IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF SOUTH CAROLINA
COLUMBIA DIVISION

PURE FISHING, INC., an Iowa Corporation, Plaintiff, v. NORMARK CORPORATION, a Minnesota Corporation, d/b/a RAPALA, Defendant.	)	C.A. No. 10-cv-2140-CMC FINDINGS OF FACT AND CONCLUSIONS OF LAW (Inequitable Conduct Trial)

This matter is before the court for findings of fact and conclusions of law following a non-jury trial conducted on April 15-16 and May 14-15, 2013. At the time of trial, the only remaining issues related to an inequitable conduct counterclaim asserted by Defendant Normark Corporation ("Normark"), which seeks to invalidate U.S. Patent No. 5,749,214 ('the '214 patent"), entitled "Braided or Twisted Line." Through this counterclaim, Normark alleges that the owner of the patent, Plaintiff Pure Fishing Inc. ("PFI")[1], obtained the patent by intentionally deceiving the United States Patent and Trademark Office ("PTO") through material misrepresentations or omissions. The alleged material misrepresentations and omissions include: (1) representations that Roger Cook ("Cook") was the inventor of the patent claims; (2) failure to disclose the sale of a product that falls within the scope of the claims, 1995 Fireline Fused, on sale more than a year before the patent application was filed; and (3) arguments made to overcome the PTO's initial rejection of the patent for obviousness. All other issues were resolved by earlier orders or agreement of the parties.

[1] PFI is the successor company to Berkley, which is the entity that obtained the '214 patent. During periods relevant to this action, Berkley was sometimes known as Outdoor Technologies Group or OTG. Testimony and documents in the record use all of these names. For ease of drafting, the court will refer to Plaintiff and its predecessor company as "PFI" regardless of the name used during the relevant timeframe.

For reasons set forth below, the court finds the evidence insufficient to support a finding that the relevant individuals, Cook and the attorney who prosecuted the patent application, Lance Johnson ("Johnson"), acted with specific intent to deceive the United States Patent and Trademark Office ("PTO"). The court, therefore, finds in favor of PFI on the inequitable conduct counterclaim.

PRIOR PROCEEDINGS

The court previously granted Normark's motion for summary judgment of invalidity, ruling that asserted claims 1, 4, and 5 of the '214 patent are invalid for three reasons. Dkt. No. 278 at 26-40. First, the court found the claims invalid under Section 102(f), because Cook, the named inventor, is not the true inventor of those claims. *Id.* at 26-31. Second, the court found the claims invalid under Section 102(b), because the claims were anticipated by PFI's 1995 Fireline Fused product which was on sale more than one year before PFI filed the '214 patent application. *Id.* at 31-36. Finally, the court held the claims invalid as obvious under 35 U.S.C. § 103. *Id.* at 36-40.[2]

The summary judgment ruling thus determined the falsity and materiality of two grounds on which Normark's inequitable conduct counterclaim relies: (1) the representation that Cook was the inventor and (2) the failure to disclose that 1995 Fireline Fused was on sale more than one year before the '214 patent application was filed. These determinations leave only the issue of intent as

[2] These determinations resulted, at least in part, from the overbreadth of the claims. For example, the determination that Cook was not the inventor of all that was claimed rested, in part, on the fact that Cook claimed inventorship of heat stretching at conditions recommended to him by DSM and at which DSM had actually heat-stretched braided lines before Cook's first experiment. Dkt. No. 278 at 27. The inclusion of relatively low temperatures and draw ratios within what was claimed also contributed to failure of the claims for obviousness in light of prior art. *Id*. at 39-40. The determination that the '214 patent was barred by sales of 1995 Fireline Fused more than one year prior to filing of the patent application, similarly, resulted from inclusion of temperatures at the upper end of the claimed range, which overlapped with the temperatures used in producing 1995 Fireline Fused, combined with a failure to limit the claims to unfused line. *Id.* at 32-33.

to these grounds claiming inequitable conduct. *See generally Therasense, Inc. v. Becton Dickinson & Co.*, 649 F.3d 1276 (Fed. Cir. 2011) (*en banc*) (addressing requirements for inequitable conduct).

The third ground on which Normark relies for its inequitable conduct counterclaim is an allegation that Cook and Johnson made false statements and material omissions to the PTO concerning another patent ("the Hogenboom patent"), in response to the PTO's initial rejection of the '214 patent claims as obvious in light of Hogenboom. No determination as to materiality has previously been made as to this ground.[3] Thus, Normark must prove falsity, materiality, and specific intent to deceive the PTO.

TRIAL

Trial was conducted on April 15-16 and May 14-15, 2013. The break between the trial dates was prompted by the court's determination that PFI had waived attorney-client privilege as to certain documents, which then were disclosed and reviewed prior to resumption of trial. *See* April 16 TR. at 233-48 (discussing waiver and required disclosure and setting date for resumption of trial); May 14 TR at 5-18 (summarizing reasons for ruling as to waiver).[4]

Normark called two live witnesses: Cook, the named inventor, and Johnson, the attorney who prosecuted the '214 patent. Normark also submitted deposition testimony from PFI employee, Ron Kliegl ("Kliegl"), and PFI's expert, Egbert van Gorp ("van Gorp").

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[3] The court's summary judgment determination that the challenged claims were invalid for obviousness involves related considerations, but does not address whether the arguments relating to Hogenboom were, themselves, material.

[4] The break in the trial resulted in two sets of transcripts, which are sequentially numbered within each two-day set but not as to the full trial. The court, therefore, refers to the transcript in this order by trial date and page number within the two-day set. The page number refers to the page number in the transcript itself, not the number shown on the electronic case filing header.

PFI offered testimony from Cook and Johnson as well as former PFI employee, Dan Foote ("Foote"), and an expert witness, John Goolkasian. PFI also offered deposition testimony from Kliegl, van Gorp, and Bell Wang ("Wang"). Wang is an executive with Normark's supplier of fishing line products, Yao I Fabric Co., Ltd. ("Yao I").

The parties stipulated to the admission of Exhibits 1-56, Exhibits 100-101, Exhibits 102-132, and Exhibits 135-138, subject to PFI's reservation of its objection to documents ordered produced based on this court's finding of waiver of attorney-client privilege. Exhibit 101A was also admitted for a limited purpose.

STANDARD

To prevail on its inequitable conduct claim, Normark must prove two elements by clear and convincing evidence: (1) that Cook, Johnson, or both made material false statements or omissions; and (2) that Cook, Johnson, or both acted with specific intent to deceive the PTO. *See Therasense*, 649 F.3d at 1290; *see also Aventis Pharma S.A. v. Hospira, Inc.*, 675 F.3d 1324, 1334 (Fed. Cir. 2012); *Ring Plus, Inc. v. Cingular Wireless Corp.*, 614 F.3d 1354, 1358 (Fed. Cir. 2010). As noted above (Prior Proceedings), this court has previously determined that the claim that Cook was the inventor of the '214 patent and the failure to disclose 1995 Fireline Fused were each material, as each act independently invalidated the asserted claims of the '214 patent. The trial, therefore, focused on whether the statements and omissions made concerning the Hogenboom reference were false and material under *Therasense*, and whether Cook and Johnson acted with specific intent to deceive the PTO as to any of the three challenged misrepresentations or omissions.

Materiality. Under *Therasense*, the false statements or omissions must meet the standard of "but-for" materiality, meaning that Normark is required to show that the PTO would not have allowed the '214 patent had it known the truth. *Therasense*, 649 F.3d at 1291.

Specific Intent. To succeed on its counterclaim, Normark must prove by clear and convincing evidence, with respect to particular false statements or omissions, that Cook or Johnson acted with specific intent to deceive the PTO. *Therasense*, 649 F.3d at 1290. A party seeking to prove specific intent by indirect and circumstantial evidence must demonstrate that intent to deceive is "the single most reasonable inference to be drawn from the evidence." *Id*.

Intent to deceive cannot be established by showing that a "misrepresentation or omission amounts to gross negligence or negligence under a 'should have known' standard[.]" *Id*. at 1290 (citing *Kingsdown Med. Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 877 (Fed. Cir. 1988)). Thus, "[i]n a case involving nondisclosure of information, clear and convincing evidence must show that the applicant made a deliberate decision to withhold a known material reference." *Id*. (citing *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1182 (Fed. Cir. 1995)). In other words, "the accused infringer must prove by clear and convincing evidence that the applicant knew of the reference, knew that it was material, and made a deliberate decision to withhold it." *Id*.

Proof of intent and materiality "are separate requirements." *Id.* The court may not, therefore, apply a "'sliding scale,' where a weak showing of intent may be found sufficient based on a strong showing of materiality, and vice versa." *Id.* (rejecting previously accepted standard). "Instead, a court must weigh the evidence of intent to deceive independent of its analysis of materiality. Proving that the applicant knew of a reference, should have known of its materiality, and decided not to submit it to the PTO does not prove specific intent to deceive." *Id*. (citing *Hoffman-La Roche, Inc. v. Promega Corp.*, 323 F.3d 1354, 1359 (Fed. Cir. 2003)).

Recognizing that "direct evidence of deception is rare," the Federal Circuit held in *Therasense* that "a district court may infer intent from indirect and circumstantial evidence." *Id*. (citing *Larson Mfg. Co. of S.D., Inc. v. Aluminart Prods., Ltd.*, 559 F.3d 1317, 1340 (Fed. Cir.

2009)). The court, however, restricted the circumstances under which a district court may infer intent as follows:

> [T]o meet the clear and convincing evidence standard, the specific intent to deceive must be "the single most reasonable inference able to be drawn from the evidence." *Star*, 537 F.3d at 1366. Indeed, the evidence "must be sufficient to require a finding of deceitful intent in the light of all the circumstances." *Kingsdown*, 863 F.2d at 873 (emphasis added). Hence, when there are multiple reasonable inferences that may be drawn, intent to deceive cannot be found. *See Scanner Techs. Corp. v. ICOS Vision Sys. Corp.*, 528 F.3d 1365, 1376 (Fed. Cir. 2008) ("Whenever evidence proffered to show either materiality or intent is susceptible of multiple reasonable inferences, a district court clearly errs in overlooking one inference in favor of another equally reasonable inference.").

Id. at 1290-91.

The *Therasense* court also explained, regarding the burden of proof, that "the 'patentee need not offer any good faith explanation unless the accused infringer first . . . prove[s] a threshold level of intent to deceive by clear and convincing evidence,'" and that "[t]he absence of a good faith explanation for withholding a material reference does not, by itself, prove intent to deceive." *Id*. at 1291 (quoting *Star*, 537 F.3d at 1368).

Thus, Normark must prove intent separately from materiality, and cannot rely on the degree of materiality in proving intent. *Pfizer, Inc. v. Teva Pharmaceuticals USA, Inc*., 820 F. Supp. 2d 751, 759 (E.D. Va. 2011); *see also Cancer Research Tech. Ltd. v. Barr Laboratories, Inc.*, 625 F.3d 724, 733-34 (Fed. Cir. 2010) (stating that intent cannot be based only upon the same evidence that supports materiality). Instead, Normark must rely on independent evidence that the patentee appreciated the materiality of the information when deciding to withhold it from the PTO. *Pfizer*, 820 F. Supp. 2d at 759.

That said, the court remains free to make credibility determinations, and should evaluate the issue of intent by considering all evidence presented. *Aventis*, 675 F.3d at 1335-37. Moreover, the

"single most reasonable inference" standard, as its formulation makes clear, focuses on the reasonableness of the inferences available from the evidence; and a district court is not required to accept a patentee's after-the-fact explanations for false statements and omissions, but is free to reject those explanations if the court finds they are either unreasonable or not credible. *Id*. at 1335.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Having heard the testimony and carefully reviewed the record, the court enters the following Findings of Fact and Conclusions of Law pursuant to Rule 52(a) of the Federal Rules of Civil Procedure. To the extent that any finding of fact represents a conclusion of law, or vice-versa, it shall be so regarded.

I. FINDINGS OF FACT

A. The '214 Patent and Field of Invention

1. The '214 patent claims a process for increasing the tenacity of a braided or twisted fishing line made of gel spun polyolefin ("GSP") yarns, by stretching that fishing line under heat. Claim 1 reads as follows:

> 1. A process for increasing tenacity in a twisted or braided fishing line made of gel spun polyolefin yarns, said process comprising stretching a braided or twisted line of 3-64 gel spun polyolefin yarns, wherein each yarn is within the range from about 20 denier to about 1000 denier, at a temperature within the range from about 110ºC. to about 150ºC. and at a total draw ratio within the range from about 1.0 to about 2.0.

