IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF UTAH

NORTHERN DIVISION

ECONOVA. INC., Plaintiff, vs. DPS UTAH; COLLIER GROUP; and KEVIN E. COLLIER, Defendants.	ORDER AND MEMORANDUM ON MOTION FOR PRELIMINARY INJUNCTION Case No. 1:12-CV-174-TC

Plaintiff EcoNova, Inc., is the holder of five patents for an industrial wastewater cleaning system that uses a centrifugal water separator (the EcoSeparator). On August 20, 2012, EcoNova filed a complaint against Defendants DPS Utah, Collier Group, and Kevin E. Collier (collectively, "DPS" or "Defendants") alleging that DPS's HydroLoc centrifugal separator is a copy of the EcoSeparator and infringes EcoNova's five patents.

A month after filing suit, EcoNova filed an emergency motion for injunctive relief, citing recent DPS sales activities as the basis for its motion. The parties stipulated to a temporary restraining order.

Now EcoNova seeks an order preliminarily enjoining DPS from demonstrating and selling, or attempting to sell, the HydroLoc centrifugal separator in the United States. For the reasons set forth below, the court GRANTS EcoNova's Motion for Preliminary Injunction.

FACTUAL BACKGROUND

EcoNova, Inc. makes water cleaning systems and has done so for several years. Many industrial companies use water as part of their operations. The operations frequently contaminate the water, and that wastewater ("produced water"[1]) poses environmental concerns. EcoNova designed, built, and sells the EcoSeparator, a pressurized centrifuge separator that receives the wastewater and spins it at high speeds to separate the water from the waste. It can quickly and efficiently remove solids from water and other liquids, such as oil, from the water. EcoNova holds five patents that cover technology in the EcoSeparator: U.S. Patent No. 6,346,069 ('069 Patent); U.S. Patent No. 6,607,473 ('473 Patent); U.S. Patent No. 6,719,681 ('681 Patent); U.S. Patent No. 7,060,017 ('017 Patent); and U.S. Patent No. 7,314,441 ('441 Patent).

EcoNova's products are large, commercial products, and the initial investment by a customer is significant. Each EcoSeparator unit, depending on its size, ranges in price from approximately $50,000 to $1.5 million (the 300 gallon-per-minute unit). Once a contract for one unit is executed and the first unit tested, typically the sale is expanded to include multiple units for multiple locations. According to EcoNova's CEO, Mark Kendell, an initial sale of the HydroLoc by the Defendants is likely to prevent EcoNova from having any meaningful access to those potential purchasers of the EcoSeparator. In the last ten years, EcoNova has sold ten units (although it re-purchased four of those for various reasons).

At the time the patents were issued, Defendant Kevin Collier was an employee of EcoNova (he was with EcoNova from 2000 to 2005), and he was listed on the patents as the

[1] "Produced water" is a term used by those in the industry to refer to water that has been contaminated during the industrial process.

inventor of the centrifuge separator. Before Mr. Collier left EcoNova, he assigned all of his rights in the patents to EcoNova.

After leaving EcoNova and pursuing an unrelated business venture, Mr. Collier, along with others, formed DPS Utah and the Collier Group. DPS Utah is a wholly-owned subsidiary of DPS Global in England. DPS began to develop a centrifugal separator product called HydroLoc. Beginning in April and May 2011, DPS and their licensee, newly-formed Oil Recovery Services[2] (ORS), publicly marketed the product concept in an effort to commercialize the HydroLoc. They posted two marketing videos to the Internet. In May 2011, they displayed an operating test unit and promoted their product at the national Offshore Technology Conference (OTC).[3]

At some point in mid-2011, EcoNova learned of Mr. Collier's activities. During presentations to potential customers, EcoNova continues to get questions about Mr. Collier and the HydroLoc product.

In October 2011, ORS demonstrated the HydroLoc to Windy Butte Reclamation Facility, a potential client of EcoNova. It is not clear when EcoNova learned about DPS's October 2011 meeting with Windy Butte, but on December 20, 2011, EcoNova had a meeting with Windy Butte representatives to discuss possible sale of the EcoSeparator to Windy Butte. At this time, EcoNova warned Dan Starr, a consultant for Windy Butte, that the HydroLoc infringes EcoNova patents.

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[2] ORS is a field services company specializing in oil recovery, water reclamation, water management, and solids disposal. ORS can convert disposal sites into reclamation/recycling sites. Produced water and backflow are treated so it can be used rather than discarded.

[3] The OTC is the nation's largest conference featuring vendors in the fields of drilling, exploration, production and environmental protection.

In January 2012, DPS officially licensed ORS to use the HydroLoc in ORS's GFX five-stage produced water treatment system. "GFX is a series of different types of technology for the treatment of water." (Tr. of Nov. 14, 2012 Evid. Hr'g ("Tr.") at 57.) The HydroLoc is the first of those five stages. According to the CEO of ORS, the HydroLoc is a "key element of the GFX" and

> it does something that no other machine that we have seen today can do. . . . It has the ability to maintain an uptime and does not require so much separation of the material that is building up inside the centrifuge. . . . [I]n the oil field, it's extremely important that the machine is always running, 24-7. The centrifuges are historically known for bad uptime, meaning they are broke down a lot. . . . [The] efficiency goes down. . . . This HydroLoc has the ability to evacuate [the layer between oil and water spinning inside the machine] and it continuously runs.

(Id. at 57–58.)

In early May 2012, Defendants and ORS displayed a model of the HydroLoc at the annual OTC convention. That month, Windy Butte met with ORS and indicated its desire to enter into a business deal with ORS but was scared off by EcoNova's allegations of infringement. ORS contends that it lost a multi-million dollar sale.

At the time EcoNova filed the lawsuit, it was not aware of any actual sales or leases of the HydroLoc, but it filed the suit based on its good faith belief that the Defendants were improperly using EcoNova's patented technology. At that point, EcoNova believed that the HydroLoc product was still in development and that the Defendants had no immediate plans to sell, or offer to sell, it.

