

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LIBERTY ENERGY, INC. AND LIBERTY OILFIELD SERVICES LLC,
Petitioners,

v.

U.S. WELL SERVICES, LLC,
Patent Owner.

IPR2024-01274
U.S. Patent No. 11,091,992 B2

PATENT OWNER'S MOTION TO AMEND UNDER 37 C.F.R. § 42.121

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37 C.F.R. § 42.121(d)(4)	6
37 C.F.R. § 42.121(e)(1)	3

PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Description
2001	Declaration Of Richard Quarles In Support Of Motion For <i>Pro Hac Vice</i> Admission
2002	US Patent 11,136,870 to Broussard
2003	Dr. Robert Durham Deposition Taken November 15, 2023 in IPR2025-00558 addressing US Patent 11,136,870
2004	Declaration of Dr. Robert A. Durham, dated February 10, 2023 in IPR2025-00558 addressing US Patent 11,136,870
2005	US 14/884,363 CIP Application filed 10-15-2025 to Broussard
2006	Curriculum Vitae of Dr. Michael Nikolaou
2007	Declaration of Dr. Michael Nikolaou
2008	US 8,789,601 to Broussard
2009	US 2014/0138079 to Broussard
2010	US 10,227,854 to Glass
2011	US 9,284,829 to Craig
2012	US 10,246,984 to Payne
2013	Canadian Patent No. 2,733,843 to Coli
2014	US 7,841,394 to McNeel
2015	US 8,997,904 to Cryer
2016	US 7,836,949 to Dykstra
2017	US 6,167,965 to Bearden
2018	US 8,874,383 to Gambier

Exhibit No.	Description
2019	CN 202463670 to Li
2020	US 5,865,247 to Paterson
2021	US 5,189,388 to Mosley,
2022	US 5,606,853 to Birch
2023	US 2007/0125544 to Robinson
2024	US 2016/0177678 to Morris
2025	US 2011/0063942 to Hagan
2026	US 2008/0264625 to Ochoa
2027	US 2008/0029267 to Shampine
2028	US 2013/0306322 to Sanborn
2029	US 2015/0078924 to Zhang
2030	US 2010/0310384 to Stephenson
2031	US 2007/0201305 to Heilman
2032	US 2011/0061855 to Case
2033	US 2016/0258267 to Payne
2034	US 2008/0137266 to Jensen
2035	US 2004/0167738 to Miller
2036	US 2012/0085541 to Love
2037	US 6,116,040 to Stark
2038	US 7,312,593 to Streicher
2039	US 2011/0241590 to Horikoshi

Exhibit No.	Description
2040	US 2011/0197988 to Vliet
2041	US 8,379,424 to Grbovic
2042	US 8,174,853 to Kane
2043	US 5,712,802 to Kumar
2044	US 8,503,180 to Nojima
2045	US 2011/0194256 to De Rijck
2046	US 7,949,483 to Discenzo
2047	CA 2707269 to Kidd
2048	US 8,155,922 to Loucks
2049	US 1,486,883 to Halliburton
2050	US 1,791,498 to Halliburton
2051	US Provisional 61/710,393 to Coli
2052	US 9,893,500 to Oehring
2053	CN 102602322 to Li
2054	CN 103089226 to Wang
2055	CN 204402781 to Yu
2056	CN 207829871 to Zhang
2057	US 2015/0114652 to Lestz
2058	US 2019/0003329 to Morris
2059	US 2019/0067991 to Davis
2060	US 2020/0040878 to Morris

Exhibit No.	Description
2061	US 2020/0088202 to Sigmar
2062	WO 2017/039,692 to Beisel
2063	Reserved
2064	CN 105090423 to Yang
2065	CN 105134581 to Yu
2066	CN 203783839 to Yi
2067	CN 205025703 to Liu
2068	GB 1487208 to Vodafone
2069	GB 2235246 to Rostron
2070	US 3,518,897 to Bixby
2071	US 4,100,822 to Allan
2072	US 4,309,152 to Hagen
2073	US 7,901,314 to Salvaire
2074	US 8,596,165 to Kovach
2075	US 2004/0219040 to Kugelev
2076	US 2010/0093484 to Huang
2077	US 2017/0051732 to Hernandez
2078	US 2023/0265839 to Buckley
2079	WO 2015/024005 to Dalton
2080	WO 2015/027394 to Yao
2081	US 62/562,943 to Buckley

Exhibit No.	Description
2082	US 10,134, 257 to Zhang
2083	US 10,246,984 to Payne
2084	US 10,697,517 to Snir
2085	US 11,339,769 to Buckley
2086	US 2016/0032703 to Broussard
2087	US 7,621,328 to Case
2088	US 2015/0252661 to Glass
2089	US 20150027712A1 to Vicknair
2090	US20090176417A1 to Rembach
2091	MTT website, compiled webpages from The Wayback Machine
2092	HongHua America website, HHF-1600 Mud Pump, (www.hh-america.com), compiled webpages from The Wayback Machine
2093	MDT website – Mobile Data Technologies Product Catalog (mobiledatatech.com), compiled webpages from The Wayback Machine
2094	Lime Instruments website, (http://limeinst.com/about-lime-instruments/), compiled webpages from The Wayback Machine
2095	Antero Resources Third Quarter 2014 Operations Update, Press Release October 14, 2014
2096	J.M. Oehring, U.S. Well Services, Environmental Benefits of Electric Powered Hydraulic Fracturing
2097	U.S. Well Services and KCF Technologies Announce Integration for Electric Frac with Fully Automated Pump Control

