IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

N.A. WATER SYSTEMS, LLC	)	Civil Action No. 2:10-00484
	)	
Plaintiff,	)	Judge Joy Flowers Conti
	)	
v.	)	
	)	
AQUATECH INTERNATIONAL CORPORATION & DEBASISH MUKHOPADHYAY,	)	
	)	
Defendants.	)	

AMENDED COMPLAINT

N.A. Water Systems, LLC ("NAWS") files this Amended Complaint for tortious interference with prospective contractual relationship, defamation, and a declaratory judgment relating to NAWS' OPUS system and process for treating wastewater.

PARTIES

1. NAWS is a Pennsylvania limited liability company and a direct subsidiary of Veolia Water Solutions & Technologies North America, Inc. and has its principal place of business in Allegheny County, Pennsylvania.

2. Aquatech is a corporation organized and existing under the laws of the Commonwealth of Pennsylvania, and has its principal place of business in Washington County, Pennsylvania.

3. Upon information and belief, Debasish Mukhopadhyay resides in the State of California.

JURISDICTION AND VENUE

4. This action arises under the patent laws of the United States, 35 U.S.C. §§1 et. seq.

5. This Court has subject matter jurisdiction under the provisions of 28 U.S.C. §§1331 and 1338(a).

6. Venue is proper in this Judicial District pursuant to 28 U.S.C. §§1391(b), 1391(c), and 1400(b) because Aquatech and Mukhopadhyay have regularly conducted business in this judicial district and are subject to personal jurisdiction in this judicial district.

7. This Court can enter the declaratory relief sought in this Complaint because this case presents an actual case and controversy, and is within the Court's jurisdiction pursuant to the provisions of the Federal Declaratory Judiciary Act, 28 U.S.C. §2201.

NATURE OF THIS ACTION

8. NAWS is an exclusive licensee of U.S. Patent No. 5,250,185 ("the '185 patent) (Exhibit A).

9. Mukhopadhyay is the owner of U.S. Patent Nos. 5,925,255 (the "'255 patent") and 6,537,456 (the "'456 patent") (collectively, the "HERO patents").

10. On information and belief, Mukhopadhyay granted Aquatech a license to market and sell reverse osmosis ("RO") processes for treating feedwater utilizing methods covered by the HERO patents, but the license does not include the right to enforce the HERO patents against third parties.

11. In this action, NAWS seeks a declaration that NAWS' process known as OPUS (described in detail below) does not infringe the HERO Patents and that any actions by NAWS relating to promoting the OPUS process do not contribute to, or induce infringement of, the HERO patents.

12. NAWS further seeks a declaration that the HERO patents are invalid and unenforceable.

HIGH Ph REVERSE OSMOSIS PROCESSES AND THE '185 PATENT

13. Reverse osmosis (RO) membranes are widely used in the field of water treatment for the removal of total dissolved solids from a feedwater. RO membranes are often used, for example, to produce high purity water for drinking and irrigation from seawater and brackish water. RO membranes are also used in the treatment of wastewater produced in oil recovery processes.

14. Treatment of a feedwater with an RO membrane is similar to filtration, but relies on diffusion rather than particle size to achieve separation of solids from the feedwater. A feedwater is forced under pressure through the RO membrane. Solutes contained in the water are retained and concentrated to form a retentate or reject stream, while the treated water passes through the membrane to from a permeate or product stream.

15. Membrane fouling and scaling are common problems in water treatment systems using an RO membrane. In the course of purifying a feedwater stream with a membrane, it is common for solids to become deposited on the membrane. This causes a reduction in product flow through the membrane, increases the frequency of cleaning, and reduces the life of the membrane.

16. To reduce fouling and scaling of the membrane, typical processes employ various pre-treatment processes to remove impurities in the feedwater that contribute to fouling and scaling. Typically, impurities found in feedwater streams are hardness (calcium and magnesium), silica, suspended solids, organics, and boron. Hardness in the form of calcium carbonate ($CaCO_3$), for example, is a common cause of scaling.