Only after filing the infringement complaint did EcoNova learn that the Defendants were further along in their development and were in the process of commercializing the product by

actively seeking customers and licensees for the separator technology. Mr. Kendell also learned that Kevin Collier had scheduled meetings with General Electric and ConocoPhillips to take place during the Defendants' extension to file an answer to EcoNova's complaint. Mr. Kendell wondered why such large companies would meet with Mr. Collier if DPS did not have an actual product to demonstrate or sell. Then EcoNova discovered that the Defendants had recently begun to build several small scale separators for immediate sale. EcoNova also learned for the first time about ORS. Specifically, EcoNova learned "through the grapevine" that ORS's license agreement with DPS contained a deadline that was driving an accelerated effort to get the HydroLoc product to market. (Tr. at 13, 30–31.) At that point, EcoNova believed that the Defendants were quickly moving from developing and marketing a concept to selling an actual product, thereby transforming from an entity interfering with EcoNova's patent rights into a competitor selling infringing technology. Accordingly, EcoNova sought emergency injunctive relief on September 21, 2012.

At the moment, EcoNova has several potential contracts nearing completion and anticipates solidifying significant sales and other business ventures in the very near future. EcoNova has some machines already built and others are in the process of being built. At the same time, over the last few months, EcoNova sales have been frustrated "by rumors that seem to come from Mr. Collier." (Tr. at 18.) Mr. Collier's status as inventor of the technology protected by the five patents adds weight to what he says, although EcoNova contends that Mr. Collier's negative assessment of EcoNova's most recent product is not accurate. EcoNova's counsel stated, in a proffer to the court, that

> the employment of Kevin Collier by DPS and his involvement in these things has caused a lot of splash back on us because it's becoming widely known that he is the inventor of our patents. We've heard through the grapevine that he suggested that because he is the inventor, he has rights to practice those inventions and patents. We've heard through the grapevine that he's telling our customers of the problems he encountered when working at EcoNova, his . . . unfounded and incorrect belief, [that the technology problems] have not been remedied at this point. So that does make it a little more difficult for us to make headway [with sales].

(Tr. at 18–19.) Ms. Jana Bowman, a former sales contractor for DPS and current sales contractor for EcoNova, corroborates counsel's proffer, stating in her declaration that "Kevin has told several potential customers that EcoNova's separators are unreliable [but he] has not provided me with any data" to support his claim. (Decl. of Jana Bowman in Supp. ¶¶ 22–23, Nov. 9, 2012, ECF No. 74.) At the same time, there is evidence that the test unit was not operating properly (see id. ¶¶ 11–17) and to the extent Mr. Collier says it is a new and improved product, that may reflect poorly on the EcoSeparator, the technology which Mr. Collier invented.

As for DPS's business status, according to DPS the first HydroLoc will be produced in sixteen to eighteen weeks. DPS also has the potential to enter into contracts worth millions of dollars. But it has not made any sales yet.

ANALYSIS

The patent laws provide that courts "may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent, on such terms as the court deems reasonable." 35 U.S.C. § 283. An application for preliminary injunction predicated on patent infringement involves substantive issues unique to patent law, and is therefore controlled by the law of the United States Court of Appeals for the Federal Circuit. Hybritech Inc. v. Abbott Labs., 849 F.2d 1446, 1451 n.12 (Fed. Cir. 1988). When evaluating a motion for

preliminary injunction, the court must analyze four factors: "(1) likelihood of success on the merits, (2) irreparable harm, (3) balance of hardships, and (4) public interest." Celsis In Vitro, Inc. v. CellzDirect, Inc., 664 F.3d 922, 926 (Fed. Cir. 2012). To obtain injunctive relief, EcoNova bears the burden of establishing all four factors. Robert Bosch LLC v. Pylon Mfg. Corp., 659 F.3d 1142, 1148, 1148 n.3 (Fed. Cir. 2011). The court must exercise its discretion in accordance with traditional principles of equity. Id. at 1148.

I. Likelihood of Success

EcoNova has established a reasonable likelihood of success on the merits because the HydroLoc likely infringes two of the proposed claims.

To establish a likelihood of success on the merits, a plaintiff must show that it will likely prove infringement.[4] Titan Tire Corp. v. Case New Holland, Inc., 566 F.3d 1372, 1376 (Fed. Cir. 2009). In November 2012, the court heard arguments on the emergency motion for preliminary injunction and conducted a hearing as required by Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996). For the purposes of the preliminary injunction only, EcoNova proposed one claim from each of the five patents that would likely show how HydroLoc infringes: claim 22 of the '069 Patent; claim 13 of the '473 Patent; claim 27 of the '681 Patent; claim 1 of the '017

[4] In addition to infringement, a plaintiff must also show that it will likely withstand any challenges to the validity of its patents. Titan Tire, 566 F.3d at 1376. But in this case, EcoNova contends that validity is not an issue because of assignor estoppel. See Diamond Scientific Co. v. Ambico, Inc., 848 F.2d 1220, 1224 (Fed. Cir. 1988) ("Assignor estoppel is an equitable doctrine that prevents one who has assigned the rights to a patent . . . from later contending that what was assigned was a nullity."). In other words, because Defendant Mr. Collier is listed as the inventor of the patents and he assigned the patents to EcoNova for value, he cannot now challenge the validity of the patents. And because DPS and the Collier Group as so closely linked to Mr. Collier, they likewise cannot challenge the validity of the patents. Id. ("[Assignor] estoppel also operates to bar other parties in privity with the assignor, such as a corporation founded by the assignor.").

Patent; and claim 1 of the '441 Patent. Although the five claims are each taken from a different patent, the claims use similar or identical terms such that there is significant crossover between them, and the parties agreed that the court could give terms appearing in separate patents the same construction because the patents are all related. After collapsing identical language used in different claims, the parties only dispute ten terms. See Omega Eng'g, Inc, v. Raytek Corp., 334 F.3d 1314, 1334 (Fed. Cir. 2003) (noting that a court can "presume, unless otherwise compelled, that the same claim term in the same patent or related patents carries the same construed meaning").

