United States District Court,
W.D. Wisconsin.

**William C. FRAZIER, Frazier Industries, Inc. and Airburst Technologies, LLC,**
Plaintiffs.
v.
**LAYNE CHRISTENSEN COMPANY and Prowell Technologies, Ltd,**
Defendants.

No. 04-C-315-C

**May 16, 2005.**

**Background:** Owner of patent for method for rehabilitating water wells sued competitor for infringement, and competitor's supplier for induced or contributory infringement. Defendants moved for summary judgment.

**Holdings:** The District Court, Crabb, J., held that:
(1) patent was not infringed, and
(2) liability for either active inducement of infringement or for contributory infringement is dependent upon existence of direct infringement.

Motions granted.

See also 2005 WL 372253.

6,250,388, 6,533,035. Cited.

Jane C. Schlicht, for Plaintiffs.

Bruce A. Schultz, Coyne Niess Schultz Becker & Bauer, Madison, WI, for Defendants.

**OPINION and ORDER**

CRABB**, District Judge.**

The parties in this civil action for declaratory, injunctive and monetary relief are in the business of rehabilitating water wells, which experience a decrease in productivity over time because of the accumulation of bacteria and other biological and mineral deposits within them. Various techniques exist for restoring well performance and improving water quality through removal of these impediments. Plaintiff William Frazier, a former employee of defendant Layne Christensen Company, is the owner of U.S. Patent No. 5,579,845, which discloses a method for rehabilitating water wells that employs a device or combination

of devices that generate pressure waveforms and mass displacement within well water. The waves generated in the water remove scale and other impediments that have collected within the well. Plaintiff Frazier and the licensees of the '845 patent, plaintiffs Frazier Industries, Inc. and Airburst Technologies, LLC, market their process under the trade name "Airburst." They contend that defendant Layne Christensen's methods for rehabilitating water wells, marketed under the trade names "BoreBlast" and "BoreBlast II", infringe the '845 patent. Specifically, plaintiffs contend that the "BoreBlast" process infringes claims 1, 2, 19 and 20 of the '845 patent and that the "BoreBlast II" process infringes claims 1-7 and 19 of the '845 patent. Plaintiffs contend also that defendant ProWell Technologies, Ltd., the maker of an "air impulse generator" used in the BoreBlast II method, is liable for contributory infringement of the '845 patent and for inducing defendant Layne Christensen to infringe the '845 patent. In addition to the infringement claims under 35 U.S.C. s. 271, plaintiffs assert claims of unfair competition under s. 43(a) of the Lanham Act, 15 U.S.C. s. 1125(a), and Wisconsin common law and tortious interference with business relations. Subject matter jurisdiction is present. 28 U.S.C. s.s. 1331, 1338 and 1367.

This case is before the court on (1) defendant Layne Christensen's motion for summary judgment as to plaintiff's patent infringement claim; (2) defendant ProWell Technologies' motion for summary judgment as to plaintiffs' claims of contributory infringement and active inducement of infringement; (3) plaintiffs' motion to strike sixteen affidavits submitted in support of defendant Layne Christensen's motion for summary judgment; and (4) plaintiffs' motion to strike five exhibits attached to the affidavit of Gennadi Carmi that was filed in support of defendant Layne Christensen's motion for summary judgment. In addition to the motions to strike, plaintiffs have moved for leave to file a sur-reply brief in opposition to the motions for summary judgment.

Plaintiffs' motion to file a sur-reply brief will be denied. I will grant plaintiffs' motion to strike the affidavits of sixteen individuals who have performed the BoreBlast and BoreBlast II processes for defendant Layne Christensen because defendant failed to properly disclose the identities of these individuals to plaintiffs during discovery. Plaintiffs' motion to strike the exhibits attached to Gennadi Carmi's affidavit will be denied as unnecessary. However, because I agree with plaintiffs that Carmi's affidavit does not contain facts showing that he is competent to authenticate the exhibits, I will disregard them in considering whether defendant Layne Christensen's proposed findings of fact citing the exhibits are supported by sufficient evidence.

With respect to the patent infringement claims, I conclude that the "activating," "monitoring" and "adjusting" steps set out in independent claim 1 and the "initiating," "monitoring" and "adjusting" steps set out in independent claim 19 of the '845 patent must be performed in the order in which they are written in the claims. However, I do not construe claims 1 and 19 to require that the "monitoring" step in each claim be performed while the means for generating percussive waveforms or energy remains in the well and "activated" (claim 1) or "initiated" (claim 19).

On the basis of this construction, the motions for summary judgment filed by defendants will be granted. Defendant Layne Christensen is entitled to summary judgment as to plaintiffs' claim of direct infringement because plaintiffs have failed to present evidence from which a reasonable jury could conclude that BoreBlast and BoreBlast II infringe the '845 patent literally or under the doctrine of equivalents. Specifically, plaintiffs have failed to present evidence that defendant uses video equipment in a manner that reads on the "monitoring" limitation in claims 1 and 19. This conclusion entitles defendant ProWell Technologies to summary judgment on plaintiffs' claims of active inducement of infringement and contributory infringement because the existence of direct infringement is a prerequisite to liability for active inducement and contributory infringement. (Because it is unnecessary to delve into the business relationship between defendants Layne Christensen and ProWell Technologies to decide defendant ProWell's motion for summary judgment, I have omitted many of the proposed findings of fact detailing that relationship.)

Before taking up the motions for summary judgment, I will address plaintiffs' motions and comment briefly on the parties' proposed findings of fact.

## I. PLAINTIFFS' MOTIONS

### A. *Motion for Leave to File Sur-reply Brief*

Plaintiffs requested leave to file a sur-reply brief after the close of briefing on their motions for summary judgment on the ground that defendants had made a late production of documents relevant to their argument that their well rehabilitation methods do not infringe the '845 patent and that plaintiffs wanted an opportunity to respond to the documents. Defendants deny that the documents were produced late or that they were ever the subject of a request for production. This is one reason to deny plaintiffs' motion. Another is that plaintiffs have not distilled the allegedly untimely information into proposed findings that would tend to put into dispute facts proposed by defendants. *Procedure to Be Followed on Motions for Summary Judgment* (attached to Preliminary Pretrial Conference Order, dkt. # 31), I.B.1 ("Each fact should be proposed in a separate, numbered paragraph"); I.B.4 ("The court will not consider facts contained only in a brief"). Therefore, the court will not consider arguments incorporating that information.

### B. *Motion to Strike Affidavits*

[1] In support of their motions for summary judgment, defendant Layne Christensen submitted the affidavits of sixteen individuals (Andi Atchison, Tom Butler, Mike Chauffe, Jesus Guevara, Martin Israel, Donny Keiser, Larry Kinley, Jody Menard, Louis Miller, Lloyd Morgan, Rick Propp, Darryl Ross, Bill Senne, John Warren, David Wood and Joe Yost) who have performed its BoreBlast and BoreBlast II procedures. (All further references to "defendant" will be to defendant Layne Christensen unless otherwise specified.) Defendant submitted the affidavits in support of its proposed findings of fact para.para. 46-48. Plaintiffs argue that these affidavits should be struck under Fed.R.Civ.P. 37(c) because defendant did not disclose the names of these individuals to plaintiffs before filing its motion for summary judgment. Specifically, plaintiffs point to defendant's failure to disclose the names of these individuals in their Rule 26(a) disclosures or in response to an interrogatory submitted by plaintiffs that requested the identity of any person "with knowledge of the factual bases for the contention that Layne has not infringed the '845 patent."