Exhibit No.	Description
2098	Honghua Group Limited, Oil and Gas Technology, August 4, 2021 (www.oilandgastechnology.net/upstream-news/chinese-company-launches-new-fracking-rigs)
2099	Comprehensive Power Inc. website, (http://www.comprehensivepower.com:80/about_us.htm), compiled webpages from The Wayback Machine
2100	Evolution Well Services Advances Fracturing Operations with an Electrically Powered System, Jun 04, 2012
2101	Stewart & Stevenson Services, Inc. website, (http://www.stewartandstevenson.com), first set of compiled webpages from The Wayback Machine
2102	Stewart & Stevenson Services, Inc., Intelligent Pump Control Systems, (controls.info@ssss.com), second set of compiled webpages from The Wayback Machine
2103	U.S. Patent Application No. 13/679,689
2104	Declaration of Matthew Hopkins

I. INTRODUCTION

Patent Owner respectfully requests that the Board grant this Motion to Amend (“Motion”) and issue the corresponding proposed substitute claims presented herein. 35 U.S.C. § 316; 37 C.F.R. § 42.121. Specifically, Patent Owner proposes cancelling challenged claims 1–20 and substituting claims 21–40 (“Substitute Claims”), respectively. *See* Appendix A (showing amendments). Patent Owner’s motion to amend includes a one-to-one substitution proposal—that is, 20 substitute claims (Claims 21–40) are proposed in place of 20 canceled claims (Claims 1–20)—which creates a rebuttable presumption that the number of amended claims is reasonable. The proposed Substitute Claims do not broaden the scope of the claims and are each properly supported by original application and parent applications. 37 C.F.R. § 42.121. Proposed Substitute Claims 21–40 incorporate limitations that distinguish them over the prior art. As such, the five references asserted in this *Inter Partes* Review, and all other references known to Patent Owner, fail to anticipate or render the proposed Substitute Claims obvious. Patent Owner has met its burden of showing that this Motion to Amend complies with the requirements of 37 C.F.R. § 42.121 and requests that this motion to amend be granted.

II. OVERVIEW OF THE EXISTING '992 PATENT CLAIMS AND NARROWING AMENDMENTS

As the Board found in its Institution Decision, the '992 Patent “relates to hydraulic fracturing in oil and gas wells,” and “purports to improve upon known fracturing systems and methods by using electric generators and motors to drive the pumps.” Paper 6 at 4. The challenged independent claim 1 recites, in relevant part, a system for hydraulically fracturing an underground formation in an oil or gas well that includes an electric pump configured to pump fluid into the wellbore, a centralized control unit configured to monitor the electric pump, and a variable frequency drive that controls the speed of the electric pump.

The Board determined that Petitioner had demonstrated a reasonable likelihood that it would succeed on establishing obviousness of at least one of the challenged claims over the combinations of Coli, Birch, Rusnak, and Dykstra (claims 1–5, 8–14) and the combination of Coli, Birch, Rusnak, and Hunt (6, 7, 15–20). Paper 6 at 29, 33.

The proposed amendments narrow the challenged claims, including the three independent claims, to incorporate limitations not disclosed in the prior art, including the Coli, Birch, Rusnak, Dykstra, and Hunt references. As an example, the amendments to claim 1 (proposed substitute claim 21) recite the narrowing limitation that the electric pump has a maximum continuous torque of about 11,488

lb-ft or more. Proposed Substitute Claim 21 further includes the narrowing limitation that the electric pump has a maximum continuous power output of about 1750 brake horsepower or more. Similar narrowing limitations have been incorporated into the other proposed substituted independent claims (proposed Substitute Claims 28 and 37).

In another IPR proceeding, the Board found that similar limitations were *not* rendered unpatentable over prior art, including Coli (EX-1004). *See Halliburton Energy Services, Inc., v. U.S. Well Services, LLC*, IPR2023-00558, Paper 27 at 61–67 (PTAB Aug. 12, 2024). The dependent proposed Substitute Claims, at least because of their dependencies from the narrower proposed Substitute independent Claims, have a narrower scope; further, additional narrowing limitations have been added to the dependent claims. These limitations are supported by the disclosure of the '992 Patent—as illustrated by the disclosures within the '838 application leading to the '992 Patent as shown *infra* in Section C.1—and distinguish the Coli, Birch, Rusnak, Dykstra, and Hunt references, which do not disclose the limitations of the proposed Substitute Claims.

III. PATENT OWNER'S REQUEST FOR PRELIMINARY GUIDANCE

Patent Owner respectfully requests preliminary guidance on this motion pursuant to C.F.R. §§ 42.121(a)(1)(ii) and 42.121(e)(1).

IV. STATEMENT OF REQUESTED RELIEF

Patent Owner respectfully requests that the Board consider this non-contingent motion to amend and grant the following:

- Cancel claims 1–20; and
- Substitute the cancelled claims with claims 21–40 as shown below (with the claimed dependencies shown in parenthesis):

Original Claim	Substitute Claim
1	21
2 (1)	22 (21)
3 (2)	23 (22)
4 (1)	24 (21)
5 (4)	25 (24)
6 (2)	26 (22)
7 (6)	27 (26)
8	28
9 (8)	29 (28)
10 (9)	30 (29)
11 (9)	31 (29)
12 (9)	32 (29)
13 (9)	33 (29)
14 (8)	34 (28)
15 (9)	35 (29)
16 (15)	36 (35)
17	37
18 (17)	38 (37)
19 (17)	39 (37)
20 (17)	40 (37)

V. LEVEL OF ORDINARY SKILL IN THE ART

For purposes of this motion, Patent Owner and its expert adopt Petitioner's description of the level of ordinary skill of a POSITA: either (1) a Bachelor of

Science in Mechanical Engineering, Electrical Engineering, Petroleum Engineering or an equivalent field, as well as at least 2 years of academic or industry experience in the oil and gas industry, including well drilling, completion, or production, or (2) at least four years of industry experience in the oil and gas industry including well drilling, completion, or production. Pet. 12. *See also* Ex. 2007 at ¶ 6.