For the purposes of the preliminary injunction, the court will construe only four of the ten disputed terms[5] and apply those to just two of the five claims because those are sufficient to demonstrate that EcoNova is likely to prove infringement. The court will determine the scope of the protected technology by engaging in (A) claim construction of four of the disputed terms, and then show why EcoNova will (B) likely prove infringement on two of the claims.

A. Claim Construction

1. Legal Standards Used During Claim Construction

Claim construction is an issue of law for the court to decide. Markman v. Westview Instruments, Inc., 52 F.3d 967, 970–71 (Fed. Cir. 1995) (en banc). At the preliminary injunction stage, the court need not issue a final claim construction. Instead, it may "engage in a rolling claim construction, in which the court revisits and alters its interpretation of the claim terms as its understanding of the technology evolves." Jack Guttman, Inc. v. Kopykake Enters., Inc., 302 F.3d 1352, 1361 (Fed. Cir. 2002). A court should begin with the language of the claim, because

[5] The other disputed terms will be construed in a later Markman order.

the claims of a patent "define the invention to which the patentee is entitled the right to exclude." Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). Claims terms "are generally given their ordinary and customary meaning," which is "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." Id. at 1312–13. Sometimes, the meaning of claims terms "may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." Id. at 1314. Beyond that, if a court needs evidence of the intended meaning, it should first look to the intrinsic evidence (the context of the claims, the patent specification, and the prosecution history). Id. at 1313–16. In most situations, an examination of the intrinsic evidence will resolve any ambiguity in a disputed term. Id. at 1315. The court may not, however, import limitations from the specification into the claim, such as by limiting the claims to the embodiments described in the specification. Id. at 1323–24. If yet more evidence is needed, the court may rely on extrinsic evidence, such as expert and inventor testimony, dictionaries, and treatises. Id. at 1318. However, the court uses extrinsic evidence with caution, and will not allow it to undermine the intrinsic evidence. Id. at 1319. With these principles in mind, the court turns to the disputed language.

2. Interpretation of the Disputed Terms

Although the parties presented five sample claims for review at this stage of the litigation, the court need only address two of them here because a construction of the disputed terms in claim 13 of the '473 Patent and claim 1 of the '441 Patent show that EcoNova is likely to prove infringement. Claim 1 of the '441 Patent reads as follows (with the disputed phrases emphasized in italics):

A method for separating particulate matter from a fluid in which the particulate matter is suspended, the method comprising:

feeding a fluid containing particulate matter into a chamber of a vessel through an inlet, the chamber being at least partially bounded by a peripheral wall and the chamber also communicating with a first outlet and a second outlet;

rotating the vessel about a rotational axis extending through the vessel such that at least a portion of the particulate matter settles out of the fluid and against at least a portion of the *peripheral wall of the vessel*;

disturbing at least a portion of the particulate matter settled against the peripheral wall so that at least a portion of the particulate matter settled against the peripheral wall is *resuspended within the fluid*;

removing at least a portion of the fluid having the resuspended particulate matter therein from the vessel through the first outlet; and

removing through the second outlet of the vessel the fluid from which the particulate material has settled out.

('441 Patent col.29 ll.44–65 (filed May 30, 2006) (emphasis added).) And claim 13 of the '473 Patent reads as follows (with the disputed phrases emphasized in italics):

A method of separating a liquid-liquid mixture, comprising:

feeding the liquid-liquid mixture into a chamber of a vessel such that the liquid-liquid mixture is pressurized within the vessel, the liquid-liquid mixture comprising a heavy component and a light component, the vessel including an inlet, a light component outlet channel, and a heavy component outlet channel;

rotating the vessel about a rotational axis extending through the vessel as the liquid-liquid mixture is feed into the chamber such that the heavy component collects toward at least a portion of the *peripheral wall of the vessel* and the light component collects toward the rotational axis;

passing the light component through the light component outlet channel at a first pressure; and

passing the heavy component through the heavy component outlet channel at a second pressure, *the first pressure and the second pressure being set such that a boundary line between the heavy component and the light component is produced within the chamber at a radial distance from the rotational axis wherein, the first pressure being different than the second pressure*.

('473 Patent col.31 l.8–col.32 l.9 (filed Jan. 25, 2002) (emphasis added).) Because of crossover between language in the two claims, there are only four disputed phrases to be construed.

"Peripheral Wall of the Vessel"

The disputed phrase "peripheral wall of the vessel" appears in claim 1 of the '441 Patent and claim 13 of the '473 Patent. Since the phrase "peripheral wall of the vessel" is used in both of these claims, the court need only construe that phrase once because the two patents are related. See Omega Eng'g, Inc, v. Raytek Corp., 334 F.3d 1314, 1334 (Fed. Cir. 2003). EcoNova's proposed construction is "a material layer situated about at least a portion of the inner periphery of the vessel, the material layer at least partially bounding the chamber, the peripheral wall associated with the vessel." (Pl's Mem. in Supp. 14, Nov. 9, 2012, ECF No. 72.) The Defendants' proposed construction is "the outer wall of the vessel." (Defs.' Supplemental Mem. in Opp'n 8, Nov. 9, 2012, ECF No. 67.)

Defendants contend that the "peripheral wall" means nothing more than the very outermost wall of the vessel. But EcoNova argues that "peripheral wall" could include not only the outermost wall of the vessel, but also any structure that at least partially bounds the chamber within, such as structures bolted to the interior, so long as it is some material layer that defines the boundary at which the chamber ends and against which the particulate matter collects. The court concludes that EcoNova's proposed definition most closely captures the essence of the claim, but is unnecessarily long and redundant. The court instead provides a preliminary claim construction that is guided by intrinsic and extrinsic evidence.

