

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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LIBERTY ENERGY, INC. and LIBERTY OILFIELD SERVICES LLC,  
Petitioner,

v.

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

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IPR2024-01274  
Patent 11,091,992 B2

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Before ANNETTE R. REIMERS, GEORGE R. HOSKINS, and  
SEAN P. O'HANLON, *Administrative Patent Judges*.

REIMERS, *Administrative Patent Judge*.

PRELIMINARY GUIDANCE  
PATENT OWNER'S MOTION TO AMEND  
*37 C.F.R. § 42.121(e)*

## I. INTRODUCTION

On March 24, 2025, we instituted trial as to claims 1–20 of U.S. Patent No. 11,091,992 B2. Paper 6 (“Institution Decision” or “Dec.”). After institution, Patent Owner filed a Motion to Amend that is non-contingent on the patentability of claims 1–20. Paper 13 (“Motion” or “Mot.”), 4. Petitioner filed an opposition on September 15, 2025. Paper 16 (“Opposition” or “Opp.”).<sup>1</sup>

In the Motion, Patent Owner requested that we provide preliminary guidance concerning the Motion in accordance with 37 C.F.R. § 42.121(a)(1)(ii). Mot. 3; *see* 37 C.F.R. § 42.121(e)(1); *see also Rules Governing Motion to Amend Practice and Procedures in Trial Proceedings under the America Invents Act before the Patent Trial and Appeal Board*, 89 Fed. Reg. 76,421 (Sept. 18, 2024) (“Final Rule”). We have considered Patent Owner’s Motion and Petitioner’s Opposition.

In this Preliminary Guidance, we provide information indicating our initial, preliminary, non-binding views on whether Patent Owner has shown a reasonable likelihood that it has satisfied the statutory and regulatory requirements associated with filing a motion to amend in an *inter partes* review and whether Petitioner establishes a reasonable likelihood that the substitute claims are unpatentable. 37 C.F.R. § 42.121(e)(1), (2); *see also* 35 U.S.C. § 316(d) (statutory requirements for a motion to amend); 37 C.F.R. § 42.121(a)(2), (a)(3), (b) (regulatory requirements and burdens for a motion to amend); *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15

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<sup>1</sup> The Board authorized Petitioner’s request for a 5-page increase in the number of pages for Petitioner’s opposition to Patent Owner’s motion to amend. The Board further authorized Patent Owner to include 5 additional pages in Patent Owner’s reply to Petitioner’s opposition. Ex. 1045.

(PTAB Feb. 25, 2019) (precedential) (providing information and guidance regarding motions to amend). The reasonable likelihood standard this Preliminary Guidance applies is different than the preponderance of the evidence standard applied when ultimately deciding the Motion. *Compare* 37 C.F.R. § 42.121(e)(1), *with* § 42.121(d). Finally, this preliminary guidance is not a “decision” for purposes of rehearing under 37 C.F.R. § 42.71(d). 37 C.F.R. § 42.121(e)(2).

For purposes of this Preliminary Guidance, we focus on the proposed substitute claims, and specifically on the amendments proposed in the Motion. *See* 37 C.F.R. § 42.121(e)(1); Final Rule, 89 Fed. Reg. at 76,425. We do not address the patentability of the originally challenged claims. *See id.* Moreover, in formulating our preliminary views on the Motion and Opposition, we have not considered the parties’ other substantive papers on the underlying merits of Petitioner’s challenges. We emphasize that the views expressed in this Preliminary Guidance are subject to change upon consideration of the complete record, including any revision to the Motion filed by Patent Owner. Thus, this Preliminary Guidance is not binding on the Board when rendering a final written decision or any other subsequent decision in this proceeding. 37 C.F.R. § 42.121(e)(2); *see Medytox, Inc. v. Galderma S.A.*, 71 F.4th 990, 1000 (Fed. Cir. 2023).

## II. PRELIMINARY GUIDANCE

### A. Statutory and Regulatory Requirements

Patent Owner bears the ultimate burden to show that its motion to amend complies with the requirements of 35 U.S.C. § 316(d)(1), (3) and 37 C.F.R. § 42.121(a)(2), (a)(3), (b)(1), and (b)(2). 37 C.F.R. § 42.121(d)(1). For the reasons discussed below, at this stage of the proceeding, and based

on the current record, it appears that Patent Owner has shown a reasonable likelihood that it has satisfied the statutory and regulatory requirements associated with filing a motion to amend. *See* 37 C.F.R. § 42.121(e)(1).

### 1. Reasonable Number of Substitute Claims

A motion to amend must propose a reasonable number of substitute claims. 35 U.S.C. § 316(d)(1)(B); 37 C.F.R. § 42.121(a)(3). Patent Owner has shown it proposes a reasonable number of substitute claims.

