

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

TYCO FIRE PRODUCTS, L.P., : CIVIL ACTION
 : NO. 10-4645
Plaintiff, :
 :
v. :
 :
VICTAULIC COMPANY :
 :
Defendant. :

M E M O R A N D U M

EDUARDO C. ROBRENO, J.

MARCH 27, 2012

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I. INTRODUCTION

Plaintiff Tyco Fire Products LP ("Plaintiff") brings this patent infringement suit against Victaulic Company ("Defendant"). Plaintiff alleges that Defendant has infringed two of Plaintiff's patents (the "Asserted Patents"): (1) United States Patent Number 7,793,736 ("'736 Patent"), entitled "Ceiling-Only Dry Sprinkler Systems and Methods for Addressing a Storage Occupancy Fire"; and (2) United States Patent Number 7,819,201 ("'201 Patent"), entitled "Upright, Early Suppression Fast Response Sprinkler." Third Am. Compl. ¶¶ 9, 19.

Defendant's answer pleads five affirmative defenses and asserts two counterclaims. Before the Court are the parties' proposed claim constructions.

II. BACKGROUND

Plaintiff filed suit alleging Defendant infringed the '736 and '201 Patents on September 14, 2010, subsequently filed an Amended Complaint on September 28, 2010, and further filed a Second Amended Complaint on November 2, 2010. See ECF Nos. 1, 4, 9. Plaintiff filed a motion to dismiss Defendant's second counterclaim and to strike Defendant's third affirmative defense within Defendant's answer. The Court granted-in-part and denied-in-part Plaintiff's motion and gave Defendant leave to file an amended answer. Order, April 12, 2011, ECF No. 33.

The parties exchanged proposed claim constructions on July 29, 2011, and they filed a joint statement of terms for the Court to construe on August 19, 2011. That same day, Plaintiff filed applications with the U.S. Patent and Trademark Office ("PTO") seeking reissue of both the '736 and '201 Patents to correct "inadvertent errors" in the claims of those patents. Shortly thereafter, Plaintiff moved to stay the present litigation pending the outcome of those reissue proceedings. ECF No. 41. The Court denied Plaintiff's motion. Order, Oct. 4, 2011, ECF. No. 53. Then, Plaintiff amended its Complaint once more. Plaintiff filed this Third Amended Complaint, the operative complaint, on October 27, 2011. ECF No. 57.

Plaintiff's Third Amended Complaint claims Defendant's manufacture and sale of the Model LP-46 V4603 K25 Standard Response Storage Upright Sprinklers with varying temperature ratings infringes its patents. See Third Am. Compl. ¶¶ 13, 21. Specifically, Plaintiff alleges in Count I that Defendant induced infringement of claim 33 of the '736 Patent by making, using, selling or offering for sale the Model LP-46 V4603 K25 Standard Response Storage Upright Sprinkler with a temperature rating of 286° Fahrenheit (the "286° product"). Id. ¶ 14. Plaintiff alleges in Count II that Defendant induced and directly infringed claim 48 of the '201 Patent by making, using, selling or offering for sale the Model LP-46 V4603 K25 Standard Response Storage Upright Sprinklers with temperature ratings of 162° and 212° Fahrenheit (the "162° product" and "212° product", respectively). Id. ¶ 23.

Defendant acknowledges manufacturing and marketing the products in question, see Answer to Third Am. Compl. ¶¶ 13, 23, but denies Plaintiff's averments of patent infringement. See id. ¶¶ 14-18, 24-28. Defendant further raises a series of affirmative defenses and two counterclaims. These counterclaims seek a declaration that Plaintiff's '736 and '201 Patents are invalid for failure to comply with the patentability requirements in 35 U.S.C. §§ 101, 102, 103, 112 and that

Defendant has not infringed the '736 and '201 Patents. Id. ¶¶ 35, 36. After Defendant's answer, Plaintiff filed a motion to dismiss Defendant's counterclaims for lack of subject matter jurisdiction pursuant to Federal Rule of Civil Procedure 12(b)(1), alleging that Defendant's counterclaims did not present an Article III "case or controversy." The Court granted Plaintiff's motion in part and denied it in part. Specifically, the Court granted Plaintiff's motion with respect to Defendant's counterclaims of invalidity and non-infringement of the '201 Patent. Order 1, Jan. 6, 2012, ECF No. 78. The Court denied Plaintiff's motion with respect to Defendant's counterclaim of invalidity and non-infringement of the '736 Patent. Id. Defendant has since, with leave of Court, filed an Amended Answer to Plaintiff's Third Amended Complaint. Id.

Currently before the Court are the parties' proposed claim constructions asking the Court to construe¹ twenty-three claim terms in the Asserted Patents. The parties have fully briefed these constructions, and the Court held a Markman hearing. The matter is now ripe for disposition.

¹ While this process is called "claim construction," and the Court will indeed construct the claims, the Court will generally refer to the process as construing claims. See, e.g., Phillips v. AWH Corp., 415 F.3d 1303, 1318 (Fed. Cir. 2005) (en banc).

III. DISCUSSION

A. Applicable Law

A court's analysis of patent infringement is a well-established two-step process: (1) the meanings of disputed claims are construed; and (2) the allegedly infringing device is compared to the claims as construed. Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed. Cir. 1995), aff'd, 517 U.S. 370 (1996); Wavetronix L.L.C. v. EIS Elec. Integrated Sys., 573 F.3d 1343, 1354 (Fed. Cir. 2009). With respect to the first step, "[t]he purpose of claim construction is to determine the meaning and scope of the patent claims that the plaintiff alleges have been infringed." Every Penny Counts, Inc. v. Am. Express Co., 563 F.3d 1378, 1381 (Fed. Cir. 2009) (citing O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1360 (Fed. Cir. 2008)).

It is axiomatic that the claims define the scope of the patent. Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc); see also, Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1115 (Fed. Cir. 2004); Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Therefore, a court must first look to the words of the claims themselves in order to ascertain their meaning. Vitronics Corp., 90 F.3d at 1582; see also Renishaw

P.L.C. v. Marposs Societa' per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998) (“[T]he claims define the scope of the right to exclude; the claim construction inquiry, therefore, begins and ends in all cases with the actual words of the claim”).

1. Plain and Ordinary Meaning

A court must initially construe claim terms according to their ordinary and customary meaning. Genzyme Corp. v. Transkaryotic Therapies, Inc., 346 F.3d 1094, 1106 (Fed. Cir. 2003). Undefined claims terms are to be given an ordinary and customary meaning “as understood by a person of ordinary skill in the art at the time of the invention.” Gemtron Corp. v. Saint-Gobain Corp., 572 F.3d 1371, 1377 (Fed. Cir. 2009). As explained by the Federal Circuit:

Because the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to “those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean” . . . include[ing] “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.”

Phillips, 415 F.3d at 1314 (quoting Innova, 381 F.3d at 1116).

2. Intrinsic Evidence

Where a court cannot properly construe a claim based on the plain meaning, it is necessary to examine the intrinsic record of the claims, which includes the specification and the prosecution history. See Masco Corp. v. United States, 303 F.3d 1316, 1324 (Fed. Cir. 2002). The specification contains a written description of the invention which must be clear and complete enough to enable those of ordinary skill in the art to make and use it. Thus, the specification provides necessary context for understanding the claims, and "is always highly relevant to the claim construction analysis." Phillips, 415 F.3d at 1315 (quoting Vitronics Corp., 90 F.3d at 1582). Therefore, a patentee can act as his own lexicographer in the patent specification by defining a term with particularity that already has an ordinary meaning to a person of ordinary skill in the art. Merck & Co. v. Teva Pharma. U.S.A., Inc., 395 F.3d 1364, 1370 (Fed. Cir. 2005); Phillips, 415 F.3d at 1321 ("[T]he specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." (citations and internal quotation marks omitted)).

Further, "[w]hen consulting the specification to clarify the meaning of claim terms, courts must take care not to import limitations into the claims from the specification."

Abbott Labs. v. Sandoz, Inc., 566 F.3d 1282, 1288 (Fed. Cir. 2009). Indeed, limitations contained in the specification should be applied judiciously and courts should refrain from restricting broader claim language to a single embodiment described in the specification “unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.” Id. (citations and internal quotation marks omitted); see also Bell Atl. Network Servs., Inc. v. Covad Commc’ns. Grp., 262 F.3d 1258, 1271 (Fed. Cir. 2001) (“[W]hen a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term by implication.” (citation and internal quotation marks omitted)).

Along with the specification, the prosecution history is “intrinsic evidence” of the meaning of the claims because it “provides evidence of how the PTO and the inventor understood the patent.” Phillips, 415 F.3d at 1317. The prosecution history is comprised of the original application, communications between the patent applicant and the patent examiner, changes to the patent application, prior art cited during the patent examination, and other pertinent documents. See Elkay Mfg. Co. v. Ebco Mfg. Co., 192 F.3d 973, 979 (Fed. Cir. 1999) (noting

that the totality of the prosecution history includes amendments to claims and arguments made to overcome or distinguish references).

Though ambiguities during negotiations between the PTO and inventor may occur, "the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.'" Abbott Labs., 566 F.3d at 1289 (quoting Phillips, 415 F.3d at 1317). Statements made during prosecution can serve to disavow the scope of the patent, but only in situations where the disclaimer is unambiguous. See id.; Computer Docking Station Corp. v. Dell, Inc., 519 F.3d 1366, 1374 (Fed. Cir. 2008) ("[A] patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution.'" (quoting Purdue Pharma L.P. v. Endo Pharms., Inc., 438 F.3d 1123, 1136 (Fed. Cir. 2006))); Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed. Cir. 1995) ("The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution.").

3. Extrinsic Evidence

Beyond the claim language itself and the intrinsic record, a court is permitted to rely on extrinsic evidence, consisting of "all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." Markman, 52 F.3d at 980. Extrinsic evidence is to be used to aid in a court's interpretation of the claim language, but "not for the purpose of varying or contradicting the terms of the claims." Id. at 981 (citation omitted); see Phillips, 415 F.3d at 1317 (extrinsic evidence is "less significant than the intrinsic record" (citations and internal quotation marks omitted)).

B. Analysis

1. Undisputed Claim Terms

The parties provided the Court with the following undisputed claim terms:

<u>Patent(s)</u>	<u>Term</u>	<u>Agreed Position or Construction</u>
'736 Patent	coverage area per sprinkler	The floor area to be protected by a sprinkler device.

'736 Patent	K-factor	A measurement used in the sprinkler industry to indicate the flow capacity of a sprinkler. The flow capacity is basically the volume of fluid through a sprinkler body per minute. Specifically, it is the flow of fluid in gallons per minute through the passageway divided by the square root of the pressure of fluid fed to the body in pounds per square inch gauge.
'736 Patent	thermally rated sprinkler assembly	The sprinkler has a heat sensing element that is activated at a predetermined temperature.
'736 Patent	temperature rating	The temperature at which the sprinkler heat sensing element is activated.
'736 Patent	Class I	This term refers to the "Class I" commodity class as that term is used in § 5.6.3.1 of the 2002 edition of NFPA-13 Standard for the Installation of Sprinkler Systems, which includes noncombustible products that meet one of the following criteria: (1) placed directly on wooden pallets; (2) placed in single-layer corrugated cartons, with or without single-thickness cardboard dividers, and with or without pallets; or (3) shrink-wrapped or paper-wrapped as a single unit, with or without pallets.

'736 Patent	Class II	This term refers to the "Class II" commodity class as that term is used in § 5.6.3.2 of the 2002 edition of NFPA-13 Standard for the Installation of Sprinkler Systems, which includes noncombustible products that are in slatted wooden crates, solid wood boxes, multiple-layered corrugated cartons, or equivalent combustible packaging material, with or without pallets.
'736 Patent	"rack" storage	This term refers to "Rack" as that term is used in § 3.10.8 of the 2002 edition of NFPA-13 Standard for the Installation of Sprinkler Systems, which includes any combination of vertical, horizontal and diagonal members that supports stored materials.
'736 Patent '201 Patent	"palletized" storage	This term refers to "Palletized Storage" as that term is used in § 3.9.1.3 of the 2002 edition of NFPA-13 Standard for the Installation of Sprinkler Systems, which includes storage of commodities on pallets or other storage aids that form spaced rows of commodities. Pallets are portable platforms upon which commodities are placed to transport commodities from place to place. Pallets may be wood, metal or plastic. Conventional pallets have stringers that are engaged by the forks of fork lifts.

'736 Patent	"bin box" storage	This term refers to "Bin Box Storage" as that term is used in § 3.9.3 of the 2002 edition of NFPA-13 Standard for the Installation of Sprinkler Systems, which includes storage in open-ended wood, metal or cardboard boxes that are self-supporting or supported by a structure such that little or no horizontal or vertical space exists around boxes.
'736 Patent	Class III	This term refers to the "Class III" commodity class as that term is used in § 5.6.3.3 of the 2002 edition of NFPA-13 Standard for the Installation of Sprinkler Systems, which includes packaged and unpackaged products made of wood, paper, natural fibers or certain plastics, with or without pallets.
'736 Patent	preaction system	A preaction system is a system that has pipes that are free of water, that employs sprinkler heads that remain closed, that has supervisory air, that utilizes detectors to detect an indication of fire, and, when a fire is detected, introduces water into the pipes and sprinkler heads.
'736 Patent	single-interlock preaction system	A preaction system that admits water into the piping upon operation of detectors.
'736 Patent	double-interlock preaction system	A preaction system that admits water into the piping upon operation of detectors and sprinklers.

'201 Patent	upright sprinkler	A sprinkler that, when installed, directs water spray upwards against a deflector of the sprinkler, and the deflector redirects water downwards.
'201 Patent	the outer surface having . . . a circumferential flange with flats	"Flats" means flat surfaces.
'201 Patent	"solid pile" storage	Commodities placed directly on the floor and each other, without pallets or other material handling devices.
'201 Patent	Class I-IV	This term refers to the "Class I" through "Class IV" commodity classes. Classes I through III are construed above. Class IV refers to the "Class IV" commodity class as that term is used in § 5.6.3.4 of the 2002 edition of NFPA-13 Standard for the Installation of Sprinkler Systems, which include commodities, with or without pallets, that meet one of the following criteria: (1) constructed partially or totally of solid plastics; (2) consist of free-flowing plastic materials; or (3) include an appreciable amount of certain plastics.

'201 Patent	Group A unexpanded plastics	"Group A" refers to the materials class set forth in § 5.6.4.1 of the 2002 edition of NFPA-13 Standard for the Installation of Sprinkler Systems. "Unexpanded plastics" refers to plastics that are not "Expanded Plastics," as that term is used in § 3.9.9 of the 2002 edition of NFPA-13 Standard for the Installation of Sprinkler Systems. "Group A unexpanded plastics" include certain plastics that do not have voids (air) within the load.
'201 Patent	cartoned	This term refers to "Cartoned" as that term is used in § 3.10.3 of the 2002 edition of NFPA-13 Standard for the Installation of Sprinkler Systems, which includes a method of storage consisting of corrugated cardboard or paper board containers fully enclosing the products.

