzel testified that the 3103 assembly developed out of a full scale, hand-drawn layout drawing he prepared in or about August or September 1989. While Ken Wenzel recalled that two 3103 assemblies were constructed at Griffith after the layout and parts drawings were created, he was uncertain as to whether a third tool was also built. Ken Wenzel testified that the 3103 assemblies were tested in Griffith's Edmonton shop before they were shipped to Griffith's rental shop in Rosenberg, Texas, which was just outside of Houston. Ken Wenzel explained that, from there, the 3103 assemblies were rented to Ensco and shipped to Dilley, Texas, where Ensco was undertaking a drilling job for Oryx. Cross-examination failed to shake Ken Wenzel from the essentials of his testimony; he was a credible witness.

[107] Mr. Kutinsky was a draftsman at Griffith from sometime in late 1986 or early 1987 until December 31, 1990. His testimony more or less corroborated Ken Wenzel's evidence, although Mr. Kutinsky did exhibit some confusion regarding the dates of relevant events. Mr. Kutinsky was not certain as to the nature of the layout drawing he received from Ken Wenzel or the date he received it, but he testified that he prepared AutoCAD assembly drawings of the 3103 as well as parts drawings. Mr. Kutinsky explained that he would typically make two or more assembly drawings: a first drawing before he drew the parts; and, a second revised assembly drawing after the parts drawings were complete.

[108] While Mr. Kutinsky initially testified that he finished the assembly drawing sometime around September 27, 1989, on cross-examination he stated that he completed his final assembly drawing on November 6, 1989. Mr. Kutinsky further testified that he likely prepared a parts list after creating the second assembly drawing, and that the parts list was created on October 23, 1989. That date precedes the date of Mr. Kutinsky's final assembly drawing.

[109] The Plaintiffs point to the contradictions in Mr. Kutinsky's testimony, as well as several other inconsistencies in the dates of assembly drawings, parts lists, and parts drawings, and attempt to draw the inference that the first 3103 assembly was constructed sometime after May 1990. Further, Bill Wenzel testified that the 3103 assembly drawing was a "made-up drawing" created by Ken Wenzel. The Plaintiffs argued that it was at least as likely that the 3103 assembly was developed and used after May 1990 as it was that those events occurred in February 1990. The Plaintiffs also attempted to demonstrate that Ken Wenzel did not leave Griffith until

January 1, 1991, and that it was therefore not clear on a balance of probabilities that any disclosure occurred before October 1, 1990.

[110] A review of the entire record on this point demonstrates that the alleged contradictions are not as glaring or persuasive as the Plaintiffs argue. In his testimony, Mr. Kutinsky explained that the date on the parts list reflects its creation date, and that date does not change when the parts list is updated. Mr. Kutinsky also explained that the parts drawing dated May 21, 1990 may have replaced an earlier drawing, and that replacement drawings are not indicated as revisions. He further testified that what likely occurred in this case was a breakdown in the system of updating the parts list as parts drawings were revised. While Mr. Kutinsky's recollection of events was imperfect, he maintained that the 3103 assembly was designed sometime in the fall of 1989. Moreover, the testimony of both Ken Wenzel and Mr. Kutinsky was corroborated by the AutoCAD drawings themselves.

[111] The reliability and integrity of the AutoCAD drawings of the 3103 assembly was addressed by Mr. Finnie, one of the Defendants' experts. Mr. Finnie opined that the metadata for the 3103 assembly drawing indicated that the file was created on September 27, 1989. Mr. Finnie examined both the internal and external metadata associated with the files in reaching this conclusion. Mr. Finnie explained that the created date that appears as metadata reflects the computer clock. While Mr. Finnie conceded that, in the early 1990s, it would have been simple to change the setting on a computer's internal clock, the Plaintiffs did not point to any evidence proving that the drawings were falsified (beyond Bill Wenzel's bald assertion). It is therefore

more likely than not that the 3103 assembly was designed sometime in the fall of 1989; that is, prior to the October 1, 1990 claim date.

[112] It is also probable that the 3103 tool used at the job site in Dilley was the same as the tool developed by Griffith in the fall of 1989. Ken Wenzel's testimony that the 3103 assembly was used on a job in Dilley in early 1990 is corroborated by a Griffith packing slip which indicates that three 3103 assemblies were shipped to Ensco in Houston, Texas, on February 6, 1990 (Exhibit 29). Mr. Kutinsky also testified that 3103 assemblies were manufactured around February 6, 1990. There is no evidence that the 3103 assemblies used in Dilley were something other than the tools designed by Ken Wenzel and built by Griffith in the fall of 1989.

[113] In sum, it is therefore more likely than not that the 3103 assembly was designed and used prior to October 1, 1990, thus pre-dating the claims of the '630 Patent.

(3) Was the 3103 assembly available to the public?

[114] As explained above, in order to prove that the '630 Patent was anticipated by the 3103 assembly, the Defendants must establish that there was disclosure of the subject matter of the '630 Patent. The Plaintiffs raise three arguments to assert that there was no disclosure of the 3103 bearing assembly. Specifically, the Plaintiffs argue that: the disclosure to the public was not sufficient for purposes of the test for anticipation; any disclosure was made on a confidential basis; and the one-time use of the 3103 assembly was in the nature of experimentation.

[115] I will consider each of these three arguments separately.

(a) *Sufficiency of the disclosure*

[116] The Plaintiffs argue that almost no information about the 3103 assembly was disclosed during the Dilley job. The Plaintiffs point to the following facts in support of their position:

- the 3103 tool could not be dismantled at the job site;
- there is no evidence that the tool was in fact dismantled;
- there is no evidence as to what happened to the tool after it was returned to the Defendants' shop; and
- Ken Wenzel never talked to anyone else about the 3103 design.

[117] The Plaintiffs seek to draw a distinction between the sale and rental of a machine, arguing that this distinction is significant in this case because it was not easy to examine the 3103 assembly. The Plaintiffs also liken the 3103 assembly to the skates at issue in *Bauer FCA,* abov. They argue that there was no opportunity for someone to dismantle the 3103 assembly on the drilling rig, and that such an occurrence would have been unusual. The Plaintiffs submit that, as in *Bauer FCA,* a visual inspection would not disclose the essential elements of the 3103 assembly; rig hands would only see a piece of pipe. The Plaintiffs also assert that Ken Wenzel's

testimony was inconsistent with the documentary evidence. They cited *Novopharm Ltd v Eli Lilly & Co*, 2010 FC 915, 376 FTR 227, for the proposition that documentary evidence should be required where a witness provides weak evidence regarding an event in the distant past. The Plaintiffs further submit that the Defendants have failed to establish that Ensco had the ability to dismantle the tool.

[118] The Plaintiffs' arguments overlook the fact that proof of anticipation does not require demonstrating that a member of the public actually analyzed the 3103 assembly (*Baker*, above at para 42 #6; *Lux*, above at 133). As stated by Justice Aldous in *Lux*, above at 133:

> [A]n anticipating description in a book will invalidate a patent if the book is on a shelf of a library open to the public, whether or not anybody read the book and whether or not it was situated in a dark and dusty corner of the library.

