**IN THE UNITED STATES DISTRICT COURT**
**FOR THE EASTERN DISTRICT OF TEXAS**
**MARSHALL DIVISION**

| | | |
|---|---|---|
| EFFECTIVE EXPLORATION, LLC, | § | |
| | § | |
| Plaintiff, | § | |
| | § | |
| v. | § | No. 2:16-CV-00607-JRG-RSP |
| | § | (lead case) |
| BLUESTONE NATURAL | § | |
| RESOURCES II, LLC, et al., | § | |
| | § | |
| Defendants. | § | |

**MEMORANDUM OPINION AND ORDER ON CLAIM CONSTRUCTION**

On June 9, 2017, the Court held a hearing to determine the proper construction of the disputed claim terms in United States Patent No. 8,813,840 ("the '840 Patent"). The Court has considered the arguments made by the parties at the hearing and in their claim construction briefs. Dkt. Nos. 67, 70, & 72.[1] The Court has also considered the intrinsic evidence and made subsidiary factual findings about the extrinsic evidence. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005); *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). The Court issues this Memorandum and Order on Claim Construction in light of these considerations.

[1] Citations to the parties' filings are to the filing's number in the docket (Dkt. No.) and pin cites are to the page numbers assigned through ECF.

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## I. BACKGROUND

The ’840 Patent is titled “Method and System for Accessing Subterranean Deposits from the Surface and Tools Therefor” and names a single inventor, Joseph Z. Zupanick. The application leading to the ’840 Patent was filed on August 12, 2013, and the patent issued on August 26, 2014. The ’840 Patent is related through a series of continuation, continuation-in-part, and divisional applications to an application filed on November 20, 1998, which issued as U.S. Patent No. 6,280,000.

In general, the ’840 Patent is directed to systems and methods for recovering fluids (e.g., water, oil, gas) from subterranean geological formations, and utilizes special configurations of directed bore holes (“bores”). In its 122 columns of text and 115 figures, the ’840 Patent describes diverse technology related to the drilling of wells and to the production of formation fluids. The description includes numerous examples of wells and bores (e.g., vertical, horizontal, slanted, articulated, undulated) and numerous examples of multi-well and multi-bore patterns (e.g., multi-well systems, multi-bore wells, multi-bore drainage patterns).

The abstract of the ’840 Patent provides:

> According to one embodiment, a system for accessing a subterranean zone from the surface includes a well bore extending from the surface to the subterranean zone, and a well bore pattern connected to the junction and operable to drain fluid from a region of the subterranean zone to the junction.

An example of a multi-well system is shown in Figures 1 and 3, which are reproduced below and annotated by the Court. The figures depict a vertical bore (12) and an articulated bore (3) each extending down from the surface to intersect at an enlarged cavity (20) in the target zone (15). The articulated bore is horizontal (34) at the point it intersects the vertical bore. A pattern of bores (50) are drilled beyond the junction to facilitate draining fluids from the zone, and ultimately

to produce the fluids to the surface. ’840 Patent at 12:42–16:8, 16:25–18:3.

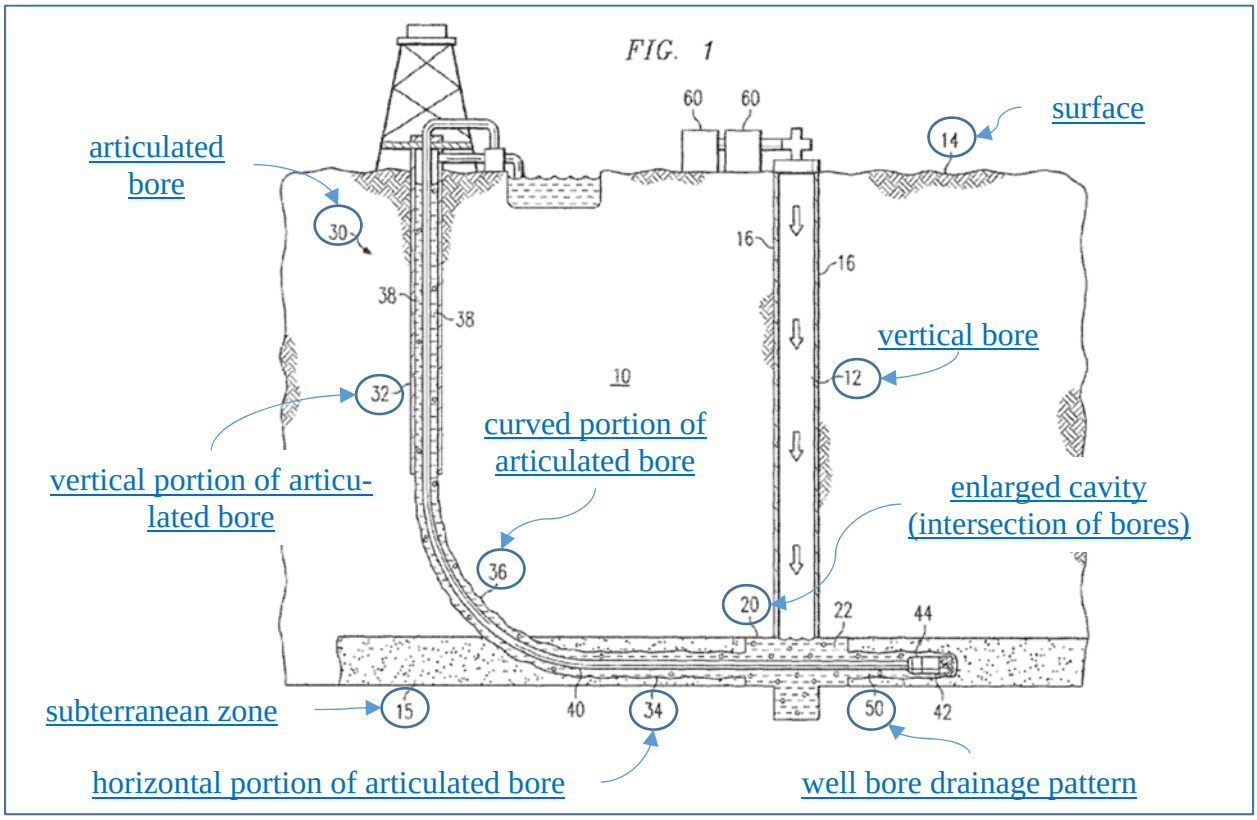
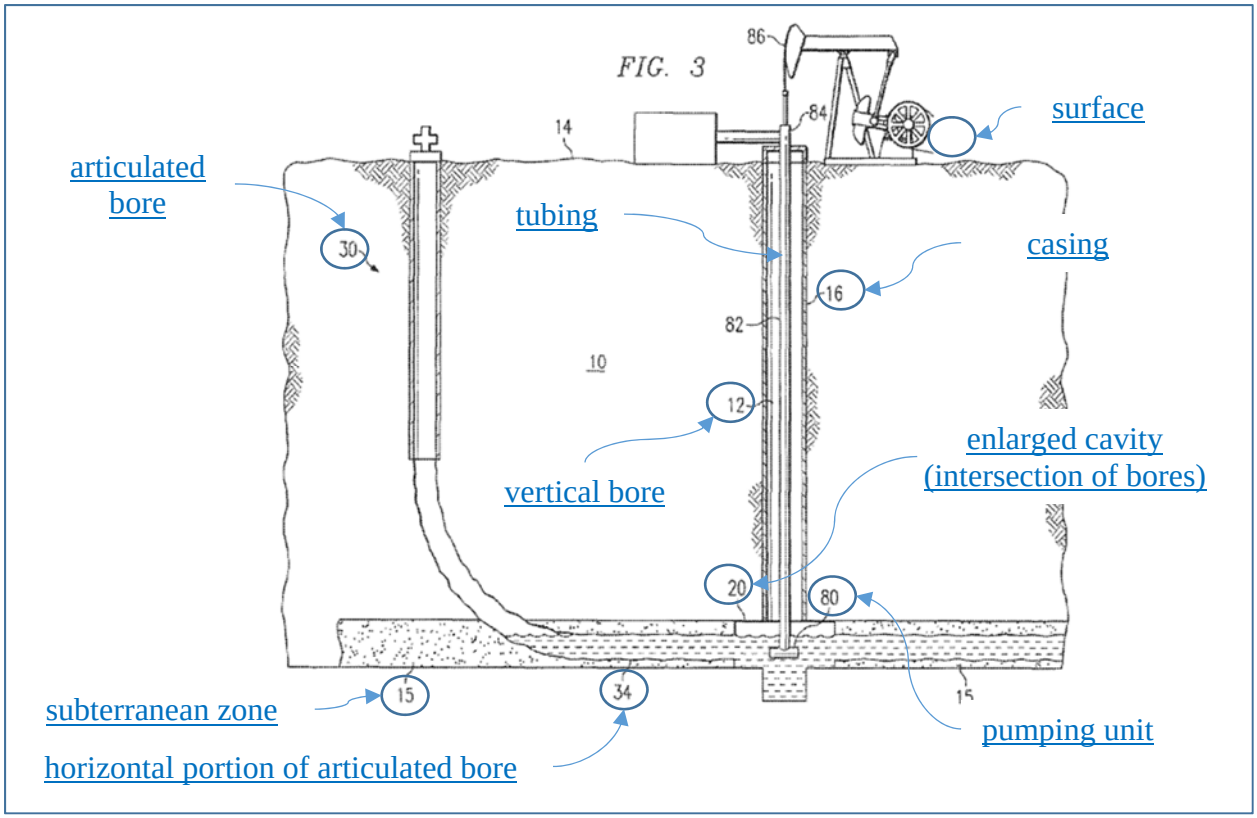
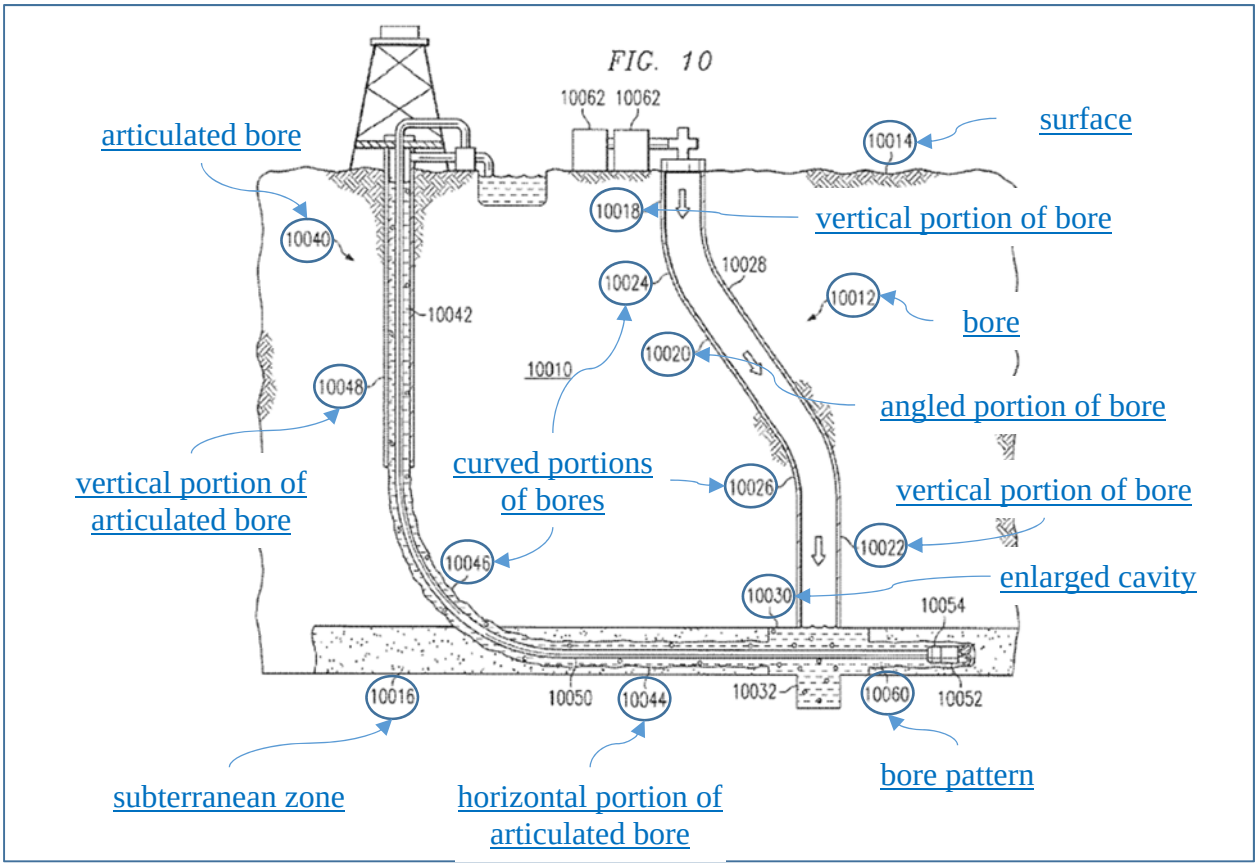



Figure 3 depicts the system of Figure 1 in a production configuration. A pump (80) moves water to the surface through a tubing string disposed in the vertical bore and allows gas to flow to the surface through the annulus between the tubing string and the casing (16) in the vertical bore. ’840 Patent at 12:42–16:8, 16:25–18:3.