The intrinsic evidence of the patents sheds some light on the dispute, but not enough. Before the phrase "peripheral wall of the vessel" appears in claim 1 of the '441 Patent, the claim reads "the chamber [is] at least partially bounded by a peripheral wall." ('441 Patent col.29, ll.48–49.) Moreover, there are many instances of language in the two patents' specifications

indicating that the "peripheral wall" is situated at the boundary line of the chamber where the settled particulate matter collects while the centrifuge is in operation. (See '441 Patent abstract ("at least a portion of the particulate matter settles against at least a portion of the peripheral wall."); id. col.11 ll.57–60 ("in one embodiment solid-liquid separator **10** operates by settling the particulate matter against or adjacent to wall **92** of vessel **60** from where it is subsequently removed."); id. col.12 ll.13–15 ("the particulate matter in stream **38** is forced by the rotation of vessel **60** to accumulate against wall **92** . . . ."); id. col.14 ll.48–49 ("The centrifugal force, however, keeps the particulate matter substantially adjacent to perimeter wall **92**."); id. col.14 ll.55–57 ("rotating vessel **60** resettles the particulate matter against peripheral wall **92**."); see also '473 Patent abstract, col.11 ll.56–58, col.12 ll.11–13, col.14 ll.47–48, col.14 ll.54–56 (containing nearly identical language as in the '441 Patent).) Based on this evidence, the court defines "peripheral wall" by clarifying that the peripheral wall partially bounds the chamber,[6] and by noting that at least some of the particulate matter collects against at least part of the peripheral wall.

But, recognizing that more may be needed to fully construe "peripheral wall," both EcoNova and the Defendants point the court to dictionary definitions to aid in further interpretation. EcoNova defines "peripheral" as "pertaining to, situated in, or constituted the periphery: peripheral resistance on the outskirts of the battle area," and "wall" as "a material

[6] The court disagrees with Defendants' argument in their brief that the use of "chamber" in the construction impermissibly imports a limitation from another claimed element. (See Defs.' Supplemental Mem. in Opp'n 9, Nov. 9, 2012, ECF No. 67.) As noted above, the first appearance of the phrase "peripheral wall" appears squarely within the same claim, only a few lines prior, in the phrase "the chamber being at least partially bounded by a peripheral wall." The court's use of "chamber" to define "peripheral wall" is simply a reflection of how the peripheral wall was defined in the first instance.

layer enclosing space." The Defendants' definition of "peripheral" is "of, relating to, affecting or forming a periphery or surface part." Based on these definitions, and on the intrinsic evidence in the patent, a clear construction of "peripheral wall" should include both the phrase "a material layer" as well as language showing that the peripheral wall is the boundary or surface at which the chamber ends. This construction also dovetails with the intrinsic evidence that indicated the peripheral wall is the spot at which the particulate matter collects.

Finally, there is some dispute about the meaning of the phrase "of the vessel." Defendants argue that the vessel wall is synonymous with the peripheral wall, such that the peripheral wall cannot be anything more than outermost wall. EcoNova maintains that "of the vessel" is a possessive phrase indicating that the peripheral wall is just one of the many sub-components of the vessel. Based on a reading of the specification, the court agrees with EcoNova. The vessel comprises many components, only one of which is the peripheral wall.

Accordingly, the court's construction of "peripheral wall of the vessel" at this preliminary phase will be "a material layer at least partially bounding the chamber of the vessel."

"Disturbing At Least a Portion . . . ."

The disputed phrase "disturbing at least a portion of the particulate matter settled against the peripheral wall" appears in claim 1 of the '441 Patent. EcoNova's proposed construction is "unsettling at least a portion of the particulate matter accumulated against the peripheral wall." (Pl's Mem. in Supp. 17, Nov. 9, 2012, ECF No. 72.) The Defendants' proposed construction is "altering the position of the particulate matter that has settled against the peripheral wall by moving it inwardly against the centrifugal force." (Defs.' Supplemental Mem. in Opp'n 9, Nov. 9, 2012, ECF No. 67.)

This phrase needs very little construction—the parties only dispute the construction of the term "disturbing" within the context of the patent. EcoNova proposes a construction that replaces "disturbing" with a synonym taken from the dictionary. Defendants' construction requires the disturbance to be directed inwardly against the centrifugal force.

The court is not persuaded by Defendants' proposed construction because it seeks to read into the claim a limitation from only one of the many possible embodiments of the claimed invention. See Phillips v. AWH Corp., 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc) (noting courts should "avoid the danger of reading limitations from the specification into the claim"). Instead, the court will adopt EcoNova's proposed synonym of "unsettling" as the meaning of "disturbing" as it most closely resembles the plain and ordinary meaning already apparent in the rest of the claim.

Accordingly, the court's construction of the disputed phrase at this preliminary phase is "unsettling at least a portion of the particulate matter settled against the peripheral wall."

"Resuspended Within the Fluid"

The disputed phrase "resuspended within the fluid" appears in claim 1 of the '441 Patent. EcoNova's proposed construction is "to put particles that settled out of the fluid back into suspension in the fluid." (Pl's Mem. in Supp. 19, Nov. 9, 2012, ECF No. 72.) The Defendants' proposed construction is "suspended again within the fluid, the fluid being that which contains particulate matter and was fed into the chamber of the vessel through an inlet." (Defs.' Supplemental Mem. in Opp'n 13, Nov. 9, 2012, ECF No. 67.)

At the hearing there was very little discussion about what "resuspended" means. The primary dispute was over how the court should construe "the fluid." EcoNova contends that the

meaning of "the fluid" should vary depending on the context of each patent in which the term is used[7]: for example, sometimes "the fluid" could refer to the fluid containing particulate matter that is to be separated into its components, and other times could refer to a cleaning fluid delivered into the vessel. Defendants argue that "the fluid" can only mean one fluid, which is the fluid containing particulate matter that is to be separated into its components.

The court agrees with Defendants' proposition that "resuspended" should be defined as "suspended again" because that more accurately captures the meaning of the claim. Also, the court is partially persuaded that "the fluid" should mean a fluid "which contains particulate matter and was fed into the chamber of the vessel through an inlet"—but only for claim 1 of the '441 Patent. The court does not agree that "the fluid" should have one and only one meaning for all of the patents. Instead, the court agrees with EcoNova that "the fluid" should be interpreted differently depending on the ordinary meaning present in each patent. See, e.g., AK Steel Corp. v. Sollac and Ugine, 344 F.3d 1234, 1243 (Fed. Cir. 2003) (noting that although it is unusual to give different constructions to two similar claims, the court felt compelled to do so because interpreting both claims in the same way would run "counter to the ordinary meaning of the claims"). For example, "the fluid" in claim 27 of the '681 Patent could refer to two different fluids, both of which are important to the claim. If the court were to define "the fluid" to mean only one kind of fluid, it would render that claim absurd.