2. Disputed Claim Terms

There are twenty-three disputed terms for Plaintiff's '736 and '201 Patents. The parties' proposed constructions are as follows:

<u>Terms & Patent(s)</u>	<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
dry '736 Patent	"dry" fire protection is fire protection provided by a device or devices connected to flow lines that contain gas.	A "dry" system is a sprinkler system wherein the pipes are filled with air or another gas until a sprinkler is activated. When a sprinkler is activated, a valve opens, allowing water to enter the pipes. In contrast, in a "wet" system, the pipes are filled with water at all times.
ceiling-only '736 Patent	This refers to fire protection devices located at the ceiling, above stored items or materials. There are no fire protection devices between the ceiling devices and the floors.	The sprinklers are only located at the ceiling, above the stored items or materials. There are no sprinklers between the ceiling sprinklers and the floors.
storage occupancy '736 Patent	No construction necessary.	A facility designed to store goods.

<p>control mode sprinklers</p> <p>'736 Patent</p>	<p>Sprinklers that are capable of providing "Fire Control," as that term is defined in § 3.3.9 of the 2002 edition of NFPA-13 Standard for the Installation of Sprinkler Systems, which is limiting the size of a fire by distribution of water so as to decrease the heat release rate and pre-wet adjacent combustibles, while controlling ceiling gas temperatures to avoid structural damage.</p>	<p>Sprinklers designed to control a fire until it burns itself out or until fire-fighting activities can commence.</p>
<p>network of pipes</p> <p>'736 Patent</p>	<p>No construction necessary.</p>	<p>A configuration of interconnected pipes.</p>
<p>branch lines</p> <p>'736 Patent</p>	<p>No construction necessary. Should the Court decide to construe the term, it should construe "branch lines" as "the pipes in which the sprinklers are placed, either directly or through risers."</p>	<p>Pipes that extend outwardly from the main pipe above the storage area. The sprinklers are attached to them.</p>
<p>hydraulically remote sprinklers</p> <p>'736 Patent</p>	<p>The hydraulically most demanding sprinklers, <u>i.e.</u>, sprinklers that place the greatest water demand on a system in order to provide a prescribed minimum discharge pressure or flow.</p>	<p>The sprinklers that are the farthest from the control valve that permits water to enter the network of pipes, <u>i.e.</u>, the sprinklers that require the most time for water to arrive from the control valve.</p>

<p>hydraulic design area</p> <p>'736 Patent</p>	<p>No construction necessary.</p>	<p>Defined by a number of sprinklers. The number of sprinklers defining this area must be sufficient to achieve the surround and drown effect by providing sufficient water density at a sufficient pressure within a sufficient time from activation.</p>
<p>maximum fluid delivery delay period</p> <p>'736 Patent</p>	<p>"Delay" refers to an intentional delay. No further construction necessary.</p>	<p>The maximum time permitted for fluid to reach the most hydraulically remote sprinkler(s) once the system is activated, and still achieve the "surround and drown" effect.</p>
<p>minimum fluid delivery delay period</p> <p>'736 Patent</p>	<p>"Delay" refers to an intentional delay. No further construction necessary.</p>	<p>The minimum time the fluid is intentionally delayed before the fluid reaches the sprinkler(s) that is/are closest to the control valve that permits water to enter the network of pipes, which delay is necessary to achieve the "surround and drown" effect.</p>
<p>pressure decay; decay of gas pressure</p> <p>'736 Patent</p>	<p>No construction necessary.</p>	<p>Loss of air or gas pressure in the sprinkler system caused by the opening of a sprinkler.</p>
<p>control mode specific application sprinkler</p> <p>'736 Patent</p>	<p>A type of sprinkler that is capable to provide fire control (as that term is previously defined) and that is functional at a minimum operating pressure with a specific number of operating sprinklers for a given protection scheme.</p>	<p>A type of spray sprinkler that is functional at a minimum operating pressure for a specific number of operating sprinklers and for particular classes of goods.</p>

<p>most hydraulically demanding sprinklers</p> <p>'736 Patent</p>	<p>Sprinklers that place the greatest water demand on a system in order to provide a prescribed minimum discharge pressure or flow.</p>	<p>The sprinklers that are farthest from the control valve that permits water to enter the network of pipes, <u>i.e.</u>, the sprinklers that require the most time for water to arrive from the control valve.</p>
<p>least hydraulically demanding sprinklers</p> <p>'736 Patent</p>	<p>Sprinklers that place the least water demand on a system in order to provide a prescribed minimum discharge pressure or flow.</p>	<p>The sprinklers that are closest to the control valve, <u>i.e.</u>, the sprinklers that require the least time for water to arrive from the control valve.</p>
<p>identifying</p> <p>'736 Patent</p>	<p>No construction necessary.</p>	<p>To establish the identity of; to ascertain the origin, nature or characteristics of; establishing or indicating who or what (someone or something) is.</p>
<p>verifying</p> <p>'736 Patent</p>	<p>No construction necessary.</p>	<p>To determine or test the truth or accuracy of, as by comparison or investigation; make sure or demonstrate that something is true, accurate or justified.</p>

<p>surround and drown '736 Patent</p>	<p>To substantially surround a burning area with a discharge of water to rapidly reduce the heat release rate.</p>	<p>Upon activation of a first sprinkler or a first group of sprinklers, fluid delivery to that first sprinkler or first group of sprinklers is intentionally delayed to let the fire grow for a set period, so that neighboring sprinklers are also activated by heat from the growing fire. The fluid delivery is intentionally delayed until the fluid spray from the entire group of sprinklers, which includes the first activated but delayed sprinkler or group of sprinklers and the later activated neighboring sprinklers, covers an area larger than the fire.</p>
<p>fire suppression protection; suppression of a fire '201 Patent</p>	<p>"Fire suppression" to deliver water density sufficient to contain or extinguish a fire. No further construction necessary.</p>	<p>Providing sufficient fluid to extinguish a fire or prevent its growth. In contrast, "fire control protection" and "control of a fire" is to control a fire until it burns itself out or until fire-fighting activities can commence.</p>
<p>sprinkler for providing fire suppression protection in a storage enclosure '201 Patent</p>	<p>No construction necessary.</p>	<p>An Early Suppression Fast Response (ESFR) sprinkler.</p>
<p>a generally tubular body defining a passageway along a longitudinal axis '201 Patent</p>	<p>No construction necessary.</p>	<p>A hollow tube or pipe forming a waterway.</p>

<p>the passageway having a changing cross-section as the passageway extends along the longitudinal axis between an inlet opening at one end of the body and an outlet opening at the other end</p> <p>'201 Patent</p>	<p>No construction necessary.</p>	<p>The cross-sectional area of the waterway of the sprinkler body continuously changes from one end of the conduit to the other.</p>
<p>the passageway having a minimum diameter to define . . . a first diameter of the sprinkler</p> <p>'201 Patent</p>	<p>No construction necessary.</p>	<p>The first diameter is the smallest inside diameter of the water flow conduit of the sprinkler body; the narrowest diameter of the water flow conduit.</p>
<p>the plurality of peripheral edges defining the maximum diameter of the redirecting member as a second diameter of the sprinkler</p> <p>'201 Patent</p>	<p>No construction necessary.</p>	<p>The second diameter is the diameter between the lowermost ends of opposite tines of the deflector.</p>

a. dry

The claim term "dry" is used in independent claims 1, 2, and 15. Claims 1 and 2 recite, in pertinent part, "A dry ceiling-only storage occupancy fire protection system comprising" '736 Patent col.78 ll.30-31, 66-67. Claim 15 recites, in pertinent part, "A method of dry ceiling-only fire protection for a storage occupancy the method comprising" Id. col.80 ll.30-31.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
"dry" fire protection is fire protection provided by a device or devices connected to flow lines that contain gas.	A "dry" system is a sprinkler system wherein the pipes are filled with air or another gas until a sprinkler is activated. When a sprinkler is activated, a valve opens, allowing water to enter the pipes. In contrast, in a "wet" system, the pipes are filled with water at all times.

Plaintiff argues that the '736 Patent's specification supports its construction. Specifically, the specification states that "[a] dry sprinkler system includes a sprinkler grid having a plurality of sprinkler heads. The sprinkler grid is connected via fluid flow lines containing air or other gas." Id. col.1 ll. 56-59. Moreover, Plaintiff argues that Defendant's construction is untenable because it requires sprinkler activation. The specification, on the other hand, states that a dry system does not need sprinkler activation.

Indeed, in a deluge system, one of the three types of dry systems described in the specification, the sprinkler head remains open at all times. In that system, water enters the piping system after a valve is opened in response to a pneumatic or electrical detector indicating a fire.

Similarly, a preaction system is another type of dry sprinkler system. A preaction system, as the parties have agreed, is a dry system that has "pipes that are free of water, that employs sprinkler heads that remain closed, that has supervisory air, that utilizes detectors to detect an indication of fire, and, when a fire is detected, introduces water into the pipes and sprinkler heads." Joint List of Agreed to and Disputed Claim Terms & Constructions 9, ECF 80. Thus, a preaction system does not require the sprinkler to activate to introduce water into the piping, but requires a detector to detect in order to introduce the water into the pipes. Moreover, Plaintiff argues that one of the preferred embodiments discusses a dry system that contains both dry pipes and wet pipes. Specifically, the '736 Patent states:

A preferred dry sprinkler system [], as seen in FIG. 1, is configured for protection of a stored commodity [] in a storage area or occupancy []. The system [] includes a network of pipes having a wet portion [] and a dry portion [] preferably coupled to one another by a primary water control valve [] which is preferably a deluge or preaction valve or alternatively, an air-to-water ratio valve.

'736 Patent col.20 ll. 60-66. Finally, Plaintiff argues that, "[t]o avoid any misimpression that a dry fire protection method employs sprinklers having a heat activated element," the Court should not use the word "sprinkler," but should use the word "device" instead. Pl.'s Opening Claim Construction Br. 21, ECF No. 59 [hereinafter Pl.'s Opening Br.].

Defendant argues that the specification supports its construction. It states that the specification describes a dry sprinkler system as having a "grid of pipes 'containing air or other gas.'" Def.'s Opening Claim Construction Br. 22, 2011, ECF No. 58 (quoting '736 Patent col.1 ll.59) [hereinafter Def.'s Opening Br.]. And, upon the sprinkler's activation, the control valve opens and permits water to enter the pipes. Moreover, the specification states that a wet sprinkler system's pipes are filled with water at all times.

Defendant also argues that inclusion of the term sprinkler in the term's construction is proper. The patent only references sprinkler systems and not fire protection devices. As to Plaintiff's contention that the description of the deluge system precludes Defendant's construction, Defendant argues that none of Plaintiff's claims discuss a deluge system. Plaintiff's claims only recite closed sprinklers. Therefore, reference to a deluge system is inappropriate.

The Court adopts neither party's construction. The Court construes the term "dry" to mean, "A type of fire protection wherein fluid flow lines are filled with air or another gas and upon release of this air or other gas, water enters the fluid flow lines." The specification supports this construction. It states:

A dry sprinkler system includes a sprinkler grid having a plurality of sprinkler heads. The sprinkler grid is connected via fluid flow lines containing air or other gas. . . . The open sprinkler head, alone or in combination with a smoke or fire indicator, causes the primary water supply valve to open, thereby allowing the service water to flow into the fluid flow lines of the dry pipe sprinkler grid (displacing the air therein)

'736 Patent col.1 ll.56-col.2 ll.2.

Moreover, construing the term to include "sprinkler is activated" would be inconsistent with the preaction system that does not require a sprinkler to activate, but requires a detector to detect in order to introduce water into the sprinkler system. Indeed, dependent claim 8 supports this construction. That claim recites a double-preaction system that includes a fire detector that "activate[s] before any sprinkler activation." Id. col.79 l.57. The fire detector provides a signal to a solenoid valve that, in turn, activates a control valve to introduce water into the system. See id. col.70 ll.50-52 ("The fluid delivery from the wet portion [] to the dry portion [] is controlled by actuation of the control valve

[]."). Thus, the dry system becomes wet not only if a sprinkler activates, but also when a fire detector detects a fire.

Plaintiff's contention, however, that dry should refer to "device" and not "sprinkler" is unnecessary. Each claim that recites "dry" fire protection or a fire protection system requires sprinklers. Thus, to include either "device" or "sprinkler" within the construction of "dry" would be redundant.

Moreover, NFPA-13, a standards publication entitled "Installation of Sprinkler Systems" that Plaintiff incorporated by reference into the '736 Patent's specification, see id. col.11.35-36, supports the Court's construction.² NFPA-13 defines a "dry pipe sprinkler system" to mean:

A sprinkler system employing automatic sprinklers that are attached to a piping system containing air or nitrogen under pressure, the release of which (as from the opening of a sprinkler) permits the water pressure to open a valve known as a dry pipe valve, and the water then flows into the piping system and out the opened sprinklers.

NFPA-13 Installation of Sprinkler Systems § 3.4.5 (2002 ed.)

[hereinafter NFPA-13]. The Court's inclusion in its construction that water enters the system is important to

² Defendant argued at the Markman hearing that the Court should dismiss this reference, even though it is incorporated by reference into the specification, because the patent specification does not direct the reader to refer back to NFPA-13 after a term is used. Markman Hr'g Tr. 38:19-39:6, Feb. 24, 2012, ECF No. 86. This argument is curious because Defendant itself relies upon NFPA-13 for several of its own constructions. The Court thus rejects Defendant's argument.

provide an understanding of how dry fire protection works.³ Accordingly, the Court construes "dry" to mean, "A type of fire protection wherein fluid flow lines are filled with air or another gas and upon release of this air or other gas, water enters the fluid flow lines."

b. ceiling-only

The claim term "ceiling-only" is used in independent claims 1, 2, and 15. Claims 1 and 2 recite, in pertinent part, "A dry ceiling-only storage occupancy fire protection system comprising" '736 Patent col.78 ll.30-31, 66-67. Claim 15 recites, in pertinent part, "A method of dry ceiling-only fire protection for a storage occupancy the method comprising" Id. col.80 ll.30-31.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
This refers to fire protection devices located at the ceiling, above stored items or materials. There are no fire protection devices between the ceiling devices and the floors.	The sprinklers are only located at the ceiling, above the stored items or materials. There are no sprinklers between the ceiling sprinklers and the floors.

³ The NFPA-13 definition specifically discusses a "dry pipe sprinkler system." In this case "dry" modifies the phrase "fire protection" or "fire protection system." See '736 Patent col.78 l.30, col.80 l.30. Therefore, inclusion of a piping system as discussed in NFPA-13 in the Court's construction would add a limitation to the claim term.

Plaintiff admits that the only difference between the parties' proposed constructions is Defendant's use of the word "sprinkler." Plaintiff argues the "ceiling-only" modifies "fire protection." Therefore, use of the word "sprinkler" in its construction risks confusion that the "ceiling-only" fire protection is limited to fire protection that employs devices having heat responsive elements because sprinklers have these elements. Moreover, Plaintiff argues that each claim that uses the word "ceiling-only" already includes sprinkler limitations. For example, "A dry ceiling-only storage occupancy fire protection system comprising: a grid of control mode sprinklers" Id. col.78 ll.30-32. Therefore, to read the word "sprinkler" into "ceiling-only" would be unnecessary.

Defendant argues that Plaintiff only claimed sprinklers in the '736 Patent. Moreover, "ceiling-only" does not modify "fire protection," it modifies "fire-protection system." Accordingly, using the word "sprinkler" is a necessary modifier to limit "ceiling-only" to the use in sprinkler fire protection systems.