Defendant Layne Christensen argues that it did not believe it would use the testimony of the sixteen individuals at the time it made its Rule 26(a) disclosures and that it did not realize that the affidavits would be needed to support its summary judgment motion until immediately before the motion was filed. Thus, it did not have time to supplement its Rule 26(a) disclosures. Moreover, defendant contends that the names and positions of seven of the sixteen affiants were disclosed in documents produced by defendants or in depositions taken by plaintiffs.

Fed.R.Civ.P. 26(a)(1)(A) requires automatic disclosure of the identity of individuals "likely to have discoverable information that the disclosing party may use to support its claims or defenses." Defendant's argument that it did not believe it would use the testimony of the sixteen individuals to support its claims or defenses at the time it made initial disclosures misses the mark because Rule 26(a) requires disclosure of the names of individuals with information that a party *may* use to support its claims or defenses. Defendant's obligation to disclose the identity of an individual likely to have discoverable information does not arise only when defendant is one hundred percent sure it will use that information in its case. Given that this case centers on whether the BoreBlast and BoreBlast II methods infringe the '845 patent, it is difficult to comprehend how defendant could not realize until just before it filed its motion for summary judgment that the individuals who performed the BoreBlast and BoreBlast II procedures might have discoverable information. Moreover, defendant's argument that it satisfied its duty to supplement its disclosures by producing documents that contained the names and positions of seven of the sixteen affiants is not convincing because, according to plaintiffs, defendants produced more than nine thousand pages of

documents in discovery.

Plaintiffs' motion to strike will be granted. However, granting plaintiffs' motion does not leave defendant's proposed findings of fact para.para. 46-48 wholly unsupported. In addition to the stricken affidavits, defendant cited the affidavits of James Troutt, Paul Buozis, Ed Condit, Tom Lewis and Bruce Rolston to support those proposed findings. Because plaintiff have made no objection to the affidavits of these five individuals and has not proposed findings to refute defendant's proposed findings para.para. 46-48, as required by this court's summary judgment procedures, I will consider defendant's proposed findings to the extent they are supported by the remaining affidavits.

### C. *Motion to Strike Exhibits*

[2] Plaintiffs' motion to strike exhibits C, E, F, G and H attached to the affidavit of Gennadi Carmi will be denied as unnecessary. However, because I agree with plaintiffs that the exhibits have not been properly authenticated, I will disregard them in considering whether defendant Layne Christensen's proposed finding of fact para. 27 is supported by sufficient evidence.

In his affidavit, Carmi avers that exhibits C, E, F, G and H are true and accurate translations of Russian patents and publications concerning the use of air guns to rehabilitate water wells. However, there are no facts in the affidavit that suggest Carmi is fluent in Russian or can otherwise vouch for the accuracy of the translations. *Cf*. United States v. Sutherland, 656 F.2d 1181, 1201 (5th Cir.1981) (proper authentication of transcript containing translation of conversation in foreign language into English requires testimony of witness qualified to verify translation). Thus, his affidavit does not meet Fed.R.Civ.P. 56(e)'s requirement that "affidavits ... shall show affirmatively that the affiant is competent to testify to the matters stated therein." *See also Procedure to Be Followed on Motions for Summary Judgment* I.C.1.e ("Affidavits must be made by persons who have first hand knowledge and must show that the person making the affidavit is in a position to testify about those facts."); I.C.1.f (documentary evidence used to support proposedfinding of fact must be shown to be true and correct by affidavit).

### D. *Proposed Findings of Fact*

Finally, I have disregarded many of the parties' proposed findings of fact either because they set forth conclusions of law, because the evidence cited does not support the proposal or because they are not supported by citations that are specific enough to alert the court to the source for the proposal.

## II. MOTIONS FOR SUMMARY JUDGMENT

From the parties' proposed findings of fact and the record, I find the following facts to be material and undisputed.

### A. *Undisputed Facts*

#### 1. *Parties*

Plaintiff William C. Frazier is a citizen and resident of Wisconsin. He is the owner of the entire right, title and interest in U.S. Patent No. 5,579,845. Plaintiff is the sole owner of Frazier Industries, Inc., a Wisconsin corporation with its principal place of business in Muskego, Wisconsin, and Airburst Technologies, LLC, a limited liability company formed under the laws of Wisconsin. From December 3, 1996 to October 2003, plaintiff Frazier Industries was the exclusive licensee of the '845 patent; since October 2003, plaintiff Airburst Technologies has been the exclusive licensee of the patent.

Defendant Layne Christensen Company is a corporation formed under the laws of Delaware with its

principal place of business in Mission Woods, Kansas. It provides water well development and rehabilitation services, mineral exploration, geotechnical drilling and oil and gas services. Plaintiff William Frazier was employed by defendant Layne Christensen until 1984, when he left to start his own water well rehabilitation company. Defendant ProWell Technologies is a corporation incorporated outside the United States with its principal place of business in Israel. Established in 1998, defendant ProWell offers innovative, effective and safe technology for the rehabilitation, development and maintenance of water wells. Its technology is based on the creation of high-pressure gas impulses by means of gas impulse device marketed as the "AirShock" impulse generator.

**2. *The*** '845 patent

**a. Specification**

The '845 patent discloses a non-destructive and controllable method for increasing the production of water wells. It describes the prior art in the field of water well rehabilitation as involving the use of dynamite and other explosive materials. As one might expect, the use of explosives in well rehabilitation is not an exact science; it is difficult to estimate the charge required to accomplish a desired goal. Too strong a charge and the well components are damaged or destroyed; too weak a charge and the result is "time-consuming reloadings and repeated firings." '845 patent, col. 1, lines 31-32. Given the hazardous nature of the materials, "trial and error is ill-advised." Id. at col.1, lines 35-36.

According to the specification, an objective of the '845 patent is to overcome the problems associated with the use of explosives in well rehabilitation by providing a non-destructive method of rehabilitation that uses pressure waveforms "which can be repeatedly generated as desired without withdrawal, removal, or reloading the waveform generator outside the well." Id. at col. 1, lines 54-57. Among the benefits "associated with use of a non-explosive, non-destructive source of pressure waveforms and/or mass displacement" are "downhole control and increased production rate." Id. at col. 3, lines 42-45. In addition, the specification indicates, the volume of gas vented, the pressure at which it is vented and the effect on the well system "can be controlled, monitored, and adjusted without withdrawing the apparatus from the well bore." Id. at col. 3, lines 49-50.

The patent contains twenty claims. Claims 1, 12 and 19 are independent. Claims 2-7 are dependent claims that refer directly to claim 1 or to another claim that directly or indirectly refers to claim 1. Claim 20 is dependent on claim 19. Claim 1 reads as follows:

1. A method of stimulating water well production, comprising:

providing a water well, said well having a bore volume;

inserting into said bore volume means for generating pressure waveforms and mass displacement through said bore volume, said waveform generation means selected from the group consisting of at least one percussive gas venting apparatus, at least one electrical arc generator, and combinations thereof;

activating said generation means whereby impediments to well production are removed through interaction with said waveforms;

monitoring the effect of said waveforms using video equipment, bore diameter measuring equipment, or a combination of said equipment; and

adjusting the frequency and amplitude of waveforms generated to meet well performance characteristics.