Accordingly, the court's construction of the disputed phrase is "suspended again within the fluid," where "the fluid" can take on a different meaning depending on the context of each

[7] The disputed phrase "resuspended within the fluid" appears not only in claim 1 the '441 Patent, but also in claim 27 of the '681 Patent as "resuspend within the fluid."

patent. And as applied to claim 1 of the '441 Patent, "the fluid" refers to the only fluid referenced in the claim, which will be defined as "a fluid which contains particulate matter and was fed into the chamber of the vessel through an inlet."

"The First Pressure . . . ."

The disputed phrase "the first pressure and the second pressure being set such that a boundary line between the heavy component and the light component is produced within the chamber at a radial distance from the rotational axis wherein, the first pressure being different than the second pressure" appears in claim 13 of the '473 Patent. EcoNova's proposed construction is "producing a first pressure and a second pressure (by, for example, adjusting a flow rate of the light component and/or the heavy component) with a pressure differential between them such that the pressure differential situates and maintains a boundary line near a particular radial distance from the rotational axis." (Pl's Mem. in Supp. 28, Nov. 9, 2012, ECF No. 72.) The Defendants' proposed construction is "the first and second pressures being selected and then established." (Defs.' Supplemental Mem. in Opp'n 25, Nov. 9, 2012, ECF No. 67.)

The primary dispute is centered on how "set" is construed. Defendants argue that "set" means to unvaryingly select and hold. EcoNova disagrees, arguing that the pressures are allowed to vary while the centrifuge is in use to deal with changes of the influent material. EcoNova further argues that pressure is necessarily linked to flow rate by Bernoulli's principle of fluid dynamics.[8] The court does not believe that either definition adequately reflects the scope of the claim. Defendants' proposed construction is incomplete, while EcoNova's proposed

[8] In its most simple form (and assuming a non-viscous and non-compressible fluid), Bernoulli's principle states that as the speed or flow of the fluid increases, the pressure of the fluid exerted on the walls of its container decreases, and vice-versa.

construction overcomplicates the meaning by adding examples and using terms that are less clear than the language of the claim itself. Instead, the court provides a preliminary claim construction that is guided by the intrinsic evidence in the patent itself.

First, the disputed phrase "the first pressure and the second pressure" by itself is unclear. So, the court clarifies by adding language that states where the first pressure and second pressure are each located. Based on the handful of lines within the claim that precede the disputed phrase, the "first pressure" refers to the pressure at the "light component outlet channel," and the "second pressure" refers to the pressure at the "heavy component outlet channel." ('473 Patent col.32, ll.1–4.)

Second, the court agrees with EcoNova that the pressure is invariably linked with flow rate by Bernoulli's principle, such that reference to changes in flow must necessarily result in a change in pressure, and vice versa. The court also agrees with EcoNova that "set" does not require the pressure to never change. As noted in the specification, it is anticipated that the flow rates—and hence the pressures—at each outlet will "will be *adjusted* to maintain boundary line **245** at a preferred distance range away from rotational axis **90**" while the device is in operation. ('473 Patent col.18, ll.51–65 (emphasis added).) The word "set" cannot mean the pressures and/or the flow rates must always remain the same. Instead, the specification emphasizes that:

> "One of the unique benefits of the inventive system is its ability to compensate for changes in the ratio of the two immiscible liquids in supply stream **30**. For example, assuming an oil/water supply stream **30** feeds liquid-liquid separator **244** at a 50/50 mixture. At a given time, the 50/50 mixture suddenly experiences a load change to 10% oil and 90% water. Where the rotational velocity of liquid-liquid separator **244** remains substantially constant, an increased amount of water (heavy component **241**) will tend to cause the boundary line **245** to move toward the rotational axis **90**. Accordingly the pressure sensed at first valve **248** will decrease while the pressure sensed at second valve **256** will

> increase. As a result, second valve **256** will automatically close slightly and first valve **248** will automatically open slightly. As a result, the operating pressures for valves **248** and **256** and the pressure differential between the valves **248** and **256** are continually held relatively constant even though the ratio of liquids in supply stream **30** may continually change. As such, the position of boundary line **245** is held relatively constant within vessel **60**."

('473 Patent col.17, ll.42–61.) In other words, although the invention allows the flow rates/pressures at the two outlets to vary, the difference between them (the pressure differential) will be kept relatively constant. To "set" the pressures then is inextricably linked to the maintenance of a pressure differential by varying the flow rates/pressures. Based on this intrinsic evidence, the court believes that "set" should be defined in relation to what it is setting, namely a pressure differential that maintains a boundary line at a preferred position within the chamber.

Accordingly, the court's construction of the disputed phrase at this preliminary phase is as follows: "the first pressure at the light component outlet channel and the second pressure at the heavy component outlet channel are set to create a pressure differential that maintains a boundary line between the heavy component and the light component within the chamber at a radial distance from the rotational axis."

B. Infringement

The HydroLoc likely infringes because it literally includes each limitation of the two claims construed above.

The second step after claim construction is to compare the construed claim to the accused product to determine whether there is a likelihood of infringement. Seachange Int'l Inc. v. C-COR Inc., 413 F.3d 1361, 1377 (Fed. Cir. 2005). To establish infringement, a plaintiff must

show that the accused product includes each claim limitation either literally or under the doctrine of equivalents.[9] Id. The plaintiff must make this showing by a preponderance of the evidence. Purdue Pharma L.P. v. Boehringer Ingelheim GMBH, 237 F.3d 1359, 1363 (Fed. Cir. 2001) (noting that in a preliminary injunction, the burdens are the same as those at trial); Kegel Co., Inc. v. AMF Bowling, Inc., 127 F.3d 1420, 1425 (Fed. Cir. 1997) (requiring a claim of infringement to be shown by a preponderance of the evidence). So, the court will compare the claims construed above to the HydroLoc to determine whether, by a preponderance of the evidence, the HydroLoc literally includes each of the claim limitations.

