

Federal Court of Appeal



Cour d'appel fédérale

Date: 20200311

**Docket: A-244-18
A-201-18**

Citation: 2020 FCA 61

**CORAM: DAWSON J.A.
RENNIE J.A.
RIVOALEN J.A.**

BETWEEN:

**DNOW CANADA ULC,
NATIONAL OILWELL VARCO INC., and
769388 ALBERTA LTD.**

Appellants

and

**DARIN GRENKE, AS PERSONAL
REPRESENTATIVE OF
THE ESTATE OF EDWARD GRENKE, and
284849 ALBERTA LTD.**

Respondents

Heard at Toronto, Ontario, on November 25, 2019.

Judgment delivered at Ottawa, Ontario, on March 11, 2020.

PUBLIC REASONS FOR JUDGMENT BY:

DAWSON J.A.

CONCURRED IN BY:

**RENNIE J.A.
RIVOALEN J.A.**

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PUBLIC REASONS FOR JUDGMENT

DAWSON J.A.

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Introduction

[1] A stuffing box is a seal assembly used to prevent leakage of fluid between sliding or turning parts of machine elements. To illustrate, a stuffing box is used where the propeller shaft of a boat passes through the hull.

[2] In the oil production industry a stuffing box seals off the top of an oil well from the oil being drawn up the well by a turning rod called the polished rod. The purpose of the stuffing box is to prevent leakage of well fluids into the atmosphere. In heavy oil regions, such as those found in Alberta and Saskatchewan, progressive cavity pumps are used to bring crude oil, laden with sand and water, to the surface. A central component of such progressive capacity pumps is the wellhead drive unit. The wellhead drive unit houses the entire seal assembly system.

[3] In the early 1990s, serious environmental concerns arose from leaking stuffing boxes. Traditional stuffing boxes in use at the time squeezed rope style material against the polished rod. Regular manual tightening was required. However, rope style stuffing boxes were not effective in progressive cavity systems. Oil leaks and spills, causing unplanned well shut downs, were frequent. By the late 1990s, the governments of Alberta and Saskatchewan had greatly increased their efforts to enforce environmental regulations. Escalating penalties were imposed for infractions. Oil producers sought better sealing solutions.

[4] Canadian Patent Number 2,095,937 was designed to address the problems inherent in traditional, rope style stuffing boxes. Edward Grenke, a machinist, was the inventor and owner of the 937 Patent.

[5] The 937 Patent provided an improved seal assembly for restraining oil leakage from oil well pumps. Mr. Grenke licensed the 937 Patent to GrenCo Industries Ltd. Ultimately, all rights, title and interest in the 937 Patent were assigned to GrenCo, which manufactured the GrenCo

wellhead drive that incorporated the patented seal assembly. This corporation is now named 284849 Alberta Ltd.

[6] Weatherford Canada Ltd. and Weatherford PC Pump Ltd. were licensed to sell the GrenCo drive. Later, a new license was issued to Weatherford Canada Partnership. Together, these entities are simply referred to as Weatherford in these reasons.

[7] When GrenCo introduced its wellhead drive, incorporating its patented seal assembly, oil producers discovered its benefits, including durability, ease of maintenance, environmental friendliness and lower operating costs. The introduction of the GrenCo drive with its patented sealing system was described as a “paradigm shift” for the progressive cavity pump industry.

[8] In *Weatherford Canada Ltd. v. Corlac Inc.*, 2010 FC 602, 370 F.T.R. 54, the Federal Court found that the 937 Patent was valid and had been infringed by Corlac Inc., Corlac Equipment Ltd., National Oilwell Inc. and National-Oilwell Canada Ltd. The Court issued a permanent injunction restraining further infringement and concluded that the plaintiffs were entitled to an accounting or to damages. The judgment of the Federal Court was substantially affirmed on appeal (2011 FCA 228; 2012 FCA 261).

[9] The plaintiffs elected to recover damages. In reasons cited as 2018 FC 564 the Federal Court provided its assessment that the defendants were obliged to pay to the plaintiffs damages in the amount of \$7,915,000.

[10] Subsequently, the damages were increased to \$8,207,000 in a corrected, amended judgment.

[11] This is a consolidated appeal from the original and the amended judgments of the Federal Court. A copy of these reasons shall be placed on each file.

The parties

[12] The plaintiffs before the Federal Court were Darin Grenke, as the personal representative of his father, the inventor of the 937 Patent, and 284849 Alberta Ltd. They are the respondents to this appeal. In these reasons they are together referred to as the plaintiffs, the respondents or GrenCo.

[13] The defendants before the Federal Court were DNOW Canada ULC (a corporate successor to National-Oilwell Canada Ltd.), National Oilwell Varco Inc. (formerly National Oilwell Inc.) and 769388 Alberta Ltd. (formerly Corlac Inc.). In these reasons they are together referred to as the defendants, the appellants or Corlac. In the reasons of the Federal Court and in some testimony quoted in these reasons reference is made to “NOV” as a short form of National Oilwell Varco Inc.

[14] For completeness, I note that Corlac Equipment Ltd. (found to be an infringer at trial) was purchased by and amalgamated with National Oilwell Canada Ltd.

The issues

[15] The appellants assert a number of issues on this appeal. I would state the issues to be decided as:

- i. Did the Federal Court err by finding there was a causal connection between the infringing sales made by the appellants and the lost sales suffered by the respondents?
- ii. Did the Federal Court err by finding that the respondents' historical market share provided a reliable basis on which to calculate the respondents' lost sales in the "but for" world?
- iii. Did the Federal Court err by accepting the modified version of the respondents' market share advanced by the respondents in closing argument, after the evidence of the respondents' expert witness on market share was discredited on cross-examination?
- iv. Did the Federal Court make factual errors in its calculation of market share in the "but for" world by:
 - a. Erroneously calculating the number of infringing units sold by the appellants?
 - b. Accepting an artificial and inconsistent distinction between electric and hydraulic wellhead drives from 2004 forward?
 - c. Failing to appropriately consider international sales data?
 - d. Relying on the volume of sales made by Weatherford, a licensee of the 937 Patent, as set out in Exhibits P56 and P57?

- v. Did the Federal Court err by finding that the appellants' infringing sales caused the respondents to lose "convoyed" sales?
- vi. Did the Federal Court err by accepting the respondents' witness Shane Freeson as a properly qualified expert witness?

The standard of review

[16] The standards of review applicable to the issues raised in this appeal are as described by the Supreme Court in *Housen v. Nikolaisen*, 2002 SCC 33, [2002] 2 S.C.R. 235. The standard of review to be applied to questions of law is correctness. Findings of fact and inferences of fact are to be reviewed on the basis of palpable and overriding error. Findings of mixed fact and law are to be reviewed on the same deferential standard unless an extricable legal error can be demonstrated, in which event such error is reviewed on the correctness standard.

Applicable legal principles

[17] Before turning to the analysis of the issues raised by the appellants, it is helpful to restate some of the legal principles applicable to these issues.

[18] When the owner of a patent or anyone claiming under the patent (plaintiff), seeks damages for infringement of the patent, the following general principles apply:

- The purpose of an award of damages is to compensate the plaintiff for any and all losses suffered by the plaintiff as a result of the infringement.

- When assessing damages, the plaintiff is entitled to the profits on the sales of patented wares it could and would have made but for the presence of the infringing product in the market.
- For those sales made by the defendant that the plaintiff would or could not have made, the plaintiff is entitled to a reasonable royalty based on the defendant's sales.
- When considering what sales a plaintiff could and would have made but for the presence of the infringing product, the Court is to consider a theoretical and hypothetical "but for" world. What would have happened in that hypothetical world must be established on the basis of admissible evidence and any permissible inferences arising from that evidence (*Pfizer Canada Inc. v. Teva Canada Limited*, 2016 FCA 161, 483 N.R. 275, at paragraph 46).
- To "prevent the hypothetical from lapsing into pure speculation" evidence is required of both the nature of the market and the likely outcomes with infringement factored out of the market (*Apotex Inc. v. Merck & Co., Inc.*, 2015 FCA 171, [2016] 2 F.C.R. 202, at paragraph 55).
- The task of constructing the hypothetical world for the purpose of assessing compensatory damages is a factual inquiry requiring "robust common sense" (*Apotex*, paragraph 45, *Pfizer*, paragraph 55, each case citing *Clements v. Clements*, 2012 SCC 32, [2012] 2 S.C.R. 181, at paragraphs 8 and 9).
- Because of its hypothetical nature, the "but for" world is not a world where "the loss is capable of correct appreciation in stated figures." (*Teva Canada Limited v. Janssen Inc.*, 2018 FCA 33, 420 D.L.R. (4th) 493, at paragraph 36, citing *Watson*,

Laidlaw & Co. Ltd. v. Pott, Cassels, and Williamson (1914), 31 R.P.C. 104, at pages 117 to 118).

- The plaintiff bears the burden of proving the hypothetical world on the balance of probabilities (*Pfizer*, paragraph 54).

[19] On an appeal to this Court from a judgment of the Federal Court assessing damages for patent infringement, it is inappropriate for this Court to retry the case or substitute its view for the Federal Court’s view of the evidence. As stated by this Court in *Pfizer*, at paragraph 69:

It must be remembered that judges’ reasons—particularly after long complex trials involving many issues—are often the product of synthesis and distillation. When it comes time to draft reasons in a complex case, trial judges “are not trying to draft an encyclopedia memorializing every last [relevant] morsel.” Rather, they are trying to “distill and synthesize masses of information, separating the wheat from the chaff,” in the end “expressing only the most important... findings and justifications for them”: *Canada v. South Yukon Forest Corporation*, 2012 FCA 165, 431 N.R. 286 at para. 50.

[20] Accordingly, reasons must be “read as a whole, in the context of the evidence, the issues and the arguments at trial, together with ‘an appreciation of the purposes or functions for which they are delivered’” (*R. v. Villaroman*, 2016 SCC 33, [2016] 1 S.C.R. 1000, at paragraph 15, citing *R. v. Laboucan*, 2010 SCC 12, [2010] 1 S.C.R. 397, at paragraph 16, citing *R. v. R.E.M.*, 2008 SCC 51, [2008] 3 S.C.R. 3, at paragraph 16).

[21] Reasons must, however, provide a basis for meaningful appellate review. This requires that the decision and the basis of the decision be intelligible, or capable of being made out on a fair reading of the reasons. A logical connection between the decision and the basis for the decision must be apparent. To determine whether a logical connection between the decision and

the basis for the decision is established, a reviewing court is to look at “the evidence, the submissions of counsel and the history of the trial to determine the ‘live’ issues as they emerged during the trial.” (*R v. R.E.M.*, at paragraph 35).

Did the Federal Court err by finding there was a causal connection between the infringing sales made by the appellants and the lost sales suffered by the respondents?

[22] The Federal Court concluded that the plaintiffs had demonstrated causation. The Court found as a fact “that there were lost sales due to the infringement by the Defendants” (reasons, paragraph 90).

[23] The appellants argue that on the evidence before the Federal Court causation was not proven; in consequence, a reasonable royalty is the only fair measure of damages.

[24] I reject the appellants’ submission for the following reasons.

[25] First, at paragraphs 74, 75, 86 and 87 of its reasons, the Federal Court correctly directed itself to the legal test for causation: in respect of lost sales, the plaintiffs “must establish they would have had the sales but for the infringement” by the defendants.