[119] The Plaintiffs rightly point out that a visual inspection of the entire drill stem of the 3103 assembly would not have disclosed its inner workings. However, the evidence in this case indicates that the 3103 assemblies were available for more than a visual inspection.

[120] In particular, Ken Wenzel testified that he would have brought the assembly drawing with him to Dilley. He stated that he would have reviewed the assembly drawing with Ensco had they asked, and that he was also available for consultation. It is irrelevant that Ken Wenzel said that he did not remember ever giving Ensco a drawing or reviewing it with them. Ken Wenzel also testified that if the drill had become stuck in the well, then Griffith might have needed to provide the "fisherman", who retrieves broken tool pieces from wells, with drawings of the 3103

assembly. Mr. Nelson also testified that fishermen refer to manufacturer drawings to ensure that all pieces are retrieved from the hole.

[121] I acknowledge that the evidence that the motor was returned to Griffith intact indicates that no physical inspection occurred in Dilley. However, this is irrelevant because the drawings were available for examination and the 3103 assembly could have been dismantled. If the tool had broken in Dilley, the fisherman and any observers would have seen the inner workings of the 3103 assembly as pieces were retrieved from the hole. *Bauer FCA*, above, is therefore distinguishable from the present case. Similarly, whereas, in *Weatherford Canada Ltd v Corlac Inc*, 2010 FC 602 at para 307, 370 FTR 54, rev'd on other grounds 2011 FCA 228, [2011] FCJ No 1090 [*Weatherford FC*], Justice Phelan found that there was no evidence of what third parties such as rig crews, flush-by crews, service crews and casual observers, were told about the inner workings of the units or what they observed, in this case there is evidence that Ken Wenzel was available for consultation and that fishermen could have accessed the plans or consulted with the designer. The fact that the 3103 tools were rented rather than sold to Ensco does not detract from these opportunities for examination.

[122] Even if a skilled person may not have been able to dismantle the 3103 assembly on the rig, he or she could have gained similar information by consulting Ken Wenzel or the 3103 assembly drawings, both of which were available. This can alternatively be viewed as anticipation by publication. In either case, the 3103 assembly drawing clearly depicts the construction of the 3103 bearing assembly, which I have found contains all essential elements of

the '630 Patent. An analysis of the 3103 assembly drawing would have therefore disclosed the essential elements of the '630 Patent and enabled the skilled person to perform the invention.

[123] The facts of this case are similar to the facts before Justice Noël in *Gibney*, above, where the device in question was affixed to the motor of a car without any further disclosure to the customer. In holding that there had been prior disclosure, Justice Noël stated, at 162, that:

> In the present case, as soon as the unidentified customer drove out without any injunction or restriction placed upon him, it then became available to anyone who wanted to lift up the hood and look at it.
>
> [Emphasis added]

[124] In my view, subject to the discussions on confidentiality and experimentation that follow, anyone at the Dilley drill site could have “lifted up the hood” and examined the 3103 assembly.

(b) *Confidentiality*

[125] As noted above, a disclosure that is the subject of an obligation of confidentiality does not meet the requirement for disclosure. In such a situation, the subject matter of the patent is not “available to the public”. The Plaintiffs raise a number of arguments with respect to the question of confidentiality.

[126] In determining whether confidentiality exists, a court may have regard to the factors established in the Supreme Court’s decision in *Lac Minerals* (*Weatherford FCA*, above at para 49). In *Weatherford FCA*, above, the Court of Appeal reviewed the notion of confidentiality in

the context of disclosure of prior art. Referring to *Lac Minerals* and *Coco v AN (Engineers) Ltd*, [1969] RPC 41 (Ch), the Court of Appeal stated at paragraph 48 that:

> Information will be considered to have been exchanged in a confidential relationship where "any reasonable man standing in the shoes of the recipient of the information would have realised that upon reasonable grounds the information was being given to him in confidence": *Coco*, pp. 47, 48. The following passage from *Coco* (p. 51) was also referred to by Sopinka J. in *LAC Minerals* and cited by the judge in this case:
>
> > In particular, where information of commercial or industrial value is given on a business-like basis and with some avowed common object in mind, such as a joint venture or the manufacture of articles by one party for the other, I would regard the recipient as carrying a heavy burden if he seeks to repel a contention that he was bound by an obligation of confidence.

[127] The absence of an oral or written communication concerning confidentiality is not dispositive (*Weatherford FCA*, above at para 53).

[128] It appears to me that there were three groups of people who had access to the information concerning the 3103 bearing assembly: (a) employees of Griffith or Dreco; (b) employees of Ensco; and (c) third parties who had access to the drawings or the 3103 assembly. Would a reasonable man, standing in the shoes of any of these three groups of persons, have realised that the information was given to him in confidence?

[129] The Plaintiffs argue that everyone involved in the design and manufacture of the 3103 assembly was an employee of either Griffith or Dreco and was, accordingly, bound by an obligation of confidentiality. I agree with the Plaintiffs that the employees of Griffith or Dreco were likely subject to an implied obligation of confidentiality. The Supreme Court decision in

Pre-Cam Exploration & Development Ltd v McTavish, [1966] SCR 551, 57 DLR (2d) 557 stands for the proposition that employees have a duty of confidentiality with respect to proprietary information they gain during their employment.

[130] The Plaintiffs next submit that the employees and principals of Ensco are also subject to an implied obligation of confidentiality because of a joint venture relationship between Ensco and Griffith. The key problem with this argument is that the evidence does not support the existence of either a joint venture or understanding of confidentiality between Griffith and Ensco.

[131] The only direct evidence in the record in this respect is Ken Wenzel's uncontradicted testimony that there was no confidentiality agreement between Ensco and Griffith. Ken Wenzel could have knowledge of this fact even if he was not involved in the negotiation of any legal agreement with Ensco.

[132] The Plaintiffs argue that Griffith and Ensco were joint venture partners because:

- Ensco was the exclusive supplier of Griffith materials in the United States and would only supply Griffith materials if available;

- Ensco billed the two companies' clients and the companies divided the proceeds; and

- Ensco and Griffith shared a shop in Rosenberg, Texas.

The Plaintiffs submit that those factors created a sufficient joint venture relationship to found an expectation of confidentiality between Griffith and Ensco.

[133] The evidence does not support the existence of a joint venture between Ensco and Griffith, let alone a joint venture sufficient to found an expectation of confidentiality. The evidence only indicates that Ensco rented three 3103 assemblies from Griffith on one occasion. There is no evidence that anyone at Ensco treated the 3103 assemblies as confidential. Indeed, Ken Wenzel's uncontradicted testimony during cross-examination was that Ensco and Griffith were not joint venturers. In my view, Griffith and Ensco had a commercial arrangement — nothing more.

[134] However, even if I were to find that there was an implied undertaking of confidentiality affecting employees of Ensco and Griffith or Dreco, there is no evidence whatsoever to establish that either Oryx or the unnamed operator of the drilling rig was subject to confidentiality.

