United States District Court,
W.D. Pennsylvania.

CNX GAS CORPORATION and CNX Gas Company LLC,
Plaintiffs.
v.
CDX GAS, LLC,
Defendant.
v.
Consol Energy, Inc,
Counter-Defendant.

Aug. 30, 2006.

Charles H. Dougherty, Jr., Frederick H. Colen, Jeffrey J. Bresch, Joshua S. Bish, Thomas L. Allen, Reed Smith, Pittsburgh, PA, for Plaintiffs.

Carl E. Bruce, Decker A. Cammack, Neil J. McNabnay, Thomas B. Walsh, IV, Fish & Richardson, Dallas, TX, Henry M. Sneath, Stephen S. Photopoulos, Picadio, Sneath, Miller & Norton, Pittsburgh, PA, Richard C. Weinblatt, William J. Marsden, Jr., Fish & Richardson, PC, Wilmington, DE, for Defendant.

Frederick H. Colen, Joshua S. Bish, Thomas L. Allen, Reed Smith, Pittsburgh, PA, for Counter-Defendant.

REPORT AND RECOMMENDATION

DONALD E. ZIEGLER**, Special Master.**

Before the Special Master are the Claim Construction Submissions of plaintiffs, CNX Gas Corporation and CNX Gas Company LLC (the "CNX plaintiffs") and counter-defendant Consol Energy, Inc. (plaintiffs and counter-defendant will be referred to collectively as "the Consol Entities"), and defendant/patentee, CDX Gas Company LLC ("CDX") pertaining to disputed claim terms in six U.S. patents assigned to defendant CDX (the "patents-in-suit). FN1 A *Markman* hearing was held on July 13, 2006 wherein the parties presented evidence and argument pertaining to their respective positions. After consideration of the evidence presented at the hearing, the Special Master issues the following Report and Recommendation to the United States District Court for the Western District of Pennsylvania.

FN1. The patents-in-suit are: U.S. Patent No. 6,357,523 (the "'523 Patent"), U.S. Patent No. 6,561,288 (the "'288 Patent"), U.S. Patent No. 6,604,580 (the "'580 Patent"), U.S. Patent No. 6,679,322 (the "'322 Patent"), U.S. Patent No. 6,964,298 (the "'298 Patent") and U.S. Patent No. 6,976,533 (the " '533 Patent").

I. BACKGROUND

The technology at issue in the patents-in-suit relates to the recovery/removal of methane gas that is entrapped in coal bed seams in the earth, a process that is known as "coal bed methane degasification." Prior to the claimed inventions, the surface methods for removing entrained methane gas from coal seams consisted primarily of conventional vertical well or horizontal well systems, which were significantly less efficient than the claimed inventions. Among other problems, vertical wells drilled into coal deposits could drain only a fairly small radius around the coal seam and methods for increasing the radius, such as fracturing, were found to be inefficient in coal seams.FN2 Horizontal wells, though able to access a larger area of the seam, presented difficulties with respect to the removal of entrained water in the seam, a prerequisite to methane gas recovery. ' 523 Patent, col. 1, lines 19-59.

FN2. "Fracturing" is the formation of "cracks, joints and faults" in the coal seam. The formation of the fractures allows for entrained water and gas in the coal to drain towards the well bore.

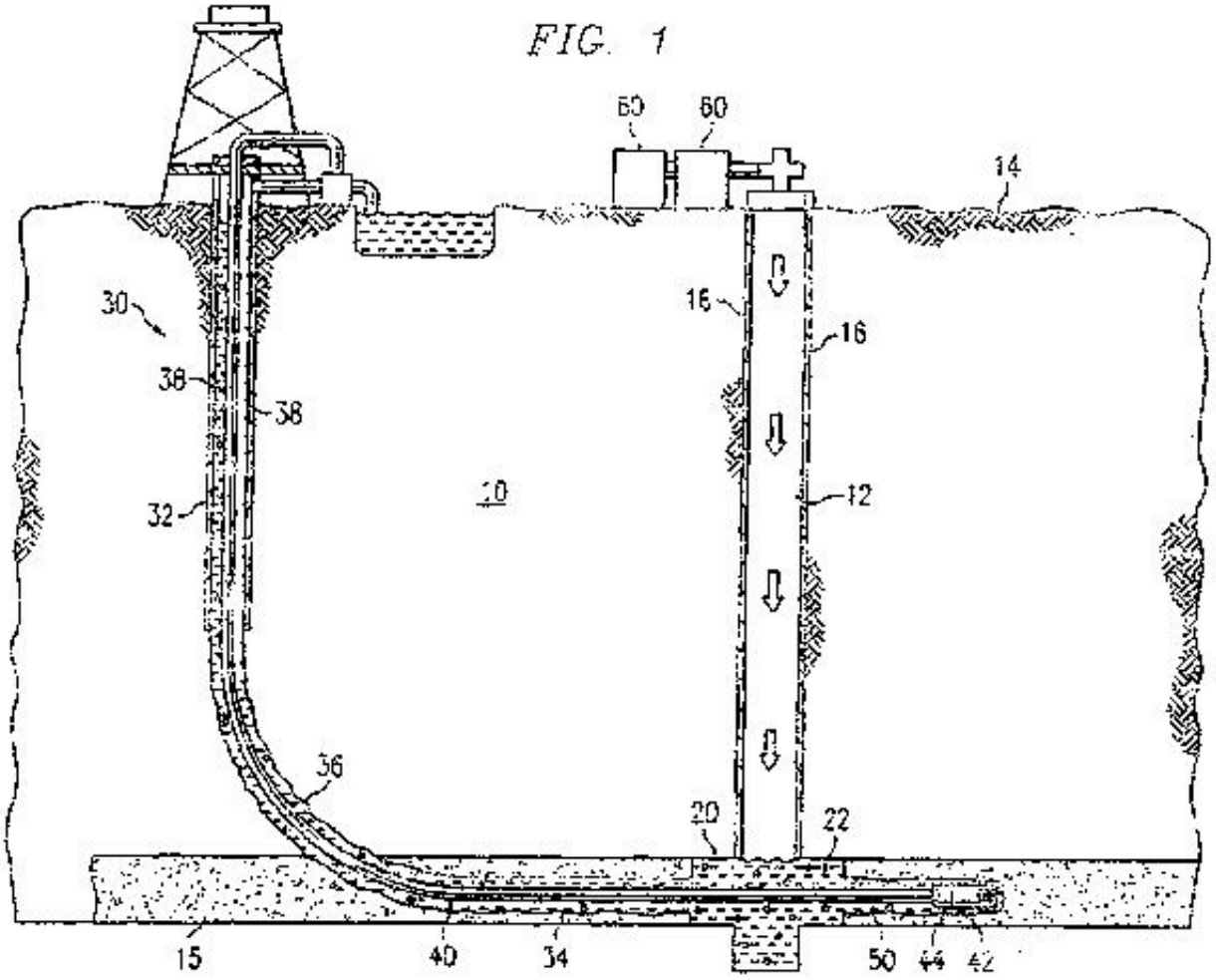
The patents-in-suit are related as follows. The original patent assigned to CDX on this subject matter is U.S. Patent No. 6,280,000 (the "000 Patent"). The '000 Patent is the "parent" patent but is not one of the patents-in-suit.. The '523 Patent relates back to the '000 patent as a continuation in part. Four of the remaining five patents-in-suit relate back to the '523 patent as continuations. The remaining patent-in-suit, the '580 Patent, is a continuation in part of the '288 Patent. Because of their relationship, the specification sections of the patents-in-suit (other than the '580 Patent) entitled "Background of the Invention," "Summary of the Invention," and "Detailed Description of the Invention" are substantially identical, as are the illustrations included in the patents-in-suit.FN3