Another example of a multi-well system is shown in Figure 10, which is reproduced below and annotated by the Court. The main difference between the example of Figure 1 and the example of Figure 10 is that the vertical bore (12) of Figure 1 is replaced with a bore (10012) that includes vertical (10018, 10022) and angled (10020) portions. The example of Figure 10 includes an enlarged cavity (10030) at the junction of the articulated bore (10040) and the vertical/angled bore (10012). The system further includes a bore pattern (10060) to facilitate draining fluids from the zone (10016). ’840 Patent at 27:65–24:48.




An example of a multi-bore well is shown in Figures 6A (drilling) and 7 (production), which are reproduced below and annotated by the Court. The figures depict a bore system that extends to the zone (6015) from a single entry point on the surface (6014). The bore system includes two connected vertical bores (6210, 6220) and two articulated bores (6230, 6235). The second vertical bore (6220) extends from the first vertical bore (6210). The first articulated bore (6230) extends from the first vertical bore, and the second articulated bore (6235) extends from the second vertical bore. The two articulated bores intersect at a cavity (6250) within the zone (6015). A bore pattern (6050) extends from the cavity to facilitate draining fluids from the zone. ’840 Patent at 23:9–25:53.

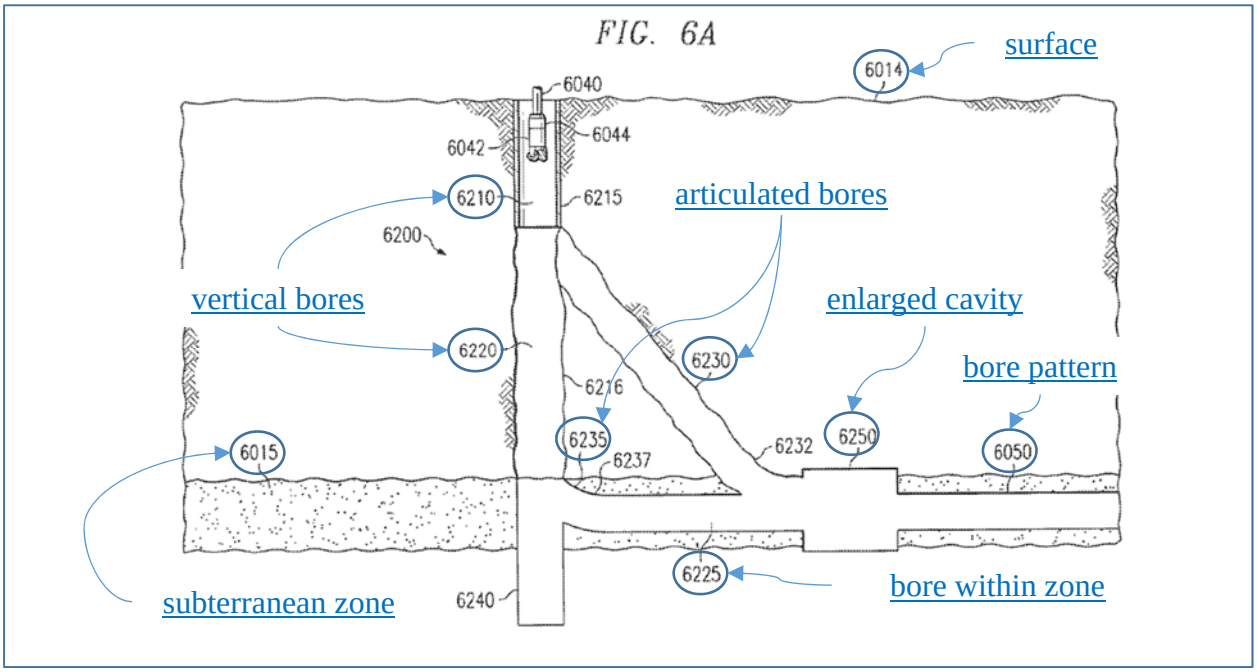
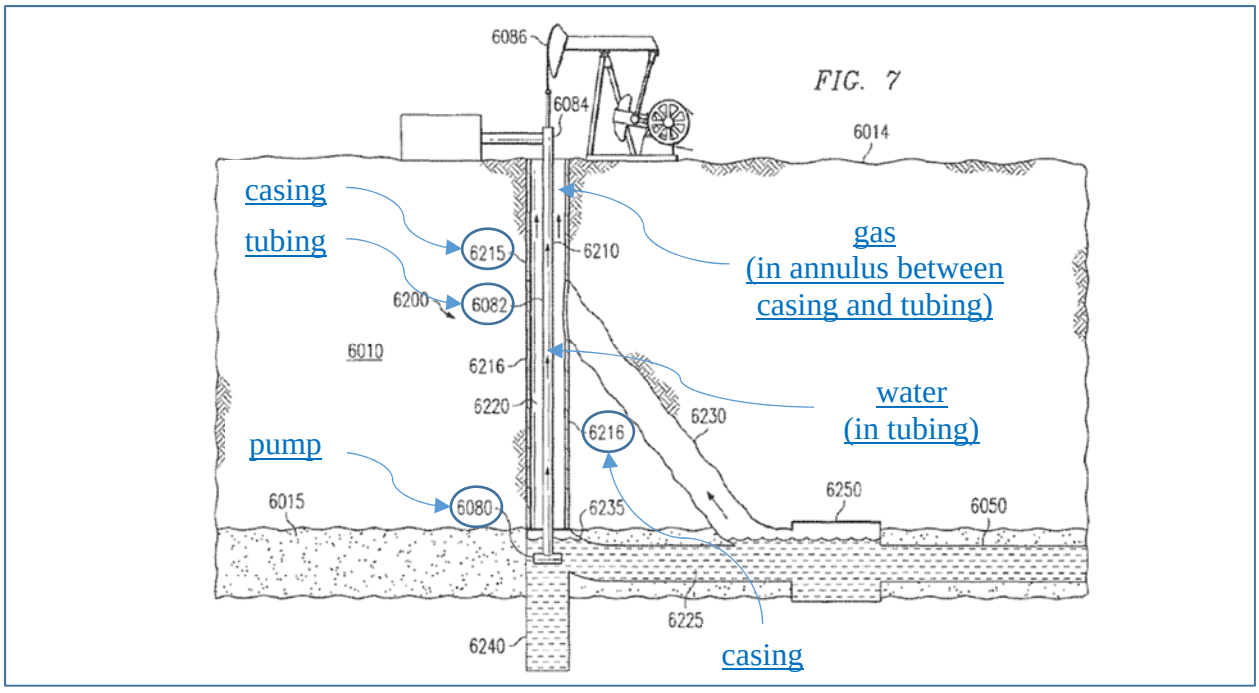
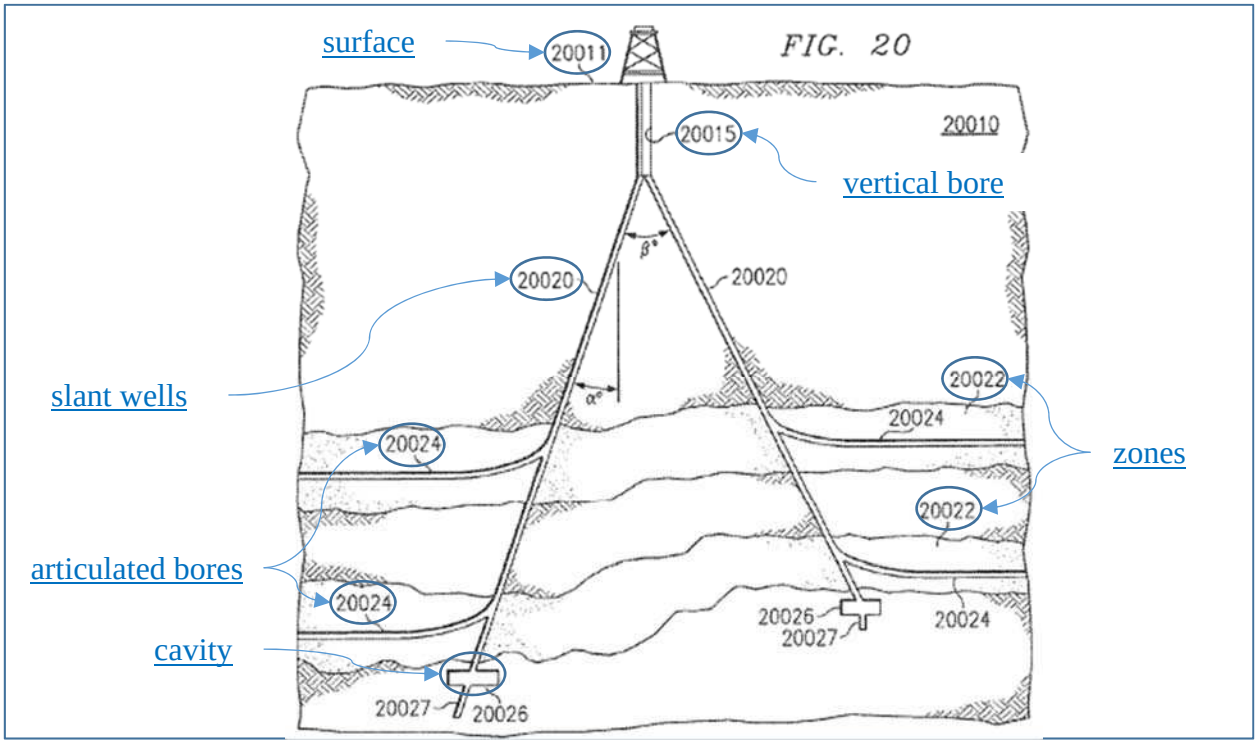



Figure 7 depicts the system of Figure 6 as configured for production. Fluids are produced from the zone by: (1) pumping water to the surface through a tubing string (6082) using a downhole pump (6080), and (2) allowing natural gas to flow to the surface in the annulus between the tubing string and casing (6215, 6216) in the vertical bores. ’840 Patent at 23:9–25:53.

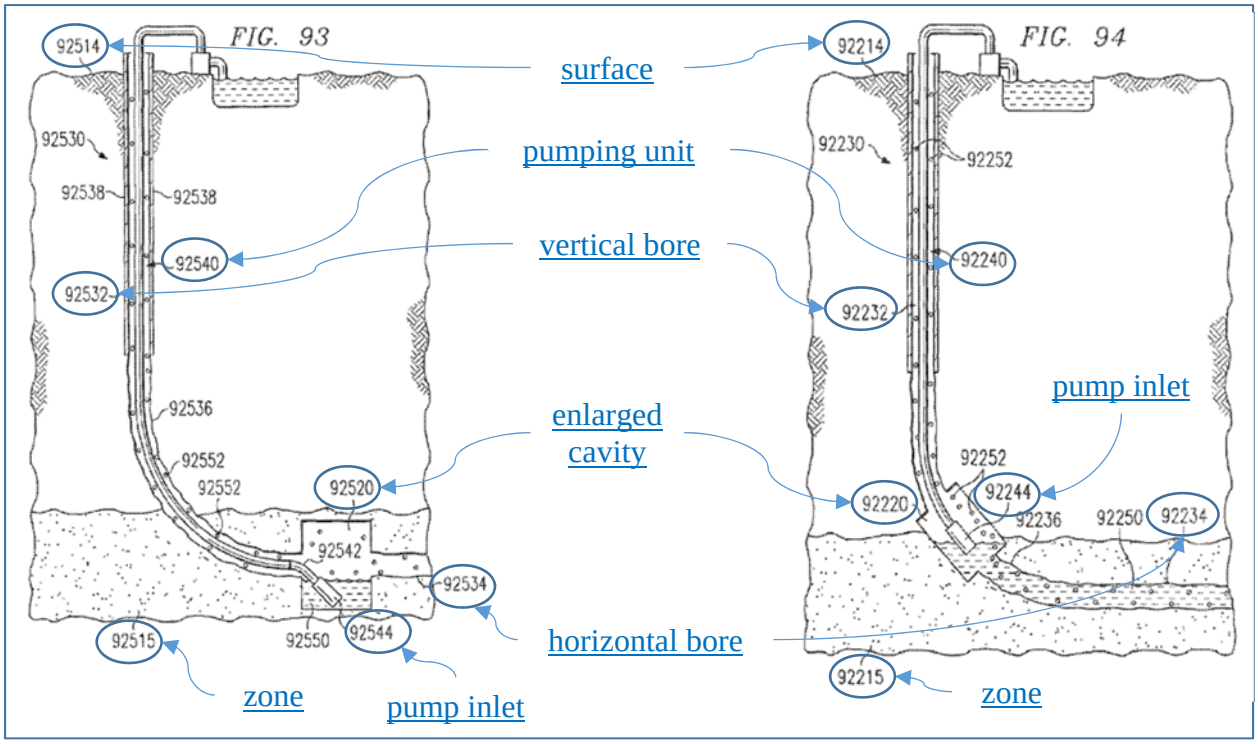


Another example of a multi-bore well is shown in Figure 20, which is reproduced below and annotated by the Court. The figure depicts articulated bores (20024) in zones (20022). The articulated bores extend from slant bores (20020) which in turn extend from a single vertical entry bore (20015) that extends from the surface (20011) toward the zone. ’840 Patent at 38:61–39:42.