[135] The Plaintiffs refer to *Lac Minerals*, above, as authority for the principle that confidentiality arises where it is expected and understood. As an example of such unwritten confidentiality, they also rely on *Weatherford FCA*, above, and the earlier trial decision in *Weatherford FC*, above. In that case, the trial judge, Justice Phelan, found that earlier disclosure of the patented device was made on a confidential basis and, therefore, rejected the defendants' assertion of anticipation. This finding was affirmed by the Court of Appeal.

[136] The situation before me is significantly different from that before Justice Phelan in *Weatherford FC,* above. In that case, the patented devices used in the oilfield operations were found to be "prototypes" or "tentative solutions" to a common problem in heavy oil production (*Weatherford FC,* above at para 300). In addition, the inventor, Mr. Grenke, testified as to the confidentiality of the disclosure to third parties during the testing of the prototype on a job site. As stated by Justice Phelan, at paragraph 306:

> It is evident that Grenke did not disclose the information (or permit Britton to disclose if he ever had that permission) to either Amoco or Pan Canadian with a view that it was a public disclosure nor was he reckless in the matter of disclosure. Under all the circumstances, he had good reason to believe that the essence of his invention would not be disclosed to the public and until he was ready to do so and in fact that was the case in respect of both corporations.

On the facts of that case, Justice Phelan was persuaded that an obligation of confidentiality existed among those parties.

[137] In the case before me, I have no evidence that the 3103 assembly was a "prototype" or "tentative solution" to a problem. Quite simply, the evidence shows that Ensco asked Ken Wenzel to provide a bearing assembly that would meet its needs. Ken Wenzel designed and provided the 3103 assembly as a commercial response to that request. The 3103 assembly had already been tested in Griffith's facilities in Edmonton before it was shipped to Texas and then to Ensco for use in the drilling operation of Oryx. Most importantly, I have the testimony of Ken Wenzel, the designer of the 3103 assembly, that there was no expectation of confidentiality.

[138] I do not accept the Plaintiffs' argument that the 3103 assembly was only disclosed to Ensco, Oryx and other persons involved in the use of the assembly on conditions of confidentiality. I conclude that a reasonable person standing in the shoes of Ensco, Oryx, a rig crew member, a fisherman, or even a casual observer would not have realised, upon reasonable grounds, that information regarding the 3103 assembly was given to him or her in confidence.

(c) *Experimentation*

[139] There is no public disclosure where a prior use is experimental only (*Gibney*, above at 158-64). The Plaintiffs argue that the use of the 3103 assembly in Dilley was experimental.

[140] Ken Wenzel testified that he could not remember exactly why he travelled to Dilley, but that he probably went because it was a new motor that had not been run before and he wanted to see how it worked. He also stated that he probably explained the motor, examined it, and probably showed part of it to Bob Lenhart, a manager with Ensco. On cross-examination, Ken Wenzel stated that, while Dilley was a paying job, it could be considered a test, although Griffith knew the motor would work because they had tested it in the shop.

[141] The Defendants rightly point out that everything new has to be used for a first time. This fact does not necessarily transform an initial use into a test, particularly where, as in this case, testing has already occurred. Most importantly, a use will only be experimental if it is so in the mind of the user. In *Gibney*, for example, Justice Noël found that the experimentation exception did not apply because even if the patentee considered the use in question experimental, "it was

not experimental in the mind of the unidentified customer as he was under no restriction or injunction to secrecy…" (*Gibney*, above at 163).

[142] In this case, there is no evidence that Ensco or Oryx considered the use of the 3103 assembly to be experimental. Ensco was under no confidentiality obligation and paid for the rental. It is also significant that neither Ensco nor Oryx reported having any problems with the tool, and there is no evidence that they provided any form of feedback to Griffith. Perhaps most importantly, Ken Wenzel did not even remain in Dilley long enough to see the 3103 assembly used in the hole. The use of the 3103 assembly in Dilley was therefore not experimental; its disclosure was public.

[143] In conclusion on the question of whether there was disclosure of the 3103 assembly, I return to the arguments presented at paragraph 114, and find that, on a balance of probabilities:

- the disclosure to the public of the 3103 assembly was sufficient for purposes of the test for anticipation;

- any disclosure of the 3103 assembly was not made on a confidential basis; and

- the one-time use of the 3103 assembly was not in the nature of experimentation.

[144] As observed above, the *Sanofi-Synthelabo* test for anticipation is comprised of two branches – disclosure and enablement. In this case, enablement is not an issue. This is because

the clear evidence before me is that the 3103 bearing assembly has been used in a downhole drilling motor in the same manner that the '630 bearing assembly is used. Accordingly, the enablement branch of the test for anticipation has been met. On the facts before me, the disclosure branch of the test is determinative.

C. *Conclusion on anticipation*

[145] In summary on the question of anticipation, I am satisfied that the bearing assembly described by the claims of the '630 Patent was anticipated by the 3103 assembly. Stated in terms of s. 28.2 of the *Patent Act*, the subject matter of Claims 1 and 2 of the '630 Patent was disclosed to the public, by the 3103 bearing assembly, before the claim date “in such a manner that the subject-matter became available to the public in Canada or elsewhere”.

[146] As a consequence of this conclusion, Claims 1 and 2 of the '630 Patent are invalid.

VII. Obviousness

[147] In addition to their argument on anticipation, the Defendants assert that the claims of the '630 Patent are invalid, in that they were made obvious by a number of prior inventions. In the event that I have erred on my determination that the invention of the '630 Patent was anticipated, I turn to consideration of the issue of obviousness.

A. *Legal principles*

[148] The *Patent Act* makes it clear that a patent on obvious subject matter is not permissible. Section 28.3 (b) of the *Patent Act* is relevant in the case before me and provides:

Invention must not be obvious	Objet non évident
28.3 The subject-matter defined by a claim in an application for a patent in Canada must be subject-matter that would not have been obvious on the claim date to a person skilled in the art or science to which it pertains, having regard to	**28.3** L'objet que définit la revendication d'une demande de brevet ne doit pas, à la date de la revendication, être évident pour une personne versée dans l'art ou la science dont relève l'objet, eu égard à toute communication :
. . .	. . .
(*b*) information disclosed before the claim date by a person not mentioned in paragraph (*a*) [the applicant, or a person who obtained knowledge, directly or indirectly, from the applicant] in such a manner that the information became available to the public in Canada or elsewhere.	*b*) qui a été faite par toute autre personne avant la date de la revendication de manière telle qu'elle est devenue accessible au public au Canada ou ailleurs.
[Emphasis added]	[Je souligne]

[149] The test for obviousness was one of the issues dealt with by the Supreme Court of Canada in *Sanofi-Synthelabo*, above. That decision was made in the context of an earlier version of the *Patent Act*, where there was no express provision that obvious inventions were unpatentable. The parties agree that s. 28.3 of the present *Patent Act* is applicable. Even with the

express prohibition contained in s. 28.3, however, the teachings of *Sanofi-Synthelabo* inform my analysis of the question before me.