FN3. The parties appear to agree that the additional matter disclosed in the '580 Patent is not at issue in this litigation and, therefore, we have not addressed those differences here.

The patents-in-suit describe a "dual well" drainage system that claims to provide "an improved method and system for accessing subterranean deposits from the surface that substantially eliminates or reduces the disadvantages and problems associated with previous systems and methods." '523 Patent, col. 2, lines 17-21. In the "Summary of the Invention" section, the invention is described generally as:

an articulated well with a drainage pattern that intersects a horizontal cavity well. The drainage pattern provides access to a large subterranean area from the surface while the vertical cavity well allows entrained water, hydrocarbons, and other deposits to be efficiently removed and/or produced.

See, e.g., '523 Patent at col. 2, lines 21-26. Figure 1 of the '523 Patent is reproduced below and illustrates one embodiment of the claimed invention.



CDX claims that the Consol Entities have and are infringing upon each of the patents-insuit by using systems and methods that use CDX's patented and proprietary technology. By letter dated October 25, 2005, CDX gave formal notice of the alleged infringements and demanded that the Consol Entities "refrain from any and all use of CDX's patented and proprietary technology." First Amended Complaint, para. 10. The CNX plaintiffs thereafter filed a Complaint in the United States District Court for the Western District of Pennsylvania in November 2005 seeking a declaratory judgment that the patents-in-suit are invalid and unenforceable and that the CNX plaintiffs and Consol have not infringed upon the patents-in-suit. CDX thereafter filed counterclaims for patent infringement against each of the Consol Entities.

By Order of the district court dated December 27, 2005 and pursuant to Fed.R.Civ.P. 53, the undersigned was appointed as a Special Master in this action to conduct a *Markman* hearing and to make recommendations to the district court regarding the proper legal construction of the disputed claim terms in the patents-in-suit. The parties have submitted a Joint Disputed Claim Term chart setting forth each of the terms in dispute. The parties have also agreed that claim 1 of the '523 patent is representative of most of the asserted independent claims of the patents-in-suit and also contains several of the disputed claim terms at issue. Claim 1 of the '523 Patent (with disputed claim terms highlighted) states as follows:

A system for accessing a subterranean zone from the surface, comprising:

a substantially vertical well bore extending from the surface to the subterranean zone;

an ***articulated well bore*** extending from the surface to the subterranean zone, the ***articulated well bore*** horizontally offset from the substantially vertical well bore at the surface and ***intercepting*** the substantially vertical well bore at a ***junction proximate to*** the subterranean zone; and

a substantially horizontal ***drainage*** extending from the ***junction*** into the subterranean zone, wherein the subterranean zone comprises a coal seam.

'523 Patent, col. 12, lines 39-53.

We must interpret these and other disputed claim terms pursuant to applicable claim construction legal principles, which are discussed below.

II. CLAIM CONSTRUCTION PRINCIPLES

The legal principles and analysis to be applied by the courts in construing patent claims was recently clarified by the Court of Appeals in Phillips v. AWH Corporation, 415 F.3d 1303, 1312 (Fed.Cir.2005), a case which is heavily relied upon by both sides to the instant dispute.