VI. CLAIM CONSTRUCTION

Per 37 C.F.R. § 42.100, claim terms should be given “their ordinary and customary meaning” as would be understood by a POSITA at the time of the invention, in light of the claim language, the specification, and the prosecution history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005). The Board construes the claims when necessary to resolve an underlying controversy. *Toyota Motor Corp. v. Cellport Sys., Inc.*, IPR2015-00633, Paper No. 11 at 16 (Aug. 14, 2015). In addressing the cancelled claims, the Petition did not propose constructions for any terms. *See* Pet. at 12. For this IPR proceeding, Patent Owner's position is that all terms in the proposed Substitute Claims likewise do not require construction. Patent Owner reserves the right to propose a construction if Petitioner proposes construction for any term in the proposed Substitute Claims.

VII. THE PROPOSED SUBSTITUTE CLAIMS MEET ALL STATUTORY AND REGULATORY REQUIREMENTS OF 35 U.S.C. § 316 AND 37 C.F.R. § 42.121

A motion to amend must: (1) propose a reasonable number of substitute claims (35 U.S.C. § 316(d)(1)(B); 37 C.F.R. § 42.121(a)(3)); (2) that respond to a ground of unpatentability involved in the trial (37 C.F.R. § 42.121(a)(2)(i)); (3) that do not enlarge the scope of the claims or introduce new matter (i.e., the claims are supported in the original disclosure) 35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii)); and (4) are not shown by a preponderance of the evidence to be unpatentable (37 C.F.R. § 42.121(d)(4)). It is Petitioner's burden to show that the substitute claims are unpatentable. 37 C.F.R. § 42.121(d)(2); *see also Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 at 4 (PTAB Feb. 25, 2019) (precedential). The proposed Substitute Claims meet all statutory and regulatory requirements of 35 U.S.C. § 316 and 37 C.F.R. § 42.121 as discussed *infra*.

A. Patent Owner's proposed Substitute Claims include a Reasonable Number of Substitute Claims

1. Listing of Proposed Substitute Claims.

Patent Owner submits proposed Substitute Claims as shown in Appendix A as required by 37 C.F.R. § 42.121(b).

2. Patent Owner's Number of Proposed Substitute Claims is Reasonable.

“There is a rebuttable presumption that a reasonable number of substitute claims per challenged claim is one (1) substitute claim.” *Lectrosonics* at 4; *see also* C.F.R. § 42.121(a)(3). Here, Patent Owner proposes Substitute Claims 21–40 for original claims 1–20, respectively, which constitutes a one-for-one substitution. This is reasonable and in accordance with 35 U.S.C. § 316(d)(1)(B) and 37 C.F.R. § 42.121(a)(3). *See Intuitive Surgical, Inc. v. Ethicon LLC*, IPR2018-00933, Paper 31 at 9 (PTAB Dec. 3, 2019); *see also Lectrosonics* at 4–5.

B. The Proposed Substitute Claims Respond to Patentability Grounds Involved in this Trial.

Proposed Substitute Claims 21–40 respond to the grounds asserted in the Petition (Paper 1) in compliance with 37 C.F.R. § 42.121(a)(2)(i). Specifically, Petitioners have asserted that the prior art discloses the elements of original claims 1 through 20 via Petitioners' Grounds 1A, 1B, 2A, and 2B. *See, e.g.,* Petition at 19, 44, 53, and 70. This motion, and proposed Substitute Claims 21–40 as presented in Appendix A, respond to each ground presented by Petitioners by introducing narrowing limitations to overcome all of Petitioners' grounds and associated prior art. Thus, all proposed Substitute Claims are responsive to “a ground of unpatentability” and Patent Owner has met the requirement of 37 C.F.R. § 42.121(a)(2)(i) “by amending the [original] claims in response to the Petition's

asserted prior art.” *Innoscience (Zhuhai) Technology Company, LTD. and Innoscience America, Inc., v. Efficient Power Conversion Corporation*, IPR2023-01381, Paper 29 at 4 (PTAB Oct. 1, 2024) (“*Innoscience*”). Specifically, the motion proposes adding certain limitations (illustrated in detail below in Appendix A) to original claims 1–20 that distinguish proposed Substitute Claims 21–40 from the teachings, whether alone or in combination, of Coli (Ex. 1004), Birch (Ex. 1005), Rusnak (Ex. 1007), and Dykstra (Ex. 1006) (regarding claims 1–5 and 8–14); and Coli, Birch, Rusnak, Dykstra, and Hunt (Ex. 1008) (regarding claims 6, 7, and 15–20).

Further, the proposed Substitute Claims are directed to a system and method for hydraulically fracturing an underground formation that include two features included in each of proposed Substitute Claims 21–40 that are not taught or rendered obvious by the above references. First, all proposed Substitute Claims include—whether directly or indirectly due to dependance from other claims—one or more electric pumps that have a maximum continuous torque of about 11,488 lb-ft or more. Second, all proposed Substitute Claims—whether directly or indirectly due to dependance from other claims—recite one or more electric pumps that have a maximum continuous power output of about 1750 brake horsepower or more. These limitations are not taught by Coli, Birch, Rusnak, Dykstra and Hunt

because, *inter alia*, these references do not teach or disclose these maximum continuous torque and horsepower requirements.