[150] In *Sanofi-Synthelabo*, above at paragraph 67, Justice Rothstein laid out the approach for obviousness as developed in the English cases *Windsurfing International Inc v Tabur Marine (Great Britain) Ltd*, [1985] RPC 59 (CA) and *Pozzoli SPA v BDMO SA*, [2007] FSR 37, [2007] EWCA Civ 588:

> (1) (a) Identify the notional "person skilled in the art";
> (b) Identify the relevant common general knowledge of that person;
>
> (2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;
>
> (3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;
>
> (4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

B. *The person skilled in the art*

[151] As discussed above, the person skilled in the art would have the ability to understand the drawings and claims of a patent in the field. From his experience, he would have a working knowledge of many mechanical devices – how they are constructed, used and how they work. This knowledge would extend to an understanding of how oil and gas wells are drilled, including the various drilling environments. He would also have a basic (albeit not highly technical) comprehension of the forces that are in play under different conditions. He may have some

experience adapting or modifying existing tools to meet a need; to that extent, he would have some limited ability to design devices.

C. *Common general knowledge*

[152] What would have been the common general knowledge of the notional skilled person as of the claim date of October 1, 1990?

[153] The first type of common general knowledge of the person of ordinary skill in the art would be that inherent in his or her employment and experience as a mechanic or designer in the oil industry. Mr. Thicke provided a useful summary of the scope of this knowledge during cross-examination. In his opinion, the skilled person would have the following general knowledge at the relevant time:

- "really good general knowledge about all the various types of bearings: the deep groove ball bearings, and the thrust bearings, and the roller bearings that are used for radial bearings";

- some knowledge on loading forces, although the person of ordinary skill in the art might not "necessarily know the impact loadings that might be associated with that bit load as the drill bit bounces over the bottom of the hole"; and

- awareness of other downhole tools such as jars and shock tools and core barrels and “some of the ways those tools have been designed, at least flipping through catalogue pages or just talking in the oil patch”.

[154] In addition to the knowledge gained from his education and experience, the skilled person’s general knowledge would also include all the material in the field in which he is working, and which he knows exists, and to which he would refer as a matter of course if he cannot remember it, and which he understands is generally regarded as sufficiently reliable to use as a foundation for further work or to help understand the pleaded prior art.

[155] In the case before me, the parties have agreed that in the late 1980s and early 1990s, the *World Oil Composite Catalog* was one of the most widely distributed catalogues in the oil industry world wide, with a list of thousands of customers in the oil industry (Exhibit 43). All of the experts agreed that a person of ordinary skill in the art would have this resource available to him.

[156] Bill Wenzel denies that he ever consulted oil tool catalogues to develop new ideas. The fact that Bill Wenzel may not have referred to the *World Oil Composite Catalog* or any catalogue during the design process is simply irrelevant to the test for obviousness. The test is objective in that I must look to the general knowledge of the notional skilled person. I conclude that the *World Oil Composite Catalog* would have been part of the general knowledge of the skilled person at the relevant time. In my view, the person of ordinary skill in the art would refer to the *World Oil Composite Catalog* as a matter of course.

[157] From the *World Oil Composite Catalog* and through exposure to drilling operations, the person of ordinary skill in the art would be familiar with shock tools and core barrels and how they work. In final argument, the Plaintiffs conceded that the shock tool and the core barrel would have been prior art.

[158] In addition to the *World Oil Composite Catalog*, the Defendants and their experts put forward a number of prior patents that, in their view, would form part of the common general knowledge. Specifically, the Defendants would include the following prior patents:

- US Patent No. 4,511,193 granted April 16, 1985 entitled “Thrust and Radial Bearing Assembly” (the Geczy Patent);

- US Patent No. 3,971,450 granted July 27, 1976, entitled “Well Drilling Tool” (the Fox Patent);

- US Patent No. 1, 643,338 granted September 27, 1927, entitled “Core Drill” (the Halvorsen Patent);

- US Patent No. 4,382,639 granted May 10, 1983, entitled “Bi-directional Thrust and Radial Ball Bearing” (the McGuffie Patent); and

- US Patent No. 939,269 granted November 9, 1909, entitled “Thrust Bearing” (the Killian Patent).

[159] In addition, Dr. Wooley also referred to Japanese Patent Publication No. 53658 of 1981, entitled “Shaft Position Adjusting Device” (the Japanese Patent), translated from the original Japanese, and German Patent No. 456 196, granted February 17, 1928 (the German Patent).

[160] In contrast to the test for anticipation, where the prior art must merely be available to any member of the public, the test for obviousness requires that the prior art be something that would likely come to the attention of the person of ordinary skill in the art. It cannot be assumed that the unimaginative, non-inventive technician skilled in the art would consider art in other fields (*Almecon Industries Ltd v Nutron Manufacturing Ltd* (1996), 108 FTR 161 at para 67 (TD), aff'd (1997) 69 ACWS (3d) 1108, 72 CPR (3d) 397 (CA), leave to appeal to SCC refused, [1997] SCCA No 374). In other words, there must be some reason, supported by evidence, which would justify a person skilled in the art – and not just experts prompted by counsel – to look beyond the field at issue. In this case, there should be some reason why the person of ordinary skill in the art would consider prior art from outside the area of downhole oilfield applications.

[161] I appreciate that the existence of patents would be known to our person of ordinary skill in the art. Moreover, the skilled person would look to patents for inspiration and ideas. Thus, I believe that, in this case, the person of ordinary skill in the art would have ready access to and would seek out patents directed to bi-directional bearing assemblies in the field of oil and gas well drilling. The parties appear to accept that such searches could be done through patent agents or through the Alberta Research Council.

[162] The Geczy Patent is for a “Thrust and Radial Bearing Assembly” in a downhole drilling tool. It is a patent within the same field as the '630 Patent. As stated under the heading “Field of the Invention” of the Geczy Patent:

> This invention relates to down hole drilling assemblies. More particularly, this invention relates to radial and thrust bearings for the assembly.

[163] Because the Geczy Patent is in the same field and, even on a quick reading, involves the design and operation of thrust bearings, it would likely come to the attention of the skilled person. I conclude that the Geczy Patent is part of the common general knowledge.

[164] I am also prepared to accept the Halvorsen Patent for a core barrel as part of the prior art. A core barrel, as discussed below, has been used in oil and gas drilling operations for decades.

[165] My conclusion is different for the other patents raised by the Defendants.

[166] There is no doubt that prior art from foreign jurisdictions may, in some circumstances be highly relevant to a discussion of obviousness. However, in this case, I have no evidence as to when or how the Japanese Patent and the German Patent were translated into English or how they might have come to be known to the person of ordinary skill in the art in this litigation. I find that neither the Japanese Patent nor the German Patent forms part of the general knowledge of our notional skilled person or prior art.

[167] I also have some difficulty with the Defendants' and their experts' apparent belief that the person of ordinary skill in the art would be guided to and be able to apply the teachings from patents that are outside the field of oil and gas drilling.

[168] The Killian Patent for a railway car wheel is so far outside the everyday world of our skilled technician that I cannot believe that it would ever be located, let alone form part of our skilled person's general knowledge. Indeed, the 1909 patent only became part of the evidentiary record in this case through Mr. Nelson who found this patent in his library when he was preparing his expert report. The Killian Patent is not prior art.