In *Phillips,* the Court of Appeals began by noting that the "bedrock principle" of patent law is that that the claims of a patent define the invention to which the patentee is entitled the right to exclude. *Id*. at 1312(citing Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 381 F.3d 1111, 1115 (Fed.Cir.1996); Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996)). This is because a patentee is required "to define precisely what his invention is" through the claims in the patent. *Id*. (quoting White v. Dunbar, 119 U.S. 47, 52, 7 S.Ct. 72, 30 L.Ed. 303 (1886). *See also, e.g.,* Aro Mfg. Co. v. Convertible Top Replacement Co., 365 U.S. 336, 339, 81 S.Ct. 599, 5 L.Ed.2d 592 (1961) ("the claims made in the patent are the sole measure of the grant."); *Cont'l*. Paper Bag Co. v. E. Paper Bag Co. ., 210 U.S. 405, 419, 28 S.Ct. 748, 52 L.Ed. 1122 (1908) ("the claims measure the invention."). Thus, the claims are "of primary importance in the effort to ascertain precisely what it is that is patented" and the courts must "look to the words of the claims themselves ... to define the scope of the patented invention." *Id*. (quoting Markman v. Westview Instruments, Inc., 52 F.3d 967, 980 (Fed.Cir.1995), *aff'd* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996); Merrill v. Yeomans, 94 U.S. 568, 570, 24 L.Ed. 235 (1876)).

Claim construction is a matter of law to be decided by the court, *Markman* at 978, and in construing a patent claim, a court generally must give the words of a claim their "ordinary and customary meaning." However, because the descriptions in patents are typically addressed to and intended to be read by persons who are skilled in the field of the invention, the "ordinary and customary meaning" of a claim term is the "meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." Phillips, 415 F.3d at 1313 (internal citations omitted).

Courts must not construe claims in a vacuum, however, because "the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id*. As the Court of Appeals stated in *Phillips:*

The claims, of course, do not stand alone. Rather, they are part of "a fully integrated written instrument,."

Markman, 52 F.3d at 978. consisting principally of a specification that concludes with the claims. For that reason, claims "must be read in view of the specification, of which they are a part." Id. at 979. As we stated in *Vitronics,* ***the 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.***" 90 F.3d at 1582.

* * *

Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction.
Id. at 1315-16 (emphasis supplied).
While *Phillips* emphasized the importance of the specification in claim construction, it also cautioned that the specification should be used solely as a means to interpret the words of the claims and not for the purpose of importing limitations from the specification into the claims:

... the purposes of the specification are to teach and enable those of skill in the art to make and use the invention and to provide a best mode for doing so." *See* Spectra-Physics, Inc. v. Coherent, Inc., 827 F.2d 1524, 1533 (Fed.Cir.1987). One of the best ways to teach a person of ordinary skill in the art how to make and use the invention is to provide an example of how to practice the invention in a particular case. Much of the time, upon reading the specification in that context, it will become clear whether the patentee is setting out specific examples of the invention to accomplish those goals, or whether the patentee instead intends for the claims and the embodiments in the specification to be strictly coextensive.

Id. at 1323. Moreover, while the specification may often describe a "very specific embodiment" of the invention, the Court of Appeals has "repeatedly warned against confining the claims to those embodiments." Indeed, the Court of Appeals has "rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment." *Id*. at 1323; see also, Nazomi Communications, Inc. v. Arm Holdings, PLC, 403 F.3d 1364, 1369 (Fed.Cir.2005) (trial court "may conclude that the scope of the various claims may differ, some embracing different subject matter than is illustrated in the specific embodiments.").

In addition to the specification, the court should consider the patent's prosecution history when construing claim terms. The prosecution history (along with the specification) is part of the "intrinsic record" and consists of the complete record of the proceedings before the PTO, including the prior art cited during the examination of the patent. The patent history may, like the specification, provide insight as to how the PTO and the inventor understood the patent. Because the prosecution generally lacks the clarity of the specification, however, it is typically less useful for claim construction purposes. *Id*. at 1316. Nevertheless, the prosecution history may be used to exclude a particular interpretation if it was disclaimed during the prosecution proceedings. *See, e.g.,* Chimie v. PPG Industries, Inc., 402 F.3d 1371, 1384 (Fed.Cir.2005).

In its examination of the intrinsic evidence, the court should also consider the concept of "claim differentiation," which "normally means that limitations stated in dependent claims are not to be read into the independent claim from which they depend." *Nazomi* at 1370. Independent claims should generally be construed more broadly than a dependent claim to avoid rendering the dependent claim redundant. *Phillips* at 1325-26 (citing Dow Chem. Co. v. United States, 226 F.3d 1334, 1341-42 (Fed.Cir.2002)). Moreover, "claim terms should not be read to contain a limitation 'where another claim restricts the invention in

exactly the [same] manner.' " *Id*. at 1326 (*quoting* TurboCare Div. of Demag Delaval Turbomachinery Corp. v. General Elec. Co., 264 F.3d 1111, 1123 (Fed.Cir.2001)).

The courts are also authorized to examine extrinsic evidence to determine the meaning of a claim term. Extrinsic evidence can consist of evidence that is external to the patent itself that may assist the court in the claim construction. Such evidence often includes "expert and inventor testimony, dictionaries and learned treatises." Markman, 52 F.3d at 980 (*citing* Seymour v. Osborne, 78 U.S. (11 Wall) 516, 546, 20 L.Ed. 33 (1870)). Extrinsic evidence, however, "is less significant than the intrinsic record in determining the legally operative meaning of claim language." *Phillips* at 1317 (*quoting* Vanderlande Indus. Nederland BV v. Int'l Trade Comm'n, 366 F.3d 1311, 1318 (Fed.Cir.2004).

Finally, while the court should be mindful of the principle that patents "are to receive a liberal construction, and ... are, if *practicable,* to be so interpreted as to uphold and not to destroy the right of the inventor," Nazomi, 403 F.3d at 1368 (*quoting* Turrill v. Mich. S. & N. Ind. R.R., 1 Wall. 491, 68 U.S. 491, 510, 17 L.Ed. 668 (1863)), the court "should not rewrite the claims to preserve validity." *Id*. (*citing* Rhine v. Casio, Inc., 183 F.3d 1342, 1345 (Fed.Cir.1999); *see also, Phillips* at 1327 (acknowledging the maxim that claims should be construed to preserve their validity, but only if the court concludes, "after applying all of the tools of claim construction, that the claim is still ambiguous.").