Ex. 1, Claim 1.

2. "Tenacity" is the break strength of the line measured in grams, divided by the denier of the line, and expressed as "grams per denier" or "gpd." Dkt. No. 278 at 7; *see* Ex. 1, col. 3, l. 63. "Denier" is defined as "the weight in grams of 9000 meters of material," and is thus a measurement of the thickness of the line. Ex. 1, col. 3, l. 60-61.

3. "Stretching" and "drawing" are synonyms in this context. April 15 TR at 27. The '214 patent describes setting the velocity of multiple rollers on a manufacturing line with the output rollers set at a higher rate than the input rollers, to create a positive "draw ratio" and thus stretch the line while under heat. *See* Ex. 1, Col. 3, ll. 53-59, and examples throughout the '214 patent. "Draw ratio" is defined by the '214 patent as "the ratio of the output velocity to the input velocity of rollers acting on the line." Ex. 1, Col. 3, ll. 53-54.

4. Fishing lines made from braided GSP are known as Superlines because they are much stronger and thinner than fishing lines made from other materials. *E.g.*, Exs. 10-11.

5. Allied Signal Corporation ("Allied Signal"), now known as Honeywell, and Dutch State Mines ("DSM") supplied the GSP material used to make the braided Superlines. Allied Signal supplied GSP under the trade name Spectra, and DSM supplied GSP under the trade name Dyneema. April 15 TR at 18.

6. As of the summer of 1994, at least ten different companies had braided Superline products on the market. Ex. 11 at NOR00000233; April 15 TR at 22-23.

7. PFI had two braided Superline products on the market before October 1994 when Roger Cook ("Cook") began the work that led to the filing of the '214 patent application,[5] Ultra Max and Gorilla braid. April 15 TR at 21-22; Ex. 11 at NOR00000233.

8. None of the braided Superline products on the market before October1994 were heat stretched after braiding, at least to the knowledge of the parties to this case. PFI's Ultra Max and Gorilla braid products were not heat stretched after braiding. April 15 TR at 22; Dkt. No. 278 at 5.

[5] For ease of reference, the court refers to the application which matured into the '214 patent as the "'214 patent application."

9. The heat stretching invention claimed in the '214 patent provides several competitive advantages. By increasing tenacity, heat stretching makes the Superline fishing lines even stronger and thinner, so that a line that has been heat stretched will be thinner than the same test weight line made from a non-heat stretched material. The heat stretching process also makes the line more sensitive. April 15 TR at 19, 163-64; *see* Ex. 22 at PF 8_0011124. Heat stretching saves costs, because the manufacturer can use less material to make the same length of fishing line. April 15 TR at 19. Costs may also be reduced by buying raw materials of higher denier, which are cheaper, and then braiding them and stretching the braid to the desired test weight. April 15 TR at 161.

B. Inventorship

1. Events Pre-dating October 5, 1994

a. Cook's Work

10. At the time of trial, Cook was a senior chemist with PFI and had been working for PFI or its predecessors for forty-eight years. Thus, at the times relevant to this action (1993 and later), Cook had at least twenty-eight years experience as a chemist with PFI. April 15 TR at 16-18. In 1993 and continuing until October 1994, Cook was working primarily with monofilament fishing lines, not Superlines. April 15 TR at 30. His independent work on Superlines was limited to work on coatings. *Id*.

11. Cook had, however, done a single day of work processing Superlines (braided GSP fishing lines) in May 1993, which work he described as "heat setting or heat treating." *Id.* at 30-31. This work was done for Dan Foote ("Foote") who was in charge of the development of Superlines at PFI at that time and continuing at least into October 1994. April 15 TR at 21; *id*. at 168-69 (discussing request from Foote and Ex. 34 at PF_3_0006207). As Cook explained:

> Dan [Foote] provided me with some braided line. And the construction was from his note, 4 by 115 denier, a denier about 890-900 roughly. And I had a

> laboratory benchscale machine with two stages in it. And we were trying to find out if we could do anything to the braid that would enhance any properties. Dan was interested in anything that we could do to improve the braided line.
>
> We ran it through two stages of what we call heat setting, which is usually holding at least a 1.0, not drawing it, just holding it or keeping enough tension on it so that it could not relax, which could become a problem because it could melt if it relaxed. We ran it at three different temperature profiles and Dan then took the data and compiled it and put out this report.

April 15 TR at 169.

12. Looking at the data reflected on Foote's documentation of this processing, Cook testified that the denier "decreases somewhat[,]" with the processing at the highest temperature range computing out to "about a 1.04 draw." *Id.* Cook conceded that drawing was not the purpose of the experiment. *Id.* He testified that the only benefit he was aware had been noted at the time was an increase in stiffness, which he indicated Foote "was excited about[.]" *Id.* at 170.

13. Although the data available at the time may support the conclusion that some inadvertent and minor drawing occurred, and, consequently, *could* have led either Cook or Foote to conclude that the heat processing resulted in an increase in tenacity, neither Foote nor Cook made the relevant calculations or reached such a conclusion at the time. *See infra* n. 17 (discussing 1993 work as it relates to knowledge and intent).

b. Allied Signal's Contribution

14. Foote set up a meeting with Allied Signal in August of 1994. The purpose of the meeting was two-fold: (1) to secure Allied Signal as a source of supply of GSP material and (2) to have Allied Signal help PFI gain a competitive advantage, such as by providing GSP fibers of higher tenacity and/or smaller denier. May 15 TR at 398-99, 422. Foote's ultimate goal was to end up with a braided fishing line of higher tenacity. May 15 TR at 422; *see* Ex. 12.

15. Foote testified that, before the meeting, he and others at PFI decided not to disclose any ideas PFI had regarding heat stretching Superlines to Allied Signal. May 15 TR at 389, 401-02. The court questioned Foote on this issue:

> Q: You said when you were going to Allied you had decided you weren't going to talk about heat drawing of braid because that was your idea, you all's idea?
>
> A: That's correct.
>
> Q: Okay. When and under what circumstances had you come up with that idea?
>
> A: Well, Roger [Cook] had been working on it for some time before that, including at least as early as the [May 1993] documentation we've already discussed, and he had continued to develop that.
>
> Q: And this is before September of '94?
>
> A: Yes.
>
> Q: Okay. And you just told me that when [Cook] did that testing on braid for you in '93, that you looking back recognized that drawing had taken place. But when did you look back and recognize that?
>
> A: I noticed that after the fact. But Roger had since that – that was the only time I had documented the work that Roger was doing. He was doing other work that wasn't in connection with my project. So I was not documenting any of his work between that May of '93 and this trip that we took in '94.
>
> Q: Okay. So your statement that you had already been heat drawing braid is based on what you think [Cook] told you?
>
> A: Well, we had a . . . caucus at home in our research to talk about the trip coming up. And this was one [thing] that we decided. Because Allied[ ]Signal was working with our competitor, we were not going to say anything about this technology that we believed was proprietary and our own.

May 15 TR at 401-02.

16. The August 1994 meeting between Allied Signal and PFI personnel, including Cook, took place at Allied Signal's offices. May 15 TR at 398-99; April 15 TR at 119-120; May 14 TR at 41-42; Ex. 12 (Foote memorandum to Allied Signal in advance of meeting). At the meeting,

Allied Signal independently (that is, without any similar disclosure by PFI) recommended that PFI use heat stretching to increase the tenacity of its braided GSP fishing line. April 15 TR at 124; May 14 TR at 42-43; May 15 TR at 399.

17. In a post-meeting memorandum, Allied Signal characterized heat stretching of GSP fishing line to increase tenacity as "low hanging fruit." Ex. 52 at HON000007. At trial, Foote conceded that this referred to heat stretching GSP braided fishing lines as something that was obvious to do. May 15 TR at 426.

18. At the time of the August 1994 meeting, Allied Signal owned the Dunbar patent, Canadian Patent No. 1,276,065, which covers a GSP product and process for producing the same, described as follows: "very low creep, ultra high modulus, low shrink, high tenacity polyolefin fiber having good strength retention at high temperatures and method to produce such fiber." Ex. 9 at 1-2 (also indicating product was produced by "post stretching at a temperature between about 135° and 160°C"). Example 7 of the Dunbar patent describes heat stretching a braided GSP line. Ex. 9 at 8-9.[6]

19. Following the August 1994 meeting, Foote sent a spool of PFI's Gorilla braid to Sheldon Kavesh, an employee of Allied Signal, to be heat stretched. May 15 TR at 399-400, 415.

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[6] This court has previously determined that Claims 1, 4, and 5 of the '214 patent are obvious in light of the combination of Dunbar Example 7, the teachings of PFI's 1995 Fireline Fused (a fishing line made from partially fused braided GSP, which was on sale more than a year before the '214 patent was filed), and the Hogenboom patent. Dkt. 278 at 36-40. The obviousness of heat stretching braided GSP has been reaffirmed by testimony and exhibits presented during the trial. For example, Cook conceded that heat stretching braided fishing line to increase tenacity was known before he began his work in October 1994. April 15 TR at 119; *see also id.* at 124 (noting idea had already been "put forth" before his work began). An internal memorandum Foote wrote in July 1996 (several months before the '214 application was filed), supports the same conclusion. As Foote explained: "Increased strength of a braided [GSP] by post-braid drawing *has been known for some time*. This can be done with or without fusing the strands together." Ex. 55 at 1 (emphasis added).

Foote's notebook entry on September 2, 1994, reflects the results of Allied Signal's heat stretching, which Foote determined had significantly increased the tenacity of the fishing line. Ex. 50 at PF_3_0007086 (noting that "this is the highest gpd [tenacity] ever tested on braided GSP.").

20. Foote also addressed the results of Allied's processing of the braid work and Foote's subsequent testing in a September 13, 1994 letter to Chris Griffin of Allied Signal. Ex. 14. The letter includes data which reflects a significant increase in tenacity (from 23.25 to 34.45), although this result is not specifically mentioned in the text. *Id*.

c. DSM's Contribution

21. Shortly before October 4, 1994, Foote traveled to the Netherlands to meet with DSM concerning GSP fishing lines. April 15 TR at 110; May 15 TR at 402; Ex. 50 at PF_3_0007104-05. At that time, DSM, which supplies Dyneema brand GSP, was one of PFI's two potential suppliers of GSP. *See supra* ¶ 5. DSM later became PFI's main supplier. *See* Ex. 19 (April 7, 1995 Supply Agreement).

22. During Foote's visit, DSM, like Allied Signal, recommended using heat stretching to increase the tenacity of braided GSP fishing lines. April 15 TR at 111-112; May 15 TR at 429; Ex. 50 at PF_3_0007104-05. DSM also provided specific suggestions as to the temperatures and draw ratios to use, *i.e.*, heat stretching at 130º C. and a draw ratio of 1.35. April 15 TR at 112; May 15 TR at 429; Ex. 50 at PF_3_0007104-05.

23. During this same meeting, DSM employees advised Foote that they had heat stretched a sample of Gorilla braid (PFI's brand of braided GSP line) using these parameters. May 15 TR at 430 (agreeing that he did not watch DSM process the braid as it was done *before* he arrived); Ex. 50 at PF_3_0007104-05. Although Foote did not see the stretching take place, he assumed it was done in equipment he was shown, which consisted of an oven with rollers mounted inside the oven and

lines traversing back-and-forth within the oven resulting in incremental drawing. Ex. 107; May 14 TR at 55, 402-04, 429-30; Ex 50 at PF_3_0007104-05. Foote did not believe processing in such equipment would provide a practical method for actual manufacture of line. *Id.* Foote's October 4, 1994 notebook entry states that DSM's heat stretching of Gorilla braid increased its tenacity. Ex. 50 at PF_3_0007104-05.

2. Cook's October 5, 1994 and later work

24. When Foote returned to PFI's facility in Spirit Lake, Iowa on October 4, 1994, he told Cook of DSM's recommendations. April 15 TR at 111; May 14 TR at 42.

25. Cook began his experiments heat-stretching braided GSP the following day, October 5, 1994. April 15 TR at 27-30; May 14 TR at 39; Ex. 36 at PF 10_0011588A-11589. This was, according to Cook, the first time that he had ever intentionally heat stretched GSP braided fishing lines. April 15 TR at 26-27, 30; May 14 TR at 39; Exs. 32 A-F. This date is supported by Cook's lab notebook, which indicates experiments beginning on this date.[7]

26. Cook testified that October 5, 1994, was "where [his] work began." He also agreed with statements that his October 5, 1994 work was "actually the documented record of the first drawing experiments that Berkley [later known as PFI] ever did on Superline" and "the start of all the work" that led to the '214 and Fireline patents. April 15 TR at 29-30.