The Court adopts Defendant's construction. Plaintiff's requirement to use the phrase "fire protection devices" has no support in the '736 Patent. Indeed, the claims themselves support finding that "ceiling-only" refers to a sprinkler system. The claims refer only to sprinklers and

sprinkler systems. In contrast to the term “dry,” “ceiling-only” requires some reference to a device. Without a reference, there would be no object to be “ceiling-only.” Accordingly, the Court construes “ceiling-only” to mean, “Sprinklers are only located at the ceiling, above the stored items or materials. There are no sprinklers between the ceiling sprinklers and the floors.”

c. storage occupancy

The claim term “storage occupancy” is used in independent claims 1, 2, and 15. Claims 1 and 2 recite, in pertinent part, “A dry ceiling-only storage occupancy fire protection system comprising” ’736 Patent col.78 ll.30-31, 66-67. Claim 15 recites, in pertinent part, “A method of dry ceiling-only fire protection for a storage occupancy the method comprising” Id. col.80 ll.30-31.

<u>Plaintiff’s Proposed Construction</u>	<u>Defendant’s Proposed Construction</u>
No construction necessary	A facility designed to store goods.

Plaintiff argues that no construction is necessary and that the plain and ordinary meaning of the terms is sufficient. It argues that Defendant’s construction impermissibly includes “an intent element by requiring the facility to be ‘designed’ to store goods.” Pl.’s Opening Br. 30.

Defendant argues that the jury may not understand what "storage occupancy" means. That is, that it describes the facility in which the sprinkler system is installed. Moreover, Defendant cites to the National Fire Protection Association ("NFPA") Fire Code. Defendant states that the NFPA provides a definition for storage occupancy as "[a]n occupancy used primarily for the storage or sheltering of goods, merchandise, products, vehicles or animals." 1 NFPA Fire Code § 6.1.13.1 (2011), Pl.'s Opening Br. Ex. 13. Defendant contends that its construction is consistent with the NFPA definition.

The Court adopts neither party's construction. The Court construes "storage occupancy" to mean, "An occupancy used primarily for the storage or sheltering of goods, merchandise, products, vehicles or animals."⁴ NFPA-13 § 6.1.13.1. As already stated, NFPA-13 is incorporated by reference into the '736 Patent. The Court's construction describes what this occupancy is and resolves the dispute between the parties vis-à-vis limitations suggested by Defendant's construction. Indeed, Defendant's construction improperly limits storage occupancy to only occupancies designed to "store goods." Accordingly, the

⁴ This is the same definition provided by Defendant. Yet, NFPA-13 is incorporated by reference into the '736 Patent's specification. And, the NFPA-13 edition that was incorporated was from 2002, close in time to the time of filing. Therefore, the Court bases its construction on NFPA-13 rather than on the NFPA Fire Code.

Court construes "storage occupancy" to mean, "An occupancy used primarily for the storage or sheltering of goods, merchandise, products, vehicles or animals."

d. control mode sprinklers

The claim term "control mode sprinklers" appears in independent claims 1, 2, 15, 18, and 19. In pertinent part, claims 1 and 2 recite, "A dry ceiling-only storage occupancy fire protection system comprising: a grid of control mode sprinklers" ² '736 Patent col.78 ll.30-32, col. 78. l. 66-col.79 l.1. Claims 18 and 19 recite, in pertinent part, "A method of protecting a commodity . . . the method comprising: providing a plurality of control mode sprinklers" Id. col.81 ll.14-21, 57-64.

² For the sake of completeness, claim 15 recites, "A method of dry ceiling-only fire protection for a storage occupancy the method comprising . . . a grid of control mode sprinklers." Id. col.80 ll.30-51.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
Sprinklers that are capable of providing "Fire Control," as that term is defined in § 3.3.9 of the 2002 edition of NFPA-13 Standard for the Installation of Sprinkler Systems, which is limiting the size of a fire by distribution of water so as to decrease the heat release rate and pre-wet adjacent combustibles, while controlling ceiling gas temperatures to avoid structural damage.	Sprinklers designed to control a fire until it burns itself out or until fire-fighting activities can commence.

Plaintiff argues that the intrinsic evidence supports its construction of "control mode sprinklers." Specifically, NFPA-13 defines the term "fire control" as "[l]imiting the size of a fire by distribution of water so as to decrease the heat release rate and pre-wet adjacent combustibles, while controlling ceiling gas temperature to avoid structural damage." NFPA-13 § 3.3.9. Therefore, Plaintiff argues, a control mode sprinkler is a type of sprinkler capable of providing fire control. Moreover, Plaintiff contends that Defendant does not base its proposed construction upon the intrinsic record and, therefore, the Court should not adopt Defendant's construction. Further, Plaintiff argues that Defendant's construction fails to define the term control, which is critical in this case.

Defendant supports its construction with several extrinsic references, most notably with a chapter from the NFPA's "Fire Protection Handbook." James E. Golinveaux, a named inventor of the '736 Patent, co-authored this chapter. Mr. Golinveaux defines control mode sprinklers as those that "contain or rather control the fire . . . until it is manually extinguished or burns itself out." James E. Golinveaux, et al., NFPA Fire Protection Handbook 16-80, Def.'s Opening Br. Ex. 25. Furthermore, Mr. Golinveaux contrasts control mode sprinklers with suppression mode sprinklers. Those sprinklers, unlike control mode sprinklers, actually suppress rather than control a fire. Additional extrinsic evidence supports Defendant's construction. A sprinkler installation website defines control mode sprinklers as those that prevent "collapse of the structure by cooling down the fire and wetting surfaces to prevent the fire from spreading. The fire is extinguished once firefighters intervene or once the burning object has been consumed." Def.'s Opening Br. Ex. 26, at 1.

The Court adopts neither party's construction. The Court construes the term "control mode sprinklers" to mean, "Sprinklers that limit the size of a fire by distribution of water so as to decrease the heat release rate and pre-wet adjacent combustibles, while controlling ceiling gas temperatures." This construction is a partial adoption of

Plaintiff's construction. With respect to this term, reference to the definition of "fire control" only is insufficient to properly construe the term. "Fire control" does not define the term "control mode sprinklers," though its definition is informative.

Mr. Golinveaux's chapter is instructive in this matter.⁵ In addition to the passages that Defendant recites, Mr. Golinveaux provides this additional information about control mode sprinklers: "Through a combination of prewetting of combustibles surrounding the initial fire area and cooling at roof/ceiling level, the fire is confined to a relatively small area until it is manually extinguished or burns itself out." Golinveaux, supra, at 16-80. Plaintiff's construction is substantially similar to this definition. Using the phrase "limit the size of a fire," implies that the fire is going to be extinguished by some other means. Thus, reference to the fire to burning itself out or other fire-fighting activities as in Defendant's construction is unnecessary and overly limiting.

Furthermore, control mode sprinklers control a fire in specific ways, namely by decreasing temperature and pre-wetting adjacent combustibles. Thus, these elements are critical to

⁵ While this chapter is, of course, extrinsic evidence, the claims and specification themselves do not discuss "control mode sprinkler." Moreover, as Mr. Golinveaux was a named inventor of the '736 Patent, the chapter is an adequate representation of what was known to one of ordinary skill in the art.

properly construe the term and were lacking from Defendant's construction. Also, the Court disagrees with Defendant that the terms "decrease the heat release rate" and "pre-wet adjacent combustibles" would be confusing to the jury. Those terms are clear and unambiguous and need no construction.

Moreover, the inclusion of the term "design" is an inappropriate limitation. The specification does not state nor do the claims themselves require that the sprinkler be specifically designed to provide fire control. Defendant cites to extrinsic evidence stating that control mode sprinklers are specifically designed to provide fire control. See Richard Weldon, ASHI Reporter (2008) 1, Def.'s Opening Br. Ex. 14 ("Control mode sprinklers systems are designed to control a fire until its original fuel source is depleted or until fire-fighting activities can commence."). Yet, Mr. Golinveaux's article is to the contrary. There, he writes that "[t]he performance of these . . . [control mode] sprinklers is characterized by the fact that the sprinklers that operate work to contain or rather control the fire." Golinveaux, supra, at 16-80 (emphasis added). Thus, a control mode sprinkler need not be designed to provide fire control, but must have particular performance characteristics. The NFPA "Fire Protection Handbook," combined with the silence within the '736 Patent, supports the Court's rejection of Defendant's construction

requiring that a control mode sprinkler be designed as such. Accordingly, the Court construes the term "control mode sprinklers" to mean, "Sprinklers that limit the size of a fire by distribution of water so as to decrease the heat release rate and pre-wet adjacent combustibles, while controlling ceiling gas temperatures."

e. network of pipes

The claim term "network of pipes" appears in claims 1, 2, 15, 18, and 19. Claims 1 and 2 recite that the claimed systems are comprised of "a grid of control mode sprinklers . . . and a network of pipes." '736 Patent col.78 ll.32-46; col.79 ll.1-15. Claim 15 recites a method "comprising . . . verifying that a network of pipes in a dry ceiling-only fire protection system." Id. col.80 ll.32, 40-41. Finally, claims 18 and 19 recite, "A method of protecting a commodity . . . the method comprising . . . interconnecting the plurality of sprinklers with a network of pipes to define a grid of sprinklers" Id. col.81 ll.14-32, 57-67, col.81 l.57-col.82 l.8.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
No construction necessary.	A configuration of interconnected pipes.

Plaintiff contends that the term "network of pipes" requires no construction and is readily understandable to one of

ordinary skill in the art. Plaintiff argues that Defendant's construction is unduly narrowing. Specifically, Plaintiff argues that the use of the word "interconnected" precludes the term from encompassing a network of pipes where the pipes could cross. See Pl.'s Opening Br. 16 (defining "network" as "system of lines or channels that cross or interconnect").

Defendant argues that the specification and Plaintiff's own literature supports its construction. With respect to the specification, Defendant cites to the description of a preferred embodiment that states, "The dry portion [] and its network of pipes preferably includes a main riser pipe, connected to the primary water control valve [], and a main pipe [] to which are connected one or more spaced-apart branch pipes []." '736 Patent col.23 ll.7-10. Thus, Defendant argues that a network of pipes requires the pipes to be interconnected. Furthermore, Defendant contends that the '736 Patent is supposed to protect Plaintiff's Quell sprinkler system. Defendant argues that this system, according to Plaintiff's own literature, requires that the system piping be in a "tree" configuration with a main pipe connected to several branch pipes. See Def.'s Responsive Claim Construction Br. Ex. 35, at 3, ECF No. 65 [hereinafter Def.'s Response Br.] ("The system piping must be a tree configuration"). Thus, the network of pipes must be interconnected.

The Court adopts neither party's construction. The Court construes "network of pipes" to mean, "A configuration of pipes." The claims themselves support the Court's construction. Claim 1 recites, "[A] network of pipes including at least one main pipe and a plurality of spaced apart branch lines interconnecting the grid of control mode sprinklers"

'736 Patent col.78 ll.46-48. Thus, the claim itself defines how the interconnection should occur and the Court need not add the superfluous language of "interconnected" to "network of pipes." By construing "network" to mean "configuration," the Court allows the claims themselves to define how any interconnection will occur and prevents the jury from confusing "network" to require interconnection. Compare Oxford English Dictionary, available at <http://english.oxforddictionaries.com/definition/configuration?region=us> (defining "configuration" as "an arrangement of elements in a particular form, figure, or combination") (last visited Mar. 27, 2012), with id. available at <http://english.oxforddictionaries.com/definition/network?region=us> (defining "network" as "an arrangement of interconnecting horizontal and vertical lines" or "a group or system of interconnected people or things") (last visited Mar. 27, 2012).

Defendant's proposed construction invites more questions than it answers. Even if the Court assumes that a

"tree" configuration must be used, what if there are several "trees" connected to a single water supply source. Does this mean that the entire configuration of pipes is interconnected even if fluid cannot flow between the trees? The claims themselves provide that there must be "at least one main pipe." Id. col.78 l.46 (emphasis added). Therefore, the claims encompass the configuration of two main pipes connected to a fluid source, but does not require the interconnectivity of these two main pipes.

Moreover, Defendant is incorrect that the '736 Patent is limited to use in a "tree" configuration. The specification states that both tree and loop configurations may be used. See id. col.11 ll.37-39; col.14 ll.13-15; col.23 ll.10-14; col.70 ll.29-31. Thus, contrary to Defendant's contention, the pipes within the loop configuration can cross and provide two different routes for water to flow to a particular sprinkler. Indeed, the pipe system can include both a tree configuration and a loop configuration together. See id. col.14 ll.13-15 ("The method can further include defining the pipe system at least one of a loop and tree configuration."). There is no support that these configurations must interconnect with each other, as Defendant's construction would require.

Furthermore, the specification does not limit the "network of pipes" to only those that interconnect. The section

cited by Defendant that states, "The dry portion [] and its network of pipes preferably includes a main riser pipe, connected to the primary water control valve [], and a main pipe [] to which are connected one or more spaced-apart branch pipes []," is only a preferred embodiment of the invention. Id. col.23 ll.7-10. It is improper for a Court to read a limitation from such an embodiment into the claims themselves absent some clear disavowal of claim scope. See Phillips, 415 F.3d at 1323. Accordingly, the Court construes "network of pipes" to mean, "A configuration of pipes."

f. branch lines

The claim term "branch lines" appears in claims 1, 2, 15, 18, and 19. Claim 1 is illustrative and recites, in pertinent part, that the "network of pipes" includes "at least one main pipe and a plurality of spaced apart branch lines." '736 Patent col.78 ll.46-47.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
No construction necessary. Should the Court decide to construe this term, it should construe "branch lines" as "the pipes in which the sprinklers are placed, either directly or through risers."	Pipes that extend outwardly from the main pipe above the storage area. The sprinklers are attached to them.

Plaintiff argues that no construction is necessary. Furthermore, Plaintiff argues that Defendant's construction is unnecessary because there is nothing in the record that requires branch lines to extend from a main pipe. Indeed, a branch line may be a branch off of a branch. Moreover, Plaintiff argues that Defendant's construction requires the sprinklers to be attached to a branch line and precludes sprinklers from being connected to a main pipe. Plaintiff at the Markman hearing, however, provided an alternative construction contrary to its briefing. Specifically, Plaintiff argued that NFPA-13 provides, "The pipes in which the sprinklers are placed, either directly or through risers." NFPA-13 § 3.5.1.

Defendant, on the other hand, argues that the specification supports its construction. Specifically, the '736 Patent states that a "network of pipes . . . includes . . . a main pipe [] to which are connected one or more spaced apart branch pipes []," moreover it also provides that a network of pipes includes "a main and one or more branch pipes extending from the main for disposal above a stored commodity." '736 Patent col.23 ll.7-10, col.70 ll.11-13. Defendant asserts that its construction would be consistent with calling any sub-branches a branch.

The Court adopts Plaintiff's alternative construction. NFPA-13 specifically defines branch line, and the Court will

adopt this definition as it is incorporated by reference into the specification. Defendant's argument to the contrary is unavailing. As used in the claims, including the phrase "extending from the main pipe" is redundant. For example, claim 19 recites, "[T]he interconnecting includes interconnecting the plurality of sprinklers with at least one main pipe and a plurality of spaced apart branch lines" '736 Patent col.82 ll.19-21. A branch line must, necessarily, extend from a main line or pipe. That is inherent in the definition of a branch. See Oxford English Dictionary, available at <http://english.oxforddictionaries.com/definition/branch?region=us> (defining branch as "a lateral extension or subdivision extending from the main part of something") (last visited Mar. 27, 2012). Yet, a strict reading of Defendant's construction precludes a branch off of a branch. The claims themselves do not limit a branch to only being connected to a main pipe. And, the Court will not limit the claims without some support from the specification. Accordingly, the Court construes "branch lines" to mean, "The pipes in which the sprinklers are placed, either directly or through risers."

g. hydraulically remote sprinklers

The claim term "hydraulically remote sprinklers" appears in claims 1, 2, 15, 18, and 19 of the '736 Patent.