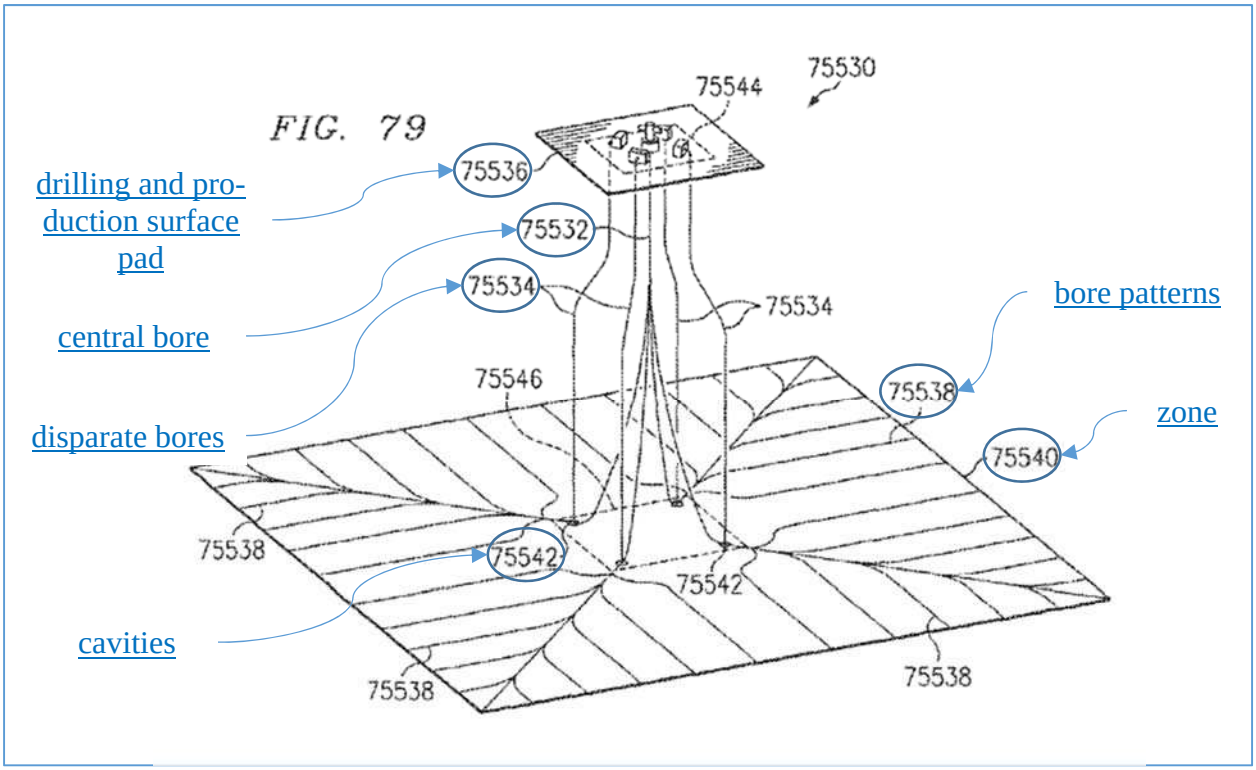



Examples of single-well systems configured for production are shown in Figures 93 and 94, which are reproduced below and annotated by the Court. Figure 93 depicts a system with a vertical bore (92532) extending from the surface (92514) to the zone (92515). The vertical bore is connected to a horizontal bore (92534). The horizontal bore includes an enlarged cavity (92520) in the zone (92515). A pumping unit (92540) is disposed in the well with the pump inlet (92544) located in the cavity such that it does not capture the zone’s natural gas (as separated from the other fluids) but pumps other fluids (92550) to the surface through the bores. The natural gas is allowed to flow to the surface. Figure 94 depicts a system similar to that of Figure 93 with the

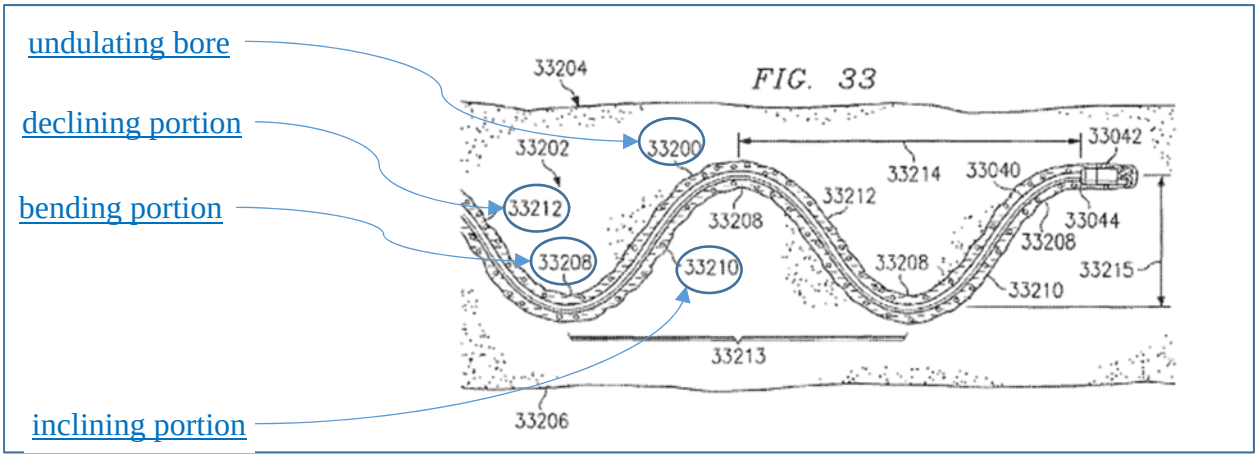
main difference being the location of the cavity. The cavity (92220) of Figure 94 is located in the curved bore (92236) that connects the vertical (92232) and horizontal (92234) bores. ’840 Patent at 110:1–111:24.




An example of a multi-well system with a specific drainage bore pattern is shown in Figure 79, which is reproduced below and annotated by the Court. This figure depicts a system of wells (75532, 75534) extending from a single drilling and production pad at the surface (75536) to the target zone underground (75540). A system of bores extending from a central well (75532) intersects with bores (75534) extending from disparate locations on the surface pad. There is a cavity (75542) at each junction of central-well bore and disparate-well bore. Each cavity is connected to a drainage bore pattern (75538). This configuration is meant to allow access to a large drainage area from a small surface area. ’840 Patent at 94:53–96:8; *see also*, *id*. at 38:24–59, Figure 19.




An example of an undulating bore is shown in Figure 33, which is reproduced below and annotated by the Court. This figure depicts an undulating bore (33200) "that may be included as any well bore of the systems illustrated in FIGS. 1 through 24 or a well bore of any other system that may be used to remove and/or produce water, hydrocarbons and other fluids in a layer of subterranean deposits." The undulating bore includes a declining portion (33212), a bending portion (33208), and an inclining portion (33210). The wavelength (33214) of the undulating bore is the distance between successive like points on the bore, for example, the distance from one point where the bending portion couples to the inclining portion to the next point along the path of the bore where the bending portion couples to the inclining portion. '840 Patent at 51:5–53:10; *see also*, *id*. at 53:11–44, Figure 34.




Claim 1 of the ’840 Patent is an exemplary claim and recites the following elements (disputed term in italics):

> 1. A system for accessing a *subterranean zone of shale*, the system comprising:
>
> a drilling pad at a surface;
>
> *a first wellbore extending from the surface* comprising a first substantially vertical portion extending into a subterranean zone and a first *substantially horizontal drainage bore* extending from the first substantially vertical portion and *proximate to the subterranean zone*;
>
> *a second wellbore extending from the surface* compromising a second substantially vertical portion extending into the subterranean zone and a second *substantially horizontal drainage bore* extending from the second substantially vertical portion and *proximate to the subterranean zone*, wherein the first and second *substantially horizontal drainage bores extend in the subterranean zone in different directions* from each other;
>
> *a third wellbore extending from the surface* comprising a third substantially vertical portion extending into the subterranean zone and a third *substantially horizontal drainage bore* extending from the third substantially vertical portion and *proximate to the subterranean zone*;
>
> *a fourth wellbore extending from the surface* comprising a

fourth substantially vertical portion extending into the subterranean zone and a fourth *substantially horizontal drainage bore* extending from the fourth substantially vertical portion and *proximate to the subterranean zone*, wherein the third and fourth *substantially horizontal drainage bores extend in the subterranean zone in different directions* from each other;

the first, second, third and fourth wellbores each extending from non-common surface locations on the drilling pad at the surface, the surface locations closely spaced to each other on the drilling pad;

wherein *the subterranean zone is shale*; and,

wherein the first, second, third, and fourth wellbores each produce a fluid extracted from the subterranean zone through the *substantially horizontal drainage bores*.

## II. PROCEDURAL BACKGROUND

The ’840 Patent was asserted in *Effective Exploration, LLC v. Classic Operating Company, LLC*, No. 2:14-cv-00869 (E.D. Tex.) (“*Classic* case”). On August 21, 2015, the Court issued an order construing disputed terms of the ’840 Patent. (*Classic* case, Dkt. No. 56). Plaintiff also filed cases against Atlas Barnett, LLC; Burlington Resources Oil & Gas Company, LP; Anadarko E&P Onshore, LLC; ARP Barnett, LLC; and Devon Energy Production Company, L.P. that were consolidated into a lead case captioned as *Effective Exploration, LLC v. Atlas Barnett, LLC*, No. 2:15-cv-440 (E.D. Tex.) (“*Atlas* case”). The *Atlas* case settled after briefing but prior to the Court’s claim construction hearing.

Other patents which claim priority to the November 20, 1998 Application were asserted in the U.S. District Court for the Western District of Pennsylvania.[2] The court issued two claim construction decisions regarding those patents. On April 8, 2015, in the matter captioned *Effective*

[2] The ’840 Patent is one of a large family of patents that claim priority to U.S. Patent No. 6,280,000.

*Exploration LLC v. Pennsylvania Land Holdings Company, LLC, et al.*, No. 14-cv-00845 (W.D. Penn.) ("*PLHC* case"), the Special Master issued a Report and Recommendation Regarding Claim Construction, and the court subsequently adopted those recommendations. Claims from earlier patents were also construed in the matter captioned *CNX Gas Corp. v. CDX Gas, LLC*, No. 05-cv-1574 (W.D. Penn.) ("*CNX case*").

## III. APPLICABLE LAW

### A. Claim Construction

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). To determine the meaning of the claims, courts start by considering the intrinsic evidence. *Id.* at 1313; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). The intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *Phillips*, 415 F.3d at 1314; *C.R. Bard, Inc.*, 388 F.3d at 861. The general rule—subject to certain specific exceptions discussed *infra*—is that each claim term is construed according to its ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the patent. *Phillips*, 415 F.3d at 1312–

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The two patents construed by the U.S. District Court for the Western District of Pennsylvania include U.S. Patents No. 6,976,533 (the "'533 Patent," titled "Method and System for Accessing Subterranean Deposits from the Surface") and No. 8,469,119 (the "'119 Patent," titled "Method and System for Accessing Subterranean Deposits From the Surface and Tools Therefor"). The '119 Patent issued from a continuation of Application No. 10/630,345 (the "'345 Application," filed July 29, 2003). The '840 Patent claims priority to the '345 Application as a continuation of Application No. 11/982,249, which is a continuation of the '345 Application.