Patent Owner proposes no more than 1 substitute claim for each challenged claim. More particularly, Patent Owner proposes substitute claims 21–40 for original claims 1–20, respectively. Mot. 4, A1–A10 (Claims App.). Petitioner does not argue otherwise.

### 2. Respond to Ground of Unpatentability

A motion to amend must respond to a ground of unpatentability involved in the proceeding. 37 C.F.R. § 42.121(a)(2)(i). Patent Owner has responded to a ground of unpatentability involved in this proceeding.

Patent Owner responds to the grounds of unpatentability at pages 7–12 of the Motion. At least one amendment presented is responsive to a ground of unpatentability. Petitioner does not argue otherwise.

### 3. Scope of Amended Claims

A motion to amend may not enlarge the scope of the claims of the patent. 35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii). Patent Owner's Motion has not enlarged the scope of the claims of the patent.

Each of the proposed substitute claims include narrowing limitations. Mot. A-1–A-10 (Claims App.). Petitioner does not argue otherwise.

#### 4. New Matter

A motion to amend may not introduce new subject matter. 35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii). Patent Owner's Motion has not introduced new subject matter.

On this record, we find Patent Owner has set forth written description support for the proposed amendments at pages 13–23 of the Motion. Patent Owner asserts that there is written description support in U.S. Application No. 15/978,838 (“the ’838 application”) and in its parent application, U.S. Application No. 14/884,363 (“the ’363 application”), for each of the proposed substitute claims. Mot. 15–23 (citing Ex. 1002; Ex. 2005). Petitioner does not argue otherwise.

#### B. Unpatentability Arguments by Petitioner

Petitioner bears the ultimate burden to show that any proposed substitute claims are unpatentable. 37 C.F.R. § 42.121(d)(2). For the reasons discussed below, at this stage of the proceeding, and based on the current record,<sup>2</sup> it appears that Petitioner has shown a reasonable likelihood that proposed substitute claims 21–40 are unpatentable. *See* 37 C.F.R. § 42.121(e)(1).

##### 1. Indefiniteness

Proposed substitute claims 21, 28, and 37, which are independent, seek to add the following limitations: “wherein the electric pump has a maximum continuous torque of at least 11,488 lb-ft or more” and “wherein the electric pump has a maximum continuous power output of at least 1750

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<sup>2</sup> We express no view on the patentability of original claims 1–20 in this Preliminary Guidance. Instead, we focus on limitations added to those claims in the Patent Owner's Motion to Amend.

brake horsepower or more.” Mot. A-1, A-5, A-9 (Claims App.). Proposed substitute claims 21–27, 29–36, 38, and 39 depend from claims 21, 28, and 37, respectively. *Id.* at A-2–A-10.

Petitioner argues that “[t]he claims, specification, and prosecution history of the ’992 Patent provide no objective standard for ascertaining the scope of ‘*continuous*,’ a subjective term of degree.” Opp. 1 (citing Ex. 1022 ¶¶ 59–61; *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1351 (Fed. Cir. 2005)). Petitioner argues that “[t]he claims are indefinite because the scope of the term changes based on several other parameters, and the intrinsic record does not ‘provide objective boundaries for those of skill in the art.’” *Id.* (citing *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2018)).

Petitioner argues “there is no objective standard for determining how long a torque or power output must be maintained for it to be considered ‘continuous.’” Opp. 2. According to Petitioner, the Specification “does not provide any ‘objective baseline’ or guideposts to enable a POSITA [(a person of ordinary skill in the art)] to differentiate ‘*continuous*’ operation from other types of operation, such [as] ‘maximum[.]’ or ‘instantaneous’ operation.” *Id.* (citing *Liberty Ammunition, Inc. v. United States*, 835 F.3d 1388, 1395 (Fed. Cir. 2016)). Petitioner also contends that Dr. Michael Nikolaou, Patent Owner’s declarant, “concedes that the [sic] ‘[t]here is no specific number’ in the ’992 Patent that indicates some amount of time for which a particular torque would need to be maintained for it to be considered ‘continuous.’” *Id.* (citing Ex. 1023,<sup>3</sup> 138:11–16). Petitioner further contends that “Dr. Nikolaou contends that for a pump’s power output or

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<sup>3</sup> Deposition Transcript of Dr. Michael Nikolaou.

torque to be considered ‘*continuous*,’ it must be maintained ‘[f]or the duration of an operation over which this’ power output or torque ‘is used.’” *Id.* (citing Ex. 1023, 125:11–15). In addition, Petitioner argues that “Dr. Nikolaou admits that the length of fracturing operations ‘can vary somewhat’ and ‘take different lengths of time,’ and that he was not aware of any fixed or standardized definition for ‘*continuous*’ operation.” *Id.* (citing Ex. 1023, 128:6–16, 137:1–18, 138:7–10, 140:6–10). Petitioner points out that “Dr. Nikolaou also explained that a pump’s ‘*continuous*’ operation varies based on a vendor’s definition.” *Id.* at 2–3 (citing Ex. 1023, 136:16–22, 138:2–6, 139:20–140:5).