The other independent claim asserted in this case, claim 19, reads as follows:

19. A non-destructive method of rehabilitating a water well by removing impediments to water production, comprising:

lowering into the bore of a water well means for generating percussive energy, said generating means selected from the group consisting of at least one high pressure gas gun, at least one electrical arc generator and combinations thereof;

initiating percussive impact with in the well bore;

monitoring said removal and the effect of said percussive energy using video equipment, bore diameter measuring equipment, or a combination of said equipment; and

adjusting said percussive energy whereby the mechanical action of said energy propagating within said bore improves water production such that well performance characteristics are met.

In addition to claims 1 and 19, the steps of the patented method are set out in claim 12 and at two points in the specification. Claim 12, which is not asserted in this case, reads as follows:

12. A non-destructive method of mineral, biological and scale removal from the pumping, casing, and screen apparatus and geological structure of a water well, comprising:

inserting into the bore of a water well means for generating percussive energy, said percussive energy generation means selected from the group consisting of at least one percussive gas venting apparatus, at least one electrical arc generator, and a combination thereof;

initiating percussive impact within the well bore;

monitoring said removal and the effect of said percussive energy using video equipment, bore diameter measuring equipment, or a combination of said equipment; and

adjusting the frequency of said percussive energy whereby the mechanical action of said energy propagating within said bore and geological structure enhances apparatus performance and improves water production such that well performance characteristics are met as a result of said removal.

The steps of the method are listed at two points in the specification's written description. Col. 3, lines 1-11 read as follows:

In part, the present invention is a non-destructive method of mineral, biological, and scale removal from the pump, casing, and screen apparatus and geological structure surrounding a water well, including: (1) inserting means for generating percussive energy into the bore of a water well; (2) initiating percussive impact within the well bore; (3) monitoring the removal of mineral, biological and/or scale deposits; and (4) adjusting the percussive energy whereby the mechanical action of the energy propagating within the bore and surrounding geological structure enhances apparatus performance and improves water production.

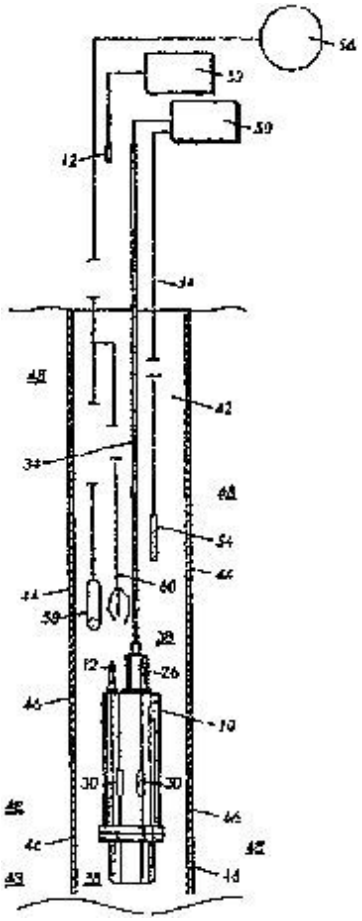
Col. 3, lines 30-39 read as follows:

In part, the present invention is a non-destructive method of rehabilitating a water well by removing impediments to water production, including: (1) lowering into the bore of a water well means for generating percussive energy, the generating means including a high pressure gas gun; (2) initiating percussive impact

within the well bore; (3) monitoring the removal of mineral, biological, and/or scale and related production impediments; and (4) adjusting the percussive energy whereby the mechanical action of the energy propagating within the well bore improves water production.

The '845 patent includes the following diagram, Fig. 4:

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This figure shows a gas gun (10), which is a type of "percussive gas venting apparatus," the preferred embodiment of the waveform generation means. Id. at col. 2, lines 50-51. In addition, the figure shows an electrical arc generator (54), video equipment (58) and bore diameter measuring equipment (60). The specification describes the gas gun as a percussive venting apparatus that rapidly releases pressurized gas in a water well bore to generate waveforms that propagate through the water in the well. It describes the video equipment and bore diameter measuring equipment as being used alone or together to monitor, at an above ground location (56), the effect of the waveforms or percussive energy "without withdrawing [the] apparatus from the well base." Id. at col. 2, lines 26-29.

In addressing the purpose of the "monitoring" step in claims 1, 12 and 19, the specification provides that "[t]he necessity for adjustment and/or repeated activations may be gauged through the use of monitoring equipment, including without limitation video cameras and calipers to track deviations in well bore diameter." Id. at col. 5, lines 1-5.

**b. Prosecution history**

On February 7, 1995, plaintiff William Frazier, John Jansen and Dr. Robert Traylor filed U.S. Patent Application No. 08/385,184 entitled "Method for Improved Water Well Production." The application listed twenty-two claims. On December 29, 1995, the United States Patent & Trademark Office rejected the application on the ground that U.S. Patent No. 5,297,631, referred to as the "Gipson" patent, disclosed "an apparatus and method for stimulating oil production substantially identical to applicant's apparatus and method for water production." On May 22, 1996, an attorney representing the applicants met with the examiner and agreed that the applicants would submit a proposed amendment to their application because the "prior art to Gipson does not appear to monitor the effects of the waveform."

One week later, the applicants submitted an amended application that became the '845 patent. The applicants amended independent claim 1 of the application, which became claim 1 of the '845 patent, by adding the following underlined text: " *monitoring the effect of said waveforms using video equipment, bore diameter measuring equipment, or a combination of said equipment; and* adjusting the frequency and amplitude of waveforms generated *to meet well performance characteristics*." They amended independent claim 21 of the application, which became claim 19 of the '845 patent, by adding the following underlined text: "monitoring said removal *and the effect of said percussive energy using video equipment, bore diameter measuring equipment, or a combination of said equipment;* and adjusting said percussive energy whereby the mechanical action of said energy propagating within said bore improves water production *such that well performance characteristics are met*." With the amended application, plaintiff Frazier submitted an affidavit attesting to the fact that the existence, composition and operation of gas guns were well known to those in the well rehabilitation industry. Plaintiff also submitted a brochure from the Bolt Technology Corporation to show that gas guns were commercially available. The United States Patent & Trademark Office issued the '845 patent on December 3, 1996.

**3. *BoreBlast and BoreBlast II***

In 1999, defendant Layne Christensen introduced BoreBlast. The BoreBlast process incorporated a tool assembled by defendant Layne Christensen that is disclosed in U.S. Patent No. 6,533,035. After the tool is lowered into a water well, pressurized gas is directed through a hose into a tube inside the tool and then to a closed relief valve inside the tool. When the pressure of the gas in the tool matches the pressure setting of the relief valve, the valve opens and expels the gas sideways in bursts, creating shock waves that move through the water and dislodge material that has collected on the well screen and in the filter pack surrounding the well screen.