Claim 1 is illustrative of this term's usage. Claim 1 provides, in pertinent part, "The network of pipes locating the grid of sprinklers relative to a fluid source in which about eighteen to twenty-six [] hydraulically remote sprinklers in the grid of control mode sprinklers define a hydraulic design area of the system" Id. col.78 ll.48-52.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
The hydraulically most demanding sprinklers, <u>i.e.</u> , sprinklers that place the greatest water demand on a system in order to provide a prescribed minimum discharge pressure or flow.	The sprinklers that are the farthest from the control valve that permits water to enter the network of pipes, <u>i.e.</u> , the sprinklers that require the most time for water to arrive from the control valve.

Plaintiff first argues that the terms "hydraulically remote" and "hydraulically most demanding" are interchangeable.⁶ Indeed, when describing a preferred embodiment of the '736 Patent, the specification states that "[b]ased upon the configuration of the dry portion [], the network of sprinklers [] includes at least one hydraulically remote or hydraulically most demanding sprinkler []" Id. col.23 ll.24-26. The NFPA states that calculations of a hydraulic system should be made to the hydraulically most demanding sprinkler. This most demanding sprinkler is the one that requires the most initial

⁶ The parties' briefs and representations at the Markman hearing confirmed that the two terms are interchangeable. Thus, the Court will use these terms interchangeably.

water pressure to still meet the correct discharge flow. Furthermore, the NFPA states that, depending on the pipe system's configuration, the hydraulically remote sprinkler is not always the farthest from the water source. Thus, Plaintiff contends its construction is consistent with how one of ordinary skill in the art understands the term.

Defendant argues that the specification supports its construction. Specifically, the specification provides, [T]he system includes a primary water control valve and the dry portion includes at least one hydraulically remote sprinkler and at least one hydraulically close sprinkler relative to the primary water control valve." Id. col.7 ll.33-36. Thus, Defendant argues that the specification defines this term to be one of proximity from the water supply. Furthermore, Defendant argues that with respect to the '736 Patent, Plaintiff's contention that the hydraulically remote sprinkler is not farthest away from the water supply is incorrect. As Defendant has already argued, the '736 Patent allegedly protects Plaintiff's Quell technology. This sprinkler system is only produced in a "tree" formation. And, under this "tree" formation the most hydraulically demanding sprinkler is always the one that is farthest away from the water supply. Thus, the specification supports Defendant's construction and takes into account what the '736 Patent actually protects.

The Court adopts Plaintiff's construction.

Plaintiff's construction takes into account the appropriate fluid mechanics of the system. Indeed, one of Plaintiff's preferred embodiments illustrates that the hydraulically remote or most demanding sprinklers are not necessarily the farthest away from the water supply.

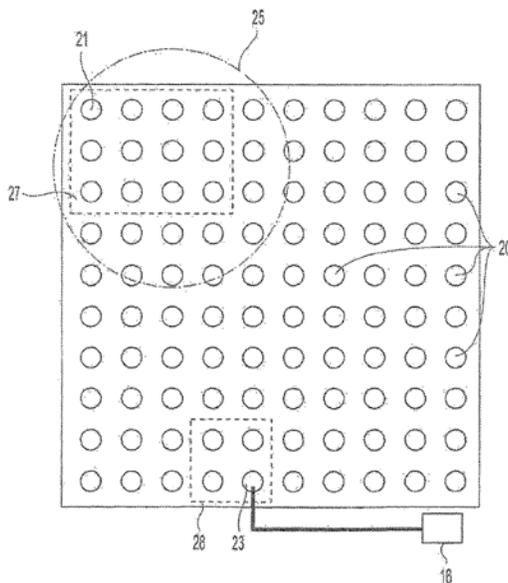


Fig. 1A

Id. fig.1A. Figure 1A illustrates that the water inlet at sprinkler 25, and the hydraulically remote sprinkler at 21. Yet, the farthest from the water inlet would be the sprinkler in the upper right corner of the diagram. Thus, the hydraulically remote sprinkler need not be the farthest away. See NFPA-13 § A.14.4.4.4 ("When it is not obvious by comparison that the design selected is the hydraulically most remote, additional calculations should be submitted. The most distant area is not

necessary the hydraulically most remote."). Defendant argued at the Markman hearing that this figure is incorrect in as much as it is illustrative of the sprinkler grid provided in Figure 1. See Markman Hr'g Tr. 60:18-61:6.

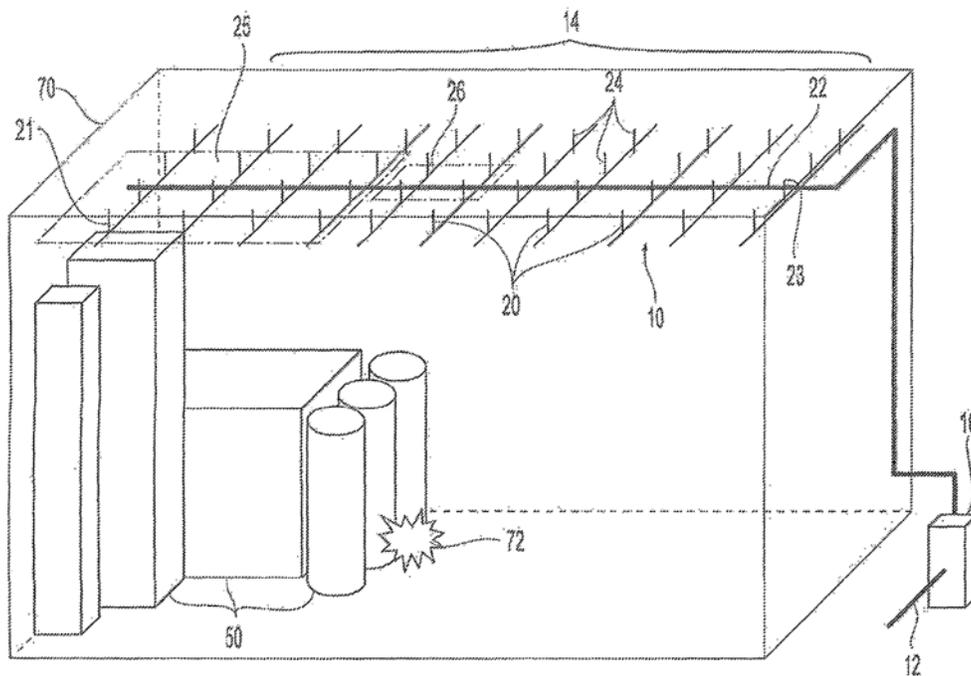


Fig. 1

'736 Patent fig.1. Figure 1 is a schematic representing an embodiment of the claimed sprinkler system. Defendant argues that Figure 1 illustrates that the sprinklers are equidistant from each other and each branch line is equidistant from the

fluid source. Yet, Figure 1 has no reference measurements. Thus, the Court cannot say just by referencing Figure 1 that the most hydraulically demanding sprinkler is the same as the sprinkler that is farthest away from the water source.

Moreover, the part of the specification cited by Defendant is not to the contrary. That passage reads, "[T]he system includes a primary water control valve and the dry portion includes at least one hydraulically remote sprinkler and at least one hydraulically close sprinkler relative to the primary water control valve." '736 Patent col.7 ll.33-36.

While at first blush this passage may seem to support Defendant's construction, it does not. The word "relative" is important because "relative," as used in the specification cited above, does not mean proximity. Because the system is based on hydraulics and, thus, fluid mechanics, proximity to the fluid source is not the only consideration. Viewed in this context, when a sprinkler is hydraulically remote "relative to the primary water control," it means that when calculating according to fluid mechanics principles the hydraulically remote sprinkler, the input water pressure in the appropriate fluid mechanics equation is the primary water supply pressure, as opposed to some other water supply pressure. Without reference to the inlet water supply, a calculation of the hydraulically remote sprinkler would be impossible.

Furthermore, requiring that the most hydraulically demanding sprinkler be a fluid mechanic calculation is consistent with the definition of a "hydraulically designed system" from NFPA-13. See NFPA-13 § 3.3.13 ("A calculated sprinkler system in which pipe sizes are selected on a pressure loss basis to provide a prescribed water density, in gallons per minute per square foot(mm/min), or a prescribed minimum discharge pressure or flow per sprinkler, distributed with a reasonable degree of uniformity over a specified area."). NFPA-13 and the specification state that the system should be hydraulically designed based upon the hydraulically remote sprinkler to ensure that all sprinklers have a reasonably uniform discharge density. See '736 Patent col.53 ll.37-43. Thus, one must determine what inlet pressure of water, along with other variables, including friction loss and piping configuration, will result in the most hydraulically demanding sprinkler to have sufficient water discharge to control a fire. While in some cases this may be the sprinkler farthest away from the water source, an appropriate calculation must be made to confirm this hypothesis. Failing to do so could result in the sprinkler that was the most hydraulically remote to have insufficient water pressure vis-à-vis the remainder of the system and might render the sprinkler system ineffective as

claimed.⁷ Accordingly, the Court construes the term "hydraulically remote sprinklers" to mean, "Sprinklers that place the greatest water demand on a system in order to provide a prescribed minimum discharge pressure or flow."

h. hydraulic design area

The claim term "hydraulic design area" appears in claims 1, 2, 15, 18, and 19. Claim 1 is illustrative and provides, in pertinent part, "[T]he network of pipes locating the grid of sprinklers relative to a fluid source in which about eighteen to twenty-six [] hydraulically remote sprinklers in the grid of control mode sprinklers define a hydraulic design area of the system" '736 Patent col.78 ll.48-52.

⁷ Recently, Plaintiff provided the Court with the prosecution history of U.S. Patent Application no. 12/718,941 (the "'941 application"), which is a continuation of the '736 Patent. Within this history, the PTO conducted an interview regarding the '941 application. The Examiner, Darren Gorman (who was also the examiner of the '736 Patent), and who was provided with the parties' claim construction briefing, stated that a "hydraulically remote sprinkler[] . . . is not limited necessarily to mean the sprinkler[] which [is] farthest from the control valve." Pl.'s Notice of New Evid. Relating to Claim Construction 3, ECF No. 90 (citation and internal quotation marks omitted). Defendant argues that Plaintiff's interview with the PTO was purely for litigation purposes, and the Court should give the Examiner's statement no weight. See Def.'s Resp. to Pl.'s Notice of New Evid. Relating to Claim Construction 2-4, ECF No. 92. The Court declines to decide this issue here and gives Plaintiff's recent interview at the PTO no weight.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
No construction necessary.	Defined by a number of sprinklers. The number of sprinklers defining this area must be sufficient to achieve the surround and drown effect by providing sufficient water density at a sufficient pressure within a sufficient time from activation.

Plaintiff contends that no construction is necessary. The claim language itself defines the term: "[T]he grid of control mode sprinklers define a hydraulic design area" Id. col.78 ll.51-52. Plaintiff argues that Defendant's construction is incorrect for several reasons. First, the number of sprinklers cannot define the hydraulic design area because it is an area in terms of square footage. Indeed, dependent claims limit the hydraulic design area to a specific square footage. Second, inclusion of the requirement that the hydraulic design area achieve the "surround and drown" effect reads a limitation into the claim term. Third, dependent claim 31 recites the term "surround and drown," while independent claims 18 and 19 (upon which 31 depends) do not. Thus, claim 31 adds the further limitation of "surround and drown." To construe the hydraulic design area to require this effect fails

the claim construction canon of claim differentiation. Finally, Plaintiff argues that the prosecution history is not to the contrary. While the history discusses that the preferred embodiment of the invention does recite a "surround and drown" effect, it is only the preferred embodiment. Nothing in the prosecution history clearly and unambiguously limits the '736 Patent to only claims with the "surround and drown" effect.

Defendant argues that the claim language itself mandates that the hydraulic design area is a number of sprinklers. Specifically, claim 1 recites, in pertinent part, "[A]bout eighteen to twenty six [] hydraulically remote sprinklers in the grid of control mode sprinklers define a hydraulic design area" Id. col.78 ll.50-52. Furthermore, Defendant argues that the specification states that the hydraulic design areas must support a "surround and drown" effect. Thus, "surround and drown" must be included when construing the claim. While this construction imports a limitation into the claim, Defendant argues that the invention's description only references a hydraulic design area that supports the "surround and drown" effect. Thus, this limitation must be added to the claim's construction.

The Court adopts neither construction. The Court construes the term "hydraulic design area" to mean, "An area, defined in squared units of measure, comprising a defined number

of hydraulically remote sprinklers at defined spacing between each sprinkler." The claims themselves provide as much. Claim 1, for example, defines the hydraulic design area a number of hydraulically remote sprinklers at specific spacing intervals. See id. col. 78 ll.32-33 ("[A] grid of control mode sprinklers defining a sprinkler-to-sprinkler spacing ranging from eight feet to twelve feet"; id. col.78 ll.50-52 ("[A]bout eighteen to twenty-six [] hydraulically remote sprinklers in the grid of control mode sprinklers define a hydraulic design area of the system").

Defendant's construction is incorrect for several reasons. It is clear from the claim language itself that the hydraulic design area is not solely a number of sprinklers. Rather, the number of sprinklers at a specified spacing defines a shape in which the internal area of that shape is the hydraulic design area. By defining the term in this way, the Court gives the word "area" its proper definition. Plaintiff's dependent claims go on to define the hydraulic design area in terms of square footage. See id. col.79 ll.45-47 ("The system of claim 1 or 2, wherein the hydraulic design area is less than about 2600 square feet [])."). Thus, the number of sprinklers, while relevant, is not determinative. The same number of sprinklers, depending on spacing, may define very different hydraulic design areas. Indeed, as stated above, the claims

themselves define the appropriate range of sprinkler spacing. Defendant's construction omits this critical information.

As to Defendant's contention that the term must include the phrase "surround and drown," Defendant is incorrect again. The claims themselves do not provide that the "hydraulic design area" achieves the "surround and drown" effect. That said, it seems clear that the effect of the claimed invention is to address a fire event with a "surround and drown" effect. Indeed, all of the testing results provided in the '736 Patent demonstrate the claimed invention's ability to "surround and drown" a fire. See, e.g., id. col.31 ll.20-24. This may be the functional result, but the Court should not import a function of the claimed invention into a non-functional claim. See Ecolab, Inc. v Envirochem, Inc., 264 F.3d 1358, 1367 (Fed. Cir. 2001) (concluding that even a "vital" function of a claimed invention should not be imported into a claim where that function is not recited in the claim itself).

While the specification does indeed include the phrase "surround and drown," it does so to describe the effect of a preferred embodiment. A statement in the specification is particularly instructive: "The system further includes a preferred hydraulic design area defined by a plurality of sprinklers in the dry portion including the at least one hydraulically remote sprinkler to support responding to a fire

event with a surround and drown effect." '736 Patent col.8 11.2-14 (emphasis added). The key phrase is "support responding." This language indicates that the hydraulic design area only supports the "surround and drown" effect; it is not a necessary and sufficient condition to accomplish this effect. Thus, the specification does not support requiring the hydraulic design area to have a certain number of sprinklers to achieve the "surround and drown" effect.