[26] Second, having instructed itself on the legal principles at play, the Federal Court found as a fact that the infringing stuffing boxes sold by the defendants were “a direct substitute” for the stuffing boxes sold by the plaintiffs (reasons, paragraph 52). The Court went on to find that the parties marketed their products in the same geographic markets (reasons, paragraph 90). These

factual findings are not challenged by the appellants and formed a basis for the finding of causation.

[27] The Federal Court also referenced evidence of specific lost sales (reasons, paragraph 90).

[28] Wesley Grenke testified at trial as a representative of the plaintiffs. The Federal Court found that he gave “useful evidence” in terms of “market behaviour” during the relevant period. He was found to be a “straightforward, modest witness who gave generally credible evidence” and the defendant’s criticism of his evidence was characterized as “unwarranted.” (reasons, paragraph 23). Mr. Grenke testified as follows:

Q. You talked about NOV being a competitor to GrenCo. Was there a time that you considered that you lost a sale to NOV because of NOV’s drive products?

A. Absolutely. I mean, this happened as soon as they came out with their infringing product. We noticed in a number of different areas that we saw some of their product coming into play. It was either 2000 or 2002 where we saw them promoting it in oil shows and literature. We saw a definitely saw a big push of their products and our customers were trying out their products and they were starting to buy their products. It made a big difference in our business.

Q. Can you give any specifics in terms of examples where you recall that happening, in particular?

A. Yes. Corlac was located in the Lloydminster area. They were known to be selling used equipment. They were a used equipment dealer. They bought and repaired old equipment and were selling it to the end users. When they came out with this product that they used our sealing technology on, we started to see a reduction in sales in the areas initially closest around the Lloydminster area.

There is the Elk Point area, their Bonnyville area, Provost area, Kerrobert area. There are a lot of these areas that were closer to the Lloydminster area that we started to see our sales drop off, and this continued on to the other areas within Alberta and Saskatchewan.

Q. In terms of the oil producers, do you have any in mind that you recall going to NOV in the way you have described?

A. Absolutely. A couple that come to mind was one of them was Penn West in the Kerrobert area. We were selling a lot of equipment to them. When they went to electrify their field and move to electrical-powered equipment, they went out for bid and NOV got that business because they had a competing product.

Likewise, I mean, there was harvest energy in the Provost area and then the whole Bonnyville, Elk Point area, there are so many companies there that changed hands. There are multiple companies now, a big one being CNRL. They switched from GrenCo to using a competing product.

(underlining added)

(appeal book, tab 114, page 3764, line 1 to page 3765, line 15)

[29] Further, on discovery the defendants' representative Anthony Moore testified:

Q. Let's go back. There's a bit of confusion. The question is: Are you aware that on the sale of drives, GrenCo was competing with your company, National?

A. Yes.

Q. In terms of competition at your company, do you ever consider that when you're competing for a sale with another company and you make the sale, knowing the other company has pitched it, that you have taken that sale away from the other company? Are you familiar with that kind of concept?

A. Well, it's a zero sum game.

Q. So that does happen?

A. The market share is yours or theirs.

Q. As a factual matter, are you aware of any times during the timeframe we're talking about that National has competed with Weatherford to sell drives and National has made the sale at the expense of Weatherford?

A. Specifically?

Q. Yes.

A. I'm not aware of any.

Q. But you take that to be the case?

A. We're in the same marketplace.

Q. So that did happen?

A. It may have happened.

Q. It would be pretty astounding if it did not happen, would it not?

A. Yes.

Q. Can you say the same thing for GrenCo?

A. Yes.

(underlining added)

(appeal book, tab 47, page 2058, paragraph 36, citing transcript October 6, 2011, page 275, line 2 to page 276, line 13)

[30] This evidence on discovery was read in at trial by the plaintiffs (Exhibit P63, appeal book, tab 47).

[31] I am satisfied that there was sufficient evidence to support the Federal Court's finding that the defendants' infringing product competed directly in the same market with the plaintiffs' product and that the plaintiffs lost sales of their drives to the defendants' competing infringing product.

[32] The Federal Court made no palpable and overriding error in finding that the plaintiffs had met their burden to establish, on a balance of probabilities, that there were lost sales due to infringement by the defendants.

Did the Federal Court err by finding that the respondents' historical market share provided a reliable basis on which to calculate the respondents' lost sales in the "but for" world?

Did the Federal Court err by accepting the modified version of the respondents' market share advanced by the respondents in closing argument after the evidence of their expert witness on market share was discredited on cross-examination?

[33] The next two issues are interrelated and it is convenient to deal with them together. It is first necessary to explain how these issues arose before the Federal Court.

[34] The defendants commenced selling infringing products in late 1999 or early 2000. The Federal Court issued a permanent injunction restraining such sales on June 3, 2010. Therefore, the plaintiffs claim loss incurred during the period from January 1, 2000 to June 3, 2010.

[35] Throughout this period there were three dominant manufacturers in the market selling environmentally friendly wellhead drives. Referred to as the Big 3, these manufacturers were the plaintiffs, the defendants and Weatherford (the licensee of the 937 Patent). In the course of this litigation sales data was produced for each of the Big 3 (notwithstanding this, the sales volumes of both the defendants and Weatherford were, and are, disputed).

[36] During this period, in an attempt to compete with the Big 3, other manufacturers developed technology and began entering the market.

[37] The plaintiffs engaged Shane Freeson, a professional engineer experienced in the oil and gas industry, to provide an opinion estimating the relative market share possessed by each manufacturer who sold environmentally friendly drives during the relevant period.

[38] However, Mr. Freeson did not know the total number of environmentally friendly drives sold either in Canada or internationally for each of the years in question (cross-examination, appeal book, tab 115, page 3947, lines 4 to 19). Nor did he have information about the volume of sales of the other manufacturers who competed against the Big 3 in the relevant period. This obviously complicated his analysis.

[39] Faced with this lacuna in the data, Mr. Freeson relied upon his “general awareness of drives which were being deployed in the oil fields,” to provide the following estimate of the market share of the “other” competitors:

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Other	5.0%	5.0%	5.0%	5.0%	10.0%	10.0%	10.0%	10.0%	10-15%	10-15%	15-20.0%

(Exhibit P47, expert report Mr. Freeson, appeal book, tab 18, paragraphs 93 to 94)

[40] Based on these estimated market shares, and on the sales data provided with respect to the sales of the Big 3 as calculated by the plaintiffs’ accounting expert, Mr. Farley Cohen, Mr. Freeson “created” his view of the marketplace (direct examination Mr. Freeson, appeal book, tab 115, page 3923, line 13 to page 3924, line 7, referencing Appendix S to Mr. Freeson’s expert report).

[41] To illustrate, in his original report, Exhibit P50, (appeal book, tab 21) Mr. Cohen calculated the sales of the Big 3 to be 2,033 units in 2000. Based on the assumption that “other manufacturers” had a 5% market share in 2000, Mr. Freeson calculated that the “others” would have sold 107 units. It followed that a total of 2,140 environmentally friendly units would have been sold that year. Mr. Freeson was unaware that some sales data for some of the Big 3 manufacturers included international sales.

[42] Mr. Freeson’s estimate of sales volumes for the years 2000 to 2010, and his estimate of respective market shares were set out in Tables 2 and 3 to his report:

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 (Jan-Jun)	TOTALS
GrenCo	721	505	332	440	431	505	543	519	667	323	217	5203
Weatherford	812	692	687	215	578	391	437	344	89	104	87	4436
NOV (Enviro)	500	436	429	422	255	283	310	158	127	20	6	2946
Other	107	86	76	57	140	131	143	113	126	64	66	1109
TOTALS	2140	1719	1524	1134	1404	1310	1433	1134	1009	511	376	13695

Table 2 - Estimate of sales volumes from 2000-2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 (Jan-Jun)	TOTALS
GrenCo	33.7%	29.4%	21.8%	38.8%	30.7%	38.5%	37.9%	45.8%	66.1%	63.2%	57.7%	38.0%
Weatherford	37.9%	40.3%	45.1%	19.0%	41.2%	29.8%	30.5%	30.3%	8.8%	20.4%	23.1%	32.4%
NOV (Enviro)	23.4%	25.4%	28.1%	37.2%	18.2%	21.6%	21.6%	13.9%	12.6%	3.9%	1.6%	21.5%
Other	5.0%	5.0%	5.0%	5.0%	10.0%	10.0%	10.0%	10.0%	12.5%	12.5%	17.6%	8.1%
TOTALS	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 3 - Estimate of market share from 2000-2010

(Exhibit P47, expert report Mr. Freeson, appeal book, tab 18, paragraph 117)

[43] Mr. Freeson also opined in his report that:

124. As stated earlier, if Corlac/National were not in the market with their Enviro drives, oil producers would have turned to one of GrenCo, Weatherford, or one of the other manufacturers. In my opinion, it is reasonable to assume that oil producers would have went [*sic*] to these manufacturers in proportion to their

relative market share after removing Corlac/National. I come to this conclusion because I do not consider that there were any specific reasons why the customers of Corlac/National would have preferred Weatherford (and later Oil Lift) over GrenCo.

[44] In turn, Mr. Cohen relied upon this data and this opinion to provide an estimated market share of the market participants in the “but for” market, excluding the defendants. From the drive sale quantities and the market share percentage estimates in the “but for” world, Mr. Cohen then calculated the plaintiffs’ asserted lost profits for lost drive sales (see Schedules 2b and 3 to his report, as revised in his reply report, Exhibit P51, appeal book, tab 22).

[45] At trial the plaintiffs sought to qualify Mr. Freeson as an expert to give opinion evidence about “the history and development of [progressive cavity pump] systems, and also to provide an opinion on the size and behaviour of the market for surface wellhead equipment in [progressive cavity pump] systems in Canada from 2000 to 2010” (examination on qualifications Mr. Freeson, appeal book, tab 115, page 3853, lines 23 to 28).

[46] More particularly, counsel for the plaintiffs argued that:

The evidence of Mr. Freeson goes directly to that point and is relevant for the determination of the ultimate award. Relevance, I submit, is there. Reliability, I think, is the crux of my friend’s argument here. He does bring a unique, objective approach to this case. Mr. Freeson, as you heard, didn’t make or market the products in issue. He didn’t work for one of the suppliers. You are going to hear evidence from both sides of people who were on the supplier side.

JUSTICE PHELAN: We are not going to hear other evidence on market share?

MR. STRATTON: We are going to hear no [other] expert evidence on market share. This is it, in terms of expert evidence, but what we are going to hear is evidence from individuals who work for the companies that make the product, but no documents. Mr. Freeson is on the side where he investigated the products. He

evaluated, he purchased, and as you heard, he was keenly aware and followed who else was doing the same thing.

He gives you the operator side, the purchaser side. It makes him objective, unbiased, and as currently advised, there is nobody else who is going to give you that operator side. There is a relatively small number of suppliers. There is a big number of operators. To get the operator side in a way that the Court -- we are not going to parade hundreds of operators to Court.

We need to bring an expert to give a number to the Court. That is what Mr. Freeson has done.

(underlining added)

(appeal book, tab 115, page 3889, line 5 to page 3890, line 4)

[47] The defendants objected.