17. The solubility of calcium carbonate decreases with increasing pH. When the pH is raised, calcium carbonate precipitates from the feedwater and forms a scale on the RO membrane. For this reason, in the past it was common practice to pre-treat the feedwater to remove hardness before feeding to the RO membrane, and to operate the RO membrane at a pH below 7.0 to avoid precipitation. In addition, anti-scalants can be added to the feedwater to help prevent precipitation of calcium carbonate.

18. In the early 1990's a researcher named Fansbeng T. Tao designed a process now known as a high pH RO process which is effective in removing these impurities from feedwater streams. Tao's process employed RO membranes and various systems for pre-treating the feedwater ahead of the RO membranes.

19. In his high pH RO process, Tao included a warm lime softener, filters, and a weak acid cation (WAC) ion exchange ahead of the RO membranes. These pre-treatment systems removed hardness, silica, and suspended solids from the feedwater before the feedwater reached the RO membranes.

20. Tao also discovered that it was important to raise the pH of the feedwater ahead of the RO membranes in order to reduce membrane fouling and scaling. Tao raised the pH of the feedwater to about 10.5 and higher. Tao discovered that by raising the pH, impurities such as organics, boron, and other dissolved solids assumed a soluble state in the feedwater. In a soluble state, these impurities do not precipitate, form deposits on the membrane, or cause fouling or scaling of the membrane. By raising the pH and maintaining impurities soluble, the RO membrane is effective to reject these impurities. Furthermore, by raising the pH, the Tao process inherently removed carbon dioxide from the feedwater stream.

21. The Tao process is protected by U.S. Patent No. 5,250,185 ("the '185 patent). *See* Ex. A.

22. NAWS is an exclusive licensee of the '185 patent.

DEFENDANT MUKHOPADHYAY'S HERO PATENTS

23. Defendant Mukhopadhyay knew Tao, knew of Tao's process, and knew that Tao had employed a high pH RO process to remove hardness, silica, organics, boron, and other impurities from feedwater.

24. Upon information and belief, Defendant Mukhopadhyay also had access to extensive data and studies concerning Tao's high pH RO process and Tao's pilot testing of that process.

25. Upon information and belief, in the mid-1990's, after Tao had developed his high pH RO process, Defendant Mukhopadhyay started experimenting with a high pH RO process very similar to Tao's high pH RO process. As a result, Mukhopadhyay filed a number of patent applications directed at a high pH RO process. These patent applications matured into U.S. Patent Nos. 5,925,255 (the "'255 patent") and 6,537,456 (the "'456 patent"), (collectively the "HERO patents"). *See* Exs. B and C.

26. The HERO process is very similar to the process protected by the '185 patent (the "Tao process"). Both processes operate the RO membranes at a relatively high pH to reject organics, boron, and other dissolved solids, and both processes pre-treat the feedwater to remove hardness and reduce membrane scaling.

27. In addition, both the Tao process and the HERO process remove carbon dioxide from the feedwater. In the Tao process, the act of raising the pH of the feedwater

converts the carbon dioxide in the feedwater into bicarbonates. In the HERO process, carbon dioxide is removed using a degasifier before raising the pH of the feedwater.

NAWS' OPUS PROCESS

28. NAWS's OPUS process is a variant and an improvement of the Tao process. In the OPUS process, the feedwater stream is treated to remove hardness using the same basic techniques first described by Tao. Like the Tao process, the OPUS process uses warm lime softening to precipitate hardness, followed by removing residual hardness in a WAC ion exchange. In OPUS, there is no pH adjustment following hardness removal because the pH is raised during warm lime softening and is maintained during subsequent treatment steps.

29. Exhibit D to this Complaint is a schematic illustrating the basic OPUS process. As illustrated, the pre-treatment portion of the process includes chemical softening, filtration in the form of both media and cartridge filtration, and WAC ion exchange softening. Downstream from the chemical softening is an RO unit which includes membranes.