Further, Petitioners rely on Coli for all asserted grounds challenging original claims 1–20. But in a previous IPR proceeding involving a related patent,¹ the Board found that the above newly-added limitations overcame prior art—including the same Coli reference (EX-1004) relied on by Petitioners here. Specifically, in *Halliburton Energy Services, Inc., v. U.S. Well Services, LLC*, IPR2023-00558, Paper 27 at 63 (PTAB Aug. 12, 2024) (“Halliburton IPR”), Petitioner Halliburton argued that “Coli discloses that the motor can deliver a **true** [(i.e., maximum instantaneous)] 2500 hp directly to each pump” and that a POSITA would have “recognized that Coli discloses the electric motor has a **maximum continuous** power output of about 1750 horsepower or more.” *Id.* at 61 (emphasis added) (internal citations omitted). But Dr. Durham, Halliburton’s expert witness—who is

¹ The U.S. Patent No. 11,136,870 (“’870 patent”) is a sibling to the ’992 patent—both are descendants of application No. 13/679,689. Specifically, U.S. Patent No. 11,136,870 is a continuation of application No. 15/202,085, now U.S. Patent No. 10,337,308, which is a continuation of application No. 13/679,689, now U.S. Patent No. 9,410,410.

also Petitioners' expert in this IPR, admitted that continuous operation is different than a limit for true (i.e., instantaneous or short time) operation:

“Q: Does an electric motor have a limit on its input current for continuous operation that is different than a limit for [an] instantaneous or short time period operation?

A: Yes, sir, it does.

Q: Okay.· So using those different limits applied to the same electric motor, *would there be a difference in horsepower at the continuous limit and the limit for a shorter period of time?*

A: All else being equal, *those are likely to be different horsepowers*. It would really depend on the particular motor design and the protection scheme in place.”

Id. at 63–64; *see also* IPR2023-00558, Ex. 2003, (46:8–20) (emphasis added).

The Board—recognizing the difference between true (i.e., maximum) horsepower and continuous horsepower—concluded that “Petitioner [Halliburton] has not satisfied its burden to establish by a preponderance of the evidence that Coli discloses a motor having a maximum continuous power output of about 1750 brake horsepower or more.” Halliburton IPR at 63. Thus, the Board’s decision shows that Coli does not disclose proposed Substitute Claim elements 21[f], 28[g],

and 37[g], which require an “electric pump [that] has a maximum continuous power output of about 1750 brake horsepower or more”. EX-2007, ¶ 80.

Further, the Board in the Halliburton IPR also determined that Petitioner Halliburton had not met its burden to show that Coli discloses an electric pump that has a maximum continuous torque of about 11,488 lb-ft or more. Halliburton IPR at 67. Petitioner Halliburton argued that “Coli discloses that the ‘electric motor can be capable of operation in the range of up to 1500 rpms and *up to* [(i.e., maximum)] 20,000 ft/lbs of torque.” *Id.* at 66 (emphasis added) (internal quotations omitted). Again, Dr. Durham testified for Petitioner Halliburton that “a person of ordinary skill in the art would have recognized that Coli discloses an electric motor [that] has a maximum continuous torque of about 8750 ft-lb or more” *Id.* at 67 (internal citations omitted). The Board—recognizing the difference between maximum torque and maximum continuous torque—concluded “[f]or substantially the same reasons discussed ... in connection with claim 15 [regarding maximum continuous horsepower]” that Petitioner Halliburton had not “satisfied its burden to establish by a preponderance of the evidence that Coli discloses a pump having a maximum *continuous* torque of about 8750 lb-ft or more[.]” *Id.* (emphasis in original). Thus, the Board’s decision in the Halliburton IPR shows that Coli does not disclose a maximum continuous torque of about 8750 lb-ft,

much less the required “11,488 lb-ft or more” torque as required by proposed Substitute Claim elements 21[e], 28[f], and 37[f]. EX-2007, ¶¶ 90–95.

Coli also does not disclose dependent claims 22–27, 29–36, and 38–40, at least because they all depend from proposed Substitute Claims 21, 28, and 37, which Coli does not disclose. EX-2007, ¶ 96. Further, dependent claims 22–27, 29–36, and 38–40 all include additional narrowing claim elements that are not disclosed by any prior art of record.

For at least these reasons, Petitioners have not met their burden to show that the proposed Substitute Claims sufficiently overcome the current Grounds in the Petition.

C. The Proposed Substitute Claims Do Not Broaden the Claim Scope or Introduce New Subject Matter.

“A motion to amend may not present substitute claims that enlarge the scope of the claims of the challenged patent or introduce new subject matter.”

Lectrosonics at 6–8 (citing 35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii)).

Patent Owner's proposed claims satisfy both requirements. Here, “[b]ecause no subject matter is removed by the proposed amendments, and additional limitations have been added, [] the amendments [added by proposed Substitute Claims 21–40] do not seek to enlarge the scope of the claims.” *Innoscence* at 5.

1. The Specification Provides Written Description Support for the Proposed Substitute Claims and the Proposed Substitute Claims Do Not Introduce New Matter.

“[T]he Board requires that a motion to amend set forth written description support in the originally filed disclosure of the subject patent for each proposed substitute claim and also set forth support in an earlier filed disclosure for each claim for which benefit of the filing date of the earlier filed disclosure is sought.” *Lectrosonics*, at 7. [T]o meet this requirement, citation should be made to the original disclosure of the application, as filed, rather than to the patent as issued.” *Id.* at 8.

In accordance with 37 C.F.R. § 42.121(b), the proposed substitute claims are supported by the original non-provisional application and therefore do not introduce new subject matter in accordance with 37 C.F.R. § 42.121(a)(2)(ii); *TurboCare Div. of Demag Delaval Turbomach. v. Gen. Elec. Co.*, 264 F.3d 1111, 1118 (Fed. Cir. 2001) (“When [an] applicant adds a claim . . . the new claim[] . . . must find support in the original specification.”). Each of the proposed substitute claims are further supported by one or more priority patent applications, as

specified² in the table below. 37 C.F.R. §§ 42.121(b)(1)-(2). U.S. Pat. App. No. 15/978,838, the application leading to the '992 Patent, was filed on May 14, 2018, as a continuation of U.S. Patent App. 14/884,363, which was filed on October 15, 2015, now U.S. Pat. No. 9,970,278. Application 14/884,363 was filed as a continuation-in-part of U.S. Pat. App. 13/679,689, which was filed November 16, 2012, now U.S. Pat. No. 9,410,410. Application 14/884,363 issued as the '278 Parent Patent.