13; *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003); *Azure Networks, LLC v. CSR PLC*, 771 F.3d 1336, 1347 (Fed. Cir. 2014) ("There is a heavy presumption that claim terms carry their accustomed meaning in the relevant community at the relevant time.") (vacated on other grounds).

"The claim construction inquiry . . . begins and ends in all cases with the actual words of the claim." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998). "[I]n all aspects of claim construction, 'the name of the game is the claim.'" *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1298 (Fed. Cir. 2014) (quoting *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998)). First, a term's context in the asserted claim can be instructive. *Phillips*, 415 F.3d at 1314. Other asserted or unasserted claims can also aid in determining the claim's meaning, because claim terms are typically used consistently throughout the patent. *Id.* Differences among the claim terms can also assist in understanding a term's meaning. *Id*. For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id*. at 1314–15.

"[C]laims 'must be read in view of the specification, of which they are a part.'" *Id*. (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc)). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Id*. (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). But, "'[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims.'" *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*,

848 F.2d 1560, 1571 (Fed. Cir. 1988)); *see also Phillips*, 415 F.3d at 1323. "[I]t is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004).

The prosecution history is another tool to supply the proper context for claim construction because, like the specification, the prosecution history provides evidence of how the U.S. Patent and Trademark Office ("PTO") and the inventor understood the patent. *Phillips*, 415 F.3d at 1317. However, "because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes." *Id.* at 1318; *see also Athletic Alternatives, Inc. v. Prince Mfg.*, 73 F.3d 1573, 1580 (Fed. Cir. 1996) (ambiguous prosecution history may be "unhelpful as an interpretive resource").

Although extrinsic evidence can also be useful, it is "'less significant than the intrinsic record in determining the legally operative meaning of claim language.'" *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc.*, 388 F.3d at 862). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. *Id*. at 1318. Similarly, expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert's conclusory, unsupported assertions as to a term's definition are entirely unhelpful to a court. *Id*. Generally, extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id*. The Supreme

Court recently explained the role of extrinsic evidence in claim construction:

> In some cases, however, the district court will need to look beyond the patent's intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period. *See, e.g.*, *Seymour v. Osborne*, 11 Wall. 516, 546 (1871) (a patent may be "so interspersed with technical terms and terms of art that the testimony of scientific witnesses is indispensable to a correct understanding of its meaning"). In cases where those subsidiary facts are in dispute, courts will need to make subsidiary factual findings about that extrinsic evidence. These are the "evidentiary underpinnings" of claim construction that we discussed in *Markman*, and this subsidiary factfinding must be reviewed for clear error on appeal.

*Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015).

### B. Definiteness Under 35 U.S.C. § 112, ¶ 2 (pre-AIA) / § 112(b) (AIA)

Patent claims must particularly point out and distinctly claim the subject matter regarded as the invention. 35 U.S.C. § 112, ¶ 2. A claim, when viewed in light of the intrinsic evidence, must "inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014). If it does not, the claim fails § 112, ¶ 2 and is therefore invalid as indefinite. *Id.* at 2124. Whether a claim is indefinite is determined from the perspective of one of ordinary skill in the art as of the time the application for the patent was filed. *Id.* at 2130. As it is a challenge to the validity of a patent, the failure of any claim in suit to comply with § 112 must be shown by clear and convincing evidence. *Id.* at 2130 n.10. "[I]ndefiniteness is a question of law and in effect part of claim construction." *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 517 (Fed. Cir. 2012).

When a term of degree is used in a claim, "the court must determine whether the patent provides some standard for measuring that degree." *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015) (quotation marks omitted). Likewise, when a subjective term is

used in a claim, "the court must determine whether the patent's specification supplies some standard for measuring the scope of the [term]." *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1351 (Fed. Cir. 2005); *accord Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (citing *Datamize*, 417 F.3d at 1351).

## IV. CONSTRUCTION OF AGREED TERMS

The parties agreed to the construction of the following phrase:

| Claim Term/Phrase | Agreed Construction |
|---|---|
| drilling pad (Claims 1, 8) | the same drilling location where drilling operations are being conducted |
| substantially vertical (Claim 1) | substantially straight and substantially perpendicular to the horizon |
| substantially horizontal (Claims 1, 5, 6, 7) | substantially aligned with the zone, which is substantially parallel to the horizon |
| closely spaced (Claim 1) | on the same drilling pad |

Docket No. 73-1 at 2, 3, 5. In view of the parties' agreement on the proper construction of the identified terms, the Court **ADOPTS** the parties' agreed construction.

During the claim construction hearing, the parties agreed to the construction of the following term:

| Claim Term/Phrase | Agreed Construction |
|---|---|
| coupled (Claim 5) | directly connected |

The Court agrees with the parties that the term **"coupled"** should be construed to mean **"directly connected."** Accordingly, the Court **ADOPTS** the parties' agreed construction.

## V. CONSTRUCTION OF DISPUTED TERMS

The parties' dispute focuses on the meaning and scope of eight terms/phrases in the '840 Patent.

### A. "subterranean zone of shale" / "wherein the subterranean zone is shale"

| Disputed Term | Plaintiff's Proposal | Defendants' Proposal |
|---|---|---|
| subterranean zone of shale / wherein the subterranean zone is shale | depth interval including one or more layers of rock composed primarily of shale and that in the aggregate is composed primarily of shale | the producing interval including one or more layers of rock composed primarily of shale and that in the aggregate is composed primarily of shale |

#### 1. The Parties' Positions

The parties dispute whether the "subterranean zone of shale" should be construed to include a "producing interval." Specifically, Defendants argue that the Court's prior construction in the *Classic* case should be clarified by changing "depth interval" to "producing interval." Plaintiff contends Defendants' modification is unnecessary, because claim 1 already contains specific language requiring production from the subterranean zone of shale. (Dkt. No. 67 at 13). Plaintiff further argues that Defendants' construction would lead to inconsistent constructions for the same or related terms in other patents related to the '840 Patent. *Id.* (citing U.S. Patent Nos. 6,668,918; 6,357,523; 6,478,085; and 8,505,620).

Plaintiff also contends that Defendants' construction is incorrect because a subterranean zone is a subterranean zone regardless of whether there has been any production in the zone.(Dkt. No. 67 at 13) (citing '840 Patent at 12:46–50). Plaintiff argues that production is but one of several purposes for accessing the subterranean zone according to the patent. (Dkt. No. 67 at 14) (citing '840 Patent at 21:25–27). Finally, Plaintiff contends that there is no disclaimer or disavowal present

in the ’840 Patent redefining the term. (Dkt. No. 67 at 14).

Defendants respond that the intrinsic evidence supports construing “subterranean zone” to mean the producing interval. (Dkt. No. 70 at 10). Defendants argue that their construction is required by the claim language. *Id.* Defendants also argue that the specification refers to the “subterranean” zone as the target zone or layer, which is where the oil and/or gas is located and from which it will be extracted or produced. (*Id.* at 11) (citing ’840 Patent at 25:6–8, 103:58–104:6, 114:21–45). According to Defendants, the “subterranean zone of shale” is not each and every “depth interval” beneath the surface that is composed primarily of shale, regardless of its ability to produce oil and/or gas. (Dkt. No. 70 at 11). Defendants also argue that the patentee amended the claims to avoid an obviousness rejection, making it clear that the claimed wellbores are substantially vertical (not angled) when they enter the producing interval. (Dkt. No. 70 at 11–12) (citing Dkt. No. 70-3 at 3; Dkt. No. 70-4 at 3–4; Dkt. No. 70-5 at 3; Dkt. No. 70-6 at 3).

Defendants further contend that the terms “subterranean zone of shale” and “wherein the subterranean zone of shale” would be understood by a person of ordinary skill in the art to refer to the producing interval to which the wellbore path is targeted, and from which the well produces oil and/or gas. (Dkt. No. 70 at 12) (citing Dkt. No. 70-7 at 7). According to Defendants, some shale zones can be up to 2,000 feet thick but the hydrocarbon-bearing interval or producing interval within that shale zone may only be 50 feet thick. (Dkt. No. 70 at 13) (citing Dkt. No. 70-7 at 5–6). Defendants argue that under Plaintiff’s construction, the “subterranean zone of shale” could be defined as the entire 2,000-foot thick zone even though the particular interval into which the well is actually being drilled in order to extract fluids would only be the 50-foot thick hydrocarbon-bearing interval from which oil and/or gas can be produced. *Id*. Defendants contend that there would be no purpose in drilling a well that extends into a “subterranean zone of shale” that is not

a producing interval from which oil and/or gas can be extracted. *Id.*

Defendants also contend that their construction is necessary to prevent the jury from mistakenly believing that the "subterranean zone" can be any "depth interval" regardless of whether it produces oil and/or gas. (Dkt. No. 70 at 14). Defendants argue that the invention claimed in the '840 Patent is limited by its claim language to an invention that produces a fluid from the subterranean zone. (*Id.* at 15–16). Defendants further argue that Plaintiff expressly limited the claims of the '840 Patent to a "subterranean zone of shale" that "produces a fluid." (Dkt. No. 70 at 16) (citing Dkt. No. 70-2 at 12). According to Defendants, the '840 Patent only claims accessing a "subterranean zone of shale" for the purpose of producing a fluid from that particular zone. (Dkt. No. 70 at 16).

Plaintiff replies that the specification makes clear that the patent uses the term subterranean zone according to its known usage and demonstrates no intent to lexicographically redefine the term. (Dkt. No. 72 at 3) (citing '840 Patent at 12:47–54). Plaintiff argues that the disclosed embodiments do not evidence an intent to redefine the term "subterranean zones" because the oil and gas industry is generally concerned with production of hydrocarbons from subterranean zones. (Dkt. No. 72 at 3). Plaintiff also contends that the text of the claim does not require production in order for a zone to be a subterranean zone. (*Id.* at 4). According to Plaintiff, the claim language demonstrates that not all "subterranean zones" involve production, otherwise the addition of the explicit production requirement to claim 1 would be superfluous. *Id.*

Plaintiff also contends that applicant distinguished the prior art based on the fact that two of the cited references did not discuss shale zones as having any production capabilities at all, and the third taught away from the extraction of oil from a shale formation. *Id.* Plaintiff argues that nothing in the prosecution history supports Defendants' argument that only 50 foot thick portions

of a larger 2,000 foot thick shale formation may be a subterranean zone of shale. *Id.* Plaintiff further argues that the terms "producing interval" and "producing zone" appear nowhere in the specification. *Id.* Finally, Plaintiff contends that Defendants have failed to identify any evidence demonstrating that the Court's previous construction is incorrect. (*Id.* at 5).

For the following reasons, the Court finds that the term **"subterranean zone of shale"** and the term **"wherein the subterranean zone is shale"** should be construed to mean **"the depth interval includes one or more layers of rock composed primarily of shale and is in the aggregate composed primarily of shale."**

**2. Analysis**

The terms "subterranean zone of shale" and "wherein the subterranean zone is shale" appears in asserted claim 1 of the '840 Patent. The parties do not dispute the meaning of "shale." So the real dispute is whether the shale "zone" should be defined as a "depth interval" or a "producing interval." The Court finds that "zone" implies distinguishable boundaries. In the context of the '840 Patent, those boundaries are the regions that are adjacent to and distinguishable from the zone. In light of the intrinsic evidence, the Court finds that a "shale zone" of the '840 Patent is a depth interval distinguishable from other depth intervals based on the predominant rock-type (shale) of the targeted formation layers.

The '840 Patent uses "zone" to identify the specific region of the sub-surface ground targeted by the bore. Most commonly, "zone" refers to the region from which fluids are extracted. For example, the patent includes the following:

> FIG. 1 illustrates formation of a dual well system 10 for enhanced access to a subterranean, or subsurface, zone from the surface in accordance with an embodiment of the present invention. In this embodiment, the subterranean zone is a tight coal seam having a medium to low permeability. It will be understood that other suitable

> types of zones and/or other types of low pressure, ultra-low pressure, and low porosity subterranean formations can be similarly accessed using the present invention to lower reservoir or formation pressure and produce hydrocarbons such as methane gas and other products from the zone. For example, the zone may be a shale or other carbonaceous formation.

'840 Patent at12:43–54. But "zone" also is used to refer to regions targeted for purposes other than production of fluids. For example, the patent includes the following:

> FIG. 5 illustrates a method and system for drilling the well bore pattern 50 in a second subterranean zone, located below the coal seam 15, in accordance with another embodiment of the present invention. . . . In this embodiment, the second subterranean zone is also a coal seam. It will be understood that other subterranean formations and/or other low pressure, ultra low pressure, and low porosity subterranean zones can be similarly accessed using the dual radius well system of the present invention to remove and/or produce water, hydrocarbons and other fluids in the zone, to treat minerals in the zone prior to mining operations, or to inject or introduce a gas, fluid or other substance into the zone.

