UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF FLORIDA

CASE No. 18-cv-80332-BLOOM/Reinhart

NATIONAL UNION FIRE INSURANCE
COMPANY OF PITTSBURGH PA,
as subrogee,

Plaintiff,

v.

SPX FLOW US, LLC,

Defendant.
_____/

FINDINGS OF FACT AND CONCLUSIONS OF LAW

THIS CAUSE is before the Court following a bench trial that began on April 4, 2019 and ended on April 11, 2019. The Parties submitted their closing arguments in writing following the filing of the trial transcripts. ECF Nos. [115] and [117]. Plaintiff National Union Fire Insurance Company of Pittsburgh PA ("National Union") submitted proposed findings of fact and conclusions of law before and after trial. ECF Nos. [81] and [116]. Defendant SPX Flow US, LLC ("SPX Flow"), submitted proposed findings of fact and conclusions of law before trial. ECF No. [82]. The Court has carefully considered the evidence presented at trial, the applicable law, and the Parties' submissions. Set forth below are the Court's relevant findings of fact and conclusions of law.

I. INTRODUCTION

Plaintiff is an insurance company that insured a motor yacht owned by Lena Aquilla ("Mrs. Aquilla") named Belissimo (the "Vessel"). Defendant distributes and sells marine impeller pumps. On July 28, 2016 the Vessel sustained damages due to an engine overheat and resulting fire. The

Parties agree that the impeller pumps in the Vessel were distributed by Defendant and that the starboard impeller pump (the "Subject Impeller Pump") failed prior to the engine overheating. However, the Parties disagree as to what caused the Subject Impeller Pump to fail. Plaintiff alleges that the Subject Impeller Pump malfunctioned because Defendant manufactured, constructed, assembled, inspected, and sold the Subject Impeller Pump such that it was defective, dangerous, and unsafe for its intended uses. ECF No. [5] ¶¶ 15-16. On the other hand, Defendant contends that the Subject Impeller Pump failed because it "ran dry," meaning that it ran with insufficient water to prevent friction and heat from building up within the Subject Impeller Pump.

Plaintiff filed this action on March 14, 2018, alleging that the Subject Impeller Pump was defective and caused the resulting damage to the Vessel. Plaintiff asserts product liability claims under theories of negligence (Count I) and strict liability (Count II) against Defendant. *See* ECF No. [5]. The Plaintiff seeks damages in the amount of $278,207.40 and an award of costs. Defendant argues that Plaintiff has not met its burden of establishing that a product defect caused the Subject Impeller Pump failure or that the Subject Impeller Pump failure was the proximate cause of the subject fire.

II. FINDINGS OF FACT

a. The companies involved

Plaintiff National Union is a Pennsylvania insurance company with its principal place of business in New York. Defendant SPX Flow is a Delaware limited liability company with its principal place of business in North Carolina and is engaged in the distribution and sale of marine impeller pumps. The Parties submitted the following stipulation: "For purposes of this trial only, the parties stipulate that SPX Flow is the proper entity for liability arising out of a manufacturing defect in the subject [impeller] pump, if any." ECF No. [79] at 3.

b. The Vessel

The Bellissimo is a 44-foot vessel, Model Talaria 44. On or about September 5, 2002, Mrs. Aquilla purchased the Vessel from the Talaria Company, LLC d/b/a The Hinckley Company, LLC ("Hinckley"). At all material times, the Vessel had been equipped with Yanmar engines. Each engine is sold with an impeller pump attached to it. The Vessel had a starboard impeller pump (the Subject Impeller Pump) and a port impeller pump. Each Yanmar engine is cooled by a closed cooling system that uses glycol as well as a raw water cooling system. Through a heat exchanger, seawater is circulated to absorb the heat from the glycol. The heated seawater is then expelled back into the sea. The purpose of the raw water impeller pump is to draw the seawater in and pump it into the heat exchanger. The seawater enters the Vessel through an intake grill located on the bottom of the hull. The spinning impeller blades inside the impeller pump draw the seawater into the pump, which is then pumped into the heat exchanger.

c. Engine sensors

The Vessel was equipped with several engine sensors, including an engine coolant-level sensor, an engine temperature sensor, and a seawater flow sensor. The seawater flow sensor is the first line of defense to a failure within the seawater system. It detects when there is a shortage of raw water being circulated through the engine. It is designed to alert before the engine or boat sustains damage. At the time Hinckley sold the Vessel, the seawater flow sensor was connected to the engine and operational. However, it was not connected to the alarm buzzer system on the Vessel's console. Without being connected to the alarm buzzer system, no alarm would sound in the event that the seawater flow sensor detected a seawater flow shortage.