[48] After cross-examining Mr. Freeson on his qualifications, the defendants did not maintain any objection to his qualification to speak “on the history of [progressive cavity] pumps”. Counsel for the defendants advised that they “really had no objection to him testifying to what he knew personally.” (appeal book, tab 115, page 3881, line 21 to line 26). The objection to the witness’ qualifications was that he was not qualified as a “market share expert” and was not qualified to provide opinion evidence about the sales and market share of manufacturers of wellhead drive systems other than the Big 3 (appeal book, tab 115, page 3881, line 27 to page 3882, line 3). The most important of these other manufacturers were Oil Lift Technology Inc., KUDU Industries Inc. and Brightling Equipment Ltd.

[49] The Federal Court ruled orally that it was prepared to accept the expertise of Mr. Freeson and to accept his expert report. Any deficiencies in Mr. Freeson's evidence were said by the Court to go to weight (appeal book, tab 115, page 3898, line 4 to page 3899, line 19).

[50] Thereafter, Mr. Freeson made admissions on cross-examination that significantly undermined the reliability of the conclusions set out in his report, including his conclusions about the respective share of the market each participant possessed during the 10-year period in issue. The unreliability of these conclusions was conceded by the plaintiffs in closing argument. In their memorandum of fact and law on damages submitted at the conclusion of the damages hearing, the plaintiffs characterized Mr. Freeson's evidence in the following terms:

[82] The only person qualified as an expert to provide assistance on market share numbers was Mr. Freeson, called by the Plaintiffs. Mr. Freeson was a clear and forthcoming witness who candidly admitted in cross-examination that his estimates of the market would have been better if he had had access directly to sales figures of competitors other than the parties to the action. Evidence relating to sales figures for Kudu and Oil Lift was led at trial that, if accurate, was completely inconsistent with the quantification of market share that Mr. Freeson made in his report. It is clear that Mr. Freeson understood very well the players in the market, when they entered the market and with what products. It is also clear, given the evidence that was provided at trial, that his conclusions cannot be relied upon when seeking to put that understanding into numbers of units sold by the market participants.

(underlining added)

[51] The Federal Court accepted that while Mr. Freeson's "general evidence of the market was useful, particularly up to 2004. ... his assumptions about later market shares proved to be incorrect" (reasons, paragraph 25).

[52] Faced with the absence of evidence about the market share held in the relevant period by manufacturers other than the Big 3, the plaintiffs turned to the evidence adduced at trial about their volume of sales. The plaintiffs submitted that the market share of the “other” competitors should still be estimated as a proxy that could be used to produce an estimate for the plaintiffs’ lost sales in the “but for” market. Put another way, it was submitted that the trial evidence permitted the Court to construct the “but for” market. It was particularly significant to this submission that there was no evidence that Mr. Freeson had overlooked any competitor in the market. He was found to have misunderstood the extent of the sales made by Oil Lift and KUDU after they entered the market. Thus, what was fundamentally in dispute was the share of the market possessed by the other manufacturers. Evidence had been adduced at trial about sales made by Oil Lift, KUDU and Brightling (the significant competing manufacturers) and this evidence allowed the respective market shares to be estimated.

[53] Taking Schedule 3 to Mr. Cohen’s reply report, which set out the estimated market shares of the Big 3 and the other competitors, the plaintiff submitted that the evidence given orally at trial supported the following changes to Schedule 3 which were then carried into Schedule 2b which the Federal Court referred to as “modified Schedule 2b” (see, for example, reasons, paragraphs 95 and 128).

- i. For the years 2000, 2001 and 2002 the market share of the “other” competitors was reduced in each year. In each year the “others” were originally said by Mr. Freeson to possess 5% of the market. This was revised to show other manufacturers possessing 0% of the market in 2000 and 4% in each of 2001 and 2002. This was based on oral testimony that there were no Oil Lift products in the

market commercially in 2000, and that KUDU was not in the market until after 2002 (direct examination David Garland, appeal book, tab 118, page 4304, lines 2 to 9). In terms of units sold, Schedule 3 had attributed sales of 105, 83 and 75 units to others in these years. This was changed to sales of 0 units in 2000 and 60 units in each of the following years. The basis of these changes was the testimony of a representative of Oil Lift, Mr. Hult. He had testified that in 2001 Oil Lift had sold 50 plus drives to one project and that there were other purchasers (direct examination, appeal book, tab 123, page 4834, line 19 to page 4835, line 1).

- ii. For 2003, Mr. Cohen had attributed, based on Mr. Freeson's opinion, 56 sales to other manufacturers. This was changed to 275 units, 250 attributed to Oil Lift and 25 attributed to KUDU. This was based on evidence from Mr. Hult that Oil Lift had sold 200 units in that year to one particular customer (direct examination, appeal book, tab 123, page 4835, line 15 to page 4836, line 7). A representative of KUDU, Mr. Garland, had testified that in 2003 their sales numbers were limited as their drive entered the market after August 2003 (direct examination, appeal book, tab 118, page 4304, lines 2 to 9).
- iii. 2004 was said to bring two significant changes to the drive market in Canada that continued until 2010. First, the defendants began to offer an alternative sealing system, the SAI system, available to purchasers seeking hydraulically operated drives (as opposed to electrically operated drives). This system did not infringe the 937 Patent. The second development was that Oil Lift and KUDU began making significant sales and developing a significant presence in the market.

Mr. Cohen had already recognized the first change in his reply report, acknowledging that if the Court found the SAI stuffing box to be a non-infringing alternative for hydraulic drives, lost profits would still be an appropriate measure of damages with respect to electric drive sales and related convoy sales and service revenues. Therefore, in his reply report Mr. Cohen created a new Schedule b in which total losses were set out in Schedule 1b, while financial losses were detailed by category in Schedule 2b. To illustrate, in his original report Mr. Cohen had calculated lost profits based on sales by the defendants of 255 units in 2004, 283 units in 2005, 310 units in 2006 and the like. In the non-infringing alternative set out in Schedule 2b to his reply report, Mr. Cohen calculated profits based on electric units sold by the defendants in those years to be 115 units, 178 units and 243 units. Mr. David Hall, the defendants' accounting expert, addressed this approach in his sur-reply report, without expressing any concern about the approach (Exhibit D85, appeal book, tab 27, at paragraph 69 and Attachment 47R).

On the basis of evidence adduced at trial the plaintiffs submitted that three types of adjustments had to be made to Mr. Cohen's Schedule 2b. First, it required adjustment to include the evidence of much higher sales made by Oil Lift, which Mr. Freeson had not appreciated. However, it was said to be contrary to the market realities to include Oil Lift's pressurized hydraulic sales as impacting on the plaintiffs' captured market of the defendants' electric drives. This reflected that if a well site had access to an electric connection, the drive of choice would be electric. Therefore, only Oil Lift's estimated electric sales ought to be included.

The next adjustment related to Mr. Freeson's failure to understand KUDU's increased sales of the Oryx stuffing box. Finally, it was necessary to include recognition of sales of drives made by the third competitor Brightling.

On the basis of Mr. Hult's testimony that 75% or more of the drives sold by Oil Lift were for hydraulic applications only, post-2004 numbers were adjusted to reflect this. They were also adjusted to reflect his testimony with respect to sales that he believed Oil Lift made in 2004 and the following years. Most significantly, the business reached a "turning point" in 2008 when he believed Oil Lift reached sales of thousands of drives.

On the basis of the testimony of Mr. Garland and Mr. Glen Martinka, who was employed by KUDU, estimated sales of KUDU products were increased.

On the basis of testimony given by Craig Hall, a co-owner of Brightling, this manufacturer's estimated sales were included in the "others" market for the 2008 and 2009 years and the 2010 stub year.

[54] The cumulative effect of these changes to the plaintiffs' estimated market share was to reduce their calculated lost profits on the sale of original drives from \$5,111,000 to \$4,468,000.

[55] Attached as an Appendix to these reasons is a chart that shows both the relevant portion of Schedule 2b found in Mr. Cohen's reply report and the relevant portion of the modified Schedule 2b. The chart provides a basis for understanding the changes or modifications to Schedule 2b proposed by the plaintiffs during closing argument.

[56] With the benefit of this explanation I now consider whether the Federal Court erred by relying upon the plaintiffs' historical market share to provide a reliable basis on which to calculate lost sales.

[57] The Federal Court considered the issue of the role of historical market share at paragraphs 91 to 97 of its reasons. In these paragraphs the Federal Court:

- noted that in the past the Federal Court had used “market share as a proxy for determining a plaintiff’s lost sales” as demonstrated by *Jay-Lor International Inc. v. Penta Farm Systems Ltd.*, 2007 FC 358, 313 F.T.R. 1 (reasons, paragraph 91);
- instructed itself that the onus was on the plaintiffs to “establish both that they could have and would have done something, such as made sales or had a certain market share in the hypothetical but-for world.” (reasons, paragraph 92);
- noted the defendants’ submission that the plaintiffs had failed to present reliable data on market share and had failed to put forward any evidence about how customers would have behaved in the absence of infringing sales (reasons, paragraph 93); and,
- noted the plaintiffs’ responding submission that market share can stand as a proxy for determining what the buyers of an infringing product would have done in the absence of that product since the “market share factor has been identified as one of the factors that is relied upon to determine the number of [the defendants’] sales that would have been *captured* by [the plaintiffs] if [the defendants’] products were not available”. (reasons, paragraph 94, emphasis in original).

[58] The Federal Court then provided its reasons for finding market share to be “an appropriate method of determining damages”:

[95] In the Hall Sur-Reply Report, the captured market number (GrenCo’s Lost Drive Sales) is estimated at 911 in Scenario 1. In the Cohen Reply Report, this number (Estimated Units Lost by GrenCo) is estimated at 1,268 in Schedule 2 and 1,192 in the original Schedule 2b. As indicated later, I find Cohen’s modified Schedule 2b calculations to be of considerable assistance.

[96] In my view, market share is an appropriate method of determining damages.

[97] This is not a case with a small number of customers, referenced above in *Jay-Lor*, which might require “customer-specific” evidence, as was suggested by the Defendants. The more pressing question is whether the Plaintiffs have sufficiently established the market share that they would have had in the but-for world, as discussed below.

(emphasis in original)

[59] On this appeal the appellants acknowledge that at paragraph 92 of its reasons the Federal Court identified the proper test to be applied and referenced, at paragraph 93, a number of factors that can impact a customer’s purchasing decision (including things such as price, service, maintenance, relationships and products). However, the appellants submit that the Federal Court failed to consider whether the plaintiffs had proven causation. Simply proving the plaintiffs’ market share did not prove lost sales. A sound economic basis for adopting historical market share as a proxy for lost sales is required. The Federal Court’s failure to address whether historical market share was a reasonable proxy for what would have happened in the “but for” world is asserted to be an error of law.

[60] The respondents submit that given the Federal Court’s conclusion that the market had a choice between the plaintiffs’ product and the defendants’ sealing system (reasons, paragraph

89), the market share approach was a conservative way of looking at the captured market. The respondents did not allege at trial that they would have captured all of the appellants' infringing drive sales. Rather, they sought only the proportion of those sales that was consistent with the respondents' overall market share. The market share approach took into account other market players, evolving trends in the market (including developments with respect to pressurized hydraulic sealing systems which will be discussed below) and the choices customers had historically made with respect to the purchase of wellhead drives.

[61] In light of the importance of establishing the behaviour of the market and the share of the market possessed by the other competitors to the Big 3, it would have been helpful if the Federal Court had provided more ample reasons to support its finding that market share was an appropriate method of determining damages. In the absence of this, it is necessary to look at the evidence before the Court and the issues and arguments raised at trial (*Villaroman*, paragraph 15).