Moreover, the specification specifically states that it is the sprinkler operational area that provides the "surround and drown" effect. See id. col.6 11.3-12. The hydraulic design area contributes to creating the "surround and drown" effect, along with other limitations from the claims. Thus, this effect is the function of not only the hydraulic design area, but also the other limitations of the claims. Indeed, as explained in the specification, the hydraulic design area is one of at least three parameters needed to achieve the "surround and drown" effect. See id. col.56 11.55-59. The hydraulic design area does not provide the "surround and drown" effect, but only supports this effect.

The prosecution history is not to the contrary. It does not clearly and unambiguously illustrate that the hydraulic design area provides the "surround and drown" effect. The history shows that although preferred embodiments of the

invention achieve the "surround and drown" effect, there is nothing to show that the hydraulic design area is the cornerstone to this effect. An interview with the PTO illustrates that the claimed invention facilitates the "surround and drown" effect, but nothing in this interview states that the "hydraulic design area," alone, provides this effect. See Examiner's Interview Summary for May 26, 2010 Interview, at 4, Def.'s Opening Br. Ex. 6 ("[T]he inventive concepts of the instant application, which facilitate a 'surround and drown' extinguishing of a fire event when a particular ceiling height exists above the rack storage by including a fluid delivery delay period"). This does not amount to a clear disavowal of claim scope needed to import a limitation into the claim. See Thorner v. Sony Computer Entm't Am. L.L.C., 669 F.3d 1362, 1365 (Fed. Cir. 2012) (explaining that the "words of a claim are generally given their ordinary and customary meaning" unless a patentee "disavows the full scope of a claim term").

Finally, the doctrine of claim differentiation supports a rejection of Defendant's construction. Claim 31, which depends upon claims 18 and 19, specifically requires the "sprinkler operational area to surround and drown a fire." '736 Patent col.83 ll.35-38. Defendant argues that the Court should not take into account this differentiation because claim 31, which depends upon claim 30, does not even reference a hydraulic

design area. This argument is fundamentally flawed. Claim 30, in turn, depends upon either claim 18 or 19. Both claims 18 and 19 do refer to a hydraulic design area. Thus, claim 31 necessarily includes a hydraulic design area within its limitations. Therefore, as claim 31 claims a function – the “surround and drown” effect – the Court will give effect to that function in claim construction. See id. col.71 ll.39–col.72 ll.3 (“[T]he preferred device, system or method of use further provides design criteria for configuring the sprinkler and/or systems to effect a sprinkler operational area having a surround and drown configuration for addressing a fire event in a storage occupancy.”).

Moreover, the Court notes that claim 31 is a dependent claim and thus narrows claims 18 and 19. This is an important distinction when considering that the '736 Patent specifically defines “surround and drown” to mean, “To substantially surround a burning area with a discharge of water to rapidly reduce the heat release rate.” Id. col.21 ll.59–61. Independent claims 18 and 19 recite grids of control mode sprinklers. Control mode sprinklers, as the Court construed, reduce the heat release rate of the fire. Yet, control mode sprinklers do not “rapidly reduce” this rate. To read “surround and drown” into “hydraulic design area” is to redefine “control mode sprinklers.” The specification does not support this redefinition. Thus, to

import the limitation of "surround and drown" into the term "hydraulic design area" would be improper.⁸

Nevertheless, the Court also finds that the term does need some construction to facilitate the jury's understanding. See Power-One, Inc. v. Artesyn Techs., Inc., 599 F.3d 1343, 1348 (Fed. Cir. 2010). Without such construction, given that the claims do recite that a certain number of sprinklers define the hydraulic design area, there is a risk that the jury may equate the number of sprinklers with the hydraulic design area. Thus, the Court construes the term "hydraulic design area" to mean, "An area, defined in squared units of measure, comprising a defined number of hydraulically remote sprinklers at defined spacing between each sprinkler." This construction is consistent with how the claims use this term and allows for jury understanding.

⁸ The Examiner of the '931 application also commented on the construction of "hydraulic design area." He stated that the "meaning of the term 'hydraulic design area' is plainly and clearly defined in the specification of the '736 patent, and is understood by the Examiner to not be limited to a 'surround and drown' effect." Pl.'s Notice of New Evid. Relating to Claim Construction 3 (citation and internal quotation marks omitted). Similar to the Examiner's comments regarding "hydraulically remote sprinkler," the Court gives the Examiner's comments no weight.

i. maximum fluid delivery delay period

The claim term "maximum fluid delivery delay period" appears in claims 4 and 21. Claim 4 provides, "The system of claim 1 or 2, wherein the network of pipes define for the system a maximum fluid delivery delay period and a minimum fluid delivery delay period" '736 Patent col.79 ll.39-41. Claim 21 provides the same, in pertinent part. See id. col.82 ll.39-40.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
"Delay" refers to an intentional delay. No further construction necessary.	The maximum time permitted for fluid to reach the most hydraulically remote sprinkler(s) once the system is activated, and still achieve the "surround and drown" effect.

The parties are in agreement that "delay" means an intentional delay. Plaintiff argues that the remainder of the claim term needs no additional construction. Moreover, Defendant's construction finds no support in the claims themselves. The claims reference that the "maximum fluid deliver delay period" is for the system as a whole. Indeed, each sprinkler must have a delivery delay period between the maximum and minimum periods, not just in reference to the most hydraulically remote sprinklers.

Defendant argues that Plaintiff specifically defines the term "maximum fluid delivery period." The '736 Patent's

specification states that “[t]he maximum mandatory fluid delivery delay period is the period of time following thermal activation of the at least one hydraulically remote sprinkler [] to the moment of discharge from the at least one hydraulically remote sprinkler [] at system operating pressure.” Id. col.24 ll.6-16. Furthermore, Defendant argues that the inclusion of the “surround and drown” effect is necessary in this case because the specification discusses embodiments that result in this effect.

The Court adopts neither construction. The Court construes the term “maximum fluid delivery delay period” to mean, “The maximum intentionally delayed period of time following the activation of the first sprinkler to the activation of another specified sprinkler in the system.” This is the definition provided by ‘736 Patent’s claims and specification with the addition of the agreed upon statement that the delay is intentional. Claims 4 and 21 themselves state that each sprinkler has a fluid delivery delay between the maximum and minimum delay periods. See id. col.79 ll.39-44 (“The system of claim 1 or 2, wherein the network of pipes define for the system a maximum fluid delivery delay period and a minimum fluid delivery delay period, each sprinkler having a fluid delivery delay period between the maximum fluid delivery delay period and the minimum fluid delivery delay period.”).

Moreover, the specification states that “[p]referably, the maximum delivery delay period is defined as the time lapse between the first sprinkler activation to about the sixteenth sprinkler activation.” Id. col.14 ll.34-37. In the sentence immediately following this, the specification provides another embodiment where the “maximum fluid delivery delay period is experienced at the most hydraulically remote sprinkler.” Id. col.14 ll.41-43. Therefore, the Court’s construction does not limit the reference point for the maximum delay period, but is sufficiently broad to encompass all the specification discloses. Indeed, the inclusion of the phrase “another specified sprinkler” within the Court’s construction provides a reference point for how this mandatory time delay is calculated. And, the specification, as described above, provides for different “specified” sprinklers. In one embodiment, the specified sprinkler is the sixteenth sprinkler. In another, it is the hydraulically remote sprinkler.

Defendant’s proposed construction is incorrect. The claims themselves do not limit the maximum fluid delivery delay period to the hydraulically remote sprinkler. Although the specification does disclose a preferred embodiment where the maximum fluid delivery delay period is “experienced at the most hydraulically remote sprinkler,” this does not support Defendant’s limiting construction. As explained above, the

specification also discloses that the maximum fluid delivery delay period references the number of sprinklers activated. Defendant's construction is inconsistent with this support from the specification.

To be sure, the '736 Patent does define the maximum mandatory fluid delivery delay period as "the period of time following thermal activation of the at least one hydraulically remote sprinkler [] to the moment of discharge from the at least one hydraulically remote sprinkler [] at system operating pressure." Id. col.24 ll.7-10. Yet, this is not the same term that the parties dispute here. "Mandatory," as used in the specification, modifies maximum fluid delivery delay period. The Court will not import Defendant's limitation from the specification because that limitation is not in reference to the term the parties dispute here.

Finally, the Court also rejects Defendant's proposed limitation of including "surround and drown" in this term's construction. The claims themselves do not cite the "surround and drown" effect, except in dependent claim 31. And, similar to the hydraulic design area, the maximum fluid delivery period is one parameter that supports a sprinkler system having the "surround and drown" effect. The specification states, for example:

The preferred method includes defining at least one hydraulically remote sprinkler and at least one hydraulically close sprinkler relative to a fluid source, and defining a maximum fluid delivery delay period to the at least one hydraulically remote sprinkler and defining a minimum fluid delivery delay period to the at least one hydraulically close sprinkler to generate sprinkler operational areas for surrounding and drowning a fire event.

Id. col.13 l.65-col.14 l.6. Thus, first the hydraulically remote and close sprinklers are defined. Then, if the maximum and minimum fluid delivery delay periods are defined relative to the remote and close sprinklers, respectively, the specification teaches that the "surround and drown" effect will result. Yet, the specification, as explained above, does not limit the maximum fluid delivery delay period with reference to only the hydraulically remote sprinkler. Therefore, to include the "surround and drown" effect would be an impermissible and unwarranted limiting of the claim to a preferred embodiment. See Phillips, 415 F.3d at 1323 (stating it is incorrect to read a limitation from a preferred embodiment into the claims).

In light of the claims themselves and the specification, the Court will not import limitations from the specification into the term "maximum fluid delivery delay period." The Court construes this term to mean, "The maximum intentionally delayed period of time following the activation of the first sprinkler to the activation of another specified sprinkler in the system."

j. minimum fluid delivery delay period

The claim term "minimum fluid delivery delay period" appears in claims 4 and 21. Claim 4 provides, "The system of claim 1 or 2, wherein the network of pipes define for the system a maximum fluid delivery delay period and a minimum fluid delivery delay period" '736 Patent col.79 ll.39-41. Claim 21 provides the same, in pertinent part. See id. col.82 ll.37-42.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
"Delay" refers to an intentional delay. No further construction necessary.	The minimum time the fluid is intentionally delayed before the fluid reaches the sprinkler(s) that is/are closest to the control valve that permits water to enter the network of pipes, which delay is necessary to achieve the "surround and drown" effect.

Both parties proffer the same arguments as they did for the term "maximum fluid delivery delay period," merely interchanging the word minimum for maximum. Thus, the Court need not repeat those arguments. The Court construes the term "minimum fluid delivery delay period" to mean, "The minimum intentionally delayed period of time following the activation of the first sprinkler to the activation of another specified sprinkler in the system."

k. pressure decay; decay of gas pressure

The claim terms "pressure decay" and "decay of gas pressure" appear in claims 9 and 26. Claim 9 recites: "The system of claim 1 or 2 . . . the system further including a releasing control panel . . . the releasing control panel being configured to receive signals of a pressure decay . . . the releasing control panel capable of detecting a small rate of decay of gas pressure" '736 Patent col.79 1.63-col.80 1.5. Claim 26 provides, in pertinent part, "[W]hen the releasing control panel receives signals of a pressure decay, the control panel energizes the solenoid valve for actuation of the control valve" Id. col.83 11.6-8. Further, that claim recites the use of a "quick release device capable of detecting a small rate of decay of gas pressure." Id. col.83 11.9-11. The parties submit that these two terms should be construed the same.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
No construction necessary.	Loss of air or gas pressure in the sprinkler system caused by the opening of a sprinkler.

Plaintiff argues that no construction is necessary. Plaintiff argues that Defendant's proposed construction adds limitations to the terms. Specifically, Defendant's

construction, which requires that the sprinkler cause the loss of air or gas pressure, is found nowhere in the specification and is unsupported by the claims themselves.

Defendant argues, on the other hand, that the specification states that the loss of air pressure in the system is only due to a sprinkler opening. Specifically, in the Background of the Invention, the '736 Patent discusses "dry sprinkler systems" as follows: "A dry pipe system includes fluid flow pipes which are charged with air under pressure and when the dry pipe system detects heat from a fire, the sprinkler heads open resulting in a decrease in air pressure." Id. col.2 11.18-22. Therefore, the specification supports Defendant's construction requiring a sprinkler to cause the loss of air or gas pressure in the system.

The Court finds that no construction is necessary. The claim terms are clear and unambiguous to one of skill in the art and the Court will give the terms their plain and ordinary meaning. See Phillips, 415 F.3d at 1313. Although the specification does discuss that generally in a dry system the opening of a sprinkler causes a drop in pressure, the claims in which "pressure decay" and "decay of gas pressure" appear do not discuss or mention how the pressure decay occurs. See '736 Patent col.79 1.63-col.80 1.5, col.83 11.1-13. The claims only discuss how the control valve and control panel must be capable

of detecting a pressure drop. How the pressure drop is effectuated is irrelevant to the claim terms as used in the claims. Defendant's construction, in essence, seeks to import a functional limitation into the claim terms where such a limitation is not claimed. To one of ordinary skill in the art, the terms "pressure decay" and "decay of gas pressure" as used in the specific claims do not require the further limitation of how the claimed system effects the pressure decay. Accordingly, the Court will not import irrelevant terms when construing "pressure decay" and "decay of gas pressure."

Moreover, the Court finds that the plain and ordinary meaning of "pressure decay" and "decay of gas pressure" does not have more than one ordinary meaning and, therefore, does not require construction. See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1361 (Fed. Cir. 2008) (holding that if an ordinary term has more than one possible meaning the court should construe that term). Indeed, a construction of this term would only substitute the word "decrease" for "decay." Such a substitution does nothing to change the meaning of this term to one of ordinary skill in the art, nor does it facilitate jury understanding. The Court finds that the jury could readily understand what the word decay means and will not needlessly construe a term that needs no construction. See id. at 1362. Accordingly, the Court finds

that "pressure decay" and "decay of gas pressure" need no construction.

1. control mode specific application sprinkler

The term "control mode specific application sprinkler" appears in claims 11 and 28. Claim 11 illustrates its usage: "The system of claim 1 or 2, wherein the grid of control mode sprinklers comprises a plurality of upright control mode specific application sprinklers." '736 Patent col.80 ll.9-12.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
A type of sprinkler that is capable to provide fire control (as that term is previously defined) and that is functional at a minimum operating pressure with a specific number of operating sprinklers for a given protection scheme.	A type of spray sprinkler that is functional at a minimum operating pressure for a specific number of operating sprinklers and for particular classes of goods.

Both parties submit that § 3.6.2.12 of NFPA-13 controls construction of this term. This section defines "specific application control mode sprinkler" as "[a] type of spray sprinkler listed at a minimum operating pressure with a specific number of operating sprinklers for a given protection scheme." NFPA-13 § 3.6.2.12. Plaintiff argues that its definition is exactly the one provided in § 3.6.2.12, with the additional definition of "spray sprinkler" as defined by NFPA-

13. It further argues that Defendant's construction fails to define spray sprinkler and also adds the limitation "for particular classes of goods." This limitation, Plaintiff argues, is found nowhere in the intrinsic record.