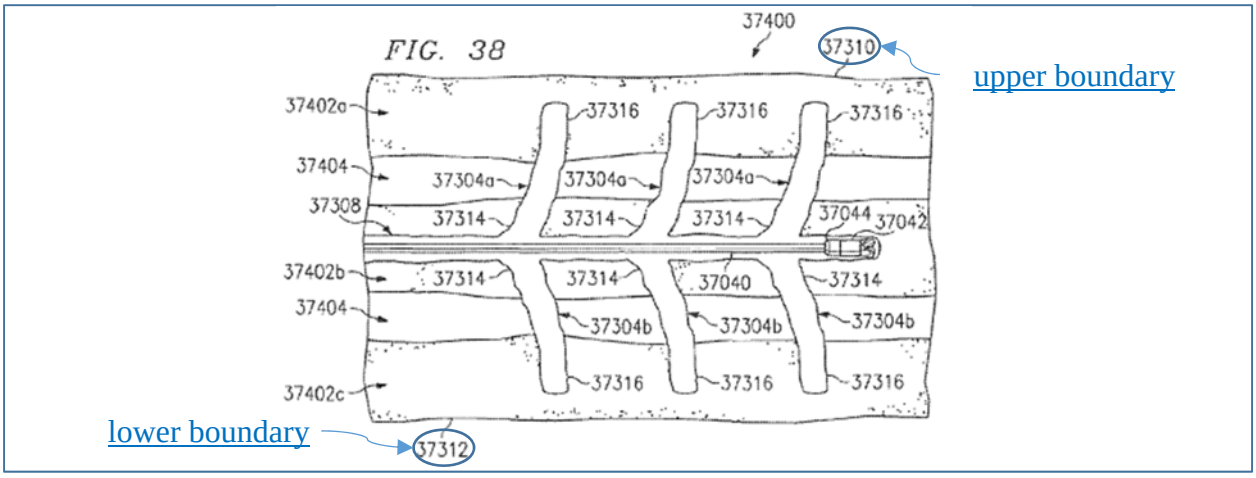
*Id*. at 21:13–27.

"Zone" as used in the '840 Patent is not limited to a unitary layer of a particular rock type. Indeed, the patent provides examples of multi-layer, multi-rock zones. For example, with reference to Figure 38 (reproduced and annotated below), the patent describes:

> FIG. 38 is a cross-sectional diagram illustrating an example multi-plane drainage pattern 37400 for accessing deposits in multiple layers 37402 of subterranean deposits. Multi-plane drainage pattern 37400 may provide access to multiple layers 37402 of *subterranean deposits that may be separated by impermeable or substantially impermeable material 37404 such as sandstone, shale, or limestone*. In this embodiment, substantially horizontal portion 37308, upwardly ramping well bore 37304a, and downwardly ramping well bore 37304b may be formed as previously described in connection with FIG. 37.
>
> Elongated portion 37316 of upwardly ramping well bores 37304a and downwardly ramping well bores 37304b may be of sufficient length to allow multi-plane drainage pattern 37400 to intersect multiple coal seams or *multiple layers 37402 of any other subterranean zone*. For example, ramping well bores 37304 may extend in a substantially vertical plane to provide access to an upper layer 37402a and a lower

> layer 37402c. Although only three subterranean layers 37402a-c are shown in FIG. 37, multi-plane drainage pattern 37400 *may intersect any appropriate number of subterranean layers 37402 to effectively drain the subterranean zone*. For example, upwardly ramping well bores 37304a and downwardly ramping well bores 37304b may travel through a number of subterranean layers 37402 separated by multiple layers of impermeable or substantially impermeable material 37404.

*Id*. at 59:61–60:20 (emphasis added). In these examples, the "zone" is the aggregate of producing layers (37402) over a distinct depth interval, even with intervening layers. It has an upper layer (37402a) defining the upper boundary (37310) and a lower layer (37402c) defining the lower boundary (37312). *See id*. at 57:66–58:2, 59:61–60:20. A similar multi-layer zone is described with reference to Figure 43. *Id*. at 67:13–49, Figure 43 ("multi-level drainage pattern 42600 may provide uniform access to . . . *multiple layers 42602 of a coal seam or any other subterranean zone*") (emphasis added).




In prosecution of the application for the '840 Patent, the applicant distinguished a reference that disclosed a bore that penetrated a "shale formation" on the grounds that the reference described going through the shale to reach the targeted, non-shale, formation—i.e., that the shale was not the "zone." (Dkt. No. 70-2 at 12-13). The applicant stated:

> While Siebold does mention "shale formations", it is only in the context of shale being an "impervious layer" that prevents the migration of oil between underlying

> layer 3 and overlying layer 2. That is, shale formation 4 (i.e. a non-oil producing layer) must be penetrated by a wellbore 7 in order to reach the oil in producing layers 2 and 3 (col. 2, ln. 13–34). Once again, even if Murray is added to Siebold and Bell, the combination of elements does not explicitly disclose a plurality of wellbores each having a substantially vertical portion *extracting a liquid from a subterranean zone of shale, as recited in the Applicant's base claims*.
>
> * * *
>
> As mentioned above, Bell and Murray do not disclose shale as a producing subterranean zone. However, Siebold actually teaches away from the extraction of oil from a shale formation, stating that oil cannot migrate across a shale formation, and that oil can only be extracted from the layers either above or below a shale formation. Thus, a practitioner using the cited references as a guide could only conclude that it is not practical to form wellbores to *extract fluids, such as oil or gas, from a subterranean zone of shale, as recited in the claimed invention.*

*Id*. (emphasis added). The patentee clearly described the "shale zone" of the '840 Patent according to the ability of shale to produce fluids. This comports with the use of "zone" in the '840 Patent itself. Production from a shale zone requires production from the shale layers—i.e., the fluid extracted from the zone must comprise fluid extracted from the shale layers.

Turing to Defendants' proposal, the Court finds that it is unnecessary and would confuse the jury. The terms "producing interval" and "producing zone" appear nowhere in the specification of the '840 Patent. Instead, the specification makes clear that a zone is a geological layer or formation. The specification states that "[a] subterranean zone may comprise a coal seam, shale layer, petroleum reservoir, aquifer, geological layer or formation, or other at least partially definable natural or artificial zone a least partially beneath the surface of the earth, or a combination of a plurality of such zones." '840 Patent at 76:45–50. In other words, the specification is clear that a "zone" may include multiple layers of subterranean deposits. *See, e.g.*, '840 Patent at 65:56–60 ("[M]ulti-plane drainage pattern 39500 may provide access to multiple layer 39402 of subterranean deposits separated by impermeable or substantially impermeable material such as sandstone,

shale, or limestone, as was described with regard to FIG. 38."); 62:16–20 ("A number of other variations and modifications may also be made to multi-plane well bore pattern 39500 as appropriate to allow for the removal and production of hydrocarbon and other mineral deposits from one or more layers of subterranean deposits."); 62:64–67 ("Alternatively, ramping well bores 40504 may provid[e] access to multiple layers 40402 of subterranean deposit that may be separated by impermeable or substantially impermeable material 40404 such as shale, limestone, or sandstone."); 53:13–18 ("Undulating well bore 33200 may provide uniform access to multiple layers 33202 of subterranean deposits that may be separated by impermeable or substantially impermeable material 33220 such as sandstone, shale, or limestone.").

The Court agrees that the intrinsic evidence requires the fluid extracted from the zone must comprise fluid extracted from the shale layer or layers. Indeed, claim 1 explicitly recites "wherein the subterranean zone is shale; and, wherein the first, second, third, and fourth wellbores each produce a fluid extracted from the subterranean zone through the substantially horizontal drainage bores." But this does not mean that the "subterranean zone of shale" should be construed as the "producing interval." Instead, the "subterranean zone of shale" is the "depth interval" that includes one or more layers of rock composed primarily of shale and that in the aggregate is composed primarily of shale. There is no additional requirement that a 2,000-foot thick zone of shale should be limited to only one 50-foot thick interval from which oil and/or gas can be produced, as Defendants contend. (Dkt. No. 70 at 13). This is an unwarranted redrafting of the claim to impose a limitation that is not supported or required by the intrinsic evidence. In other words, claim 1 requires the "subterranean zone" to produce fluid, but is not limited to a specific sublayer within the "subterranean zone."

Defendants also argue that the patentee was able to obtain the '840 Patent by limiting the

claims to wellbores that are substantially vertical when they enter the producing interval, and not merely any depth interval beneath the earth's surface. The Court finds that this is recited in the claim. Specifically, claim 1 recites "a first wellbore extending from the surface comprising a first substantially vertical portion *extending into a subterranean zone* . . . a second wellbore extending from the surface compromising a second substantially vertical portion *extending into the subterranean zone* . . . a third wellbore extending from the surface comprising a third substantially vertical portion *extending into the subterranean zone* . . . a fourth wellbore extending from the surface comprising a fourth substantially vertical portion *extending into the subterranean zone* . . . ." '840 Patent at Claim 1.

Thus, the claim language requires wellbores that are substantially vertical when they enter or extend into the recited "subterranean zone." Again, the "subterranean zone" is not any depth interval beneath the earth's surface, but instead is the "depth interval" that includes one or more layers of rock composed primarily of shale and that in the aggregate is composed primarily of shale. Finally, in reaching its conclusion, the Court has considered the extrinsic evidence submitted by the parties, and given it its proper weight in light of the intrinsic evidence.

**3. Court's Construction**

The Court construes the term **"subterranean zone of shale"** and the term **"wherein the subterranean zone is shale"** to mean **"the depth interval includes one or more layers of rock composed primarily of shale and is in the aggregate composed primarily of shale."**

### B. "a [first/second/third/fourth] wellbore extending from the surface . . . and a [first/second/third/fourth] substantially horizontal drainage bore

| Disputed Term | Plaintiff's Proposal | Defendants' Proposal |
|---|---|---|
| a [first/second/third/fourth] wellbore extending from the surface . . . and a [first/second/third/fourth] substantially horizontal drainage bore | No construction is necessary beyond the construction for the term "substantially horizontal" as previously provided by the Court. The remainder of the terms should be interpreted according to their plain and ordinary meaning. | a wellbore extending from the surface…and a separate substantially horizontal drainage bore |

#### 1. The Parties' Positions

The parties dispute whether the recited "wellbore" includes both a "substantially vertical portion" and a "substantially horizontal drainage bore," as Plaintiff contends, or whether the "substantially horizontal drainage bore" is "separate" from the recited "wellbore," as Defendants contend. Plaintiff argues that the language of claim 1 does not require the coupling together of portions of a wellbore. (Dkt. No. 67 at 15). Plaintiff contends that the claim language indicates that the wellbore comprises both a substantially vertical portion and a substantially horizontal drainage bore. *Id.* According to Plaintiff, there is no requirement that the portions be coupled, distinct, or otherwise separated. *Id.* Plaintiff argues that Defendants' construction uses the exact language of the claim itself, but adds the word "separate" to the claim. (*Id.* at 16).

Plaintiff further argues that Defendants' construction is contradicted by the teachings of the '840 Patent. According to Plaintiff, the specification describes transitional connections between two portions of a single continuous bore in at least the case of the undulating wellbore. (Dkt. No. 67 at 16–17) (citing '840 Patent at 51:36–39). Plaintiff further argues that the '840 Patent further

describes a continuous wellbore extending from the surface having vertical and horizontal components. (Dkt. No. 67 at 17) (citing '840 Patent at 13:40–50). Plaintiff contends that Defendants' construction is contrary to the teachings of the specification and should be rejected. (Dkt. No. 67 at 17).