The Yanmar Marine Diesel Engine Operation Manual (the "Operation Manual") specifically references the seawater flow sensor as part of the engine safety control system. The

Operation Manual warns against operating the impeller pump without seawater. According to the Operation Manual, the cooling water piping and electrical wiring must be installed correctly. The alarm buzzer at the helm should be checked each time the engine is started to confirm it is working. If an alarm buzzer sounds during operation of the boat, the engine should be shifted to low speed immediately to investigate the cause of the alarm and inspect the engine. The engine should not be run if an alarm device is not repaired.

When the Aquillas purchased the subject boat in 2002, Tom Aquilla ("Mr. Aquilla") received the Operation Manual. He was aware of seawater flow sensors and their ability to alert an operator to a loss of seawater flow.

In 2007, the starboard engine on the Vessel overheated, but no alarms on the Vessel sounded. Three or four years later, Mr. Aquilla discovered that the engine temperature sensor had not been connected to the alarm buzzer at the helm. Mr. Aquilla never checked or had anyone else check to confirm that all of the engine sensors for his boat engines were connected.

Prior to the July 28, 2016 fire, Mr. Aquilla expressed to Shane Peacock ("Peacock"), a marine mechanic who often serviced the Vessel, Mr. Aquilla's concern that the alarm buzzer at the helm might not be loud enough to alert him to a problem while the boat was underway. This concern was not rectified.

d. The July 28, 2016 engine fire

On the morning of July 28, 2016, Mr. Aquilla and a friend, Bob Sween, took the Vessel out from Mr. Aquilla's home in Punta Gorda, Florida. Mr. Aquilla intended to take the Vessel 120 miles to the River Forest Yachting Center to place the Vessel in summer storage. The seas were rough. Approximately one hour into the journey, either Mr. Aquilla or Mr. Sween first heard an alarm. Mr. Aquilla testified that the alarm was "barely audible." Mr. Aquilla looked at the gauges

on the dashboard of the Vessel to figure out why the alarm was sounding. Mr. Aquilla could not see the starboard engine temperature gauge because a light bulb had burned out. Mr. Aquilla grabbed a flashlight from the galley. After returning to the helm, he saw that the temperature gauge for the starboard engine was "pegged," meaning that the engine coolant temperature was over 220 degrees Fahrenheit. He turned off the starboard engine.

Mr. Aquilla continued operating the Vessel with the port-side engine toward a mile marker post. At the post, he opened the engine hatch and saw a fire in the engine room. Mr. Aquilla estimates that ten minutes passed from when he shut down the starboard engine until he discovered the fire. Mr. Aquilla put the fire out with two fire extinguishers and then operated the Vessel back to his house with the port-side engine.

e. The Ways Boatyard

After the incident, Mr. Aquilla left the Vessel on a lift behind his house. On August 9, 2016, he attempted to operate the Vessel in the water but encountered heavy black smoke coming from the port engine. He then operated the Vessel to the Punta Gorda Marine to have it trucked to the Ways Boatyard in Palm Beach Gardens, Florida. The Vessel remained at the Ways Boatyard during post-incident inspections.

f. Evidence presented concerning the Subject Impeller Pump failure

1. Direct evidence of a manufacturing defect

Plaintiff's expert, Frank Grate ("Grate"), is primarily a research metallurgist. He is also a professional engineer in the State of Florida. He has experience with failure analysis. He is a member of the National Society of Professional Engineers, the Florida Engineering Society and the American Academy of Forensic Scientists. Grate opined at trial that the Subject Impeller Pump failed due to a manufacturing defect. According to Grate, the main cause of the Subject Impeller

Pump failure was residual stresses that occurred during the manufacturing process. However, Grate was not able to identify direct evidence of residual stresses. According to Grate, that evidence could only be seen with a "scientific type" of equipment. Grate stated that he attempted to use the equipment that he "usually use[s]" but it does not work with rubber products.