[7] As Cook explained at trial, after this litigation commenced, he went through his lab notebooks and marked October 5, 1994, as the date he first began experimenting with heat stretching braided GSP. April 15 TR at 27; May 14 TR at 39; Ex. 36 at PF_10_11588A. Despite the long-pendency of this action, and opportunities to correct any error in his recollection, Cook has never modified his position as to when he began this work or that his first work was based on recommendations from DSM.

27. Cook testified that his October 5, 1994 work was based on DSM's recommendations that PFI heat the braid at 130º and use a 1.35 draw ratio and that he used those specific parameters because DSM recommended them. April 15 TR at 117; Ex. 36 at PF_10_115889.

> Q Now, you used the 130º that very first day because that's what DSM recommended, correct?
>
> A: That was used because that's what was recommended.
>
> Q: And you used the 1.35 draw ratio because that's what DSM recommended, correct?
>
> A: Yes.
>
> * * *
>
> Q: Mr. Cook, Mr. Foote told you what DSM recommended[,] that's why you ran the experiments that way, correct?
>
> A: Yes.
>
> * * *
>
> Q: And it was DSM's idea, not your idea to heat stretch braided fishing line to increase tenacity, correct? It wasn't your idea. It was DSM's idea?
>
> A: DSM provided the information and gave it to Dan Foote. They had the means of doing it. They had an idea.
>
> Q: And it wasn't your idea at all was it to use heat stretching to increase tenacity of the braided fishing line? That was not your idea?
>
> A: No. That was known. That idea was known.
>
> Q: And in your deposition you told me that it was DSM's idea to use heat stretching? They recommended that to Dan Foote?
>
> A: Yes.
>
> Q: Correct?
>
> A: Yes.

Q: And you also told me that Allied Signal made the same recommendation, correct? Do you recall meeting with Allied Signal in August of '94?

A: Yes.

Q: And you recall that Allied Signal also recommended if you want to increase tenacity of a braided fishing line, use heat stretching, correct?

A: Yes.

April 15 TR at 117-120.

28. While Cook used the temperature and draw ratios recommended by DSM, he did not perform his experiments under all the same conditions he understood DSM used on its earlier heat-drawing of Gorilla braid. Specifically, Cook did not use an oven of the same length or the same residence time or roller speed. April 15 TR at 113-15, 170-72; Ex. 36 at 11588-89; Ex. 50 at PF_3_0007104-105.

29. Cook's first experiments using the temperature and draw ratio recommended by DSM (but using a different oven length, roller speed and residence time) resulted in broken lines. April 15 TR at 113-14; Ex 36 at PF_10_11589. During the following two months, Cook conducted braid-drawing experiments using a variety of processing speeds, temperatures and draw ratios (including substantially higher temperatures and draw ratios), and multiple stages of draws, resulting in a number of successful outcomes. Ex. 36 at 11590 to end; *see also* Ex. 37 & 38 (lab notebooks reflecting experiments through November 1994).

3. Applications for '214 and Related Fireline Patents

30. As explained in more detail below (Findings § I.B.4.b), Foote first contacted attorney Lance Johnson ("Johnson") regarding prosecution of the '214 patent application on October 5, 1994. May 14 TR at 136. Johnson had prepared an initial draft of the application by November 8, 1994. May 14 TR at 163. The application was, however, set aside while PFI focused on prosecution of a

related patent (referred to herein as the "Fireline patent") and production of a related product, 1995 Fireline Fused, which arose from the same series of experiments. *See* Ex. 55 (Foote memorandum discussed below).[8]

31. Foote referred to the relationship between the two patents, and this setting-aside of what became the '214 application in a July 10, 1996 internal memorandum:

> In the continuing effort to maximize and produce FireLine, the *potential of a stronger braided line* to combat the continued presence and claims of SpiderWire *has not been pursued. [PFI] has viewed the braids as a step to better things, not a continuing category in itself.*
>
> * * *
>
> *Braided line can be treated using some of the FireLine processing.* The result is a braid that is stronger, smaller and more sensitive. This processing does NOT fuse or bond the fibers together, but produce[s] a better braid.
>
> * * *
>
> *The highest tenacity of braided line is achieved by using MicroDyneema and then post-braid treatment using part of the FireLine processing.* The result is an unfused, braided line characterized by having superior strength and sensitivity compared to any known line.

Ex. 55 at PF_3_0005830, 5832, 5836 (emphasis added).

32. Johnson filed the application for the Fireline patent on April 27, 1995. Ex. 4. After initial rejection of the combined patent in October 1995, the process was separated into a divisional patent application in December 1995, with patents eventually issuing in July 1996 for the product patent and May 1998 for the process patent. *See* Exs. 4, 5.

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[8] The original Fireline patent application was directed to both a product and a process for making a partially fused, braided GSP fishing line. The process for making that line required heat stretching. The process claims were later split out as a divisional patent application. The 1995 Fireline Fused product line was made by a process falling within the Fireline process patent.

33. The '214 application remained dormant during much of this period, until early October 1996, when it came up on an internal calendar in Johnson's office. May 15 TR at 342.[9] Johnson contacted PFI to see if it wanted to proceed with or abandon this patent and was told to proceed. *Id.*

34. Foote had, by this point, changed positions within PFI. Johnson, therefore, worked primarily if not exclusively with Cook in making the final edits to the application. Those edits involved five drafts over the course of a week. May 14 TR at 66-67; *see also* Exs. 122, 123, 124, 125, and 127. Johnson filed the '214 application on October 4, 1996, naming Cook as inventor. Ex. 1; May 14 TR at 120.

35. Cook's testimony and contemporaneous notebook entries confirm his substantial participation in review of the '214 patent application and subsequent prosecution. For example, Cook testified that he reviewed at least five drafts of the patent application and provided detailed comments. May 14 TR at 66-67; *see also* Exs. 122, 123, 124, 125, and 127. Cook's involvement in preparation of the application and subsequent prosecution also included: (1) meeting with Johnson in person several times (after the application was filed but during prosecution); (2) reviewing and analyzing prior art, including the Hogenboom reference (discussed below) and Allied Signal's Dunbar patent;[10] and (3) other communications with Johnson concerning the patent positions of Allied Signal and DSM relating to GSP fibers and other matters relevant to PFI's patent position.

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[9] Johnson's testimony suggests that he may have asked PFI whether it wanted to proceed with what became the '214 application on one or more other earlier occasions.

[10] Both Cook and Johnson were or became aware of the Dunbar patent during the prosecution of the '214 patent. May 14 TR at 80-81 (noting Cook studied the Dunbar patent during the prosecution of the '214 patent); Exs. 109, 114, 138. The Dunbar patent was disclosed as prior relevant art in the application for the '214 patent. Ex. 1.

May 14 TR at 58-60, 80-87, and Exs. 113, 114, 115, 129, 130, and 138. Cook testified that, in this process, he reviewed the patent specification and the claims in the '214 patent application and understood that the patent claims defined his invention. April 15 TR at 122-23, 128.

36. Cook signed a declaration swearing that "I believe that I am the original, first and sole inventor of the subject matter which is claimed" in the '214 patent. Ex. 2 at 2140047. This declaration also attests as follows: "I have reviewed and understand the contents of the above-identified specification, including the claims. . ." *Id.*

4. Knowledge and Intent

a. Cook's Knowledge and Intent

37. Based on the testimony summarized above, it is beyond dispute that, at all times relevant to patent prosecution, Cook knew that both DSM and Allied Signal had recommended that PFI use heat stretching to increase tenacity of braided GSP fishing line before the date Cook identifies as his conception date (October 5, 1994). Cook also knew that both DSM and Allied Signal had actually heat stretched such line for PFI before Cook's conception date and that this stretching resulted in an increase in tenacity. Finally, he knew that his first experiments on October 5, 1994, though not identical to the means by which DSM had actually heat stretched Gorilla braid, used the specific temperature and draw ratio recommended by DSM.

38. Based on his careful review of the claims in the '214 patent, Cook knew that Claim 1 encompassed stretching at a temperature range "from about 110°C. to about 150°C." and draw ratios "within the range from about 1.0 to about 2.0[,]" which included the temperature (130°C) and draw ratio (1.35) recommended by DSM. *See* April 15 TR at 131 (conceding that all of the patent claims cover very low draw ratios and temperatures that encompass DSM's recommendation); Ex. 1 at Claims 1-43. Cook should also have understood that the heat drawing done by Allied Signal

likely fell within the parameters of Claim 1 of the '214 patent application given the claim's breadth of temperature range and draw ratios.

39. Cook, nonetheless, testified that he believed he was the inventor because the recommendations he received from DSM were "just a starting point. And as we proceed through these experiments, we find that their recommendations were not suitable for what we wanted to do." April 15 TR at 115. He further explained that the "piece of equipment that [DSM] used [was] something that we couldn't possibly make work in our production." *Id.*

40. Confronted with the fact that Claim 1 of the '214 patent encompassed DSM's recommendations, Cook testified as follows:

> Except for the process. It's not the same process. They're distinctly different processes. We invented or developed our own unique process for doing this. They did not. . . . [W]e actually provided information to them later about our process.
>
> * * *
>
> We developed a new – a process of our own on our own equipment to make specific products.

April 15 TR at 116; *see also id.* at 117 (conceding parameters recommended and used by DSM before he began his own work fall within Claim 1, but repeating that "[t]he process is different"); *id.* at 125 (responding to a challenge to his claim to be the "original, first and sole inventor" by repeating that "[t]he patent is the development of a process. Claim one includes the process and the drawing.").

41. After further discussion of this point, Cook indicated that, at the time he signed the declaration, he believed he had invented "a process" and, at the least, drawing at ratios higher than 1.35:

> Q: . . . When you say that what you believe you invented, what you say now is what you believe you invented was using higher draw ratios, higher than what?

A: Higher than 1.35 for certain, because that was the recommendation of DSM.

Q: Okay, so you're now telling the Court that you believed you invented something back in October of 1996 when you signed this declaration using a draw ratio higher than 1.35? Do I have that right?

A: Yes.

Q: And can you tell the Court what you believed[.] . . . Back when you signed the declaration when this patent application was filed October of '96, can you recall for the court what you actually think you believed then in terms of what that draw ratio was that you thought was new? Higher than 1.35. But what's the line, sir?

A. 1.35. But higher, we went up as high as 2. We were also developing a new product, a process and a whole new product.

Q: And that was the Fireline product, correct?

A: The Fireline product and then the '214, the draw and braid products, all new products.

* * *

Q: . . . Can you give the Court today what was in your mind in October of 1996 in terms of, I was thinking that I invented higher draw ratio higher than what? What was the line that you thought you had invented that was new and different than what had been done before?

A: Well, certainly above 1.35.

Q: You didn't have a specific number in mind. You're claiming that 1.35 all of a sudden is totally different[?]

A: No.

April 15 TR at 127-28. Pressed further to define the range covering what he believed he invented, Cook testified: "What I thought we were inventing as new is a process for making a fishing line, a whole product range of fishing lines. It includes 1.35 and it includes a whole range of draw ratios. . . . That's what I had in my mind." *Id.* at 129. Cook recognized that having a patent on heat

stretching could provide PFI with significant competitive advantages. April 15 TR at 161-64; May 14 TR at 47, 58, 143. When asked whether he intended the '214 patent application to cover the broadest scope of heat stretching, Cook responded: "Full patent scope, yes." May 14 TR at 57; Ex. 113.

42. At the time of the '214 application and prosecution, Cook held a bachelor's degree in chemistry from Northern Iowa University and had over twenty-eight years of experience as a chemist. He did not, however, have specialized knowledge of patent law as he lacked formal education or on-the-job training in patent matters. May 15 TR at 159. Cook's prior experience with patent applications was limited to his work on the related Fireline patents.

b. Johnson's Knowledge and Intent

43. Johnson grew up in Spirit Lake, Iowa where his father worked in research for PFI. May 15 TR at 256-57. Johnson attended Iowa State University where he earned a degree in chemical engineering in 1982. *Id.* at 257. After receiving this degree, Johnson worked as a patent examiner at the Patent and Trademark Office ("PTO") for four and a half years. *Id*. Johnson attended law school at George Washington University while at the PTO. After graduating, he entered private practice in 1987. *Id*. at 257-58. At the time he prosecuted the '214 patent, Johnson was an associate with the Washington, D.C. law firm of Banner & Witcoff. *Id.* at 258. Johnson had prosecuted approximately 100 patents prior to October 5, 1994. *Id.* The Fireline and '214 patent applications were his first work for PFI.