Defendants respond that "a bore is a bore, while a portion is a portion." (Dkt. No. 70 at 17). Defendants argue that the claim describes a "wellbore" comprising a "substantially vertical portion" and a "substantially horizontal drainage bore." *Id.* Defendants note that it does not say a "wellbore" comprising a "substantially vertical portion" and a "substantially horizontal drainage portion." (*Id.* at 18). According to Defendants, a wellbore is a single bore and cannot be comprised of both a vertical portion and a horizontal drainage bore. *Id.* Defendants contend that the patentee understood the difference between "bore" and "portion" elsewhere in the patent. *Id.* (citing '840 Patent at 45:1–55, 53:45–54:44, 63:40–65:15, 104:10–23). Defendants also contend that a person of ordinary skill in the art would understand that a "wellbore" or "bore" is a distinct bore or hole that is drilled into the earth. (Dkt. No. 70 at 18) (citing Dkt. No. 70-7 at 8). Defendants argue that the term "drainage bore" does not refer to a "portion" of a wellbore because there is only one "bore" when a "wellbore" is drilled into the earth. *Id.*

Regarding Plaintiff's arguments, Defendants contend that Plaintiff glosses over the fact that the claim language does not refer to a horizontal "portion." (Dkt. No. 70 at 19). Defendants argue that the punctuation and claim language do not require "comprising" to apply to both the substantially vertical "portion" and to a horizontal "bore." *Id.* Defendants contend that the wellbore could have any other number of features, as long as it has a substantially vertical portion, but the "wellbore" does not "comprise" a substantially vertical "portion" and a substantially horizontal "portion." *Id.* Defendants further argue that the specification contains numerous examples identifying

distinct portions of a single wellbore. *Id.* ('840 Patent at 104:10–23). Defendants contend that Plaintiff did not describe a wellbore with a vertical "portion" and a horizontal "portion," but instead claimed a wellbore comprising a substantially vertical "portion" and a separate substantially horizontal drainage "bore." (Dkt. No. 70 at 19).

Defendants further argue that all of Plaintiff's examples from the specification confirm that a "drainage bore" is different from a "portion" of a wellbore. *Id.* (citing '840 Patent at 51:36–39, 13:41–43). Defendants contend that if the patentee wanted to claim a continuous wellbore comprising a substantially vertical "portion" and a substantially horizontal "portion," the patentee could have done so. (Dkt. No. 70 at 20). Defendants argue that the "drainage bore" is separate and distinct from the "wellbore" that has a substantially vertical portion. *Id.* Defendants further contend that their construction does not exclude a preferred embodiment because the embodiment depicted in Figure 1 does not read on the claims of the '840 Patent. *Id.* Defendants also argue that the claims asserted in this case all involve a system of four or more wells drilled into shale. *Id.* at 21.

Plaintiff replies that the claim recites "comprising," which explicitly requires that the "third wellbore" includes both "a third substantially vertical portion" and "a third substantially horizontal drainage bore." (Dkt. No. 72 at 5–6). Plaintiff argues the claim language itself recognizes that the horizontal drainage bore is "extending from the [] substantially vertical portion." *Id.* at 6. Plaintiff contends that Defendants' expert does not address this language from the claim. *Id.* Plaintiff also contends that the embodiment of Figure 19 indisputably discloses four wells, and the description of Figure 19 indicates that the wellbores depicted may be configured according to Figures 10–12. *Id.* ('840 Patent at 38:33–37). Plaintiff also argues that the '840 Patent explicitly recognizes that a well bore may be part of another wellbore, stating, "undulating well bore 33200 may form some or all of a main drainage well bore and/or a one or more lateral well bores." (Dkt. No. 72 at 7)

(citing ’840 Patent at 53:34–36). Plaintiff further contends that Figure 87 depicts a dual well system but recites three well bores, which is contrary to Defendants’ argument that a wellbore cannot form part of another wellbore. (Dkt. No. 72 at 7) (citing ’840 Patent at 103:65–104:37). Finally, Plaintiff argues that Defendants’ construction merely repeats all of the language from the claim itself, but adds the word “separate” to the claim. (Dkt. No. 72 at 7).

For the following reasons, the Court finds that the phrase **“a [first/second/third/fourth] wellbore extending from the surface . . . and a [first/second/third/fourth] substantially horizontal drainage bore”** should be given its **plain and ordinary meaning**.

**2. Analysis**

The phrase “a [first/second/third/fourth] wellbore extending from the surface . . . and a [first/second/third/fourth] substantially horizontal drainage bore” appears in asserted claim 1 of the ’840 Patent. Defendants correctly note that the claim recites a “wellbore” comprising a “substantially vertical *portion*” and a “substantially horizontal drainage *bore*.” ’840 Patent at Claim 1 (emphasis added). In other words, claim 1 does not recite a “wellbore” comprising a “substantially vertical *portion*” and a “substantially horizontal drainage *portion*.” However, the plain language of the claim recites “a [first/second/third/fourth] wellbore extending from the surface *comprising* a [first/second/third/fourth] substantially vertical portion extending into the subterranean zone and a [first/second/third/fourth] substantially horizontal drainage bore *extending from the [first/second/third/fourth] substantially vertical portion* and proximate to the subterranean zone.” The term “comprising” indicates that the “[first/second/third/fourth] wellbore” includes both “a [first/second/third/fourth] substantially vertical portion” and “a [first/second/third/fourth] substantially horizontal drainage bore.” *See, e.g.*, *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997) (holding that ‘comprising’ is “a term of art . . . which means that the named elements are

essential, but other elements may be added and still form a construct").

Furthermore, the claim language recites that the horizontal drainage extends "from the [first/second/third/fourth] substantially vertical portion." This indicates that the wellbore comprises both a substantially vertical portion and a substantially horizontal drainage bore. In other words, there is no requirement that the bores be "separate," as Defendants contend. Indeed, Defendants' construction simply uses the exact language of the claim, but adds the word "separate" to it. Defendants do not identify a lexicographical redefinition. Defendants also do not identify any clear disclaimers in the prosecution history that would justify adding an additional limitation to the claim. In sum, Defendants have failed to provide a persuasive reason to redraft the claims as they contend. *K-2 Corp. v. Salomon S.A.*, 191 F.3d 1356, 1364 (Fed. Cir. 1999) ("Courts do not rewrite claims; instead, we give effect to the terms chosen by the patentee."); *Quantum Corp. v. Rodime, PLC*, 65 F.3d 1577, 1584 (Fed. Cir. 1995) ("[I]t is well settled that no matter how great the temptations of fairness or policy making, courts do not redraft claims."). Finally, in reaching its conclusion, the Court has considered the extrinsic evidence submitted by the parties, and given it its proper weight in light of the intrinsic evidence.

**3. Court's Construction**

The phrase **"a [first/second/third/fourth] wellbore extending from the surface . . . and a [first/second/third/fourth] substantially horizontal drainage bore"** will be given its **plain and ordinary meaning**.

### C. "proximate to the subterranean zone"

| Disputed Term | Plaintiff's Proposal | Defendants' Proposal |
|---|---|---|
| proximate to the subterranean zone | No construction is necessary beyond the terms listed above. Any additional terms should be interpreted according to their plain and ordinary meaning. | in or near the subterranean zone |

#### 1. The Parties' Positions

The parties dispute whether the phrase "proximate to the subterranean zone" requires construction. Plaintiff contends that the word proximate is familiar and well-understood to a jury, and there is no benefit in replacing understood claim language with redundant language. (Dkt. No. 67 at 18). Plaintiff argues that there is no disclaimer or disavowal in the patent or the prosecution history relating to the term "proximate" that requires assigning the term any meaning other than plain meaning. *Id.* at 19.

Defendants respond that Plaintiff agreed to the construction "in or near the subterranean zone" in the *Classic* case, and the Court adopted that agreed construction. (Dkt. No. 70 at 21). Defendants argue that nearly all of the figures disclosed in the '840 Patent show that the substantially horizontal drainage bore is located "in" the subterranean zone. *Id.* at 22. Defendants contend that construing the term "proximate to the subterranean zone" in the context of the '840 Patent is consistent with the specification. *Id.* Defendants further argue that Plaintiff provides no reason why the Court should not adopt the construction of "proximate to the subterranean zone" that Plaintiff has previously agreed to multiple times and has been adopted by multiple courts. *Id.* Defendants also argue that several other courts have construed the term "proximate" in other patents to assist the jury. *Id.* Defendants argue that the specification shows that "proximate" means "in or

near" in the context of the '840 Patent. *Id.* at 23.

Plaintiff replies that Defendants provide no specific evidence from the patent showing that the term "proximate" has anything other than its plain and ordinary meaning. (Dkt. No. 72 at 7). Plaintiff contends that the '840 Patent itself uses the term proximate in the specification. *Id.* (citing '840 at 13:11–12). Plaintiff further contends that the words "in or near" appear nowhere in the specification.

For the following reasons, the Court finds the phrase "**proximate to the subterranean zone"** should be construed to mean **"in or near the subterranean zone."**

**2. Analysis**

The phrase "proximate to the subterranean zone" appears in asserted claim 1 of the '840 Patent. The Court finds the phrase should be given the same construction as in the *Classic* case. Defendants argue, and the Court agrees, that nearly all of the figures in the specification show the substantially horizontal drainage bore located "in" the subterranean zone. This is consistent with a court's findings in a prior case involving construction of "proximate to the subterranean zone" in a related patent. In *CNX Gas Corp. v. CDX Gas, LLC*, 2006 U.S. Dist. LEXIS 101954, *32–33 (W.D. Pa. Aug. 30, 2006), the Special Master stated the following:

> The preferred embodiments in the patents-in-suit uniformly depict the location of the junction as being in, and not just near, the subterranean zone (i.e., the coal seam"). See, for example, Fig. 1 of the '523 Patent depicted above. Accordingly, to interpret the term "proximate" in the manner suggested by the Consol Entities would result in the preferred embodiments themselves falling outside the scope of the patents-in-suit, a perverse result that is clearly inconsistent with the applicable law.

*Id.* at *32–33. In the *CNX* case, the defendants argued that "proximate" should be construed to mean "near," and the plaintiff argued that it should be construed to mean "in or near." The Special

Master agreed that "near" is the most common and ordinary meaning of the term, but for the reasons stated above construed the term to mean "in or near." Consistently with this Court's previous construction, the Court construes the term to mean "in or near." The Court finds that Plaintiff has not articulated a persuasive reason why the phrase should be construed differently in this case.

#### 3. Court's Construction

The Court construes the phrase "**proximate to the subterranean zone"** to mean **"in or near the subterranean zone."**

### D. "extend in the subterranean zone in different directions from each other"

| Disputed Term | Plaintiff's Proposal | Defendants' Proposal |
|---|---|---|
| extend in the subterranean zone in different directions from each other | extend in the subterranean zone directed to different drainage regions within the subterranean zone | Indefinite |

#### 1. The Parties' Positions

The parties dispute whether the phrase "extend in the subterranean zone in different directions from each other" is indefinite. Plaintiff contends that this claim term should be given the same construction that the Court gave it in the *Classic* case. (Dkt. No. 67 at 20). Plaintiff argues that Defendants are raising the same argument made and rejected in the *Classic* case that "different directions" is a term of degree, and that a person skilled in the art would not be able to tell whether two wellbores extended in different directions. *Id.* Plaintiff contends that this argument is undermined by the teachings and examples given in the '840 Patent itself. *Id.* at 21.

Plaintiff further contends that the '840 Patent provides examples of embodiments of a well configuration that indisputably meets this claim limitation. *Id.* at 20–21 (citing '840 Patent at

38:44–47, Figure 19). Plaintiff further argues that the '840 Patent also recognizes that drilling inherently involves technical limitations based on equipment, and the nature of drilling subterranean formations results in deviations from intended directions. (Dkt. No. 67 at 21) (citing '840 Patent at 53:2–10). According to Plaintiff, the '840 Patent recognizes that a person skilled in the art will account for such inaccuracies in making a determination as to whether bores are drilled in different directions. (Dkt. No. 67 at 21) (citing '840 Patent at 52:67–53:17).

Plaintiff further argues that the claims and teachings of the '840 Patent explain the purpose of wellbores extending in different directions. (Dkt. No. 67 at 22). Plaintiff contends that well bores extending in different directions means that the well bores extend in directions that are different enough to achieve the desired drainage of the target subterranean zone. *Id.* (citing '840 Patent at 38:55–59). Plaintiff further argues that the teachings of the '840 Patent provide guidance to a skilled artisan through both specific examples of wellbores extending in different directions and for the purpose of extending wellbores in different directions. (Dkt. No. 67 at 23).

Defendants respond that the plain-and-ordinary meaning of "different directions" is that only bores in exactly the same direction are not in different directions. (Dkt. No. 70 at 23). Defendants argue that there is no clarification in the intrinsic record on the meaning of "different directions." *Id.* Defendants further contend that the specification states that it is technically impossible to determine the exact direction of a bore. *Id.* (citing '840 Patent at 52:67–53:8). Defendants also argue that the scope of the claim cannot be determined, because there is no clarification as to how different the directions must be, other than the obvious case of exactly parallel bores. (Dkt. No. 70 at 24).

Defendants further contend that a skilled artisan would not be able to determine the scope

of "different directions," because the specification fails to describe the direction-measurement process. *Id.* According to Defendants, the specification merely includes vague references to determining direction without further elaboration. *Id.* (citing '840 Patent at 47:54–58, 80:48–57, 87:61–88:2, 88:30–43, 89:1–5, 90:1–5). Defendants argue that a skilled artisan knows that such a measurement can be performed in several different ways leading to varying measurements. (Dkt. No. 70 at 24) (citing Dkt. No. 70-7 at 7). Defendants contend that even accounting for the normal inaccuracies of drilling acknowledged by the patent, a skilled artisan would need further information to know whether two bores are in different directions within the meaning of the claims. (Dkt. No. 70 at 25).