[62] I therefore begin my analysis by stating that at trial counsel argued two competing theories as to the proper quantification of the damages the plaintiffs sustained as a result of the defendants' infringement. The plaintiffs sought their lost profits; the defendants argued that the loss would be properly remedied by the payment of a reasonable royalty in respect of the sales the plaintiffs lost due to the sales of infringing drives by the defendants. Implicit in the reasons of the Federal Court is that the Court's conclusion that the payment of a reasonable royalty on sales would not provide adequate compensation to the plaintiffs.

[63] Once a reasonable royalty was rejected as the appropriate measure of damages, the market share approach allowed the plaintiffs to claim, and attempt to prove, that notwithstanding the presence of acceptable, non-infringing alternative substitutes in the market, the plaintiffs would have captured the proportion of the defendants' sales equivalent to their historical market share.

[64] As this Court explained in *Apotex*, the exercise of constructing the theoretical and hypothetical "but for" world where it is assumed that the infringing product never entered the market is difficult. To prevent the exercise "from lapsing into pure speculation" proof is required of the nature of the market and the likely outcomes when infringement is factored out.

[65] In *Alliedsignal Inc. v. du Pont Canada Inc.*, 1998 CanLII 7464, 142 F.T.R. 241 (F.C), at paragraph 34, the Federal Court provided a non-exhaustive list of factors that are relevant to the question of what would have happened in the "but for" world:

- i. Presence of competing products in the market;
- ii. Advantages of the patented product over competing products;
- iii. Advantages of the infringing product over the patented product;
- iv. Market position of the patentee;
- v. Market position of the infringer;
- vi. Market share of the patentee before and after the infringing product entered the market;
- vii. Size of the market before and after the infringing product entered the market; and,
- viii. Capacity of the patentee to produce additional products.

[66] Contrary to the appellants' submission, the Federal Court did consider a significant number of these factors, albeit not in a formal *Alliedsignal* analysis. The Federal Court considered:

- i. The nature of the market and the presence of competing products in that market (reasons, paragraphs 45 to 47).
- ii. The advantages of the patented drive over competing products (reasons, paragraphs 18 to 21).
- iii. The market position of the plaintiffs (reasons, paragraphs 45 to 47, 105 and 107).
- iv. The market position of the defendants (reasons, paragraphs 51 to 54).
- v. The market share of the plaintiffs before and after the infringing drive entered the market (reasons, paragraphs 48 to 50, 105 to 113).
- vi. The size of the market before and after the infringing drive entered the market (reasons, paragraphs 43 to 47, 58 to 68, 104 to 113).

[67] The significance of this is that the Federal Court demonstrated an understanding of the value of the patented drive and the nature of the market, so as to be well-positioned to consider whether the plaintiffs would have likely captured a proportion of the defendants' sales and that they would have done so in proportion to their share of the market.

[68] Before leaving *Alliedsignal*, at paragraph 37 of those reasons the Court observed that courts generally avoid requiring a plaintiff to establish that any definite number of retailers would have come to the plaintiff if the defendant had not supplied infringing product.

Notwithstanding, in *Alliedsignal* as there were only nine customers in the market, a review of the

evidence on a customer-by-customer basis was found to be necessary. This is distinguishable from the market in the present case. As the Federal Court correctly noted at paragraph 97 of its reasons, the present case does not involve a market with a small number of customers that might require “customer-specific” evidence.

[69] The Federal Court’s understanding of this market was based, at least in part, upon the evidence of Mr. Freeson that it accepted. While the Court rejected Mr. Freeson’s evidence about the market share possessed by some competitors (reasons, paragraphs 25, 98 and 100), it accepted his evidence about the advantages possessed by the plaintiffs’ drive (reasons, paragraph 20), and his evidence about the product market generally, including the players in the market (reasons, paragraphs 25 and 98). More particularly, the Court accepted his evidence “in respect of the product market generally and the size and nature of the competitors ... up to the market entry of Oil Lift and some other competitors.” (reasons, paragraph 100).

[70] No objection was made to Mr. Freeson’s ability to testify “as to what he knew personally”. It is therefore helpful to review Mr. Freeson’s area of expertise and “what he knew personally”. Mr. Freeson’s knowledge of the market came from over 25 years’ experience working with progressive cavity pump systems and purchasing surface equipment for such systems as a production engineer, facility engineer and senior operator.

[71] Through his membership and participation in the Canadian Institute of Mining, Metallurgy, and Petroleum, and the Society of Petroleum Engineers, he stayed up to date on the latest technologies and product offerings for all of the manufacturers that were selling wellhead

drives and other surface equipment. While employed at Husky Energy, he was “responsible for continuously analyzing the product offerings of the various manufacturers to assess from year to year what products Husky should use in their fields.” (Exhibit P47, expert report Mr. Freeson, appeal book, tab 18, paragraph 50).

[72] Mr. Freeson’s evidence was that when the plaintiffs introduced their wellhead drive with its unique sealing system design, “oil producers quickly discovered the many benefits, including durability, ease of maintenance, environmental friendliness, and lower operating costs. ... The introduction of the [patented sealing system] was a paradigm shift for the [progressive cavity pump] industry.” (Exhibit P47, expert report Mr. Freeson, appeal book, tab 18, paragraph 58).

[73] Mr. Freeson testified that commencing in 2000, the market was such that oil producers looking for a wellhead drive system that did not leak externally, an environmentally friendly drive, would, with one exception, have turned to one of the Big 3 manufacturers. The one exception is that towards the end of the relevant period the market share of Oil Lift increased (Exhibit P47, expert report Mr. Freeson, appeal book, tab 18, paragraph 93).

[74] Based on this knowledge of the market, Mr. Freeson testified that if the defendants’ infringing product was not on the market during the relevant period, “purchasers would have certainly considered purchasing a Gresco drive as they were known to have a high quality wellhead drive, and were market leaders particularly in the early 2000s.” The following non-exhaustive list of factors influenced “the buying decision for wellhead drives”: relationships with salespeople; braking systems; sealing systems; noise; costs (both capital and operating); and the

ease of installation and maintenance. Each factor had a varying level of influence over time (Exhibit P47, expert report Mr. Freeson, appeal book, tab 18, paragraphs 99, 100 and 101).

[75] The plaintiffs' drive was known to have an excellent braking system. While the drives tended to be more expensive, they were generally considered to be less expensive to install, operate and maintain. Foremen tended to prefer the plaintiffs' drives because of their ease of installation and maintenance which led to lower operating and maintenance costs (Exhibit P47, expert report Mr. Freeson, appeal book, tab 18, paragraphs 102 and 106).

[76] In Mr. Freeson's opinion, based on his personal knowledge of product offerings and the merits of available products, if the defendants were not in the market with their infringing drives, oil producers would have turned to the plaintiffs, Weatherford, or one of the other manufacturers. In his view, it was reasonable to assume that oil producers would have gone to these manufacturers in proportion to their relative market share after removing the defendants because there were no specific reasons why the defendants' customers would have preferred Weatherford, and later Oil Lift, over the plaintiffs (Exhibit P47, expert report Mr. Freeson, appeal book, tab 18, paragraph 124).

[77] In sum, on the issue of whether the Federal Court erred by relying upon the plaintiffs' historical market share to provide a reliable basis on which to calculate lost sales:

- i. The Federal Court correctly instructed itself on the test for causation.

- ii. The Federal Court referenced the *Alliedsignal* decision and the non-exhaustive list of the factors identified as being relevant to predicting what would likely happen in the “but for” market.
- iii. The Federal Court discussed a number of those factors, evidencing its understanding of the value of the patented drive and the market, so as to be able to assess the plaintiffs’ assertion that evidence of historical market share provided a reliable basis for assessing what would likely have happened in the hypothetical “but for” market.
- iv. The Federal Court accepted evidence about the product market, including Mr. Freeson’s evidence about the advantages of the plaintiffs’ drive, the competitors in the market, and the factors that influenced consumer-buying choices. In his view, based on his experience in the industry, there was no reason why the defendants’ customers would have preferred to buy a drive not manufactured by the plaintiffs.

[78] In my view, the appellants have not demonstrated any error of law that would warrant interference with the Court’s finding about the relevance of the plaintiffs’ historical market share. Nor have they demonstrated any palpable and overriding error of fact or mixed fact and law that would warrant intervention. There was sufficient evidence before the Court to support its finding that the plaintiffs’ historical market share provided a reliable basis on which to calculate the lost sales suffered by the plaintiffs. It follows that I would dismiss this ground of appeal.

[79] Related to this ground is the appellants' submission that the Federal Court erred by accepting the modified version of the plaintiffs' market share advanced by the plaintiffs in counsel's closing argument. I now consider this ground.

[80] The appellants argue that allowing the respondents "to file a new model during closing was prejudicial ... [i]t was too late to allow the respondents to disown their own expert and supply a new market share model after the appellants had closed their case. Had the third model been presented prior to trial, the appellants would have had an opportunity to call a different case to contest this new model." To the extent the Federal Court "did admit the proposal, the appellants should have been provided with an opportunity to have their expert review the model and provide a response. Further, cross-examinations and the right to re-open their case should likewise have been provided." (appellants' memorandum of fact and law, paragraphs 83, 84 and 87).

[81] I respectfully disagree.

[82] At paragraph 53 above I summarized in some detail the changes proposed to Schedule 3 during final oral argument. These changes to the market share calculation were then used to create the modified Schedule 2b referred to by the Federal Court.

[83] When the actual changes made to Schedule 2b are considered, in my view it is fair to say that no "new model" was created after the closing of evidence. Rather, adjustments were proposed to the data used in the existing model to calculate the estimated market shares of the

participants in the market during the relevant time frame. The changes were based on oral evidence adduced by representatives of Oil Lift, KUDU, and Brightling. Two of the witnesses who gave such evidence, Messrs. Hult of Oil Lift and Hall of Brightling, were witnesses called by the defendants. In any event, all witnesses were available to be examined or cross-examined by the defendants about the number of drive sales each witness was personally familiar with. I see no unfairness.

[84] The Federal Court was mindful of the frailties of Mr. Freeson's evidence about the sales and resulting market share of competitors other than the Big 3. After discounting this evidence at paragraph 100, the Court went on to conclude:

101. With the more accurate evidence produced at trial, the Court can examine the competing market analyses now put forward by the parties. This is not a case of no evidence being available but of evidence which can be used to draw reasonable conclusions.

[85] After reviewing generally the evidence about drive sales and the parties' positions on market share, the Court concluded "that the facts proven in this case, including by the Defendants' witnesses, support the modified Schedule 2b approach and calculation in respect of loss of profits on original drives." (reasons, paragraph 128).

[86] The appellants have not shown any palpable and overriding error in the Federal Court's appreciation of the evidence before it. Nor did the Federal Court err in accepting market share calculations that were consistent with the oral evidence adduced before it, even if the result did not precisely match any of the results and scenarios modelled by experts in their reports (*Apotex Inc. v. Sanofi-Aventis*, 2014 FCA 68, [2015] 2 F.C.R. 828, at paragraph 139 in dissent, but not on

this point, see paragraph 152). A trial court does not err by determining market share on the totality of the evidence.