[169] The McGuffie Patent pertains to bi-directional thrust and radial ball bearings. As described by the inventor (McGuffie Patent at Column 1, lines 8-12):

> For many applications, for example, to keep electric motors efficient, bearings must be used which are capable of accommodating both radial and axial loads. Often, the bearing must be capable of accommodating axial loads in two directions in addition to radial loads.

[170] In a somewhat strained comparison, the Defendants' experts conclude that all of the components of the '630 Patent can be seen in the McGuffie Patent bearings. My problem with using the McGuffie Patent to support obviousness is that there is little to link Mr. McGuffie's invention to a bearing assembly for use in a downhole drilling motor. The McGuffie invention claims a device used in electric motors; there is no reference to specific use in oil and gas well drilling. While the McGuffie Patent describes a bi-directional bearing assembly, I am not persuaded that a person of ordinary skill in the art would consider this patent as helpful in designing a bearing assembly for the unique circumstances of downhole drilling.

[171] The Fox Patent describes an entire well drilling tool. Upon very close examination of the drawings in the Fox Patent, a skilled reader could discern a bearing assembly with four bearings within one (or maybe two) containment chambers. However, neither the claims nor the specification describe the operation of the bearing assembly component of the tool. Moreover, the inventor identified the purpose of his invention as something far different from the purpose of the '630 Patent. Specifically, at Column 1, lines 51-56, the following statement is made:

> It is therefore the primary object of the present invention to provide such a tool wherein the bearings and/or other parts within the lubricant chamber are better protected from the drilling fluid; and, more particularly, wherein such protection is made possible with the use of more or less conventional seals.

[172] Given that the purpose of the Fox Patent is to protect the bearing assembly and the patent lacks detail regarding the bearing assembly, I conclude that a reasonably diligent search of relevant patents would not turn up the Fox Patent. It is not part of the general knowledge or prior art.

[173] In sum, to the general knowledge identified by Mr. Thicke, I would add the *World Oil Composite Catalog*, and the Halvorsen and Geczy patents. Whether this general knowledge would lead the person of ordinary skill in the art to the invention of the '630 Patent is a question to be addressed below.

D. *The inventive concept*

[174] The next step in the obviousness analysis is to identify the inventive step. An inventive concept is almost always more than the sum of the parts. In the case of the '630 Patent, each one

of the essential components of the claims, considered on its own, could likely be found to be non-inventive. However, that would be to place too narrow a perspective on my task. In this regard, I note the caution of Justice Layden-Stevenson in *Weatherford FCA*, above at paragraph 69, where the validity of a patent, referred to as the '937 Patent, was in question:

> Moreover, the '937 Patent is a combination patent. Therefore, its essence lies in the unique combination claimed even though individual elements of the invention, considered in isolation, may not have been inventive. As recently explained by this Court, "[i]t is not fair to a person claiming to have invented a combination invention to break the combination down into its parts and find that, because each part is well known, the combination is necessarily obvious": *Bridgeview Manufacturing Inc. v. 931409 Alberta Ltd.*, 2010 FCA 188, 87 C.P.R. (4th) 195, para. 51 (*Bridgeview*), leave to appeal dismissed, [2010] S.C.C.A. No. 346; *Free World Trust*, para. 27.

[175] Prior to the '630 Patent, downhole drilling or mud motors operated with two different sets of bearings; a different set of bearings would handle each of the compression and tension loads during drilling. The inventive step of the '630 Patent, in my view, was Bill Wenzel's placement of one or more bi-directional thrust bearings into a single containment chamber with shoulders placed within the chamber such that the same bearings could handle both off-bottom and on-bottom loads during a drilling operation.

E. *Differences between the matter cited as forming part of the "state of the art" and the inventive concept*

[176] Next I turn to an examination of the differences between the "state of the art" and the inventive concept of the '630 Patent.

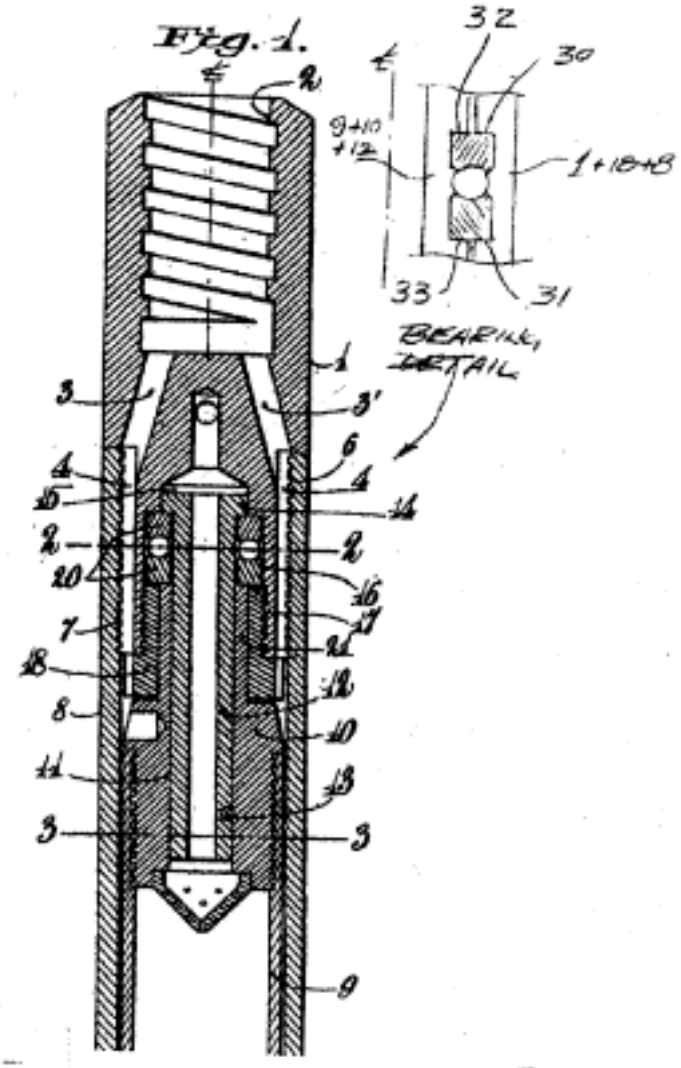
[177] A review of the *World Oil Composite Catalog* and the prior art cited above that forms the common general knowledge would clearly demonstrate the use of bi-directional bearings within a containment chamber in the context of core barrels. A core barrel is a device used for cutting cores in oil and gas wells. Cores, or core samples, are solid cylindrical rock samples cut from the formation that are used by petroleum geologists to evaluate porosity and permeability.

[178] In 1927, Mr. Halbert Halvorsen was granted the US '338 Patent. The essence of Mr. Halvorsen's patent appears to be contained in the following description (Halvorsen Patent at 2, lines 14-20):

> [B]y means of a single ball thrust bearing, I have provided mechanism which will hold the inner core barrel in fixed relative position to the outer core barrel both while raising the core and while drilling, and which will also provide relatively frictionless rotation between the parts.

In its purpose, the Halvorsen Patent bears a striking resemblance to the purpose described by Bill Wenzel in the '630 Patent.

[179] Figure 1 from the Halvorsen Patent is set out below. To Figure 1 is added a more detailed drawing of the bearing assembly.



