



A-481-19

2021 FCA 24

Western Oilfield Equipment Rentals Ltd. and FP Marangoni Inc. (Appellants)

v.

M-I L.L.C. (Respondent)

INDEXED AS: WESTERN OILFIELD EQUIPMENT RENTALS LTD. v. M-I L.L.C.

Federal Court of Appeal, Gleason, Locke and Mactavish JJ.A.—Ottawa, September 9, 2020 and February 9, 2021.

Patents — Infringement — Appeal from Federal Court decision finding that certain claims of respondent's Canadian Patent No. 2664173 ('173 patent) valid, infringed by appellants — '173 patent relating to shale shakers used in oil, gas industry; describing desire to improve rate, efficiency at which shakers remove liquid from cuttings or other solids — Issues: how should claim elements be construed; whether there was infringement; whether there was invalidity; whether there was breach of procedural fairness — Regarding claim construction, Federal Court not erring in its construction of patent claims at issue, not erring in weighing of evidence adduced — Respondent's motivation in amending claims not, by itself, telling in terms of claim construction or patent validity — Concerning infringement, text of Patent Act, s. 55(2) examined, not suggesting that pre-issuance infringer can avoid liability by discontinuing its activities prior to issuance of patent — No indication in Act, s. 55(2) that infringing activity must continue after issuance of patent — Inducing infringement merely form of patent infringement, not distinct tort; no reason to treat pre-issuance infringement by inducement differently from direct pre-issuance infringement — Federal Court not erring regarding finding of infringement — Also, no basis for liability for inducement to be avoided based on timing of instructions or any lack of evidence that customers induced by instructions given — Federal Court also not erring in consideration of Gillette defence appellants raising — Success of Gillette defence not depending on conclusion that claim in question invalid for anticipation or obviousness — In circumstances such as present case, where court construed claims in issue, determined which claims valid or not, found certain valid claims to be infringed, consideration of Gillette defence superfluous, unnecessary — As to anticipation, Federal Court not erring, not failing to consider anticipation on claim-by-claim basis — Federal Court finding that some claims of '173 patent anticipated, others not — Clearly, Federal Court understood analysis of anticipation, performed its analysis as required — Concerning obviousness, Federal Court considering each of potential inventive concepts identified by expert evidence, indicating preference for one expert's view that claims in dispute valid — No indication that Federal Court's approach resulting in any reviewable

error — Four-step test set out in Apotex Inc. v. Sanofi-Synthelabo Canada Inc, one way to assess obviousness but not mandatory — Only mandatory considerations those laid out in Act, s. 28.3, which concerns obviousness to person skilled in art or science to which invention pertaining — On the matter of insufficiency, Federal Court did not fail to consider any evidence — Committing no error in finding patent not insufficient — With respect to ambiguity, Federal Court’s approach thereto not error of law — Nor did Federal Court err in law, misunderstand or fail to consider evidence or appellants’ arguments on inutility — As to overbreadth, distinct ground of invalidity to be considered separately — Although appellants arguing that claims of ‘173 patent invalid on grounds of overbreadth, arguments rejected — Regarding addition of new subject matter as provided in Act, s. 38.2(2), provision not suggesting strict test, not providing explicitly for patent revocation unlike in U.K. — Act, s. 38.2(1) providing that subject to certain limitations, patent application may be amended — Federal Court not erring in ruling that surrounding circumstances not relevant to whether s. 38.2(2) respected — Also not erring in finding that feature of preventing stalling of slurry in present case at least reasonably inferable from original patent application — Since Federal Court not erring in invalidity findings, not necessary to address appellants’ arguments on remedies — Finally, as to procedural fairness, parties’ submission of expert reports constituted undertaking to Court to call those experts as witnesses at trial — Appellants’ right to cross-examine constrained by their undertaking, which was voluntary — Procedural fairness not breached — Appeal dismissed.

Patents — Practice — Federal Court finding that certain claims of respondent’s Canadian Patent No. 2664173 (‘173 patent) valid, infringed by appellants — That decision appealed — Whether trial before Federal Court procedurally fair — Parties’ submission of expert reports constituted undertaking to Court to call those experts as witnesses at trial — Such undertaking became particularly important here since parties also agreeing to present experts’ evidence out of usual order — While general principle being that parties can cross-examine as they wish, appellants’ right to cross-examine constrained by their undertaking to Federal Court to call their experts as witnesses — Undertaking was voluntary — At trial, Federal Court giving appellants option of withdrawing their undertaking or to comply with it; such option appropriate, necessary to ensure fair trial — Also, while option granted to appellants in present case, it was Federal Court’s discretion to do so — Federal Court could have required that appellants comply with their undertaking.

This was an appeal from a Federal Court decision finding that certain claims of the respondent’s Canadian Patent No. 2664173 (‘173 patent) were valid and had been infringed by the appellants. The ‘173 patent relates to shale shakers, which are used in the oil and gas industry to remove solids from the drilling fluid that emerges from an active well so that the fluid can be reused. The ‘173 patent describes a desire to improve the rate and efficiency at which shakers remove liquid from cuttings or other solids. It is known that introducing a pressure differential across the screen can increase the fluid capacity of the shaker, but doing so may result in solids sticking to the screen, thereby interfering with the passage of fluids through the screen. This is called “stalling” of the slurry. The ‘173 patent describes “a continuing desire for shakers having increased fluid capacity, increased fluid flow-through rates across the screens, and/or improved fluid removal efficiencies.” The ‘173 patent comprises 23 claims, of which the Federal Court found claims 2, 4, 9, 10, 20, 21 and 22 were valid and infringed by the appellants’ Vac Screen System (VSS). The Federal Court also noted that the parties had agreed that claims 1, 11, 16 and 19 of the ‘173 patent are invalid. The appellants were Western Oilfield Equipment Rentals Ltd. (Western) and FP Marangoni Inc. (FPM). FPM is a wholly-owned subsidiary of Western but FPM has not carried on business since 2014. Both appellants were found to have infringed the ‘173 patent.

Numerous issues were addressed herein. These issues touched on: how to construe the claim elements; whether there was infringement; whether there was invalidity; and whether there was a breach of procedural fairness.

Held, the appeal should be dismissed.

Regarding claim construction, the appellants' main complaint was that the original claims of the '173 patent were broadened during prosecution of the patent application to encompass the appellants' VSS. However, a patent applicant is perfectly entitled, and indeed is well-advised, to draft patent claims with an eye on competitors' products. The limitation is that the applicant must respect all of the requirements for valid claims. Therefore, the respondent's motivation in amending the claims was not, by itself, telling in terms of claim construction or patent validity. The Federal Court did not err in its construction of the patent claims at issue and did not err in the weighing of the evidence adduced.

The claims that were in issue in this appeal were not limited to those that were found to infringe. Because the appellants' invalidity arguments concerned all of the claims of the '173 patent that the respondent did not admit were invalid, these claims were also in issue. The appellants argued, in particular, that FPM stopped doing business in 2014, prior to the issuance of the '173 patent, and hence could not be liable for infringement. They argued that a party is not liable under the Act for pre-issuance infringement if it discontinues the activities in question prior to issuance of the patent. The appellants also argued that, regardless of its activities after issuance of the patent, a party cannot be liable for pre-issuance infringement by inducement. It had to be determined whether one who engages in pre-issuance infringement can avoid liability under subsection 55(2) of the *Patent Act* by discontinuing the activities in question prior to issuance of the patent, and (ii) whether liability under subsection 55(2) extends to one whose pre-issuance infringement is by inducement. These questions required an interpretation of subsection 55(2) of the Act. Beginning with the text of subsection 55(2), there is nothing therein suggesting that a pre-issuance infringer can avoid liability by discontinuing its activities prior to issuance of the patent. The text is concerned with the period from publication of the patent application until issuance of the patent, and with activities during that period that would have constituted an infringement if the patent had already been granted. There is no indication in the text that the infringing activity must continue after issuance of the patent. As regards the question of inducing infringement, this is merely a form of patent infringement, not a distinct tort. There is no reason to treat pre-issuance infringement by inducement differently from direct pre-issuance infringement. The context of subsection 55(2) of the Act does not suggest that a pre-issuance infringer can avoid liability therefor by discontinuing its activities prior to issuance of the patent. No cause of action exists under subsection 55(2) until the patent has issued but liability relates to the period from publication to issuance. The purpose of subsection 55(2) is to compensate inventors whose published inventions are used without permission before they can enforce their rights. Nothing in the context or the purpose suggests any exclusion from liability to a patentee where the pre-issuance infringement stops prior to issuance or where such infringement is by inducement. Therefore, no error by the Federal Court was found regarding the finding of infringement against the appellant FPM. With respect to inducement by the appellant Western, there was no basis for it to avoid liability based on the timing of its instructions or based on any lack of evidence that its customers were induced by the instructions.

Regarding the *Gillette* defence the appellants raised, the Federal Court did not err in its consideration thereof. The *Gillette* defence permits a defendant (or a court) a shortcut around the often difficult and time-consuming process of construing the claims of a patent and then determining whether those claims are valid and whether they have been infringed. However, the application of the *Gillette* defence has proved less simple in practice, and this has led to some misunderstanding and misapplication of the defence. Though the *Gillette* defence is frequently asserted by parties accused of patent infringement, it is rare for such parties to rely exclusively on this defence and actually omit analysis of claim construction, validity and infringement. Typically, a court will be faced with arguments on all of these issues. It is perhaps because the *Gillette* defence is typically asserted

along with other defences that its nature as an alternative to claim construction and analysis of validity and infringement is sometimes misunderstood or misapplied by counsel and by courts. The success of a *Gillette* defence does not depend on a conclusion that the claim in question is invalid for anticipation or obviousness. Quite the contrary, the principal benefit of a *Gillette* defence is to avoid the need to construe the claims and reach a conclusion on validity and infringement issues. Where a court has (i) construed the claims in issue, (ii) determined which claims are valid and which are not, and (iii) found certain valid claims to be infringed (as did the Federal Court in the present case), consideration of the *Gillette* defence is superfluous and unnecessary. It may also create confusion. In fact, it is arguably preferable in some cases for the court not to take the shortcut offered by the *Gillette* defence because the more laborious claim construction process may lead to a conclusion that the claims in question are invalid. Such a conclusion would be of interest not just to the parties but also to the broader public.

The appellants argued as well that several patent publications and activities constitute prior art that anticipates the claims in issue. The appellants observed correctly that assessing anticipation (also known as lack of novelty) is a two-step process; the party attacking a claim must establish both disclosure and enablement of the invention. On disclosure, the appellants failed to acknowledge two important requirements. Firstly, the disclosure “must contain so clear a direction that a skilled person reading and following it would in every case and without possibility of error be led to the claimed invention”. The second important disclosure requirement that the appellants failed to acknowledge is that there is no room for trial and error or experimentation by the skilled person at this stage; that person is simply reading the prior reference for the purposes of understanding it. Non-inventive experimentation is a consideration in assessing enablement but not disclosure. On enablement, it is important to bear in mind that the question is whether the skilled person would be enabled to perform the claimed invention without undue burden, not the prior art. Another important requirement for anticipation is that all of the essential elements of the claim in issue must be disclosed and enabled in a single prior art reference. This means that a separate anticipation analysis must be done for each of the prior art references in issue. The teachings of the prior art are to be read as a skilled person would understand them. By definition, that skilled person is aware of the common general knowledge. But it does not follow that a party attacking a patent claim is necessarily entitled to fill in gaps in a prior art reference with such common general knowledge. The appellants’ argument that the Federal Court erred in failing to consider anticipation on a claim-by-claim basis was not accepted. The Federal Court found that some of the claims of the ‘173 patent were anticipated and some were not. Clearly, the Federal Court understood that analysis of anticipation is to be done on a claim-by-claim basis, and it performed its analysis that way.

With respect to obviousness, the appellants argued in particular that the Federal Court erred by failing, in its assessment of the obviousness arguments, to (i) identify the inventive concept of the claims and their differences from the prior art, and (ii) ask whether those differences would have been obvious to a skilled person. While the Federal Court did not divide its analysis into the well-known four steps identified in *Apotex Inc. v. Sanofi-Synthelabo Canada Inc.*, the appellants did not argue that it failed to address any of the obviousness arguments they raised. In its analysis of obviousness, the Federal Court considered each of the potential inventive concepts identified by expert evidence and indicated a preference for one expert’s view that the claims in dispute are valid. The Federal Court’s analysis essentially merged steps 2, 3 and 4 of the four-step test. There was no indication that the Federal Court’s approach resulted in any reviewable error. The four-step test set out in *Sanofi-Synthelabo* is one way to assess obviousness but it is not mandatory. The Supreme Court of Canada in *Sanofi-Synthelabo* characterizes the four-step test as a useful approach. The only mandatory considerations are those laid out in section 28.3 of the *Patent Act*, which is concerned with obviousness to a person skilled in the art or science to which the invention pertains, having regard to “information disclosed before the [relevant date] in such a manner that the

information became available to the public in Canada or elsewhere.” The four-step test set out in *Sanofi-Synthelabo* provides a framework for assessing obviousness but it does not delve into the determination of whether those differences are obvious to the skilled person, except to say that it should be done without any knowledge of the alleged invention. In reaching its conclusion on obviousness, the Federal Court made no error of law or a palpable and overriding error on an issue of fact or mixed fact and law.