Grate also opined that porosity or voids, meaning gas holes, were contributing causes of the failure. He testified that voids and areas of porosity in the impeller blades suggest a defect in the Subject Impeller Pump. Grate identified voids and areas of porosity in several impeller blades that had broken off from the Subject Impeller Pump. However, Grate stated that a certain amount of porosity may be acceptable. He did not determine an acceptable level of voids or porosity for the Subject Impeller Pump. Additionally, Grate identified areas of porosity in the port impeller pump which did not fail.

Lastly, Grate explained that the location of a crack in the Subject Impeller Pump suggests that it failed due to a manufacturing defect. He testified that a normal impeller pump failure would involve a fracture directly above the hub of the impeller because that is the highest stress point. The crack in the Subject Impeller Pump goes beneath the core of the surface. According to Grate, that indicates a defect. However, Grate also testified that he would expect an impeller pump consisting of weakened material to break above the hub of the impeller.

Defendant's expert, Dr. David Pope ("Pope"), is a professor of materials science and engineering at the University of Pennsylvania, where he has taught for 51 years. He served as chairman of the materials science department of the mechanical engineering department. He has a master's degree and a Ph.D. in materials science. Regarding the voids or porosity in the Subject Impeller Pump, Pope testified that they can develop as part of the normal process of wear of this material, rather than due to a defect. Pope also examined the fractures on the Subject Impeller

Pump. Pope testified that if there were a defect you would expect to see it where the crack formed. He found no such defect.

2. Other explanations for the Subject Impeller Pump failure

Defendant's expert, Ron Parsons ("Parsons") is a mechanic and certified fire investigator. Parsons has 47 certifications with the National Institute of Automotive Excellence. He has worked on "marinized engines" since the late 1970's. He has investigated the causes and origins of thousands of engine fires. Parsons and Pope testified that a reasonable explanation for the Subject Impeller pump's failure is that it may have "run dry." He explained that a pump can "run dry" when an obstruction covers the hull and is held in place by the suction from the impeller pump. The pump runs without raw water until the impeller and blades fail. Peacock testified that it is well known in the industry that it is common for marine pumps like the subject pump to "run dry." As set forth below, the experts for both sides made observations and ran tests on the Subject Impeller Pump to determine whether this caused the failure.

A. Water in the cooling system

Plaintiff's expert, Rolando Santos ("Santos"), is a marine engineer, consultant, and surveyor. He is an accredited marine surveyor with hull and machinery, diesel engines, yachts, small crafts, and cargo. He is the hull and machinery chairperson of the Society of Accredited Marine Surveyors, the largest surveying organization in the United States. He has worked on hundreds of engine overheats on commercial and private crafts. Santos inspected the Vessel on September 2, 2016 at the Ways Boatyard. Santos When Santos opened the cover plate on the Subject Impeller Pump, he found that the pump housing was basically full of water. He also examined the sea strainer that raw water flows through before entering an impeller pump. He found

that the sea strainer was full of water as well. According to Santos, if an impeller pump had "run dry" due to an obstruction, the sea strainer would not be filled with water post-incident.

Parsons also testified on the issue of water in the cooling system post-incident. He observed that Santos found water in the Subject Impeller Pump housing and sea strainer because the Vessel was operated in the water after the incident occurred. Specifically, the Vessel was operated on the date of the incident during the period between the Subject Impeller Pump failure and Mr. Aquilla's discovery that the engine temperature gauge was "pegged." The Vessel was operated once again in the water several weeks later. Parsons did not dispute that water would not be present in the pump housing or strainer upon the pump "running dry." However, he explained why the pump housing refilled with water when subsequently operated in the water. Parsons stated that the pump is at or slightly below water level when the Vessel is operated in the water. As such, when the Vessel was placed in the water post-incident, water travelled up through the hoses into the sea strainer and all the way up to the Subject Impeller Pump. When the Vessel was lifted out of the water again, water remained trapped in the pump housing and the sea strainer until Santos conducted his investigation.