[180] The Halvorsen Patent has long since expired. However, the bearing assembly structure and function are included in a number of modern core barrels. The experts focused on one representative example, that being the Christensen Series 250P coring device (the Christensen core barrel). The Christensen core barrel was included in the *World Oil Composite Catalog* at the relevant time. The description of the tool, at page 5031 of the *World Oil Composite Catalog*, provided a diagram of the Christensen core barrel and separately listed all of its parts. Of significance, the diagram shows and the parts list names the parts of a thrust bearing within a containment chamber.

[181] The Defendants' experts all opined that the Halvorsen patent and the Christensen core barrel contained the essential elements of claims 1 and 2 of the '630 Patent (see Miller Expert Report, Exhibit 1, Tab 58B at 5, 10; Wooley Expert Report, Exhibit 1, Tab 59, ss 4.1.4, 4.2.4). The following chart presents a comparison of the components of the '630 Patent (as found above in the section of the Reasons on claims construction) and those of the Halvorsen Patent. The numbers in the columns correspond to the numbers used in the respective figures of the two patents.

The '630 Patent	**The Halvorsen Patent**
Outer tubular member (12)	Outer tubular member (1, 18, 8)
An inner tubular member within the outer tubular member (14)	Inner tubular member within the outer tubular member (9, 10, 14)
Bearings (18) between the inner tubular member and outer tubular member to facilitate relative rotation of the outer tubular member and inner tubular member while accommodating radial and axial loads	Bearings between the outer tubular member and the inner tubular member that facilitate relative rotation of the tubular members while accommodating mainly compression loads and small amounts of radial loads (between races at 20)

The '630 Patent	**The Halvorsen Patent**
A first shoulder and a second shoulder in opposed spaced relation on an interior surface of the outer tubular member (22)	Two shoulders in opposed spaced relation on an interior surface of the outer tubular member (31)
A first shoulder and a second shoulder in opposed spaced relation on an exterior surface of the inner tubular member (26)	Two shoulders in opposed spaced relation on an exterior surface of the inner tubular member (32)
The shoulders on the inner tubular member being generally aligned (and parallel) with the shoulders on the outer tubular member thereby defining a containment chamber (32)	Generally aligned (and parallel) shoulders forming a containment chamber (formed by 1, 18, 10 and 12)
At least one thrust bearing (18) with a first side race (34) and a second side race (36) in the containment chamber	One thrust bearing in the containment chamber (between races at 20)
When the bearing assembly is placed in compression, the first shoulder of the outer tubular member bears against the first side race and the second shoulder of the inner tubular member bears against the second side race	When the bearing assembly is placed in compression, the first shoulder of the outer tubular member (30) bears against the first side race (upper race of 20) and the second shoulder of the inner tubular member (33) bears against the second side race (lower race of 20)
When the bearing assembly is placed in tension the second shoulder of the outer tubular member bears against the second side race and the first shoulder of the inner tubular member bears against the first side race	When the bearing assembly is placed in tension, the second shoulder of the outer tubular member (31) bears against the second side race (lower race of 20) and the first shoulder of the inner tubular member (32) bears against the first side race (upper race of 20)

[182] In brief, the bearing assembly in both the Christensen or Halvorsen core barrel and the '630 bearing assembly consists of a containment unit with four shoulders, with one or more bi-

directional bearings and with relative rotation between the outer tubular member and the inner tubular member.

[183] In operation, however, there are differences. First and foremost, the core barrel is not part of a drilling motor. Further, in the core barrel, the inner core barrel remains stationary as the coring bit digs deeper; this results in minimal damage to the core as the core barrel is filled with cored material (Miller Expert Report, Exhibit 1, Tab 58B at 5). This presents another key difference between the '630 Patent device and the Christensen (or Halvorsen) core barrel; in a downhole drilling motor, the inner tubular member is not fixed. These differences were acknowledged by the experts.

[184] In addition to the two identified differences in overall use and function, Mr. Thicke presented a number of additional differences, which can be summarized as follows:

1. The concentration of all loads into one deep groove ball bearing results in a limitation of the core barrel assembly to light duty, as compared to the heavy forces borne by the '630 design.

2. The core barrel bearing assembly does not accept bit load.

3. The core barrel assembly receives small or no radial loads; the '630 design receives large radial loads.

4. The core barrel bearing assembly isolates the core barrel from the drill string; the '630 design integrates the inner tubular member into the drill string.

5. The core barrel bearing assembly locates the bearing far from the bit; the '630 design locates the bearing close to the bit.

6. The core barrel bearing is located in a hanger assembly; the '630 design bearing is located between tubular members.

[185] Some of these alleged differences are not borne out by the evidence. Others are minor or irrelevant.

[186] To the extent that the differences identified by Mr. Thicke relate to the quantum of load that can be accepted, I observe that the '630 Patent does not specify how much load can be accepted. Further, Mr. Thicke carried out no experiments to attempt to quantify the bearing loads. As pointed out by Mr. Miller (Exhibit 1, Tab 60 at 2-3):

> Whether the “3103” assembly shoulder face supports are stronger or weaker than those of the ‘630 Patent assembly . . . is irrelevant to the discussion at hand.
>
> . . . .
>
> To assess whether the off-bottom load capacity is increased by the '630 Patent, an engineering stress analysis of the bearing races supporting the shoulder in question would be required.

[187] Mr. Thicke's third difference relates to the ability of each device to handle radial loads. The other experts appear to agree that, contrary to Mr. Thicke's opinion, the '630 Patent can withstand radial loads – even though they may disagree on the magnitude of radial loads that could be handled by the Wenzel bearing assembly. In cross-examination, Mr. Nelson stated that the '630 design could accept a "fairly large radial load". However, while there may be less need for the core barrel to accept a "large radial load", Mr. Nelson opined that the core barrel could support a radial load.

[188] The inability of the core barrel bearing assembly to accept bit load (#2) and the location of the core barrel bearing assembly far from the bit (#5) are self-evident observations taken from the fact that the core barrel as a whole is a different device from a drilling motor.

[189] Mr. Thicke describes the core barrel bearing as being located "in [a] hanger assembly" (Exhibit 1, Tab 54 at para 16(f)). Dr. Wooley's response, when asked about this alleged difference was simply:

> The hanger is a tubular member, so [Mr. Thicke] is simply changing names and for something that has the same function.

[190] I accept that the differences between the core barrel (as presented either in the Halvorsen Patent or the Christensen core barrel) and the '630 Patent are likely sufficient to defeat the argument of anticipation. However, the question for obviousness is whether it would be obvious for the skilled person to try to apply the elements from core barrels to the downhole drilling motor application.

[191] The differences between the bearing assembly disclosed by the Geczy Patent and that of the '630 Patent are substantial. Indeed, the differences are significant enough that I cannot see how, with nothing else, the skilled person would apply the teachings of the Geczy Patent to come up with the '630 Patent. However, as discussed below, the Gezcy Patent, when considered in the entire mosaic that comprises the prior art, may well play a role in making the '630 Patent obvious.