1. The HydroLoc Likely Infringes on Claim 1 of the '441 Patent.

The Defendants do not dispute that the HydroLoc incorporates at least some of the limitations of claim 1 of the '441 Patent, such as the limitation that the HydroLoc feeds a fluid containing particulate matter into a chamber, the limitation that the vessel is rotated about a rotational axis in order to separate the fluid into its components, the limitation that the settled particulate matter is removed through one outlet, and the limitation that the remaining fluid is removed through another outlet.

Instead the Defendants argue that the HydroLoc does not infringe claim 1 of the '441 Patent because (1) the separated particulate matter does not settle against the "peripheral wall of the vessel," (2) the particulate matter is not disturbed in a way that meets the limitations in the claim because the disturbance is not created "by any action or instrumentality of the HydroLoc," and (3) the particulate matter is not resuspended within the fluid when being removed. (See

[9] Because EcoNova did not claim the doctrine of equivalents, the court does not reach that issue.

Defs.' Supplemental Mem. in Opp'n 29–31, Nov. 9, 2012, ECF No. 67.)

First, the separated particulate matter does in fact settle against the "peripheral wall of the vessel" in the HydroLoc. As construed above, the "peripheral wall" is "a material layer at least partially bounding the chamber of the vessel." Although the embodiments illustrated in the figures of the '441 Patent have smooth, plain walls, id. fig.11 (showing peripheral wall 92 having a smooth, spherical shape), fig.16 (showing peripheral wall 92 having a smooth double-cone shape), the specification anticipates peripheral walls with irregular shapes, such as peripheral walls with "a polygonal transverse cross section", or "having a cylindrical configuration at the edges and a center which is formed by truncated cones connected together." Id. col.5 ll.42–47. A truncated cone is a cone with its tip removed—or in other words, a funnel. See truncated, Mirriam Webster's Collegiate Dictionary 1268 (10th ed. 1995) ("having the apex replaced by a plane section and esp. by one parallel to the base <~cone>."). As a result, the specification anticipates a peripheral wall made of funnels connected to each other. The HydroLoc uses a series of connected funnels to form the peripheral wall at which the particulate matter collects, and these funnels at least partially bound the chamber. Consequently, the HydroLoc literally includes the limitation that the particulate matter settles out of the fluid against at least a portion of the peripheral wall.

Second, as construed above, the disturbance of the settled particulate matter only requires "unsettling at least a portion of the particulate matter settled against the peripheral wall." There is nothing in the claim that indicates the disturbance or unsettling must be done by an action or instrumentality of the HydroLoc itself. And it is clear the HydroLoc disturbs or unsettles the particulate matter by opening the relief valves and flushing it out. As a result, the HydroLoc

literally includes the limitation that it unsettles a portion of the particulate material.

Third, the particulate matter is suspended again when the HydroLoc opens its relief valves to remove the particulate matter. When the particulate matter settles in the funnels and the pressure is great enough, the relief valves at the funnel outlets open and the particulate matter comes out—but not as completely dry particulate matter alone. Instead the HydroLoc "flushes" the solids through the openings using at least some of the fluid contained within the chamber. (See Supplemental Decl. of David J. Parkinson in Supp. of Defs.' Mem. in Opp'n 16, 23, 24, 26, Nov. 9, 2012, ECF No. 91.) This meets the meaning of "suspended again" in fluid.

Accordingly, the HydroLoc literally includes each limitation of claim 1 of the '441 Patent, and it is likely that EcoNova will be able to carry its burden to show by the preponderance of the evidence that the HydroLoc infringes.

2. The HydroLoc Likely Infringes on Claim 13 of the '473 Patent.

Similar to claim 1 of the '441 Patent, the Defendants do not dispute that the HydroLoc incorporates at least some of the limitations of claim 13 of the '473 Patent. Instead the Defendants argue that the HydroLoc does not infringe claim 13 of the '473 Patent because (1) the HydroLoc does not "set" the first and second pressures at the respective outlets, and (2) if the method claimed by EcoNova were construed broadly enough to cover the HydroLoc, it would encompass a method disclosed by prior art, rendering EcoNova's patent invalid. (See Defs.' Supplemental Mem. in Opp'n 34–38, Nov. 9, 2012, ECF No. 67.)

First, the HydroLoc does "set" the first and second pressures at the respective outlets. As explained above, to "set" does not mean a certain pressure value or flow rate is chosen and can never change. Instead, it covers methods that adjust the pressures—and hence the flow rates—at

the outlets to preserve a certain difference in pressure between the light and heavy components, which is exactly what the HydroLoc does. (See Defs.' Supplemental Mem. in Opp'n 34–38, Nov. 9, 2012, ECF No. 67 ("If . . . too much water is accumulating within the [HydroLoc's] inner pressure vessel, the flow rate of the water exiting the vessel is increased and/or the flow rate of the oil exiting the vessel is decreased to return the relative amounts of water and oil to the desired balance within the centrifuge.").) Granted, the HydroLoc uses a sensor positioned within the chamber to take more accurate measurements of how to set the flow rates at each of the outlets, but nevertheless, the flow rates at each of the outlets are adjusted to maintain a balance between the light and heavy components, which in turn has an effect on the position of the boundary line within the chamber. Consequently, the HydroLoc literally includes the limitation that it "set" the flow rates or pressures at the outlets to create a pressure differential that maintains a boundary line between the components at a radial distance from the rotational axis.

Second, the court is not persuaded by the Defendants' argument that if claim 13 of the '473 Patent is construed to cover HydroLoc's control method, then the claim is rendered invalid by prior art. The Defendants point the court to expired U.S. Patent No. 4,846,780 (Jul. 11, 1989) (Galloway Patent), arguing that HydroLoc's control method is the same, and that EcoNova's claim cannot be construed so broadly as to sweep up prior art. (See Defs.' Supplemental Mem. in Opp'n 37–38, Nov. 9, 2012, ECF No. 67; Supplemental Decl. of David J. Parkinson in Supp. of Defs.' Mem. in Opp'n 28–31, Nov. 9, 2012, ECF No. 91.)