B. Location of the impeller fragments

Santos testified that approximately ninety percent of the broken impeller blades were found in the suction hose and approximately ten percent were found inside the Subject Impeller Pump itself. According to Santos, the location of the impeller fragments against the sea strainer indicates that the Subject Impeller Pump did not "run dry." However, Santos admitted that when an impeller pump falls apart little by little, rather than abruptly upon "running dry," the blades are found in the heat exchanger. Here, no blades were found in the heat exchanger.

Parsons testified that the vast majority of the impeller fragments were found on the filtered side of the sea strainer. The remainder of the fragments were found in the base of the Subject

Impeller Pump and the hose between the impeller pump and the sea strainer, and one stray piece was found in the basket on the unfiltered side of the sea strainer. Parsons agreed with Santos that if the Subject Impeller Pump had failed slowly over time, the impeller fragments would have been found in the heat exchanger. Parsons explained that in the case of a slow failure, as opposed to a failure caused by "running dry," as impeller pieces broke off they would have travelled from the impeller pump in a stream of water. The water stream would have pushed the fragments into the front of the heat exchanger where they would have become trapped. When the engine was eventually shut off, the pieces would have collected at the bottom of the heat exchanger. Here, no fragments were found in the heat exchanger.

In contrast, when an impeller pump "runs dry" there is no water to funnel fragments into the heat exchanger. Absent the force of water, the fragments do not travel to the heat exchanger because the strainer is lower than the impeller pump which is lower than the heat exchanger. When the boat is pulled from the water, gravity forces water to drain out of the system and discharge out of the bottom of the boat. That causes the impeller fragments to be drawn back toward the sea strainer – where the fragments were found in this case.

In addition to the issue of where the broken impeller blades were found, Santos also discussed the amount of impeller blades that were broken. According to Santos, when an impeller pump "runs dry" the impeller is not completely denuded. In other words, some of the impeller blades remain attached to the hub. Here, the impeller was completely denuded. Pope explained that when the impeller pump is operated without water the blades tend to stick to the wall of the impeller pump, but because of the power of the boat engine the impeller pump will continue rotating. When all of the blades become exposed to this same condition, the blades are torn off of the hub of the impeller pump.

C. The suction hose

Santos opined that if the impeller pump had "run dry," the sea suction hose would have been compressed and sucked flat. Santos stated that the hose would later regain its shape but not entirely. When Santos examined the suction hose there was no sign of compression. Therefore, according to Santos, there was no evidence from the hose that Subject Impeller Pump "ran dry."

Parsons testified that the suction hose is reinforced with steel spiral. It is, for all intents and purposes, crush-proof and cannot be compressed. He testified that the hose is specifically designed for use in the very application that it was used on the Vessel. Further, the hose is designed to withstand the maximum suction produced by the impeller pump. For that reason, one would not expect to find the hose compressed or sucked flat if the Subject Impeller Pump had "run dry."

D. The durometer tests

Grate conducted durometer tests on the Subject Impeller Pump and an exemplar impeller pump. The durometer test is a hardness test. According to Grate, if the Subject Impeller Pump had been subjected to an increase in temperature it would have either softened or hardened. Grate found no difference in hardness between the two impeller pumps. He concluded that the results of the tests indicate that the Subject Impeller Pump did not heat up.

Pope explained that hardness of the impeller pump would change only if the structure of the material changed during a temperature cycle. According to Pope, the polypropylene material that makes up the Subject Impeller Pump can go through a temperature cycle without a change in structure. Therefore, the hardness of the material would change as a result of exposure to an increase in temperature. Accordingly, the results of the durometer tests were exactly what we would expect to see if the Subject Impeller Pump had "run dry," namely, no change in hardness.

E. Signs of heat damage

Santos testified that when an impeller pump "runs dry" the blades rub flat against the impeller hub and create a tremendous amount of friction. The heat is transmitted to the cover and then the O-ring. Santos testified that he saw no signs of heat damage. Grate photographed the Subject Impeller Pump before it was removed from the pump housing. He testified as well that he did not see any heat damage to the Subject Impeller Pump. Grate also examined a section inside the Subject Impeller Pump called the gate. He did not see any signs of heat damage there either.