Moreover, Patent Owner submits the declaration of Dr. Michael Nikolaou (Ex. 2007). Dr. Nikolaou's declaration and the cited portions of the '838 application and the '363 application show that a POSITA would have understood, based on the disclosures of the '838 application and the '363 application, that the inventor possessed proposed Substitute Claims 21–40 as of October 15, 2015. Ex.

² Support for the proposed substitute claims is provided with reference to the '838 application and/or the '363 application. A copy of the '838 application, as filed, is found in Exhibit 1002 at 409–458. A copy of the '689 application, as filed, is attached as Exhibit 2103. A copy of the '363 application, as filed, is attached as Exhibit 2005. For purposes of this motion, Patent Owner identifies the portions of both the '838 and '363 applications as specified in the table below.

2007 at ¶ 55. Further, and as confirmed by Dr. Nikolaou's declaration, the written description in both the '838 and '363 applications provide sufficient support to inform a POSITA how to make and use the invention as recited in proposed Substitute Claims 21–40. Ex. 2007 at ¶ 55. Exemplary citations for each limitation of the proposed Substitute Claims are provided below (and detailed in the Declaration of Dr. Michael Nikolaou, see Ex. 2007 at ¶¶ 59–78).

Proposed Substitute Claim No. (Substitute for Original Claim No.)

Substitute Claim Limitation	<u>'838 App. Support</u>	<u>'363 App. Support</u>
	<u>(EX-1002, 409–458)</u>	<u>(EX-2005)</u>
Proposed Substitute Claim 21 (Substitute for Original Claim 1)		
21[p]	¶ 6; Claim 1.	¶ 6; Claim 1.
21[a]	¶ 6; Claim 1.	¶ 6; Claim 1.
21[b]	¶ 6; Claim 1.	¶ 6; Claim 1.
21[c]	¶ 6; Claim 1.	¶ 6; Claim 1.
21[d]	¶ 15; Claim 5.	¶ 15; Claim 4.
<u>21[e]</u>	¶ 16.	¶ 16.
<u>21[f]</u>	¶¶ 15, 16.	¶¶ 15, 16.

Substitute Claim Limitation	<u>'838 App. Support</u> <u>(EX-1002, 409–458)</u>	<u>'363 App. Support</u> <u>(EX-2005)</u>
21[g]	¶¶ 6, 8, 25; claim 6, claim 7.	¶¶ 6, 8, 25.
21[h]	¶¶ 23, 24, 64; claim 8.	¶¶ 23, 24, 64; claim 15.
Proposed Substitute Claim 22 (Substitute for Original Claim 2)		
22[a]	¶¶ 6, 20.	¶¶ 6, 20.
22[b]	¶¶ 24, 26, 34; claim 2.	¶¶ 24, 26, 34.
Proposed Substitute Claim 23 (Substitute for Original Claim 3)		
23[a]	¶¶ 20, 30, 32; claim 3.	¶¶ 20, 30, 32; claim 3.
23[b]	¶¶ 6, 7, 8, 85–103; claim 3.	¶¶ 6, 7, 8, 85–103; claim 3.
<u>23[c]</u> .	¶¶ 87–89, 92, 95, 98, 100.	¶¶ 87–89, 92, 95, 98, 100.
Proposed Substitute Claim 24 (Substitute for Original Claim 4)		

Substitute Claim Limitation	<u>'838 App. Support</u> <u>(EX-1002, 409–458)</u>	<u>'363 App. Support</u> <u>(EX-2005)</u>
24[a]	¶¶ 6, 7, 14, 27; claim 2; Fig. 1, Fig. 2; claim 4.	¶¶ 6, 7, 14, 27; claim 2; Fig. 1, Fig. 2.
<u>24[b]</u>	¶¶ 8, 24, 26, 30, 34, 69, 74; claims 10, 22, 23, 25; Fig. 3.	¶¶ 8, 24, 26, 30, 34, 69, 74; claims 10, 22, 23, 25; Fig. 3.
<u>24[c]</u>	¶¶ 8, 74.	¶¶ 8, 74.
<u>24[d]</u>	¶ 74.	¶ 74.
Proposed Substitute Claim 25 (Substitute for Original Claim 5)		
25[a]	¶¶ 15, 17, 23, 27; claim 5.	¶¶ 15, 17, 23, 27; claim 4.
<u>25[b]</u>	¶¶ 44–46, 59.	¶¶ 44–46, 59.
<u>25[c]</u>	¶¶ 44–46, 59.	¶¶ 44–46, 59.
<u>25[d]</u>	¶ 46, 59.	¶ 46, 59.
Proposed Substitute Claim 26 (Substitute for Original Claim 6)		

Substitute Claim Limitation	<u>'838 App. Support</u> <u>(EX-1002, 409–458)</u>	<u>'363 App. Support</u> <u>(EX-2005)</u>
26[a]	¶¶ 12, 26, 34; Fig. 3; claim 9.	¶¶ 12, 26, 34; Fig. 3; claim 7.
26[b]	¶¶ 26, 34; claim 9.	¶¶ 26, 34; claim 7.
<u>26[c]</u>	¶ 34.	¶ 34.
Proposed Substitute Claim 27 (Substitute for Original Claim 7)		
27[a]	¶¶ 26, 34, Fig. 3; claim 10.	¶¶ 26, 34, Fig. 3; claim 8.
27[b]	¶ 34; claim 10.	¶ 34; claim 8.
<u>27[c]</u>	¶ 34; Fig 3.	¶ 34; Fig. 3.
Proposed Substitute Claim 28 (Substitute for Original Claim 8)		
28[a]	¶¶ 6, 7; claim 11.	¶¶ 6, 7; claim 9.
28[b]	¶ 7; claim 11.	¶ 7; claim 9.
28[c]	¶¶ 6, 8, 25, 70, 75; claim 19, claim 20.	¶¶ 6, 8, 25, 70, 75.
28[d]	¶ 15; claim 17.	¶ 15; claim 14.