[87] I now turn to the next issue in which the appellants assert that the Federal Court made a number of factual errors in its calculation of market share in the “but for” world relating to:

- a. the number of infringing units sold by the appellants;
- b. the sales of electric versus hydraulic wellhead drives from 2004 onward;
- c. international sales; and
- d. Weatherford’s sales.

Did the Federal Court make factual errors in its calculation of market share in the “but for” world?

- a. The number of infringing units sold by the appellants

[88] At trial, the parties agreed upon the number of infringing drive units sold by the defendants from 2005 to 2010 (reasons, paragraph 78). What was in issue was the number of units sold by the defendants from 2000 to 2004. Because the defendants’ sales records were ambiguous about whether a sale involved a drive unit that included an infringing stuffing box, the parties and their experts disagreed on the number of infringing drive units that were sold in these years. In his reply report, Exhibit P51, the plaintiffs’ expert Mr. Cohen concluded that the defendants had sold 2,751 infringing units. In his sur-reply report, Exhibit D85, the defendants’ expert Mr. Hall concluded that the defendants had sold 2,416 infringing drives, a difference of 335 units.

[89] The appellants base their submissions on the unit count issue on the following paragraphs of the reasons of the Federal Court:

[79] For 2000-2004, the two experts, Cohen for the Plaintiffs and Hall for the Defendants, disagree on the number of infringing drives that were sold. This is because a number of NOV's sales records are ambiguous as to whether an infringing stuffing box was included in the sale. The difference amounts to about 330 units (Cohen claims the larger number, 2,751 in total, as infringing; Hall claims that the Defendants sold 2,416 new drives and 80 used drives).

[80] The experts took different approaches in assessing the ambiguous sales records. Hall assumed that if the records did not indicate that the units were infringing, then those sales were not infringing. Cohen relied on his understanding that the "market was moving away from rope style stuffing boxes, and on a reconciliation that he had carried out to categorize these unlabelled sales as being infringing". This reconciliation attempted to match the number of units made to the number sold, and Cohen found a difference of about 2% (with more units being sold than made). When Hall's numbers were used this difference was much larger.

[81] Cohen outlined a number of the inclusion discrepancies in his Reply Report. He noted that for the sale of certain units, Hall had included that type of unit where it was indicated to be infringing but had excluded that same type if the description was silent on the matter (i.e. DH565K – 108 units; DH682K – 34 units). In my view, it is a safe conclusion that if some of those units were described as infringing, then the sales of all of those units were infringing – therefore, I accept Cohen's conclusion on these numbers. His approach is consistent with what was happening in the market whereas Hall's approach was unduly narrow.

[82] However, during cross-examination, it was established that certain of Cohen's numbers were incorrect. For example, the evidence showed that the invoices in Exhibit D-63 were of non-infringing sales. Further, Cohen's count included more infringing units than were made:

Under cross-examination, it was apparent that Mr. Cohen had actually included more infringing units than were made for the periods 2000-2001, 2002, 2003 and 2004. As noted in the chart below, Mr. Cohen counted: (1) 103 more units sold than made from 2000 to 2001; (2) 115 more units sold than made from 2000 to 2002; (3) 197 more units sold than made from 2000 to 2003; and (4) 127 more units sold than made from 2000 to 2004.

(Defendants' Closing Submissions.)

[83] The difference between the parties with respect to the number of infringing drives sold is relatively small. I agree that the evidence in this case was that the market was moving away from the rope style stuffing boxes. Further, the evidence clearly indicates that NOV did not sell any new drives with rope style stuffing boxes after 2006. Nonetheless, in my view, the Defendants have clearly established that Cohen's count is problematic in that it includes more units sold than were made. As no explanation for these discrepancies was provided by the Plaintiffs, I would accept Hall's count of new drives with the minor changes identified above.

[84] However, the error is small and consistent with the broad approach to the damages assessment. Although the Court will make some adjustment, it has no material impact.

(underlining added)

[90] The appellants argue that the Federal Court found that Mr. Cohen overestimated the number of infringing units sold by 193 units. On the basis of this finding, the appellants complain that no reasons are given for the conclusion that the "error is small" and had "no material impact". Further, they submit that it is unclear from the balance of the reasons whether the Court did make any adjustment to the damage calculation to take into account the unit count issue. While at paragraph 130 of the reasons the Federal Court adjusted the lost sales figures downward by \$68,000 on the basis of "the vagaries of the evidence and debatable cost elements as well as a 'broad axe' approach", no express reference is made to the unit count issue. Nor is any explanation provided as to why reduction of \$68,000 is appropriate or how it was calculated.

[91] The appellants assert that it "appears that the trial judge simply rounded down to the nearest hundred thousand."

[92] While I acknowledge that the Federal Court's reasons are terse, and would have benefited from a fuller exposition of the Court's reasoning, the appellants have not met the threshold of

demonstrating any palpable and overriding error with respect to the unit count issue. I reach this conclusion for the following reasons.

[93] To begin, the Federal Court made no express finding that Mr. Cohen overestimated the number of infringing units by 193 units. This is an inference the appellants ask this Court to draw from the statement “I would accept Hall’s count of new drives with the minor changes identified above.” (reasons, paragraph 83). To reach the figure of 193 units the appellants take Mr. Hall’s calculation that Mr. Cohen overestimated the number of units sold by 335 units and subtract from that 142 (said to be the number of units Mr. Hall was found to have undercounted at paragraph 81 of the Federal Court’s reasons) (*i.e.* $335 - 142 = 193$ units).

[94] This is not a fair or permissible inference to draw from the reasons. The Federal Court did not accept the accuracy of Mr. Hall’s unit count. While the Court did say at paragraph 83 that “I would accept Hall’s count”, this statement is immediately followed by the word “however”.

[95] The Court is explaining that if it was considering Mr. Cohen’s reconciliation error in isolation it would have accepted Mr. Hall’s evidence.

[96] That the Court did not accept Mr. Hall’s count is made clear at paragraphs 127 through 130 of the Court’s reasons:

[127] As I generally preferred the approach of Cohen as more realistic and balanced, as said before, I found the modified Schedule 2b from Cohen’s Reply Report to be very helpful. It was modified to take account of the evidence which developed at trial – including adjusting for the evidence of Oil Lift/Kudu which countered Freeson’s erroneous market share assumptions.

[128] I am satisfied, after detailed review, that the facts proven in this case, including by the Defendants' witnesses, support the modified Schedule 2b approach and calculation in respect of loss of profits on original drives.

[129] In summary, modified Schedule 2b establishes in the period 2000 to June 3, 2010:

Units sold by NOV – original drives	2,592
Estimated GrenCo's market share average	40.5%
Estimated Units lost by GrenCo	1,051
GrenCo's weighted average price per unit	\$10,955
Total original drive revenue	\$11,513,722
Estimated contribution margin	38.8%
Lost profit – original drive unit	\$4,468,000

[130] Given some of the vagaries of the evidence and debatable cost elements as well as a "broad axe" approach, I consider that on this matter the proper award should be \$4,400,000.

(underlining added)

[97] In these paragraphs the Court accepts a unit count of 2,592 original drive units, based upon Mr. Cohen's evidence, as modified to take into account the evidence given at trial (as explained in detail above at paragraph 53).

[98] This conclusion was based upon the Court's clearly expressed preference for Mr. Cohen's approach to the defendants' ambiguous sales records. Mr. Hall had assumed that if ambiguous records did not indicate that a unit sold was an infringing unit the sale was not infringing (reasons, paragraphs 80 and 81). The Court was entitled on the evidence to prefer the evidence of Mr. Cohen whose approach was "consistent with what was happening in the market" as opposed to Mr. Hall's "unduly narrow" approach (reasons, paragraph 81). I have previously found no error of law or palpable and overriding error of fact in the Court's acceptance of the modified Schedule 2b approach.

[99] Further, it is important to look carefully at the Court's finding, at paragraph 82 of the reasons that Mr. Cohen's "count included more infringing units than were made".

[100] Having calculated the number of infringing units sold, "in order to test the reasonableness" of his findings of total infringing sales by the defendants, Mr. Cohen calculated the number of infringing units manufactured by the defendants during the period 2000 to 2010 and compared this number to the number of infringing units Mr. Cohen had calculated.

[101] As Exhibit D61C (appeal book, tab 88) makes clear, the error quoted by the Federal Court at paragraph 82 of its reasons occurred as part of this reconciliation exercise when Mr. Cohen compared hand-written inventory lists to his unit count.

[102] And, contrary to what the Court wrote at paragraph 83 of its reasons, on re-examination Mr. Cohen did provide an explanation for the apparent discrepancies relating to the

reconciliation exercise (re-examination Mr. Cohen, appeal book, tab 117, page 4269, line 27 to page 4271, line 18).

[103] Finally, in closing on this point, the action for patent infringement was commenced in 2001. The difficulty in determining the number of infringing units the defendants sold from 2000 through to 2004 was the direct result of the defendants' failure to maintain complete, accurate and unambiguous records of its sales. It was in this context that the Court rejected Mr. Hall's opinion on the number of infringing sales.

[104] I would dismiss this ground of appeal.

b. The sales of electric versus hydraulic wellhead drives from 2004 onward

[105] At paragraph 53(iii) above I explained two significant changes to the drive market in Canada that took place in 2004, and the modifications made to Schedule 2b of the Cohen report that led to the "modified" Schedule 2b. The changes in the drive market were the availability of the defendants' non-infringing hydraulic drive, the SAI drive, and the increased number of sales made by Oil Lift and KUDU. The first change was reflected in Mr. Cohen's reply report (at paragraph 80). As a result of evidence adduced at trial, further changes were made to reflect higher sales made by Oil Lift, KUDU and Brightling. Evidence about Oil Lift's sales was given by Mr. Hult, an owner and cofounder of the company. His testimony included evidence that 75% or more of the drives sold by Oil Lift were for hydraulic applications only.

[106] The appellants argue that by removing all of Oil Lift's hydraulic drive sales from the market for the years 2004 to 2010 the respondents created an "electric drive" market, but only for two market participants: the appellants and Oil Lift. The appellants say that the Federal Court gave no reasons for rejecting their submission that this distinction was not applied to all market participants and that if the respondents "had applied this distinction uniformly, a reduced damage figure would likely have resulted." (appellants' memorandum of fact and law, paragraph 113).

[107] Again, in my view the appellants have failed to demonstrate any palpable and overriding error. No adjustment was required for drive sales made by the other market participants, Weatherford, KUDU and Brightling, because their drives could be used in either electric or hydraulic wellhead installations (Re Weatherford: cross-examination Mr. Roland Moneta, appeal book, tab 115, page 3844, line 25 to page 3845, line 17; Re KUDU: Exhibit P73; appeal book, tab 57, Re Brightling: cross-examination Mr. Craig Hall, appeal book, tab 119, page 4462, lines 8 to 16).

[108] It was open to the Federal Court to conclude that separating hydraulic units from electric units was not only logical, but this approach avoided likely under compensation of the plaintiffs for infringement (reasons, paragraph 110). The Federal Court's conclusion also took into account that the defendants' expert Mr. Hall used a similar model in a non-infringing alternative scenario where the SAI stuffing box was found by the Court to be a non-infringing alternative for hydraulic drives only. In this scenario Mr. Hall addressed Mr. Cohen's approach to separating out hydraulic sales without expressing any concern about the approach (Exhibit D85, sur-reply report Mr. Hall, appeal book, tab 27, at paragraph 69 and Attachment 47R).