But the control method disclosed in the Galloway Patent does not appear to be the same as the control method used by the HydroLoc. As noted by the patent examiner during prosecution of the '473 Patent, "[t]he main reason for the allowance of claim [13] over art is that

the prior art of record fails to describe the instantly claimed method of separating a liquid-liquid mixture as a whole and including wherein the first pressure is different than the second pressure." (Office Action Summary, Initial Common Exhibits Ex. 7, at 130, Nov. 6, 2012, ECF No. 65-7.) The Galloway Patent uses two different sensors to detect where the light and heavy component layers are within the chamber. The Galloway Patent does not adjust the flow rates at the respective light and heavy component outlets to maintain a difference in pressure between the light and heavy components. Instead, as soon as either the light or heavy component builds up to a preset level, the method of the Galloway Patent uses a "dump cycle" to discharge the component, and that "dump cycle" is independent of how much of the other component remains in the chamber. Galloway Patent col.10 ll.4–21. The dump cycle creates a wide fluctuation of pressures and flows, accompanied by significant changes in the location of the light and heavy component layers in the centrifuge's chamber. The HydroLoc does not use a dump cycles. Instead, the HydroLoc focuses on the boundary between the light and heavy components by relatively adjusting the flow rates at both the light and heavy component outlets. The difference in flow rates at the light and heavy component outlets creates a difference in pressure that maintains the boundary line at a preferred spot within the Hydroloc's chamber. Because the HydroLoc relies on the relative pressures and flow rates of the two components, its control method is not the same as the control method disclosed in the Galloway Patent.

For the foregoing reasons, the HydroLoc literally includes each limitation of both claim 1 of the '441 Patent and claim 13 of the '473 Patent, and it is likely that the HydroLoc infringes two of EcoNova's claims. So, EcoNova has established a likelihood of success on the merits.

II. Irreparable Harm

The essence of showing irreparable harm is demonstrating an injury that money damages cannot sufficiently remedy.[10] See, e.g., High Tech Med. Instrumentation, Inc. v. New Image Indus., Inc., 49 F.3d 1551, 1557 (Fed. Cir. 1995). EcoNova has done that here.

Although the analysis of irreparable harm is not driven by categorical rules, EcoNova contends that it would suffer irreparable harm similar to that found in the recent case of Robert Bosch LLC v. Pylon Manufacturing Corporation, 659 F.3d 1142 (Fed. Cir. 2011). In Bosch, the Federal Circuit determined that the following was overwhelming evidence of irreparable harm: "(1) the parties' direct competition; (2) loss in market share and access to potential customers resulting from [the defendant's] introduction of infringing [products]; and (3) [the defendant's] lack of financial wherewithal to satisfy a judgment." Id. at 1151. Similar evidence has been presented here.

The court finds that if a preliminary injunction is not issued, EcoNova will suffer irreparable harm. In particular, the evidence shows a patented product that goes to the core of EcoNova's business, likelihood of infringement, a loss of opportunity in an emerging market, possible harm to the EcoSeparator's reputation, and the potential inability of Defendants to satisfy a judgment. But before addressing these factors, the court addresses DPS's argument that EcoNova's delay in filing its motion for injunctive relief forecloses a finding of irreparable harm.

Any alleged delay was reasonable.

Defendants contend that EcoNova delayed at least nine months, if not more, before

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[10] Even if some harm could be remedied by money damages, such a situation does not negate a finding of irreparable harm. Celsis, 664 F.3d at 930.

seeking injunctive relief and that such a delay prevents a finding of irreparable harm. Delay is an important factor when determining whether a preliminary injunction is needed. High Tech Med. Instrumentation, 49 F.3d at 1557. Unexplained delay "militates against the issuance of a preliminary injunction by demonstrating that there is no apparent urgency to the request for injunctive relief." Id. (finding no irreparable harm in part because plaintiffs waited seventeen months to file a motion for preliminary injunctive relief). According to the Defendants, EcoNova knew about, and monitored, Kevin Collier's activities relating to the HydroLoc for months before filing the motion for preliminary injunction.

EcoNova does not deny that it monitored the Defendants' activities for months before filing its motion for injunctive relief. But EcoNova has adequately explained the reasons for the purported delay. At that time, EcoNova was not aware of any actual sales or leases of the HydroLoc. Instead, EcoNova believed that the HydroLoc was still in development, that the demonstration unit had several problems with it, and that infringing sales or offers for sale were not imminent, even to Windy Butte, to whom Defendants had made a presentation. When EcoNova obtained more up-to-date information on DPS's status, it acted within a matter of weeks. EcoNova's delay, to the extent it can be characterized as such, was reasonable.

The patented technology is at the core of EcoNova's business.

The fact that the patented product is at the core of the patent holder's business can support a finding of irreparable harm. See Bosch, 659 F.3d at 1152. Here, a significant nexus exists between the patented product and EcoNova's existence as a viable company. The EcoSeparator is EcoNova's business. Harm to sales of the product directly impacts EcoNova's bottom line. As the "rights-holder," EcoNova would lose the full value of the five patents

underlying the EcoSeparator.

The right to exclude supports EcoNova's position.

Every patent grants the "right to exclude others from making, using, offering for sale or selling" the invention described in the claims. 35 U.S.C. § 154(a)(1). A finding of infringement does not create a presumption of irreparable harm. Nevertheless, the patent holder's right to exclude is an important factor in the court's analysis. Bosch, 659 F.3d at 1149 (citing eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388 (2006)). EcoNova has shown a likelihood of success on the merits of its infringement claim. This supports a finding of irreparable harm.

EcoNova and DPS are arguably the lone competitors in a highly specialized and emerging market.

According to EcoNova, a "perfect storm" is forming in the market. (See, e.g., Tr. at 15.) New and stricter environmental regulation of wastewater has increased the demand for alternative water treatment technologies and the rising price of gas has made EcoNova's technology economically feasible in the oil and gas industry only recently.