Substitute Claim Limitation	<u>'838 App. Support</u> <u>(EX-1002, 409–458)</u>	<u>'363 App. Support</u> <u>(EX-2005)</u>
28[e]	¶¶ 23, 24, 64; claim 18.	¶¶ 23, 24, 64; claim 15.
28[f]	¶ 16.	¶ 16.
28[g]	¶¶ 15, 16.	¶¶ 15, 16.
Proposed Substitute Claim 29 (Substitute for Original Claim 9)		
29[a]	¶¶ 6, 20; claim 13.	¶¶ 6, 20.
29[b]	¶¶ 24, 26, 34.	¶¶ 24, 26, 34; claim 10.
Proposed Substitute Claim 30 (Substitute for Original Claim 10)		
30[a]	¶¶ 8, 24, 26, 30, 34, 69, 74; claims 10, 22, 23, 25; Fig. 3.	¶¶ 8, 24, 26, 30, 34, 69, 74; claims 10, 22, 23, 25; Fig. 3.
30[b]	¶¶ 8, 74, 85.	¶¶ 8, 74, 85.
Proposed Substitute Claim 31 (Substitute for Original Claim 11)		
31[a]	¶¶ 20, 24, 26, 34; claim 13; claim 14.	¶¶ 20, 24, 26, 34; claim 2.

Substitute Claim Limitation	<u>'838 App. Support</u> <u>(EX-1002, 409–458)</u>	<u>'363 App. Support</u> <u>(EX-2005)</u>
31[b]	¶¶ 6, 20, 22; claim 13.	¶¶ 6, 20, 22.
<u>31[c]</u>	¶¶ 44–46, 59.	¶¶ 44–46, 59.
<u>31[d]</u>	¶ 46.	¶ 46.
Proposed Substitute Claim 32 (Substitute for Original Claim 12)		
32[a]	¶¶ 20, 30, 32; claim 15.	¶¶ 20, 30, 32; claim 12.
32[b]	¶¶ 6, 7, 8, 85–103.	¶¶ 6, 7, 8, 85–103.
<u>32[c]</u>	¶¶ 87–89, 92, 95, 98, 100, 101.	¶¶ 87–89, 92, 95, 98, 100, 101.
Proposed Substitute Claim 33 (Substitute for Original Claim 13)		
33[a]	¶¶ 6, 7, 8, 20, 24, 30, 32, 85–103; Fig. 2; claim 15; claim 16.	¶¶ 6, 7, 8, 20, 24, 30, 32, 85–103; Fig. 2; claim 12.
<u>33[b]</u>	¶¶ 6, 7, 8, 85–103.	¶¶ 6, 7, 8, 85–103.

Substitute Claim Limitation	<u>'838 App. Support</u> <u>(EX-1002, 409–458)</u>	<u>'363 App. Support</u> <u>(EX-2005)</u>
<u>33[c]</u>	¶ 92.	¶ 92.
Proposed Substitute Claim 34 (Substitute for Original Claim 14)		
34[a]	¶¶ 23, 24, 64; claim 18.	¶¶ 23, 24, 64; claim 15.
<u>34[b]</u>	¶¶ 43, 72, 78.	¶¶ 43, 72, 78.
<u>34[c]</u>	¶ 43.	¶ 43.
Proposed Substitute Claim 35 (Substitute for Original Claim 15)		
35[a]	¶¶ 12, 26, 34; Fig. 3; claim 21.	¶¶ 12, 26, 34; Fig. 3; claim 17.
<u>35[b]</u>	¶ 34.	¶ 34.
Proposed Substitute Claim 36 (Substitute for Original Claim 16)		
36[a]	¶ 34; Fig. 3; claim 22.	¶ 34; Fig. 3; claim 18.
<u>36[b]</u>	¶ 34; Fig. 3.	¶ 34; Fig. 3.
Proposed Substitute Claim 37 (Substitute for Original Claim 17)		
37[p]	¶¶ 6–8; claim 23.	¶¶ 6–8; claim 19.

Substitute Claim Limitation	<u>'838 App. Support</u> <u>(EX-1002, 409–458)</u>	<u>'363 App. Support</u> <u>(EX-2005)</u>
37[a]	¶¶ 8, 14–17; Fig. 1; claim 23.	¶¶ 8, 14–17; Fig. 1; claim 19.
37[b]	¶¶ 6, 8; claim 23.	¶¶ 6, 8; claim 19.
37[c]	¶¶ 12, 26, 34; Fig. 3; claim 24.	¶¶ 12, 26, 34; Fig. 3; claim 20.
37[d]	¶ 8; claim 23.	¶ 8; claim 19.
37[e]	¶¶ 6, 8, 25, 70, 75; claims 6, 19, 28.	¶¶ 6, 8, 25, 70, 75.
<u>37[f]</u>	¶ 16.	¶ 16.
<u>37[g]</u>	¶¶ 15, 16.	¶¶ 15, 16.
Proposed Substitute Claim 38 (Substitute for Original Claim 18)		
38[a]	¶¶ 26, 34; Fig. 3; claim 25.	¶¶ 26, 34; Fig. 3; claim 21.
<u>38[b]</u>	¶¶ 8, 24, 26, 30, 34, 69, 74; claims 10, 22, 23, 25; Fig. 3.	¶¶ 8, 24, 26, 30, 34, 69, 74; Fig. 3; claims 10, 22, 23, 25.