Having stated the general law to be applied in our claim construction analysis, we now turn to the specific claim terms in dispute.

III. LEGAL ANALYSIS OF DISPUTED CLAIM TERMS

There are 104 asserted claims at issue in this litigation and the parties have stipulated to a Joint Disputed Claim Terms Chart that sets forth all of the disputed claim terms. We will address the disputed claim terms in the same order as they are presented in the Chart.

1. "*intercepting/intersecting*"

Most of the asserted independent claims of the patents-in-suit state that a well bore "intersects" another well bore. A representative example is found at claim 1 of the '523 Patent, which provides that:

an articulated well bore extending from the surface to the subterranean zone, the articulated well bore horizontally offset from the substantially vertical well bore at the surface and ***intersecting*** the substantially vertical well bore at a junction proximate to the subterranean zone ....

'523 Patent, claim 1, at col. 12, lines 44-49 (emphasis supplied).

The Consol Entities contend that a person of ordinary skill in the art would understand "intersecting" as used in the claims to mean "connecting," and seem to suggest that any type of connection between the well bores, no matter how remote, would suffice. Indeed, the Consol Entities' expert testified that a well bore in South Dakota and a well bore in Texas "intersect" simply because they are drilled into the same coal formation. Deposition of Frederick Skidmore, p. 198.

We reject this interpretation as being far too broad in the context of the patents-in-suit. The specification (and particularly the illustrations contained therein) clearly describe a claimed invention wherein the well bores "meet," as opposed to merely being "connected" in some manner (such as through fracturing, as

suggested by the Consol Entities). Indeed, we find that a "meeting" of the well bores is a critical component of the claimed invention because it is this "meeting" that eliminates existing barriers in the prior art to the easy and efficient removal of entrained water, hydrocarbons, and other deposits. *See* '523 Patent, Abstract and col. 1, lines 19-59; *Expert Report of Dr. Robert M. Enick,* para.para. 13, 29.

Notably, the Consol Entities have relied solely on extrinsic evidence, primarily dictionary definitions, to support their asserted interpretation, but we find that the greater weight of the extrinsic evidence actually supports our conclusion that "intersecting" should be construed to mean "meeting." *See, e.g., Dictionary of Mining, Mineral and Related Terms* (2d ed.1997) at p. 283 (definitions of "intersect" and "intersection"); *Dictionary of Petroleum Explorations, Drilling, & Production* (1991) (definition of "intersection"); *Webster's Ninth New Collegiate Dictionary* (1991) (definitions of "intersect" and "intersection"). Moreover, with respect to the "customary and ordinary" usage of the term "intersecting," we find persuasive CDX's analogy to two parallel roadways, which would never be deemed "intersecting" even though they may be "connected" at points via additional roadways. Accordingly, we hold that a person skilled in the art would understand "intersecting" as used in the patents-in-suit to mean "meeting."

CDX acknowledges that "meeting" is an adequate definition for "intersecting," but has proposed the construction "meeting and sharing a common volume" in an effort to reduce jury confusion. In our view, the additional language proposed by CDX is unnecessary and is more likely to create, rather than reduce or eliminate jury confusion. Therefore, we reject CDX's definition in part and conclude that the terms "intersecting" and "intercepting" in the patents-insuit are properly defined to mean "meeting." FN4

FN4. The parties agree that "intercepting" means the same thing as "intersecting" in the patents-in-suit.

2. "*coupled*"

Similarly, we find that the term "coupled" as used in the patents-in-suit should be defined to mean "openly connected (i.e., not fractures)" as proposed by CDX. Based upon our review of the patents-in-suit, it appears that the disputed term "coupled" is used essentially as a synonym for "intersected" and "intercepted." For example, claim 1 of the '322 Patent provides that the first and second well bores are "***coupled*** to each other at a junction." The Consol Entities again argue that the term should be defined broadly to mean "connected."

For the same reason that we refused to define "intersecting" as "connecting," we reject "connected" as the definition for "coupled." Simply put, the intrinsic evidence clearly establishes a claimed invention that contemplated improvements over the existing prior art by having the two well bores meet to create an "open connection." The claims and specifications consistently describe a system wherein the well bores meet to allow for the efficient removal of water and gases. In our view, a person of ordinary skill in the art would not understand "coupled" as used in the patents-in-suit to include "connected" by fractures or other indirect means and, therefore, the proper definition for "coupled" must exclude such indirect and remote "connections." Accordingly, we agree with CDX that "coupled" means "openly connected (i.e., not fractures)."

3. "*junction*"/ "*a junction in the earth*"/"*well bore junction*"

Representative of the use of the term "junction" in the patents-in-suit is again found at claim 1 of the '523 Patent, which states in part:

the articulated well bore horizontally offset from the substantially vertical well bore at the surface and intercepting the substantially vertical well bore at a ***junction*** proximate to the subterranean zone

...

'523 Patent, col. 12, lines 45-49 (emphasis added). CDX asserts that the term "junction" as used in the patents-in-suit means "a place where well bores intersect or are coupled," while the Consol Entities propose the definition "an enlarged cavity through which the horizontal bore and vertical bore connect."