The BoreBlast II process incorporates a device manufactured and supplied by defendant ProWell Technologies known as an air impulse generator. This device is disclosed in U.S. Patent No. 6,250,388. The air impulse generator releases gas under high pressure into the water in a well. The release of the gas generates a high pressure wave and strong water stream into the filter pack, which is a layer of gravel or sand that is placed in the well borehole around the well screen. A document prepared by Layne entitled "BoreBlast II Information for Selling Strategies" states that

Based on well videos, we have been very effective in removing deposited materials from the well screens and rock fractures ... the equipment allows the operator to control the energy release and modify the application if required. The gas impulse actuator can apply pressures up to 35 psi. Our recommendation is to video the well prior to treatment with BoreBlast II. This allows for the assessment of the degree of plugging and the structural integrity of the well.

Defendant Layne Christensen has never used bore diameter measuring equipment to monitor the effect of

the BoreBlast or BoreBlast II processes.

**4.** ***Relationship between Layne Christensen and ProWell Technologies***

As part of defendant Layne Christensen's effort to improve its BoreBlast process, it contacted Bolt Technology Corporation to learn about the air gun it was selling to plaintiff Frazier, who was using it in his "AirBurst" process. James Troutt, a research and development projects manager for defendant, discovered defendant ProWell Technologies on the internet and wrote to the company requesting information about its product. In June 1999, defendant ProWell sent defendant Layne Christensen materials about its technology, including several pictures taken during well cleaning.

The materials described defendant ProWell's process for water well rehabilitation, marketed under the name "AirShock," as "a unique technology developed through many years of experiments and studies," and as an "innovative, nondestructive and environmental friendly technology for water well rehabilitation, development and stimulation." The materials stated further that the "AirShock" process was "based on the repeated sudden release of high pressure gas impulses in the well by means of the ProWell Air Impulse Generators (AIGs) combined with chemical treatment." The release of compressed gas "creates [a] high pressure gas bubble, which generates a high pressure wave and strong water stream into the filter and aquifer." In addition, the materials provided that "[h]igh pressure waves created during this process remove hardened scale from the screen. Strong agitation increases the dissolution of incrustations from the well screen, gravel pack and surrounding aquifer 10 to 15 times faster than ordinary chemical applications." Additionally, ProWell's promotional materials state that its process "is preceded by analysis of the problem and followed by analyses of results. The treatment is repeated and modified as necessary." The materials identified the final step in the water well treatment process as "video analysis after treatment" and claimed that the AirShock Impulse Generators (AIGs) and accompanying equipment are

extremely adaptable, and may be modified for maximum efficiency in each specific case ...

AIG is activated by a simple valve opening. Compressed gases supplied from the high pressure cylinders through the hose reel and high pressure hoses to AIG, initializing its action in an automatic mode, generating 0.2-1 high pressure impulses per second. Impulse pressure may be easily changed from the surface during the AIG operation.

ProWell offered air guns in four sizes with variable blasts and pressure ranges.

As defendants Layne Christensen and ProWell were working to develop the BoreBlast II process, James Troutt prepared a form listing guidelines that would be used to evaluate the AirShock process. On this form, Troutt indicated that the well in which the process would be tested should be "TV'd" before and after the AirShock process was performed.

In a memorandum dated July 9, 2002, Greg Alluce wrote that defendant ProWell's technology would be used with "televising."

The only jobs at which the BoreBlast II process was used and at which defendant ProWell's employees were present did not involve any monitoring. ProWell's involvement in the BoreBlast II technology is limited to licensing defendant Layne Christensen to use its technology as disclosed in U.S. Patent No. 6,250,388 and selling defendant Layne Christensen equipment of the type disclosed in the '388 patent. The License Agreement between defendants Layne Christensen and ProWell granted defendant Layne Christensen the exclusive right to

use and apply the Gas Impulse Technology and the Equipment in the Territory only for Gas Impulse Work

and to use the Technical Information in connection therewith, regardless of whether such Gas Impulse Technology, Equipment or Technical Information is covered under the Patent Rights, and (ii) to affix the Trademarks upon all advertising, descriptive, contractual, billing and other material that refers to the Gas Impulse Technology and is used by Licensee in the Territory.

Under the License Agreement, "Gas Impulse Technology" is defined as the gas impulse device disclosed in the '388 patent and the method of use for that device. Video monitoring is not included in the '388 patent or the licensed technology.

**5.** ***The Plano, Illinois and Baraboo, Wisconsin jobs***

According to notes prepared by Paul Buozis, an employee and consultant of defendant Layne Christensen at the time the BoreBlast II process was being developed, a video camera was used at a well in Plano, Illinois on April 11, 2002. The well screen was observed and determined to be 60-80% plugged. Defendant Layne Christensen began treating the well with a 5" air impulse generator. The generator passed over the well screen three times at a pressure of 800 pounds per square inch. Later that day, defendant made three more passes over the well screen using a 6" air impulse generator.

On May 16, 2002, at a job site in Baraboo, Wisconsin, a video of the well was viewed. Defendant set up its 3", 3.5" and 5" tools. It made two passes in the well at 650 psi and a third pass at 850 psi. At another well defendant used its 3" tool for one pass at 850 psi and four passes at 1100-1200 psi. At another well defendant made six passes over a well screen at a pressure of 1100 psi and six additional passes at a pressure of 1400 psi.

**B.** ***Opinion***

**1.** ***Standards for claim construction***

[4] [5] [6] [7] "It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history. Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language." Vitronics, 90 F.3d at 1582 (citation omitted). Claim construction begins with the words of the claim itself. Novartis Pharmaceuticals Corp. v. Abbott Laboratories, 375 F.3d 1328, 1334 (Fed.Cir.2004); Johnson Worldwide Assocs., Inc., v. Zebco Corp., 175 F.3d 985, 990 (Fed.Cir.1999). "There is a 'heavy presumption' that the terms used in claims 'mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art.' " SuperGuide Corp. v. DirecTV Enterprises, Inc., 358 F.3d 870, 874-75 (Fed.Cir.2004) (quoting Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed.Cir.2002)). Dictionaries, encyclopedias and treatises may be used in determining the ordinary and customary meaning of claim term language. Home Diagnostics, Inc. v. Lifescan, Inc., 381 F.3d 1352, 1356 (Fed.Cir.2004). "[U]nless compelled to do otherwise, a court will give a claim term the full range of its ordinary meaning." Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed.Cir.2001).

[8] In many instances, however, a court must proceed beyond the bare language of the claims and examine the written description of the patent in the specification. The written description serves an important role in arriving at the correct claim construction because it contains a description of the invention that allows a person of ordinary skill in the pertinent art to make and use the invention. Markman, 52 F.3d at 979. Claims must be construed in light of the description, id., but limitations from the description may not be read into the claims. Unitherm Food Systems, Inc. v. Swift Eckrich, Inc., 375 F.3d 1341, 1351 (Fed.Cir.2004) (citations omitted). Although the patent specification may not be used to rewrite the claim language, SuperGuide, 358 F.3d at 875, it may be used to interpret what the patent holder meant by a word or phrase

in the claim, E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed.Cir.1988).