(1) October 5, 1994 Communication

44. Johnson's first involvement with prosecution of the '214 patent occurred on October 5, 1994, when he participated in a telephone conversation with Foote.[11] This conversation covered a number of topics including "second stage of draw or heat setting" of braided fishing line, which referred to the heat stretching process that ended up being claimed as an invention in the '214 patent. Ex. 100 (facsimile dated October 7, 1994, referring to October 5 telephone call)[12]; May 14 TR at 136 (Johnson testimony regarding first contact).

45. Johnson took notes of this telephone conversation. May 15 TR at 334-35. These notes reflect that he was told at least that DSM had recommended specific parameters, if not that DSM had actually run a sample for PFI: "DSM run @ 130ºC, 35% ratio, res. time of [approximately] 1 min by roller system inside oven." A notation "(50 FPM)" appears above this notation. Ex. 107 at PF 3_0005823. Johnson testified he understood "run" to refer to a recommendation, not to testing run by DSM. May 14 TR at 162; *see also* May 14 TR at 154 (Johnson testifying, in response to the court's question, that he did not learn that DSM had actually drawn braid for PFI during this conversation). The references to a "roller system inside oven" and a feed rate of "(50 FMP)," however, suggest the notes refer to an actual test or demonstration of the suggested technique. *See also* May 15 TR at 436-37 (Foote testimony that "there's no doubt" that Johnson was made aware that both Allied Signal and DSM had heat stretched fishing line for PFI

[11] Cook testified that he was not on this initial telephone call. May 14 TR at 40-41. Foote testified that normally the call would have included just Foote and Johnson. May 15 TR at 435. Johnson testified that he believed both Foote and Cook participated in this call. May 15 TR at 352. Considering this and other evidence, including testimony by Johnson regarding his specific recollection of the details of this conversation (discussed *infra*), none of which refer to comments by Cook, the court concludes that Cook did not participate in this call.

[12] Exhibits numbered 100 and higher include documents that the court ordered produced during trial due to waiver of attorney-client privilege.

before Foote and Johnson first discussed the possible patent on October 5, 1994 – the same date as Cook's first work).

46. Johnson testified that someone, and he believed it was Foote, told him during this conversation that "DSM expressed skepticism that [heat drawing Superlines] might not work and would likely not work, but if they were going to try it, that's where they would try it." May 14 TR at 146-47 (also indicating the same person told him "that DSM didn't believe that heat stretching at 130 degrees, 1.35 draw ratio would increase the tenacity of the fishing line . . . [b]ecause it was constructed of [prestretched] product at that point"); *see also* May 15 at 283-84 (Johnson's reference to Foote's lab notebook, Exhibit 50 at PF-3-0007105, as supporting this conclusion where it states "they did suggest that no fiber drawing could occur just braid/twist:").[13] Later in his testimony, Johnson indicated an understanding that DSM's skepticism related to whether the yarns themselves would stretch further, but conceded an increase in tenacity could result from heat drawing braided fibers even without further stretching of the yarns. May 14 TR at 151-53 (agreeing this was due to mechanical effects ("translational efficiencies") as described in the Ryan patent).[14]

47. Regarding Johnson's claim that Foote advised him that DSM and Allied Signal were skeptical heat-drawing would work, Johnson explained that, because the conditions used by DSM "are very similar to what's exemplified on the Kavesh '110 patent as a starting point for their

[13] Johnson would not have had access to Foote's notebook during that conversation. Foote's notes are, however, relevant as they are evidence of Foote's contemporaneous belief and, consequently, what he is likely to have told Johnson.

[14] This expression of Johnson's understanding is consistent with Foote's lab notebook entry, indicating any skepticism expressed was due to a belief further fiber drawing would not occur, not a belief that heat drawing would not have a beneficial impact on tenacity. This is of some significance because the '214 patent is not limited to increases in tenacity resulting from any specific effect (such as fiber drawing).

drawing of filaments or fibers in the manufacturing process," he would not have been surprised "that a manufacturer would identify the conditions that they used . . . for these filaments while retaining some skepticism that it could actually succeed." May 14 TR at 154.

48. Johnson testified that Foote told him Cook had performed a heat stretching process at a positive draw ratio on a braided GSP fishing line in the Spring of 1993, before DSM's and Allied Signal's heat stretching work and recommendations.[15] May 15 TR at 336 (stating Foote "volunteered . . . 'we got this suggestion from DSM but [Cook] had already done it. He had already done his heat setting back in '93 before we went there, which is why we knew we wanted to pursue this. And we asked them for where they would recommend that we start the drawing process . . . and this is what they recommended."); *see also* May 14 TR at 174-76 (referring to Foote's statements regarding Cook's work in April, May, or Spring of 1993).

49. Johnson testified that he viewed this alleged prior work by Cook as a simultaneous conception and reduction to practice of the invention claimed in the '214 patent application. May 14 TR at 189.

The following exchange summarizes Johnson's position:

> Q: And it was orally conveyed to you, you say, that Cook actually invented heat-stretching before DSM and AlliedSignal recommended it, correct?
>
> A: [Cook] did experiments in the Spring of '93, which he stretched under heat, under heating conditions at a positive draw ratio a gelspun polyolefin braid. That was what I understood he did.

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[15] Johnson testified that he recalled this information after reviewing one of the documents the court ordered that PFI produce during the trial due to waiver of attorney-client privilege. May 15 TR at 332-33, referring to Ex. 107 at PF_3_0005823. Because Johnson indicated this document reflects his notes of the October 5, 1994 conversation with Foote, the court presumes Johnson's testimony refers to information received on that date.

May 14 TR at 176-77; *see also* May 15 TR at 294-95 (Johnson's testimony that he learned of DSM's suggestion and Cook's alleged earlier work at the same time).

50. Johnson's contemporaneous notes of his October 5, 1994 conversation with Foote do not refer to any prior heat stretching experiments by Cook. *See* Ex. 107. Neither do they contain words that might suggest such a matter was discussed. For example, there is no reference to 1993 generally, or, more specifically, to April, May, or Spring of 1993 or generally to earlier work by Cook. Ex. 107.[16] For his part, Foote did not recall sharing anything with Johnson about PFI's prior work during the initial conversation. May 15 TR at 435-36. *Id*.

51. Johnson testified that he never asked Cook to confirm Foote's claim that Cook had been experimenting in the area before Allied Signal and DSM made their recommendations. May 14 TR at 174.

52. Johnson did, however, testify as follows regarding his inquiry into whether DSM or Allied Signal was involved in Cook's *later* work:

> I asked if DSM and/or Allied was involved in the development of this product and participated in the research and testing, and I was told that they did not. So apart from the one-sentence or two-sentence suggestion, they had no involvement. They did not participate. They did not provide information. They did not exert dominance over the invention. They weren't part of the team, as you would say.

May 14 TR at 178-79; *but see id.* at 182-83 (Johnson testifying he did not look for any documentation of Cook's possible work in 1993 and did not obtain details of that work); May 15 TR at 338 (Johnson agreeing that he "did not have a document or data" supporting the conclusion Cook had conceived and reduced his invention to practice in 1993," but stating he had relied on "the oral

[16] Johnson, however, made detailed notes relating to parameters for heat stretching braided GSP either recommended or actually used by DSM.

representation by Dan Foote]" that Cook "had done the heat setting experiments under a draw ratio and it showed an increased tenacity back in '93").[17]

(2) October 7, 1994 Facsimile

53. Foote followed up on this conversation by sending Johnson a facsimile on October 7, 1994, with a copy to Cook. Ex. 100. The facsimile states, with regard to the use of a "Second Stage of Draw or Heat Setting" that "[b]oth DSM and Allied Signal have told us about it and recommend the use of this process." Ex. 100.[18]

54. Despite the reference to receiving recommendations from Allied Signal and DSM, Foote did not raise any issue about inventorship relating to this process. Ex. 100 at PF_10_0011590.

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[17] Cook testified that he did one day of work on what he called "heat setting" of braided GSP lines for Foote. April 15 TR at 30-31; 169. Cook explained that "heat setting" involved holding the braided GSP line at a constant tension between the rollers, and that this was "not drawing it." April 15 TR at 169; May 14 TR at 72-73. In contrast, the '214 patent, defines a "draw ratio" as the ratio of the output rollers to the input rollers acting on the line, as Johnson emphasized in his testimony. May 14 TR at 182 ("draw ratio is defined . . . as a very specific ratio of draw rollers[,]" which is distinguishable from "a static test between two moving jaws"); May 15 TR at 242-43.

Foote's May 28, 1993 report of Cook's work does not mention a positive draw ratio. It is, instead, consistent with Cook's testimony that he held the line at a constant tension. Ex. 34, PF_3_0006207-6208 (referring to a single rate–"Rate-10 meters/min"). Neither does Foote's report refer to any increase in tenacity, the central purpose of the process addressed in the '214 process. *Id.* (tenacity figures are included on the data page, but there is no reference to any increase in tenacity and the only relevant comment is "tenacity level"). Instead, Foote states the work was "a micro-fusion process . . . done at temperatures that exceeds [sic] the melt point of polyethylene[,]" causing the braids to become "progressively stiffer." *Id.* at PF_3_0006207.

In sum, nothing in the relevant document or Cook's testimony suggests that he, in fact, conceived of the process addressed in the '214 patent in May 1993, even if he may have unintentionally caused an increase in tenacity of which he was unaware. The issue for present purposes is not, however, whether Cook actually conceived of the invention in 1993, but whether Johnson believed he did so.

[18] Item 1 of this facsimile described Cook's work as "Draw or Heat Setting" and "heat set or stretch" of braided or twisted yarns. Ex. 100. This suggests that at least Foote, if not others at PFI, used the terms "heat setting" and "draw" interchangeably or considered heat drawing to be a subspecies of heat setting. May 15 TR at 404, 406 (Foote testimony).

In contrast, he raised such a concern relating to another process in item 4 of the same memorandum. Ex. 100 at PF_10_0011591; May 15 TR at 406-07 (Foote testimony). On the other hand, Foote's wording did not necessarily suggest a belief that PFI could claim heat stretching broadly.

> We have begun trials to heat set or stretch gelspun braids using equipment that we use for stretching nylon monofilament. It seems to be fairly easy to accomplish and desirable results are being found. We are looking at single and multiple stages of draw.
>
> We don't know if AlliedSignal has a patent position or not. We have heat stretched polyethylene terephthalates for many years. *If we can get a patent based on multiple stages of draw or some other phenomena that is happening, it would give us advantages over competitors (even if they, also, are allowed to use the AlliedSignal system).*
>
> *I am enclosing a copy of the agreement that [PFI] signed with AlliedSignal before they disclosed to us the concept of post braid drawing of products.*

See Ex. 100 at PF_10_0011590 (emphasis added).

55. In response to questions from the court regarding the concerns raised in his October 7, 1994 facsimile to Johnson, Foote testified as follows:

> [W]e were concerned that we had heard both Allied Signal and DSM were aware of and had done some stretching and we were afraid their work might have pre-dated ours and that we wanted [Johnson] to do a complete search of everything he could find out and all of the prior art . . . that might limit what we wanted to do.

May 15 TR at 435.

(3) Data from Cook

56. On or about October 23, 1994, Cook provided Johnson with data concerning his first (October 5, 1994) heat stretching experiments. Ex. 101 (data sheet bearing this date). Cook testified that he told Johnson that the October 5, 1994 experiment was "suggested by DSM." May 14 TR at 48-49 (referring to data pages, Cook agreed that he told Johnson his very first experiment was suggested by DSM). Johnson agreed that he understood "Cook's very first experiment shown on

these data pages followed the recommendations of DSM." May 14 TR at 145-46 (but referring to report of DSM skepticism); *id.* at 171 (Johnson agreeing Cook told him temperature and draw ratio used in the first-listed experiment were suggested by DSM). Johnson also noted on his copy of Cook's data sheet that one set of parameters was "suggested by DSM." Ex. 101. Johnson testified as follows regarding this notation and related conversation:

> Q: And so you understood that that was Mr. Cook's experiment–or he's been calling them experiments– experiment number one done on October 5, 1994, correct?
>
> A: That's correct.
>
> Q: And down below you have written: Suggested by DSM. Correct?
>
> A: Correct.
>
> Q: And so you understood, because Mr. Cook told you, that these parameters that he used were those suggested by DSM, correct?
>
> A: That's correct.

May 14 TR at 145-46.