30. Chemical softening is performed in what is referred to as the "MULTIFLO" chemical softener, which includes a series of mixing tanks and a clarifier. The function of the MULTIFLO chemical softener is twofold: 1) to remove some hardness and suspended solids from the feedwater, and 2) raise the pH of the feedwater. This is typically accomplished by mixing one or more alkaline reagents with the feedwater in one or more of the mixing tanks of the MULTIFLO unit. This causes various hardness species to precipitate and, because the reagent is an alkaline, the pH of the feedwater is raised.

31. After adding the alkaline reagent, precipitating hardness species and raising the pH, the feedwater is directed to the clarifier where the precipitated hardness species

and suspended solids settle and form a sludge. Some of the sludge is recycled to one or more of the mixing tanks of the MULTIFLO unit, while another portion of the sludge is wasted, resulting in the removal of the hardness species and suspended solids.

32. Effluent from the clarifier is directed to the multimedia filter for further removal of suspended solids. Downstream of the multimedia filter is one or more WAC ion exchange units. The ion exchange units further reduce the concentration of hardness species in the feedwater.

33. Finally, the feedwater is directed through cartridge filters that further remove suspended solids. Effluent from the cartridge filters is directed to the RO unit that removes dissolved solids, organics, and boron from the feedwater stream.

AQUATECH'S FALSE CLAIMS REGARDING THE HERO PATENTS

34. On November 13, 2009 NAWS presented a proposal to Kiewit Power Engineers ("Kiewit") and its client, Idaho Power Company ("Idaho Power"), to provide NAWS's OPUS system and process for treating a cooling tower blowdown stream at one of Idaho Power's plants.

35. The OPUS process proposed to Kiewit and Idaho Power is substantially the same process discussed above and shown in Exhibit D. *See* Ex. E (schematic of the OPUS process proposed to Kiewit and Idaho Power).

36. Aquatech also presented a proposal to Kiewit and Idaho Power, proposing a process that Aquatech claims is covered by the HERO patents.

37. Between mid-November and mid-December 2009, NAWS and Kiewit had numerous discussions concerning the OPUS system and process, how it worked, and the results that Idaho Power could expect if it implemented the OPUS process.

38. On December 11, 2009, Aquatech sent Kiewit a letter (the "Kiewit Letter") containing the following statement:

> The HERO patent holder believes that the OPUS process, based on the depiction in the attached OPUS brochure, violates the HERO patent (an opinion Aquatech shares). As such, he reserves all rights to seek redress to the fullest extent that is allowed by the Laws in the United States, should an actual infringement of his rights occur.

See Ex. F (December 11, 2009 letter from Aquatech to Kiewit).

39. On information and belief, Mukhopadhyay granted Aquatech a license to market and sell RO processes for treating feedwater utilizing methods covered by the HERO patents, but the license does not include the right to enforce the HERO patents against third parties.

40. On information and belief, Aquatech did not have the authority to threaten Kiewit with patent litigation.

41. The Kiewit Letter also contains the following statements:

a. "The inventor and first investigator [of the OPUS process], Mr. Joseph Zuback, now a Siemens employee, has not agreed to sign the patent application."

b. "Mr. Zuback believes that OPUS is not patenable over prior arts (presumably HERO)."

c. "The attached highlights the potential ownership conflict associated with the OPUS process."

d. "We would suggest that Kiewit engage their legal resources to seek legal counsel on this matter."

See Ex. F (December 11, 2009 letter from Aquatech to Kiewit).

42. Aquatech included with the Kiewit Letter the declaration of NAWS's counsel (the "2007 Coats Declaration") filed with the Patent and Trademark Office ("PTO"). *See id.*

43. The 2007 Coats Declaration was part of a Petition Under 37 C.F.R. 1.47(a) dated April 4, 2007, and which was contained in the patent prosecution history for U.S. Patent No. 7,815,804 (the "OPUS Patent"). *See* Ex. G (Petition Under 37 CFR 1.47(A)).

44. The same patent prosecution history contained an August 2009 filing in which NAWS requested that the Patent Office delete Mr. Zuback as an inventor from the OPUS patent application because Mr. Zuback disclaimed any role in the invention of the OPUS process. *See* Ex. H (Request for Reconsideration of Petition Under 37 CFR 1.47(A)).