Grate photographed the starboard and the port impeller cover plates. Grate found discoloration on both covers. He attributed the discoloration to corrosion, not heat damage. He testified that if the cover plate was coated with paint you would see the paint blistering and peeling from heat damage. Grate saw no evidence of blistering or peeling on the starboard impeller cover plate. He saw some surface cracks, which he opined "can be from other things, too," apart from heat damage.

Peacock was present when Santos first examined the Subject Impeller Pump. Peacock immediately identified it as a burnt impeller pump. Based on his experience with marine impeller pumps, he believed that the presence of burnt rubber indicated that the Subject Impeller Pump had been run without water in the housing. When Parsons first examined the Subject Impeller Pump weeks later he also determined that it was burnt. Parsons testified that he was able to conclude that rubber was present on the starboard cover plate, raw-water pump bore, and "cam cage" (a removable part of the impeller pump), by picking at the material with his finger. The presence of rubber indicates that the Subject Impeller Pump was subjected to increased temperature.

Pope microscopically examined the surfaces of the starboard impeller blade fragments and compared them with the surfaces of the intact port-side impeller blades. Pope testified that when rubber heats up, it exhibits signs of material flow and movement in areas in that come into contact

with other material. Pope found evidence of material flow on the surfaces of the starboard impeller blades where the rubber was in contact with the metal pump housing. Pope presented photographs of blade fragments from the Subject Impeller Pump. He explained that areas appeared smeared and shiny where material had heated up and rubbed against the inside of the Subject Impeller Pump. In contrast, Pope did not see any evidence of material flow on the port-side impeller blades or on the exemplar impeller blades. Pope presented photographs of the port-side impeller blades. He explained that the surfaces of these blades were abraded, like the tip of a used eraser, rather than smeared or smooth and shiny.

F. EDS analysis

Grate performed energy-dispersive spectroscopy ("EDS") analysis on the housing of the Subject Impeller Pump. EDS analysis identifies the chemical composition of the elements that make up a given sample. Grate tested what he described as a light area and a darker area of a sample cut from the pump housing to identify any differences in the chemical composition between the areas. Specifically, Grate looked at the respective oxygen and carbon contents. According to Grate, differences in the oxygen content may indicate a high overheat temperature caused by the impeller pump "running dry." He testified that he looked at the carbon content because he thought that if the impeller pump "ran dry" there might be some display of melted impeller material on the surface. Grate found no difference in oxygen or carbon content between the two tested areas. According to Grate, the findings of the EDS analysis indicated that the Subject Impeller Pump did not "run dry."

Grate initially testified that prior to running the EDS testing, the sample of the pump housing had not been washed or wiped down. He later testified that the sample may have been wiped down before it was tested. According to Pope, this is significant because by cleaning the metal, any rubber that was present could have been removed before the test was conducted. Pope

explained that simply wiping the sample could displace rubber because rubber does not bond to metal.

Grate also ran an EDS analysis on a broken blade from the Subject Impeller Pump. He compared the chemical composition of a broken blade to an exemplar product. According to Grate, if the Subject Impeller Pump had "run dry" the broken impeller blade would have a greater oxygen content than the exemplar. Grate, however, found a greater oxygen content in the exemplar product than the broken blade. Grate concluded that the result was due to a contamination of the exemplar product.

Pope testified that EDS analysis is not a sound method to determine whether the Subject Impeller Pump "ran dry." According to Pope, rubber is composed primarily of carbon and hydrogen. Hydrogen cannot be detected by this type of EDS analysis. And carbon is everywhere. As such, whether or not carbon is detected on the surface of a metallic part is not an indication of whether rubber particles are present.

G. Signs of an obstruction

Parsons opined that Subject Impeller Pump "ran dry" because an obstruction prevented the it from drawing in any fresh water. Parsons testified that a plastic bag or seaweed are examples of materials that can cause an obstruction. Parsons saw no evidence of an obstruction on the Vessel, such as the remnants of a plastic bag. According to Parsons, it is unremarkable to find no sign of an obstruction after a pump "runs dry" because the obstruction is released when the suction stops due to the Subject Impeller Pump failing.