The crux of the argument with respect to the definition of "junction" is whether a "junction" must be an "enlarged cavity" or whether it may be a "cavity" without enlargement, i.e., a "bore-on-bore intersection." In arguing that the term "junction" must mean an "enlarged cavity, the Consol Entities point out that: (1) the specification of the patents-in-suit repeatedly and consistently describe a "junction" as an "enlarged diameter cavity." *See, e.g.,* '523 Patent, col. 4, line 65-col. 5, line 2 ("*the enlarged diameter cavity 20 provides a junction* for intersection of the substantially vertical well bore by articulated well bore ...."); (2) each of the figures in the specification that depicts a "junction" shows it to be an "enlarged cavity;" and (3) the embodiments in the specification do not describe or disclose a dual well system wherein the junction is anything but an enlarged diameter cavity. The Consol Entities further note that CDX and the inventor have admitted that a "junction" is a "cavity." Finally, the Consol Entities argue that CDX's proposed definition must be incorrect as it would purportedly render the term "junction" superfluous in the claims.FN5

FN5. At the *Markman* hearing, and as further support for their argument that a "junction" must be an "enlarged cavity," the Consol Entities moved to admit into evidence two later patents assigned to CDX that describe a cavity positioning device for use with the invention. The Consol Entities later withdrew their motion to admit the patents into evidence and we therefore will not consider the patents in our analysis.

CDX, on the other hand, contends that a junction, though admittedly a "cavity," need not be an "enlarged" cavity, and that the Consol Entities' definition improperly attempts to import a limitation from the preferred embodiments of the specification into the claims. CDX points to the fact that none of the asserted claims in the patents-in-suit reference an enlarged diameter cavity, and further notes that during the prosecution of the '533 Patent, the PTO also interpreted "junction" to not require an enlarged cavity when it cited to U.S. Patent No. 4,390,067 and stated that it contained a "well bore junction" even though there was no "enlarged diameter cavity" present.

CDX further argues that it is required to provide the "best mode" for use of the invention in the specification. Spectra-Physics, Inc., 827 F.2d at 1533. Thus, it included "preferred" embodiments in the specifications (all of which include an enlarged cavity) not as a limitation on the invention, but to show the "best mode for using the invention. CDX acknowledges that the best use of the invention incorporates an enlarged cavity because the enlarged cavity creates a larger "target" for the articulated well bore to intersect and also provides for better drainage efficiency. CDX argues, however, that the claims make clear that the scope of the invention is broader than the specifications and includes the invention wherein the junction is a "bore on bore" cavity, i.e., the cavity is not enlarged.

In addition, CDX asserts that the doctrine of "claim differentiation" mandates a finding that "junction" need not be an "enlarged" cavity because the limitations that the Consol Entities seek to import are already found in dependent claims of the patents-in-suit. For example, claim 2 of the '523 Patent is dependent on claim 1

(cited above) and provides as follows:

The system of claim 1, ***the junction further comprising an enlarged cavity*** formed in the substantially vertical wall bore proximate to the subterranean zone.

'523 Patent, col. 12, lines 53-55 (emphasis supplied). Thus, if the Consol Entities definition were accepted, claim 2 would be rendered completely redundant.

CDX also claims that the Consol Entities' proposed definition is inconsistent with the use of the term "junction" in other parts of the patents-in-suit and specifically cites to independent claim 9 of the '580 Patent (not at issue in this lawsuit), which includes the term "enlarged diameter cavity" in the claim itself and distinguishes that term from the term "junction" by referencing "***an enlarged diameter cavity formed at the junction*** ...." Thus, inserting the Consol Entities' definition of "junction" into the claim would result in the following nonsensical construction: "an enlarged diameter cavity formed at [the enlarged diameter cavity through which the horizontal bore and vertical bore connect ...]."

Finally, CDX contends that its definition of "junction" is consistent with the extrinsic evidence. The definition of "junction" in the *Dictionary of Mining, Mineral, and Related Terms* includes "the point where two are more passageways intersect horizontally or vertically" and "in ventilation surveys, where three or more airways meet." Similarly, *Random House Webster's College Dictionary* defines "junction" to include "a place or point where two or more things meet, converge, or are joined."

Although we find it to be a close question, we hold that a "junction" is simply "a place where well bores intersect or are coupled." FN6 Such a definition is consistent with both the intrinsic evidence and the common and ordinary meaning of the term. While we agree that the preferred embodiments in the specifications repeatedly and consistently refer to an enlarged cavity, we will not import that limitation into the claims, particularly where "another claim restricts the invention in exactly the same manner" and would be rendered redundant. Phillips, 415 F.3d at 1326.

FN6. In so doing, we also reject the Consol Entities' attempt to import "horizontal bore" and "vertical bore" limitations into the definition of "junction." The claims themselves already specifically identify the well bores that intersect or couple at a junction. *See. e.g.,* claim 1 of the '523 Patent (above); claim 2 of the '322 Patent ("the first and second well bores coupled to each other at a junction in the earth."). Accordingly, it is neither necessary nor appropriate to include such limitations in the definition of "junction."

In so finding, we reject the Consol Entities' argument that the preferred embodiment in the specification is the invention, as opposed to providing an ***example*** of the invention. *See* Wang Laboratories v. America Online, Inc., 197 F.3d 1377 (Fed.Cir.1999). As rehearsed, the Court of Appeals has "repeatedly warned against confining the claims to [the very specific embodiments contained in the specifications]," *Phillips* at 1323, and we find that the specifications in the patents-in-suit clearly describe only "particular embodiments" of the invention. Indeed, the specifications expressly state that "various modifications may be suggested to one skilled in the art. It is intended that the present invention encompass such changes and modifications as [to] fall within the scope of the appended claims." *See, e.g.,* '523 Patent, col. 12, lines 35-38.

In sum, we find that the term "junction" as used in the claims does not impose the limitations suggested by

the Consol Entities and should be read to mean "a place where well bores intersect or are coupled." FN7

FN7. For the same reason, we conclude that the disputed term "cavity" is properly defined to mean "a portion of the vertical well bore that will be intersected or coupled to" as opposed to the definition proposed by the Consol Entities that includes "an enlargement of the well bore."