45. Aquatech had access to the entire prosecution history for the OPUS Patent.

46. Aquatech selected the 2007 Coats Declaration to support AIC's statements in the Kiewit Letter that Aquatech knew to be false.

47. Aquatech knew that its statements in the Kiewit Letter were false because Aquatech had access to the OPUS Patent prosecution history, which prosecution history contained the 2009 Request for Reconsideration (Ex. H), which document made absolutely clear that Aquatech's statements based on the 2007 Coats Declaration were false.

48. More specifically, when it wrote and sent the Kiewit Letter, Aquatech knew, or reasonably should have known based on a review of the entire OPUS Patent prosecution history, that Mr. Zuback was not a co-inventor of the OPUS process, and that neither Mr. Zuback nor Siemens claimed, or had any basis to claim, an ownership interest in the OPUS process.

49. Further, nothing in the OPUS prosecution history supports Aquatech's statement in the Kiewit Letter that "Mr. Zuback believes that OPUS is not patenable over prior arts (presumably HERO)."

50. In its Information Disclosure Statement filed with the PTO, NAWS disclosed all prior art identified by Mr. Zuback, which did not include the HERO patents. *See* Ex. I (Information Disclosure Statement by Applicant).

51. The same patent prosecution history from which Aquatech selected the 2007 Coats Declaration that it included with the Kiewit Letter, thus contained conclusive information that demonstrates the falsity of Aquatech's statements made in the Kiewit Letter.

52. Aquatech falsely advised Kiewit that Joseph Zuback, a Siemens employee, was the co-inventor of the OPUS process.

53. Aquatech falsely advised Kiewit that a co-inventor of the OPUS process had refused to sign the patent application.

54. Aquatech falsely advised Kiewit that a co-inventor of the OPUS process did not believe that the OPUS process was patentable.

55. Aquatech intended for its false statements in the Kiewit Letter to cause Kiewit to believe that a co-inventor of the OPUS process believes that the OPUS process infringes the HERO patents.

56. Aquatech's statement: "The attached highlights the potential ownership conflict associated with the OPUS process" is false, and is intended to cause Kiewit to fear that Kiewit and Idaho Power might be subject to additional litigation exposure if Siemens and/or Zuback asserts an ownership interest in the OPUS process.

57. After receiving Aquatech's December 11, 2009 letter, Kiewit raised for the first time with NAWS concerns that the OPUS process might subject Kiewit and Idaho Power to exposure for potential liability related to the use of the OPUS process. Kiewit and Idaho Power sought assurances that the OPUS process did not infringe any patents and asked whether NAWS would indemnify Idaho Power against potential liability related to the use of the OPUS process.

58. NAWS assured Kiewit and Idaho Power that the use of NAWS' OPUS process would not infringe any patents and further agreed to indemnify Kiewit and Idaho Power against patent infringement claims or any other potential liability related to the use of the OPUS process.

59. In mid-December 2009, Kiewit notified NAWS that it had awarded the contract to Aquatech.

60. Kiewit advised NAWS that Idaho Power was a regulated power company with large power supply contracts and could not afford the consequential damages risks associated with the threat of being enjoined from using the OPUS process.

61. On information and belief, Idaho Power directed Kiewit not to award the contract to NAWS as a consequence of the threat of patent litigation by Aquatech.

62. On information and belief, Idaho Power directed Kiewit not to award the contract to NAWS as a consequence of the threat that Siemens and/or Zuback might assert an ownership interest in the OPUS process and subject Idaho Power and/or Kiewit to additional litigation.

63. Aquatech knew, or reasonably should have known, that its claim that the OPUS process infringes the HERO patents is false.

64. Aquatech knew, or reasonably should have known, that the claim that the co-inventor of the OPUS process does not believe the OPUS process was patentable over the HERO patents is false.

65. Aquatech knew, or reasonably should have known, that the claim that Siemens and/or Zuback might assert an ownership interest in the OPUS process is false.

66. Aquatech made these false statements to harm NAWS's reputation, deter Kiewit from working with NAWS, and prevent legitimate competition between Aquatech and NAWS for the Kiewit contract.