Defendants also argue that the rationale of the *Classic* case does not save this term from indefiniteness. *Id.* Defendants contend that the plain language of this limitation regards directionality (i.e., the direction a one-dimensional vector points in space), but the *Classic* Court's construction rewrites the claim so that the term regards an area (i.e., a two-dimensional region in space). *Id.* at 26. Defendants argue that the *Classic* Court's explanation fails to justify why a claim term regarding a direction should be rewritten as regarding an area. *Id.* Defendants further argue that the *Classic* Court's rationale also fails because two different areas can be drained by two different bores extending in the same direction. *Id.*

According to Defendants, the rationale of Plaintiff and the *Classic* Court fails to consider that the distance between drainage bore patterns also factors into determining whether two different patterns drain the same or different drainage areas/regions, even if the bores extend in the exact same (not different) direction. *Id.* Defendants argue the specification's reference to drainage regions/areas separately from the direction of a bore indicates that the patentee understood how to refer to an area as opposed to a direction when he intended to do so. *Id.* (citing '840 Patent at 4:52–

59, 14:21–27, 22:34–45, 5:50–53, 14:17–20, 14:66–67).

Defendants further contend that Plaintiff incorrectly argues that its construction is correct because of examples provided in the ’840 Patent. (Dkt. No. 70 at 27). According to Defendants, the issue is delineating the scope and bounds of the claim so that it is possible to determine in all instances whether a given embodiment infringes or not. *Id.* at 28. Defendants argue that the lack of clarity over what does and does not constitute infringement renders this term indefinite. *Id.*

Plaintiff replies that Defendants fail to present any credible evidence purporting to show that the claim term is indefinite. (Dkt. No. 72 at 8). Plaintiff argues that Defendants concede that “bores in exactly the same direction are not in different directions.” *Id.* (citing Dkt. No. 70 at 23). Plaintiff further argues that Defendants also agree that “exactly parallel” would not be in different directions. (Dkt. No. 72 at 9) (citing Dkt. No. 70 at 24). According to Plaintiff, Defendants concede that they are able to determine infringement in certain situations. (Dkt. No. 72 at 8). Plaintiff further argues that Defendants fail to show that a person skilled in the art would lack the requisite expertise to understand drainage, drainage patterns, or how a person skilled in the art interprets the term “different directions” within the context of drilling generally or of drainage bores specifically. *Id.* at 9.

Plaintiff also contends that Defendants’ expert cites no documents or evidence supporting his conclusory assertions. *Id.* Plaintiff argues that the expert’s declaration fails to address the substantial evidence of definiteness cited in the Court’s prior claim construction order. *Id.* Plaintiff also argues that wellbores can be in the same direction when they target the same drainage region in the same way that two roads between the same two cities would typically have the same direction. *Id.* Plaintiff contends that the test for indefiniteness is not whether a person skilled in the art would understand the limitation to be broad, but instead whether the patent informs “those skilled

in the art about the scope of the invention with reasonable certainty." *Id.* (citing *Nautilus*, 134 S. Ct. at 2130). Plaintiff argues that the scope of the claims is readily ascertainable to one skilled in the art. (Dkt. No. 72 at 10) (citing Dkt. No. 72-1 at ¶¶ 16–19).

For the following reasons, the Court finds that the phrase **"extend in the subterranean zone in different directions from each other"** should be construed to mean **"extend in the subterranean zone directed to different drainage regions within the subterranean zone."**

**2. Analysis**

The phrase "extend in the subterranean zone in different directions from each other" appears in asserted claim 1 of the '840 Patent. The dispute is whether the term "different directions" apprises one of ordinary skill in the art of the scope of the claims with reasonable certainty. The Court finds that Defendants have failed to establish with clear and convincing evidence that the term renders any claim indefinite as the intrinsic evidence provides sufficient guidance as to what constitutes a "different direction." The specification states that the technical limitations of bore drilling inevitably result in a drilled bore that deviates from the intended direction. '840 Patent at 53:2–10. Thus, the specification indicates that it is very unlikely that any two wells would be in exactly the same direction and therefore that, coincidence aside, every bore is directed in a different direction from every other bore if measured with an expectation of absolute precision and accuracy. However, the specification indicates that the industry's expectation is not absolute precision and accuracy:

> One of ordinary skill in the art may appreciate that a smooth and wavelike form may include *normal inaccuracies of drilling*. Because operation of a drill string 3340 through a layer 33202 of subterranean deposits may not be visually monitored, inaccuracies may result in the positioning of the drill bit 3344. As a result, drill string 3340 may vary slightly from the operator's intended path.

’840 Patent at 52:67–53:10 (emphasis added). Thus, one of ordinary skill in the art would understand two wells to be in the same direction if they are in the same direction within the normal inaccuracies of drilling. Furthermore, determining direction inherently requires measurement of some type, so one of ordinary skill in the art would take into account the precision of the measurement. *See, e.g.*, *id*. at 29:35–40 (describing using a “measurement while drilling (MWD) device” to control “orientation and direction” of the drilled bore). Without more, one of ordinary skill in the art would understand bores to extend in “different directions” if they extend in different directions within the technical limitations of drilling; i.e., different within a margin of error and precision that one of ordinary skill in the art of directional well drilling would know.

It is important to consider that the claimed bores that extend in different directions are “drainage bores,” and that the ’840 Patent provides guidance as to what constitutes “different directions” for drainage bores. The definiteness of a claim is determined in light of the entire specification, not in a vacuum. *Nautilus Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2128 (2014) (“[I]n assessing definiteness, claims are to be read in light of the patent’s specification and prosecution history”); *see also, Ultimax Cement Mfg. Corp. v. CTS Cement Mfg. Corp.*, 587 F.3d 1339, 1353 (Fed. Cir. 2009) (“Claim definiteness is analyzed not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art.” (quotation marks omitted)); *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015) (“When a word of degree is used, the court must determine whether the patent provides some standard for measuring that degree.” (quotation marks omitted)). And the intrinsic record indicates that the drainage bores are directed differently to drain different areas of the zone—they are directed to different drainage regions.

The ’840 Patent provides a standard for “different directions” of drainage bores that goes beyond just the technical uncertainty of directional drilling of bores—the direction of a drainage bore is based on the drainage characteristics of the zone. Claim 1, the claim that includes the “different directions” limitation, recites: “a first substantially horizontal *drainage* bore,” “a second substantially horizontal *drainage* bore,” and “wherein the first and second substantially horizontal *drainage* bores extend in the subterranean zone in different directions from each other.” ’840 Patent at 119:54–64 (emphasis added). The claim similarly recites third and fourth drainage bores that extend in different directions from each other. *Id*. at 119:67–120:10. From the plain language of the claims in the context of the entire specification, one of ordinary skill in the art would understand the purpose of the differently directed bores—the drainage bores—is drainage of the subterranean zone.

“Drainage bores” are described in the ’840 Patent as directed “to provide substantially uniform coverage of a desired area within the [zone].” ’840 Patent at 14:48–53. The patent explains that the spacing and orientation of the drainage bores depend on “the characteristics of a particular subterranean resource.” *See, e.g.*, *id.* at 45:28–40. In one example, the patent provides exemplary drainage bore patterns for a zone comprising a “tight coal seam having a medium to low permeability.” *Id.* at 12:42–47, 14:44–15:17. The exemplary drainage bores for such a zone have “disparate orientations” so as to intersect a desired percentage of fractures in zone. *Id*. at 14:44–15:17. “The percentage of the bores having disparate orientations is significant when twenty-five to seventy-five percent of the bores have an orientation at least twenty degrees offset from other bores of the pattern.” *Id*. at 15:5–9. More generally, the patent explains the drainage pattern is a function of the drainage characteristics of the zone:

> The number and spacing of the lateral bores may be adjusted depending on the

> absolute, relative and/or effective permeability of the [zone] and the size of the area covered by the pattern. The area covered by the pattern may be the area drained by the pattern, the area of a spacing unit that the pattern is designed to drain, the area within the distal points or periphery of the pattern and/or the area within the periphery of the pattern as well as the surrounding area out to a periphery intermediate to adjacent or neighboring patterns.

*Id.* at 46:19–28; *see also*, *id*. at 3:67–4:3 (noting the problem of plugging the "pores, cracks, and fractures that are needed to produce the gas"). The patent further explains:

> Permeability is the capacity of a matrix to transmit a fluid and is the measure of the relative ease of fluid flow under an equal pressure drop. Effective permeability is a permeability of the coal or other formation matrix to gas or water and may be determined by well testing and/or long-term trends. For example, effective permeability may be determined by insitu slug tests, injection or draw down tests or other suitable direct or indirect well testing methods. Effective permeability may also be determined based on suitable data and modeling. The effective permeability is the matrix or formation permeability and may change during the life of a well. As used herein, the effective permeability of a formation and/or area of a formation is the median or mean effective permeability at substantially continuous flow conditions or simulated substantially continuous flow conditions of a formation or area over the life of the well, or over the period during which a majority of gas in the area is produced. The coal structure 75550 may also have a medium absolute permeability between three and millidarcies or a low absolute permeability below three millidarcies. Absolute permeability is the ability of the matrix to conduct a fluid, such as a gas or liquid at one hundred percent saturation of that fluid. The relative permeability of the formation is the relationship between the permeability to gas versus the permeability to water.

*Id*. at 96:26–50; *see also*, *id*. at 96:60–97:5 (describing fractures as increasing permeability). Thus, the relative directions of the "drainage bores" depend on the targeted drainage area and drainage characteristics (e.g., permeability) of the zone.

Extrinsic evidence submitted in support of argument on this point, the declaration of Plaintiff's expert Dr. Enick, comports with the intrinsic evidence as set forth above. He understood that the '840 Patent described "'drainage patterns' that can be employed to provide 'generally uniform

access to a relatively large subterranean zone'" and therefore drainage bores extend in "different directions" if they drain different areas. (Dkt. No. 72-1 at ¶ 18) (citing '840 Patent at 38:38–59, Figure 19).

Given that the intrinsic evidence suggests that "drainage bores" "extend in different directions" in a zone to effect drainage of different regions within the drainage area, and the declaration of Dr. Enick supports this understanding, Defendants have failed to establish by clear and convincing evidence that claim 1 is invalid as indefinite because of the "different directions" term. Finally, in reaching its conclusion, the Court has considered the extrinsic evidence submitted by the parties, and given it its proper weight in light of the intrinsic evidence.

#### 3. Court's Construction

The Court construes the phrase **"extend in the subterranean zone in different directions from each other"** to mean **"extend in the subterranean zone directed to different drainage regions within the subterranean zone."**

### E. "extend in substantially opposite directions"

| Disputed Term | Plaintiff's Proposal | Defendants' Proposal |
|---|---|---|
| extend in substantially opposite directions | No construction is necessary. Rather, this term should be interpreted according to its plain and ordinary meaning. | Indefinite |

#### 1. The Parties' Positions

The parties dispute whether the phrase "extend in substantially opposite directions" is indefinite. Plaintiff contends that Figure 19 from the '840 Patent illustrates how one skilled in the art could reasonably ascertain the scope of this term. (Dkt. No. 67 at 24). Plaintiff argues that

"substantially opposite directions" is a subset and more specific iteration of "different directions." *Id.* Plaintiff contends that to achieve the functional goal of the invention, a 180° difference may not be necessary, thus requiring the use of the word "substantially" as a modifier to "opposite." *Id.* Plaintiff further argues that Figure 78 of the '840 Patent depicts a two-well system in which the two wellbores (labeled 75506) extend in opposite directions. (*Id.* at 25). Plaintiff contends that the patent explains the purpose of pairs of wellbores extending in opposite directions is to provide coverage in opposite directions, and that variations may be needed in order to accommodate characteristics of a particular field. *Id.* (citing '840 Patent at 94:13–19, 95:64–96:8, Figure 79). According to Plaintiff, the claim term is reasonably ascertainable insofar as bores provide coverage of subterranean regions located on opposite sides of the drilling pad surface site. (Dkt. No. 67 at 26).