4. "***drainage pattern***"/"***drainage well bore pattern***"/"***well bore drainage pattern***"

We conclude that the proper definition of the disputed claim term "drainage pattern" is the definition proposed by CDX:

Design of two or more well bores for accessing a subterranean zone for draining entrained fluid from the zone, for example, water and/or methane. FN8

FN8. CDX argues that "drainage," "pattern," and "well bore pattern" should be construed separately and apart, while the Consol Entities assert that proper claim construction requires construction of the combined term "drainage pattern" because the terms are used only in conjunction with each other. For ease of convenience, we will define the combined term "drainage pattern" although, if necessary for the Court's purposes, the definition can be split into its component definitions for "drainage" and "pattern."

In doing so, we reject the long and rather complex definition proposed by the Consol Entities because (1) it again improperly seeks to import limitations from the specific preferred embodiments into the claims by essentially limiting the patterns to "pinnate" or similar type drainage patterns, and (2) it wrongly concludes that CDX expressly disclaimed two specific drainage patterns mentioned in the parent application (the '000 Patent), the "pitchfork" pattern and the "F" pattern, when it failed to mention these patterns in the continuation-in-part applications. The Consol Entities proposed definition for "drainage pattern" is as follows:

A primary horizontal well bore that extends from a junction and an arrangement of substantially horizontal secondary well bores extending from the primary horizontal well bore, for the removal of water and/or gas, excepting those drainage patterns that were deleted from the parent application (i.e., the '000 patent) upon the filing of the continuation-in-part application.

First, although the preferred embodiments in the specifications and the illustrations therein all reference pinnate drainage patterns that include "a plurality of well bores extending from the diagonal well bore," the specifications also make clear that the described patterns are mere embodiments and, indeed, after describing certain illustrated patterns, the specifications plainly state that other patterns may also be suitable in accordance with the invention. *See,* '523 Patent, col. 7, lines 55-57 ("It will be understood that ***other suitable drainage patterns*** may be used in accordance with the present invention."); col. 7, lines 58-60 ("The pinnate and ***other suitable drainage patterns*** drilled from the surface provide surface access to subterranean formations."); col. 9, lines 50-51 ("It will be understood that ***other suitable patterns*** may be used to degasify the coal seam."). Accordingly, the Consol Entities' contention that the claims should be limited to the preferred embodiments is without merit.

Second, we find no merit to the Consol Entities' claim that CDX "disclaimed" the "pitchfork" and "F"

patterns that had been mentioned in the parent application ('000 Patent) by failing to mention them in the later applications. In fact, we find that the '000 Patent supports our conclusion that the drainage patterns for the patents-in-suit were not intended to be limited to the preferred embodiments, but rather were intended to include alternative pattern designs depending upon the particular size and shape of the coal seam sought to be drained. The '000 Patent provides, in relevant part:

A pinnate horizontal drainage pattern using a single central bore may drain a coal seam area of approximately 100 to 120 acres and is best suited for areas with relatively equal length to width ratios. ***Where a smaller area is to be drained, or where the coal seam has a different shape, such as a long, narrow shape, alternate drainage patterns can be developed.*** For example, as shown in FIG. 3, main well 114 and offset well 124 have been used to develop a drainage pattern comprising a main drain bore 140 and auxiliary drainage bores 142 arranged roughly in the shape of the letter "F". ***Other drainage patterns, such as one-half of a pinnate pattern, "pitchfork" patterns, etc., will be apparent to those skilled in the art, based upon configuration, thickness, area, etc. of the coal seam being drained.***

'000 Patent, col. 3, lines, 34-47 (emphasis supplied).

The Console Entities argue that because CDX deleted the language referring to the "pitchfork" and "F" patterns in the continuation-in-part application (and also in the later patentsin-suit), CDX expressly disclaimed these patterns and, therefore, the patents-in-suit cannot be construed to encompass such patterns. We disagree. While it is true that neither the "pitchfork" pattern nor the "F" pattern are specifically mentioned or illustrated in the patents-in-suit, we do not believe that a competitor, in reading the patents and prosecution history, could reasonably conclude that CDX was intending to exclude "pitchfork" and "F" patterns from the patents-in-suit. Insituform Technologies, Inc. v. Cat Contracting, Inc., 99 F.3d 1098, 1107-08 ("standard for determining what subject matter was surrendered is objective and depends on what a competitor, reading the prosecution history, would reasonably conclude was given up by the applicant."). To the contrary, a competitor examining the patents-in-suit is plainly and repeatedly advised that "other suitable drainage patterns" may be used with the invention and might be suggested to one skilled in the art. Moreover, nowhere do the patents-in-suit expressly or impliedly disclaim a "pitchfork" or "F" drainage partern.

In sum, we find no support for the Consol Entities' argument that "drainage pattern" should be limited in the manner suggested by their proposed definition and, therefore, we hold that the proper definition of "drainage pattern" is the customary and ordinary meaning set forth by CDX; to-wit, a "design of two or more well bores for accessing a subterranean zone for draining entrained fluid from the zone, for example, water and/or methane." FN9

FN9. Since the purpose of the "drainage pattern" is to "drain" entrained fluids from the subterranean zone, we also reject the Consol Entities' use of the term "removal" in its proposed definition on the basis that it is too broad. Water and gas may be "removed" in a manner other than by draining, for example, through evaporation, and that type of removal is not within the scope of the invention.

5. "*a well bore pattern connected to the junction*"

Consistent with and applying our rulings above, we hold that "a well bore pattern connected to the junction" means "a design of two or more well bores for accessing a subterranean zone connected to the place where

well bores intersect or are coupled."