The appellants’ argument on insufficiency of the specification of the ‘173 patent was based on the requirements set out in subsection 27(3) of the Act. The Federal Court considered the issues raised by the appellants. It preferred the opinion of one expert who explained that the skilled person would readily solve all of the alleged insufficiencies in the ‘173 patent. The Federal Court found that the invention in issue was not in any inventive component but rather in the inventive combination of known components. It did not fail to consider any of the evidence, and the evidence was not such that it was a reviewable error not to find the ‘173 patent insufficient. The Federal Court also did not commit a reviewable error in refusing to find the specification of the ‘173 patent insufficient for failure to comply with the best-mode requirement. The appellants did not provide sufficient detail to establish that any error that the Federal Court may have made regarding the best-mode requirement in paragraph 27(3)(c) of the Act was of sufficient importance to make a difference to the result. The details mentioned by the appellants in respect of their other arguments on insufficiency were not of the kind that had to be included in the specification.

The appellants argued that the Federal Court erred in concluding that various claims in the ‘173 patent are not invalid for ambiguity because the Federal Court was able to construe the terms in issue used therein. However, the appellants cited no authority providing that the Federal Court’s approach to ambiguity was an error of law. The basis for invalidity due to ambiguity is that the patent must give adequate notice to the public as to what activities are claimed as exclusive to the patentee. If a skilled person is able to construe the claims, then it follows that that notice is provided.

On inutility, the appellants argued that the Federal Court misunderstood their arguments and applied the wrong legal test. The Federal Court did not make any error in law or misunderstand or fail to consider the evidence or the appellants’ arguments on inutility. It noted correctly that the fact that the inventor did not initially arrive at a prototype that could immediately be commercialized did not mean that his testing did not reveal a useful invention. The threshold for utility in a patent context is not commercial usefulness. A scintilla of utility will do. The Federal Court was clearly satisfied that the inventor had made a useful invention. It was also of the view that an external degassing chamber was not essential to the invention of the ‘173 patent and, hence, claims not including such an element do not lack utility. Utility is assessed from the point of view of the skilled person, not the inventor. Doubts that the inventor expressed about the utility of a certain embodiment would not necessarily lead to a conclusion of inutility. As well, the inventor’s doubts about whether the embodiment in question would function were based on the specific shaker that he observed. It was not a conclusion that no system with a cantilevered tray could work. Thus, the Federal Court did not make any reviewable error in considering the appellants’ arguments on inutility.

There are two ways that a patent claim can fail for overbreadth (or overclaiming): it can be broader than the invention disclosed in the specification or it can be broader than the invention made by the inventor. The concept of claim invalidity for overbreadth (or overclaiming) arises from the combination of the requirements that a patent specification (i) correctly and fully describe the invention (Act, subsection 27(3)) and (ii) include “claims defining distinctly and in explicit terms the subject-matter of the invention for which an exclusive privilege or property is claimed” (Act, subsection 27(4)). Overbreadth often overlaps with other grounds of invalidity. Where a claim is broader than the description, it may fail for overbreadth, but it may also fail because the description

does not adequately describe how to put it into practice. Despite this possibility of overlap, overbreadth is a distinct ground of invalidity that must be considered separately. The appellants argued that the claims of the '173 patent were invalid on both grounds of overbreadth but these arguments were rejected.

Regarding the addition of new subject matter as provided in subsection 38.2(2) of the Act, the test for reasonable inferability of new subject matter is not strict such as the one in the U.K. as the appellants argued. Under Canada's Act, a patent is presumed to be valid in the absence of evidence to the contrary (subsection 43(2)). The burden was on the appellants to establish that the '173 patent is invalid, regardless of the ground of invalidity. As well, subsection 38.2(2) does not suggest a strict test and does not provide explicitly for patent revocation unlike the U.K. provision in question. On the contrary, subsection 38.2(1) provides that, subject to certain limitations, a patent application may be amended. The provision of particular interest in the present appeal, subsection 38.2(2) of the Act, provides for one of the contemplated limitations. The Federal Court's ruling that surrounding circumstances are not relevant to whether subsection 38.2(2) has been respected was not wrong. The Federal Court reasoned that this issue is one of logic, not fact. The respondent's motivation in amending the claims to broaden them and encompass the appellants' VSS was likewise not relevant to whether the new matter therein could reasonably be inferred from the original application. The Federal Court was correct to exclude evidence on that point. Finally, there was support in the '173 patent, as originally filed, for claims defining the purpose of preventing the stalling of slurry. Thus, the Federal Court did not err in finding that the feature of preventing the stalling of slurry was at least reasonably inferable from the original patent application.

With respect to procedural fairness, the parties' submission of expert reports constituted an undertaking to the Court to call those experts as witnesses at trial. This undertaking became particularly important in this case because the parties also agreed to present the experts' evidence out of the usual order. The appellants argued that they were entitled to cross-examine the respondent's witnesses without significant and unwarranted constraint, and that they had the right to decide whether to call witnesses of their own or to rely instead on evidence obtained in cross-examination. They argued that the denial of their right to conduct cross-examination as they wished was procedurally unfair. While this was a general principle, the appellants' right to cross-examine was constrained by their undertaking to the Federal Court to call their experts as witnesses. This undertaking was voluntary; the appellants could instead have chosen not to submit their expert reports before trial. At trial, the Federal Court went so far as to give the appellants the option of withdrawing their undertaking instead of complying with it. Not only was it appropriate for the Federal Court to require the appellants to choose, but it was necessary to ensure a fair trial. Parties also should not expect to be given the option, partway through trial, to withdraw an undertaking. Though that option was granted to the appellants in this case, it was in the discretion of the Federal Court. The Federal Court might instead have simply required the appellants to comply with their undertaking.

Having concluded that the Federal Court did not err in some of its invalidity findings, it was unnecessary to address the appellants' arguments on remedies.

STATUTES AND REGULATIONS CITED

Budget Implementation Act, 2018, No. 2, S.C. 2018, c. 27, s. 201.

Federal Courts Rules, SOR/98-106, rr. 52.2, 258, 279, Tariff B, column V.

Patent Act, R.S.C., 1985, c. P-4, ss. 27(3),(4), 28.3, 38.2, 43(2), 53.1, 55(1),(2).

Patents Act 1977 (U.K.), 1977, c. 37, s. 72(1)(d).

CASES CITED

APPLIED:

Housen v. Nikolaisen, 2002 SCC 33, [2002] 2 S.C.R. 235; *Canada v. South Yukon Forest Corporation*, 2012 FCA 165, 4 B.L.R. (5th) 31; *Catnic Components Ltd. v. Hill & Smith Ltd.*, [1982] R.P.C. 183, [1981] F.S.R. 60 (H.L.); *Whirlpool Corp. v. Camco Inc.*, 2000 SCC 67, [2000] 2 S.C.R. 1067; *Free World Trust v. Électro Santé Inc.*, 2000 SCC 66, [2000] 2 S.C.R. 1024; *Camso Inc. v. Soucy International Inc.*, 2019 FC 255, 165 C.P.R. (4th) 1, affd 2020 FCA 183; *Canada Trustco Mortgage Co. v. Canada*, 2005 SCC 54, [2005] 2 S.C.R. 601; *Bauer Hockey Corp. v. Easton Sports Canada Inc.*, 2010 FC 361, 8 B.C.L.R. (5th) 1, 366 F.T.R. 242, affd 2011 FCA 83, 92 C.P.R. (4th) 103; *Apotex Inc. v. Sanofi-Synthelabo Canada Inc.*, 2008 SCC 61, [2008] 3 S.C.R. 265.

CONSIDERED:

Baker Petrolite Corp. v. Canwell Enviro-Industries Ltd., 2001 FCT 889, [2002] 2 F.C. 3, revd on other grounds 2002 FCA 158, [2003] 1 F.C. 49; *Gillette Safety Razor Company v. Anglo-American Trading Company Ltd.* (1913), 30 R.P.C. 465 (H.L.); *J. K. Smit & Sons, Inc. v. McClintock*, [1940] S.C.R. 279, [1940] 1 D.L.R. 507; *Eurocopter v. Bell Helicopter Textron Canada Limitée*, 2012 FC 113, 404 F.T.R. 193, affd 2013 FCA 219, 120 C.P.R. (4th) 394.

REFERRED TO:

Benhaim v. St-Germain, 2016 SCC 48, [2016] 2 S.C.R. 352; *Tearlab Corporation v. I-MED Pharma Inc.*, 2019 FCA 179, 166 C.P.R. (4th) 367; *Pollard Banknote Limited v. BABN Technologies Corp.*, 2016 FC 883, 141 C.P.R. (4th) 329; *CanMar Foods Ltd. v. TA Foods Ltd.*, 2021 FCA 7, [2021] 1 F.C.R. 799; *Corlac Inc. v. Weatherford Canada Inc.*, 2011 FCA 228, 95 C.P.R. (4th) 101; *Hospira Healthcare Corporation v. Kennedy Trust for Rheumatology Research*, 2020 FCA 30, leave to appeal to S.C.C. refused December 23, 2020, [2020] S.C.C.A. No. 79 (QL); *Premier Tech Ltée v. Équipements Tardif Inc.* (1993), 48 C.P.R. (3d) 42, 63 F.T.R. 114 (F.C.T.D.); *Sanofi-Aventis Canada v. Apotex Inc.*, 2009 FC 676, 350 F.T.R. 165; *Pfizer Canada Inc. v. Canada (Health)*, 2009 FC 1294, 360 F.T.R. 200, affd 2011 FCA 102, 92 C.P.R. (4th) 301; *Biovail Corporation v. Canada (Health)*, 2010 FC 46, 361 F.T.R. 158; *Pfizer Canada Inc. v. Canada (Health)*, 2010 FC 447, 367 F.T.R. 179, revd 2011 FCA 236, 95 C.P.R. (4th) 193; *Beloit Canada Ltd. v. Valmet OY* (1986), 8 C.P.R. (3d) 289, 64 N.R. 287 (F.C.A.); *General Tire & Rubber Co. v. Firestone Tyre & Rubber Co.*, [1972] R.P.C. 457 (Eng. C.A.); *Wenzel Downhole Tools Ltd. v. National-Oilwell Canada Ltd.*, 2012 FCA 333, [2014] 2 F.C.R. 459; *Teva Canada Limited v. Novartis Pharmaceuticals Canada inc.*, 2013 FCA 244, 451 N.R. 246; *Bombardier Recreational Products Inc. v. Arctic Cat, Inc.*, 2018 FCA 172, 159 C.P.R. (4th) 319; *Mobil Oil Corp. v. Hercules Canada Inc.* (1995), 63 C.P.R. (3d) 473, 188 N.R. 382 (F.C.A.); *Pfizer Canada Inc. v. Canada (Minister of Health)*, 2005 FC 1725, 285 F.T.R. 1; *AstraZeneca Canada Inc. v. Apotex Inc.*, 2017 SCC 36, [2017] 1 S.C.R. 943; *Pfizer Canada Inc. v. Canada (Health)*, 2007 FCA 209, 60 C.P.R. (4th) 81; *Bonzel v. Intervention Ltd. (No. 3)*, [1991] R.P.C. 553 (Pat. Ct.) (U.K.); *Gedeon Richter plc v. Bayer Pharma AG*, [2012] EWCA Civ. 235, [2012] All E.R. 87.

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Barrigar, Robert and Andrew Shaughnessy, *Canadian Patent Act Annotated*, 2nd ed., loose-leaf, Toronto: Carswell, 1994.

MacOdrum, Donald H. *Fox on the Canadian Law of Patents*, 5th ed. loose-leaf, Toronto: Carswell, 2002.

Vaver, David « Best Mode Disclosure in Canadian Patents » (2013), 25 *I.P.J.* 303.

APPEAL from a Federal Court decision (2019 FC 1606, 175 C.P.R. (4th) 179) finding that certain claims of the respondent's Canadian Patent No. 2664173 were valid and had been infringed by the appellants. Appeal dismissed.

APPEARANCES

Patrick S. Smith and R. Nelson Godfrey for appellants.

Kevin L. LaRoche and Kirsten Crain for respondent.

SOLICITORS OF RECORD

Gowling WLG (Canada) LLP, Calgary, for appellants.

Borden Ladner Gervais LLP, Ottawa, for respondent.