F. *Obviousness of the differences*

[192] The next question is whether the identified differences between the prior art and the '630 Patent would have been obvious to the person of ordinary skill in the art. Stated in terms of the *Sanofi-Synthelabo* test, without knowledge of the '630 Patent, would the differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

[193] In determining whether it would be obvious to try to apply the elements from core barrels or the other prior art, I note the guidance of Justice Rothstein in *Sanofi-Synthelabo*, above at paragraphs 64-6. Justice Rothstein stated that the so-called “obvious to try” test, derived from UK jurisprudence, should be approached cautiously and with the understanding that “obvious to try” means “very plain” or “more or less self-evident”:

> I am of the opinion that the “obvious to try” test will work only where it is very plain or, to use the words of Jacob L.J., more or less self-evident that what is being tested ought to work.

[194] For a finding that an invention was “obvious to try”, there must be evidence to convince a judge on a balance of probabilities that it was more or less self-evident to try to obtain the invention. A mere possibility that something might turn up is not enough (*Sanofi-Synthelabo*, above at paras 65-66).

[195] If an “obvious to try” analysis is warranted, Justice Rothstein proposed a non-exhaustive list of factors that may apply (*Sanofi-Synthelabo*, above at paras 69-71), paraphrased as follows:

1. Is it more or less self-evident that what is being tried ought to work? Are there a finite number of identified predictable solutions known to persons skilled in the art?

2. What is the extent, nature and amount of effort required to achieve the invention? Are routine trials carried out or is the experimentation prolonged and arduous, such that the trials would not be considered routine?

3. Is there a motive provided in the prior art to find the solution the patent addresses?

4. What was the actual course of conduct that culminated in the making of the invention, including whether time, money and effort were expended?

[196] In a subsequent case, *Pfizer Canada Inc v Apotex Inc*, 2009 FCA 8 at paragraph 29, [2009] 4 FCR 223, the Federal Court of Appeal provided further guidance on the "obvious to try" notion:

> The test recognized is "obvious to try" where the word "obvious" means "very plain". According to this test, an invention is not made obvious because the prior art would have alerted the person skilled in the art to the possibility that something might be worth trying. The invention must be more or less self-evident.
>
> [Emphasis added]

[197] An "obvious to try" analysis is clearly warranted here. In this case, the first factor is the most relevant; at trial, the evidence focused on this factor. Simply put, was the invention more or less self-evident?

[198] The skilled person would not just examine the prior art; he would be able to make some non-inventive adaptations to make the prior art solve his problem. The first point of reference – the *World Oil Composite Catalog* – would reveal the Christensen core barrel. Even Mr. Thicke acknowledged that the person of ordinary skill in the art could adapt something he saw in the *World Oil Composite Catalog*, when he stated as follows:

> I think somebody skilled in the art would look through bearing catalogues, for example, and they have a lot of examples of different bearings that have shoulders in different places, and I think he would look at that and say: Yes, I can adapt that somehow, or for my -- for my tool, if I put in this structure of -- around my bearing, I'll have a bearing assembly that works really good for me.

[199] One of the key teachings to be taken from both core barrels and bearing assemblies is how they both operate to reduce friction caused by the relative rotation of two surfaces. In the

case of the Halvorsen or Christensen core barrel, we have relative rotation. It is, in my view, irrelevant that the inner surface of the core barrel remains stationary. This difference between a core barrel and the '630 Patent would not prevent the person of ordinary skill in the art from applying the bearing assembly of a core barrel to a bearing assembly for a downhole drilling motor.

[200] All of the experts, but for Mr. Thicke, agreed that it would be obvious to apply the elements of the bearing assembly in a core barrel to one in a downhole mud motor. I agree. It is more or less self-evident that the bearing assembly in a core barrel can be readily adapted for use in a downhole drilling motor. Faced with the problem identified by Bill Wenzel, I am satisfied that the person of ordinary skill in the art would see the use of a bi-directional thrust bearing in a different but related application; it would have been an obvious thing to try the bearing assembly disclosed in the Christensen core barrel or Halvorsen Patent in a downhole motor. The adaptations required are, in my view and in the opinion of the Defendants' experts, minimal. The effort needed to adapt the bearing assembly would not be prolonged or arduous.

[201] Even if I assume that some residual inventiveness would be required to apply the core barrel bearing assembly to a downhole drilling motor, I am still satisfied that the test for obviousness would be met. This is because of the Geczy Patent. As observed by Mr. Nelson, "the Geczy patent is clearly a downhole tool patent, with dual bearings". From the Geczy Patent, the person of ordinary skill in the art would see the possibilities of using bi-directional bearings as part of a downhole drilling motor. As described by Dr. Wooley, the Gezcy Patent does contain

aligned – although not parallel – shoulders (Exhibit 1, Tab 59, s 4.10.3). There are certainly some teachings that could be taken from the Gezcy bearing assembly.

[202] I acknowledge that there are many differences between the Geczy bearing assembly and that of the '630 Patent. On its own, this particular prior art would not render the '630 Patent obvious. However, the Geczy Patent does relate to a bearing assembly with bi-directional thrust bearings within a containment chamber. In my view, the combination of the knowledge gleaned from an examination of the core barrel together with the knowledge from the Geczy Patent would lead the person of ordinary skill in the art to the '630 invention with little effort.

[203] On a final note, I observe that Bill Wenzel was able to come up with his design very quickly, apparently with little time or effort. When asked when he designed the device shown in the patent, his response was as follows:

> I would say I started working on it maybe, approximately maybe a month to maybe two months at the most prior to the application.

This is not an invention that took months or years to create.

[204] Even taking into account that Bill Wenzel is likely more skilled than our notional person of ordinary skill in the art, this extremely short timeframe for coming up with the '630 design is remarkable. In this case, the little time needed by Bill Wenzel to develop the bearing assembly supports a conclusion that the invention was obvious.

G. *Conclusion on obviousness*

[205] In sum, in light of the general knowledge from the combination of the core barrel and the Geczy Patent, it is more or less self-evident that the skilled person would have come to the '630 bearing assembly for use in a drilling motor, with the essential elements of the '630 Patent as set out in paragraph 77 of these Reasons.

[206] Stated in terms of s. 28.3 of the *Patent Act*, I find that the subject-matter of Claims 1 and 2 of the '630 Patent would have been obvious on the claim date to a person skilled in the art or science to which it pertains, having regard to information disclosed before the claim date by a person (other than the applicant, or a person who obtained knowledge, directly or indirectly, from the applicant) in such a manner that the information became available to the public in Canada or elsewhere.

[207] I find, based on the evidence before me, that Claims 1 and 2 of the '630 Patent are invalid for obviousness.

VIII. UTILITY

[208] The Defendants also submit that the '630 Patent is invalid for failure to demonstrate utility.

[209] In order to establish lack of utility, an alleged infringer must demonstrate either that an invention will not operate at all, or that it will not do what the specification promises it will do (*Consolboard Inc v MacMillan Bloedel (Saskatchewan) Ltd*, [1981] 1 SCR 504, 122 DLR (3d) 203 [*Consolboard*]; *Eli Lilly Canada Inc v Novopharm Ltd*, 2010 FCA 197 at para 75, 85 CPR (4^{th}) 413 [*Lilly*]). If the specification makes a specific "promise", then utility requires that the invention work in the manner promised by the patent (*Consolboard*, above; *Lilly*, above at para 76).