The Defendants contend that the relevant market is huge. But the court is convinced that the parties are operating within a specialized "submarket." In some respects, the parties are operating in a "two-player" market because of the increased level of efficiency offered by the EcoNova technology, which is being sold by EcoNova and DPS. (See Tr. at 45 (testimony of Mr. Kendell describing why he believes the market is a two-player market).)

EcoNova has made sales and is on the verge of making other sales. But activities of DPS are negatively affecting its ability to make the new sales. DPS has an unfair advantage because it is able to undercut EcoNova's price by benefitting from EcoNova's investment in the technology.

This direct competition will likely lead to price erosion for a product priced to incorporate the cost of research and development. This is something that EcoNova may not be able to reverse.

EcoNova may suffer irreparable harm to the reputation of its product.

As the inventor of the patented technology, Mr. Collier's statements about the patented technology have added weight. Yet there is evidence that disparaging comments about the EcoSeparator are not accurate. On the flip side, to the extent Mr. Collier claims the HydroLoc is an improved version of the original patented technology, that casts a negative light on the EcoSeparator when the HydroLoc does not perform to customers' expectations.

The court has concerns about DPS's ability to satisfy a judgment.

DPS Utah is a relatively new company that has no significant assets, no inventory, and no product to sell right now. Although it is a wholly-owned subsidiary of a larger, multi-national corporation, DPS has not provided any concrete assurances that EcoNova would be able to get beyond the corporate shield of liability. For these reasons, the court is skeptical that the Defendants would be able to satisfy a judgment concerning a multi-million dollar business venture.

Conclusion

For all of the reasons set forth above, the court finds that EcoNova has established that it will be irreparably harmed if the injunction is not issued.

III. Balance of Harms

The balance of harms favors EcoNova, an established company that has invested time and money in the patented technology. It has machines available to sell and machines in production. In contrast, DPS has not sold any machines. Indeed, it has no product to sell yet—the first

HydroLoc would come off the assembly line in approximately sixteen to eighteen weeks.

EcoNova anticipates sales in the near future. DPS's potential for sales is more speculative. As a start-up company, it has no history of sales.

DPS contends that if an injunction is issued, one and a half years of marketing efforts and developing contacts would be "severely interrupted." (See Tr. at 51.) DPS estimates that it faces a loss of potential contracts worth approximately $20 million. DPS also contends that ORS's existence would be jeopardized. Although ORS says it could offer the GFX system without the HydroLoc, it would no longer be competitive in the relevant market. That is, ORS contends that no other technology is as efficient as the HydroLoc, and using different technology would increase the price that ORS could offer to potential customers. ORS marketed the GFX system with the HydroLoc efficiency in mind. Potential contracts would be jeopardized—the efficiency drives the cost and value of the contracts—and other centrifuges would not meet the job requirements.

But DPS, and thus ORS, is not ready to sell because the product is not yet manufactured. And the court has found that a finding of infringement is likely. DPS and ORS had knowledge of patents and took a "calculated risk" that should not weigh in their favor when the court has determined that a finding of infringement is likely.

The balance of harms weighs in favor of EcoNova.

IV. Public Interest

The public has a strong interest in upholding patent rights. The patent system encourages investment in research and development, and without enforcement of those rights the incentives are diminished. See Sanofi-Synthelabo v. Apotex, Inc., 470 F.3d 1368, 1383 (Fed. Cir. 2006)

("We have long acknowledged the importance of the patent system in encouraging innovation.").

EcoNova is the patent holder and the court has held that EcoNova will likely succeed on the merits of its infringement claim. The Federal Circuit has traditionally found that the public interest prong favors the party that will likely prevail on the patent infringement claim. See Abbott Labs. v. Andrx Pharms., Inc., 452 F.3d 1331, 1348 (Fed. Cir. 2006) ("Although the public interest inquiry is not necessarily or always bound to the likelihood of success on the merits . . . we agree . . . that the public interest is best served by enforcing patents that are likely valid and infringed.").

EcoNova invested time and resources in developing and patenting technology that treats contaminated water. Even if DPS's activities are enjoined, the technology would continue to be available from EcoNova (that is, EcoNova and DPS are in direct competition selling essentially the same product). See Celcis, 664 F.3d at 932 (noting that products for drug research and development would still be available even with an injunction because the parties sold essentially the same products). And although competition should also be protected, the evidence shows that DPS is competitive because it is taking advantage of EcoNova's patented technology without obtaining a license. Here, the public interest favors the enforcement of EcoNova's patent rights.

V. Bond

DPS requests that, if injunctive relief is granted, the court set the bond amount at $11 million. It does not provide concrete evidence to support that number. Indeed, DPS has not yet begun selling its product.

EcoNova contends that no bond is necessary. But Rule 65 of the Federal Rules of Civil Procedure provides that no injunction shall issue without security. Fed. R. Civ. P. 65(c). The

court has "wide discretion" in setting the amount of the preliminary injunction bond. Dominion Video Satellite, Inc. v. EchoStar Satellite Corp., 269 F.3d 1149, 1158 (10th Cir. 2001). Because the injunction preserves the status quo, and given the speculative nature of the harm claimed by DPS, the court hereby requires EcoNova to post a bond in the amount of $20,000.00.

ORDER

For the foregoing reasons, Plaintiff EcoNova, Inc.'s Emergency Motion for Preliminary Injunction (Docket No. 19) is GRANTED. **IT IS HEREBY ORDERED** that pending a final adjudication of this matter and posting of the bond by EcoNova, Defendants DPS Utah, Collier Group, and Kevin E. Collier, their officers, agents, servants, employees, attorneys, and accountants, and those persons in active concert or participation with any of them, who receive actual notice of the order by personal service or otherwise, and each of them, are preliminarily restrained and enjoined from using their HydroLoc separators to demonstrate to any potential customer located within the United States the functionality of their HydroLoc separators, and from completing any sales, taking any orders, or committing to supply HydroLoc separators where the customer is located in the United States or any substantial portion of the sales activity occurs in the United States.

DATED this 28th day of November, 2012.

BY THE COURT:

Tena Campbell

TENA CAMPBELL
U.S. District Court Judge