The following are the reasons for judgment rendered in English by

LOCKE J.A.:

I. Background

[1] This decision concerns an appeal of a decision of the Federal Court (2019 FC 1606, 175 C.P.R. (4th) 179, *per* Justice O'Reilly (the Decision)) which found that certain claims of the respondent's Canadian Patent No. 2664173 (the '173 patent) were valid and had been infringed by the appellants.

[2] The '173 patent relates to shale shakers, which were described as follows at paragraph 6 of the Decision:

.... Shale shakers are used in the oil and gas industry to remove solids from the drilling fluid that emerges from an active well, so that the fluid can be reused. The solids are the product of the drill bit cutting through rock. They are often referred to as "cuttings." Drilling fluid provides a medium for sending the cuttings to the surface, and helps lubricate the drilling equipment. The combined solid and fluid mixture that comes to the surface at the drill site is called "slurry."

[3] The Decision went on at paragraph 7 as follows:

In essence, a shale shaker operates like a vibrating sieve, receiving the slurry and screening out the cuttings within it, leaving the fluid to be captured by tanks below. Since drilling fluid is expensive, the more proficient a shaker is in removing solids, the lower the cost of the drilling operation. The more reusable drilling fluid recovered, the better.

[4] The '173 patent describes a desire to improve the rate and efficiency at which shakers remove liquid from cuttings or other solids. It is known that introducing a pressure differential across the screen can increase the fluid capacity of the shaker, but doing so may result in solids sticking to the screen, thereby interfering with the passage of fluids through the screen. This is called “stalling” of the slurry. The '173 patent describes “a continuing desire for shakers having increased fluid capacity, increased fluid flow-through rates across the screens, and/or improved fluid removal efficiencies.”

[5] The '173 patent comprises 23 claims, of which the Federal Court found claims 2, 4, 9, 10, 20, 21 and 22 were valid and infringed by the appellants' Vac Screen System (VSS). The Federal Court also noted that the parties had agreed that claims 1, 11, 16 and 19 of the '173 patent are invalid. Elements of the claims in issue include:

- A. A first screen and a second screen having different pressure differentials applied across each (all claims),
- B. Controlling air flow under at least a portion of the first screen to prevent stalling of the slurry (claims 2, 10),
- C. The pressure differential across the first screen generated by a vacuum external to the shaker (claim 9),
- D. The pressure differential across the first screen pulls vapors and drilling fluid through the first screen to a degassing chamber external to the shaker (claims 10, 20) (Throughout this decision, “vapor” is spelled without a “u” (as is done in the '173 patent), except when quoting another source),
- E. A first screen for separating drill cuttings and drilling fluid within a shaker (claims 20, 21, 22),
- F. A pressure differential generator configured to pull air or vapor through the first screen to enhance the flow of drilling fluid through the first screen with respect to a second screen within a shaker (claims 20, 21, 22),
- G. A sump located below the first screen and configured to collect the air or vapor and the drilling fluid that passes through the first screen (claim 20),
- H. A degassing chamber in fluid communication with the pressure differential generator and the sump and located external to the shaker for collecting all of the air or vapor and the drilling fluid in the sump (claim 20),
- I. The air or vapor pulled through the first screen is adjustable to prevent stalling of drill cuttings on the first screen (claim 22).

[6] The appellants are Western Oilfield Equipment Rentals Ltd. (Western) and FP Marangoni Inc. (FPM). FPM is a wholly-owned subsidiary of Western, but FPM has not

carried on business since 2014. Both appellants were found to have infringed the '173 patent.

II. Issues

[7] The appellants raise a number of issues which may be usefully classified as follows:

- i. Construction of claim elements, including:
 - (a) “First screen”,
 - (b) “Controlling air flow”,
 - (c) “Vapor”,
 - (d) “Degassing chamber”,
 - (e) “All”,
 - (f) “Or” and,
 - (g) “Within a shaker”;
- ii. Infringement, including:
 - (a) By FPM,
 - (b) Inducement by Western,
 - (c) Whether VSS pulls vapor, and
 - (d) *Gillette* defence,
- iii. Invalidity, including:
 - (a) Anticipation, including by:
 1. Derrick Patent Application,
 2. Derrick Prior Use,
 3. Vasshus Patent,
 4. Hensley Patent Application, and
 5. Logue, Bongert, Erris, Cook and Fast Patent Publications,

- (b) Obviousness,
 - (c) Insufficiency,
 - (d) Ambiguity,
 - (e) Inutility,
 - (f) Overbreadth, and
 - (g) Addition of new subject matter,
- iv. Procedural fairness, and
- v. Remedies.

[8] As explained below, I have found no reviewable errors by the Federal Court.

[9] Before continuing, I feel compelled to say a few words about the lack of wisdom of raising so many issues on appeal, especially so many issues that are so factually suffused, without due attention to the standard of review on such issues. Firstly, the appellants' approach suggests that they themselves cannot identify any issues that are particularly strong. This suggestion was compounded at the hearing of the appeal when, despite the Court's suggestion that the appellants focus on their strongest points, the appellants insisted on addressing all of the issues raised in their memorandum of fact and law. Not only did this approach miss an opportunity to highlight certain of the issues, but it also prevented the appellants from delving deeper into points that might have merited more discussion. In addition to hurting the appellants' own case on appeal, this approach also made unnecessary additional work for the Court and delayed the release of this decision. I have additional comments below about the appellants' treatment of the standard of review.

III. Standard of Review

[10] The appellants pay scant attention to the standard of review in their submissions, and therefore it is important to state the applicable standard here.

[11] As indicated in *Housen v. Nikolaisen*, 2002 SCC 33, [2002] 2 S.C.R. 235 (*Housen*), the standard of correctness applies to questions of law (see paragraph 8), but findings of fact or of mixed fact and law are reviewable only where the Federal Court has made a palpable and overriding error (see paragraphs 10 and 36). The standard of palpable and overriding error is not easily met. As stated by this Court in *Canada v. South Yukon Forest Corporation*, 2012 FCA 165, 4 B.L.R. (5th) 31, at paragraph 46, and quoted with approval by the majority of the Supreme Court of Canada in *Benhaim v. St-Germain*, 2016 SCC 48, [2016] 2 S.C.R. 352, at paragraph 38:

Palpable and overriding error is a highly deferential standard of review....“Palpable” means an error that is obvious. “Overriding” means an error that goes to the very core of the outcome of the case. When arguing palpable and overriding error, it is not enough to pull at leaves and branches and leave the tree standing. The entire tree must fall.

[12] The deference given to the Federal Court on issues of fact is warranted for several reasons, not least because the judge at first instance was present throughout the trial to hear all the witnesses and see all the evidence on the many issues in this case, and was hence in a much better position than members of this Court to consider and weigh the evidence: see *Housen*, at paragraph 12.

[13] Though the parties do not seem to disagree on the applicable standard of review, it will be necessary to address its application to certain of the issues discussed below. As a general comment, I note that the appellants could not hope to be successful on any issue in which the standard of review is palpable and overriding error applies without identifying the alleged error by the Federal Court, and explaining why the error should be considered palpable and overriding. Even after this reality was noted at the hearing, most of the appellants’ arguments failed to focus on the appropriate points, and were instead misguided attempts to have this Court re-weigh the evidence and re-characterize the facts. That is not our role.

IV. Construction of claim elements

[14] Because of the importance of claim construction to subsequent issues of infringement, validity and remedies, the analysis in this section is determinative of many such issues.

[15] A patent is not addressed to an ordinary member of the public, but to a worker skilled in the art to which it pertains. As stated in *Catnic Components Ltd. v. Hill & Smith Ltd.*, [1982] R.P.C. 183, at page 243, [1981] F.S.R. 60 (H.L.) (*Catnic*), and quoted by the Supreme Court of Canada in *Whirlpool Corp. v. Camco Inc.*, 2000 SCC 67, [2000] 2 S.C.R. 1067 (*Whirlpool*) at paragraph 44:

.... 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....

[16] The Supreme Court in *Whirlpool* went on to state as follows at paragraph 49(g):

While “purposive construction” is a label introduced into claims construction by *Catnic*, *supra*, the approach itself is quite consistent, in my view, with what was said by Dickson J. the previous year in *Consolboard [Inc. v. MacMillan Bloedel (Sask.) Ltd.]*, [1981] 1 S.C.R. 504, (1981), 56 C.P.R. (2d) 145], on the topic of claims construction, at pages 520–521:

We must look to the whole of the disclosure and the claims to ascertain the nature of the invention and methods of its performance, (*Noranda Mines Limited v. Minerals Separation North American Corporation*, [1950] S.C.R. 36), being neither

benevolent nor harsh, but rather seeking a construction which is reasonable and fair to both patentee and public. There is no occasion for being too astute or technical in the matter of objections to either title or specification for, as Duff C.J.C. said, giving the judgment of the Court in *Western Electric Company, Incorporated, and Northern Electric Company v. Baldwin International Radio of Canada*, [1934] S.C.R. 570, at p. 574, “where the language of the specification, upon a reasonable view of it, can be so read as to afford the inventor protection for that which he has actually in good faith invented, the court, as a rule, will endeavour to give effect to that construction”.

Not only is “purposive construction” consistent with these well-established principles, it advances Dickson J.’s objective of an interpretation of the patent claims that “is reasonable and fair to both patentee and public”.

[17] On standard of review, the appellants argue that claim construction is a question of law to which the standard of correctness applies. For its part, the respondent notes correctly that claim construction is typically assisted by expert evidence, and the weighing of such evidence by the trial judge is reviewed on a standard of palpable and overriding error: see *Tearlab Corporation v. I-MED Pharma Inc.*, 2019 FCA 179, 166 C.P.R. (4th) 367, at paragraph 29. Accordingly, even if I would not have reached the same conclusions on the expert evidence heard by the Federal Court, I must defer to its weighing of the evidence unless I find an error that meets this high standard.

[18] Before beginning my review of the specific issues of claim construction to be addressed, I must comment on an argument raised by the appellants at the hearing of this appeal (though not mentioned in their memorandum). They argue that this Court may consider section 53.1 of the *Patent Act*, R.S.C., 1985, c. P-4, in dealing with construction of the claims. The key part of this provision, subsection 53.1(1) reads as follows:

Legal Proceedings in Respect of Patents

...

Admissible in evidence

53.1 (1) In any action or proceeding respecting a patent, a written communication, or any part of such a communication, may be admitted into evidence to rebut any representation made by the patentee in the action or proceeding as to the construction of a claim in the patent if

- (a)** it is prepared in respect of
 - (i)** the prosecution of the application for the patent,
 - (ii)** a disclaimer made in respect of the patent, or
 - (iii)** a request for re-examination, or a re-examination proceeding, in respect of the patent; and

(b) it is between

(i) the applicant for the patent or the patentee; and

(ii) the Commissioner, an officer or employee of the Patent Office or a member of a re-examination board.

[19] Though the appellants refer to this provision as the “file wrapper estoppel” provision, it is important to note that it does not refer to an estoppel. Rather, it provides that certain communications between a patentee or applicant and the Patent Office pertaining to a patent or a patent application are admissible in a patent action or proceeding as evidence “to rebut any representation made by the patentee in the action or proceeding as to the construction of a claim in the patent”. This provision appears to have been enacted to address a prior prohibition against considering the prosecution history of a patent when construing its claims (see *Free World Trust v. Électro Santé Inc.*, 2000 SCC 66, [2000] 2 S.C.R. 1024 (*Free World Trust*), at paragraph 66; *Pollard Banknote Limited v. BABN Technologies Corp.*, 2016 FC 883, 141 C.P.R. (4th) 329, at paragraphs 79–81). For a broader discussion of this provision, see *CanMar Foods Ltd. v. TA Foods Ltd.*, 2021 FCA 7, [2021] 1 F.C.R. 799, at paragraphs 48–77.

[20] Section 53.1 came into force in December 2018, upon enactment of the *Budget Implementation Act, 2018, No. 2*, S.C. 2018, c. 27. According to section 201 thereof, section 53.1 of the *Patent Act* applies “in respect of any action or proceeding that has not been finally disposed of on the coming into force of that section 53.1.” Though the trial had finished prior to the coming into force of section 53.1, the Federal Court did not release the decision until December 2019. Regardless of whether an action is considered “finally disposed of” upon release of a Federal Court decision or a final decision on appeal, it appears that the action in this case had not been finally disposed of when section 53.1 came into force, and therefore section 53.1 applies in the present case.

[21] That said, I note that the Federal Court heard no argument related to section 53.1, even after it came into force following the trial. Therefore, it would be difficult to find any error to ascribe to the Federal Court on this point. Further, though the appellants argue that this Court should construe the claims of the ‘173 patent in view of the claims as they appeared in the original patent application, they do not identify any representation made by the respondent before the Federal Court that they seek to rebut. The appellants’ main complaint seems to be that the original claims were broadened during prosecution of the patent application to encompass the appellants’ VSS. Each of the claim construction and patent validity issues raised by the appellants is dealt with in the following paragraphs. However, as I said in *Camso Inc. v. Soucy International Inc.*, 2019 FC 255, 165 C.P.R. (4th) 1 (*Camso*), at paragraph 197, affd 2020 FCA 183:

.... A patent applicant is perfectly entitled, and indeed is well-advised, to draft patent claims with an eye on competitors’ products. The limitation is that the applicant must respect all of

the requirements for valid claims.