Petitioner argues “[e]ven under Dr. Nikolaou’s interpretation, the ‘*continuous*’ language thus ‘requires that an artisan make a separate infringement determination for every set of circumstances in which’ electric pumps ‘may be used, and when such determinations are likely to result in differing outcomes (sometimes infringing and sometimes not), that construction is likely to be indefinite.” Opp. 3 (citing *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1255 (Fed. Cir. 2008)). Thus, Petitioner argues a “POSITA has no way of knowing the boundaries of what ‘*continuous*’ operation is intended to represent, and the term renders the claims indefinite.” *Id.* (citing Ex. 1022<sup>4</sup> ¶¶ 59–61).

“Claim language employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention.” *Interval Licensing LLC*, 766 F.3d at 1370. Patent Owner argues that paragraphs 15 and 16 of the ’838 application and the ’363 application provide support for the above

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<sup>4</sup> Second Declaration of Dr. Robert Durham.

limitations. Mot. 15, 19, 22. These paragraphs do not—and the Specifications of the '838 application and the '363 application do not appear—to disclose a time range for which a particular torque and a particular power output must be maintained for them to be considered “continuous.” Testimony of Dr. Nikolaou appears to support Petitioner’s position that the term “continuous” varies based on a vendor’s definition and that there is no fixed or standardized definition for this term. Opp. 2–3. Thus, the term “continuous” does not provide enough certainty as to the scope of the claims.

For these reasons, based on the current record, Petitioner has shown a reasonable likelihood of establishing that proposed substitute claims 21–40 are unpatentable under 35 U.S.C. § 112(b) as indefinite.

We acknowledge that Patent Owner has not yet had the opportunity to respond to Petitioner’s contention that the term “continuous” renders the proposed substitute claims indefinite. Patent Owner will have the opportunity to do so in its reply to Petitioner’s Opposition (or in a revised motion) in this proceeding and our determination above is subject to any further testimony that Patent Owner’s declarants may provide.

## 2. Obviousness

In the Institution Decision, we determined that the information presented establishes a reasonable likelihood that Petitioner would prevail in showing that at least one of the challenged claims of the '992 patent is

unpatentable as obvious over various combinations of cited art, which includes Coli,<sup>5</sup> Birch,<sup>6</sup> Dykstra,<sup>7</sup> Rusnak,<sup>8</sup> and Hunt.<sup>9</sup> Dec. 7–8, 34.

In addition to those prior art references, the Opposition relies on the following:

| Name         | Reference                                     | Exhibit |
|--------------|-----------------------------------------------|---------|
| Broussard079 | US 2014/0138079 A1, published May 22, 2014    | 1024    |
| Broussard601 | US 8,789,601 B2, issued July 29, 2014         | 1025    |
| Kohlenberger | US 5,790,972, issued August 4, 1998           | 1026    |
| Ekanayake    | US 8,747,533 B1, issued June 10 2014          | 1027    |
| Weiher       | US 8,552,728 B2, issued October 8, 2013       | 1028    |
| Newman       | EP 0023879 B1, published January 30, 1985     | 1029    |
| Gensel       | US 2009/0188682 A1, published July 30, 2009   | 1033    |
| Smith        | US 1,717,071, issued June 11, 1929            | 1035    |
| Bromell      | US 3,605,919, issued September 20, 1971       | 1036    |
| Thompson     | US 2009/0181582 A1, published July 16, 2009   | 1037    |
| Discenzo     | US 7,949,483 B2, issued May 24, 2011          | 1038    |
| McIver       | US 2013/0142601 A1, published June 6, 2013    | 1039    |
| Omont        | WO 2016/019219 A1, published February 4, 2016 | 1040    |

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<sup>5</sup> US 2012/0255734 A1, published October 11, 2012 (Ex. 1004).

<sup>6</sup> US 5,606,853, issued March 4, 1997 (Ex. 1005).

<sup>7</sup> US 2008/0236818 A1, published October 2, 2008 (Ex. 1006).

<sup>8</sup> US 2008/0288115 A1, published November 20, 2008 (Ex. 1007).

<sup>9</sup> US 2010/0038907 A1, published February 18, 2010 (Ex. 1008).