Substitute Claim Limitation	<u>'838 App. Support</u> <u>(EX-1002, 409–458)</u>	<u>'363 App. Support</u> <u>(EX-2005)</u>
<u>38[c]</u>	¶¶ 8, 74, 85.	¶¶ 8, 74, 85.
Proposed Substitute Claim 39 (Substitute for Original Claim 19)		
39	¶¶ 23, 24.	¶¶ 23, 24.
Proposed Substitute Claim 40 (Substitute for Original Claim 20)		
40[a]	¶¶ 6, 7, 8, 23, 85–103; claim 27.	¶¶ 6, 7, 8, 23, 85–103; claim 23.
<u>40[b]</u>	¶¶ 6, 20.	¶¶ 6, 20.

VIII. ADDITIONAL DISCLOSED REFERENCES

Pursuant to 37 C.F.R 42.11, Patent Owner submits the following references that may be material to the patentability of the substitute claims: EX-2008 through EX-2102. *See* EX-2104. By disclosing these references, Patent Owner does not admit that all individual references qualify as prior art—such as, Patent owner is not admitting the references were all publicly available—nor that certain exhibits all relate to the same prior art system.

IX. CONCLUSION.

Because the proposed Substitute Claims meet the requirements of 37 C.F.R. § 42.121, Patent Owner's motion to amend should be granted. Proposed Substitute Claims 21–40 are patentable over the prior art known to Patent Owner. The references fail to disclose all the limitations of the claims, and one having ordinary skill in the art would not be motivated to combine the references to arrive at the claimed invention. Further, the proposed Substitute Claims are narrower than the original claims, because they add limitations without removing limitations. The limitations added are supported by the specification, and one or more related priority applications as discussed herein. Patent Owner has met its burden and respectfully requests the PTAB replace the original claims with the proposed Substitute Claims.

Dated: June 23, 2025

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this 23rd day of June, 2025, I caused to be served a true and correct copy of the foregoing "Patent Owner's Motion to Amend Pursuant to 37 C.F.R. §42.121" and accompanying exhibits by electronic mail on the following:

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Appendix A - Substitute claims

Claims 1-20. (Cancelled).

Claim 21. (Proposed substitute for original claim 1) [21p] A system for hydraulically fracturing an underground formation in an oil or gas well to extract oil or gas from the formation, the oil or gas well having a wellbore that permits passage of fluid from the wellbore into the formation, the system comprising:

[21a] an electric pump fluidly connected to the well, and configured to pump fluid into the wellbore; and

[21b] a centralized control unit coupled to the electric pump,

[21c] wherein the centralized control unit is configured to:

monitor the electric pump; and

[21d] a variable frequency drive that controls a speed of the electric pump;

[21e] wherein the electric pump has a maximum continuous torque of at least 11,488 lb-ft or more;

[21f] wherein the electric pump has a maximum continuous power output of at least 1750 brake horsepower or more;

[21g] wherein the centralized control unit is coupled to the electric pump via one or more of cabling, Ethernet, or wirelessly; and

[21h] wherein the centralized control unit is further configured to reset a fault occurring in the variable frequency drive.

Claim 22. (Proposed substitute for original claim 2) [22a] The system of [claim 1] claim 21, further comprising:

a generator electrically connected to the electric pump to provide power to the electric pump, wherein the generator is powered by liquefied natural gas, and

[22b] wherein the centralized control unit is further configured to monitor and control compression of the natural gas.

Claim 23. (Proposed substitute for original claim 3) [23a] The system of [claim 2] claim 22, wherein the generator is a turbine generator, and

[23b] wherein the centralized control unit is further configured to monitor operating characteristics and control the turbine generator,

[23c] wherein the operating characteristics include at least fuel system air supply pressure transmitter failure, thermocouple input module thermistor failure, start VFD configuration failure, turbine air inlet filter transmitter failure, generator circuit breaker failure to open, gas fuel supply pressure transmitter failure, gas fuel control pressure transmitter failure, utility circuit breaker closed, generator frequency, and engine serial number.

Claim 24. (Proposed substitute for original claim 4) [24a] The system of [claim 1] claim 21, wherein the electric pump is a plurality of electric pumps,

[24b] the system further comprising a switch gear,

[24c] wherein the centralized control unit is further configured to monitor operating characteristics of the switch gear,

[24d] wherein operating characteristics include at least the status of a fire alarm.

Claim 25. (Proposed substitute for original claim 5) [25a] The system of [claim 4] claim 24, further comprising: a variable frequency drive that controls the plurality of electric pumps,

[25b] the system further comprising a hydraulic system,

[25c] wherein the system is configured to monitor operating characteristics of the hydraulic system,

[25d] wherein the operating characteristics include at least system pressure, charge pressure, temperature, hydraulic oil level, and filter status.

Claim 26. (Proposed substitute for original claim 6) [26a] The system of [claim 2] claim 22, further comprising an emergency power off unit coupled to the centralized control unit, the electric pump, and the generator,

[26b] wherein the emergency power off unit is configured to substantially immediately cut power from the generator when activated,

[26c] wherein the emergency power off unit is operated by a switch that sounds an audible alarm.

Claim 27. (Proposed substitute for original claim 7) [27a] The system of [claim 6] claim 26, the emergency power off unit comprising an auxiliary power and a switchgear, each coupled to the generator and the centralized control unit,

[27b] wherein the switchgear is responsive to a signal from the centralized control unit to open a breaker to substantially immediately cut power to the generator,

[27c] wherein the signal is transmitted over armored shielded CAT5E cabling.