[9] [10] After considering the claim language and the written description, a court may consider the final piece of intrinsic evidence, the patent's prosecution history. Vitronics, 90 F.3d at 1582. "[S]tatements made during the prosecution of a patent may affect the scope of the invention." Rexnord, 274 F.3d at 1343. This is especially true if a particular interpretation of the claim was considered and specifically disclaimed during the prosecution of the patent. Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co., 520 U.S. 17, 30, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997); Vitronics, 90 F.3d at 1582-83. Although analysis of the intrinsic evidence will eliminate any ambiguity in the claim terms in most cases, rendering unnecessary any reference to extrinsic evidence, Vitronics, 90 F.3d at 1583, a court may find it helpful to consult extrinsic evidence to be sure that its claim construction "is not inconsistent with clearly expressed, plainly apposite, and widely held understandings in the pertinent technical field." Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1309 (Fed.Cir.1999). On the other hand, courts are "not to rely on extrinsic evidence in claim construction to contradict the meaning of claims discernible from thoughtful examination of the claims, the written description, and the prosecution history." Id. at 1308.

**2. *Construction of claims 1 and 19***

Defendant Layne Christensen raises three issues about the meaning of independent claims 1 and 19:(1) whether the steps of "activating," "monitoring" and "adjusting" in claim 1 and the steps of "initiating," "monitoring" and "adjusting" in claim 19 must be performed in the order in which they are written in the claims; (2) whether claims 1 and 19 require that the "monitoring" step be performed during the treatment process while the means for generating "pressure waveforms and mass displacement" (claim 1) or "percussive energy" (claim 19) remains activated; and (3) whether the claims require that the "monitoring"be performed while the generation means remains in the water well.

**a. Sequential performance of the steps in claims 1 and 19**

[11] [12] "Unless the steps of a method actually recite an order, the steps are not ordinarily construed to require one." Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1343 (Fed.Cir.2001) (citing Loral Fairchild Corp. v. Sony Corp., 181 F.3d 1313, 1322 (Fed.Cir.1999)). "However, such a result can ensue when the method steps implicitly require that they be performed in the order written." Interactive Gift, 256 F.3d at 1343 (citing Loral, 181 F.3d at 1322). In Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1369 (Fed.Cir.2003), the court construed Interactive Gift to set out a "two-part test for determining if the steps of a method claim that do not otherwise recite an order, must nonetheless be performed in the order in which they are written." First, a court must look to the claim language to determine whether the steps must be performed in the order written "as a matter of logic or grammar." Id. at 1369. If the claim language does not indicate that the steps are to be performed in written order, a court must "look to the rest of the specification to determine whether it 'directly or implicitly requires such a narrow construction.' " Id. at 1370 (citing Interactive Gift, 256 F.3d at 1343).

[13] For ease of reference, I have set out in abbreviated form the steps in claims 1 and 19 in the order in which they appear in the claims.

| Claim 1 | Claim 19 |
|---|---|
| "providing a water well, said well having a bore volume" | "lowering into the bore of a water well means for generating percussive energy" |
| "inserting into said bore volume means for generating pressure waveforms and mass displacement through said bore volume" | "initiating percussive impact with in the well bore" |
| "activating said generation means whereby | "monitoring said removal and the effect of said |

| | |
|---|---|
| impediments to well production are removed through interaction with said waveforms" | percussive energy using video equipment, bore diameter measuring equipment, or a combination of said equipment" |
| "monitoring the effect of said waveforms using video equipment, bore diameter measuring equipment, or a combination of said equipment" | "adjusting said percussive energy whereby the mechanical action of said energy propagating within said bore improves water production" |
| "adjusting the frequency and amplitude of waveforms generated to meet well performance characteristics" | |

Defendant Layne Christensen argues that the language used to describe the "activating," "monitoring" and "adjusting" steps in claim 1 demonstrates that the steps must be performed in the sequence in which they are written. The "monitoring" step must follow the "activating" step because there would be no effect to monitor if the generation means was not activated (i.e., generating waveforms). The "adjusting" step must follow the "monitoring" step because the individual or individuals performing the process would not know what adjustments, if any, were necessary unless the effects of the waveforms had already been monitored. Defendant argues that claim 19 must be construed in the same manner: the "initiating," "monitoring" and "adjusting" steps must be performed in the sequence in which they are written. (Defendant bases its construction of claim 19 in part on its assumption that the "initiating" step in claim 19 is the functional equivalent of the "activating" step in claim 1. Plaintiffs do not challenge this assumption.)

With respect to claim 1, I agree with defendant that the "activating" step must precede the "monitoring" step. The "monitoring" step calls for monitoring "the effect of said waveforms." Before there can be an effect to monitor, the generation means must be activated and generating waveforms. Mantech Environmental Corp. v. Hudson Environmental Services, 152 F.3d 1368, 1375-76 (Fed.Cir.1998) (steps in method claim for remediating region of contaminated groundwater must be performed in written order because each step referred to activity performed in prior step); Depuy Orthopaedics, Inc. v. Androphy, Nos. 97 C 8017, 99 C 0068, 2000 WL 297814, at (N.D.Ill. Jan.19, 2000) ("If a step in a method claim as written relies on a device already physically in existence or the result of another step, then the existence of those physical constraints act as a condition precedent on that method step."). Construing claim 1 to require the "adjusting" step to be performed only after the "monitoring" step is a closer call. The "adjusting" step calls for adjusting "the frequency and amplitude of waveforms generated to meet well performance characteristics." There is no language in claim 1 from which it can be inferred that the adjustments can be made only after the effects of the waveforms have been monitored. Nonetheless, I agree with defendant that, as a practical matter, the individuals controlling the generating means will not know whether and how to adjust the frequency and amplitude of the waveforms to "meet well performance characteristics" unless they know how effective the waveforms have already been in removing the impediments. For the claimed method to be successful in rehabilitating a water well to its normal level of performance, the effect of the waveforms must be monitored before adjustments to the waveforms are made.

As in claim 1, the "initiating," "monitoring" and "adjusting" steps listed in claim 19 must be performed in the order in which they are written. The "initiating" step calls for initiating "percussive impact within the well bore." Although neither party explains what "percussive impact" is, I will proceed on defendant's unchallenged assumption that "initiating percussive impact" is synonymous with "activating" the "means for generating percussive energy." The "percussive impact" must be initiated before the removal of impediments and the "effect of said percussive energy" can be monitored; thus, the "initiating" step naturally precedes the "monitoring" step. In addition, the "adjusting" step follows the "monitoring" step as a matter of logic. In order to correctly adjust the percussive energy to return the well to its normal production level, the effect of the energy must be monitored before the adjustments are made.

The specification supports defendant's argument that the "activating", "monitoring" and "adjusting" steps of claim 1 and the "initiating," "monitoring" and "adjusting" steps of claim 19 must be performed in sequential

order. As defendant notes, the specification "repeatedly and consistently sets forth the steps and does so only in the order they have" in claims 1 and 19. Dft. Layne Christensen's Br., dkt. # 73, at 13. The sequence of steps that appears in claims 1 and 19 appears twice in the written description and in claim 12. '845 patent, col. 3, lines 1-11, 29-38; col. 7, line 27-col. 8, line 3. In each case, the steps of the process are listed in the same order. First, the means for generating the waveforms is inserted or lowered into the well. Second, the means for generating waveforms is activated or initiated. Third, the effects of the waveforms are monitored. Finally, adjustments are made to the waveforms so that the process will be effective in returning the well to its normal "performance characteristics."