[109] I would dismiss this ground of appeal.

c. International sales

[110] At trial there was general agreement that the international market was different from the Canadian market. Rope style stuffing boxes were more popular in areas with less stringent environmental regulations. Further, it was more difficult for environmentally friendly stuffing boxes to be serviced abroad.

[111] The appellants submit that at trial the respondents sought a lost profits remedy in respect of the appellants' international sales. The appellants also submit that the respondents included their own international sales as part of their claim to market share; however, the respondents did not include their competitors' international sales. This is said to have unfairly skewed the respondents' lost sales figures and the resulting market share calculation. By adopting the modified Schedule 2b the Federal Court is said to have committed palpable and overriding errors that resulted in overcompensation of the respondents because of the treatment of international sales.

[112] The appellants also assert that the Federal Court's failure to address the issue of international sales in its reasons was an error of law.

[113] It would have been optimal if the Federal Court had dealt with the issue of international sales in its reasons. However, this failure may well be attributable to the fact that the defendants apparently advanced a different argument at trial about international sales.

[114] At trial, after observing that Mr. Cohen utilized sales figures that included the international sales of GrenCo and Corlac, the defendants argued that a “tactical decision was made by the plaintiffs not to distinguish between the defendants’ Canadian and international sales in their expert reports. The plaintiffs also did not distinguish between the Canadian and international sales of Grenco when creating their market share study.” (written closing submissions of the defendants, appeal book, tab 128, paragraphs 150 and 152).

[115] The defendants then stated that they had “relied upon the position taken by the plaintiffs in preparing for trial and have not argued that the defendants’ international sales should be treated differently.” (written closing submissions of the defendants, appeal book, tab 128, paragraph 153). The defendants went on to develop the argument that the market included rope style stuffing boxes.

[116] This was an argument rejected by the Federal Court. The Federal Court found that the “market in which GrenCo operated and in which the Defendants sought to operate through their infringing products was environmentally friendly wellhead drives for general application in the oil industry.” (reasons, paragraph 45). At paragraph 105 of its reasons the Federal Court reinforced this finding:

With respect to market share, the focus should be on what customers of the Defendants would have done if the Defendants’ infringing products were not on the market. Based on their real world purchases, such customers were looking for an “environmentally friendly” option – therefore, I find the Defendants’ inclusion of and focus on rope style stuffing boxes to be misplaced. It distorts the market share analysis and is contrary to the product market already described. The market at issue is the “environmentally friendly stuffing box market”.

[117] As the issue the appellants now seek to argue does not appear to have been put to the Federal Court, it cannot be said that the Federal Court erred in law by failing to address the issue. In any event, to the extent the issue is properly before this Court, it is not an issue that is supported by evidence that would permit a finding of palpable and overriding error on the part of the Federal Court.

[118] Mr. Hall was alive to the presence of international sales. For example, in his first report, Exhibit D84, he takes issue at paragraph 41 with Mr. Cohen's assumption that all of the defendants' sales data are stated in Canadian dollars. He notes that some sales included transactions stated in US dollars (apparently reflecting sales made to the United States). Attachments 7, 9, 11, 13 and 27 to his report state that Corlac's sales denominated in foreign currencies were converted to Canadian dollars. Attachment 22, relating to GrenCo's income statement, shows foreign exchange as another source of income.

[119] While mindful of the presence of international sales, at no point did Mr. Hall take issue with how foreign sales were included in the calculation or opine that foreign sales would materially affect the determination of market share.

[120] In the absence of evidence that permits a finding of palpable and overriding error, I would dismiss this ground of appeal.

d. Weatherford's sales

[121] As explained above, Weatherford was licensed to sell the GrenCo drive. It was once a party to this litigation. While a party, Weatherford prepared and produced database records to show sales of royalty-bearing products under the GrenCo license. These were admitted as Exhibits P56 and P57 at the damages hearing. Because the documents were prepared for the purpose of litigation the documents were not admissible as business records.

[122] Mr. Cohen relied upon Exhibits P56 and P57 to estimate Weatherford's market share. Mr. Hall did not. Instead, Mr. Hall calculated Weatherford's sales based upon the royalty payments it made.

[123] At trial, the Federal Court admitted Exhibits P56 and P57 into evidence to prove the truth of their contents. In doing so, the Court overruled the defendants' objection that the witnesses who purported to identify the documents could not speak to the accuracy of the data contained in them. The data was said, therefore, to be impermissible hearsay evidence.

[124] The Federal Court did not deal with this issue in its written reasons. The following explanation for receiving the Exhibits appears from the trial transcript:

MR. REGAN: We would like to conduct a bit of cross-examination on this witness with respect to these documents. Either we can provisionally mark them now for identification and then argue the point –

JUSTICE PHELAN: Why would they be for identification? He says he supervised them, organized the collection of them. You can certainly cross-examine this but why would they –

MR. REGAN: Our understanding is he isn't the person who actually pulled the data. He is not the person who actually created this document. He can't testify to whether or not it was pulled accurately, whether they received anything or whether it is really a document we can rely upon. In our view, it is not admissible. He can't testify and authenticate this document.

JUSTICE PHELAN: On that theory that in any accounting records that come up, you would have to call the most junior person and everyone else in the chain who touched it to prove continuity of control of the document as if it was a drug case. That is not the standard. I am not going to -- this is going to go in as an exhibit. You can poke all the holes in it and end up saying this is a witness who doesn't know anything about it and give it no weight, but he has identified it. It is perfectly appropriate. It is going in.

(direct examination Mr. Gazdewich, appeal book, tab 117, page 4183, lines 1 to 25)

[125] On appeal, the appellants argue that the Federal Court erred in law and made a palpable and overriding error in receiving the exhibits to prove the truth of their contents.

[126] The plaintiffs initially sought to tender the documents into evidence through the testimony of Roland Moneta, a senior applications technologist at Weatherford. His testimony was to the effect that the document was assembled under the direction of Mr. Gazdewich, Weatherford's Canadian operations controller, who "should have come up with all the correct information for this document." (direct examination Mr. Moneta, appeal book, tab 115, page 3824, lines 8 through 20). The Federal Court did not accept that the documents were properly identified through Mr. Moneta and required that Mr. Gazdewich testify. He did.

[127] Mr. Gazdewich testified that Exhibits P56 and P57 were put together by three people: himself, a consultant he engaged (James Allan) and an information technology person.

Mr. Gazdewich was in charge of the group, oversaw their work and had final sign off on the data

collection (direct examination Mr. Gazdewich, appeal book, tab 117, page 4181, line 21 to page 4182, line 17). Mr. Gazdewich identified a document entitled “Discovery Plan Weatherford Data Capture & Analysis Procedure” (Exhibit P58, appeal book, tab 43) which set out the process to be followed in identifying and reporting on all relevant sales revenue or purchase cost transactions.

[128] The Discovery Plan required data to be extracted from the financial database by “ShowCase, a separate query and reporting application.” This function was to be completed by Mr. Gazdewich. The Plan also required Mr. Gazdewich to import the ShowCase query results into an MS Excel workbook via an automatic extraction function within ShowCase. Formulae testing for the scope and accuracy of the results were to be reviewed and approved by Mr. Gazdewich.

[129] Mr. Gazdewich confirmed that he reviewed and approved all reports generated in response to the Discovery Plan prior to their submission. He testified that at the time Exhibits P56 and P57 were prepared he “was satisfied that the set was full of complete information.” Further, he never heard any comments about the completeness of the document set (direct examination Mr. Gazdewich, appeal book, tab 117, page 4187, lines 13 through 21).

[130] I infer that the totality of this evidence satisfied the Federal Court that little would be gained by requiring Mr. Allan, the consultant, to testify. Indeed, the appellants acknowledge that “[a]t best, the trial judge’s finding that it was unreasonable to require the respondents to call

three witnesses amounted to an assessment of the criteria of necessity.” (appellants’ memorandum of fact and law, paragraph 97.)

[131] The nub of the appellants’ submissions on this issue go to the reliability of Exhibits P56 and P57. The appellants point to the following errors:

- Exhibit P56 does not include all part numbers for products on which royalties were paid (direct examination Mr. Gazdewich, appeal book, tab 117, page 4190, lines 1 to 28).
- Data is missing on Exhibits P56 and P57. No data appears on Exhibit P56 for the period from January to September 2003 (cross-examination Mr. Gazdewich, appeal book, tab 117, page 4196, lines 3 to 16).
- While Exhibit P57 was supposed to be a summary of Exhibit P56, the documents show different unit counts for part number 495894. The unit counts should be the same on each document (cross-examination Mr. Gazdewich, appeal book, tab 117, page 4193, line 23 to page 4195, line 4).

[132] While the Federal Court stated when receiving Exhibits P56 and P57 into evidence that the defendants could challenge the weight to be given to the data set out in the Exhibits, and while the defendants argued at trial that the data was unreliable and should be given no weight, the Federal Court did not deal in its reasons with the reliability of the Weatherford data as expressed in Exhibits P56 and P57.

[133] Faced with evidence to support the conclusion that the data, or at least some of the data, contained in Exhibits P56 and P57 was unreliable and ought not to have been given any weight, the question for this Court is whether the appellants have demonstrated that the Federal Court committed a palpable and overriding error in receiving Exhibits P56 and P57 into evidence to prove the truth of their contents.

[134] Palpable and overriding error is a highly deferential standard of review (*Canada v. South Yukon Forest Corporation*, 2012 FCA 165, 431 N.R. 286 at paragraph 46, citing *H.L. v. Canada (Attorney General)*, 2005 SCC 25, [2005] 1 S.C.R. 401; *Peart v. Peel Regional Police Services* (2006), 217 O.A.C. 269, 2006 CanLII 37566 (C.A.); and, *Waxman v. Waxman* (2004), 186 O.A.C. 201, 2004 CanLII 39040 (C.A.)).

[135] A palpable error is one that is obvious. An overriding error is an error that goes to the outcome of the case.

[136] To demonstrate the materiality of the error the appellants argue that:

- During the seven-month period from January to September 2003 when data was missing from Exhibits P56 and P57, Weatherford paid over \$100,000 in royalties.
- The difference between Mr. Hall's and Mr. Cohen's estimates of the number of drives sold is significant. They repeat the argument that Mr. Cohen over counted the number of new drive units sold by 193 units.

[137] There are a number of difficulties with these arguments:

- Royalty amounts were booked when units were manufactured, not sold, by Weatherford (direct examination Mr. Moneta, appeal book, tab 115, page 3829, line 18 to page 3830, line 6).
- The royalty reports Mr. Hall relied upon did not show the units for which royalties were applied. Different royalty rates applied to different units. Therefore, Mr. Hall took the total royalty payments and divided this amount by the highest and lowest potentially available royalty rate to obtain a range of units. Mr. Hall then used the midpoint of the range to calculate his estimate of the number of units sold. For 2003, the year with the missing data, he calculated the number of drives sold by Weatherford to be between 676 and 1,095 units (a very great range) and selected the midpoint of 885 units. Mr. Cohen had calculated Weatherford sold 215 units in this year. (Exhibit D84, reply report Mr. Hall, appeal book, tab 26, paragraph 49, and Attachment 16; see also Attachment 16R to his sur-reply report, Exhibit D85, appeal book, tab 27).
- An analysis based on royalty payments does not take into account warranty issues. There were several failures of stuffing boxes and complete drive heads sold by Weatherford. Drive head exchanges or replacements were given either as goodwill or as a warranty or exchange. Royalties were paid irrespective of whether a drive or stuffing box was given as a warranty or exchange or sold. (direct examination Mr. Moneta, appeal book, tab 115, page 3830, line 24 to page 3831, line 16).
- Mr. Hall did not have access to data relevant to Weatherford's warranty issues. (cross-examination Mr. Hall, appeal book, tab 121, page 4735, line 27 to page 4736, line 2).