Defendant argues that its definition is substantially the same as § 3.6.2.12. Defendant submits that its substitution of "functional" for "listed at" and "for particular classes of goods" for "a given protection scheme" are necessary to render the construction more understandable to the jury.

The Court partially adopts Plaintiff's construction. The Court construes the term "control mode specific application sprinkler" to mean, "A type of sprinkler that is capable of limiting the size of a fire by distribution of water so as to decrease the heat release rate and pre-wet adjacent combustibles, while controlling ceiling gas temperature to avoid structural damage and that is functional at a minimum operating pressure with a specific number of operating sprinklers for a given protection scheme." This construction is consistent with NFPA-13 and Plaintiff's construction, but includes a definition for "fire control" from NFPA-13 that the Court relied upon when construing "control mode sprinklers."

Moreover, "spray sprinkler," contrary to Defendant's assertion, has a specific meaning to those skilled in the art as

a sprinkler that only performs fire control rather than fire suppression. See id. § 3.6.2.13 (“A type of sprinkler listed for its capability to provide fire control for a wide range of fire hazards.”). This distinction is important to give effect to the term “control mode” specific application sprinkler, as the Court already construed “control mode sprinkler.” To fail to similarly explain what “control mode” means within this term would be inconsistent.

Furthermore, additional explanation of “given protection scheme” as a “particular class[] of goods” is unnecessary. “Given protection scheme” has an ordinary meaning and is not confusing to a lay juror, as Defendant argues. Thus, there is no need to provide that term additional construction. Accordingly, the Court construes the term “control mode specific application sprinkler” to mean, “A type of sprinkler that is capable of limiting the size of a fire by distribution of water so as to decrease the heat release rate and pre-wet adjacent combustibles, while controlling ceiling gas temperature to avoid structural damage and that is functional at a minimum operating pressure with a specific number of operating sprinklers for a given protection scheme.”

m. most hydraulically demanding sprinklers

The claim term "most hydraulically demanding sprinklers" appears in claims 13 and 30. Claim 13 is illustrative and recites, "[T]he maximum fluid delivery period being the maximum time for fluid delivery at the minimum operating pressure to the four most hydraulically demanding sprinklers" '736 Patent col.80 ll.18-21.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
Sprinklers that place the greatest water demand on a system in order to provide a prescribed minimum discharge pressure or flow.	The sprinklers that are farthest from the control valve that permits water to enter the network of pipes, <u>i.e.</u> , the sprinklers that require the most time for water to arrive from the control valve.

The parties' constructions and briefing agree that this term is interchangeable with the already construed term, "most hydraulically remote sprinkler." Accordingly, the Court need not recite the parties' arguments again and construes "most hydraulically demanding sprinklers" to mean, "Sprinklers that place the greatest water demand on a system in order to provide a prescribed minimum discharge pressure or flow."

n. least hydraulically demanding sprinklers

The claim term "least hydraulically demanding sprinklers" appears in claims 13 and 30. Claim 13 is

illustrative and recites, “[T]he minimum fluid delivery period being the time for fluid delivery at the minimum operating pressure to the four least hydraulically demanding sprinklers” ’736 Patent col.80 ll.21-23.

<u>Plaintiff’s Proposed Construction</u>	<u>Defendant’s Proposed Construction</u>
Sprinklers that place the least water demand on a system in order to provide a prescribed minimum discharge pressure or flow.	The sprinklers that are closest to the control valve, <u>i.e.</u> , the sprinklers that require the least time for water to arrive from the control valve.

The parties’ constructions and briefing align with the arguments made construing the term, “most hydraulically demanding sprinklers.” As “least hydraulically demanding” is the converse of “most hydraulically demanding,” the Court will similarly construe “least hydraulically demanding sprinklers” to mean, “Sprinklers that place the least water demand on a system in order to provide a prescribed minimum discharge pressure or flow.”

o. identifying

The claim term “identifying” appears in independent claim 15 and dependent claims 41 and 42. Claim 15 recites, in pertinent part, “A method of dry ceiling-only fire protection for a storage occupancy the method comprising: identifying a maximum ceiling height ranging from” ’736 Patent col.80 ll.30-32.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
No construction necessary	To establish the identity of; to ascertain the origin, nature or characteristics of; establishing or indicating who or what (someone or something) is.

Plaintiff argues that this term is clear and should be given its plain and ordinary meaning.

Defendant admits that this term has no special meaning with respect to the '736 Patent. Nonetheless, Defendant wishes the Court to adopt a dictionary definition of this commonly used term in order to support its own invalidity contentions.

The Court construes claim terms to provide understanding to one of skill in the art, not to suit a party's infringement or litigation intentions.⁹ The term "identifying," as used in the claims, indicates that a ceiling height is identified. Defendant's proposed dictionary construction yields no new understanding to either one of ordinary skill in the art or the jury. Moreover, it does not change the claim scope so as to require the Court to construe the term. See O2 Micro, 521 F.3d at 1361. Accordingly, the Court finds that "identifying"

⁹ To be sure, the Court can construe a claim term in order to preserve that claim's validity. See Housey Pharms., Inc. v. Astrazeneca U.K., Ltd., 366 F.3d 1348, 1360 (Fed. Cir. 2004). Yet, the parties did not present that argument here.

is clear, unambiguous, and not susceptible to different definitions,¹⁰ thus it needs no construction.

p. verifying

The claim term "verifying" is used in independent claim 15 and dependent claims 16 and 17. Claim 15 recites, in pertinent part, "A method of dry ceiling-only fire protection for a storage occupancy the method comprising . . . verifying that a network of pipes in a dry ceiling-only fire protection system that includes at least one main pipe coupled to a fluid source" '736 Patent col.80 ll.30-42.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
No construction necessary	To determine or test the truth or accuracy of, as by comparison or investigation; make sure or demonstrate that something is true, accurate or justified.

Plaintiff argues that this term should be accorded its plain and ordinary meaning and that no construction is necessary.

Similar to the term "identifying," Defendant seeks a dictionary definition of "verifying." And again similar to its

¹⁰ The Court, of course, recognizes that the dictionary definitions provided by Defendant are different. Yet, as used within the claims, the Court finds that any differences in the several dictionary definitions Defendant provides are immaterial.

arguments under "identifying," Defendant seeks construction of this term specifically to assist its invalidity contentions.

The Court rejects both arguments. "Verifying"'s usage is clear and unambiguous and needs no construction.

q. surround and drown

The claim term "surround and drown" appears only in claim 31. Claim 31 provides, "The method of claim 30, wherein the minimum and maximum fluid delivery periods provide that the plurality of sprinklers define a sprinkler operational area to surround and drown a fire." '736 Patent col.83 ll.35-38

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
To substantially surround a burning area with a discharge of water to rapidly reduce the heat release rate.	Upon activation of a first sprinkler or a first group of sprinklers, fluid delivery to that first sprinkler or first group of sprinklers is intentionally delayed to let the fire grow for a set period, so that neighboring sprinklers are also activated by heat from the growing fire. The fluid delivery is intentionally delayed until the fluid spray from the entire group of sprinklers, which includes the first activated but delayed sprinkler or group of sprinklers and the later activated neighboring sprinklers, covers an area larger than the fire.

Plaintiff argues that the '736 Patent's specification specifically defined "surround and drown." To wit: "As used herein, 'surround and drown' means to substantially surround a burning area with a discharge of water to rapidly reduce the heat release rate." Id. col.21 ll.59-61. Thus, Plaintiff concludes, the Court should construe the term according to this definition.

Defendant, on the other hand, contends that in numerous parts of the specification the '736 Patent specifically describes how the invention achieves this "surround and drown" effect. Furthermore, Defendant argues that Plaintiff's construction of "surround and drown" was well known in the art before the '736 Patent. The '736 Patent's alleged advancement was to achieve this effect by the intentional delay of sprinklers. Thus, Defendant argues its construction properly gives effect to how "surround and drown" is used in the '736 Patent.

The Court adopts Plaintiff's construction. Where a patentee has clearly and specifically defined a patent term, the Court adopts that definition. See CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002) ("[T]he claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the

specification or prosecution history."); see also Thorner, 669 F.3d at 1365 (stating that a patentee can defeat the presumption that claims are to be given their plain and ordinary meaning if the patentee acts as its own lexicographer). Indeed, for a patentee to act as its own lexicographer, the patentee must "clearly express an intent to redefine the term." Thorner, 669 F.3d at 1365 (citation and internal quotation marks omitted). It is difficult for the Court to find a clearer intent to act as a lexicographer than in this case. Here, the '736 patent states, "As used herein, 'surround and drown' means to substantially surround a burning area with a discharge of water to rapidly reduce the heat release rate." '736 Patent col.21 11.59-61.

Given this clear expression of intent to define "surround and drown," Federal Circuit case law directs the Court to adopt this construction. Defendant's arguments to the contrary are unavailing. Therefore, the Court construes "surround and drown" to mean, "To substantially surround a burning area with a discharge of water to rapidly reduce the heat release rate."

r. fire suppression protection; suppression of a fire

The terms "fire suppression protection" and "suppression of a fire" appear in claim 44 of the '201 Patent. Claim 44 provides, in pertinent part, "An upright sprinkler for providing fire suppression protection in a storage enclosure" '201 Patent col.26 ll.25-26. Claim 44 further provides, "[T]he flow of fluid is redirected to a second direction opposite the first direction to provide a density of fluid for suppression of a fire" Id. col.26 ll.56-58.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
"Fire suppression" to deliver water density sufficient to contain or extinguish a fire. No further construction necessary.	Providing sufficient fluid to extinguish a fire or prevent its growth. In contrast, "fire control protection" and "control of a fire" is to control a fire until it burns itself out or until fire-fighting activities can commence.

Plaintiff argues that it specifically defined this term. In particular, the '201 Patent states, "As used herein, the term 'suppress' and its variations is indicative of a value of a delivered water density sufficient to contain or extinguish a fire." Id. col.8 ll.42-44. Furthermore, Plaintiff argues that Defendant's construction is improper because it imports limitations into the claims unnecessarily. Specifically, Plaintiff contends that "fire control protection" and "control

of a fire" appear nowhere in the specification or the other claims. Thus, to ignore the express definition provided in the '201 Patent is incorrect.

Defendant argues that the specification and extrinsic evidence support its definition. While Defendant concedes that Plaintiff defined "fire suppression" within the '201 Patent, it argues that this definition is inadequate. Defendant cites to several industry publications, including Mr. Golinveaux's chapter in the "Fire Protection Handbook." Therein, Mr. Golinveaux describes fire protection by contrasting it with control-mode sprinklers. See Golinveaux, supra, at 16-80. Thus, Defendant argues, contrasting fire suppression protection with fire control is the correct construction.

The Court adopts Plaintiff's construction. Plaintiff specifically defined "suppress" and its variants – of which fire suppression is one – within the specification. Thus, this definition controls. See CCS Fitness, 288 F.3d at 1366. Furthermore, Plaintiff's description of one of the preferred embodiments supports this construction. "The device [of one embodiment] can be configured to provide fluid flow upon actuation of the trigger so as to at least meet or exceed a required-delivered-density or to provide an appropriate density in extinguishing a fire or containing its growth." '201 Patent col.3 ll.15-19. This statement from the specification is almost

a verbatim recitation of the specific definition already provided elsewhere in the specification. Thus, the '201 Patent defined the term and used that definition consistently.

Moreover, NFPA-13, which is incorporated by reference into the specification, defines fire suppression as "[s]harply reducing the heat release rate of a fire and preventing its regrowth by means of direct and sufficient application of water through the fire plume to the burning fuel surface." NFPA-13 § 3.3.10.

While this is not the definition provided within the '201 Patent, it is not inconsistent with the '201 Patent's own specific definition.

Defendant's arguments to add additional language to the term are unavailing. The '201 Patent does not discuss a control mode sprinkler in such a way that contrasting of a suppression sprinkler and control sprinkler is necessary to provide clarity to the jury. Furthermore, Defendant's evidence comes from extrinsic sources. When compared to the clear intrinsic evidence to the contrary in the '201 Patent, extrinsic evidence must yield to intrinsic evidence. Thus, despite the explanations and lucid recitation provided by Mr. Golinveaux in his book chapter, the additional language in Defendant's construction is unnecessary.

Defendant also argued that contrasting control mode sprinklers with fire suppression sprinklers is proper because

within the sprinkler industry a suppression mode sprinkler has very specific design characteristics. While that may be true, the '201 Patent does not claim a suppression mode sprinkler. It claims a sprinkler that provides fire suppression. By adopting Defendant's construction, the Court would import the design parameters of a suppression mode sprinkler into the claim term, with only support from an extrinsic reference. The case law is clear that relying on extrinsic evidence to define a claim term in the face of the intrinsic record is incorrect. See Dow Chem. Co. v. Sumitomo Chem. Co., 257 F.3d 1364, 1373 (Fed. Cir. 2001). Thus, "fire suppression" and "suppression of a fire" mean, "To deliver water density sufficient to contain or extinguish a fire."

s. sprinkler for providing fire suppression protection in a storage enclosure

The term "sprinkler for providing fire suppression protection in a storage enclosure" appears in claim 44 of the '201 Patent. In pertinent part, claim 44 provides, "An upright sprinkler for providing fire suppression protection in a storage enclosure, the sprinkler comprising" '201 Patent col.26 11.25-26.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
No construction necessary.	An Early Suppression Fast Response (ESFR) sprinkler.

Plaintiff argues no construction is necessary. It argues that, other than "fire suppression," a term submitted to the Court for construction individually, "sprinkler for providing fire suppression protection in a storage enclosure" requires no construction to one of ordinary skill in the art. Plaintiff argues that Defendant improperly limits this term to only ESFR sprinklers. These sprinklers, Plaintiff argues, while indeed are fire suppression sprinklers, are not the only sprinklers that provide fire suppression. ESFR sprinklers are a specific and detailed type of fire suppression sprinkler that must meet certain industry standards to be so named. Moreover, both the specification and prosecution history support Plaintiff's argument. The specification states, "The present invention provides fire suppression protection in storage enclosures." Id. col.3 ll.11-12. Moreover, the prosecution history of claim 44, where this term appears, further refutes Defendant's construction. The history indicates that while the other claims of the '201 Patent were specifically directed to ESFR sprinklers, claim 44 was not, to wit: "New independent claim 70 [which became claim 44] is directed to an upright sprinkler for fire suppression protection of a storage enclosure

. . . ." Am. Submission for a Request for Continued Examination Under 37 C.F.R. [§] 1.114, at 19 (June 28, 2010), Pl.'s Opening Br. Ex. 17.

Defendant argues that Plaintiff limited its invention to only ESFR sprinklers. Specifically, the prosecution history of the '201 Patent shows that Plaintiff overcame a rejection and claimed the invention was patentable because it was "an upright ESFR sprinkler with a K-factor greater than 14, and preferably with a K-factor of 16.8 or greater." Amendment Under 37 C.F.R. 1.111, at 25 (May 10, 2004), Def.'s Opening Br. Ex. 8.

Moreover, Defendant argues that extrinsic evidence supports this construction. In Mr. Golinveaux's chapter in the NFPA "Fire Protection Handbook," he writes that there are generally three types of sprinkler protection systems for storage facilities, one of which is "suppression-mode (ESFR) sprinklers."