67. Aquatech's actions were not privileged and were not undertaken for any legitimate business purpose, but instead for the purpose of deliberately and maliciously harming NAWS business and interfering with NAWS's relationship with Kiewit and Idaho Power.

68. NAWS seeks a declaration confirming its continued right to promote, market, and sell the OPUS process in the power industry as well as all other industries.

69. An actual case and controversy exists because Aquatech has asserted the HERO patents to intimidate Kiewit and Idaho Power not to contract with NAWS, and has generally infected the competitive environment surrounding the Idaho Power project and other similar projects.

70. Moreover, other projects similar to the Idaho Power Project are forthcoming and, unless deterred by the Court, a substantial risk exists that Aquatech will again wrongfully assert the HERO patents against potential customers in an attempt to intimidate prospective customers into rejecting NAWS' OPUS process in favor of Aquatech's HERO process.

71. Aquatech has harmed and will continue to harm NAWS' economic interests by impairing its ability to promote, market, and sell its OPUS process.

COUNT I -- DECLARATORY JUDGMENT OF NON-INFRINGEMENT
28 U.S.C. §§2201, 2202; 35 U.S.C. §271
(Against all Defendants)

72. NAWS realleges and incorporates by reference the preceding paragraphs of the Complaint.

73. The OPUS process does not infringe the '255 patent or the '456 patent, and NAWS has not contributed to or induced infringement of the '255 patent or the '456 patent.

74. This is an actual controversy, within the meaning of 28 U.S.C. §§2201 and 2202, between NAWS and Aquatech and Mukhopadhyay concerning the infringement of the '255 and '456 patents.

75. NAWS is entitled to a declaratory judgment that its OPUS process does not infringe any valid claim of the '255 patent or the '456 patent, either literally or under the doctrine of equivalents, and that NAWS, by promoting the OPUS process and selling equipment to practice the OPUS process, does not indirectly infringe the '255 and '456 patents.

76. This is an exceptional case, and NAWS is entitled to an award of attorneys' fees pursuant to 35 U.S.C. §285.

COUNT II -- DECLARATORY JUDGMENT OF PATENT INVALIDITY
28 U.S.C. §2201, 2202, 35 U.S.C. §§102, 103, and 112
(Against all Defendants)

77. NAWS realleges and incorporates by reference the preceding paragraphs of the Complaint.

78. Based on the prosecution histories of the ‘255 patent and the ‘456 patent, and the prior art cited during prosecution, as well as other prior art, the patent claims in the ‘255 patent and ‘456 patent are invalid.

79. The ‘255 patent and each of the claims therein are invalid for failure to comply with one or more of the requirements of 35 U.S.C. §§102, 103, and 112.

80. The ‘456 patent and each of the claims therein are invalid for failure to comply with one or more of the requirements of 35 U.S.C. §§102, 103, and 112.

81. This is an actual controversy, within the meaning of 28 U.S.C. §2201 and 2202, between NAWS and Aquatech and Mukhopadhyay as to whether there exists any valid and enforceable claims of the ‘255 patent and the ‘456 patent.

82. NAWS is entitled to a declaratory judgment that all claims in the ‘255 patent and the ‘456 patent are invalid.

83. This is an exceptional case, and NAWS is entitled to an award of attorneys’ fees pursuant to 35 U.S.C. §285.

COUNT III-- TORTIOUS INTERFERENCE WITH PROSPECTIVE CONTRACTUAL RELATIONSHIP
(Against Aquatech)

84. NAWS realleges and incorporates by reference the preceding paragraphs of the Complaint.

85. NAWS had a prospective contractual relationship with Kiewit and Idaho Power.

86. But for Aquatech’s interference, NAWS would have entered into the contract with Kiewit and Idaho Power.

87. Aquatech falsely threatened Kiewit and/or Idaho Power with patent infringement litigation. *See* Ex. F.

88. On information and belief, Aquatech does not enjoy the right to enforce the HERO patents against third parties.

89. Aquatech falsely advised Kiewit that the alleged co-inventor of the OPUS process did not believe that the OPUS process was patentable over the HERO patents. *See id.*

90. Aquatech falsely advised Kiewit that Siemens and/or Zuback could assert an ownership interest in the OPUS process. *See id.*

91. Aquatech had no reasonable basis to believe the claim that the OPUS process infringes the HERO patents.

92. Aquatech had no reasonable basis to believe the claim that the co-inventor believed the OPUS process was not patentable over the HERO patents.

93. Aquatech had no reasonable basis to believe that NAWS did not properly own the OPUS process it proposed to Kiewit, or that Siemens and/or Zuback could assert an ownership interest in the OPUS process.

94. Aquatech acted with intent to harm NAWS by preventing the relationship with Kiewit and Idaho Power from forming and preventing legitimate competition.

95. Aquatech acted without a privilege or justification.

96. Aquatech acted in bad faith.

97. NAWS suffered actual damages as a result of Aquatech's conduct. NAWS suffered pecuniary loss of the benefit of the contract with Kiewit and Idaho Power, as well as consequential damages and losses from harm to NAWS's reputation.

98. NAWS is entitled to punitive damages because Aquatech's conduct was particularly egregious, and demonstrated a reckless indifference to the rights of others.

COUNT IV – DEFAMATION
(Against Aquatech)

99. NAWS realleges and incorporates by reference the preceding paragraphs of the Complaint.

100. The Kiewit Letter included defamatory statements about NAWS, and specifically the OPUS process NAWS proposed to Kiewit. *See* Ex. F.

101. Aquatech falsely advised Kiewit that the alleged co-inventor believed that the OPUS process is not patentable over HERO. *See id.*

102. Aquatech falsely advised Kiewit that Siemens and/or Zuback could claim an ownership interest in the OPUS process NAWS proposed to Kiewit. *See id.*

103. Aquatech had no reasonable basis to believe the claims that 1) the co-inventor believed the OPUS process was not patentable over the HERO patents, and 2) Siemens and/or Zuback might claim an ownership interest in the OPUS process NAWS proposed to Kiewit.

104. Aquatech's statements were intended to harm NAWS's reputation, and deter Kiewit and/or Idaho Power from doing business with NAWS.

105. Aquatech intended for its statements to cause Kiewit and/or Idaho Power to distrust NAWS and the legitimacy of the OPUS process.

106. Kiewit understood Aquatech's statements to be defamatory statements about NAWS.

107. As a result of Aquatech's defamatory conduct, Kiewit and/or Idaho Power declined to award the contract to NAWS and instead awarded the contract to Aquatech.

108. Aquatech abused a conditionally privileged occasion.

109. NAWS suffered actual damages as a result of Aquatech's conduct. NAWS suffered pecuniary loss of the benefit of the contract with Kiewit and Idaho Power, as well as consequential damages and losses from harm to NAWS' reputation.

110. NAWS is entitled to punitive damages because Aquatech acted with malice. Aquatech made these false statements with knowledge that the statements were false, or with reckless disregard for the truth or falsity of the statements. Aquatech's conduct was outrageous, malicious, wanton, reckless, willful, and/or oppressive.

PRAYER FOR RELIEF

WHEREFORE, NAWS prays for the following relief:

111. A declaration that the OPUS process does not infringe the '255 and '456 patents;

112. A declaration that the actions of NAWS in promoting the OPUS process and selling equipment to others for the purpose of practicing the OPUS process does not constitute contributory infringement or inducement to infringe the '255 and '456 patents;

113. A declaration that each of the claims of the '255 and '456 patents is invalid and unenforceable;

114. An award of NAWS' reasonable attorneys' fees pursuant to 35 U.S.C. §285;

115. Compensatory and consequential damages;

116. Punitive damages; and

117. Such other and further relief as this Court deems just and proper.

DEMAND FOR JURY TRIAL

NAWS respectfully demands a trial by jury on all claims and issues so triable.

Dated: May 18, 2011

By: *Andrew K. Fletcher*

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the foregoing Amended Complaint was served via the Court's electronic filing system, on May 18, 2011, upon the following:

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