Petitioner asserts the following grounds of unpatentability for the proposed substitute claims:

| <b>Claim(s) Challenged</b> | <b>35 U.S.C. §</b> | <b>Reference(s)</b>                                                                            |
|----------------------------|--------------------|------------------------------------------------------------------------------------------------|
| 21, 22, 28, 29             | 103                | Coli, Birch, Rusnak, Broussard079, Broussard601                                                |
| 23, 32                     | 103                | Coli, Birch, Rusnak, Hunt, Broussard079, Broussard601, Kohlenberger, Ekanayake, Weiher, Newman |
| 24, 30, 38                 | 103                | Coli, Birch, Rusnak, Hunt, Broussard079, Broussard601, Gensel                                  |
| 25, 31                     | 103                | Coli, Birch, Rusnak, Hunt, Broussard079, Broussard601, Gensel, Omont                           |
| 26, 35                     | 103                | Coli, Birch, Rusnak, Broussard079, Broussard601, Smith, Bromell                                |
| 27, 36                     | 103                | Coli, Birch, Rusnak, Hunt, Broussard079, Broussard601, Smith, Bromell, Thompson                |
| 33, 37, 40                 | 103                | Coli, Birch, Rusnak, Hunt, Broussard079, Broussard601                                          |
| 34                         | 103                | Coli, Birch, Rusnak, Broussard079, Broussard601, Discenzo                                      |
| 39                         | 103                | Coli, Birch, Rusnak, Hunt, Broussard079, Broussard601, McIver                                  |

Opp. 3–5. Petitioner submits a second declaration of Robert Durham, Ph.D. (Ex. 1022, “Second Durham Declaration”) in support of its contentions.

In addition to the limitations discussed above pertaining to the indefiniteness contentions, the proposed substitute claims that are dependent add limitations that are either mostly presented in the original claims or pertinent to “operating characteristics” monitored by the centralized control unit. Mot. A-1–A-10 (Claims App.). Petitioner argues that these limitations are disclosed by the prior art references and that the proposed substitute claims would have been obvious in view of their teachings. Because these new limitations are numerous, for sake of brevity, we reiterate them in table format as follows:

| <b>Limitation</b>                                                                                 | <b>Claim(s)</b> | <b>Citation(s)</b>                                                                      |
|---------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------|
| the electric pump has a maximum continuous torque of at least 11,488 lb-ft or more                | 21, 28, 37      | Pet. 27–28;<br>Ex. 1024 ¶ 20;<br>Ex. 1025, <sup>10</sup> 4:20–23;<br>Ex. 1022 ¶¶ 72, 74 |
| the electric pump has a maximum continuous power output of at least 1750 brake horsepower or more | 21, 28, 37      | Ex. 1024 ¶¶ 19, 20;<br>Ex. 1025, 4:20–23;<br>Ex. 1022 ¶¶ 72, 75                         |
| generator is powered by liquefied natural gas                                                     | 22, 29, 40      | Ex. 1004 ¶¶ 10, 38, 40;<br>Pet. 7;<br>Ex. 1024 ¶¶ 9, 24;<br>Ex. 1022 ¶¶ 73, 76          |
| fuel system air supply pressure transmitter failure                                               | 23, 32          | Ex. 1026, 6:2–6;<br>Ex. 1022 ¶¶ 93–94;<br>Ex. 1030, C-4–C-5                             |

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<sup>10</sup> Petitioner quotes a passage from Broussard601 but cites to Exhibit 1024 which is Broussard079. *See* Opp. 6. We note several other similar typographical errors in the Opposition and provide the corrected citations hereinafter.

| Limitation                                         | Claim(s)          | Citation(s)                                                               |
|----------------------------------------------------|-------------------|---------------------------------------------------------------------------|
| thermocouple input<br>module thermistor<br>failure | 23, 32            | Ex. 1005, 3:4–13;<br>Ex. 1022 ¶¶ 95–96;<br>Ex. 1031, D-5                  |
| start VDF configuration<br>failure                 | 23, 32            | Ex. 1004 ¶ 65;<br>Pet. 25, 34;<br>Ex. 1007 ¶¶ 20–21, 80;<br>Ex. 1022 ¶ 97 |
| turbine air inlet filter<br>transmitter failure    | 23, 32            | Ex. 1027, 1:24–27, 2:19–35;<br>Ex. 1022 ¶ 98                              |
| generator circuit breaker<br>failure to open       | 23, 32            | Ex. 1028, 3:2–3, 3:58–66;<br>Ex. 1022 ¶ 100;<br>Ex. 1023, 40:8–14         |
| gas fuel supply pressure<br>transmitter failure    | 23, 32            | Ex. 1005, 2:30–39, Fig. 1;<br>Ex. 1022 ¶ 101                              |
| gas fuel control pressure<br>transmitter failure   | 23, 32            | Ex. 1005, 3:4–8, 3:37–4:12;<br>Ex. 1022 ¶ 102                             |
| utility circuit breaker<br>closed                  | 23, 32            | Pet. 60–65;<br>Ex. 1022 ¶ 103                                             |
| generator frequency                                | 23, 32            | Ex. 1008 ¶¶ 40, 54;<br>Ex. 1022 ¶ 104                                     |
| engine serial number                               | 23, 32            | Ex. 1029, 1:50–54;<br>Ex. 1022 ¶ 105                                      |
| switch gear                                        | 24, 30, 38,<br>39 | Pet. 58–65;<br>Ex. 1022 ¶ 186                                             |
| status of fire alarm                               | 24, 30, 38        | Pet. 58–65;<br>Ex. 1033, Abstr., ¶¶ 2, 63–66;<br>Ex. 1022 ¶ 113           |
| hydraulic system                                   | 25, 31            | Ex. 1004 ¶ 9                                                              |
| system pressure                                    | 25, 31            | Pet. 30–32;<br>Ex. 1040 ¶ 52;<br>Ex. 1022 ¶ 127                           |