Claim 28. (Proposed substitute for original claim 8) [28a] A method, comprising:

pumping fracturing fluid into a well in a formation with an electrically powered pump, the fracturing fluid having at least a liquid component and a solid proppant, and inserting the solid proppant into the cracks to maintain the cracks open, thereby allowing passage of oil and gas through the cracks;

[28b] monitoring at a centralized control unit the electrically powered pump;

[28c] wherein the centralized control unit is coupled to the electrically powered pump via one or more of cabling, Ethernet, or wirelessly; and

[28d] controlling the speed of the pump with a variable frequency drive,

[28e] wherein the centralized control unit is configured to reset a fault occurring in the variable frequency drive;

[28f] wherein the electric pump has a maximum continuous torque of at least 11,488 lb-ft or more; and

[28g] wherein the electric pump has a maximum continuous power output of at least 1750 brake horsepower or more.

Claim 29. (Proposed substitute for original claim 9) [29a] The method of [claim 8] claim 28, further comprising:

powering the electrically powered pump with a generator, wherein the generator is fueled by liquefied natural gas; and

[29b] monitoring compression of natural gas.

Claim 30. (Proposed substitute for original claim 10) [30a] The method of [claim 9] claim 29, [wherein the natural gas is selected from the group consisting of field natural gas, compressed natural gas, and liquid natural gas] the method further comprising monitoring, by the centralized control unit, operating characteristics of a switch gear

[30b] the operating characteristics including the status of a fire alarm.

Claim 31. (Proposed substitute for original claim 11) [31a] The method of [claim 9] claim 29, further comprising controlling compression of the liquefied natural gas;

[31b] wherein the generator is fueled by liquefied natural gas,

[31c] the method further comprising monitoring operating characteristics of a hydraulic system

[31d] wherein the operating characteristics include system pressure, charge pressure, temperature, hydraulic oil level, and filter status.

Claim 32. (Proposed substitute for original claim 12) [32a] The method of [claim 9] claim 29, wherein the generator is a turbine generator; the method further comprising

[32b] monitoring operating characteristics of the turbine generator

[32c] wherein the monitored operating characteristics include at least fuel system air supply pressure transmitter failure, thermocouple input module thermistor failure, start VFD configuration failure, turbine air inlet filter transmitter failure, generator circuit breaker failure to open, gas fuel supply pressure transmitter failure, gas fuel control pressure transmitter failure, utility circuit breaker closed, generator frequency, engine serial number, and turbine air inlet filter transmitter failure.

Claim 33. (Proposed substitute for original claim 13) [33a] The method of [claim 9] claim 29, wherein the generator is a turbine generator; the method further comprising

controlling the turbine generator-and

[33b] monitoring operating characteristics of the turbine generator

[33c] wherein the monitored operating characteristics include gas fuel main valve discharge pressure transmitter failure, and backup system relay failure.

Claim 34. (Proposed substitute for original claim 14) [34a] The method of [claim 8] claim 28, further comprising resetting a fault occurring in the variable frequency drive from the centralized control unit,

[34b] the method further comprising monitoring operating characteristics of the variable frequency drive,

[34c] wherein the monitored operating characteristics include motor winding temperatures, the motor RPM, the voltage, the torque, and the current (amperage).

Claim 35. (Proposed substitute for original claim 15) [35a] The method of [claim 9] claim 29, further comprising:

providing an emergency power off unit coupled to the centralized control unit, the electrically powered pump and the generator; and

substantially immediately cutting power to the generator by activating the emergency power off unit

[35b] wherein the emergency power off unit is operated by a switch that sounds an audible alarm.

Claim 36. (Proposed substitute for original claim 16) [36a] The method of [claim 15] claim 35, the emergency power off unit comprising an auxiliary power and switchgear, each coupled to the generator and the centralized control unit, the method further comprising

signaling the switchgear from the centralized control unit to open a breaker to substantially immediately cut power to the generator

[36b] wherein signaling is transmitted over armored shielded CAT5E cabling.

Claim 37. (Proposed substitute for original claim 17) [37p] A system for centralized monitoring and control of a hydraulic fracturing operation, comprising:

[37a] an electric powered fracturing fleet, the electric powered fracturing fleet comprising:

a combination of one or more of: electric powered pumps, electric motors, turbine generators, blenders, sand silos, chemical storage units, conveyor belts, manifold trailers, hydration units, variable frequency drives, switchgear, transformers, compressors;

[37b] a centralized control unit coupled to electric powered fracturing fleet; and

[37c] an emergency power off unit coupled to the centralized control unit, the electric powered pumps and the turbine generators, the emergency power off unit configured to substantially immediately cut power to the turbine generators when activated,

[37d] wherein the centralized control unit is configured to:

monitor one or more operating characteristics of the electric powered fracturing fleet; and control one or more operating characteristics of the electric powered fracturing fleet;

[37e] wherein the centralized control unit is coupled to the electric powered fracturing fleet via one or more of cabling, Ethernet, or wirelessly;

[37f] wherein each electric pump has a maximum continuous torque of at least 11,488 lb-ft or more;

[37g] wherein each electric pump has a maximum continuous power output of at least 1750 brake horsepower or more.

Claim 38. (Proposed substitute for original claim 18) [38a] The system of [claim 17] claim 37, the emergency power off unit comprising an auxiliary power and switchgear, each coupled to the generators and the centralized control unit, the switchgear responsive to a signal from the centralized control unit to open a breaker to substantially immediately cut power to the turbine generators;

[38b] wherein the centralized control unit is further configured to monitor operating characteristics of the switch gear,

[38c] wherein operating characteristics include at least the status of a fire alarm.

Claim 39. (Proposed substitute for original claim 19) [39] The system of [claim 17] claim 37, wherein the centralized control unit is further configured to monitor and control all of the following: compression of natural gas, electric motors, switchgear, transformers, mobile turbines, rate and pressure of the overall system, vertical sand silos, and electrical conveyor belt.

Claim 40. (Proposed substitute for original claim 20) [40a] The system of [claim 17] claim 37, wherein the centralized control unit is further configured to monitor and control the turbine generators,
[40b] wherein the turbine generators are fueled by liquefied natural gas.