6. "*lateral bore(s)*"/"*lateral well bore(s)*/"*laterals*"

"Laterals" are "horizontal well bores that extend from the side of a common well bore." In so holding, we reject the Consol Entities' proposed definition, "auxiliary or secondary horizontal well bores that extend from and to the side of a primary well bore," on the bases that it seeks to import limitations into the claims from the preferred embodiments.

The Consol Entities have failed to identify any description in the claims or specifications that describes a "lateral" as an "auxiliary" or "secondary" well bore. Moreover, in almost all instances when "lateral" is used in the asserted independent claims, the place from which the laterals extend is specifically identified, thereby rendering the clause "from and to the side of a primary well bore" redundant or an attempt to import a limitation into the claims. For example. with respect to claims 1 and 17 of the '288 Patent, the clause is redundant because the claims specifically state that the laterals extend from the "main well bore." *See also,* claim 1 of the '298 Patent (laterals are "coupled to the "junction"); claim 25 of the '298 Patent (laterals extend "from a main well bore of the pattern"); and claim 3 of the '580 Patent (laterals extend from the "third well bore.").

Finally, we find no basis upon which to impose the limitation that the "laterals" must be "horizontal" bores. As we have stated previously, the patents-in-suit contemplate that a variety of drainage patterns may be designed and utilized to fit the contours and size of the particular coal seam sought to be drained. Accordingly, and in the absence of express language in the patents that would lead one of skill in the art to understand that the invention is limited to "horizontal" drainage patterns, we will not impose that limitation on the invention.

7. "*horizontal bore*"/"*a main well bore*"/"*a third well bore*"

The Consol Entities argue that the terms "horizontal bore," "a main well bore," and "a third well bore" all mean the same thing; to-wit, "a primary horizontal well bore of the drainage pattern that extends from the junction." CDX, on the other hand, argues that the terms are self-explanatory and need no further interpretation. In the alternative, CDX argues that they should be given their ordinary meaning.

We agree with CDX that the term "a third well bore" as used in asserted claim 3 of the '580 Patent is self-explanatory and easily understood by a jury. Therefore, it is neither necessary nor appropriate to provide an alternative construction for the term. The Consol Entities' proposed definition is, for the most part, redundant since claim 3 of the '580 Patent specifically states that the "third well bore" extends from the junction and is part of the drainage pattern. We will not import the limitations of "primary" and "horizontal" for the reasons that we have stated previously.

With respect to "horizontal well bore," as used in the claims of the '298 Patent, we find that the term is self-explanatory with one exception. While it is clear from the intrinsic evidence that the "horizontal well bore" is to extend from the junction, that fact is not explicitly stated in the claims. Accordingly, to avoid jury confusion, we define "horizontal well bore" in the claims of the '298 Patent to mean a "horizontal well bore that extends from the junction." Similarly, with respect to the use of the term "main well bore" in the claims of the '288 and '298 Patents, we define the term to mean a "main well bore that extends from the junction." Although the asserted claims of the '288 Patent expressly state that the "main well bore" extends from the junction, claim 25 of the '298 Patent does not even though that is clearly the intent. Thus, our interpretation

is appropriate to avoid any potential jury confusion.

8. "***proximate***"

The term "proximate" is used in the patents-in-suit primarily to refer to the location of the junction. For example, claim 1 of the '523 Patent states that the articulated well bore and the substantially vertical well bore intersect "at a junction ***proximate*** to the subterranean zone."

The Consol Entities urge that we define "proximate" to mean "near," which we agree is the most common and ordinary meaning of the term. *See, e.g., Webster's Third New International Dictionary* (1976) ("proximate" is defined as "very near, immediately adjoining, close."). In contrast, CDX claims that the proper definition, in light of the intrinsic evidence, is "in or near," and notes that alternative dictionary definitions for "proximate" include "approximate, fairly accurate." *Random House Webster's Unabridged Dictionary* (2d ed.1998). Based upon our review of the specifications and, in particular, the illustrations therein, we hold that "proximate" means "in or near" as used in the patents-in-suit.

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. *See* SanDisk Corp. v. Memorex Products, Inc., 415 F.3d 1278, 1285 (Fed.Cir.2005) (citing Vitrionics, 90 F.3d at 1583) ("claim construction that excludes a preferred embodiment ... is rarely, if ever, correct."). As a result, find that a person of ordinary skill in the art would understand "proximate" as used in the patents-in-suit to mean "in or near."

In arguing that we must apply the most commonly used dictionary definition of "proximate" to the patents-in-suit, the Consol Entities rely heavily upon the case of Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1374 (Fed.Cir.2004). In that case, the court held that a patent involving a process for baking bread that required the dough be heated "to" (as opposed to "at") a temperature in the range of 400 (deg.) F. to 850 (deg.) F meant that the dough itself, and not the oven, had to be heated to that temperature. The court so held despite the fact that it was well known that heating the dough to such a high temperature would burn it "to a crisp," thus rendering the product unusable. In rejecting the patentee's argument that "to" should be interpreted to mean "at," the court stated that it was not permitted to rewrite the patent where the claim is susceptible to only one reasonable interpretation, even if that interpretation leads to a "nonsensical result." Id. at 1374.

Chef America does not support the interpretation urged by the Consol Entities here because, unlike in the case at bar, the intrinsic evidence of the patent at issue in that case did not support the alternative definition proposed by the patentee. To the contrary, in *Chef America* the court, after noting that a patentee was free to define claim terms contrary to their ordinary meaning, stated that it could "discern nothing in the claims, the specification, or the prosecution history that indicate[d] that the patentees here defined 'to' to mean 'at.' To the contrary, the prosecution history suggests that the patentees intentionally used "to" rather than "at" in drafting the temperature requirements of the claim." *Id.*

In sum, we hold that the specification clearly establishes that the term "proximate" as used in the patents-in-suit means "in or near."