| <b>Limitation</b>                                                             | <b>Claim(s)</b> | <b>Citation(s)</b>                                                                                     |
|-------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------|
| charge pressure                                                               | 25, 31          | Ex. 1023, 58:18–21;<br>Ex. 1022 ¶ 128;<br>Ex. 1040 ¶ 133                                               |
| temperature                                                                   | 25, 31          | Ex. 1040 ¶ 52                                                                                          |
| hydraulic oil level                                                           | 25, 31          | Ex. 1040 ¶¶ 48, 99, 120;<br>Ex. 1022 ¶ 130                                                             |
| filter status                                                                 | 25, 31          | Ex. 1040 ¶ 120;<br>Ex. 1022 ¶ 131                                                                      |
| emergency power off unit is operated by a switch that sounds an audible alarm | 26, 35          | Ex. 1035, 1:1–3, 1:24–29;<br>Ex. 1036, 1:19–21; 1:33–36;<br>Ex. 1022 ¶¶ 142, 144;<br>Ex. 1023, 63:9–19 |
| signal is transmitted over armored shielded CAT5E cabling                     | 27, 36          | Ex. 1037, Abstr., ¶¶ 8, 15, 49;<br>Pet. 33–34;<br>Ex. 1022 ¶¶ 151, 152                                 |
| turbine generator                                                             | 33              | Ex. 1004 ¶¶ 10, 72;<br>Ex. 1023, 80:5–82:20                                                            |
| gas fuel main valve discharge pressure transmitter failure                    | 33              | Ex. 1005, 2:30–39, Fig. 1;<br>Ex. 1022 ¶ 160                                                           |
| backup system relay failure                                                   | 33              | Pet. 54–55;<br>Ex. 1008 ¶ 46;<br>Ex. 1022 ¶ 161                                                        |
| motor winding temperatures                                                    | 34              | Ex. 1038, 6:40–41, 8:66–9:13                                                                           |
| motor RPM                                                                     | 34              | Ex. 1007 ¶¶ 2, 3;<br>Ex. 1022 ¶ 173                                                                    |
| voltage                                                                       | 34              | Ex. 1007 ¶ 5                                                                                           |
| torque                                                                        | 34              | Ex. 1007 ¶ 3                                                                                           |
| current (amperage)                                                            | 34              | Ex. 1007 ¶ 5                                                                                           |

| Limitation                          | Claim(s) | Citation(s)                                     |
|-------------------------------------|----------|-------------------------------------------------|
| electric motors                     | 37, 39   | Pet. 32–33;<br>Ex. 1004 ¶ 72;<br>Ex. 1022 ¶ 185 |
| transformers                        | 39       | Ex. 1004 ¶ 47;<br>Ex. 1022 ¶ 187                |
| mobile turbines                     | 39       | Pet. 36–39;<br>Ex. 1024 ¶ 8;<br>Ex. 1022 ¶ 188  |
| rate and pressure of overall system | 39       | Ex. 1004 ¶ 71;<br>Ex. 1022 ¶¶ 189–190           |
| vertical sand silos                 | 39       | Ex. 1039 ¶¶ 17, 56;<br>Ex. 1022 ¶ 191           |
| electrical conveyor belt            | 39       | Ex. 1039 ¶¶ 44, 45, 54, 56;<br>Ex. 1022 ¶ 192   |

Opp. 5–30. With the exception of proposed substitute claims 23 and 32 concerning the “turbine air inlet filter transmitter failure” limitation as discussed below, we are persuaded that the cited prior art references disclose the newly added claim limitations.

Regarding proposed substitute claim 21, Petitioner argues that it would have been obvious “to implement *Coli*’s pumps with particular torque values as described by *Broussard079* and *Broussard601* to ensure that *Coli*’s pumps are sufficiently powerful for fracturing operations.” Opp. 6 (citing Ex. 1022 ¶ 72).<sup>11</sup> According to Petitioner, “[d]oing so would have involved the mere application of a known technique (*i.e.*, fracturing pumps with particular torque figures, as taught by *Broussard079* and *Broussard601*) to a known system (*i.e.*, the *Coli*’s hydraulic fracturing system) ready for

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<sup>11</sup> Petitioner provides the same reasoning for claims 28 and 29. Opp. 5.

improvement.” *Id.* Petitioner also argues that a “POSITA would have been motivated to use pumps with particular output power values in *Coli*’s system, and would have reasonably expected success in doing so, for the same reason.” *Id.* at 7.

Regarding proposed substitute claim 22, Petitioner argues that “[i]t would have been obvious to use ‘liquefied natural gas’ for powering turbine generators, as taught by *Broussard079*, in view of *Coli*’s disclosure regarding the use of liquid fuels.” Opp. 7 (citing Ex. 1022 ¶¶ 73, 76). Petitioner argues that “using liquefied natural gas to power turbine generators as described by *Broussard079* would have involved the mere application of a known technique (*i.e.*, using liquefied natural gas to power turbine generators, as taught by *Broussard079*) to a known system (*i.e.*, the *Coli*’s natural gas-powered turbine generators) ready for improvement.” *Id.*

Regarding proposed substitute claim 24, Petitioner argues that “it would have been obvious to incorporate *Gensel*’s switchgear fire alarm monitoring functionality into *Coli*’s control system in view of *Coli*’s teaching that its control system monitors all equipment of a hydraulic fracturing site.” Opp. 15 (citing Ex. 1022 ¶ 113).<sup>12</sup> Petitioner argues that “it was well-known in the art that switchgears (and the rooms housing switchgears) were prone to fires due to the high currents and voltages associated with switchgears.” *Id.* (citing Ex. 1022 ¶ 113). According to Petitioner, “such a combination represents the mere application of known techniques (*i.e.*, switchgear fir[e] alarm condition monitor, as taught by *Gensel*) to a known system (*e.g.*, a hydraulic fracturing system that includes

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<sup>12</sup> Petitioner provides the same reasoning for claims 30 and 38. Opp. 14.

a switchgear) ready for improvement (*i.e.*, to improve the safety of the overall system).” *Id.* (citing Ex. 1022 ¶ 113).

Regarding proposed substitute claim 25, Petitioner argues that a “POSITA would have been motivated to combine the system taught by *Coli* [with] monitoring techniques taught by *Omont* to further *Coli*’s goal of providing ‘control and computer monitoring for the entire fracturing operation [. . .] at a single central location.’” Opp. 18 (citing Ex. 1022 ¶ 124; Ex. 1004 ¶ 72).<sup>13</sup> According to Petitioner, “such a combination represents the mere application of known techniques (*i.e.*, monitoring particular aspects of a hydraulic fracturing system, as taught by *Omont*) to a known system (*e.g.*, *Coli*’s hydraulic fracturing system) ready for improvement (*i.e.*, to improve the breadth of *Coli*’s system monitoring functionality).” *Id.* (citing Ex. 1022 ¶ 124).

Regarding proposed substitute claim 26, Petitioner argues that “[i]t would have been obvious to effectuate the ‘emergency power-off’ functionality of the system taught by the [combination of cited prior art] references via *Smith*’s ‘switch.’” Opp. 19 (citing Ex. 1022 ¶ 144).<sup>14</sup> Petitioner argues that “it would have been obvious to sound an alarm when triggering such a switch, as it was well-known in the art to ‘sound an alarm’ to notify a drill site about ‘off-normal operation,’ as taught by *Bromell*, which a POSITA would have understood to include an ‘emergency power off’ scenario.” *Id.* According to Petitioner, “[i]ncorporating *Smith* and *Bromell* into the combined *Coli-Birch-Rusnak-Hunt-Broussard079-Broussard601* system, such that the emergency power off unit may be

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<sup>13</sup> Petitioner provides the same reasoning for claim 31. Opp. 16.

<sup>14</sup> Petitioner provides the same reasoning for claim 35. Opp. 18.

controlled by a switch (as taught by *Smith*) that triggers an audible alarm (as taught by *Bromell*) represents the mere application of known techniques (*i.e.*, *Smith*'s switch-controlled technique for shutting down an turbine generator and *Bromell*'s the implementation of an audible alarm) to a known system (*e.g.*, a hydraulic fracturing system) ready for improvement (*i.e.*, to improve the safety of the overall system)." *Id.* at 19–20 (citing Ex. 1022 ¶ 142; Ex 1023, 63:9–19).