The specification provides further support for defendant's argument that the "adjusting" step is to be performed after the "monitoring" step in claims 1 and 19. In discussing the need for adjustments, the specification states that the "necessity of adjustment and/or repeated activations can be gauged through use of monitoring equipment, including without limitation video cameras and calipers to track deviations in well bore diameter." Id. at col. 5, lines 1-5. This passage reinforces the logical interpretation of the relationship between the "monitoring" and "adjusting" steps: the effect of the waveforms is monitored so as to facilitate proper adjustment of the waveforms to complete the rehabilitation process.

Plaintiffs' arguments that claims 1 and 19 do not recite a sequential series of actions are unpersuasive. First, they argue that the use of the word "comprising" before the recitation of steps in the claims suggests that the steps do not have to be performed in sequential order. Ductmate Industries, Inc. v. Famous Supply Corp., 55 F.Supp.2d 777, 784 (N.D.Ohio 1999). Although plaintiffs' argument may be correct, it is irrelevant because it is the language used to describe the steps in claims 1 and 19 that indicates that the steps are to be performed in the order in which they are written. The claims describe a method of well rehabilitation consisting of a series of steps that are performed contemporaneously and in sequential order. As noted above, certain steps in the claims refer to actions that occur in prior steps. For example, the "monitoring" step in claims 1 and 19 measures the "effect" of the waveforms or percussive energy generated after activation or initiation of the generation means. In other parts of the claims, two steps are related in such a manner that one must follow the other for the method to produce its intended benefit. For example, as a practical matter, the individual performing the rehabilitation process must monitor the effects of the waveforms so that he will know how to adjust the frequency and amplitude of the waveforms in order to meet the well's "performance characteristics." Even if plaintiffs are correct that the word "comprising" suggests that the steps do not have to be performed in sequential order, the language used to describe the steps indicates clearly that they are performed in sequential order.

For their second argument against imposing a sequential performance construction on the "activating," "monitoring" and "adjusting" steps in claims 1 and the "initiating," "monitoring" and "adjusting" steps in claim 19, plaintiffs argue that a person of ordinary skill in the well rehabilitation business would understand that the steps need not be performed in sequential order for the rehabilitation process to be successful. In support of this argument, plaintiffs cite the declaration of Fletcher Driscoll. However, plaintiffs did not incorporate any of the contents of Driscoll's declaration as proposed findings of fact. Thus, I will not consider this argument. *Procedure to be Followed on Motions for Summary Judgment* I.B.4 ("The court will not consider facts contained only in a brief.").

(Even if I considered the contents of the declaration, they provide only lukewarm support for plaintiffs' position). For example, Driscoll states that

Water well contractors follow three basic steps in their well development work. The first step is to choose an effective method to remove impediments from the well screen and the surrounding geological formation. After application of the method begins, the progress made in removing materials from the well bore is monitored to ensure that the method is producing satisfactory results. The last step involves making adjustments to the rehabilitation process to increase its efficiency.

Fletcher Dec., dkt. # 104, at para. 5. (Although Driscoll contends that these steps are not always performed in a specific order, his description of the rehabilitation process indicates that one skilled in the well rehabilitation field would understand the normal course of rehabilitation to follow a three-step sequence: begin the process, monitor its progress and then adjust the process to insure its effectiveness.)

In sum, the language used in claim 1 indicates that the "activating," "monitoring" and "adjusting" steps are performed in sequential order. Similarly, the language used in describing the "initiating," "monitoring" and "adjusting" steps in claim 19 indicates that these steps are to be performed in sequential order. The claims describe a process for rehabilitating a water well in which a means for generating percussive energy or waveforms is activated within the well, then the effects of the percussive energy or waveforms are monitored and then the percussive energy or waveforms are adjusted to ensure that the process is effective in removing the impediments in the well. Successful rehabilitation of a well depends on a sequential performance of the steps. Plaintiffs have not shown any reason why a sequence limitation should not be imposed.

**b. Performance of "monitoring" while generating means is activated**

[14] Defendant argues that claim 1 should be construed to require the performance of the "monitoring" step while the generating means remains activated. Similarly, they contend that claim 19 should be construed to require the "monitoring" step to be performed while the generating means remains "initiated." In support of this argument, defendant points to the lack of any language in either claim indicating that the generation means is to be deactivated before the "monitoring" step is performed. Also, it argues that the patentees' use of the word "monitoring" implies "checking on or regulating concurrently with the performance." Def. Layne Christensen's Br., dkt. # 73, at 12. Finally, defendant contends that if the "monitoring" step is not performed while the generation means remained activated, "there would be no purpose or effect of the adjustment, because the generating means would be deactivated and adjustment of a deactivated generating means would accomplish nothing." *Id*.

Defendant is correct that claims 1 and 19 do not include a "deactivating" step as part of the disclosed method. However, the mere absence of a "deactivating" step does not lead inexorably to the conclusion that the claims require the "monitoring" step to be performed while the generating means remains activated. Just as there is no "deactivating" step in either claim, no language in either claim indicates that the "monitoring" and "adjusting" steps must be performed while the generation means remains activated. The claims do not speak to the precise timing of the "monitoring" step in relation to the activation or initiation of the generating means. Construing the claims to require that the "monitoring" step be performed while the generation means remains activated would require reading a limitation into the claims. Biovail Corp. International v. Andrx Pharmaceuticals, Inc., 239 F.3d 1297, 1301 (Fed.Cir.2001) ("a limitation that does not exist in a claim should not be read into that claim"); Northern Telecom Ltd. v. Samsung Electronics Co., Ltd., 215 F.3d 1281, 1290 (Fed.Cir.2000) ("This court has repeatedly and clearly held that it will not read unstated limitations into claim language.").

Defendant contends that its proposed construction is appropriate by focusing on the word "monitoring." When used as a verb, the word "monitor" means to "observe and check the progress or quality of (something) over a period of time." *The New Oxford American Dictionary* 1102 (2001). Although this definition would permit "observing and checking the progress" of the treatment process while the generating means remains activated or initiated, nothing in that definition *requires* the observing and checking to occur while the generation means is activated or initiated. Defendant contends that the action of monitoring, in the context of equipment, means "to check on or regulate the performance of." Def. Layne Christensen's Br., dkt. # 73, at 12. This argument misses the mark because claims 1 and 19 do not require monitoring of the generating means. Claim 1 states that "the effect of [the] waveforms" is monitored and claim 19 provides

that the removal of impediments to water production and "the effect of said percussive energy" are monitored. In both claims, the "monitoring" step focuses on the effects caused by activation of the generation means, not the generation means itself. An "effect" is "a change that is a result or consequence of an action or other cause." *The New Oxford American Dictionary* 543 (2001). The fact that the claims call for monitoring the effect of the treatment process instead of the equipment used in the treatment process suggests that the "monitoring" step need not be performed while the generation means is activated.