[22] Therefore, the respondent's motivation in amending the claims is not, by itself, telling in terms of claim construction or patent validity.

A. *First Screen*

[23] The essence of this issue is the appellants' argument, before both the Federal Court and this Court, that the term "first screen" refers to the screen closest to the input end of the shaker, and excludes the screen at the discharge end of the screen. The appellants cite common general knowledge of the use of this term.

[24] The Federal Court disagreed with this construction. In doing so, the Federal Court noted the disagreement between the experts on this point (Peter Matthews and Bernard Murphy for the appellants, and Robert Palmer for the respondent), but favoured the evidence of Mr. Palmer. The Decision noted that Mr. Murphy reached his interpretation without having read anything in the '173 patent, and ultimately accepted that, in the context of the '173 patent, the first screen could be any screen (see paragraph 60). Mr. Matthews also accepted that the '173 patent makes clear that a pressure differential can be applied to the screen at the discharge end of the shaker (see paragraph 61).

[25] For his part, Mr. Palmer opined that there is no requirement that the first screen be closest to the inlet, and a skilled reader of the '173 patent would understand that the key difference between the first and second screens is not location but function. The Federal Court agreed and noted that, where it is necessary to make clear which screen is which, the patent specifically tells the reader (see paragraph 65).

[26] The Federal Court did not misunderstand the evidence and was entitled to weigh it in this way. I see no error.

B. *Controlling Air Flow*

[27] The principal challenge in construing the term "controlling air flow" is that the manner most discussed in the '173 patent for addressing the problem of pressure differential causing stalling of slurry on the screen is pulsing of the pressure. This pulsing is also referred to in the '173 patent as toggling or intermittent interruption of the vacuum. The appellants argue that construction of the term "controlling air flow" should be limited to such pulsing, and should not encompass simply adjusting a continuous pressure differential. They argue that a broader construction would render claims using this term obvious, since adjustment of a continuous pressure differential to prevent stalling of slurry was part of the common general knowledge of a skilled person prior to the '173 patent.

[28] The obviousness argument is addressed later in these reasons. However, claim construction is a separate exercise.

[29] As with the term “first screen,” I am of the view that the Federal Court understood the expert evidence and explained why it reached a conclusion that it was entitled to reach. At paragraph 77 of the Decision, the Federal Court noted that the ‘173 patent refers not just to toggling or pulsing of pressure differential, but also to “manipulating the valve,” and that the experts agreed that some of the valves mentioned in the patent were designed for controlling air flow (and not just for on/off applications). This supports the Federal Court’s conclusion at paragraph 76 of the Decision that the term “controlling air flow” is broader than toggling or pulsing the pressure differential.

C. Vapor

[30] The appellants argue that the experts agreed that the term “vapor” in the claims is confusing, but that the Federal Court disagreed, finding that vapor is a mist, not a gas. I do not accept that the Federal Court disagreed with the experts’ view that the term “vapor” in the claims is confusing. Paragraph 69 of the Decision acknowledged the experts’ agreement, and the subsequent discussion addressed the confusion. At paragraph 70, the Federal Court indicated that “[o]n its own, the term ‘vapour’ has a fairly uncomplicated meaning – air or gas containing suspended liquids.” The subsequent discussion left that definition substantially unaltered. At paragraph 72, the Federal Court stated, “[a] vapour is not an entrained gas. Nor is a gas a vapour.” (N.B. an entrained gas is a gas that is trapped within a fluid.)

[31] The appellants appear to draw an important distinction between vapor and mist. I find that there is no such important distinction. Either term can refer to a gas containing suspended liquids. The Federal Court also does not draw such a distinction. The appellants seem to suggest that a mist is different because it is created when the drilling fluid is pulled through the screen, and therefore the suspended liquid is drilling fluid. However, this view is not supported in the Decision, nor did the evidence cited by the appellants compel the Federal Court to accept that view.

[32] The appellants also build arguments based on the Federal Court’s use of the word “gases” and not “vapor” in paragraphs 102, 108 and 115 of the Decision. First, they point to the statement at paragraph 72 of the Decision that a gas is not a vapor. Then they point to the Federal Court’s language in the above-listed paragraphs. I will address each of these, but I agree with the respondent’s argument that the Federal Court’s language is infelicitous, but unimportant.

[33] The difference between a gas and a vapor is simply that the latter contains suspended liquids and the former, technically speaking, does not. In paragraph 102 of the Decision the tray under the screen of the appellants’ VSS was described as collecting “fluid, fine particles, and gases that pass through the screen.” The appellants infer that the Federal Court intended to exclude gases containing suspended liquids (vapor). Having read the Decision in detail, I do not believe that this was the Federal Court’s intention. Nor do I accept that the Federal Court misunderstood the evidence on this issue in any significant way.

[34] At paragraph 108, the Decision stated that a true degasser (one as understood in the common general knowledge, not as construed in the context of the '173 patent) is “used to recover gases entrained within the drilling fluid.” I see no problem with the use of “gases” here, even following the appellants’ strict interpretation of “gases.”

[35] Finally, paragraph 115 of the Decision described the appellants’ VSS as having a tray below the screen “to collect liquid and gases”. This is consistent with paragraph 102, and my view is the same.

D. *Degassing Chamber*

[36] The appellants argue that the term “degassing chamber” used in some of the claims in issue refers to a degasser, which is well-known to the skilled person and refers to a device that removes entrained gases from drilling fluid. The appellants point to repeated references in the '173 patent to entrained gases. The appellants object to the Federal Court’s broader construction of this term to encompass any chamber that separates air or vapor from drilling fluid.

[37] The Federal Court accepted the evidence of the respondent’s expert Mr. Palmer (and the other experts) that the degassing chamber described and claimed in the '173 patent is not a true degasser as understood by the skilled person. The Federal Court was entitled to accept the evidence of Mr. Palmer concerning the meaning of “degassing chamber” in the '173 patent. I see no reviewable error in the Federal Court’s conclusion in this respect. Even though the '173 patent refers to entrained gases, the element described as a degassing chamber in Figure 6 of the '173 patent is simply a holding tank for liquid in which air is exhausted, much like a household wet-vac. The appellants’ expert Mr. Murphy acknowledged this. The '173 patent does not describe any means for removing entrained gases.

[38] At the hearing, the appellants added an argument that the Federal Court erred in construing the term “degassing chamber” in claims 10, 17 and 20 as having the same scope as the term “chamber” in claims 12 and 16. The appellants argue that this conclusion failed to recognize the principle of claim differentiation and claim 17, which differs from claim 12 only in defining the chamber to be a degassing chamber. This argument cannot succeed. Firstly, the principle of claim differentiation is not absolute. Rather, it contemplates a rebuttable presumption: where one claim differs from another in only a single feature it is difficult to argue that the different feature has not been made essential to the claim: *Whirlpool*, at paragraph 79; *Camso*, at paragraph 103. Moreover, the appellants’ argument conflicts with the opinion of their own expert Mr. Murphy who construed the two terms as consistent with one another (see paragraph 72 of the Murphy Invalidity Report, appeal book, Vol. 33, tab 302, at page A6567).

E. *All*

[39] Claims 12 and 20 of the '173 patent specify that “all” the air or vapor and drilling fluid that passes through the first screen is conveyed to a degassing chamber (or chamber). The appellants object to the Federal Court’s characterisation of the word “all” in these claims as essential. The appellants argue that the Federal Court provided no purposive analysis of the word “all.”

[40] It is not clear to me precisely what the appellants found missing in the Federal Court’s analysis here. It considered Mr. Murphy’s assertion concerning the possibility of hazardous gases being present in the slurry, but dismissed this assertion on the basis that the '173 patent has no claims concerning treatment of such gases. The Federal Court also noted the absence of the word “all” in claim 10 as a basis for concluding that this word in claims 12 and 20 is essential. I see no flaw in this analysis.

[41] I note also the principle that elements of patent claims are presumed to be essential: *Free World Trust*, at paragraph 57. The appellants make no reasonable argument as to why the word “all” in claims 12 and 20 should be treated as non-essential.

F. Or

[42] The appellants argue that the word “or” in the expression “air or vapor” in claims 19 and 20 should be construed conjunctively, and that the Federal Court erred in concluding that the expression contemplates air or vapor or a combination of the two. The expression “air or vapor” refers to what is pulled through the first screen and then conveyed to the degassing chamber. The appellants argue, on the one hand, that vapor cannot be pulled through the first screen without also pulling through air. The appellants also argue that vapor must be sent to the degassing chamber, because the degassing chamber would be unnecessary if it received only air.

[43] The Federal Court considered this argument but reached its conclusion based on the opinion of Mr. Palmer. In my view, it was open to the Federal Court to favour Mr. Palmer’s evidence. The appellants’ argument assumes that the purpose of the claimed degassing chamber is to recover liquids suspended in a vapor. It is not. Its purpose is instead to remove air or vapor from the drilling fluid recovered from the slurry.

G. Within a Shaker

[44] Claims 20, 21 and 22 of the '173 patent depend from claim 19, which defines “a second screen within a shaker.” The appellants argue that these claims require that the second screen be located within the shaker, and that it is not enough for the second screen to be attached to the outside of the shaker.

[45] The Federal Court did not explicitly construe the expression “within a shaker.” However, it is implicit in the Decision that the Federal Court was satisfied that a second screen is “within a shaker” if it is firmly attached to, or integrated into, the shaker: see

paragraphs 16 and 87 of the Decision. The evidence of Mr. Palmer supported this conclusion; paragraph 40 of his Reply Report stated that a screen “mounted externally onto the shaker and becoming part and parcel of the shaker ... effectively becomes part of the shaker, extending the shaker bed”, and is therefore considered “within” the shaker (appeal book, Vol. 21, tab 83, page A4211). It was open to the Federal Court to reach this conclusion.

V. Infringement

[46] This section addresses those non-infringement arguments raised by the appellants that are not defeated by the claim construction discussion in the previous section of these reasons.

[47] It is useful to preface the analysis in this section with a few words concerning the claims that are in issue in this appeal. They are not limited to those that were found to infringe. Because the appellants’ invalidity arguments concern all of the claims of the ’173 patent that the respondent does not admit are invalid, these claims are also in issue.

[48] Claims 1 to 18 concern a method comprising certain steps. These claims are directly infringed where one performs all of the steps of the claimed method. One who omits an essential step in a claimed method does not directly infringe the claim. However, one who knowingly induces another to perform all of the steps of the claimed method (i.e. to directly infringe) may be liable for inducing infringement: *Corlac Inc. v. Weatherford Canada Inc.*, 2011 FCA 228, 95 C.P.R. (4th) 101, at paragraph 162.

[49] Claims 19 to 23 of the ’173 patent concern a system. These claims are directly infringed where one makes, constructs, uses or sells a system that comprises all of the essential claim elements. As with method claims, there is no direct infringement of a system claim where one omits an essential element thereof, but one may be liable for inducing infringement if one knowingly induces another to infringe.

[50] The issue of inducing infringement is particularly relevant in this case in relation to the method claims. This is because all of the method claims in issue include the step of introducing (or delivering) a slurry to a shaker. Typically, this step is performed by the appellants’ customer rather than by the appellants themselves.

[51] It is also useful to preface the infringement analysis with a brief discussion of the issue of liability to a patentee for activities prior to the issuance of the patent. Subsection 55(1) of the *Patent Act* provides for liability for all damages sustained resulting from infringement of an issued patent. But subsection 55(2) also contemplates liability for certain activities prior to issuance of the patent. The current version of subsection 55(2), which differs insubstantially from the text that was in force before the Federal Court, reads as follows:

Infringement

...

55

Liability damage before patent is granted

(2) A person is liable to pay reasonable compensation to a patentee and to all persons claiming under the patentee for any damage sustained by the patentee or by any of those persons by reason of any act on the part of that person, after the specification contained in the application for the patent became open to public inspection, in English or French, under section 10 and before the grant of the patent, that would have constituted an infringement of the patent if the patent had been granted on the day the specification became open to public inspection, in English or French, under that section.

[52] Though activities of the kind contemplated in subsection 55(2) are not true patent infringement because they take place in a time when no patent yet exists, I will refer to them in these reasons as “pre-issuance infringement” for the sake of simplicity. The following aspects of subsection 55(2) are notable:

- i. Liability for pre-issuance infringement is not for “all damage sustained” (as it is in cases of true patent infringement), but rather for “reasonable compensation ... for any damage sustained”;
- ii. The period of liability is from the date the patent application became open to public inspection until issuance of the patent; and
- iii. Liability arises from activities “that would have constituted an infringement of the patent if the patent had been granted on the day the specification became open to public inspection”.