Regarding proposed substitute claim 27, Petitioner argues that a "POSITA implementing [the] system taught by the [combination of cited prior art] references would have been motivated to look to additional references that teach particular types of Ethernet cables, such as *Thompson*." Opp. 20–21 (citing Ex. 1022 ¶ 151).<sup>15</sup> According to Petitioner, "such a combination represents the mere application of known techniques (*i.e.*, a shielded CAT5e with an outer 'armor' layer, as taught by *Thompson*) to a known system (*e.g.*, *Coli*'s hydraulic fracturing system, which uses Ethernet cables) ready for improvement (*i.e.*, to gain the benefits of armored, shielded CAT5e cabling, such as more resilient communication cables)." *Id.* (citing Ex. 1022 ¶ 152).

Regarding proposed substitute claim 33, Petitioner argues that "*Coli* discloses 'control center 40' that includes 'controls and computer monitoring *for the entire fracturing operation*,' which includes turbine generators" and thus, it would have been obvious to the monitor operating characteristics listed in claim 33. Opp. 21–22 (citing Ex. 1004 ¶¶ 10, 72; Ex. 1023, 80:5–

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<sup>15</sup> Petitioner provides the same reasoning for claim 36. Opp. 20.

82:20).<sup>16</sup> Petitioner also argues that “[a] POSITA would have understood *Birch*’s ‘under and over pressure electronic sensors 6a and 6b,’ . . . to be ‘gas fuel main valve discharge pressure transmitter,’ because these sensors monitor pressure of a gas fuel mains supply 1, which includes a solenoid isolating valve 4 just prior to the location of the sensors.” *Id.* at 22 (citing Ex. 1005, 2:30–9, Fig. 1; Ex. 1022 ¶ 160). Petitioner further argues that *Hunt* discloses a power distribution system along with switchgear 221 and switchgear control relay 229 which a POSITA would understand as a backup system relay. *Id.* at 22–23 (citing Pet. 54–55; Ex. 1008 ¶ 46; Ex. 1022 ¶ 161).

Regarding proposed substitute claim 34, Petitioner argues that a “POSITA would have been motivated to combine the system taught by *Coli* [with] monitoring techniques taught by *Discenzo* and *Rusnak*, . . . to further *Coli*’s goal of providing ‘control and computer monitoring for the entire fracturing operation [. . .] at a single central location.’” Opp. 25 (citing Ex. 1022 ¶ 169; Ex. 1004 ¶ 72). According to Petitioner, “such a combination represents the mere application of known techniques (*i.e.*, techniques for monitoring electric motors and VFDs, as taught by *Discenzo* and *Rusnak*) to a known system (*e.g.*, *Coli*’s hydraulic fracturing system, which includes electric motors and VFDs that control the electric motors) ready for improvement (to improve the breadth of *Coli*’s system monitoring functionality).” *Id.* (citing Ex. 1022 ¶ 169).

Regarding proposed substitute claim 39, Petitioner argues that a “POSITA would have been motivated to combine the system taught by *Coli*,

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<sup>16</sup> Petitioner provides the same reasoning for claims 37 and 40. Opp. 21.

which discloses the use of ‘blender units’ ‘to blend fluids with proppant, sand, chemicals, acid, etc. ... prior to delivery to the wellbore,’ to include the proppant storage and transport equipment taught by *McIver*, in order to ensure that there is sufficient proppant available and being delivered to facilitate the proppant blending operations as described in *Coli*.” Opp. 29 (citing Ex. 1022 ¶ 182; Ex. 1004 ¶¶ 53–55). Petitioner argues that a “POSITA further would have been motivated to incorporate the monitoring functionality taught by *McIver* to further *Coli*’s goal of providing ‘control and computer monitoring for the entire fracturing operation [. . .] at a single central location.’” *Id.* at 29–30 (citing Ex. 1022 ¶ 182; Ex. 1004 ¶ 72). According to Petitioner, “such a combination represents the mere application of known techniques (*i.e.*, proppant storage and transport equipment and the monitoring thereof, as taught by *McIver*) to a known system (*e.g.*, *Coli*’s hydraulic fracturing system, which includes a blender unit for mixing proppant for fracturing operation) ready for improvement.” *Id.* at 30 (citing Ex. 1022 ¶ 182).

In regard to pressure transmitter failure, Petitioner argues that it was known that pressure sensors “could further transmit failure codes.” Opp. 9 (citing Ex. 1030, C4–C5). Petitioner argues that thus, “it would have been obvious to a POSITA that *Coli*’s control system would have monitored whether a ‘fuel system air supply pressure transmitter’ has failed.” *Id.* (citing Ex. 1022 ¶¶ 93–94). Petitioner makes similar arguments in all instances where pressure transmitter failure is required with respect to the various types of pressure sensors. *See, e.g.*, Opp. 11 (for gas fuel supply pressure transmitter failure), 12 (for gas fuel control pressure transmitter failure).