57. This information may have been provided during a meeting at PFI, as Foote's notebook refers to a meeting with Johnson on October 24, 1994. Ex. 50 at PF_3_0007117. Foote testified that, during this meeting, he informed Johnson that Cook "has done the actual work and will be patentee." May 15 TR at 408; *see also id.* at 409 ("I recall that it was . . . suggested that my name might be included and I said: No. Roger has done the work. He is the patentee." – referring to notebook entry at Ex. 50 at PF_3_ 0007117). This comment relates to "post braid, post twist, post coating, pre-braid, pre-twist, pre-coat drawing of gelspun fibers[,]" hence work included in the '214 patent.[19]

[19] This testimony does not directly address whether Foote told Johnson that Cook's work (continued...)

58. As noted above, the '214 patent application was drafted soon after discussion of this data, but then sat dormant until October 1996. *See supra* ¶ 31 & n. 19 (quoting Foote's July 10, 1996 internal memorandum, which explains relationship between patents and reason for delay). There is no evidence of any substantive communications between Johnson and PFI representatives relating to the '214 patent during the intervening eighteen months, although there were a substantial number of communications between them relating to the Fireline patents.

(4) October 1, 1996 Conversation with Cook

59. On October 1, 1996, Cook and Johnson had a telephone conversation relating to finalizing and filing the '214 application.[20] Ex. 122 (Cook's contemporaneous notes); *see also* May 14 TR at 60-61 (indicating these notes reflect his October 1, 1996 telephone conversation with Johnson). Cook testified that he reviewed Foote's September 2, 1994 notebook entry describing Allied Signal's heat stretching (Ex. 50 at PF_3_0007086) prior to this telephone call. May 14 TR at 63. With respect to Allied Signal, Cook's notes of the conversation indicate, under the heading "Post Drawing": "(1) Dan: Sample from Sheldon K 2-SEP-94. Drawn braid. Dan's notes/slight fused." Ex. 122. Cook explained that this note refers to information he gave Johnson regarding

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[19](...continued)
predated any third-party suggestions. Instead, it appears to address who did the work *within* PFI. Foote was next asked about a notation in his July 10, 1996 memorandum (discussed *supra* at ¶ 31) in which he states: "Increasing strength of a braided gel spun polyethylene product by post-braid drawing has been known for some time. This can be done with or without fusing the strands together. Roger [Cook] was experimenting with it before this writer's first documentation." May 15 TR at 409-10. The "writer's first documentation" refers to Foote's September 2, 1994 lab notebook entry relating to testing on the braid drawn for PFI by Allied Signal. *Id.* Thus, this entry suggests Foote believed Cook had done relevant work before September 2, 1994. Neither it nor Foote's related testimony addresses whether he shared such a belief with Johnson.

[20] Johnson filed the '214 patent application on October 4, 1996, three days after this telephone call. Ex. 1.

Allied Signal's recommendation to heat stretch braided GSP fishing line, including that Sheldon Kavesh of Allied Signal gave Foote a sample of drawn braid. Cook agreed with a statement of counsel that, during this conversation, he discussed with Johnson that "AlliedSignal had heat stretched Gorilla Braid for [PFI] as of September 2, 1994." May 14 TR at 62.

60. Cook's notes of his October 1, 1996 conversation with Johnson also contain the following reference to DSM's recommendation and demonstration of heat drawing braided GSP, under the heading "Post Drawing":

(2) Dan: Visit to DSM notes 4-Oct-94. Set 130C and 1.35 draw experience

(3) Our first drawing began 5-Oct-94 at these conditions.

Ex. 122.

61. Consistent with these notes, Cook conceded he told Johnson during the October 1, 1996 telephone call that Foote's notes indicated DSM had recommended and conducted heat stretching on Gorilla braid for PFI, at 130ºC. and a 1.35 draw ratio and that Cook's "first drawing began October 5, 1994 at these conditions." May 14 TR at 65-66; Ex. 122; *see also* May 14 TR at 43-45 (Cook indicating he was unsure when he first told Johnson DSM had heat stretched braided GSP for PFI, but he recalled telling him when they were working on the patent "later on").

62. Johnson testified that he could not recall the October 1, 1996 telephone call with Cook. May 14 TR at 166-67 (indicating lack of recollection when asked about specific content); *id.* at 169 (stating he had no recollection of the conversation); May 15 TR at 342 (stating his only recollection was that he "had received a docketing call-up on the status of the . . . draft" through his firm's internal system and he contacted PFI "about whether or not they wanted to pursue it[.]" – also indicating this was his second or third such inquiry). Johnson did, however, concede that he knew

in October 1996 that either DSM or Allied Signal had heat stretched braided fishing line for PFI before Cook's October 5, 1994 work. May 14 TR at 139 (indicating he understood stretching had been done "at Berkley's request"); *see also* May 14 TR at 153-54 (same).

63. Over the next few days, Johnson and Cook exchanged five drafts of the patent application. *See* Ex. 122 (Cook's notebook entry referring to this work); May 14 at 66 (Cook testimony re same).

(5) Johnson's Subjective Intent

64. The court finds that, before the '214 application was filed, Johnson knew that: (1) both DSM and Allied Signal had recommended heat stretching to increase tenacity of a braided GSP fishing line before October 5, 1994; (2) either Allied Signal or DSM had, in fact, heat stretched braided GSP fishing line for PFI before October 5, 1994; and (3) Cook's experiments beginning on October 5, 1994, the only experiments for which Johnson had any data, were begun based on DSM's specific recommendations as to temperature and draw ratio.

65. However, Johnson testified that he understood that any recommendation from or heat drawing by DSM and Allied was a result of a request from PFI:

> Q: And so you understand as of October 7th, 1994 that both DSM and Allied Signal were recommending to [PFI] that they use heat stretching on braided fishing line, correct?
>
> A: It was–my understanding is that that was the information provided in response to a request by Pure Fishing for some initial parameters to begin the process.
>
> * * *
>
> Q: Okay. But you learned at some point from Mr. Foote or Mr. Cook that DSM had heat stretched Gorilla braid for [PFI] before October 5th of 1994, correct? You learned that?
>
> A: It's either DSM or Allied Signal, and I can't remember which one it was.

> Q: You learned that at least one of them had not just recommended heat stretching but had actually heat stretched Gorilla braid for [PFI] before this phone call you had, correct?
>
> Q: I believe that's correct. At Berkley's request, yes.

May 14 TR at 138-39. Johnson confirmed this understanding in response to questions from the court:

> Q: But you're also saying that at some later time, before you filed the patent application, you learned that DSM or Allied Signal had in fact heat stretched Gorilla braid for [PFI] at their request?
>
> A: That's correct.
>
> Q: So your point, I take it then, is that at the initial time, when you first learned about the contact with DSM, you did not understand DSM to have already done that?
>
> A: That's correct.

May 14 TR at 153-54.

66. Johnson also testified he did not believe anyone associated with DSM (or, presumably, Allied Signal) should have been identified as a co-inventor on the '214 patent application because any such recommendations were third-party suggestions that the inventor could accept and use, without naming the third party as a co-inventor, pursuant to Manual of Patent Examining Procedure ("MPEP") Section 2137.01(III), with which he was familiar. Ex. 106 (Cook December 19, 1994 note to Johnson stating "I should be listed as inventor on both" the '214 and Fireline patents); May 14 TR at 180 (Johnson testimony that "it takes a lot more than [DSM's suggested parameters for heat stretching braided GSP] to come up with an idea to be an inventor. Even someone who comes up with a really good suggestion isn't necessarily an inventor."); May 15 TR at 285-86 (stating that, under the MPEP, "it is acceptable for the inventors to accept

suggestions, ideas, concepts and information from others without making those other inventors"); *id.* at 294-296 (stating he learned of DSM's suggestions at the same time as Foote's representation that Cook had already been conducting experiments in the area).

67. Johnson testified that he understood or believed that DSM was aware of PFI's experiments and patent applications, in part because DSM had reviewed and commented on the related Fireline patent application in anticipation of a companion filing in Europe. May 15 TR at 323-24 (Johnson testimony); *see also* May 14 TR at 106-07 (Cook's testimony regarding communications between Johnson and PFI as to DSM's comments on the Fireline patent); Exs. 116, 117, and 119. Johnson, nonetheless, conceded there was no evidence DSM was provided a copy of the '214 patent for comment. May 15, TR at 324.

68. Because he had represented PFI in negotiating a Supply and Product Development Agreement with DSM, Johnson was well aware of its content. May 15 TR at 289. Johnson testified that Section 7.3(b)'s joint ownership provisions would have eliminated any adverse impact on PFI had a DSM employee been listed as a co-inventor on the '214 patent application. *Id.* at 289-90. Johnson further testified that he intended to identify the true inventor in the application and that he could have added a DSM employee as a co-inventor without significant difficulty. May 15 TR at 307.

69. Johnson testified that he believed Cook was properly named the inventor of the process claimed in the '214 patent application based primarily on comments Foote made during the October 5, 1994 telephone conversation, most critically Foote's statement that Cook had done heat stretching of braided GSP lines before DSM or Allied Signal suggested use of this process (or drew braided line for PFI). May 14 TR at 174-75; *see also* Ex. 107 (Johnson's notes of conversation).

70. Johnson also testified he did not believe Allied Signal or DSM's suggestions or actual drawing of Superline (by one or both) defeated Cook's claim of inventorship because he believed the drawing was done at PFI's request. May 15 TR at 345-47. He testified that he would have acted differently, expanding his investigation into inventorship, if he understood that an employee of DSM (or presumably Allied Signal) had independently decided to stretch Gorilla braid without a request from PFI.

(6) Foote's Subjective Belief[21]

71. Foote testified that he believes Cook actually began relevant experiments at least as early as May of 1993. May 15 TR at 441. Foote relied, in particular, on processing Cook performed for Foote on May 28, 1993. *Id.*

72. While Foote testified he now believes Cook had performed heat stretching at a positive draw ratio on May 28, 1993, he conceded that he did not reach this conclusion until he was preparing for trial (nearly two decades after Cook performed the relevant work). May 15 TR at 395 (Foote conceding he did not determine drawing occurred at the time); May 15 TR at 420-21 (Foote testimony that he realized denier had gone down when test data was prepared (thus in 1993), but did not realize significance until he was preparing to testify at trial, and appearing to concede he made calculation of relative denier at request of counsel).[22]

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[21] Although Foote's intent is not directly relevant, his subjective belief at the time of his communications with Johnson constitutes some evidence of what he was likely to have told Johnson. The court, therefore, also addresses evidence of Foote's subjective belief at the relevant time.

[22] Foote determined that a small degree of heat stretching (a 1.04 draw ratio) had occurred by comparing post-processing denier, which had been measured at the time, to an estimate of the pre-processing denier (determined by estimating denier based on denier of yarns used as indicated in May 1993 document plus a factor to account for effect of braiding). May 15 TR at 389-390; Ex. 34 at PF_3_0006207-6208.

73. Foote also conceded that he did not have firsthand knowledge of Cook's prior work. May 15 TR at 378-79. Instead, his knowledge of Cook's work came from what Cook told him. *Id.* at 379-416 (conceding he was aware of no other evidence Cook was working on heat stretching *GSP* before September 1994 other than what is in his record of Cook's one day of work in May 1993).

74. In response to questions from the court, Foote, nonetheless, testified that he "believed [Cook] did drawing work much earlier than" October 5, 1994 – the date Cook testified his relevant work began. May 15 TR at 441. Foote confirmed he based this, at least in part, on the one day of processing Cook did for Foote in 1993, explaining that he "brought samples to [Cook] because [Cook] was already working *on other products* and I wanted to see what that process would do to mine. So I assumed he was doing it even before then." May 15 TR at 441.[23]

B. Failure to Disclose Sales of 1995 Fireline Fused

1. Materiality and Remaining Issue

75. In resolving the cross-motions for summary judgment, the court determined that 1995 Fireline Fused fell within Claims 1, 4, and 5 of the '214 patent. Dkt. No. 278 at 31-36. This resulted in invalidation of those claims under 35 U.S.C. § 102(b) because PFI began offering for sale and selling 1995 Fireline Fused in the summer of 1995, more than one year before the '214 application was filed on October 4, 1996. *Id.* at 23, 31-36; *see also* April 15 TR at 83 (Cook agreeing 1995 Fireline Fused in full commercial production by August 25,1995).[24]

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[23] This testimony may support the conclusion that Foote believed Cook was working on drawing braided line made from substances *other than GSP*. It does not suggest that Foote, who was the person then working with Superlines, believed Cook was running tests on GSP during this period.

[24] Under 35 U.S.C § 102(b), a public use or sale is an invalidating act, if it occurs more than one year before the filing of the patent application. Because the '214 patent application was filed on October 4, 1996, the relevant bar date is October 3, 1995.