[53] An important fact is that the application for the '173 patent, which has a filing date of October 1, 2007 and a publication date (the date the application became open to public inspection) of April 10, 2008, was amended on October 2, 2013 to introduce, among other things, new claims. Prior to that date, all of the claims in the application defined toggling the pressure differential across the screen. The appellants' activities therefore did not fall within the scope of the prior claims. These facts are not in dispute, and there is no argument that either of the appellants is liable for any of its activities prior to October 2, 2013.

[54] I now consider the specific arguments raised by the appellants.

A. *By FPM*

[55] The appellants argue that FPM stopped doing business in 2014, prior to the issuance of the '173 patent, and hence cannot be liable for infringement. The appellants argue that a party is not liable under the *Patent Act* for pre-issuance infringement if it

discontinues the activities in question prior to issuance of the patent. The appellants also argue that, regardless of its activities after issuance of the patent, a party cannot be liable for pre-issuance infringement by inducement. The appellants acknowledge that there is no authority in support of these arguments, but they note that there is also no authority that contradicts their position.

[56] I note first that, even accepting the appellants' argument that FPM stopped doing business in 2014, this stoppage occurred after the October 2, 2013 claims amendment. Accordingly, some of FPM's pre-issuance activities in issue took place while the amended claims were on record. This means that FPM could not avoid liability based on its activities being entirely prior to the amendment, even if that were a basis for avoiding liability. I express no opinion here as to whether that would be a basis for avoiding liability.

[57] The more important questions here are (i) whether one who engages in pre-issuance infringement can avoid liability under subsection 55(2) by discontinuing the activities in question prior to issuance of the patent, and (ii) whether liability under subsection 55(2) extends to one whose pre-issuance infringement is by inducement. These questions require an interpretation of subsection 55(2).

[58] The Supreme Court of Canada, in *Canada Trustco Mortgage Co. v. Canada*, 2005 SCC 54, [2005] 2 S.C.R. 601, at paragraph 10, has provided the following guidance in interpreting statutory provisions:

It has been long established as a matter of statutory interpretation that "the words of an Act are to be read in their entire context and in their grammatical and ordinary sense harmoniously with the scheme of the Act, the object of the Act, and the intention of Parliament": see *65302 British Columbia Ltd. v. Canada*, [1999] 3 S.C.R. 804, at para. 50. The interpretation of a statutory provision must be made according to a textual, contextual and purposive analysis to find a meaning that is harmonious with the Act as a whole. When the words of a provision are precise and unequivocal, the ordinary meaning of the words play a dominant role in the interpretive process. On the other hand, where the words can support more than one reasonable meaning, the ordinary meaning of the words plays a lesser role. The relative effects of ordinary meaning, context and purpose on the interpretive process may vary, but in all cases the court must seek to read the provisions of an Act as a harmonious whole.

[59] Beginning with the text of subsection 55(2) (reproduced at paragraph 51 above), I note that nothing therein suggests that a pre-issuance infringer can avoid liability by discontinuing its activities prior to issuance of the patent. The text is concerned with the period from publication of the patent application until issuance of the patent, and with activities during that period that would have constituted an infringement if the patent had already been granted. There is no indication in the text that the infringing activity must continue after issuance of the patent.

[60] As regards the question of inducing infringement, I note that this is merely a form of patent infringement, not a distinct tort: *Hospira Healthcare Corporation v. Kennedy*

Trust for Rheumatology Research, 2020 FCA 30 (*Hospira 2020*), at paragraph 45, leave to appeal to S.C.C. refused, 39099 (23 December 2020) [[2020 S.C.C.A. No. 79 (QL)]; *Bauer Hockey Corp. v. Easton Sports Canada Inc.*, 2010 FC 361, 8 B.C.L.R. (5th) 1, 366 F.T.R. 242 (*Bauer*), at paragraph 199, affd 2011 FCA 83, 92 C.P.R. (4th) 103. There is no reason to treat pre-issuance infringement by inducement differently from direct pre-issuance infringement.

[61] The context of subsection 55(2) does not suggest that a pre-issuance infringer can avoid liability therefor by discontinuing its activities prior to issuance of the patent. The concept of pre-issuance infringement was added to Canada's patent regime when Canada adopted the practice in place in most of the rest of the world, and began (i) publishing patent applications prior to issuance, and (ii) counting the life of the patent from the date of filing rather than the date of issuance. Given that the life of the patent was counting during the pendency of the application, and that the public had access to the invention once the application was published (usually 18 months after the priority date of the application), it was decided that the patent system would impose liability for "reasonable compensation" on those who use inventions without permission during this pre-issuance period. No cause of action exists under subsection 55(2) until the patent has issued (see *Premier Tech Ltée v. Équipements Tardif Inc.* (1993), 48 C.P.R. (3d) 42, 63 F.T.R. 114 (F.C.T.D.)), but liability relates to the period from publication to issuance. The concern remains that an invention that has been made public but has not yet issued will be exploited by a third party during this period when the inventor cannot prevent such exploitation. The discontinuance of that exploitation prior to issuance of the patent does not reduce the inventor's loss resulting from third party exploitation during the pre-issuance period.

[62] Similarly, the context of subsection 55(2) does not suggest that pre-issuance infringement by inducement should be treated differently from direct pre-issuance infringement. In either case, the concerns for the unlicensed use of an invention prior to issuance of the patent are present.

[63] The discussion in the previous two paragraphs concerning the context of subsection 55(2) also explains its purpose: to compensate inventors whose published inventions are used without permission before they can enforce their rights. Nothing in the context or the purpose suggests any exclusion from liability to a patentee where the pre-issuance infringement stops prior to issuance, or where such infringement is by inducement. Presumably, the earlier such activity stops the lower the liability for reasonable compensation will be, but it would defeat the purpose of the provision if the pre-issuance infringer could continue its activities, possibly for many years, and then avoid all liability by discontinuing those activities just before the patent issues. Likewise, it would defeat the purpose of the provision if one could avoid liability by inducing another to directly infringe. The reasons for imposing liability for infringement on one who knowingly induces a third party to infringe after a patent has issued apply equally before issuance.

[64] There is precedent for finding that pre-issuance infringement can occur by inducement. The Federal Court, Trial Division made such a finding in *Baker Petrolite Corp. v. Canwell Enviro-Industries Ltd.*, 2001 FCT 889, [2002] 2 F.C. 3 where it concluded that one defendant, Canwell Enviro-Industries Ltd., had induced another defendant, the City of Medicine Hat, to perform pre-issuance infringement. The Federal Court of Appeal, in *Baker Petrolite Corp. v. Canwell Enviro-Industries Ltd.*, 2002 FCA 158, [2003] 1 F.C. 49 reversed the result on the basis that the patent in suit was invalid. However, the Federal Court of Appeal made no comment on the issue of liability for inducing pre-issuance infringement.

[65] Another case in which a trial led to a conclusion that inducement gave rise to liability for pre-issuance infringement is *Bauer*. There, the Federal Court found the defendant liable for pre-issuance infringement both by inducement and directly. On appeal, the Federal Court of Appeal maintained the result, but found it unnecessary to address the defendant's argument that the trial judge had applied the wrong test for inducement, since she had also found that there was direct pre-issuance infringement.

[66] In conclusion, I find no error by the Federal Court with regard to the finding of infringement against FPM.

B. *Inducement by Western*

[67] The appellants argue that, though the Federal Court concluded that they had provided instructions on the use of their VSS, it did not state when or in what circumstances this happened. The appellants argue that there was no direct evidence of Western's customers receiving instructions and being induced to infringe.

[68] However, the evidence accepted by the Federal Court (see paragraphs 131 and 132 of the Decision) was that written instructions were always given. One reason given in the evidence for this was that rig crews are transient and need the instructions. Another reason is that shale shakers are potentially dangerous to the uninstructed. There is no basis for Western to avoid liability based on the timing of its instructions.

[69] There is also no basis for Western to avoid liability based on any lack of evidence that its customers were induced by the instructions. The description at paragraphs 131 and 132 of the Decision of the interactions with customers was sufficient to support the conclusion at paragraph 134 that Western's influence had been effective.

[70] Western also argues that one cannot induce an obvious act, and that it was obvious to address the problem of slurry stalling by turning down the pressure differential. This argument cannot succeed. Inducement arises when the inducer's influence results in an act of direct infringement. Direct infringement occurs when the direct infringer has performed all of the essential steps in the claimed invention. The fact that one or more of those steps is not, in and of itself, inventive does not relieve the direct infringer from liability. Likewise, it does not relieve the inducer from liability.

Inducement is concerned with influence to directly infringe, and the Federal Court properly found such influence.

C. *Whether VSS Pulls Vapor*

[71] The appellants argue that there was no evidence to support the Federal Court's conclusion that their VSS infringes claims 10 and 20 to 22 because it can separate gas from drilling fluid. But the appellants' submissions on this point depend on their earlier submissions (which I have rejected) concerning the meaning of "vapor" and "or", and the Federal Court's infelicitous use of the word "gas" in certain paragraphs of the Decision (see paragraphs 30 to 35 and 42 to 43 above).

[72] The appellants also argue that, if the word "all" in claim 20 is essential, then there is no infringement because there is no evidence that all of the vapor pulled through the screen is removed from the drilling fluid. This argument misreads claim 20. Claim 20 refers to a degassing chamber "located external to the shaker for collecting all of the air or vapor and the drilling fluid in the sump [located below the screen] and removing air or vapor from the drilling fluid." The word "all" relates to the air, vapor and drilling fluid that is collected by the degassing chamber. It does not refer to the air or vapor that is removed from the drilling fluid. Accordingly, there is no requirement that all of the vapor pulled through the screen be removed from the drilling fluid.

D. *Gillette Defence*

[73] The appellants argue that the Federal Court erred because it failed to consider their *Gillette* defence, based principally on the Derrick patent application (see discussion in the Anticipation section below). The respondent counters that the Federal Court determined that Derrick did not anticipate the infringed claims, and "[t]he *Gillette* defence was thus dealt with in substance, if not name."

[74] Though I see no error in the Federal Court's consideration (or non-consideration) of the *Gillette* defence, the respondent's submission suggests a common misunderstanding about the nature of this issue, which prompts me to say a few words on the subject.

[75] The *Gillette* defence gets its name from the U.K. House of Lords decision in *Gillette Safety Razor Company v. Anglo-American Trading Company Ltd.* (1913), 30 R.P.C. 465 (*Gillette*). This case gave rise to the principle that if a defendant is accused of infringing a patent with a product that is the same as, or not patentably distinct from, the prior art, the patentee finds itself on the horns of a dilemma in pursuing its claim; in the words of Lord Moulton in *Gillette*, at page 480:

.... If the claims of such a Patent were so wide as to include [the Defendants' product], the Patent would be bad, because it would include something which differed by no patentable difference from that which was already in possession of the public. Such a Patent would be bad for want of novelty. If the Claims were not sufficiently wide to include the Defendants'

[product], the patentee could not complain of the public making it. In other words, the Defendants must succeed either on invalidity or on non-infringement.

[76] A similar approach was taken by the Supreme Court of Canada in *J. K. Smit & Sons, Inc. v. McClintock*, [1940] S.C.R. 279, [1940] 1 D.L.R. 507, where the appellant sought a declaration of non-infringement on the basis that it was using a method known in the prior art. At page 286 [of S.C.R.], the Court asked itself “could the respondent at the time he applied for his patent have got a patent for the process which the appellants employ”? Answering the question in the negative, the Court concluded that there could be no infringement of any valid patent claim.

[77] The *Gillette* defence permits a defendant (or a court) a shortcut around the often difficult and time-consuming process of construing the claims of a patent, and then determining whether those claims are valid and whether they have been infringed.

[78] However, the application of the *Gillette* defence has proved less simple in practice, and this has led to some misunderstanding and misapplication of the defence. Though the *Gillette* defence is frequently asserted by parties accused of patent infringement, it is rare for such parties to rely exclusively on this defence and actually omit analysis of claim construction, validity and infringement. Typically, a court will be faced with arguments on all of these issues. Likewise, courts dealing with a *Gillette* defence as well as issues of claim construction, validity and infringement rarely skip the other issues and limit themselves to the *Gillette* defence.