On this record, Petitioner has shown sufficiently that the limitations of proposed substitute claims 21, 22, 24–31, and 33–40 are taught or suggested by the various combinations of cited references. Petitioner’s reasons for combining these references have rational underpinnings and are supported by Petitioner’s declarant (Ex. 1022), which is unrebutted at this stage of the proceeding. Accordingly, on this record, Petitioner has shown a reasonable likelihood of establishing that proposed substitute claims 21, 22, 24–31, and 33–40 are unpatentable as obvious under 35 U.S.C. §103.

We acknowledge that Patent Owner has not yet had the opportunity to respond to Petitioner’s contentions that proposed substitute claims 21, 22, 24–31, and 33–40 are unpatentable under 35 U.S.C. §103. Patent Owner will have the opportunity to do so in its reply to Petitioner’s Opposition (or in a revised motion) in this proceeding.

Proposed substitute claims 23 and 32 recite “turbine air inlet filter transmitter failure.” Mot. A-2, A-6 (Claims App.). Regarding claim 23, Petitioner argues that a “POSITA would have been motivated to combine the control system taught by Coli with the monitoring techniques taught by *Kohlenberger*, *Birch*, *Ekanayake*, *Hunt*, *Weiher*, and *Newman* to further Coli’s goal of providing ‘control and computer monitoring for the entire fracturing operation [. . .] at a single central location.’” Opp. 13–14 (citing Ex. 1022 ¶ 91; Ex. 1004 ¶ 72).<sup>17</sup> Petitioner argues that a “POSITA would be motivated to turn to references providing more detail regarding such control, such as *Kohlenberger*, *Birch*, *Ekanayake*, *Hunt*, *Weiher*, and *Newman*, which provide highly relevant details regarding the monitoring of various aspects

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<sup>17</sup> Petitioner provides the same reasoning for claim 32. Opp. 8.

of turbine generators and associated equipment.” *Id.* at 14 (citing Ex. 1022 ¶ 91). Petitioner argues that “such a combination represents the mere application of known techniques (i.e., monitoring of various aspects of turbine generators and associated equipment . . .) to a known system (e.g., control system for all equipment in a hydraulic system including turbine generators) ready for improvement (i.e., to monitor gas turbines and associated equipment).” *Id.*

Petitioner further argues that “*Ekanayake* discloses a ‘filter assembly’ that filters ‘air entering a gas turbine for power generation application.’” Opp. 10 (citing Ex. 1027, 1:24–27). According to Petitioner, *Ekanayake*’s “filter assembly further ‘includes a fouling detection instrument’ for detecting the extent to which the filter assembly has been ‘fouled’ and ‘a wireless communication module’ for ‘wirelessly communicating the degree of fouling.’” *Id.* (citing Ex. 1027, 2:19–35). Here, in contrast to the argument presented in regard to the pressure transmitter failure limitations, the detection of the “fouled” filters does not mean that there is a detection of a transmitter failure. Stated differently, if the filters have a “foul” odor or are defective in any way, the transmitter that transmits such data is still operational and there is no “filter transmission failure.” Petitioner does not explain sufficiently otherwise.

Accordingly, on this record, Petitioner has not shown sufficiently that the limitations of proposed substitute claims 23 and 32 are taught or suggested by the combination of *Coli*, *Birch*, *Rusnak*, *Hunt*, *Broussard*079, *Broussard*601, *Kohlenberger*, *Ekanayake*, *Weiher*, and *Newman*. Thus, on this record, Petitioner has not shown a reasonable likelihood of establishing

that substitute claims 23 and 32 are unpatentable as obvious under 35 U.S.C. § 103.

### III. CONCLUSION

This concludes our Preliminary Guidance. Patent Owner has the option to reply to this Preliminary Guidance *or* to file a revised MTA by DUE DATE 3. 37 C.F.R. § 42.121(e)(3), (f); Paper 7. Patent Owner's reply or revised MTA may only respond to this Preliminary Guidance or Petitioner's Opposition and may be accompanied by new evidence (including declarations).<sup>18</sup> 37 C.F.R. § 42.121(e)(3). Petitioner has the option to file a sur-reply responsive to this Preliminary Guidance, Patent Owner's reply, or Patent Owner's revised MTA but may not present new evidence in any case. 37 C.F.R. § 42.121(e)(3). Petitioner may also file a reply to the preliminary guidance in the case Patent Owner does not file a reply or revised MTA. 37 C.F.R. § 42.121(e)(4).

In addition, Patent Owner is reminded that amendments of the challenged claims may also be pursued in a separate reissue or reexamination proceeding before, during, or after an AIA trial proceeding, including subsequent to the issuance of the Final Written Decision. We draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its

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<sup>18</sup> As noted above in footnote 1, Patent Owner is authorized to include 5 additional pages in Patent Owner's reply to Petitioner's opposition. Ex. 1045.

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continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

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