Defendants respond that neither the specification nor other intrinsic evidence provide any clarification as to the scope of this term. (Dkt. No. 70 at 28–29) (citing '840 Patent at 94:13–19). Defendants argue that in addition to the lack of clarity surrounding the term "different directions," the patent further compounds the confusion by substituting one term of degree ("substantially") with another ("approximately"). (Dkt. No. 70 at 29). Defendants further argue that the extrinsic evidence illustrates that "substantially opposite" is indefinite. *Id.* According to Defendants, the lack of clarity with respect to "different directions" is compounded by the use of another term of degree, "substantially," which the claims and specification fail to clarify in the context of measuring or determining the direction of a bore. *Id.* (citing Dkt. No. 70-7 at 7–8). Defendants argue that a skilled artisan would not know whether bores are configured in "substantially opposite" directions. (Dkt. No. 70 at 29).

Regarding Plaintiff's arguments, Defendants contend that just because one embodiment

may be understood to fall within the scope of the claims does not mean that the metes and bounds of the claims are sufficiently clear and valid. *Id.* Defendants argue that "substantially opposite" is associated with a direction, not an area or region, and therefore the acre-wise coverage of a particular pattern has nothing to do with whether it is in the same, different, or opposite direction as another pattern. *Id.* at 30.

Plaintiff replies that the '840 Patent provides specific information and guidance as to the meaning of the term. (Dkt. No. 72 at 10) (citing '840 Patent at 45:43–46, 89:9–14, 94:13–19). Plaintiff contends that Defendants have failed to meet their heightened burden of showing indefiniteness by clear and convincing evidence. (Dkt. No. 72 at 11).

For the following reasons, the Court finds that the phrase **"extend in substantially opposite directions"** is indefinite because it fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention.

**2. Analysis**

The phrase "extend in substantially opposite directions" appears in dependent claims 6 and 7 of the '840 Patent. The Court finds that the phrase is indefinite, because it fails to "inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus*, 134 S. Ct. at 2129. Patent claims must particularly point out and distinctly claim the subject matter regarded as the invention. 35 U.S.C. § 112(b). The Supreme Court has described this statutory provision as requiring a "delicate balance" between the "inherent limitations of language" and the need of patents to "afford clear notice of what is claimed, thereby apprising the public of what is still open to them" so as to avoid "a zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims." *Nautilus*, 134 S. Ct. at 2128–29. "[A]bsent a meaningful definiteness check . . . patent applicants face powerful incentives to inject

ambiguity into their claims." *Id.* at 2129.

Claim 6 depends from claim 1, which recites the "different directions" term discussed above. Dependent claim 6 further specifies that the first and second substantially horizontal drainage bores extend in "substantially opposite directions." According to Plaintiff, the claim term is reasonably ascertainable insofar as bores provide coverage of subterranean regions located on opposite sides of the drilling pad surface site. However, the recited "substantially opposite" is associated with a direction, not an area or region. As discussed above, the claimed bores that extend in different directions are "drainage bores." The intrinsic record indicates that the drainage bores are directed differently to drain different areas of the zone (i.e., they are directed to different drainage regions). Thus, the relative directions of the "drainage bores" depends on the targeted drainage area and drainage characteristics (e.g., permeability) of the zone.

Claim 6, however, requires the drainage bores to "extend in substantially opposite directions." In other words, the claim requires a compass direction as defined by "substantially opposite." Indeed, Plaintiff argued during the claim construction hearing that the figures illustrate one bore extending "northeast," and another bore extending "southwest." Unlike claim 1, which relates to drainage areas or regions, a person of ordinary skill in the art would not know how or where to measure bores to determine if they are in "substantially opposite directions," because different types of measurements or measurement locations lead to different results. *See, e.g.*, Dkt. No. 70-7 at 7–8 ("[I]t is possible that different wells might be in different or opposite directions if the measurement is taken at one location (e.g., the end of the horizontal wellbores), but in the same direction if the measurement is taken at another location (e.g., the beginning of the wellbores).").

Finally, the prosecution history provides no assistance for this phrase, and neither party cites to any portion of the prosecution record to support their positions. In reaching its conclusion,

the Court has considered the extrinsic evidence submitted by the parties, and given it its proper weight in light of the intrinsic evidence. Accordingly, the Court finds that the phrase "extend in substantially opposite directions" is indefinite.

#### 3. Court's Construction

The phrase **"extend in substantially opposite directions"** is indefinite for failing to inform, with reasonable certainty, those skilled in the art about the scope of the invention.

### F. "cavity"

| Disputed Term | Plaintiff's Proposal | Defendants' Proposal |
|---|---|---|
| cavity | a hollowed out space | enlarged area of one or more well bores |

#### 1. The Parties' Positions

The parties dispute whether "cavity" should be construed to mean "a hollowed out space," as Plaintiff proposes, or an "enlarged area," as Defendants propose. Plaintiff argues that its construction is the same as previously adopted by a court evaluating a patent related to the '840 Patent. (Dkt. No. 67 at 29). Plaintiff contends that the court in the *PLHC* case found that the plain and ordinary meaning of the term "cavity" was "a hollowed out space." *Id.* According to Plaintiff, the Court should apply the plain and ordinary meaning of "a hollowed out space" to the term "cavity" for the same reasons. *Id.* Plaintiff argues that two courts have considered and rejected the same argument that Defendants present in this case. *Id.* at 30.

Plaintiff further argues that in the context of related patents, the patentee used the terms "cavity" and "enlarged cavity" in different claims. *Id.* at 30–31 (citing U.S. Patent No. 6,976,533 at Claims 6, 7, 8 10, 13, 33). Plaintiff contends that because the patentee separately uses the terms

"cavity" and "enlarged cavity" in the related patent demonstrates that the two terms were not meant to be interchangeable. (Dkt. No. 67 at 31). Plaintiff further argues that claim 5 of the '840 Patent explicitly requires "at least one cavity formed by fracing." *Id.* Plaintiff contends that the process of performing hydraulic fracturing on a well involves injecting "fracking fluid" into a wellbore in order to create cracks in the formation. *Id.* According to Plaintiff, the creation of these cracks within the formation inherently creates an "enlarged area" of the wellbore in which fracing is performed. *Id.* Plaintiff argues that Defendants' construction would not have any effect on the scope of infringement because the process of fracing will create an enlarged area within the wellbore where the fracing is performed. *Id.*

Defendants respond that their construction of the term "cavity" mirrors the definition of that term as set forth in the specification. (Dkt. No. 70 at 33) (citing '840 Patent at 13:23). Defendants also argue that any discussion of the ordinary meaning of "cavity" in the *PLHC* decision is irrelevant, because the express definition in the specification governs the claims. (Dkt. No. 70 at 34). Defendants contend that in the *Atlas* case, Plaintiff conceded that Defendants' construction of the term "cavity" as an "enlarged area of one or more wellbores" is inherent in claim 5. *Id.* (citing *Effective Exploration, LLC v. Atlas Barnett, LLC,* No. 2:15-cv-004400 ("*Atlas*"), Dkt. 60 at 21 (E.D. Tex. Jan. 21, 2016)).

Defendants further argue that Plaintiff's construction of a "hollowed out space" would be confusing because jurors might believe that the "cavity" is the same as, or a mere continuation of, the wellbore, which itself is a "hollowed out space." (Dkt. No. 70 at 35). Defendants contend that when an area of a well bore is enlarged into a cavity, the resulting structures are the well bore and a separate and distinct cavity, where the cavity has a different structure and purpose from that of the bore. *Id.*

Plaintiff replies that the ’840 Patent does not attempt to define the term “cavity” but instead merely describes “cavity 20” depicted in the Fig. 1 of the ’840 Patent. (Dkt. No. 72 at 11). Plaintiff argues that Defendants fail to distinguish the *PLHC* court’s opinion on the basis that the ’840 Patent uses the terms “cavity” and “enlarged cavity” interchangeably. *Id.* According to Plaintiff, the plain meaning of “cavity” as “a hollowed out space” should apply here. *Id.*

For the following reasons, the Court finds that the term **“cavity”** should be given its **plain and ordinary meaning**.

**2. Analysis**

The term “cavity” appears in claim 5 of the ’840 Patent. Defendants contend that the specification provides an explicit definition for the term “cavity.” Specifically, Defendants refer to the first line of the following portion of the specification as providing an explicit definition:

> *The cavity 20 is an enlarged area of one or both well bores and may have any suitable configuration.* In one embodiment, the cavity 20 has an enlarged radius of approximately eight feet and a vertical dimension that equals or exceeds the vertical dimension of the coal seam 15. In another embodiment, the cavity 20 may have an enlarged substantially rectangular cross section perpendicular to an articulated well bore for intersection by the articulated well bore and a narrow width through which the articulated well bore passes. In these embodiments, the enlarged cavity 20 may be formed using suitable under-reaming techniques and equipment such as a dual blade tool using centrifugal force, ratcheting or a piston for actuation, a pantograph and the like. The cavity may be otherwise formed by fracing and the like.

’840 Patent at 13:23–39 (emphasis added). The Court disagrees that the one line Defendants cite is intended to provide an explicit definition of “cavity.” The term “cavity” appears in the specification 497 times, and is only preceded by “enlarged” 214 times. Thus, the specification does not always refer to the cavity as an “enlarged area.” In fact, the term “enlarged area” appears only once in the specification. Moreover, claim 5 recites “cavity,” and not “enlarged cavity.” Furthermore, the portion of the specification cited above indicates that the cavity is not limited to being formed

by reaming techniques, but may be "formed by fracing and the like." *Id.* Thus, the specification does not explicitly define "cavity" as an "enlarged area." Indeed, the specification indicates that when the patentee intended to define a term, he did so explicitly and not by general reference to an exemplary embodiment. *See, e.g.*, *id.* at 13:35–37 ("As used herein, 'on the same drilling pad' means located at the same drilling location where drilling operations are being conducted.").

Turning to Plaintiff's construction, the Court finds that it is based on the analysis and construction adopted by the court in the *PLHC* case. The construction adopted in the *PLHC* case was based on the extrinsic evidence. Although extrinsic evidence can be useful, it is "'less significant than the intrinsic record in determining the legally operative meaning of claim language.'" *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc.*, 388 F.3d at 862). Moreover, the Court is not persuaded that defining "cavity" as "a hollowed out space" would be helpful to the jury, or that it is the appropriate means for resolving the parties' dispute. *See, e.g.*, *Lazare Kaplan Int'l, Inc. v. Photoscribe Techs., Inc.*, 628 F.3d 1359, 1376 (Fed. Cir. 2010) ("This court agrees with the Defendants that the parties' dispute concerns factual questions relating to the test for infringement and not the legal inquiry of the appropriate scope of the 'positional accuracy' limitation."). Accordingly, the Court does not adopt Plaintiff's construction.

In summary, the Court finds that it has properly addressed the parties' dispute. During the claim construction hearing, Plaintiff argued that fracing need not enlarge the well bore, but only needs to enlarge the reach of the well bore. Notwithstanding, the claim requires "at least one cavity coupled to each substantially horizontal drainage bore proximate to the subterranean zone, the at least one cavity formed by fracing." The parties agreed that "coupled" means "directly connected." Thus, the limitation is not directed to the reach of the well bore, but instead is directed to forming

a cavity by fracing, and requires the formed cavity to be directly connected to the horizontal drainage bore. Whether a cavity is actually formed by fracing is a factual question relating to the test for infringement.

Defendants argued during the claim construction hearing that one may be able to form a cavity by fracing, but that they do not form a cavity when they perform fracing. Again, whether a cavity is actually formed by fracing is a factual question relating to the test for infringement. Simply stated, the claim requires forming a cavity by fracing, and requires the formed cavity to be directly connected to the horizontal drainage bore. Given the context of the parties' positions, the Court finds that it has properly addressed the parties' dispute. *See ActiveVideo Networks v. Verizon Commc'ns*, 694 F.3d 1312, 1325–26 (Fed. Cir. 2012) ("The district court did not err in concluding that these terms have plain meanings that do not require additional construction. ActiveVideo's proposed construction erroneously reads limitations into the claims and the district court properly rejected that construction and resolved the dispute between the parties."). Accordingly, the Court finds that the term "cavity" should be given its plain and ordinary meaning. Finally, in reaching its conclusion, the Court has considered the extrinsic evidence submitted by the parties, and given it its proper weight in light of the intrinsic evidence.

**3. Court's Construction**

The term **"cavity"** will be given its **plain and ordinary meaning**.

## VI. CONCLUSION

The Court adopts the constructions above for the disputed and agreed terms of the Asserted Patents. Furthermore, the parties should ensure that all testimony relates to the terms addressed in this Order is constrained by the Court's reasoning. However, in the presence of the jury the parties should not expressly or implicitly refer to each other's claim construction positions and should not expressly refer to any portion of this Order that is not an actual construction adopted by the Court. The references to the claim construction process should be limited to informing the jury of the constructions adopted by the Court.

**SIGNED this 27th day of July, 2017.**

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE