

**UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF OKLAHOMA**

(1) FLEX-CHEM HOLDING	)	
COMPANY, LLC	)	
Plaintiff,	)	
	)	
v.	)	Case No. <u>CIV-23-316-JD</u>
	)	
(1) PHARAOH ENERGY SERVICES,	)	
LLC	)	
	)	
Defendant.	)	
	)	

**COMPLAINT**

Plaintiff Flex-Chem Holding Company, LLC (“Flex-Chem” or “Plaintiff”) for its Complaint against Defendant Pharaoh Energy Services, LLC (“Pharaoh” or “Defendant”), alleges as follows:

**The Parties**

1. Plaintiff Flex-Chem is a limited liability company organized and existing under the laws of Oklahoma with a principal place of business at 700 North Wilson Road, Weatherford, Oklahoma 73096. Flex-Chem is a technology development company and leader in chemical solutions for the oil and gas industry, including well stimulation and remediation solutions that increase hydrocarbon production.

2. Defendant Pharaoh is a limited liability company organized and existing under the laws of Oklahoma and is a resident of Oklahoma, having a principal place of business in this district at 116 First Street, Velma, OK 73491. Pharaoh is an oil and gas service company that provides well-site services.

### **Jurisdiction**

3. This is an action for patent infringement arising under the Acts of Congress relating to patents, 35 U.S.C. §§ 271; 281-285.

4. This Court has subject matter jurisdiction over Defendant pursuant to 28 U.S.C. §§ 1331 and 1338(a).

5. This Court has personal jurisdiction over Pharaoh because Pharaoh was formed in Oklahoma and has a principal place of business in this district. Venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391 and 1400(b) because Pharaoh is a resident of this district, has committed acts of infringement in this district, and has a regular and established place of business in this district.

### **Factual Background**

6. Plaintiff Flex-Chem is a technology development leader in the oil and gas industry. Flex-Chem's extensive research and development efforts directed toward improving well production and operations have resulted in several new chemical treatments and technologies that are proven to improve well performance. For example, Flex-Chem's patented well remediation and stimulation methods are proven to be extremely effective at removing down-hole polymer sludge and increasing the production of fractured wells. With the onset of large-scale oil and gas production from shale formations, Flex-Chem recognized a need for new technology to improve productivity of shale wells and has invested heavily in the development, testing, and protection of Flex-Chem's patented processes for remediation and stimulation of wells, including its OptaSTIM and OptaSTIM-E technologies.

7. Andrew Bryce Conway, as the Technical Director of Flex-Chem, invented a method for stimulation of wells in nano-darcy shale formations and obtained United States Patent No. 9,944,843 (the “’843 patent”). Mr. Conway assigned the ’843 patent to Flex-Chem, the current owner thereof. A copy of the ’843 patent is attached hereto as **Exhibit 1**. The application that led to the ’843 patent was filed on April 14, 2015, and issued on April 17, 2018. It was granted an additional 252 days of term. All required maintenance fees have been paid. The ’843 patent is valid and enforceable.

8. Flex-Chem filed a continuation application related to the ’843 patent and obtained United States Patent No. 10,633,575 (the “’575 patent”). Mr. Conway assigned the ’575 patent to Flex-Chem, the current owner thereof. A copy of the ’575 patent is attached hereto as **Exhibit 2**. The application that led to the ’575 patent was filed on January 19, 2018, and issued on April 28, 2020. It was granted an additional 133 days of term. The ’575 patent is valid and enforceable.

9. Mr. Conway and Robert Easterly, an employee of Cimarex Energy Co. (“Cimarex”), after considerable research, testing, and development, invented a unique method for remediating subterranean-formed, metal-polymer complexes in wells and obtained United States Patent No. 10,202,834 (the “’834 patent”). Mr. Conway assigned the ’834 patent to Flex-Chem, and Mr. Easterly assigned the ’834 patent to Cimarex. Cimarex subsequently assigned its interest in the ’834 patent to Flex-Chem, the current owner thereof.

10. Flex-Chem and Cimarex filed a continuation application related to the ’834 patent and obtained United States Patent No. 10,697,282 (the “’282 patent”). Cimarex

assigned its interest in the '282 patent to Flex-Chem, the current owner thereof. A copy of the '282 patent is attached hereto as **Exhibit 3**. The application that led to the '282 patent was filed on December 19, 2018, and issued on June 30, 2020. A Certificate of Correction for the '282 patent was issued on November 3, 2020. The '282 patent is valid and enforceable.

11. In 2020, Flex-Chem began performing its patented well remediation and stimulation services for a customer in west-central Oklahoma and has continued to do so through present. However, that customer issued a request for bid proposals for the remediation and stimulation services in west-central Oklahoma to other well services companies, including Pharaoh.

12. Upon information and belief, in response to its bid, Pharaoh has been hired by that customer to perform, and has performed, well treatments for remediation and stimulation of polymer damage in wells using Flex-Chem's patented processes.

13. On or about February 10, 2023, Flex-Chem learned that Pharaoh had jobs scheduled to treat wells using the same process as Flex-Chem. Upon information and belief, Pharaoh is providing a treatment mixture of about 10% hydrochloric acid and 5% citric acid, which falls squarely within the claims of Flex-Chem's patents; injecting the treatment mixture into the wells at a pressure less than a fracture pressure of the shale formation until at least some of the treatment mixture exits the well and contacts the shale formation; maintaining the treatment mixture in contact with the shale formation for a contact time of between about 1 minute to 100 days, thereby allowing the metal complexing agent to bind with at least some naturally-occurring metals contained within the shale

formation; and removing the treatment mixture from the wells after the contact time, thereby removing the bound naturally-occurring metals from the shale formation and thereby improving the hydrocarbon production of the wells relative to the hydrocarbon production immediately prior to performance of the process.

14. On or about February 10, 2023, Flex-Chem put Pharaoh on notice of the above patents via a letter sent by U.S.P.S. Certified Mail. Pharaoh received the notice on February 14, 2023.

15. In mid to late February, 2023, Flex-Chem learned that Pharaoh had been hired to and did provide well treatments for remediation and stimulation of several wells, including those in west-central Oklahoma; contracts that, but for Pharaoh's infringement of Flex-Chem's patents, would have gone to Flex-Chem.

**COUNT I**  
**Patent Infringement of U.S. Patent No. 9,944,843**

16. Plaintiff repeats and re-alleges by reference the allegations of Paragraphs 1-15 above, as if fully set forth herein.

17. On April 17, 2018, United States Patent No. 9,944,843 entitled Stimulation Of Wells In Nano-Darcy Shale Formations was duly and legally issued to Flex-Chem, the patent owner.

18. Defendant has infringed and continues to infringe literally and/or under the doctrine of equivalents at least independent claim 1 of the '843 patent by making, using, offering for sale, and/or selling well stimulation and remediation services for at least the wells in west-central Oklahoma, including at least in the STACK Area.

19. For example, Defendant directly infringed by performing or causing the performance of the method steps of at least claim 1 of the '843 patent in the United States:

A method for stimulating an existing well in a nano-darcy shale formation comprising:

19.1: providing a treatment mixture containing between about 0.1% and 95% by weight metal complexing agent at a pH of between about 0 and 10

Upon information and belief, based on the facts above, Defendant provided a treatment mixture containing about 5% citric acid metal complexing agent at a pH of about 0 to 10.

19.2: injecting the treatment mixture into the well at a pressure less than a fracture pressure of the nano-darcy shale formation until at least some of the treatment mixture exits the well and contacts the nano-darcy shale formation

Upon information and belief, based on the facts above, Defendant injected its treatment mixture into the well at a pressure less than a fracture pressure of the nano-darcy shale formation until at least some of its treatment mixture exited the well and contacted the nano-darcy shale formation.

19.3: maintaining the treatment mixture in contact with the nano-darcy shale formation for a contact time of between about 1 minute to 100 days, thereby allowing the metal complexing agent to bind with at least some naturally-occurring metals contained within the nano-darcy shale formation

Upon information and belief, based on the facts above, Defendant maintained its treatment mixture in contact with the nano-darcy shale formation for a contact time of between about 1 minute to 100 days, thereby allowing the metal complexing agent to bind with at least some naturally-occurring metals contained within the nano-darcy shale formation.

19.4: removing the treatment mixture from the well after the contact time, thereby removing the bound naturally-occurring metals from the nano-darcy shale formation and thereby improving the hydrocarbon production of the well relative to the hydrocarbon production immediately prior to performance of the method

Upon information and belief, based on the facts above, Defendant removed its treatment mixture from the well after the contact time, thereby removing the bound naturally-occurring metals from the nano-darcy shale formation

and thereby improving the hydrocarbon production of the well relative to the hydrocarbon production immediately prior to performance of the method.

20. Defendant has had actual knowledge of the '843 patent since at least as early as February 14, 2023, when Casey Hays of Pharaoh received a letter from Flex-Chem attaching this patent.

21. Upon information and belief, Defendant continues to offer its well remediation and stimulation services that utilize Flex-Chem's patented processes.

22. Defendant has willfully infringed and continues to willfully infringe the '843 patent.

23. Flex-Chem has been damaged by Defendant's infringement of the '843 patent and will continue to be damaged in the future unless Defendant is permanently enjoined from infringing the '843 patent.

**COUNT II**  
**Patent Infringement of U.S. Patent No. 10,633,575**

24. Plaintiff repeats and re-alleges by reference the allegations of Paragraphs 1-23 above, as if fully set forth herein.

25. On April 28, 2020, United States Patent No. 10,633,575 entitled Stimulation of Wells in Nano-Darcy Shale Formations was duly and legally issued to Flex-Chem, the patent owner.

26. Defendant has infringed and continues to infringe literally and/or under the doctrine of equivalents at least independent claim 1 of the '575 patent by making, using, offering for sale, and/or selling well stimulation and remediation services for at least the wells in west-central Oklahoma, including at least in the STACK Area.

27. For example, Defendant directly infringed by performing or causing the performance of the method steps of at least claim 1 of the '575 patent in the United States:

A method for stimulating a well in a shale formation comprising:

27.1: providing a treatment mixture containing between about 0.1% and 95% by weight metal complexing agent at a pH of between about 0 and 10

Upon information and belief, based on the facts above, Defendant provided a treatment mixture containing about 5% citric acid metal complexing agent at a pH of about 0 to 10.

27.2: injecting the treatment mixture into the well until at least some of the treatment mixture contacts the shale formation

Upon information and belief, based on the facts above, Defendant injected its treatment mixture into the well until at least some of the treatment mixture contacted the shale formation.

27.3: maintaining the treatment mixture in contact with the shale formation for a contact time of between about 1 minute to 100 days, most likely less than 30 days, thereby allowing the metal complexing agent to bind with at least some naturally-occurring metals contained within the shale formation

Upon information and belief, based on the facts above, Defendant maintained its treatment mixture in contact with the shale formation for a contact time of between about 1 minute to 100 days thereby allowing the metal complexing agent to bind with at least some naturally-occurring metals contained within the shale formation.

27.4: removing the treatment mixture from the well after the contact time, thereby removing the bound naturally-occurring metals from the shale formation and thereby improving hydrocarbon production of the well relative to hydrocarbon production immediately prior to stimulating the well

Upon information and belief, based on the facts above, Defendant removed its treatment mixture from the well after the contact time, thereby removing the bound naturally-occurring metals from the shale formation and thereby improving hydrocarbon production of the well relative to hydrocarbon production immediately prior to stimulating the well.



28. Defendant has had actual knowledge of the '575 patent since at least as early as February 14, 2023, when Mr. Hays of Pharaoh received a letter from Flex-Chem attaching this patent.

29. Upon information and belief, Defendant continues to offer its well remediation and stimulation services that utilize Flex-Chem's patented processes.

30. Defendant has willfully infringed and continues to willfully infringe the '575 patent.

31. Flex-Chem has been damaged by Defendant's infringement of the '575 patent and will continue to be damaged in the future unless Defendant is permanently enjoined from infringing the '575 patent.

**COUNT III**  
**Patent Infringement of U.S. Patent No. 10,697,282**

32. Plaintiff repeats and re-alleges by reference the allegations of Paragraphs 1-31 above, as if fully set forth herein.

33. On June 30, 2020, United States Patent No. 10,697,282 entitled Method for Remediation of Subterranean-Formed Metal-Polymer Complexes Using A Metal Complexing Agent was duly and legally issued to Flex-Chem and Cimarex. Cimarex assigned its interest in the '282 patent to Flex-Chem, the patent owner.

34. Defendant has infringed and continues to infringe literally and/or under the doctrine of equivalents at least independent claim 1 of the '282 patent by making, using, offering for sale, and/or selling well stimulation and remediation services for at least the wells in west-central Oklahoma, including at least in the STACK Area.

35. For example, Defendant directly infringed by performing or causing the performance of the method steps of at least claim 1 of the '282 patent in the United States:

A method for remediating a subterranean-formed metal-polymer complex in a pre-existing well in a subterranean shale formation, the method comprising

35.1: providing a metal-polymer complex remediation mixture comprising between 0.1% and 95% by weight metal complexing agent

Upon information and belief, based on the facts above, Defendant provided a treatment mixture containing about 5% citric acid metal complexing agent.

35.2: injecting the metal-polymer complex remediation mixture into the well at a pressure less than a fracture pressure of the subterranean formation until at least some of the metal-polymer complex remediation mixture contacts the subterranean-formed metal-polymer complex, wherein the subterranean-formed metal polymer complex forms from a previously injected fracturing fluid and the metal of the subterranean-formed metal-polymer complex includes metal naturally present within the subterranean formation

Upon information and belief, based on the facts above, Defendant injected its metal-polymer complex remediation mixture into the well at a pressure less than a fracture pressure of the subterranean formation until at least some of its metal-polymer complex remediation mixture contacted the subterranean-formed metal-polymer complex, wherein the subterranean-formed metal polymer complex forms from a previously injected fracturing fluid and the metal of the subterranean-formed metal-polymer complex includes metal naturally present within the subterranean formation

35.3: maintaining the metal-polymer complex remediation mixture in contact with the subterranean-formed metal-polymer complex for a contact time of between about 1 minute and about 100 days, thereby allowing the metal complexing agent to cause the subterranean-formed metal-polymer complex to dissociate and dissolve but not precipitate the metal and thereby creating a low viscosity flow back fluid comprising the spent metal-polymer complex remediation mixture and the metal-polymer complex components

Upon information and belief, based on the facts above, Defendant maintained its metal-polymer complex remediation mixture in contact with the subterranean-formed metal-polymer complex for a contact time of between about 1 minute and about 100 days, thereby allowing the metal complexing agent to cause the subterranean-formed metal-polymer complex to dissociate and dissolve but not

precipitate the metal and thereby creating a low viscosity flow back fluid comprising the spent metal-polymer complex remediation mixture and the metal-polymer complex components

35.4: removing the low viscosity flow back fluid from the well after the contact time, thereby improving hydrocarbon production of the well

Upon information and belief, based on the facts above, Defendant removed the low viscosity flow back fluid from the well after the contact time, thereby improving hydrocarbon production of the well.

36. Defendant has had actual knowledge of the '282 patent since at least as early as February 14, 2023, when Mr. Hays of Pharaoh received a letter from Flex-Chem attaching this patent.

37. Upon information and belief, Defendant continues to offer its well remediation and stimulation services that utilize Flex-Chem's patented processes.

38. Defendant has willfully infringed and continues to willfully infringe the '282 patent.

39. Flex-Chem has been damaged by Defendant's infringement of the '282 patent and will continue to be damaged in the future unless Defendant is permanently enjoined from infringing the '282 patent.

**Prayer for Relief**

WHEREFORE, Plaintiff prays for the following relief:

- a. A judgment that Defendant has infringed United States Patent No. 9,944,843;
- b. A judgment that Defendant has infringed United States Patent No. 10,633,575;

- c. A judgment that Defendant has infringed United States Patent No. 10,697,282;
- d. An injunction enjoining and restraining Defendant, its officers, directors, agents, servants, employees, attorneys, and all others acting under or through it, from infringing United States Patent Nos. 9,944,843; 10,633,575; and 10,697,282;
- e. A judgment and order requiring Defendant to pay damages to Flex-Chem under 35 U.S.C. § 284, including treble damages for willful infringement as provided by 35 U.S.C. § 284, with pre- and post-judgment interest;
- f. A judgment and order requiring Defendant to pay the costs of this action (including all disbursements) and attorney fees as provided by 35 U.S.C. § 285; and
- g. Such other and further relief as this Court may deem just and equitable.

**Demand for Jury Trial**

Plaintiff hereby demands a jury trial on all issues so triable.

Respectfully Submitted,

Dated: April 13, 2023

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**JURY TRIAL DEMANDED**