Language in other parts of the '845 patent suggests that defendants' proposed construction is incorrect. For example, claim 7, which is dependent on claim 1, states as follows: "The method as defined in claim 6 wherein said interval of activation [of the generation means] is about 3-100 seconds." Claim 7 indicates that the generation means may be active for as little as 3 seconds at a time. It is doubtful that any meaningful monitoring and adjusting can be performed in this short period of time. In addition, the specification provides further support against defendants' proposed construction. In discussing the "adjusting" step, the specification states that the "necessity of adjustment and/or repeated activations can be gauged through the use of monitoring equipment." This language suggests that the "monitoring" and "adjusting" steps can be performed in between activations of the generation means. Because nothing in the patent requires the construction defendant proposes, and because claims are not to be read restrictively "unless the patentee has demonstrated a clear intention to limit the claim scope," Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed.Cir.2004), I conclude that claim 1 does not require that the "monitoring" step be performed while the "means for generating pressure waveforms" remains activated and that claim 19 does not require the "monitoring" step to be performed while the "means for generating percussive energy" remains initiated.

**c. Performance of "monitoring" while generating means remains in the well**

[15] Defendant argues that claims 1 and 19 should be construed to require the "monitoring" step to be performed while the generating means remains in the well. It contends that this construction is appropriate because of what is missing from claims 1 and 19. That is, because the claims do not include the steps of removing the generating means from the well, inserting the monitoring device or devices into the well, removing the monitoring device or devices from the well and reinserting the generating means into the well, the "monitoring" step must be performed while the generating means remains in the well. This argument falls victim to the same faulty logic as defendant's argument that the lack of a "deactivation" step in claims 1 and 19 indicates that the "monitoring" step must be performed while the generating means remains activated. In both instances, defendant highlights the absence of a limitation in the claims and uses that absence to justify inferring the existence of the opposite limitation. This is not a proper method of claim construction. A court may not infer the existence of a limitation from the absence of the opposite limitation.

Defendant buttresses its proposed construction by highlighting several instances in the specification in which the patentees indicate that the monitoring equipment can be used without withdrawing the wave generating apparatus from the well. For example, the specification describes one object of the invention as providing "a method for stimulating water wells and surrounding geological formations through use of percussive waveforms which can be repeatedly generated as desired without withdrawal, removal, or reloading the waveform generator outside the well." '845 patent, col. 1, lines 52-57. At a later point, the specification states that

the benefits associated with use of a non-explosive, non-destructive source of pressure waveforms and/or mass displacement include downhole control and increased production rate. Through use of a percussive gas venting apparatus, the propagated energy is directly related to the volume of the air vented and the pressure at which it is vented. Both parameters and their effect on the well system can be controlled, monitored, and adjusted without withdrawing the apparatus from the well bore.

Id. at col. 3, lines 42-50. In addition, defendant contends that Fig. 4 (reproduced above) depicts a generating

means (10) in a well at the same time as the video equipment (58) and bore diameter measuring equipment (60).

[16] The stated objectives of an invention are relevant considerations in claim construction. CVI/Beta Ventures, Inc. v. Tura LP, 112 F.3d 1146, 1160 (Fed.Cir.1997). However, it is improper to limit an invention to its embodiments that accomplish all of the objectives identified in the specification. Applied Materials, Inc. v. Advanced Semiconductor Materials America Inc., 98 F.3d 1563, 1574 (Fed.Cir.1996) (purpose of invention "serves as limitation of the claimed invention" only when included in the claims); Texas Instruments, Inc. v. United States International Trade Commission, 805 F.2d 1558, 1563 (Fed.Cir.1986) ("This court has cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification."); *Chisum on Patents* s. 18.03[2][c][iv] (2003). In this case, the excerpts from the specification identified by defendant suggest that the "monitoring" and "adjusting" steps can be performed without withdrawing the generating means from the well, but nothing in the specification or the language of claims 1 and 19 *requires* the "monitoring" and "adjusting" steps to be performed while the generating means remains in the well. The fact that the effect of the waveforms or energy can be monitored and that the frequency and amplitude of the waveforms can be adjusted without withdrawing the generating means from the well is an advantage of the '845 patent, not a limitation contained in the claims. Dow Chemical Co. v. Astro-Valcour, Inc., 47 F.Supp.2d 294, 300 (N.D.N.Y.1999) (discussing distinction between advantages and limitations). Finally, defendant's argument regarding Fig. 4 is unpersuasive. The figure depicts both a gas gun and the equipment used to monitor the effect of the waveforms in a well, but does not disclose information about the location of the gas gun at the time the "monitoring" step is performed.

To review, I construe claims 1 and 19 of the '845 patent to set out a sequence of steps that must occur in the order in which they are written as a matter of logic. In claim 1, the "means for generating pressure waveforms and mass displacement" must be activated before the effect of the waveforms it generates can be monitored and the frequency and amplitude of the waveforms cannot be adjusted before the effect of the waveforms is monitored. In claim 19, percussive impact must be initiated before the effect of the percussive energy can be monitored and the percussive energy can be adjusted only after its effect has been monitored. I do not construe claim 1 to require that the "monitoring" step be performed while the "means for generating pressure waveforms" remains activated. Also, I do not construe claim 19 to require that the "monitoring" step be performed while the "means for generating percussive energy" remains initiated. In addition, I do not construe claims 1 and 19 to require that the "monitoring" step be performed while the generating means remains in the well.

**3. *Direct infringement***

[17] As the owner and exclusive licensees of the '845 patent, plaintiffs bear the burden of proving that defendant Layne Christensen has infringed the patent by a preponderance of the evidence. Carroll Touch, Inc. v. Electro Mechanical Systems, Inc., 15 F.3d 1573, 1578 (Fed.Cir.1993). Infringement occurs when "all of the claimed steps of the process [are] performed, either as claimed or by an equivalent step." EMI Group North America, Inc. v. Intel Corp., 157 F.3d 887, 896 (Fed.Cir.1998); *see also* Joy Technologies, Inc. v. Flakt, Inc., 6 F.3d 770, 775 (Fed.Cir.1993) ("A method claim is directly infringed only by one practicing the patented method."). As the party moving for summary judgment, defendant Layne Christensen has the initial burden to identify the legal bases for its motion and point "to those portions of the record that it believes demonstrate the absence of a genuine issue of material fact." Novartis Corp. v. Ben Venue Laboratories, Inc., 271 F.3d 1043, 1046 (Fed.Cir.2001) (citing Celotex Corp. v. Catrett, 477 U.S. 317, 323, 106 S.Ct. 2548, 91 L.Ed.2d 265 (1986)). Once this is done, plaintiffs may not avoid summary judgment "simply by insisting that a genuine issue of material fact exists or even by proffering some evidence"; to avoid summary judgment, plaintiffs must present evidence "that a reasonable jury could find sufficient to prove" that defendant Layne Christensen's methods contain all the limitations in the asserted claims. Smith & Nephew,

Inc. v. Ethicon, Inc., 276 F.3d 1304, 1316-17 (Fed.Cir.2001) (Michel, J., dissenting); *see also* TechSearch, L.L.C. v. Intel Corp., 286 F.3d 1360, 1372 (Fed.Cir.2002) ( "Infringement must be shown literally or equivalently for each limitation: general assertions of facts, general denials, and conclusory statements are insufficient to shoulder the non-movant's burden.").