[79] It is perhaps because the *Gillette* defence is typically asserted along with other defences that its nature as an alternative to claim construction and analysis of validity and infringement is sometimes misunderstood or misapplied, by counsel and by courts. For example, contrary to some of the jurisprudence of the Federal Court, the success of a *Gillette* defence does not depend on a conclusion that the claim in question is invalid for anticipation or obviousness (*cf. Sanofi-Aventis Canada v. Apotex Inc.*, 2009 FC 676, 350 F.T.R. 165, at paragraph 349; *Pfizer Canada Inc. v. Canada (Health)*, 2009 FC 1294, 360 F.T.R. 200, at paragraph 72, *affd* 2011 FCA 102, 92 C.P.R. (4th) 301; *Biovail Corporation v. Canada (Health)*, 2010 FC 46, 361 F.T.R. 158, at paragraph 122; *Pfizer Canada Inc. v. Canada (Health)*, 2010 FC 447, 367 F.T.R. 179, at paragraph 86, *revd* 2011 FCA 236, 95 C.P.R. (4th) 193; *Eurocopter v. Bell Helicopter Textron Canada Limitée*, 2012 FC 113, 404 F.T.R. 193 (*Eurocopter*), at paragraph 52, *affd* 2013 FCA 219, 120 C.P.R. (4th) 394). Quite the contrary, the principal benefit of a *Gillette* defence is to avoid the need to construe the claims and reach a conclusion on validity and infringement issues. Where a court has (i) construed the claims in issue, (ii) determined which claims are valid and which are not, and (iii) found certain valid claims to be infringed (as did the Federal Court in the present case), consideration of the *Gillette* defence is superfluous and unnecessary. It may also create confusion. In fact, it is arguably preferable in some cases for the court not to take the shortcut offered by the *Gillette* defence because the more laborious claim construction process may lead to a

conclusion that the claims in question are invalid. Such a conclusion would be of interest not just to the parties, but also to the broader public.

[80] It is notable that the Federal Court of Appeal in *Eurocopter*, at paragraph 115, found that the respondent's *Gillette* defence in that case failed "[a]s a logical consequence" of the failure of its anticipation argument. I do not take this as a statement that a *Gillette* defence will always fail where anticipation has not been established. In *Eurocopter*, the Federal Court of Appeal noted at paragraph 37 that the respondent had promoted its allegedly infringing product as innovative, and that the trial judge had considered this fact in dismissing the *Gillette* defence. In this context, dismissal of the *Gillette* defence makes sense: an assertion that a product is innovative would seem to be inconsistent with an assertion that one is practising the prior art.

VI. Invalidity

A. *Anticipation*

[81] The appellants argue that several patent publications and activities constitute prior art that anticipates the claims in issue. The appellants observe correctly that assessing anticipation (also known as lack of novelty) is a two-step process; the party attacking a claim must establish both disclosure and enablement of the invention. The appellants argue that disclosure is based on whether performing the subject matter of the prior art would result in infringement. With regard to enablement, the appellants argue that the test is whether the skilled person "would have been able to perform the prior art without undue burden". A comment is necessary on both of these arguments.

[82] On disclosure, the appellants fail to acknowledge two important requirements. Firstly, the disclosure "must contain so clear a direction that a skilled person reading and following it would in every case and without possibility of error be led to the claimed invention" (emphasis added): *Free World Trust*, at paragraph 26, citing *Beloit Canada Ltd. v. Valmet OY* (1986), 8 C.P.R. (3d) 289, at page 297, 64 N.R. 287 (F.C.A.) (*Beloit*). "A signpost, however clear, upon the road to the patentee's invention will not suffice"; "[t]he prior inventor must be clearly shown to have planted their flag at the precise destination before the patentee": *Free World Trust*, at paragraph 26, citing *Beloit; General Tire & Rubber Co. v. Firestone Tyre & Rubber Co.*, [1972] R.P.C. 457 (Eng. C.A.) (*General Tire & Rubber*), at page 486.

[83] The second important disclosure requirement that the appellants fail to acknowledge is that there is no room for trial and error or experimentation by the skilled person at this stage; that person is simply reading the prior reference for the purposes of understanding it: *Apotex Inc. v. Sanofi-Synthelabo Canada Inc.*, 2008 SCC 61, [2008] 3 S.C.R. 265 (*Sanofi-Synthelabo*), at paragraph 25. Non-inventive experimentation is a consideration in assessing enablement, but not disclosure.

[84] On enablement, it is important to bear in mind that the question is whether the skilled person would be enabled to perform the claimed invention without undue burden, not the prior art: *Sanofi-Synthelabo*, at paragraph 27. The appellants' argument quoted near the end of paragraph 81 above focusses on enablement of the prior art.

[85] Another important requirement for anticipation is that all of the essential elements of the claim in issue must be disclosed and enabled in a single prior art reference: *Free World Trust*, at paragraph 26; *General Tire & Rubber*, at page 486. This means that a separate anticipation analysis must be done for each of the prior art references in issue.

[86] The appellants argue that anticipation (and obviousness) must be viewed from the perspective of a skilled person taking into account the common general knowledge of which that person would have been aware. Certainly, the teachings of the prior art are to be read as a skilled person would understand them. It is also true that, by definition, that skilled person is aware of the common general knowledge. But it does not follow that a party attacking a patent claim is necessarily entitled to fill in gaps in a prior art reference with such common general knowledge. As stated above, the skilled person must find in the prior art reference sufficient information that he or she could not possibly fail to arrive at the claimed invention. That may or may not be so in a case where the skilled person is required to fill in gaps with the common general knowledge.

[87] This same comment applies to a related argument by the appellants: that anticipation is measured against the inventive concept of a claim. The appellants argue that the Federal Court erred in failing to consider anticipation on a claim-by-claim basis. I do not accept that. The Federal Court found that some of the claims of the '173 patent were anticipated, and some were not. Clearly, the Federal Court understood that analysis of anticipation is to be done on a claim-by-claim basis, and performed its analysis that way.

[88] At this point, it is wise to recall the standard that this Court must respect in reviewing the Federal Court's Decision: correctness on questions of law, and palpable and overriding error on questions of fact or mixed fact and law. For example, it is generally open to the Federal Court to favour one expert's evidence over another. At paragraph 148 of the Decision, the Federal Court indicated agreement with the opinions of the respondent's expert, Mr. Palmer, on anticipation.

[89] Before entering into an analysis of the appellants' individual anticipation arguments, I note that I need not address certain arguments that fail because of my claim construction analysis above.

(1) Derrick Patent Application

[90] The Federal Court accepted the respondent's admission that U.S. Patent Application Publication No. 2005/0082236 (Derrick) anticipates claims 1, 11, 16 and 19

of the '173 patent. But the Federal Court was not satisfied that any of the other claims of the '173 patent are anticipated.

[91] The appellants argue that the Federal Court erred when it concluded that Derrick does not teach how to control air flow to prevent stalling, as defined in claims 2 and 10. Similarly, claim 22 defines adjustability of air flow to prevent stalling. The appellants argue that the Federal Court failed to consider the embodiment described in Figure 23 and paragraphs 78–79 of Derrick.

[92] The passage on which the appellants focus is from paragraph 79:

In a preferred embodiment, a vacuum or suction in the range of 20-80 inches of water is applied to suction chamber 75, and this suction is intermittently released. This alternate application of suction and release of suction causes the coarse particles traveling along undulating screen 4 to have liquid and fine particles withdrawn therefrom, and the coarse particles are thereafter conveyed off of the vibratory screening machine 221 into oversize container 227....

[93] In my view, the reference to causing the coarse particles to have liquid and fine particles withdrawn therefrom, and thereafter to being conveyed off the screen is not inconsistent with the Federal Court's conclusion. The Federal Court was clearly concerned with the distinction between unclogging a screen with stalled cuttings, and preventing the stalling problem in the first place. While the above-quoted passage clearly contemplates a solution to the problem of stalled cuttings, I see no palpable and overriding error in the Federal Court's conclusion that Derrick does not teach the prevention of stalling. The Federal Court relied on the evidence of the respondent's expert Mr. Palmer, who clearly provided support for this conclusion. Moreover, the reference in paragraph 168 of the Decision to the cyclone separator described in Derrick suggests that the Federal Court did indeed consider the embodiment shown in Figure 23 of Derrick.

[94] The appellants also argue that Derrick anticipates claim 20. This argument is based on Mr. Palmer's acknowledgement that Derrick anticipates claim 16 (and hence describes all of the elements thereof), and that element 232 in Derrick is the equivalent to the degassing chamber in the '173 patent. However, claim 20 defines elements that are not defined in claim 16. For instance, the degassing chamber of claim 20 is defined as "collecting all of the air or vapor and the drilling fluid in the sump", which sump is defined as being located below the first screen. Element 232 in Derrick does not collect anything from tank 224, which appears to be the equivalent of the sump. Therefore, I see no error in the conclusion that Derrick does not anticipate claim 20.

(2) Derrick Prior Use

[95] The appellants argue that evidence of testing of the system described in Derrick was also sufficient to establish anticipation of the asserted claims of the '173 patent. The Federal Court disagreed with this argument on the grounds that (i) the evidence

concerning the testing was based on the uncorroborated recollections of the appellant's expert Mr. Murphy, and (ii) the testing was confidential, and therefore not citable for anticipation.

[96] The appellants contest both of these findings. With regard to corroboration, they note that the respondent and the inventor of the '173 patent were aware of the testing and took pictures of the machine tested. They also note that the Derrick patent application corroborates Mr. Murphy's recollection. However, the appellants cite no evidence concerning testing that is sufficiently detailed to fill the gaps that led the Federal Court to conclude that the Derrick patent application does not anticipate the claims in dispute. I would not interfere with the Federal Court's conclusion that the evidence of testing tendered in this case is insufficient to establish anticipation. It was open to the Federal Court to be concerned about the lack of corroboration of Mr. Murphy's memory: *Camso*, at paragraph 117.

[97] Having reached this conclusion, it is not necessary to consider whether the testing in question was indeed confidential, and hence not citable.

(3) Vasshus Patent

[98] The Federal Court found that Canadian Patent No. 2613043 (Vasshus) does not anticipate the disputed claims of the '173 patent. The Federal Court based itself on the fact that the apparatus shown in Vasshus is not a shale shaker. The Federal Court noted that said apparatus has a filter belt (rather than the vibratory screen of a shale shaker), and that even though Vasshus notes the possibility of replacing the belt with a vibratory screen, it does not describe how to do so, and both Mr. Murphy and Mr. Palmer agreed that doing so would require inventive ingenuity.

[99] The appellants argue that the skilled person would know how to make this substitution, but do not deny that their expert Mr. Murphy acknowledged the need for inventive ingenuity. The appellants also note that Mr. Palmer indicated that he "paid no heed" to the passage in Vasshus contemplating this substitution. However, Mr. Palmer explained that he did so because the substitution would make a completely different device, and it was unclear from the patent how to make the substitution.

[100] In my view, there was evidence to support the Federal Court's conclusion concerning Vasshus, and I find no palpable and overriding error in the Federal Court's application of that evidence.

(4) Hensley Patent Application

[101] The Federal Court cited several reasons asserted by Mr. Palmer that U.S. Patent Application Publication No. 2005/0183994 (Hensley) does not anticipate the '173 patent. These include: (i) it applies a continuous pressure differential over all of the screens, rather than varying it over one and not the others, (ii) it does not involve any means of

controlling air flow to prevent stalling, and (iii) it does not incorporate an external degassing chamber to remove air or vapor from drilling fluid.

[102] Regardless of whether the Federal Court erred in respect of the first of the foregoing differences, I find that it did not err in respect of the second and third, and that this is sufficient to conclude that there is no reviewable error as regards Hensley. With regard to the second difference, the appellants have not argued any error in the Federal Court's conclusion that, though Hensley refers to the possibility of synchronizing pressure differential with the rate of vibration of the shaker, it does not provide for any means for doing so. Mr. Palmer was of the view that this function would be virtually impossible to achieve.

[103] With regard to the third difference, the appellants assert that the experts agreed that, in Hensley, the pressure differential generator would be located external to the shaker and that a holding tank would need to be associated with that pressure differential generator. I see no evidence of such agreement between the experts in the references cited by the appellants. The appellants argue that the pressure differential generator of Hensley is not shown, but Mr. Palmer saw it as air pump 42, located within the shaker unit: see paragraph 11 of Exhibit 2 of responding report (Validity) of Robert Palmer (appeal book, Vol. 21, tab 82, page A4093); cross-examination of Robert Palmer, November 6, 2018, page 98, ll. 10–14 (appeal book, Vol. 10, tab 29, page A1838).

(5) Logue, Bongert, Ennis, Cook and Fast Patent Publications

[104] All of the references contemplated in this section were found not to anticipate the '173 patent because they relate primarily to devices for removing liquids from solids (i.e. recovering the solids), rather than recovering liquid. The appellants challenge this distinction on the basis that it is inconsistent with the testimony of experts on both sides. However, the appellants do not point to any inconsistent testimony of Mr. Palmer, whose evidence on anticipation the Federal Court preferred.

[105] I am not convinced that the Federal Court made any reviewable error in distinguishing the prior art references contemplated in this section on the basis that they are not directed to the recovery of liquid, and in finding therefore that they do not anticipate the '173 patent.

[106] The Federal Court also distinguished these prior art references on other grounds (see paragraphs 196, 198 and 200 of the Decision), which distinctions have likewise not been shown to be erroneous.