9. "***drilling through the second well bore***"

In interpreting the term "drilling through the second well bore," as used in claims 12, 36 and 60 of the '298 Patent, the Consol Entities once again improperly seek to import limitations from the preferred embodiments of the specifications into the claims. Thus, the Consol Entities proposed construction of the term is "drilling through the articulated well bore from the junction into the subterranean zone."

We reject this interpretation. At bottom, the Consol Entities seek to have us replace the term "the second well bore" with "the articulated well bore from the junction into the subterranean zone." We find no basis for this interpretation and, as we have repeatedly stated, we will not import limitations from the preferred embodiments into the claims so as to limit the invention solely to the preferred embodiments. The term "second well bore" is self-explanatory and needs no further construction.

On the other hand, we agree with CDX that the first part of the disputed term "drilling through" is ambiguous and could confuse a jury. Therefore, we hold that the term "drilling through the second well bore" simply means "drilling ***by way of*** the second well bore."

10. "***one side of the junction***"

The term "one side of the junction" is used to describe the positioning of the "drainage well bore pattern" in claims 14, 38 and 62 of the '298 Patent ("the drainage well bore pattern is substantially formed on one side of the junction"). The Consol Entities seek to have us limit the location of the drainage well bore pattern by construing that term to mean "extending from the opposite side of the junction from the articulated well bore." In other words, the Consol Entities once again seek to have us limit the invention to the prefeixed embodiments in the specifications. In the preferred embodiments, the drainage pattern is located on the opposite side of the junction from the articulated well.

We will not adopt the Consol Entities' definition for the reasons stated previously. Rather, we find that, in conjunction with our definition for "junction" as determined above, the term "one side of the junction" means "one side of the place where well bores intersect or are coupled."

11. "***an articulated well bore***"

An "articulated well bore," as used in the patents-in-suit, is "a well bore with two or more portions and turned toward the plane of the subterranean zone, for example a coal seam." An articulated well bore need not have (although it may have) a "substantially vertical portion, a substantially horizontal portion, and a curved portion that connects the horizontal and vertical portions," as argued by the Consol Entities. Rather, the definition proposed by the Consol Entities derives once again from the specific limitations found in the preferred embodiments. The scope of the claims is clearly broader than the embodiments, however, and we therefore reject the Consol Entities' proposed definition.

12. "***the articulated well bore is substantially vertical***"

The final term that we are called upon to construe is "the articulated well bore is substantially vertical," which is found at dependent claim 12 of the '533 Patent. Claim 12 provides in full as follows: "The system of claim 1, wherein the articulated well bore is substantially vertical."

We reject CDX's proposed definition of "the articulated well bore having a substantially vertical (rather than

slanted) portion." The claim does not discuss "portions" of the articulated well bore; rather, the subject of the claim appears to be the articulated well bore as a whole. Thus CDX's construction is improper.

We agree with the Consol Entities that the claim must be given its customary and ordinary meaning, absent something in the specifications that would indicate otherwise. The customary and ordinary meaning of the claim, as suggested by the Consol Entities, is that "the articulated well bore is more vertical than it is horizontal." That is not, however, the definition that the Consol Entities propose. Rather, their proposed definition is based upon their faulty construction of "articulated well bore," which we already rejected above. The Consol Entities argue that the term should be read to mean "an articulated well bore with a substantially vertical portion that is longer than the substantially horizontal and curved portions."

Because neither parties' definition is, in our view, acceptable, we must derive our own meaning for the term "the articulated well bore is substantially vertical" based upon the intrinsic and extrinsic evidence. Finding little to no guidance in the specification, we will apply the common meaning of the claim term; to-wit, "the articulated well bore is more vertical than it is horizontal." Stated another way, claim 12 of the '533 Patent requires that the total vertical drop of the articulated well bore (measured from one end to the other) exceeds the total horizontal length of the articulated well bore (measured from one end to the other).

IV. CONCLUSION

For all of the reasons set forth above, we recommend that the district court construe the disputed claim terms as follows.

1. "***intcrcepting***"/"***intersectmg*** = "meeting."

2. "***coupled***" = "openly connected (i.e., not fractures)"

3. "***junction***"/"***a junction in the earth***"/"***well bore junction***" = "a place where well bores intersect or are coupled ."

4. "***drainage pattern***"/"***drainage well bore pattern***"/"***well bore drainage pattern***" = "design of two or more well bores for accessing a subterranean zone for draining entrained fluid from the zone, for example, water and/or methane."

5. "***a well bore pattern connected to the junction***" = "a design of two or more well bores for accessing a subterranean zone connected to the place where well bores intersect or are coupled."

6. "***lateral bore(s)***"/"***lateral well bore(s)/"laterals***" = "horizontal well bores that extend from the side of a common well bore."

7. a. "***horizontal bore***" = "horizontal well bore that extends from the junction."

b. "***a main well bore***" = "a main well bore that extends from the junction."

c. "***a third well bore***" = no construction necessary-apply common and ordinary meaning.

8. "***proximate***" = "in or near,"

9. "***drilling through the second well bore***" = "drilling by way of the second well bore."

10. "***one side of the junction***" = "one side of the place where well bores intersect or are coupled."

11. "***an articulated well bore***" = "a well bore with two or more portions and turned toward the plane of the subterranean zone, for example a coal seam."

12. "***the articulated well bore is substantially vertical***" = "the articulated well bore is more vertical than it is horizontal."

13. "***cavity***" = "a portion of the vertical well bore that will be intersected or coupled to."

We have given serious consideration to the remaining contentions of the parties and find them to be without merit.

W.D.Pa.,2006.
CNX Gas Corp. v. CDX Gas, LLC