[138] The wide divergence in Mr. Hall's and Mr. Cohen's estimates of the units sold in 2003 is troubling, given the apparent gap in the data in Exhibits P56 and P57. However, in earlier years, 2001 and 2002 Mr. Cohen's analysis resulted in Weatherford being credited with more sales (and a resultant larger market share) than Mr. Hall's analysis did. For example, in 2001 Mr. Cohen estimated Weatherford's sales to be 692 units as opposed to Mr. Hall's estimate of 410 units. For 2002, Mr. Cohen estimated Weatherford's sales to be 687 units as opposed Mr. Hall's estimate of 606 units.

[139] Mr. Hall's approach relied upon royalty payments as a proxy for sales. However, he did not have access to highly relevant information (the actual royalty rate applicable to the equipment sold and information on warranty issues). Therefore his approach was problematic. In this circumstance the appellants have not demonstrated that the Federal Court made a palpable and overriding error in rejecting Mr. Hall's approach and relying upon Mr. Cohen's calculations to the extent they were based on Exhibits P56 and P57. The appellants have not established an obvious error that would have materially affected the outcome.

[140] This is particularly so where the "but for" world requires the application of common sense in circumstances where loss is not "capable of correct appreciation in stated figures." (*Teva Canada Limited v. Janssen Inc.*, paragraph 36). I would dismiss this ground of appeal.

[141] I now turn to the next issue.

Did the Federal Court err by finding that the appellants' infringing sales caused the respondents to lose "convoyed" sales?

[142] "Convoyed" products are those products that are typically sold with, or as a result of, the sale of a patented product. Convoyed products are not themselves protected by the patent. Convoyed sales are also referred to as associated sales or add-ons.

[143] An entity claiming under a patent is "entitled to damages assessed upon the sale of non-infringing components when there is a finding of fact that such sale arose from infringing the patented component." (*Beloit Canada Ltd. v. Valmet-Dominion Inc.*, [1997] 3 F.C. 497, at pages 551 to 552, 214 N.R. 85, at page 120, (F.C.A.).

[144] As this Court stressed in *Beloit*, what is required is a finding, based on the evidence, that non-infringing add-ons were sold because of, and only because of, the sale of infringing items.

[145] The Federal Court correctly directed itself to this test at paragraphs 156 and 163 of its reasons. To find that the plaintiffs were entitled to damages in the amount of \$750,000 in respect of lost profit on convoyed sales the Court reasoned as follows (headings omitted):

[157] In this case, the evidence indicated that a number of products were commonly sold with GrenCo drives, such as "drive caps, clamps, wellheads, power transmissions, chemical pumps, recirculation pumps, electric motors, flow-tees, generators, drive caps, sheaves, bushings, belts, prime movers (engines), skids (which includes a hydraulic pump and hydraulic tank), enclosures, quiet shacks, tubing rotators, and variable frequency drives and enclosures (optional), and tubing rotators". These products were not marketed independently of the drives.

[158] It was common for oil producers to purchase a surface equipment "package" from one manufacturer, although producers also purchased different components from different manufacturers. Other manufacturers, including the

Defendants, sold convoy products with their driveheads. The Plaintiffs submit that “[t]he lost sales of convoy products was foreseeable and was a consequence of the business model of GrenCo as well as its competitors in the industry”.

...

[164] I conclude that a common sense view of causation indicates that these products were convoyed sales that, on a balance of probabilities, would have been made by the Plaintiffs but-for the infringement by the Defendants.

[165] I agree with the Defendants that the purchase of “associated products” was up to the customer and that certain products could be interchangeable. However, in my view, the evidence amply demonstrates that associated products were often (but not always) purchased with a drive. As discussed below, I find that Cohen’s model is capable of covering off the concern that not all sales of drives would include convoyed products by making a deduction from his estimated loss.

...

[166] Cohen’s approach of looking at the average revenue GrenCo would have received on the sale of a new drive and the historic [*sic*] average contribution margin is more reasonable than the Defendants’ approach. Cohen’s approach takes into account the fact that producers sometimes sourced “convoy” products from other manufacturers.

[167] As discussed above with respect to variable costs and contribution margin, I accept Cohen’s numbers as more reflective of GrenCo’s situation.

[168] Cohen has estimated that there were 1,051 lost units of convoy sales. Accepting that not all drive sales lead to [the] sale of associated product but such was often the case, there must be a deduction from Cohen’s estimated sales. The evidence suggests that convoyed sales happened the majority of the time but not always, and taking the “broad axe” approach, I would use the mid-point between 50% and 100% to find that 75% of drive sales lead to convoy sales.

[169] Using Cohen’s Schedule, I conclude that the lost profit on convoyed sales is estimated as \$750,000 – the amount of the award for this item of damages.

(underlining added)

[146] Before considering the appellants’ submissions on this issue, it is helpful to understand how Mr. Cohen approached convoyed sales. He explained his approach in his initial report (Exhibit P50, appeal book, tab 21) as follows (headings and footnotes omitted):

82. During the Infringement Period, Grenco would have received additional revenues and profits for complementary products sold in conjunction with each original drive sale, as detailed in our calculations described below.

83. Based on our analysis, we have assumed that Grenco would have earned revenues and profits from convoy sales with each lost original drive unit (see Section 4.3.1. and Appendix E).

84. Grenco's average contribution margin for a typical convoy sale for each year was calculated, based on Grenco's sales data, to range from between \$364 to \$2,550 during the Infringement Period (see Schedule 9).

85. We multiplied the number of estimated lost original drive units by Grenco's weighted average contribution margin from the convoy sales products to arrive at a total lost contribution margin of approximately \$1.6 million (see Schedule 2).

86. In calculating the average contribution margin per convoy sale package we analyzed the Grenco sales data as follows:

- (a) We isolated invoices which related to only original drive sales;
- (b) We removed the original drive component from the invoices, as well other miscellaneous items which may not relate direct to the drive sale (i.e., labour, freight, surcharges and duties, miscellaneous, etc.);
- (c) We quantified the estimated total contribution margin for the remaining items, being total incremental revenue less total incremental average cost and estimated freight charges; and
- (d) We divided the annual estimated total contribution margin remaining by the quantity of drives sold annually with the isolated convoy sales, to determine Grenco's weighted average contribution margin per original drive sale.

87. Based on the above, Grenco's total estimated lost profits on convoy sales from the estimated lost original drive sales made by NOV, of [sic] approximately \$1.6 million. (see Appendix E).

[147] Parenthetically, at trial these figures were revised in the modified Schedule 2b. The number of units estimated to be lost was reduced to 1,051, which led to lost profits in the amount of \$1,078,000.

[148] In his sur-reply report (Exhibit D84, appeal book, tab 26) Mr. Hall objected that Mr. Cohen's approach gave no specific identification of the products generally sold with a drive, and that no causal connection was made between conveyed or associated sales and the sale of an infringing drive.

[149] Mr. Cohen responded to this criticism in his reply report (Exhibit P51, appeal book, tab 22) at paragraph 60, expressing his understanding that "items included on an invoice that also [have] a drive listed are typically part of a 'package' as referred to in the Freeson Report." Reference was made to paragraphs 142 to 146 of the Freeson report.

[150] At paragraphs 142 and 143 of his report (Exhibit P47, appeal book, tab 18) Mr. Freeson stated:

142. Oil producers regularly purchased products in a package, often including a wellhead drive. As discussed above, the driver for purchasing such product packages has evolved over time. In the 80s and 90s, the PC pump was the product first selected by oil producers, with the remaining products being "thrown in". Once a pump was selected from a particular manufacturer, oil producers would often purchase the other equipment from that same manufacturer, if available. In the mid to late 90s (i.e., with the introduction of Grenco's drives with new style polish rod sealing systems), oil producers began buying equipment from multiple vendors for any given project. A common occurrence throughout the late 1990s and 2000s was for oil producers to separately request bids for a package of surface equipment and a package of downhole equipment. It was common during this time period for one manufacturer to win a bid for the surface equipment package while another manufacturer won the bid for the downhole equipment. This practice continued until the end of 2010.

143. Throughout the 2000-2010 time period, wellhead drives were broadly categorized as either electric drives (powered by generators or the power grid) or hydraulic drives (powered by hydraulic pumps and motors). Each of these drive categories came with a slightly different package of equipment. For example, with respect to new well setups or reactivation operations:

(a) Electric drives were almost always sold with an electric motor, a flow-tee, a generator (optional), a drive cap (optional), sheaves, bushings, belts, and variable frequency drives and enclosures (optional), and tubing rotator (optional).

(b) Hydraulic drives were almost always sold with a [prime] mover (engine), skid (which includes a hydraulic pump and hydraulic tank), flow-tee, enclosure, quiet shack (optional), a drive cap (optional), and tubing rotator (optional).

(underlining added)

[151] With that background, I now turn to the appellants' submissions. Their most salient submission is that "[s]imply because a non-infringing product appears on the same invoice as a drive is not sufficient to establish causation." (footnote omitted).

[152] The appellants argue that, while at paragraphs 157, 158 and 165 of its reasons the Federal Court discussed the products "commonly" sold with the respondents' drives, the Federal Court never analyzed whether the sale of an infringing drive caused the sale of other products.

[153] I agree. In *J.M. Voith GmbH v. Beloit Corp.*, [1993] 2 F.C. 515, at page 550, 61 F.T.R. 161, at page 182, the trial judge reasoned as follows with respect to the issue of associated sales (at pages 550 to 551 of the Federal Court Reports):

I cannot accept the defendants' contention that an award of damages to the plaintiff should be limited to the press section of a paper machine and not beyond, in those instances where the defendants actually sold an entire machine. The case law does not support a restriction of the measure of damages to the loss of profits attributable to the patented article itself. If, in the normal course of a patentee's trade, the patented article is sold by itself, this may well be all he is entitled to. However, where the patented article is not always or necessarily sold by itself, it is reasonable to assume that the damage to the patentee lies, not merely in loss of profits attributable to the article itself, but in selling the articles in which he trades, in the present case, paper machines with triple-nip press sections. Indeed, this was the position taken by the Supreme Court of Canada in *Colonial Fastener Co. Ltd. v. Lightning Fastener Co. Ltd.* ...

(underlining added)

[154] This reasoning, similar to that employed by the Federal Court in this case, was rejected by this Court on appeal:

We are unable to agree with the Trial Judge’s statement that “where the patented article is not always or necessarily sold by itself, it is reasonable to assume that the damage to the patentee lies . . . in selling the articles in which he trades.” As shown in the preceding review of the jurisprudence, the scope of damages to which a patentee is entitled is not based upon an assumption but rather on a finding of fact. The reasons of the Trial Judge do not, in our respectful view, contain a specific finding based on evidence that non-infringing component parts of machines were sold because the infringing press sections were sold with them. We must conclude from the record, therefore, that the Trial Judge erred in directing that VDI must pay damages based on other components with which the press sections were sold rather than on the press sections alone.