B. *Obviousness*

[107] The appellants argue that the Federal Court erred in finding that the prior art does not include reference to adjusting pressure differential to prevent stalling of slurry.

They rely on Mr. Palmer's acknowledgement that a skilled person applying pressure differential and seeing slurry stalling would turn down the pressure. This argument must fail because Mr. Palmer's statement concerned unclogging slurry, not preventing the clogging in the first place. The appellants attempt to overcome this shortcoming by pointing to paragraph 79 and Figure 23 of Derrick, but that argument has already been dismissed in discussion of anticipation by Derrick (see paragraphs 91 to 94 above).

[108] The appellants also argue that the Federal Court erred by failing, in its assessment of the obviousness arguments, to (i) identify the inventive concept of the claims and their differences from the prior art, and (ii) ask whether those differences would have been obvious to a skilled person. While the Federal Court did not divide its analysis into the well-known four steps identified in *Sanofi-Synthelabo*, at paragraph 67, the appellants do not argue that it failed to address any of the obviousness arguments they raised. In its analysis of obviousness at paragraphs 212 to 226 of the Decision, the Federal Court considered each of the potential inventive concepts identified by Mr. Murphy, taking into account the opinions of both Mr. Murphy and Mr. Palmer, and indicated a preference for Mr. Palmer's view that the claims in dispute are valid. The Federal Court's analysis essentially merged steps 2, 3 and 4 of the four-step test. I see no indication that the Federal Court's approach resulted in any reviewable error.

[109] The four-step test set out in *Sanofi-Synthelabo*, at paragraph 67 is one way to assess obviousness, but it is not mandatory. The Supreme Court of Canada warns in *Sanofi-Synthelabo*, at paragraph 63 that one should avoid "an overly rigid rule that limits the obviousness inquiry." The Court characterizes the four-step test as a useful approach. This Court has repeatedly commented that the framework provided in *Sanofi-Synthelabo* is not mandatory: *Corlac Inc. v. Weatherford Canada Inc.*, 2011 FCA 228, 95 C.P.R. (4th) 101 [cited above], at paragraphs 67–68; *Wenzel Downhole Tools Ltd. v. National-Oilwell Canada Ltd.*, 2012 FCA 333, [2014] 2 F.C.R. 459, at paragraph 105; *Teva Canada Limited v. Novartis Pharmaceuticals Canada inc.*, 2013 FCA 244, 451 N.R. 246, at paragraph 7. In my view, the only mandatory considerations are those laid out in section 28.3 of the *Patent Act*, which is concerned with obviousness to a person skilled in the art or science to which the invention pertains, having regard to "information disclosed before the [relevant date] in such a manner that the information became available to the public in Canada or elsewhere."

[110] It is also helpful to observe that the four-step test set out in *Sanofi-Synthelabo* provides a framework for assessing obviousness (calling for the identification of the skilled person and that person's common general knowledge, as well as the inventive concept and the differences, if any, from the state of the art), but it does not delve into the determination of whether those differences are obvious to the skilled person, except to say that it should be done without any knowledge of the alleged invention.

[111] The appellants also cite Mr. Palmer's admission that holding tanks corresponding to the construction given by the Federal Court to the term "degassing chamber" were part of the relevant prior art. However, this is not enough to establish that it was obvious

to incorporate such a degassing chamber into the method and system as claimed in the '173 patent.

[112] I cannot say whether I would have reached the same conclusion on obviousness if I had been tasked with considering this issue at first instance. But that is not relevant. I must defer to the Federal Court unless there has been an error of law or a palpable and overriding error on an issue of fact or mixed fact and law, especially on such factually suffused issues as obviousness. I see no such error.

C. *Insufficiency*

[113] The appellants' argument on insufficiency of the specification of the '173 patent is based on the requirements set out in subsection 27(3) of the *Patent Act*.

Application for Patents

Specification

27 (3) The specification of an invention must

(a) correctly and fully describe the invention and its operation or use as contemplated by the inventor;

(b) set out clearly the various steps in a process, or the method of constructing, making, compounding or using a machine, manufacture or composition of matter, in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which it pertains, or with which it is most closely connected, to make, construct, compound or use it;

(c) in the case of a machine, explain the principle of the machine and the best mode in which the inventor has contemplated the application of that principle; and

(d) in the case of a process, explain the necessary sequence, if any, of the various steps, so as to distinguish the invention from other inventions.

[114] With regard to paragraph 27(3)(a), the appellants argue that the specification fails to describe certain claim elements if those elements are construed as the Federal Court did. With regard to paragraph 27(3)(b), the appellants argue that it is not enough that a skilled person can "figure it out" from the specification. The appellants cite no authority on this last point, and I must disagree with this statement as it is phrased. It may well be enough if a skilled person can figure out how to make the invention. The fact that some non-inventive trial and error experiments may be required to practise a properly disclosed invention will not *per se* invalidate a patent on the basis that it fails to meet the requirements of subsection 27(3): *Bombardier Recreational Products Inc. v. Arctic Cat, Inc.*, 2018 FCA 172, 159 C.P.R. (4th) 319, at paragraph 78.

[115] The Federal Court considered the issues raised by the appellants. It noted Mr. Murphy's opinion that a skilled person would have trouble making the invention

described and claimed in the '173 patent because it fails to describe certain features of the claims. However, the Federal Court preferred the opinion of Mr. Palmer who explained that the skilled person would readily solve all of the alleged insufficiencies in the '173 patent. The Federal Court found that the invention in issue was not in any inventive component, but rather in the inventive combination of known components.

[116] The appellants also argue that the specification is insufficient because it misleads the public by failing to share with the reader the inventor's knowledge that some components were necessary to make the invention work. As support for this argument, the appellants cite technical challenges that the inventor faced during the development of the patented system before the application for the '173 patent was filed. While it does appear that these challenges were real, the details that the appellants argue are missing from the specification are not necessarily of the kind that had to be included. I am not convinced that the Federal Court failed to consider any of the evidence or that the evidence was such that it was a reviewable error not to find the '173 patent insufficient.

[117] The appellants also rely on the "best mode" requirement for machines set out in paragraph 27(3)(c) of the *Patent Act*, and argue that the Federal Court erred in failing to accept that the system claims of the '173 patent (claims 19 to 23) were subject to that requirement.

[118] The Federal Court dismissed the appellants' best-mode argument by saying that paragraph 27(3)(c) "relates solely to machines and, as I understand the patent, it claims a method and a system, not a machine" (see paragraph 146 of the Decision).

[119] I must say that it is difficult to understand how the claims to a system in the '173 patent are not to a machine. I note that even the Federal Court referred to the patented shale shaker system as a machine at paragraphs 6 and 15 of the Decision. It is not clear to me that defining an invention as a system rather than a machine should eliminate the need to comply with paragraph 27(3)(c) of the *Patent Act*. In addition, there is considerable doubt as to whether, despite the wording of paragraph 27(3)(c), the best-mode requirement is limited to machines: Donald MacOdrum, *Fox on the Canadian Law of Patents*, 5th ed., loose-leaf (Toronto: Carswell, 2002), at 7.8(d)(iv); Robert Barrigar & Andrew Shaughnessy, *Canadian Patent Act Annotated*, 2nd ed., loose-leaf (Toronto: Carswell, 1994), at 27:1570 ff; David Vaver, "Best Mode Disclosure in Canadian Patents" (2013), 25 *I.P.J.* 303.

[120] Notwithstanding these concerns, I am not convinced that the Federal Court committed a reviewable error in refusing to find the specification of the '173 patent insufficient for failure to comply with the best-mode requirement. The appellants argue that the Federal Court found that problems with a prototype were resolved prior to the filing date, but no solution was disclosed in the specification. However, the appellants do not provide sufficient detail to convince me that any error that may have been made by the Federal Court with regard to the best-mode requirement was of sufficient

importance to make a difference to the result. As noted in the paragraphs above, I am not convinced that the details mentioned by the appellants in respect of their other arguments on insufficiency are of the kind that had to be included in the specification.

D. *Ambiguity*

[121] The appellants argue that the Federal Court erred in concluding that various claims in the '173 patent are not invalid for ambiguity because the Federal Court was able to construe the terms in issue used therein. The appellants characterize this approach as inconsistent with the case law and representing an error of law. However, the appellants have cited no authority that provides that the Federal Court's approach to ambiguity is an error of law. In fact, jurisprudence supports this approach: e.g. *Mobil Oil Corp. v. Hercules Canada Inc.*, 63 C.P.R (3d) 473, at page 484, 188 N.R. 382 (F.C.A.); *Pfizer Canada Inc. v. Canada (Minister of Health)*, 2005 FC 1725, 285 F.T.R. 1, at paragraph 37. The basis for invalidity due to ambiguity is that the patent must give adequate notice to the public as to what activities are claimed as exclusive to the patentee. If a skilled person is able to construe the claims, then it follows that that notice is provided.

[122] The appellants' principal complaint seems to be more factual: that the Federal Court should not have found that the terms in question, "vapor" and "degassing chamber", could be construed. These issues have been dealt with above in the construction of claims section.

E. *Inutility*

[123] The appellants argue that the Federal Court misunderstood their arguments on inutility, and applied the wrong legal test. The appellants have three main arguments on inutility:

- (i) The claims lack utility because the inventor was not able to produce a practical working prototype before his development work on the invention ended near the end of 2006;
- (ii) The only practical means conceived to address the problem of liquid entering into the vacuum system inlet was to employ an external degassing chamber; however, some of the claims in issue do not define an external degassing chamber, and such claims therefore lack utility because they encompass embodiments that do not work; and
- (iii) Any claims that encompass the version of the appellants' VSS where the tray is cantilevered onto the end of the shaker lack utility because the inventor believed that such a version would fall apart, and hence there could be no sound prediction of utility.

[124] I am not convinced that the Federal Court made any error in law, or misunderstood or failed to consider the evidence or the appellants' arguments on inutility. The Decision alluded to the first two of the arguments identified above at paragraphs 136 and 138, respectively. With regard to the first argument, the Federal Court noted correctly at paragraph 139 of the Decision that the fact that the inventor did not initially arrive at a prototype that could immediately be commercialized does not mean that his testing did not reveal a useful invention. The threshold for utility in a patent context is not commercial usefulness. A scintilla of utility will do: *AstraZeneca Canada Inc. v. Apotex Inc.*, 2017 SCC 36, [2017] 1 S.C.R. 943, at paragraph 55. In my view, this passage from the Decision represents consideration of the first argument. The Federal Court was clearly satisfied that the inventor had made a useful invention.

[125] Turning to the second of the above-noted arguments, it is not very clear how, or even whether, the Federal Court reached a conclusion on this point. However, paragraph 139 of the Decision did observe that, "a claim will not be found to lack utility for failure to mention a component that a skilled person would recognize as necessary, such as a valve to regulate the flow of liquid through a conduit." While it seems to be common ground that an external degassing chamber was not a component that an un inventive person would have considered to protect the vacuum system from the entry of liquid, this passage does appear to acknowledge that there were other ways to achieve such protection which an un inventive person using known components would have thought to employ. Accordingly, it appears that the Federal Court was of the view that an external degassing chamber was not essential to the invention of the '173 patent, and hence claims not including such an element do not lack utility.

[126] The third of the appellants' arguments on inutility must fail for two reasons. First, utility is assessed from the point of view of the skilled person, not the inventor. Doubts that the inventor expressed about the utility of a certain embodiment would not necessarily lead to a conclusion of inutility. The second reason this argument must fail is that the inventor's doubts about whether the embodiment in question would function were based on the specific shaker that he observed. It was not a conclusion that no system with a cantilevered tray could work.

[127] I am not convinced that the Federal Court made any reviewable error in considering the appellants' arguments on inutility as described above.

F. *Overbreadth*

[128] There are two ways that a patent claim can fail for overbreadth (or overclaiming): it can be broader than the invention disclosed in the specification, or it can be broader than the invention made by the inventor: *Pfizer Canada Inc. v. Canada (Health)*, 2007 FCA 209, 60 C.P.R. (4th) 81, at paragraph 115.

[129] The concept of claim invalidity for overbreadth (or overclaiming) arises from the combination of the requirements that a patent specification (i) correctly and fully

describe the invention (see subsection 27(3) of the *Patent Act*), and (ii) include “claims defining distinctly and in explicit terms the subject-matter of the invention for which an exclusive privilege or property is claimed” (see subsection 27(4)). One may also consider overclaiming as a natural consequence of the bargain theory of patent law as described in *Free World Trust*, at paragraph 13: “[i]n return for disclosure of the invention to the public, the inventor acquires for a limited time the exclusive right to exploit it.” If a patent claims more than it describes, or more than the inventor has made, it gives the patentee more than the bargain entitles them to. Such a claim violates the bargain and is therefore invalid.