76. The failure to disclose prior sales[25] of 1995 Fireline Fused in prosecuting the '214 patent, therefore, meets the standard of "but-for" materiality under *Therasense*, because the patent would not have issued as written if PFI had disclosed this information. This leaves the question whether either Cook or Johnson acted with specific intent to deceive the PTO concerning the failure to disclose sales of 1995 Fireline Fused.

77. Normark concedes there is insufficient evidence to establish Cook acted with specific intent to deceive the PTO in failing to disclose sales of 1995 Fireline Fused. The findings in this section, therefore, focus on Johnson's knowledge and intent, most critically whether, during the period he was prosecuting the '214 patent, he (1) was or became aware that 1995 Fireline Fused was on sale before October 3, 1995, and (2) understood that the '214 patent encompassed the process used to make 1995 Fireline Fused.

2. Johnson's Knowledge of Sales of 1995 Fireline Fused

a. Information Received On and Before Date First Fireline Patent Application Filed

78. Cook testified that, at some point before April 27, 1995, he told Johnson that PFI planned to introduce 1995 Fireline Fused at its national sales meeting which was to begin on April 27, 1995, and that Johnson knew it was important to PFI for the patent application to be filed before this meeting. April 15 TR at 51-52, 55-56, 69; May 14 TR at 29.

79. Cook also testified that he (Cook) understood that one reason the company wanted the application to be filed before the meeting was so it could place "patent pending" on the product (1995 Fireline Fused). April 15 TR at 56-57.

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[25] For ease of drafting, the court uses the term "sales" here and will use similar terms (*e.g.*, "on sale" and "selling") in the remainder of this order to refer collectively to public use, offering for sale, or actual sales, except where the cited evidence calls for a distinction.

80. Cook's contemporaneous notes are consistent with this testimony as they indicate that Cook and Johnson discussed the need to file the Fireline patent application before the sales meeting. *See* Ex. 33 at PF0000594 (Cook's notes of a March 24, 1995 telephone call with Johnson stating: "Patent info– Lance, must be prior to sales meeting."); Ex. 41 at PF_10_0011923 (Cook's notes of an April 7, 1995 telephone call with Johnson stating: "Must file patents as soon as possible. . . . Must be prior to sales meeting.").

81. On April 19, 1995, Cook sent a facsimile to Johnson attaching a "[m]arked-up Fusion Line patent draft" and related comments and data. The facsimile advised Johnson: "We are setting up to run hundreds of samples to be introduced at the [PFI] sales meeting which starts 27-APR-95." Ex. 110.

82. On April 27, 1995, Cook sent Johnson another facsimile, again forwarding a marked-up copy of a draft of the Fireline patent application and stating: "The [PFI] sales meeting reception begins late today. The actual presentation of new products will begin tomorrow (28-APR)." Ex. 112.

83. Johnson testified that he knew of the scheduled national sales meeting and PFI's plan to introduce Fireline at that meeting. May 14 TR at 195-97. However, he stated he understood this "introduction" to refer to showing Fireline to sales people, not offering it for sale to the public. *Id.* at 200. Johnson testified that, while he did not remember discussing PFI's desire to put "patent pending" on Fireline, this was a fairly common request. May 14 TR at 196.

84. Johnson explained that while he was aware of the sales meeting and planned introduction of Fireline, this was not his motivation for filing the patent on April 27, 1995. Instead, he filed on that date because he knew Cook "was going to get very busy after and at the sales meeting." May 14 TR at 196.

85. Johnson filed the first Fireline patent application, which matured into U.S. Patent 5,540,990, on April 27, 1995, the day of the reception for PFI's national sales meeting. Ex. 3.

b. Events Post-Dating Filing of First Fireline Patent Application

86. It is undisputed that PFI began selling 1995 Fireline Fused to the public more than a year before the '214 patent application was filed. Dkt. 278 at 23. These sales were so successful that, by early September 1995, PFI was experiencing a raw materials shortage, which was reported to the Board of Directors. Ex. 21, September 5, Board of Directors Report at PF_9_0011504 ("The demand for Fireline has been so great that the company has faced a shortage of raw materials for processing, which has limited ability to meet market demand."); April 15 TR at 46-47 (Cook agreeing Fireline was "such a hit" that the company was having trouble getting enough raw material, but also noting that "industrial fiber going to defense" products contributed to the shortage).

87. Contemporaneous evidence of the introduction and sales includes a June 9, 1995 press release announcing PFI's plans to start shipping Fireline "during the summer of 1995." Ex. 25 at HON000024. It also includes a somewhat earlier internal marketing report (May 25-26, 1995), which describes great excitement concerning the Fireline introduction. *See* Ex. 20 at PF_9_0011494 (stating that "[i]nitial presentations of FIRELINE™ have met with extreme enthusiasm from our customers," and reporting customer comments such as "[l]ooks great, ship. . . immediately," "[h]ow soon can I get it?" and "[h]ere's an open blanket P.O."). The marketing report also states: "To add fuel to the fire that we have created with FIRELINE, we are implementing an advertising campaign that will be unprecedented in terms of aggressiveness and coverage." Ex. 20 at PF_9_0011495; *see also* Ex. 22 PF_8_0011465 (new product brochure for 1996, dated April 20, 1995, indicating Fireline availability date as "T.B.A.").

88. There is no evidence that Johnson saw the press release, marketing report, or any relevant advertisement. He did, however, concede that he learned at some point of the raw material shortage. May 14 TR at 216-17 (testifying that he recalled hearing about a raw material shortage but did not recall when he learned this and also stating he did not recall the concern being linked to demand for Fireline).

89. Between April 1995 and the issuance date for the '214 patent, May 12, 1998, Johnson had a significant number of communications with Cook, who was necessarily aware of the production status of 1995 Fireline Fused.[26] Many of these communications occurred after the April 27, 1995 sales meeting (and filing of the first Fireline patent application) and before the October 1, 1996 conversation between Cook and Johnson relating to filing the '214 patent application on October 4, 1996.[27] *See* Ex. 42 at PF_10_0011946 (8/29/95 in person meeting), PF_10_0011958 (10/2/95 call), PF_10_0011960 (10/2/95 call), PF_10_0011986 (11/9/95 notes of call, referring to a meeting set for November 27, 1995); Ex. 45 at PF_10_0012065-67 (11/27/95 in person), PF_10_0012081-82 (12/21/95 notes referring to planned trip in January and anticipated call from Johnson on 12/22/95); Ex. 46 at PF_10_0012147 (5/7/96 call), PF_10_0012152 (5/30/96 call), PF_10_0012167 (7/22/96 note referring to Johnson's planned visit on 7/25/96). The remaining

[26] Cook developed the manufacturing process and helped set up the manufacturing parameters for 1995 Fireline Fused. April 15 TR at 25, 95. He was aware of sales beginning no later than the summer of 1995. *See* April 15 TR at 28 (stating sales for products introduced in the April sales meeting would normally be on the market for the July sales show); *id.* at 43 (conceding he was aware, during the summer of 1995, that there were raw material shortages due, at least in part, to the market success of 1995 Fireline Fused).

[27] As noted under the Findings of Fact relating to inventorship, the draft '214 patent application was essentially dormant from sometime before April 27, 1995, to October 1, 1996, while Johnson's efforts on behalf of PFI were focused on prosecuting the Fireline patents.

communications occurred on or after October 1, 1996. *See* Ex. 47 at PF_10_0012198 (10/1/96-10/4/96 calls), PF_10_0012216 (12/16/96 call), PF_10_0012287-88 (9/8/97 call).[28]

90. One of the communications referred to in Cook's notebook was Johnson's in-person visit to PFI on August 29, 1995. Ex. 113 (Cook unredacted notes of meeting with Johnson). This is shortly before the September 1995 board meeting, thus the time frame during which the minutes of that meeting report high demand for Fireline and a related shortage of raw materials. Ex. 21 at PF_9_0011504; *see also* April 15 TR at 83-85; May 14 TR at 164-65. As noted above, Johnson conceded he was made aware of this shortage at some point, though he did not recall when he learned of it. *See supra* ¶ 88.

91. In addition to Cook, Johnson communicated with other PFI employees and executives during the relevant time period, including Chuck Mize, Terry Pilon, and Dan Foote. May 14 TR at 206. All of these employees would have been aware of the commercial success of 1995 Fireline Fused for which Johnson was prosecuting the patent.

92. Cook and Johnson met with the PTO in December 1995, concerning the first Fireline patent application, spending one or two days together. Ex. 45 at PF_10_0012081; April 15 TR at 89. The divisional Fireline patent application which matured into the '597 Fireline patent was filed later that month.

93. Johnson denied knowing, during any time relevant to prosecution of the '214 patent, that 1995 Fireline Fused was on sale on or before October 3, 1995. May 14 TR at 200-202, 212. Johnson testified that he believed that PFI could introduce the product at the national sales meeting, distribute samples to its sales representatives and outside distributors, but then not sell or place it in

[28] Unredacted versions of a number of these notebook entries may be found in the following exhibits: Ex. 113 (8/29/95); Ex. 114 (10/2/95); Ex. 115 (11/27/95); Ex. 120 (5/30/96). *See also* Ex. 116 (3/6/96 reference to facsimile to Johnson).

public use. May 14 TR at 202-04 (noting a variety of reasons sales might not immediately follow introduction). Johnson also testified that he had no personal knowledge concerning PFI's normal practices in connection with the introduction of new products at a national sales meeting. May 15 TR at 331.

94. Based on the above evidence, the court finds that Johnson knew that a product falling within the scope of the first Fireline patent application was to be "introduced" at the national sales meeting on April 28,1995, and that "hundreds of samples" were to be distributed at that meeting. The court further finds that this knowledge at least put Johnson on notice that 1995 Fireline Fused was to be offered for sale and put in public use as soon as possible after April 27, 1995. Johnson also had many other communications with Cook and other PFI representatives who would have been aware of sales of 1995 Fireline Fused. Johnson's in-person meeting with Cook in August 1995 is of particular note as this was during a time when PFI was experiencing shortages of raw materials for 1995 Fireline Fused. Thus, there is circumstantial evidence that Johnson learned that 1995 Fireline Fused was on sale before October 4, 1995.

3. Johnson's Understanding of Relevance of Fireline Sales

95. Johnson testified that he would not have disclosed sales and public uses of 1995 Fireline Fused to the PTO during prosecution of the '214 patent, even if he had known of them, because he believed that 1995 Fireline Fused was not material to prosecution of the '214 patent. May 14 TR at 218-219.

96. As an experienced patent lawyer, Johnson was aware of the duty of candor regarding his obligation to disclose prior art. May 14 TR at 129. He was also aware of the materiality standards in place during his prosecution of the '214 patent. May TR at 131-133. *Id.* (testifying that

he understood the PTO examined materiality under a preponderance of the evidence standard, while giving the pending application claims their broadest reasonable construction).[29]

97. Johnson testified that he believed any product falling within the Fireline patents would fall outside the scope of the '214 patent claims for several reasons. First, he understood the Fireline process did not increase tenacity, while increasing tenacity was the very purpose of the process claimed in the '214 patent. May 14 TR at 222, 224-25; May 15 TR at 267, 272, 298-99. Second, he understood the Fireline process used a higher temperature that resulted in a fused product, while he believed the '214 patent process excluded a fused product. May 14 TR at 219. Third, Johnson understood that the Fireline process employs a plasticizer to enhance fusing and did not believe the '214 patent process used a plasticizer. May 14 TR at 220-222. Finally, he noted that the goal of the Fireline patents was to produce a monofilament-like product (as a result of partial fusing), which was not a goal or noted benefit of the '214 patent.

98. The Fireline patents, which were also drafted by Johnson and still-pending as applications when the '214 patent application was filed, describe the Fireline manufacturing process in a manner that at least overlaps with the '214 patent claims. Specifically, examples 11-13 of the '990 and '597 (Fireline) patents describe heat stretching of a 4 yarn braid, with a structure of 2 by 100 denier and 2 by 200 denier. Examples 11-13 employed two stages of heat stretching, at 148°C. and 152°C. The first stage used a draw ratio of 1.4, and the second stage used a draw ratio of 1.36, for a total draw ratio of 1.9. Examples 11-13 used mineral oil as a plasticizer, and in Example 12,

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[29] Counsel for Normark examined Johnson concerning the version of 37 C.F.R. §1.56 ("Rule 1.56") dated July 1, 1997, and adopted January 17, 1992. This was the version in effect during the prosecution of the '214 patent. May 14 TR at 129. "Materiality" is defined in this version of Rule 1.56 as information that is not cumulative, and that "establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim." 37 C.F.R. §1.56 (July 1, 1997).

that mineral oil contained a dye. The Fireline patents report that the use of mineral oil "improve[d] the ease of fusion" and the result was a "well fused" fishing line. Ex. 3, Col. 7, Examples 11-13 and lines 24-60; Ex. 5, Col. 7, Examples 11-13 and lines 24-60.