(underlining added)

(*Beloit*, FCA at page 552 of the Federal Court Reports, page 120 of the National Reporter)

[155] The same approach was taken by the English Court of Appeal in *Gerber Garment Technology Inc. v. Lectra Systems Ltd.*, [1997] R.P.C. 443 at page 456:

It does not follow that, if customers were in the habit of purchasing a patented article at the patentee’s supermarket, for example, he could claim against an infringer in respect of loss of profits on all the other items which the customers would buy in the supermarket but no longer bought. The limit there would be one of causation, or remoteness, or both.

(underlining added)

[156] In relying on evidence that “a number of products were commonly sold with GrenCo drives” (reasons, paragraph 157) and that unspecified “associated products were often (but not

always) purchased with a drive” (reasons, paragraph 165) to establish causation the Federal Court erred in law.

[157] Additionally, Mr. Cohen’s estimation of lost convoyed sales was flawed.

[158] First, Mr. Cohen’s approach to convoyed sales relied upon the opinion of Mr. Freeson. However, Mr. Freeson gave no evidence that he had personal knowledge of what, if any, associated items a customer of Corlac would have likely purchased if the defendants’ infringing drives were not available. Mr. Freeson’s report also suggests that many of the “packages” Mr. Cohen relied on contained a number of items that were optional. No particular package was sold with a drive.

[159] Second, Mr. Cohen’s approach to convoyed sales also ignored the requirement of causation. His report failed to identify what products were included as add-ons. The plaintiffs had acknowledged that there was no standard package of add-ons sold with drives. Mr. Cohen therefore assumed that everything that was sold on the same invoice as a drive was an associated sale (cross-examination Mr. Cohen, appeal book, tab 117, page 4266, lines 10 through 21). As a result, Mr. Cohen’s approach included items such as rotors and stators as add-ons. The plaintiffs did not claim that these items were add-ons.

[160] In view of the Federal Court’s error in law and the flaws in Mr. Cohen’s approach and report, the question for this Court is whether this Court can determine the issue of convoyed sales on the record.

[161] The appellants presented evidence about how variable and idiosyncratic conveyed sales were.

[162] On cross-examination Mr. Grenke simply expressed the position that the desirability of the GrenCo drive with its patented seal assembly put the plaintiffs “in a position to be able to sell these other products.” (cross-examination Mr. Grenke, appeal book, tab 114, page 3799, lines 12 through 21). This falls far short of establishing that because a drive was sold a sale of associated items would result.

[163] Skids, VFDs and electric motors were treated as add-ons. Mr. Grenke admitted that the plaintiffs invoiced skids when no drive was invoiced, and that the plaintiffs sold variable frequency drives (VFDs) and electric motors when no drive was sold. Mr. Grenke admitted that customers may have bought VFDs for use in a competitor’s drive (appeal book, tab 114, page 3802, line 4 to page 3803, line 18). He admitted as well that the plaintiffs sold drives without any add-ons (appeal book, tab 114, page 3809, lines 7 to 9 and 22 to 25).

[164] The Federal Court accepted that the decision whether to purchase associated products was in every case up to the customer (reasons, paragraph 165).

[165] The evidence also established that many customers, including large companies such as Husky, CNRL and Penn West, tendered bids for a “package” of components and awarded separate contracts for each component (direct examination Mr. Denis Blaquiere, appeal book, tab 119, page 4390, line 14 to page 4393, line 15; direct examination Mr. Jared Kaluski, appeal

book, tab 118, page 4344, line 19 to page 4345, line 2; direct examination Mr. Aaron Shaw, appeal book, tab 120, page 4507, line 18 to page 4509, line 5).

[166] There was also evidence that some products were sought out by customers because of the product's individual benefits. One example was KUDU's quiet skids (*i.e.* skids in a box to suppress noise) (cross-examination Mr. Darin Austin, appeal book, tab 120, page 4497, line 3 to page 4498, line 7). The respondents' drives were therefore sometimes purchased with a competitor's skids.

[167] In circumstances where there was no standard package of add-ons and customers chose to buy some or no additional items, the plaintiffs failed to demonstrate in the "but for" world Corlac customers who chose to buy a GrenCo drive instead would, because of that purchase, also purchase associated items.

[168] I also find that because of the flaws identified above, Mr. Cohen's purported quantification of the loss of convoyed sales was so flawed that it did not reliably quantify any loss and so could not be relied upon for that purpose.

[169] For these reasons I would award no damages in respect of the claim of lost convoyed sales.

[170] I now turn to the final issue raised by the appellants.

Did the Federal Court err by accepting the respondents' witness Shane Freeson as a properly qualified expert witness?

[171] While the appellants “do not believe that the opinion evidence of Mr. Freeson played any significant role in the decision of the trial judge.” (appellants’ memorandum of fact and law, paragraph 139), they submit that, to the extent that it did, the Federal Court erred by accepting Mr. Freeson as a properly qualified expert and by relying in any way on his opinion.

[172] I share the belief that the discredited opinion evidence of Mr. Freeson played no material part in the decision of the Federal Court. There is, therefore, no merit in this ground of appeal.

Conclusion

[173] For these reasons, I would allow the appeal in part. I would wholly set aside the damage award in the amount of \$750,000 on account of the lost profit on convoyed sales. In all other respects I would dismiss the appeal.

[174] The issue of costs in the Federal Court is not before us. As the respondents were substantially successful on this appeal I would order the appellants to pay the costs of the appeal to them.

[175] The reduction of the damage award by \$750,000 will impact the calculation of pre-judgment interest in circumstances where the appellants have satisfied the judgment of the Federal Court. I would therefore return this matter to the Federal Court for the purposes of

revising the award of pre-judgment interest and ordering the repayment of the appropriate amount to the appellants.

[176] Finally, these reasons are being released on a confidential basis to allow the parties to make submissions as to what, if any, confidential information must be redacted from these reasons before they are released publicly. Such submissions must be served and filed within seven days of the date of these reasons.

“Eleanor R. Dawson”

J.A.

“I agree.

Donald J. Rennie J.A.”

“I agree.

Marianne Rivoalen J.A.”

APPENDIX

“Schedule 2B” from Cohen Report (reply) [AB22]

ESTATE OF EDWARD GRENKE ET AL V. DNOW CANADA ULC ET AL
 Estimate of Grenco's Financial Losses (Non-Infringing Alternative Scenario)
 For the Period January 1, 2000 to June 3, 2010

Schedule 2b

	Notes/Ref.	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Jan1-Jun3 2010	Total
Original Drives													
Lost Profits													
Units sold by NOV - Original Drives	Appendix E	488	420	424	427	115	178	243	150	121	20	6	2,592
Estimated Market Share - Grenco (%)	Schedule 3	43.4%	37.5%	29.6%	61.5%	36.0%	49.3%	48.2%	53.0%	75.5%	65.8%	58.5%	46.0%
Estimated Units Lost by Grenco		212	158	126	262	41	88	117	80	91	13	4	1,192
Weighted Average Price Per Unit - Grenco	Schedule 5	\$ 10,924	\$ 11,831	\$ 11,966	\$ 10,760	\$ 9,969	\$ 10,020	\$ 10,148	\$ 10,393	\$ 11,034	\$ 10,685	\$ 9,639	\$ 10,908
Total Original Drive Revenue		2,315,888	1,869,298	1,507,716	2,819,120	408,729	881,760	1,187,316	831,440	1,004,094	138,905	38,556	13,002,822
Estimated Contribution Margin - Grenco (%)	Schedule 6	37.4%	35.3%	33.0%	50.0%	41.2%	39.5%	35.6%	33.5%	39.5%	36.7%	34.4%	39.3%
Lost Profits - Original Drives, Rounded	A	\$ 866,000	\$ 661,000	\$ 498,000	\$ 1,409,000	\$ 168,000	\$ 348,000	\$ 423,000	\$ 278,000	\$ 396,000	\$ 51,000	\$ 13,000	\$ 5,111,000
Grenco's Total Losses													
Scenario A - Low (8% Royalty Rate)	K=Σ(A,B,D;G,I)	\$ 1,149,000	\$ 981,000	\$ 882,000	\$ 1,979,000	\$ 492,000	\$ 759,000	\$ 1,254,000	\$ 818,000	\$ 1,093,000	\$ 769,000	\$ 233,000	\$ 10,409,000

“Modified Schedule 2B” from Appendix B to GrenCo's Closing Trial Submissions [AB127]

ESTATE OF EDWARD GRENKE ET AL V. DNOW CANADA ULC ET AL
 Estimate of Grenco's Financial Losses (Non-Infringing Alternative Scenario)
 For the Period January 1, 2000 to June 3, 2010

Schedule 2b (Based on CHS Model)

	Notes/Ref.	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Jan1-Jun3 2010	Total
Original Drives													
Lost Profits													
Units sold by NOV - Original Drives	Appendix E	488	420	424	427	115	178	243	150	121	20	6	2,592
Estimated Market Share - Grenco (%) (Revised from CHS Model)	Schedule 3 (Revised)	46.4%	38.2%	30.1%	46.9%	33.0%	43.3%	40.2%	39.2%	44.7%	44.7%	35.2%	40.5%
Estimated Units Lost by Grenco		227	160	127	200	38	77	98	59	54	9	2	1,051
Weighted Average Price Per Unit - Grenco	Schedule 5	\$ 10,924	\$ 11,831	\$ 11,966	\$ 10,760	\$ 9,969	\$ 10,020	\$ 10,148	\$ 10,393	\$ 11,034	\$ 10,685	\$ 9,639	\$ 10,955
Total Original Drive Revenue		2,479,748	1,892,960	1,519,682	2,152,000	378,822	771,540	994,504	613,187	595,836	96,165	19,278	11,513,722
Estimated Contribution Margin - Grenco (%)	Schedule 6	37.4%	35.3%	33.0%	50.0%	41.2%	39.5%	35.6%	33.5%	39.5%	36.7%	34.4%	38.8%
Lost Profits - Original Drives, Rounded	A	\$ 927,000	\$ 669,000	\$ 501,000	\$ 1,075,000	\$ 156,000	\$ 304,000	\$ 354,000	\$ 205,000	\$ 235,000	\$ 35,000	\$ 7,000	\$ 4,468,000
Grenco's Total Losses													
Scenario A - Low (8% Royalty Rate)	K=Σ(A,B,D;G,I)	\$ 1,206,000	\$ 989,000	\$ 884,000	\$ 1,640,000	\$ 477,000	\$ 704,000	\$ 1,124,000	\$ 705,000	\$ 874,000	\$ 698,000	\$ 216,000	\$ 9,517,000

FEDERAL COURT OF APPEAL

NAMES OF COUNSEL AND SOLICITORS OF RECORD

DOCKET: A-244-18
A-201-18

STYLE OF CAUSE: DNOW CANADA ULC,
NATIONAL OILWELL VARCO
INC., and 769388 ALBERTA LTD.
v. DARIN GRENKE, AS
PERSONAL REPRESENTATIVE
OF THE ESTATE OF EDWARD
GRENKE, and 284849 ALBERTA
LTD.

PLACE OF HEARING: TORONTO, ONTARIO

DATE OF HEARING: NOVEMBER 25, 2019

PUBLIC REASONS FOR JUDGMENT BY: DAWSON J.A.

CONCURRED IN BY: RENNIE J.A.
RIVOALEN J.A.

DATED: MARCH 11, 2020

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