[130] Overbreadth often overlaps with other grounds of invalidity. For example, a claim that is invalid for anticipation because it encompasses embodiments that are described in the prior art may also be considered overbroad for claiming more than the inventor has truly invented. In addition, overbreadth might be considered the other side of the coin of insufficiency. Where a claim is broader than the description, it may fail for overbreadth, but it may also fail because the description does not adequately describe how to put it into practice. Despite this possibility of overlap, overbreadth is a distinct ground of invalidity that must be considered separately.

[131] The appellants argue that the claims of the '173 patent are invalid on both grounds of overbreadth.

(1) Claims broader than invention disclosed

[132] The appellants argue that the Federal Court found that vapor is a mist, and that nothing in the '173 patent describes pulling mist through a screen and separating it from drilling fluid. I have addressed in paragraphs 30 and 31 above the aspect of vapor as a mist. I note in passing that this argument seems more like one of insufficiency than of overclaiming. In any case, I see nothing in the scope of the term “vapor” in the claims that encompasses anything that was not contemplated in the disclosure.

[133] The appellants also argue that claim 20 is overbroad because nothing in the '173 patent describes pulling all air, vapor and drilling fluid through a first screen but not through a second. Again, this argument seems more like one of insufficiency than of overclaiming. In any case, I see nothing in the scope of claim 20 that encompasses anything that would not have been apparent to a skilled person reading the disclosure.

(2) Claims broader than invention made

[134] The appellants argue that the inventor of the '173 patent never contemplated (i) applying a constant pressure differential (only pulsed pressure), or (ii) applying a pressure differential to the screen at the discharge end of the shaker and not to other screens. The appellants refer to a number of documents as evidence of the inventor's intentions, but the specification of the '173 patent itself is a reliable indicator of what the inventor had in mind.

[135] In construing the term “controlling air flow”, I have explained my conclusion that the Federal Court did not err in finding that the ‘173 patent contemplates a constant pressure differential. Moreover, the Federal Court accepted the inventor’s own testimony that he contemplated a constant pressure differential. I see no error here.

[136] The same is true with regard to the application of pressure only to the screen at the discharge end of the shaker. The Federal Court accepted the inventor’s testimony that he considered this arrangement. The Federal Court also cited paragraph 37 of the ‘173 patent, which clearly describes a shaker with two sets of screens, and contemplates the application of a pressure differential “across either or both sets of screens.” The appellants urge this Court to find an error on the basis that paragraph 37 refers to sets of screens rather than individual screens, but I see no reason to agree based on this distinction.

G. *Addition of new subject matter*

[137] Subsection 38.2(2) of the *Patent Act* provides as follows:

Amendments to Specifications and Drawings

...

38.2

Restriction

(2) The specification and drawings contained in an application, other than a divisional application, may not be amended to add matter that cannot reasonably be inferred from the specification or drawings contained in the application on its filing date.

[138] The appellants argue that the ‘173 patent is invalid because the claims to “controlling air flow” define the purpose thereof to be “to prevent stalling of the slurry on the screen,” and this purpose was not reasonably inferable from the patent application as filed. It should be noted also that this purpose has been given importance in distinguishing the ‘173 patent from Derrick. The appellants also argue that the original application for the ‘173 patent contemplated only pulsing pressure differential, not continuous pressure as the Federal Court found to be within the scope of the claims. The ‘173 patent, according to the appellants, is therefore invalid because continuous pressure was not reasonably inferable from the original patent application.

[139] The appellants also criticize the Federal Court’s refusal to admit evidence concerning the circumstances surrounding the addition of the subject matter in issue. They point out that the Federal Court had no authority supporting its ruling.

[140] The appellants note the dearth of jurisprudence on section 38.2 of the *Patent Act*. They argue that the test for reasonable inferability of new subject matter is strict: that subject matter should be considered to have been added unless such matter is clearly

and unambiguously disclosed in the original application either explicitly or implicitly. They cite two U.K. decisions in support of their position: *Bonzel v. Intervention Ltd.* (No. 3), [1991] R.P.C. 553 (Pat. Ct.); *Gedeon Richter plc v. Bayer Pharma AG*, [2012] EWCA Civ. 235, [2012] All E.R. 87, at paragraph 13.

[141] There are at least three good reasons to be wary of following the U.K. approach. The first is that this approach presumes that matter has been improperly added, and places the burden on the respondent to establish otherwise. Under Canada's *Patent Act*, a patent is presumed to be valid in the absence of evidence to the contrary (see subsection 43(2)). The burden is on the appellants to establish that the '173 patent is invalid, regardless of the ground of invalidity.

[142] The second reason to be wary of following the strict U.K. test is that the U.K. provision in question (paragraph 72(1)(d) of the *Patents Act 1977* [(U.K.), 1977, c. 37]) does not mention the concept of reasonable inferability. It simply provides that a patent may be revoked if "the matter disclosed in the specification of the patent extends beyond that disclosed in the application for a patent, as filed." Given such a provision, with no exception for subject matter that can reasonably be inferred, it is not surprising that the U.K. courts apply a strict test. The Canadian provision on the other hand does not suggest a strict test.

[143] The third reason to be wary of the strict U.K. test is that the U.K. provision provides explicitly for patent revocation. Section 38.2 does not. On the contrary, subsection 38.2(1) provides that, subject to certain limitations, a patent application may be amended. The provision of particular interest in the present appeal, subsection 38.2(2), provides for one of the contemplated limitations.

[144] A final comment on the law concerns the appellants' criticism of the Federal Court's ruling that surrounding circumstances are not relevant to whether subsection 38.2(2) has been respected. The Federal Court reasoned that this issue is one of logic, not fact (see paragraph 236 of the Decision). It appears that the particular facts that the appellants sought to have considered concerned the respondent's motivation to amend the claims to broaden them and encompass the appellants' VSS. I have already indicated (see paragraphs 21 and 22 above) that such a motivation is not improper. The respondent's motivation in amending the claims is likewise not relevant to whether the new matter therein can reasonably be inferred from the original application. The Federal Court was correct to exclude evidence on the point.

[145] I turn now to the facts. I have already noted in my discussion of "controlling air flow" that the Federal Court recognized that the '173 patent, even as originally filed, contemplated a continuous pressure differential as well as toggling pressure (see paragraph 29 above). This also disposes of this aspect of the appellants' argument concerning the addition of new subject matter.

[146] As regards the purpose of preventing slurry from stalling, rather than simply unclogging the slurry, the Federal Court noted at paragraph 252 of the Decision the following passage from paragraph 33 of the '173 patent:

By toggling the pressure between vacuum and static, conveyance of solids across the screen may proceed unhindered, thereby avoiding solids accumulating or sticking on the screen, and thus not preventing fluid flow through the screen.

[147] Though this passage does not assist the respondent on the earlier point concerning continuous pressure differential vs. toggling, it does contemplate solids being conveyed across the screen “unhindered,” thereby “avoiding” solids accumulating. In my view, this is support in the '173 patent, as originally filed, for claims defining the purpose of preventing the stalling of slurry. Accordingly, I find that the Federal Court did not err in finding that this feature was at least reasonably inferable from the original patent application.

VII. Procedural Fairness

[148] Patent trials typically involve the testimony of experts. Because expert testimony is often voluminous and complicated, the *Federal Courts Rules*, SOR/98-106, provide that all such evidence must be supported by an affidavit or statement of the expert that has been duly served and filed: see rules 52.2, 258 and 279. Such expert affidavits or statements (reports) are typically exchanged in the context of the pre-trial conference or in accordance with an Order of the Court.

[149] Rule 267 provides that, except by order of the Court or agreement of the parties, a trial judge will not receive any expert report before trial when it is submitted in support of the expert's testimony. While this rule is useful for ensuring that the trial judge is not exposed to unsworn evidence, it is often felt that the conduct of the trial will be more efficient if the trial judge, as part of their preparation, has the opportunity to review expert reports, and thereby become more familiar with the technological issues in play. Accordingly, a practice has developed whereby the parties may submit expert reports to the trial judge before trial for this purpose.

[150] However, there remains a concern that the trial judge should avoid exposure to unsworn evidence and should not waste their time. The Federal Court Notice to the Parties and the Profession – Trial Management Guidelines dated April 2017 states as follows at paragraph 7:

By submitting an expert report to the Court, the party is undertaking to the Court to call such expert as a witness at trial. If the calling of an expert is contingent on a subsequent event at trial, the expert report shall not be delivered until such undertaking to call the witness can be made.

[151] In their trial management conference memorandum dated July 19, 2018, the appellants agreed that, except as indicated otherwise in the memorandum, the Trial

Management Guidelines should apply. The parties later submitted their expert reports. Pursuant to the Trial Management Guidelines, this submission of expert reports constituted an undertaking to the Court to call those experts as witnesses at trial.

[152] This undertaking became particularly important in this case because the parties also agreed to present the experts' evidence out of the usual order. The usual order would have had the respondent begin by presenting its evidence in chief on infringement issues, on which it had the burden of proof. The appellants would then follow with their evidence in chief on invalidity issues, upon which they had the burden of proof. The respondent's evidence on invalidity would come only after the appellants' evidence. In this case, the parties agreed that the respondent's expert, Mr. Palmer, would testify on issues of infringement and validity together, before the appellants' evidence. This would avoid Mr. Palmer having to appear more than once.

[153] The appellants deny agreeing to have the evidence presented out of order, but this position is disingenuous. Firstly, the appellants were aware of the proposed order of evidence and made no objection. They were also present at trial and participated in the proposed order. Even more important, the minutes of the trial management conference dated September 10, 2018 indicate that the appellants expressly agreed to the proposed order.

[154] At trial, Mr. Palmer was examined and cross-examined on issues of infringement and validity. During the cross-examination, the appellants put portions of their experts' reports on invalidity to Mr. Palmer, and even attached part of one as a trial exhibit.

[155] At a certain point during the cross-examination, the appellants indicated that they might not call their expert witnesses after all. In light of this, the respondent asked that any evidence of Mr. Palmer on invalidity issues (including testimony, expert report and exhibits thereto) be excluded, and that no further cross-examination on such issues be allowed. After hearing the parties, the Federal Court ordered the appellants to choose to either withdraw their expert reports or confirm that they would call their experts as witnesses.

[156] The appellants argue that they were entitled to cross-examine the respondent's witnesses without significant and unwarranted constraint, and that they had the right to decide whether to call witnesses of their own or to rely instead on evidence obtained in cross-examination. The appellants cite authorities in support of their position, and argue that the denial of their right to conduct cross-examination as they wished was procedurally unfair.

[157] I do not doubt their position as a general principle. But in my view, their right to cross-examine was constrained by their undertaking to the Federal Court to call their experts as witnesses. This undertaking was voluntary; the appellants could instead have chosen not to submit their expert reports before trial. At trial, the Federal Court went so far as to give the appellants the option of withdrawing their undertaking instead

of complying with it. Of course, since that undertaking was the basis for having submitted their expert reports in the first place, it naturally followed that those reports would have to be withdrawn along with the undertaking.

[158] I agree with the respondent that, not only was it appropriate for the Federal Court to require the appellants to choose, but it was necessary to ensure a fair trial. Otherwise, the appellants would have been in a position to rely on unsworn evidence that had been put to Mr. Palmer, without having to expose that evidence to cross-examination. Moreover, under normal circumstances, the respondent's evidence on invalidity would come after that of the appellant. It would be the respondent (not the appellants) who could decide whether to adduce evidence after having seen their opponent's evidence. The appellants want to have their cake and eat it too. They seek the benefit of the reversed order without the cost.

[159] In addition, failing to require the appellants either to comply with their undertaking or withdraw their expert reports would have discouraged the kind of cooperation that led the parties to agree in the first place (i) to submit expert reports to the Federal Court before trial, and (ii) to alter the normal order of evidence for the sake of efficiency. These were desirable measures, which presumably assisted the Federal Court and made the trial more efficient. Parties may disagree with the submission of expert reports to the court before trial or with a proposed order of evidence, but having agreed, they should not complain about the natural consequences of such agreement. Cooperation between parties before and during trial should be encouraged.

[160] I should add that parties also should not expect to be given the option, partway through trial, to withdraw an undertaking. Though that option was granted to the appellants in this case, it was in the discretion of the Federal Court. The Federal Court might instead have simply required the appellants to comply with their undertaking.

VIII. Remedies

[161] The appellants' arguments concerning remedies apply only in the event that this Court concludes that the Federal Court erred in some of its invalidity findings. Having concluded that the Federal Court did not so err, I find it unnecessary to address the appellants' arguments on remedies.

IX. Conclusion

[162] For the reasons given above, I would dismiss this appeal with costs. Because of the appellants' failure to reasonably limit the issues before the Court, and the respondent's success on each argument raised, I would award costs at the top of column V to the Tariff [B].

[163] Further to the respondent's request, I would also order the release to the respondent of such security for costs that the appellants have been required to post.

GLEASON J.A.: I agree.

MACTAVISH J.A.: I agree.