III. CONCLUSIONS OF LAW

This Court has subject matter jurisdiction of this matter under 28 U.S.C.A. § 1333 as it involves a tort on navigable waters. In addition, this Court has diversity jurisdiction under 28 U.S.C.A. § 1332 as the matter is over $75,000.00 and there is complete diversity between the

Parties. General maritime law governs this action as it involves a loss that occurred on navigable waters and there is the required nexus with traditional maritime activity. *Sisson v. Ruby*, 497 U.S. 358 (1990); *East River S.S. Corp. v. Transamerica Delaval, Inc.*, 476 U.S. 858 (1986); *Foremost Insurance Co. v. Richardson*, 457 U.S. 668 (1982); *Executive Jet Aviation, Inc. v. Cleveland*, 409 U.S. 249 (1972).

a. Negligence

In admiralty law, common law principles of negligence apply. *Chaparro v. Carnival Corp.*, 693 F.3d 1333, 1336 (11th Cir. 2012). The elements of negligence are: (1) a duty owed by the defendant to the plaintiff to protect the plaintiff from a particular injury; (2) breach of that duty; (3) proximate causation of the plaintiff's injuries; and (4) damages. *Id.*

Plaintiff appears to have abandoned its negligence claim. Nevertheless, the Court will address the claim as it was asserted in the operative Complaint and has not been dismissed. Plaintiff has presented no evidence of a duty owed by the Defendant to the Plaintiff or a breach of any such duty. For those reasons, Plaintiff has failed to prove negligence and judgment is entered in favor of the Defendant on this claim.

b. Strict liability

An action based on strict product liability will lie in admiralty. *East River S.S.*, 476 U.S. at 865. The doctrine of strict liability is set forth in *Restatement (Second) of Torts § 402A*, which provides:

> (1) One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property, if
>
> (a) the seller is engaged in the business of selling such a product, and
>
> (b) it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.

A plaintiff may meet its burden of proving that a product was defective by either "pointing to some specific dereliction by the manufacturer in constructing or designing the product" or by "circumstantial evidence." *Ocean Barge Transp. Co. v. Hess Oil Virgin Islands Corp.*, 726 F.2d 121, 124–25 (3d Cir. 1984). To prove its case through circumstantial evidence, Plaintiff must prove that the Subject Impeller Pump failure was "an unexplained occurrence" and must "eliminate all reasonable explanations for the occurrence other than the existence of a defect." *Id.* at 124.

The Parties have stipulated that "[F]or purposes of this trial only … [Defendant] is the proper entity for liability arising out of a manufacturing defect in the subject [impeller] pump, if any." ECF No. [79] at 3. The question before the Court is whether Plaintiff has proven by a preponderance of the evidence with direct evidence that the Subject Impeller Pump was defective when it left Defendant's possession. If not, has Plaintiff demonstrated the existence of a defect by showing an unexplained occurrence and eliminating all reasonable explanations for the occurrence other than the existence of the defect. And if Plaintiff has proven that the Subject Impeller Pump was defective, was the defect the proximate cause of the damages suffered.

1. Direct evidence of a manufacturing defect

The Court finds that Plaintiff did not present sufficient direct evidence to support the finding that the Subject Impeller Pump was defective when it left Defendant's possession. Plaintiff offered little by way of direct evidence of a defect. Plaintiff did not identify a defect itself. Grate claimed that the primary cause of the Subject Impeller Pump's failure was "residual stresses" but could not identify any evidence of residual stresses in the Subject Impeller Pump. This was because, by his own testimony, he did not have the right equipment. Finally, the Court weighed Grate's testimony regarding the location of the fracture in the Subject Impeller Pump

against Pope's testimony that you would expect a defect to be found at the location of the crack, if any, and no defect was found by any expert. The Court finds Pope's testimony to be more persuasive. Accordingly, Plaintiff has failed to prove by direct evidence that the Subject Impeller Pump was defective.

2. Circumstantial evidence of a manufacturing defect

The Court finds that Plaintiff has not met its burden of eliminating all reasonable explanations for the Subject Impeller Pump's failure other than a product defect. Specifically, Plaintiff has not eliminated the the possibility that the Subject Impeller Pump "ran dry."