Golinveaux, supra, at 16-79. Thus, Defendant argues, suppression mode sprinklers are synonymous with ESFR sprinklers. Furthermore, Factory Mutual ("FM") is another organization that sets standards for the sprinkler industry. The FM standards also support Defendant's construction that suppression mode sprinklers are synonymous with ESFR sprinklers.

The Court construes "sprinkler for providing fire suppression protection in a storage enclosure" to mean, "A sprinkler to deliver water density sufficient to contain or

extinguish a fire for protection of a storage enclosure, not necessarily an ESFR sprinkler." This construction is a combination of the claim terms themselves, which are clear and unambiguous, with the addition of the Court's construction of "fire suppression protection." See supra, at III(B)(2)(r).

Defendant's construction flies in the face of the claims themselves. All the claims of the '201 Patent (except for claim 44) recite, whether independently or dependently, an ESFR sprinkler. Claim 44, on the other hand, specifically recites a fire suppression protection sprinkler. There is a heavy presumption that claim terms are to be given their plain and ordinary meaning. Bell Atl. Network, 262 F.3d at 1268. Nonetheless, it is true that in certain situations the differentiation of two independent claims should not result in different claim constructions. See Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1380 (Fed. Cir. 2006). Indeed, the Federal Circuit provides two criteria when applying claim differentiation to independent claims: "(1) claim differentiation takes on relevance in the context of a claim construction that would render additional, or different, language in another independent claim superfluous; and (2) claim differentiation [cannot] broaden claims beyond their correct scope." Id. at 1381 (citations and internal quotation marks omitted).

In this case, construing this term to mean an ESFR sprinkler would render the claiming of ESFR sprinklers in the '201 Patent's other independent claims superfluous. An ESFR sprinkler must meet several specific criteria to be so named. Specifically, an ESFR sprinkler, according to the specification and the NFPA, requires a response time of less than $50 \text{ m}^{1/2}\text{s}^{1/2}$. See NFPA-13 § 3.6.2.1. Without such response time, a sprinkler is not classified as an ESFR sprinkler. The '201 Patent's specification discloses that the response time of the claimed sprinkler "can be less than approximately $100 \text{ meter}^{1/2}\text{second}^{1/2}$ ($\text{m}^{1/2}\text{sec}^{1/2}$). Preferably, the [response time] can be less than approximately $50 \text{ meter}^{1/2}\text{second}^{1/2}$ ($\text{m}^{1/2}\text{sec}^{1/2}$) and more preferably less than approximately $35 \text{ m}^{1/2}\text{sec}^{1/2}$." '201 Patent col.14 ll.11-14. Therefore, the '201 Patent discloses sprinklers that are not ESFR sprinklers, though indeed a preferred embodiment of the invention is an ESFR sprinkler. Thus, the differentiation between claim 44's language and the other independent claims of the '201 Patent is important. To adopt Defendant's construction would be to import a host of other limitations provided by NFPA-13 into claim 44 where none were so claimed and render the claims reciting an ESFR sprinkler superfluous.

Moreover, rejection of Defendant's construction does not broaden claim 44's scope beyond the specification. The specification provides:

The present invention provides fire suppression protection in storage enclosures. In one embodiment, a device with an unactuated heat responsive trigger assembly is provided so as to be oriented in a position to flow water towards a ceiling of the storage enclosure. The device can be configured to provide fluid flow upon actuation of the trigger so as to at least meet or exceed a required-delivered-density or to provide an appropriate density in extinguishing a fire or containing its growth.

Id. col.3 11.11-19. This portion of the specification provides that the claimed sprinkler need not be an ESFR sprinkler, as it does not require the device to have the limitations of an ESFR sprinkler, especially the requirement for a specific response time. Defendant argues that this portion of the specification applies to any upright sprinkler. Def.'s Response Br. 47.

While that may be so, it still discloses that a preferred embodiment need not be an ESFR sprinkler, and the claims themselves provide several limitations to narrow the scope of claim 44 from every upright sprinkler in existence. Therefore, the Court cannot say that the specification discloses only ESFR sprinklers.

The prosecution history is not to the contrary. One rejection of claims 6-15, 21-29, 31, 32, 34-37, 40-43, and 59-61¹¹ of the '201 Patent was that those claims were obvious in light of U.S. Patent No. 6,502,643 (the "Meyer" patent). The PTO's rejection stated that Meyer disclosed an ESFR sprinkler

¹¹ These claim numbers refer to the number during prosecution and are not the same numbers used in the issued patent.

with a K-factor greater than 14. Yet, the '201 Patent claims an upright ESFR sprinkler with a K-factor greater than 14. Indeed, Plaintiff stated that it believed it was the "first to achieve an upright ESFR sprinkler with a K-factor greater than 14, and, preferably, with a K-factor of 16.8 or greater." Amendment Under 37 C.F.R. [§] 1.111, at 25 (May 10, 2004), Def.'s Opening Br. Ex. 8.

Moreover, in another discussion after rejection by the PTO for certain claims of the '201 Patent, Plaintiff stated that the rejected claims of the '201 Patent were patentable over U.S. Patent No. 6,502,643 (the "Pounder" patent). The Pounder patent disclosed an upright extended coverage ordinary hazard sprinkler ("ECOH"). Plaintiff argued that the Examiner incorrectly concluded that substitution of an ECOH sprinkler with the characteristics of the claimed ESFR sprinkler was obvious. Thus, Plaintiff attempted to overcome rejections - and did overcome rejections - that were specifically related to ESFR sprinklers and their interchangeability with ECOH sprinklers. See Request for Reconsideration Under 37 C.F.R. [§] 1.111, at 20-23 (Oct. 27, 2007), Def.'s Opening Br. Ex. 9; Amendment & Request for Reconsideration Filed with RCE Under 37 C.F.R. [§] 1.114 at 22-26 (Jan. 5, 2009), Def.'s Opening Br. Ex. 11. A similar dialogue between Plaintiff and the PTO occurred with reference to U.S. Patent No. 5,915,479 (the "Ponte" patent).

The Ponte patent disclosed an upright "very extra large orifice sprinkler" or "VELO" sprinkler with a K-factor greater than 14. Plaintiff overcame that rejection by arguing that there was no reason to combine the Ponte teachings with that of Meyer, as Plaintiff was the first to create an upright ESFR sprinkler with a K-factor greater than 14. See Request for Reconsideration Under 37 C.F.R.[§] 1.111, at 22-25 (June 18, 2009), Def.'s Opening Br. Ex. 12.

This history does not illustrate a clear disavowal of claim scope required for prosecution history disclaimer. See Home Diagnostics, Inc. v. LifeScan, Inc., 381 F.3d 1352, 1358 (Fed. Cir. 2004) ("A patentee may claim an invention broadly and expect enforcement of the full scope of that language absent a clear disavowal or contrary definition in the specification."). The prosecution history relates to specific obviousness arguments and specific claims of the '201 Patent. Those claims already disclosed an ESFR sprinkler. Plaintiff here did not state that it created an ESFR sprinkler, just that it created an ESFR sprinkler with specific parameters (that it was upright with a K-factor greater than 14) to defeat obviousness rejections by the PTO.

Indeed, the prosecution history discloses this pertinent information in relation to overcoming the Pounder reference: "Moreover, the preferred upright sprinkler in

Pounder, is an upright sprinkler configured for extended coverage ordinary hazard (ECOH) fire protection, not ESFR or suppression protection as claimed in the present application." Amendment & Request for Reconsideration Filed with RCE Under 27 C.F.R. [§] 1.114, at 24 (Jan. 5, 2009), Def.'s Opening Br. Ex. 11 (emphasis added). Therefore, Plaintiff disclosed to the PTO that not only did the '201 Patent claim ESFR sprinklers, but it also claimed suppression protection sprinklers.¹²

Further still is the prosecution history for claim 44. Indeed, there were no rejections of this claim language, only a specific notice of allowance that stated, in pertinent part, "The prior art fails to disclose or render obvious the claimed combination including: a upright sprinkler . . . provid[ing] a density of fluid for suppression of a fire" Notice of Allowability Application No. 10/384,736, at 2, Def.'s Response Br. Ex. 29. This Notice of Allowability does not reference response time or ESFR sprinklers. Given this prosecution

¹² Defendant contends that the PTO essentially rolled-over and allowed the claims in the '201 Patent after Plaintiff sought several reconsiderations. Defendant wrongfully implies that the PTO did not faithfully perform its duties. The Court cannot and will not attempt to glean a reason for the allowance for a claim other than what the written prosecution history provides. Defendant's contention that Plaintiff, in essence, forced the PTO to issue the '201 Patent carries no weight with the Court. See Def.'s Response Br. 44 (stating that Plaintiff engaged in "gamesmanship" during patent prosecution and that the PTO "finally allowed the application after a greater than five year barrage of paper").

history, the Court cannot say there was any clear disavowal of claim scope.

Defendant cites to Hakim v. Cannon Avent Grp., 479 F.3d 1313 (Fed. Cir. 2007), as “on all fours” with the facts of this case. Def.’s Response Br. 45. In Hakim, the patent claimed a leak-resistant drinking cup that contained a valve with a slit. 479 F.3d at 1315. During the prosecution of that patent, the patentee disclosed to the PTO that the inclusion of the slit, as opposed to another orifice structure “was emphasized as distinguishing all of the claims” in that patent from prior art. Id. at 1316. Yet, the patentee in Hakim filed a continuation to specifically broaden claim 1 to include an “opening” in the valve. Id. The PTO allowed this claim without comment. Id. The court in Hakim found that the district court correctly construed the claim term “opening” to mean a “slit” because the patentee specifically disclaimed all other types of openings in the prosecution.

This case, contrary to Defendant’s contentions, is factually distinct from Hakim. Here, Plaintiff did not differentiate the prior art based upon fire suppression sprinklers. Plaintiff here distinguished the prior art from claims that already only claimed ESFR sprinklers based upon the orientation of the sprinkler (pendant in the prior art, upright as claimed). Plaintiff also distinguished the claimed invention

of an upright ESFR sprinkler or a suppression sprinkler from an upright ECHO sprinkler and VELO sprinkler. What is more, in this case the PTO provided a specific reason for allowance. Thus, in this case, unlike Hakim, Plaintiff did not specifically distinguish upright suppression sprinklers from the prior art during the prosecution of the '201 Patent. Accordingly, Hakim does not require the Court to adopt Defendant's construction.¹³

In sum, given the specific claim language, the support in the specification, and the lack of a clear disavowal in the prosecution history, the Court must give effect to the plain and ordinary meaning of the claim. Thorner, 669 F.3d at 1365. Accordingly, the Court construes "sprinkler for providing fire suppression protection in a storage enclosure" to mean, "A sprinkler to deliver water density sufficient to contain or extinguish a fire for protection of a storage enclosure, not necessarily an ESFR sprinkler."

t. a generally tubular body defining a passageway along a longitudinal axis

The claim "a generally tubular body defining a passageway along a longitudinal axis" appears in claim 44 of the

¹³ Defendant argues that the PTO's notice of allowance is merely a paraphrasing of claim 44's language. Markman Hr'g Tr. 117:7. That may be, but again the Court must take the PTO's written reasons on their face and not attempt to decipher some hidden meaning or give them less weight based upon Defendant's characterization of those written reasons.

'201 Patent. That claim provides, in pertinent part, "An upright sprinkler for providing fire suppression protection in a storage enclosure, the sprinkler comprising: a generally tubular body defining a passageway along a longitudinal axis"

'201 Patent col.26 ll.25-28.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
No construction necessary.	A hollow tube or pipe forming a waterway.

Plaintiff argues that no construction is necessary, as the term's meaning is readily apparent to one of ordinary skill in the art. Plaintiff further argues that Defendant's construction is both too narrow and too broad. First, it reads "generally" out of the claim. Second, it restricts the passageway to only water. The specification references fluid, not water. Third and finally, there is no reference in Defendant's construction to a longitudinal axis. These terms must be given their proper effect.

Defendant's sole argument is that the jury would be unable to understand what this term means. Defendant references Figure 2 in the '201 Patent which depicts, in Defendant's view, a hollow tube or pipe forming a waterway. Moreover, Defendant argues that Plaintiff failed to articulate what else a tubular body defining a passageway could be besides a hollow tube or pipe. Finally, Defendant contends that Plaintiff's other

constructions under the '201 Patent only reference water. Thus, the use of water in this construction is proper.

The Court finds that no construction is necessary. The terms themselves are clear and unambiguous, and the Court accords them their plain and ordinary meaning. Defendant's reason for the need to construe this claim is the potential for jury confusion. Defendant does not argue that its construction changes the scope of the claims from the plain language. The Court finds that Defendant's argument, and indeed its argument on this point throughout its claim construction briefing, fails to give the jury enough credit. There is nothing highly technical about these terms that might confuse the jury.

Furthermore, Defendant's construction would leave gaps in the claims. "Longitudinal axis" is a limitation that appears several times within claim 44. See, e.g., id. col.26 ll.32-33 ("[T]he passageway having a changing cross-section as the passageway extends along the longitudinal axis between"). If the Court adopted Defendant's construction, "longitudinal axis" as used in claim 44 would have no antecedent and, thus, no meaning. Thus, Defendant's construction would actually leave the jury more confused because the initial reference to longitudinal axis would effectively be read out of the claims.

Moreover, the Court's refusal to construe this term accords with its duty to resolve claim construction disputes that affect the scope of a claim. See O2 Micro., 521 F.3d at 1362. There is a heavy presumption that claim terms are accorded their plain and ordinary meaning. Thus, if the claim terms are clear and unambiguous and not unduly confusing to the jury, and the parties do not dispute the scope of such terms, the Court should not engage in the exercise of claim construction needlessly. See Nat'l Oilwell Varco, L.P. v. Auto-Dril, Inc., No. 09-85, 2011 WL 3648532, at *5-6 (E.D. Tex. Aug. 16, 2011). Accordingly, the Court finds that this term needs no construction.

- u. the passageway having a changing cross-section as the passageway extends along the longitudinal axis between an inlet opening at one end of the body and an outlet opening at the other end

The claim term "the passageway having a changing cross-section as the passageway extends along the longitudinal axis between an inlet opening at one end of the body and an outlet opening at the other end" appears in claim 44 of the '201 Patent. The claim provides in pertinent part, "An upright sprinkler for providing fire suppression protection in a storage enclosure, the sprinkler comprising . . . a passageway along a longitudinal axis . . . the passageway having a changing cross-

section as the passageway extends along the longitudinal axis between an inlet opening at one end of the body and an outlet opening at the other end" '201 Patent col.26 ll.25-35.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
No construction necessary.	The cross-sectional area of the waterway of the sprinkler body continuously changes from one end of the conduit to the other.

Plaintiff asserts that no construction is necessary. It argues that Defendant's construction is unsupported by the specification and is directly contrary to a preferred embodiment of the invention. First, nothing in the specification supports that the change of the cross-section must be continuous. The '201 Patent only discusses "changing cross-sections" to differentiate changing cross-sections from fixed cross-sections. Second, one of the preferred embodiments has a portion of the passageway that is fixed and a portion that changes. Thus, Defendant's construction of the term would read this embodiment out of the '201 Patent.