[210] In *Lilly*, above at paragraph 93, the Court of Appeal held that the "promise of the patent is fundamental to the utility analysis" and must "be ascertained at the outset" of that analysis. The Court of Appeal explained that the trial judge must construe the promise "within the context of the patent as a whole, through the eyes of the [person skilled in the art] in relation to the science and information available at the time of filing" (*Lilly*, above at para 93). In *Apotex Inc v Pfizer Canada Inc*, 2011 FCA 236 at para 17, [2011] FCJ No 1234, the Court of Appeal stated that a judge must purposively ascertain the promise of a patent. Although the promise of the patent is a question of law, the trial judge will generally require the assistance of expert evidence (*Lilly*, above at para 80). The onus of proving that the invention lacks utility rests on the alleged infringer (*Lilly*, above at paras 81, 107).

[211] The first problem with the Defendants' arguments on this issue is that they have failed to clearly define the promise of the '630 Patent. Not one of the Defendants' experts provided their opinion on the promise until prompted during their oral testimony. Even then, the experts appeared to be unfamiliar with the term and unable to provide a comprehensible response.

[212] The second problem is that the Defendants' experts focused mainly on the weaknesses in the design of the '630 bearing assembly. They were convinced that it would wear out quickly. This, of course is not the test for utility. Nowhere in the '630 Patent specification does the inventor promise any particular durability.

[213] On this basis, I would likely conclude that the Defendants have not met their burden of demonstrating that the '630 Patent lacks utility. However, given my conclusions on the issues of obviousness and anticipation, it is not necessary to make any definitive finding on this issue.

IX. CONCLUSION

[214] In conclusion, the Plaintiffs' action will be dismissed. The Defendants' counterclaim will be allowed and they will be entitled to a declaration that the '630 Patent is invalid. A Judgment to that effect will be released concurrently with these Reasons for Judgment.

[215] In summary, I have made two key findings, either of which is sufficient to conclude that Claims 1 and 2 of the '630 Patent are invalid. Moreover, because Claim 3 is a dependent claim, the effect of these two findings is that Claim 3 is also invalid.

1. The subject matter of Claims 1 and 2 of the '630 Patent was disclosed before the claim date in such a manner that the subject matter became available to the public in Canada or elsewhere. In other words, the bearing assembly described in Claims 1 and 2 of the '630 Patent was anticipated by the 3103 assembly.

2. The subject matter of Claims 1 and 2 of the '630 Patent would have been obvious to a person of ordinary skill in the art as of the claim date. Stated differently, in light of the Halvorsen or Christensen core barrel together with the Geczy Patent, the '630 bearing assembly would have been obvious to a skilled person.

[216] Because of these findings, I need not reach any definitive conclusions with respect to the other issues raised by the parties in their pleadings.

[217] The Defendants are entitled to recover costs from the Plaintiffs. At the close of the trial, I heard submissions from the parties on the matter of costs. Neither party proposes that I set a lump-sum amount; rather the parties are looking to me to set out the principles or guidelines that should guide the calculation of costs.

[218] In general, I agree with the submissions of the Defendants on the award of costs. There are, however, a few items that require comment:

> The engineering experts. I have a serious concern about the recovery of costs by the Defendants for all three engineering experts – Mr. Miller, Mr. Nelson and Dr. Wooley. I agree with the Plaintiffs that there was considerable overlap among the three experts, all of whom were retained to provide engineering expertise on the issues of patent validity. I see no reason why one – or possibly two – experts could not have provided the necessary opinions to the Court. In the circumstances

and in my discretion, I will limit the recovery of costs for the experts to 60% of the total fees and reasonable disbursements charged by the three experts.

Mr. Finnie and Mr. Kanak. The Plaintiffs submit that the Defendants should not be awarded costs for the expert witness, Mr. Finnie, and the fact witness, Mr. Kanak. I do not agree. Mr. Finnie's expertise in digital media was useful in establishing the genesis of the 3103 assembly, a question that was, to a large degree, essential to my findings in this matter. Mr. Kanak's factual evidence addressed an issue in the trial. While Mr. Kanak's evidence did not, at the end of the day, become necessary, the parties could not have known that when he appeared to testify. In the circumstances, the relevant costs of both of these witnesses should be recoverable.

The motion regarding subpoenas. On August 31, 2011, the Defendants filed a motion record concerning an *ex parte* application for leave of the Court to issue subpoenas. This Court's determination that the motion should not be dealt with *ex parte* required the Plaintiffs to prepare a responding motion record. The Defendants then withdrew their motion. Had this motion proceeded, I am quite certain that it would have failed and that costs would have been awarded to the Plaintiffs in any event of the cause. Accordingly, for purposes of calculation of costs in this trial, the parties should proceed as though that order had been made.

Failure to admit facts. Contrary to the assertions of the Defendants, I do not believe that an increase in the award of costs should be made due to the alleged failure of the Plaintiffs to admit certain facts.

Mr. Pheasey. Mr. Frederick Pheasey, a Director of one of the corporate Defendants, was named as a Defendant. The Defendants submit that they should be entitled to an increase in the award of costs due to the fact that the Plaintiffs did not, at trial, pursue the allegations of inducement that may have involved Mr. Pheasey. I am not prepared to award an increase in costs for that reason. While the inducement allegation was not proven (or even pursued) at trial, it was a live issue right up to the time of the trial. Any increased costs that might have been incurred in defending Mr. Pheasey are likely more than set off by the fact that the trial was shortened significantly by the omission of the issue of inducement from the Plaintiffs' case.

[219] In addition to the above, I would also direct that the costs take into account the following:

- costs should be assessed in accordance with the upper end of Column IV of Tariff B;

- the Defendants are entitled to second counsel fees in relation to preparation and attendance at the pre-trial conference, trial management conferences, preparation of motion materials and preparation and attendance at trial and argument; and

- other than as set out above with respect to experts' fees and disbursements, the Defendants are allowed recovery of all reasonable disbursements.

[220] On a final note, I thank counsel for their conduct during this trial. They were professional, well prepared, courteous – both to the bench and to each other – and competent. I particularly admire the efficiency with which the trial unfolded.

POSTSCRIPT

[1] These Reasons for Judgment are un-redacted from confidential Reasons for Judgment which were issued on November 18, 2011 pursuant to the Direction dated November 18, 2011.

[2] The Court canvassed counsel for the parties whether they had concerns if the Reasons were issued to the public without redactions. On November 25, 2011, counsel for the Defendants advised that there were no portions of the confidential Reasons for Judgment that should be redacted but requested certain amendments. I accept the amendments requested by counsel for the Defendants and they have been incorporated in these Public Reasons for Judgment.

"Judith A. Snider"
Judge

Ottawa, Ontario
Public - November 29, 2011
Confidential – November 18, 2011

FEDERAL COURT

SOLICITORS OF RECORD

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STYLE OF CAUSE:	WENZEL DOWHOLE TOOLS LTD et al v NATIONAL-OILWELL CANADA et al
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