First, the Court accepts Santos' testimony that when a pump "runs dry" there is no water in the cooling system. Santos found water in the pump housing and sea strainer when he first inspected the Vessel weeks after the incident. The presence of the water can be explained, however, by the Vessel being operated in the water after the pump "ran dry" and before Santos inspected it. When the Vessel was operated after the incident, the pump housing and strainer refilled with water. Accordingly, the presence of water in the cooling system upon Santos' inspection does not weigh against the possibility that a "dry run" caused the Subject Impeller Pump's failure.

Second, the locations where the impeller fragments were found are consistent with the pump "running dry." The Court finds Parsons' testimony to be credible on this issue. Additionally, the Court accepts Pope's opinion that because all the impeller tips were exposed to the same condition, namely the pump "running dry," they all broke off of the hub.

Third, the Court finds Parsons' testimony regarding the suction hose to be credible. That Santos found the suction hose uncompressed after the incident does not weigh against the theory that the pump "ran dry."

Fourth, the results of the durometer testing do not support a finding that pump did not "run dry." The Court accepts Pope's testimony that the material of which the Subject Impeller Pump is composed would return to its original hardness after cooling. For that reason, if the Subject Impeller Pump had "run dry" one would not expect to find a difference in hardness between it and an exemplar impeller.

Fifth, the most compelling evidence related to signs of heat damage was Pope's microscopic examination of the impeller blade fragments. The Court accepts Pope's testimony that when rubber heats up it appears smeared and shiny where it rubs against metal. The Court viewed photographs in evidence depicting blade fragments from the Subject Impeller Pump. The fragments appeared smeared and shiny. The Court also viewed photographs of the port-side impeller blades and found no similar smeared or shiny material. Pope's opinion that the material flow he observed and photographed is consistent with the pump housing being deprived of water. This opinion is seemingly uncontroverted by Plaintiff's experts or any other evidence presented. The Court finds this evidence to be more persuasive than the conflicting testimony of Santos, Grate, Peacock, and Parsons, as to whether the Subject Impeller Pump appeared to be burnt or otherwise showed signs of heat damage. The signs of material flow support a finding that the Subject Impeller Pump "ran dry" and overheated.

Sixth, the Court will not rely on the EDS analysis presented by Plaintiff. The contamination of the control sample and the uncertainty as to whether the sample of the subject pump housing was cleaned before testing render the EDS analysis unreliable.

Seventh, the absence of a sign of obstruction post-incident does not eliminate the possibility that the pump "ran dry." The Court credits Parsons's testimony that an obstruction, such as a plastic bag, may be released when the pump fails.

Considering all of the evidence before the Court, it is the Court's conclusion that Plaintiff has not met its burden of eliminating that possibility that the Subject Impeller Pump failed due to a "dry run." Accordingly, Plaintiff has failed to prove by circumstantial evidence that the Subject Impeller Pump was defective.

c. Causation

Even if Plaintiff had proven that the Subject Impeller Pump was defective, Defendant would be relieved from liability because the claimed failure was not the proximate cause of the engine fire. "The concepts of proximate cause and superseding cause apply in admiralty." *Muhs v. River Rats, Inc.*, 586 F. Supp. 2d 1364, 1373 (S.D. Ga. 2008). "When considering the question of proximate causality, "courts sitting in admiralty may draw guidance from, *inter alia*, the extensive body of state law applying [its] requirements and from treatises and other scholarly sources." *Bell v. Beyel Bros., Inc.*, No. 2:16-CV-14461, 2017 WL 1337267, at *3 (S.D. Fla. Apr. 7, 2017) (quoting *Exxon Co., U.S.A. v. Sofec, Inc.*, 517 U.S. 830, 839 (1996)).