99. Examples 11-13 thus match the parameters of Claim 1, as they describe heat stretching a braided fishing line made from GSP, with 4 yarns of either 100 or 200 denier, at temperatures and draw ratios within the scope of Claim 1 (and many of the other claims of the '214 patent). The Fireline patents teach that such heat stretching may preserve or increase tenacity, though increasing tenacity was not the purpose of the Fireline patents. *E.g.*, May 14 TR at 223-34; May 15 TR at 267.

100. Johnson conceded at trial that there were certain overlaps between the Fireline and '214 patents. For example, he agreed that while the Fireline Fused process used a higher temperature than the '214 patent claims, at least some of the temperatures specified (148°C. and 152°C.) are within the scope of the '214 patent claims, which claim a heat stretching temperature of "about 150°C." May 14 TR at 228. He also, ultimately, agreed that Claim 9 of the '214 Patent refers to use of a plasticizer before heat drawing, which overlaps with claims in the Fireline patents. May 14 TR at 232.[30] He, nonetheless, argued that the processes remain distinct because he did not believe the

[30] Contrary to Johnson's initial testimony, the '214 patent indicates that coating with mineral oil for purposes of coloring (which could also have the effect of enhancing fusion) would occur before heat-stretching. *Compare* May 14 TR at 230-231 (Johnson testimony that the use of mineral oil as a coloring agent in the '214 patent only relates to coloring the line in a process *after* heat stretching), *with* Ex. 1, Col. 15, l. 60-62 ("A process according to claim 1 further comprising: Adding color to said line by coating the line with a mineral oil containing a dye or pigment *before the stretching step*.") (emphasis added); *see also* Ex. 1, Col. 3, l. 24-30 ("If desired, one or more dyes, pigments or other colorants can be coated on to the line or made to absorb into the line structure to change the line color. *Preferred coloring agents include mineral oils* containing dyes or pigments as well as ethyline-acrylic acid copolymer.") (emphasis added). The timing of application of mineral oil is significant because it would only act as a fusing agent if applied before heat stretching.

'214 patent to encompass fusing or the Fireline patents to address increased tenacity. May 15 TR at 232-33, 267, 272.[31]

101. Despite the presence of claims which would allow for fusing and the absence of any express limitation, Johnson testified that he intended the '214 patent to cover only unfused products. Although the court has found the '214 patent to be written so broadly that it fails to exclude fused products, it finds Johnson's testimony as to his subjective intent and belief credible. In this regard, the court finds little or no motivation for Johnson to intentionally claim in the '214 patent something that would have been covered by the Fireline patents.[32]

102. Based on the evidence summarized above, the court finds that Johnson did not understand or intend the '214 patent to reach fused products and, consequently, would not have had reason to believe the '214 patent might be barred by sales of 1995 Fireline Fused.[33]

C. Arguments Relating to Hogenboom

103. Normark contends that PFI's September 29, 1997 Office Action Response contained false statements and material omissions relating to the distinction of the Hogenboom patent (Ex. 7).

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[31] The Fireline patents state that the process "*preserves or increases* the tenacity of the fused structure relative to the unfused braided or twisted line." Ex. 3, Col. 4, l. 10-11; Ex. 5, Col. 4, l. 12-13.

[32] Had Johnson realized the overlap, he could have easily limited the scope of the patent by including the words "unfused." May 15 TR at 299. Had he done so, he would simply have carved out what PFI claimed under a different and related patent application. This would have avoided the on sale bar difficulties posed by the failure to include the "unfused" limitation, with no apparent disadvantage to the client.

[33] In light of Normark's concession that the evidence does not support a finding that Cook intended to deceive the PTO with respect to sales of 1995 Fireline Fused, the court has directed these findings solely to Johnson. The last finding is, however, also relevant to PFI's failure to disclose sales of 1995 Fireline Fused in response to the PTO's initial rejection of the '214 patent. As to this issue, the court finds that Cook, like Johnson, neither understood nor intended the '214 patent to reach fused products.

Normark further contends that the false statements and material omissions were made with the intent to deceive the PTO, thus supporting a claim of inequitable conduct. The court's prior decision in this matter did not decide the issues of materiality or intent as to Hogenboom. The court now makes the following findings of fact as to these issues.

104. The Hogenboom patent is assigned to DSM, PFI's supplier of Dyneema material. PFI entered into a supply agreement with DSM on April 7, 1995. Ex. 19.

105. The Hogenboom patent teaches heat stretching a braided rope made of gel spun polyolefins. Ex 7 (abstract, indicating stretching is done "preferably . . . at elevated temperatures" to increase stiffness and tensile strength); April 15 TR at 139 (Cook conceding that, "in general, the Hogenboom patent teaches heat stretching" a braided or twisted rope made of GSP).

106. Hogenboom teaches heat stretching using temperature and draw ratio parameters within the scope of the claims of the '214 patent. *Id*. Specifically, some of Hogenboom's examples show heat stretching at 140°C and a 1.23 draw ratio (referred to in Hogenboom as an elongation percentage) and 120°C and a draw ratio of 1.05. April 15 TR at 139. The Hogenboom patent also teaches that using heat stretching will increase tenacity of the braided structure. April 15 TR at 139-40 (also asserting heat stretching in Hogenboom was "for the purpose of affecting creep").

107. Hogenboom defines "rope" as follows: "By 'rope' is understood in the present application: rope, cord, cable, string, and similar structures comprising filaments or filaments and fibres." Ex. 7, Col. 1, lines 11-13. Hogenboom's examples teach heat stretching a rope structure with a total denier ranging from 425,600 to 532,000.[34]

[34] The claims of the '214 patent, in contrast, teach heat stretching a braided structure with a maximum total denier of about 64,000. Ex. 1, claim 1; April 15 TR at 143 (addressing relative denier).

108. On April 28, 1997, the PTO issued its first Office Action concerning the '214 patent application. The PTO rejected all twenty pending claims as anticipated by Hogenboom. Ex. 2 at 2140056-58.

109. Johnson sent the Office Action to PFI, asking Cook to take a look at the Hogenboom patent. Ex. 129; May 15 TR at 244. Johnson suggested limiting the claims of the patent "to a braid of a specified maximum size to get away from the rope structure" described in Hogenboom. Ex. 129.

110. Cook sent Johnson a fax on June 10, 1997, with some detailed calculations concerning the total denier of the Hogenboom patent as compared to fishing line products PFI was likely to make. Specifically, Cook calculated that the total denier of the Hogenboom rope structure as described in the examples was 425,600 denier and 532,000 denier, while the largest anticipated fishing line product would be in the range of 10,000 denier. Ex. 130. Cook also wrote that he "[a]gree[d] with [Johnson's] suggestion to limit claims to structures of a maximum denier to get away from the rope structure." *Id.*

111. Cook did not tell Johnson at that time that it was actually easier to heat stretch a fishing line than a rope, because of heat transfer issues. May 14 TR at 93.[35] Cook also did not tell Johnson that, once you read the Hogenboom patent, you would know how to heat stretch a fishing line to increase tenacity. *Id*.

112. PFI submitted an amended set of claims and a response to the first Office Action on September 29, 1997. Ex. 2 at 21400461-71.

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[35] Johnson testified that he understood that heat transmission would be easier for fishing line than for rope due to fishing line's smaller denier. May 15 TR at 250. While this may suggest he understood it would be easier to heat-stretch fishing line than rope, that is not entirely clear from his testimony given that other factors (*e.g.,* breakage) could have come into play.

113. Johnson amended Claim 1 by stating in the preamble that the process was for "increasing tenacity in a twisted or braided fishing line." Johnson also amended Claim 1 by limiting the line to 3-64 GSP yarns, with each yarn within the range from about 20 denier to about 1,000 denier, and by replacing percentages of draw (from about 1% to about 100%) with draw ratios ("about 1.0 to about 2.0"). Ex. 2 at 21400462.

114. Johnson also submitted remarks distinguishing Hogenboom. These remarks included the following relevant statements:

> Hogenboom *et al.* is directed with only general teachings to the stretching of ropes in order to increase the stiffness and tenacity of the rope. Indeed, there is little or no guidance provided in the specifications outside the examples. . . . [The ropes in the examples] are stretched at either 120°C or 140°C to a total elongation of either 5% or 23%. There is no description of the draw ratios that were used to produce these results nor any correlation between elongation and draw ratio.
>
> * * *
>
> The present invention is not, of course a rope nor a process for making rope. The product of the present process is a fishing line with a much smaller total denier than a rope and involves significantly different performance requirements. . . .
>
> * * *
>
> There is also no support for a rejection based on obviousness. Hogenboom says nothing about fishing lines, draws no correlations between rope manufacture and fishing line production, and does not provide an enabling disclosure to teach any relationship among the processing parameters of draw ratio, temperature, and number of draw stations . . . . No reference has been cited to bridge the gap between these two technologies to make a prima facie case of obviousness.

Ex. 2 at 2140070-71.

115. Johnson's statement that there is no correlation between draw ratio and elongation percentage is inaccurate. Cook testified that there is a direct correlation between a draw ratio and an elongation percentage, noting that the elongation percentage of 23% in Hogenboom is the same

as a draw ratio of 1.23. April 15 TR at 139, 153. Johnson testified that there was a distinction between elongation tests (apparently as he understood they were used in Hogenboom) and continuing drawing as intended by the '214 patent. May 15 TR at 304. While this may be true, it remains inaccurate to state there is not "any correlation" between elongation and draw ratio. April 15 TR at 139, 153.

116. Johnson's more direct statements relating to obviousness, which seek to distinguish fishing line from rope, are also inaccurate. Even if Hogenboom were limited to rope or similarly large lines (and it is not in light of the inclusion of "string and similar structures comprising filaments or filaments and fibres"), the distinctions are inaccurate in light of Cook's testimony that it is easier to heat stretch a fishing line than it is to heat stretch the rope described in Hogenboom. April 15 TR at 144.

117. Johnson understood that at least heat transmission would be easier when heat stretching a fishing line as opposed to heat stretching a rope. May 15 TR at 250 ("I understood that heat transmission across the diameter of a rope was much more difficult than if the structure, such as a fishing line, is smaller.").

118. At trial, Cook effectively conceded that his claimed heat stretching invention was obvious in light of Hogenboom:

> Q: . . . And the fact of the matter is, Mr. Cook, using heat to stretch fishing line is actually easier than using heat to stretch the larger denier rope described in Hogenboom, correct?
>
> A: Yes.
>
> Q: And that's because of the heat transfer issue to heat up the rope which is comparatively larger than the fishing line is harder, more difficult?
>
> A: Yes.

> Q: And you would expect once you know that you can heat stretch a rope to increase tenacity, you would expect that you could heat stretch a braided fishing line to increase tenacity, correct?
>
> A: You could infer that. Correct.
>
> Q: So that was known from Hogenboom. Once you read Hogenboom, you know you're going to increase tenacity with the braided fishing line by heat stretching it, right?
>
> A: Yes.

April 15 TR at 144.

119. During the liability phase of this case, PFI proffered Egbert van Gorp, a former DSM executive, as an expert. Van Gorp's testimony also confirms that the broad claims of the '214 patent are obvious in light of Hogenboom as he testified that it was a known and expected result from Hogenboom that one could heat stretch a fishing line to address inefficiencies in the braiding structure, and gain an increase in tenacity. Van Gorp described how heat stretching "pulls" the yarns to more evenly distribute the load in the early stages of drawing, and created a graph to describe this process, which he stated was an expected result that everybody skilled in the art knew. *See* Van Gorp deposition testimony designated by Normark (excerpts from deposition pp. 55-75); Exs. 29-30; Dkt. No. 278 at 9-10.[36]

120. Johnson's remarks also ignore Hogenboom's definition of rope as including "string and similar structures comprising filament or filaments and fibres," and fail to disclose that it is easier to heat stretch a product of a smaller denier, such as string or similar structures (including

[36] The '214 patent does not include any limitation relating to the mechanism by which tenacity is increased. Thus, it covers tenacity increases resulting from heat drawing within the stated parameters, which includes very low draw ratios and temperatures, even if the increase in tenacity results solely from mechanical effects such as those described by van Gorp as a known and expected result in light of Hogenboom.

fishing line), to increase tenacity than it was to heat stretch a rope. They also fail to disclose that, once a person of ordinary skill understood how to heat stretch a rope to increase tenacity, as explained in Hogenboom, they would understand how to heat stretch a fishing line to increase tenacity, and that that would be an expected result. *Id.*

121. Finally, Johnson's remarks fail to reveal sales and public uses of 1995 Fireline Fused, which would have bridged the gap. May 15 TR at 254.