Defendant, on the other hand, argues that Plaintiff's recent filings with the PTO tell a different story. Specifically, Defendant cites to an amended limitation to claim 44 in the preliminary amendment to the '201 Patent, which is in a reissue proceeding with the PTO. This amendment changes the language in claim 44 from "changing cross-section as the

passageway extends along the longitudinal axis" to "the passageway having a first portion with a changing cross-section as the passageway extends along the longitudinal axis . . . and a second portion with a constant cross-section as the passageway extends along a longitudinal axis between the inlet opening and the outlet opening." Def.'s Response Br. Ex. 33, at 19. Thus, Defendant argues, because Plaintiff made this change to illustrate that part of the passageway is changing while another part is not, claim 44's current language must mean that the changing cross-section is continuous.

The Court adopts neither party's construction. The term "the passageway having a changing cross-section as the passageway extends along the longitudinal axis between an inlet opening at one end of the body and an outlet opening at the other end" means, "The passageway having a changing cross-section as the passageway extends along the longitudinal axis between an inlet opening at one end of the body and an outlet opening at the other end, wherein the changing cross-section need not be continuously changing." This definition describes the claim term's scope as supported by the specification and as understood by one of ordinary skill in the art after reviewing the '201 Patent. Furthermore, it facilitates jury understanding to the extent that the jury will understand the nature of the

changing cross-section as not requiring a continuous change as the plain language might suggest.

The '201 Patent's specification provides no such continuously changing limitation. First, it provides that "[t]he passageway [] can be of a constant cross-section (not shown) or changing cross-sections along the longitudinal axis [] between the inlet opening [] and the outlet opening []." '201 Patent col. 7 ll.8-10. This section serves to only differentiate between a constant cross-section and a cross-section that may change, yet it provides no textual authority for concluding that the changing of the cross-section must be continuous.¹⁴ Second, it states, "The cross-section of the passageway [] and the passageway portion [] past the bell mouth surface [] can be greater than a cross-section of the passageway portion [] proximate the outlet opening []." '201 Patent col.7 ll.15-19. Defendant contends that this section of the

¹⁴ At the Markman hearing, Defendant made an interesting grammatical argument; that is, by using the plural "changing cross-sections" within the specification this must mean that the cross-section continuously changes. Markman Hr'g Tr. 122:10-12. The Court is not persuaded. Changing cross-sections, in the plural, does not preclude a step-change in a cross-section. Indeed, there may be portions of the passageway that have constant cross-sections, but others that change. Yet, when viewing the passageway as a whole, there would be changing cross-sections. This point is crucial. The reference point for the claim term "changing cross-section" is the passageway as a whole. Therefore, if there is a constant cross-section at one end, and a continuously changing cross-section beginning in the middle of the passageway, the passageway will still have a "changing cross-section" as required by the claims.

specification supports its construction that the cross-section must be continuously changing. Defendant is incorrect. This section, by its plain reading, states that passageway past the bell mouth surface can be greater than the cross-section of the passageway portion at the outlet. There is no reason to conclude that the change between the two referenced ends of the passageway could not be a step-change. Such a step-change would still meet the claim's scope of having a changing cross-section of the passageway as a whole. Defendant's construction fails to recognize this possibility.

That said, the specification does reveal that the passageway "approximates a general cone." Id. col.7 ll.20-21. Cones are generally thought to have a continuously changing cross-section. Yet, the Court cannot say as a matter of law that the specification's language clearly narrows the term's scope. Given the heavy presumption that the Court is to give claims their plain and ordinary meaning, Defendant fails to point to any evidence within the specification or prosecution history of issued claim 44 that clearly narrows the scope of the claim term as read in light of the specification.

Defendant's arguments regarding Plaintiff's reissue proceeding are unavailing. While the Court may consider Plaintiff's current activity with the PTO during claim construction, it is not dispositive here. Just because

Plaintiff now seeks to claim that there are two sections of the passageway – one with a constant cross-section and another with a changing cross-section – does not, per se, require that changing cross-section must mean continuously changing. Reissue proceedings are an appropriate venue for a patentee to narrow claim scope. See In re Tanaka, 640 F.3d 1246, 1250 (Fed. Cir. 2011). Therefore, Plaintiff's reissue proceedings may result in a claim narrower than claim 44. Yet, that does not require this Court to narrow the currently issued claim 44 because the Court's construction has sufficient support within the '201 Patent's specification. Thus, the Court construes the term "the passageway having a changing cross-section as the passageway extends along the longitudinal axis between an inlet opening at one end of the body and an outlet opening at the other end" means, "The passageway having a changing cross-section as the passageway extends along the longitudinal axis between an inlet opening at one end of the body and an outlet opening at the other end, wherein the changing cross-section need not be continuously changing."

- v. The passageway having a minimum diameter to define . . . a first diameter of the sprinkler

The claim term "the passageway having a minimum diameter to define . . . a first diameter of the sprinkler"

appears in claim 44 of the '201 Patent. Claim 44 provides, in pertinent part, "An upright sprinkler for providing fire suppression protection in a storage enclosure, the sprinkler comprising . . . the passageway having a minimum diameter to define . . . a first diameter of the sprinkler" '201 Patent col.26 ll.25-38.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
No construction necessary.	The first diameter is the smallest inside diameter of the narrowest diameter of the water flow conduit.

Plaintiff argues that no construction is necessary. Plaintiff contends that the full claim language, not just the language selected for construction, demonstrates that no construction is necessary. Specifically, claim 44 states, in pertinent part:

An upright sprinkler for providing fire suppression protection in a storage enclosure, the sprinkler comprising: a generally tubular body defining a passageway along a longitudinal axis . . . the passageway having a minimum diameter to define a minimum cross-sectional area of the passageway and a first diameter of the sprinkler

Id. col.26 ll.25-37. Thus, the claim itself defines the term as the minimum diameter of the passageway.

Defendant argues that the jury must understand that the first diameter is in fact the narrowest diameter for water flow. Further, because the '201 Patent makes reference to a

second diameter and indeed recites limitations of the ratio between the first and second diameter, the jury must understand that first diameter is the narrowest part of the part of the passageway in the sprinkler.

The Court finds that the claim term needs no construction. The claim itself defines the first diameter as "the passageway having a minimum diameter to define a minimum cross-sectional area of the passageway and a first diameter of the sprinkler" Id. col.28 ll.35-37 (emphasis added). Thus, the claim terms themselves effectively state that this first diameter is the narrowest diameter of the passageway because this diameter is the "minimum diameter." The minimum diameter is the first diameter and, therefore, defines the minimum cross-sectional area of the passageway.¹⁵ Thus, the Court's construction is consistent with the remainder of claim 44's limitations. Accordingly, as the claim itself defines the term, there is no need for additional construction.¹⁶

¹⁵ Under the assumption that the passageway's cross-sections are circular, the passageway's cross-sectional diameter would be calculated according the following formula: Area = $\pi \times (\text{diameter} \times .05)^2$. The diameter in this equation is the diameter of the circular cross-section of the sprinkler's passageway.

¹⁶ The Court finds that the parties do not dispute the meaning of this claim term as it relates to the scope of the claim, but only that Defendant believes it will be confusing to the jury. As the parties do not dispute the term's scope, and the Court finds that the term is clear, the Court need not construe this term. See Nat'l Oilwell Varco, 2011 WL 3648532, at *5-6.

- w. The plurality of peripheral edges defining the maximum diameter of the redirecting member as a second diameter of the sprinkler

The claim term "the plurality of peripheral edges defining the maximum diameter of the redirecting member as a second diameter of the sprinkler" appears in claim 44 of the '201 Patent. In pertinent part, claim 44 recites, "An upright sprinkler for providing fire suppression protection in a storage enclosure, the sprinkler comprising . . . a redirecting member . . . the redirecting member further having a plurality of tines forming a plurality of peripheral edges . . . the plurality of peripheral edges defining the maximum diameter of the redirecting member as a second diameter of the sprinkler" '201 Patent col.26 l.25-col.27 l.5.

<u>Plaintiff's Proposed Construction</u>	<u>Defendant's Proposed Construction</u>
No construction necessary.	The second diameter is the diameter between the lowermost ends of opposite tines of the deflector.

Plaintiff argues that no construction is necessary. Plaintiff contends that claim 44 specifically defines this disputed term. To wit: "[T]he plurality of peripheral edges defining the maximum diameter of the redirecting member as a second diameter of the sprinkler and a cross-sectional area of the redirecting member" Id. col.27 ll.3-6. Thus, as

the claim defines the term to be the diameter of the plurality of peripheral edges, no construction is necessary.

Defendant argues that there may be jury confusion if the Court does not construe this term. Specifically, Defendant argues that the phrase "plurality of peripheral edges" is confusing and not clearly defined in claim 44. Thus, the second diameter is also not clearly defined because it depends upon the plurality of peripheral edges of the tines for its definition. Moreover, from the drawings in the patent, Defendant argues that the second diameter is based upon the lower most portions of the tines. Thus, it is easier to define the term in this way, rather than using the term peripheral edges.

The Court finds that some construction is necessary. Although claim 44 does indeed define the term, the Court finds that the use of peripheral may be confusing for the jury. Thus, the Court construes "the plurality of peripheral edges defining the maximum diameter of the redirecting member as a second diameter of the sprinkler" to mean, "The outer edges of the plurality of tines defines the maximum diameter of the redirecting member as a second diameter of the sprinkler." This construction provides the jury with a clear understanding of "peripheral edges" as used in claim 44 and the specification supports this construction. See id. col. 12 ll.65-66 ("[T]he

outer perimeter [] of the peripheral edges [] of the tines [] and [] creates a cross-sectional area $A_2)$ ".

Defendant's construction is unduly limiting. Specifically, by requiring the diameter to be calculated from the lower most ends of the opposite tines of the deflector, Defendant's construction limits the structure and orientation of the tines. The tines, under Defendant's construction, must be uniform in their orientation. There can be no tines that are shorter than one another. Claim 44 is not so limiting and Defendant cites to nothing in the specification to so limit the claim. Defendant's construction changes all together how one calculates the second diameter and it does so purely for the sake of jury understanding. The Court will not disregard the heavy presumption that the claim terms are to be accorded their plain and ordinary meaning. Defendant's construction provides new meaning to the claim term, while the Court's construction better explains the plain and ordinary meaning to the jury. Thus, the Court rejects Defendant's argument. Accordingly, the Court finds that "the plurality of peripheral edges defining the maximum diameter of the redirecting member as a second diameter of the sprinkler" means, "The outer edges of the plurality of tines defines the maximum diameter of the redirecting member as a second diameter of the sprinkler."

IV. CONCLUSION

The Court construes the disputed terms as set forth above. An appropriate Order will follow.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

TYCO FIRE PRODUCTS, L.P.,	:	CIVIL ACTION
	:	NO. 10-4645
Plaintiff,	:	
	:	
v.	:	
	:	
VICTAULIC COMPANY	:	
	:	
Defendant.	:	

O R D E R

AND NOW, this 27th day of March, 2012, for the reasons set forth in the Court's accompanying memorandum dated March 27, 2012, it is **ORDERED** that the disputed claim terms are defined as follows:

<u>Terms & Patent(s)</u>	<u>Court's Construction</u>
dry '736 Patent	A type of fire protection wherein fluid flow lines are filled with air or another gas and upon release of this air or other gas, water enters the fluid flow lines.

<p>ceiling-only</p> <p>'736 Patent</p>	<p>Sprinklers are only located at the ceiling, above the stored items or materials. There are no sprinklers between the ceiling sprinklers and the floors.</p>
<p>storage occupancy</p> <p>'736 Patent</p>	<p>An occupancy used primarily for the storage or sheltering of goods, merchandise, products, vehicles or animals.</p>
<p>control mode sprinklers</p> <p>'736 Patent</p>	<p>Sprinklers that limit the size of a fire by distribution of water so as to decrease the heat release rate and pre-wet adjacent combustibles, while controlling ceiling gas temperatures.</p>
<p>network of pipes</p> <p>'736 Patent</p>	<p>A configuration of pipes.</p>
<p>branch lines</p> <p>'736 Patent</p>	<p>The pipes in which the sprinklers are placed, either directly or through risers.</p>
<p>hydraulically remote sprinklers</p> <p>'736 Patent</p>	<p>Sprinklers that place the greatest water demand on a system in order to provide a prescribed minimum discharge pressure or flow.</p>
<p>hydraulic design area</p> <p>'736 Patent</p>	<p>An area, defined in squared units of measure, comprising a defined number of hydraulically remote sprinklers at defined spacing between each sprinkler.</p>

<p>maximum fluid delivery delay period</p> <p>'736 Patent</p>	<p>The maximum intentionally delayed period of time following the activation of the first sprinkler to the activation of another specified sprinkler in the system.</p>
<p>minimum fluid delivery delay period</p> <p>'736 Patent</p>	<p>The minimum intentionally delayed period of time following the activation of the first sprinkler to the activation of another specified sprinkler in the system.</p>
<p>pressure decay; decay of gas pressure</p> <p>'736 Patent</p>	<p>No construction necessary.</p>
<p>control mode specific application sprinkler</p> <p>'736 Patent</p>	<p>A type of sprinkler that is capable of limiting the size of a fire by distribution of water so as to decrease the heat release rate and pre-wet adjacent combustibles, while controlling ceiling gas temperature to avoid structural damage and that is functional at a minimum operating pressure with a specific number of operating sprinklers for a given protection scheme.</p>
<p>most hydraulically demanding sprinklers</p> <p>'736 Patent</p>	<p>Sprinklers that place the greatest water demand on a system in order to provide a prescribed minimum discharge pressure or flow.</p>

<p>least hydraulically demanding sprinklers</p> <p>'736 Patent</p>	<p>Sprinklers that place the least water demand on a system in order to provide a prescribed minimum discharge pressure or flow.</p>
<p>identifying</p> <p>'736 Patent</p>	<p>No construction necessary.</p>
<p>verifying</p> <p>'736 Patent</p>	<p>No construction necessary.</p>
<p>surround and drown</p> <p>'736 Patent</p>	<p>To substantially surround a burning area with a discharge of water to rapidly reduce the heat release rate.</p>
<p>fire suppression protection; suppression of a fire</p> <p>'201 Patent</p>	<p>To deliver water density sufficient to contain or extinguish a fire.</p>
<p>sprinkler for providing fire suppression protection in a storage enclosure</p> <p>'201 Patent</p>	<p>A sprinkler to deliver water density sufficient to contain or extinguish a fire for protection of a storage enclosure, not necessarily an ESFR sprinkler.</p>
<p>a generally tubular body defining a passageway along a longitudinal axis</p> <p>'201 Patent</p>	<p>No construction necessary.</p>

<p>the passageway having a changing cross-section as the passageway extends along the longitudinal axis between an inlet opening at one end of the body and an outlet opening at the other end</p> <p>'201 Patent</p>	<p>The passageway having a changing cross-section as the passageway extends along the longitudinal axis between an inlet opening at one end of the body and an outlet opening at the other end, wherein the changing cross-section need not be continuously changing.</p>
<p>the passageway having a minimum diameter to define . . . a first diameter of the sprinkler</p> <p>'201 Patent</p>	<p>No construction necessary.</p>
<p>the plurality of peripheral edges defining the maximum diameter of the redirecting member as a second diameter of the sprinkler</p> <p>'201 Patent</p>	<p>The outer edges of the plurality of tines defines the maximum diameter of the redirecting member as a second diameter of the sprinkler.</p>

It is hereby further **ORDERED**, that the parties shall meet and confer and submit to the Court a jointly proposed scheduling order by **April 6, 2012**.

AND IT IS SO ORDERED.

s/Eduardo C. Robreno
EDUARDO C. ROBRENO, J.