"It is axiomatic in a strict liability case that the defect must be the legal cause of plaintiff's injury." *Jimenez v. Gulf & W. Mfg. Co.*, 458 So. 2d 58, 60 (Fla. 3rd DCA1984) (citing *West v. Caterpillar Tractor Co.*, 336 So.2d 80 (Fla. 1976)). Florida courts have applied the concept of superseding cause in making proximate cause determinations in products liability cases brought under theories of strict liability. *See, e.g., Barati v. Aero Indus., Inc.*, 579 So. 2d 176, 178 (Fla. 1st DCA 1991) (refusing to extend liability due to a finding of "an independent efficient cause, which breaks the chain of causation because it is a remote, unforeseeable and bizarre consequence of the original negligence"); *Pamperin v. Interlake Companies, Inc.*, 634 So. 2d 1137, 1139 (Fla. 1st DCA 1994) (holding that whether plaintiff's and third-parties' acts rose "to the level of an independent intervening cause" is a question for the jury in this instance). As the Florida Supreme

Court stated: "an intervening cause supersedes the prior wrong as the proximate cause of the injury by breaking the sequence between the prior wrong and the injury. However, [i]f an intervening cause is foreseeable the original negligent actor may still be held liable." *Goldberg v. Fla. Power & Light Co.*, 899 So. 2d 1105, 1116 (Fla. 2005) (internal quotation omitted); *see also Worthington v. United States*, 21 F.3d 399, 406–07 (11th Cir. 1994) (stating that the intervening cause analysis under Florida law requires a determination of whether intervening actions were "so bizarre and unforeseeable that they should relieve defendant of all liability").

Plaintiff first argues that Defendant waived the defense of superseding or intervening cause because it was not raised as an affirmative defense. However, Defendant's Ninth Affirmative Defense states: "Any damages, injuries, and/or losses alleged by Plaintiff, the existence of such damages, injuries, and/or losses being specifically denied, were caused by the acts and/or omissions of parties, persons, or entities not within the control of SPX Flow and/or by the acts and/or omissions of Plaintiff and/or its subrogor, and not by any acts and/or omissions of SPX Flow." ECF No. [19] at 7-8. The Ninth Affirmative Defense put Plaintiff on notice that proximate cause was at issue due to an intervening act by the Aquillas or others. Moreover, Plaintiff did not move to strike the affirmative defense. Accordingly, the Court finds that Defendant did not waive the affirmative defense of a superseding cause.

In the Court's view of the unique facts presented, it was unforeseeable that the Vessel would be operated with the seawater flow sensor disconnected from the alarm buzzer. The Vessel came equipped with the seawater flow sensor and alarm. It was so equipped because a reduction in seawater flow can cause an engine to overheat and a boat to sustain damage. The Court accepts Peacock's uncontroverted testimony that it is well known in the boating industry that impeller pumps commonly "run dry" and fail. Additionally, the Operation Manual references the seawater

flow sensor as part of the engine safety control system. It was not foreseeable that Defendant's product would be used with the safety feature disabled that came with the Vessel and was designed to avoid damage in the event the product failed.

Had the seawater flow sensor been connected to the alarm buzzer, the Vessel likely would not have sustained damage. The alarm buzzer would have sounded when seawater stopped flowing and before the engine temperature began rising. At that point, the operator of the Vessel likely would have turned off the starboard engine and prevented an overheat. The Court is unpersuaded by Plaintiff's argument that because the alarm was barely audible to Mr. Aquilla it would have made no difference if it sounded when seawater stopped flowing. It certainly is not foreseeable to the manufacturer that a boat operator would not be able to readily hear the alarm buzzer on his or her boat. This is particularly true given that the Operation Manual states that the alarm buzzer should be checked each time the engine is started.

Accordingly, even if Plaintiff had met its burden of proving that the Subject Impeller Pump was defective, Plaintiff has not demonstrated that the defect was the proximate cause of the resulting damage to the Vessel.

IV. CONCLUSION

For the foregoing reasons, the Court finds that Plaintiff has failed to establish that the Defendant was negligent. Further, the Plaintiff has failed to satisfy its burden of establishing that the Subject Impeller Pump was defective. Even if Plaintiff had satisfied its burden, the Subject Impeller Pump's failure was not the proximate cause of the damage to the Vessel. Accordingly, judgment shall be entered in favor of Defendant. Pursuant to Rule 58 of the Federal Rules of Civil Procedure, the Court will enter judgment by separate order.

DONE AND ORDERED in Chambers at Miami, Florida, on August 15, 2019.

BETH BLOOM
UNITED STATES DISTRICT JUDGE

Copies to:

Counsel of Record