122. The court finds PFI's remarks distinguishing Hogenboom were incomplete and inaccurate because: (1) Cook and Johnson both understood that it was easier to heat stretch a fishing line to increase tenacity than it would be to heat stretch a rope; (2) Cook understood that his claimed heat stretching process for fishing line was an obvious and expected result, once you understood Hogenboom. It was also inaccurate to argue that there was no reference to "bridge the gap" between Hogenboom's heat stretching of rope and the '214's claims directed to heat stretching of fishing line, when Johnson knew that 1995 Fireline Fused used a substantially identical heat stretching process with braided GSP fishing line.[37]

123. Johnson's remarks and omissions distinguishing Hogenboom patent were significant and not cumulative.

124. However, both Cook and Johnson believed they had resolved the obviousness concern by limiting the '214 patent application to fishing line and denier to 64,000. Moreover, Johnson considered his statements distinguishing Hogenboom in the nature of argument, given that the patent

[37] While Cook did not craft this response, he was likely aware of it as he testified it was his normal practice (albeit based on limited experience) to review office actions and responses. April 15 TR at 147. Cook stated that it was "likely" that he reviewed and edited this Office Action response, but he did not specifically recall doing so. April 15 TR at 149, 154.

examiner had access to the Hogenboom patent and the Ryan patent to which the examiner also referred.

125. Finally, there is evidence that Cook and Johnson both failed to appreciate the overlap between 1995 Fireline Fused and the '214 patent when these remarks were made. *See supra* ¶ 102.

II. CONCLUSIONS OF LAW

As set forth previously (*see* Standard), to prevail on its inequitable conduct counterclaim, Normark must prove two elements by clear and convincing evidence: (1) that the patentee (here Cook and Johnson)[38] made material false statements or omissions; and (2) that the patentee acted with specific intent to deceive the PTO in making such false statements or omissions. *See Therasense, Inc. v. Becton, Dickinson & Co.*, 649 F.3d 1276, 1290 (Fed. Cir. 2011) (*en banc*); *see also Aventis Pharma S.A. v. Hospira, Inc.*, 675 F.3d 1324, 1334 (Fed. Cir. 2012)*; Ring Plus, Inc. v. Cingular Wireless Corp.*, 614 F.3d 1354, 1358 (Fed. Cir. 2010).

A. MATERIALITY

Under *Therasense*, the false statements or omissions must meet the standard of "but-for" materiality, meaning that Normark is required to show that the PTO would not have allowed the '214 patent had it received complete and accurate information. *Therasense*, 649 F.3d at 1291. The court has already determined that the claim that Cook was the inventor of the '214 patent and the failure to disclose sales of 1995 Fireline Fused were each material, as each act independently invalidated certain claims of the '214 patent. *See* Dkt. No. 278 at 26-40. The court now reaches the same

[38] The duty of candor applies to the "patentee," which includes the listed inventor(s) and the prosecuting attorney: here, Cook and Johnson respectively. 37 C.F.R. §1.56(c)(1) and (2). Any other person substantively involved in the preparation or prosecution of the application and associated with the inventor or the inventor's assignee may satisfy the disclosure obligation by providing information to the inventor or the prosecuting attorney. 37 C.F.R. §1.56(c)(3) and (d).

conclusion as to PFI's response to the PTO's initial rejection of the '214 patent application. PFI's response included the following relevant statements and related omissions: (1) a statement that there is no correlation between draw ratio and elongation percentage (Findings of Fact ¶ 115); (2) a statement that Hogenboom is limited to rope and other large denier products, while failing either to acknowledge that Hogenboom states an intent to include "string and similar structures comprising filaments or filaments and fibres" within the term rope or to disclose the relative ease of heat stretching smaller denier structures (Findings of Fact ¶¶ 116-20); and (3) a statement that there was nothing to bridge the gap between prior art and the claims in the '214 patent, while failing to disclose sales of 1995 Fireline Fused more than one year before the '214 patent application was filed (Findings of Fact ¶ 121).

The statements referenced above were incomplete and inaccurate, particularly when considered in light of the related omissions. Findings of Fact ¶ 122. They also were not cumulative and, in combination, establish a prima facie case of unpatentability. *See* Findings of Fact ¶ 123; *Therasense*, 649 F.3d at 1291-92. Most critically, the court finds by clear and convincing evidence that the statement that there was nothing to bridge the gap between Hogenboom and fishing line combined with the failure to disclose prior sales of 1995 Fireline Fused was material. This is because 1995 Fireline Fused bridged any gap that might have existed between Hogenboom and its application to fishing line and, if disclosed, would have caused the PTO to deny the application. The court, therefore, finds material misrepresentations or omissions were made in response to the first Office Action.

B. SPECIFIC INTENT

The intent element of the inequitable conduct counterclaim requires Normark to prove, by clear and convincing evidence, that a material false statement or omission was made with specific

intent to deceive the PTO. *Therasense*, 649 F.3d at 1290. Because Normark seeks to prove this element by indirect and circumstantial evidence, it must demonstrate that intent to deceive is "the single most reasonable inference to be drawn from the evidence." *Id*. To meet this requirement "the evidence must be sufficient to *require* a finding of deceitful intent in light of all the circumstances. . . . Hence, when there are multiple reasonable inferences that may be drawn, intent to deceive cannot be found." *Id.* at 1290-91 (internal citations and marks omitted, emphasis in original). To the extent Normark relies on alleged omissions, it must establish by clear and convincing evidence "that the applicant knew of the [omitted information], knew that it was material, and made a deliberate decision to withhold it." *Id*. at 1290.[39]

1. Inventorship.

As to inventorship, Normark has failed to meet this standard because there are multiple reasonable inferences to be drawn as to Johnson's and Cook's intent and some of these inferences suggest motives other than an intent to deceive the PTO.

As to Johnson, the evidence is susceptible to a reasonable inference that he, in fact, believed Cook had begun relevant experiments before any suggestions were received from DSM or Allied Signal. It is also reasonable to infer that Johnson believed any specific recommendations from DSM and Allied Signal were in the nature of technical input that did not rise to the level of conception. Likewise, a reasonable inference may be drawn that Johnson believed any heat drawing of braided GSP by these entities was at PFI's request and was in the nature of technical assistance, not an independent conception and reduction to practice.

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[39] It is not enough to show that a "misrepresentation or omission amounts to gross negligence or negligence under a 'should have known' standard[.]" *Id*. at 1290 (citing *Kingsdown Med. Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 877 (Fed. Cir. 1988)).

These inferences find support in a number of sources including Johnson's testimony that Foote advised him that: (1) Allied Signal and DSM had expressed skepticism about whether heat stretching would be successful; and (2) Cook had begun work in the area before PFI received any recommendation or input from Allied Signal or DSM . That Foote was likely to have expressed such a view is supported by Foote's testimony that PFI personnel decided, before the meeting with Allied Signal, not to share what they believed was their idea to heat stretch braided GSP. It is also consistent with Foote's July 1996 memorandum, which indicates his belief at that time that Cook began relevant experiments before September 1994 (when Foote received the heat-drawn sample from Allied Signal). Both Foote and Cook also told Johnson that Cook had done the work for the invention claimed in the '214 patent application and should be listed as the inventor.

Collectively, this evidence supports a reasonable inference that Johnson subjectively believed Cook to be the inventor and, consequently, did not act with intent to deceive the PTO. It follows that Normark has failed to establish that the "single most reasonable inference" is that Johnson intended to mislead the PTO as to inventorship.

The court reaches the same conclusion as to Cook, albeit for different reasons. Cook had little knowledge of patent law at the time of his involvement in preparation and prosecution of the '214 patent. His limited knowledge of the law supports a reasonable inference that, despite knowledge of relevant facts (*e.g.*, Allied Signal and DSM's recommendations and actual heat-stretching of samples, DSM's suggestion of specific parameters, the start-date of his own experiments, and the obviousness of at least part of what was claimed), Cook did not understand that this did not qualify him as the inventor. A reasonable inference may be drawn that Cook believed he was the inventor due to his experiments taking the concept beyond what was obvious and beyond

general concepts or specific parameters suggested by DSM (or Allied Signal), and due to his development of a usable product and related manufacturing process. While the claims of the '214 patent ultimately encompassed processes that were both obvious and within the scope of what DSM recommended and demonstrated, the evidence is susceptible to a reasonable inference that Cook did not understand the difficulty caused by this overbreadth. It is also notable that Cook provided relevant information regarding his start date and DSM's contribution to Johnson, an experienced patent attorney, who did not raise any concern regarding inventorship in his discussions with Cook.[40]

As with Johnson, this evidence supports a reasonable inference that Cook subjectively believed he had the right to claim inventorship and, consequently, did not act with intent to deceive the PTO. It follows that Normark has failed to establish that the "single most reasonable inference" is that Cook intended to deceive the PTO as to inventorship.

2. Sales of 1995 Fireline Fused.

As to sales of 1995 Fireline Fused, and related application of the on-sale bar, the court finds Normark has failed to prove by clear and convincing evidence that Johnson intended to deceive the PTO.[41] This is because a reasonable inference may be drawn that Johnson neither intended nor understood the '214 patent to encompass a fused product and, consequently, to overlap with 1995 Fireline Fused. Findings of Fact ¶¶ 101, 102. Had Johnson recognized the overlap, he could easily

[40] For reasons explained above, Johnson's receipt of this key evidence is insufficient to prove intent to deceive on his part because *other* information he received suggested that Cook was the inventor.

[41] As noted in the Findings of Fact, Normark concedes there is insufficient evidence to support a finding that Cook acted with intent to deceive as to this ground for inequitable conduct.

have limited the '214 patent application to unfused line, with little or no disadvantage to PFI in light of PFI's then-pending Fireline patent applications. Findings of Fact ¶¶ 97-102.

3. Response to PTO relating to Hogenboom.

The evidence is also insufficient to support a finding of intent to deceive as to PFI's response to the PTO's initial rejection of the '214 patent application in light of Hogenboom. This is, first, because both Cook and Johnson believed they had resolved the obviousness concerns by limiting the product to fishing line and a maximum denier of 64,000. Findings of Fact ¶ 124. Johnson also considered his statements in the response to be in the nature of argument, particularly as he understood the examiner had considered both Hogenboom and other relevant patents (*e.g.,* the Ryan patent). Findings of Fact ¶ 125. *See generally Rothman v. Target Corp.*, 556 F.3d 1310, 1328-29 (Fed. Cir. 2009) ("While the law prohibits genuine misrepresentations of material fact, a prosecuting attorney is free to present argument in favor of patentability without fear of committing inequitable conduct.").[42]

The non-disclosure of sales of 1995 Fireline Fused as something that might have bridged the gap, likewise, fails to support an inference of intent to deceive. This is because neither Cook nor Johnson understood or intended the '214 patent to reach fused products. *See* Findings of Fact ¶ 102. Thus, they did not understand its materiality.

For all of these reasons, the court does not find that the most reasonable inference to be drawn from the evidence is that either Cook or Johnson intended to deceive the PTO through any

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[42] Cook provided input for this argument, though he did not craft it. He also concurred with Johnson's suggestions as to limitations to avoid obviousness concerns. Regardless of his input, the evidence does not support an inference that Cook intentionally provided false information or intentionally withheld known material information. Thus, no intent to deceive by Cook may be inferred from Johnson's ultimate arguments.

part of PFI's response to the initial rejection of the '214 patent application. As to this ground, therefore, Normark's counterclaim fails for lack of clear and convincing evidence of intent to deceive.

CONCLUSION

For the reasons set forth above, the court finds that material misstatements or omissions were made, but these misstatements and omissions were not intended to deceive the Patent and Trademark Office. Plaintiff Pure Fishing, Inc. is, therefore, entitled to judgment in its favor on Normark's inequitable conduct counterclaim. As this resolves the last remaining claim, the Clerk of Court is directed to enter judgment on this and the court's prior rulings.

IT IS SO ORDERED.

s/ Cameron McGowan Currie
CAMERON MCGOWAN CURRIE
UNITED STATES DISTRICT JUDGE

Columbia, South Carolina
August 14, 2013