**a. Literal infringement**

[18] "To establish literal infringement, every limitation set forth in a claim must be found in an accused product, exactly." Southwall Technologies, Inc. v. Cardinal IG Co., 54 F.3d 1570, 1575 (Fed.Cir.1995); *see also* Allen Engineering Corp. v. Bartell Industries, Inc., 299 F.3d 1336, 1345 (Fed.Cir.2002) ("Literal infringement of a claim exists when each of the claim limitations 'reads on,' or in other words is found in, the accused device."). In this case, plaintiffs assert that defendant Layne Christensen's BoreBlast process infringes claims 1, 2, 19 and 20 of the '845 patent and that defendant's BoreBlast II process infringes claims 1-7 and 19 of the '845 patent. The parties focus their arguments on the independent claims, 1 and 19.

[19] Defendant argues that the BoreBlast and BoreBlast II processes do not literally infringe claims 1 and 19 because defendant does not use video equipment or bore diameter measuring equipment to monitor the effect of the processes while they are being performed. It is undisputed that defendant has never used bore diameter measuring equipment to monitor the effect of the BoreBlast or BoreBlast II processes. Thus, to survive summary judgment, plaintiffs must present evidence from which a jury could reasonably conclude that defendant has used video equipment to monitor the effect of the percussive waveforms generated by the BoreBlast or BoreBlast II tools during the treatment process. Although there is evidence that defendant uses video cameras to inspect wells before and after its BoreBlast and BoreBlast II processes, plaintiffs have not presented any evidence from which an inference can be drawn that defendant has used video equipment during its treatment process, as claims 1 and 19 require.

Evidence in the record indicates that defendant used a video camera to inspect two wells before performing the BoreBlast II process. The undisputed facts show that defendant used a video camera to inspect wells prior to treatment in Plano, Illinois on April 11, 2002 and in Baraboo, Wisconsin on May 16, 2002. However, this use of a video camera does not read on the "monitoring" limitation in claims 1 and 19 because the claims require video equipment to be used to monitor the effect of the waveforms or percussive energy. By taking video footage of a well prior to beginning the BoreBlast II process, defendant is not monitoring the effect of the waveforms or percussive energy.

In its reply brief, defendant concedes that on some occasions it uses a video camera to view the inside of a well after its treatment process is completed. On these occasions, it employs the video camera "at least a day and often weeks or months after the well treatment process has been completed." Def. Layne Christensen's Reply Br., dkt. # 151, at 6. The use of a video camera to view the inside of a well that has already been treated does not read on the "monitoring" limitation in claims 1 and 19 because the claims require that video equipment be used to monitor the effect of the treatment process while the well is being treated. The "monitoring" step is part of the patented process disclosed in the claims; it occurs after the treatment begins and before adjustments are made. The undisputed facts concerning the BoreBlast and BoreBlast II methods indicate that neither method includes a "monitoring" step. As plaintiffs have described them, BoreBlast and BoreBlast II consist only of lowering a tool that vents gas into a well and activating it.

Plaintiffs fail to comprehend that defendant's use of video equipment to inspect wells before or after performance of the BoreBlast or BoreBlast II treatment processes does not read on the "monitoring" limitation in claims 1 and 19. They argue that any use of video equipment by defendant in conjunction with BoreBlast and BoreBlast II constitutes infringement. As explained above, that is not the case. More important, plaintiffs have not adduced any evidence that defendant performed all of the steps in claims 1 or 19 on one occasion. They have proposed facts relating only to two specific well rehabilitations performed by

defendant. I have already concluded that defendant did not infringe claims 1 or 19 on either of those occasions. Although plaintiffs' brief contains facts regarding other well rehabilitations performed by defendant, plaintiffs did not make any of these facts the subject of proposed findings. Thus, I have not considered the arguments in plaintiffs' brief that rely on those facts.

Plaintiffs have not presented evidence from which a reasonable jury could conclude that defendant Layne Christensen has used video equipment in a manner that reads on the "monitoring" limitation in claims 1 and 19. Thus, they have not presented an arguable case of infringement of claims 1 and 19 or of any of the dependent claims asserted in this case. I conclude that defendant Layne Christensen is entitled to summary judgment on plaintiffs' claim of literal infringement. TechSearch, 286 F.3d at 1369 (summary judgment in favor of accused infringer appropriate where patent owner's proof is deficient in meeting essential part of legal standard for infringement).

**b. Doctrine of equivalents**

[20] Under the doctrine of equivalents, "a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is 'equivalence' between the elements of the accused product or process and the claimed elements of the patented invention." Warner-Jenkinson Co. v. Hilton Davis Chemical Co., 520 U.S. 17, 21, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997). Defendant Layne Christensen argues that the doctrine is inapplicable to this case because it does not perform the "monitoring" step required by claims 1 and 19 as part of the BoreBlast and BoreBlast II processes. Plaintiffs have not challenged this argument or made any other argument that defendant's processes infringe the '845 patent under the doctrine of equivalents. No discussion of the doctrine of equivalents appears in their brief. Thus, I conclude that plaintiffs have waived this claim. Central States, Southeast & Southwest Areas Pension Fund v. Midwest Motor Express, Inc., 181 F.3d 799, 808 (7th Cir.1999) ("Arguments not developed in any meaningful way are waived."). I will grant defendant Layne Christensen's motion for summary judgment as to plaintiffs' claim of infringement under the doctrine of equivalents.

**4.** ***Contributory infringement and active inducement***

[21] Plaintiffs contend that defendant ProWell Technologies is liable for contributory infringement and active inducement of infringement of the '845 patent. "Liability for either active inducement of infringement or for contributory infringement is dependent upon the existence of direct infringement." Joy Technologies, Inc. v. Flakt, Inc., 6 F.3d 770, 774 (Fed.Cir.1993) (citing cases). Because I have determined that defendant Layne Christensen's BoreBlast and BoreBlast II processes do not infringe the '845 patent directly, I will grant defendant ProWell Technologies' motion for summary judgment as to plaintiffs' claims of contributory infringement and active inducement of infringement.

**ORDER**

IT IS ORDERED that:

1. Plaintiffs' motion to strike exhibits C, E, F, G and H attached to the affidavit of Gennadi Carmi, dkt. # 108, is DENIED as unnecessary;

2. Plaintiffs' motion to strike the declarations of Andi Atchison, Tom Butler, Mike Chauffe, Jesus Guevara, Martin Israel, Donny Keiser, Larry Kinley, Jody Menard, Louis Miller, Lloyd Morgan, Rick Propp, Darryl Ross, Bill Senne, John Warren, David Wood and Joe Yost submitted in support of defendant Layne Christensen's motion for summary judgment, dkt. # 111, is GRANTED;

3. Plaintiffs' motion for leave to file a sur-reply brief, dkt. # 160, is DENIED;

4. Defendant Layne Christensen Company's motion for summary judgment as to plaintiffs' claim of patent infringement, dkt. # 72, is GRANTED; and

5. Defendant ProWell Technologies' motion for summary judgment as to plaintiffs'claims of contributory infringement and active inducement of infringement, dkt. # 68, is GRANTED.

W.D.Wis.,2005.
Frazier v. Layne Christensen Co.

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