

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FIRST QUALITY RETAIL SERVICES, LLC,
FIRST QUALITY CONSUMER PRODUCTS, LLC,
FIRST QUALITY PRODUCTS, LLC,
FIRST QUALITY ENTERPRISES, LLC,

Petitioners,

v.

ESSITY HYGIENE AND HEALTH AB.

Patent Owner

Case No. IPR2024-01487

U.S. Patent No. 9,308,138

**SUPPLEMENTAL EXPERT DECLARATION OF DR. BEHNAM
POURDEYHIMI REGARDING CLAIMS 1-5, 7-8, 20-22 and 24-25 OF
U.S. PATENT NO. 9,308,138**

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I. INTRODUCTION

1. I submit this supplemental declaration related to Petitioners' Reply to Patent Owner's Response in IPR2024-01487. Since my initial declaration was submitted with the Petition (Paper No. 3) on October 25, 2024, EX1002, I have additionally reviewed the Board's Institution Decision (Paper No. 8), Patent Owner's Response (Paper No. 13), Mr. Sheldon's declaration (EX2001) and supplemental declaration (EX2004), Mr. Sheldon's deposition testimony (EX1022), and the materials cited below. My opinions that claims 1-5, 7-8, 20-22, and 24-25 are unpatentable have not changed.

2. This supplemental declaration is provided to clarify opinions presented by Mr. Sheldon in his declaration, supplemental declaration, and during his November 21, 2025 deposition.

II. QUALIFICATIONS AND EXPERIENCE

3. I incorporate my qualifications and experience as detailed in my previous declaration. EX1002-PourdeyhimiDecl., ¶¶ 3-11. I further specify below my experience in absorbent article design.

4. First, I would like to clarify one statement I made during my deposition that has been taken out of context. I stated that I have not designed an absorbent article "with a top sheet and a back sheet and an absorbent core." EX2005-Pourdeyhimi-Depo., 12:15-17. While I have not designed an entire article from

scratch with these components, my role in industry collaborations has involved design improvements to several different absorbent articles with these components. To optimize and improve an existing design, intricate knowledge of the function of all elements of the absorbent article is required.

5. For over 40 years, I have trained individuals employed in the hygienic articles industry on absorbent article design. This training includes all aspects of absorbent article design and manufacturing. I train approximately 300 people per year. This training includes instruction on materials, design of products, and teaching principles of manufacturing the designed products.

6. In addition to training individuals in industry, I have worked on hundreds of industry collaborations designing and improving absorbent articles. Included are collaborations with Procter & Gamble and many others. My role in these projects typically relates to enhancing, optimizing, and evaluating existing absorbent article products. My testimony made this clear. EX2005-PourdeyhimiDepo., 11:10-12:14 ("In 40-plus years, I have trained, on average, 300 people from industry per year. And part of it is to really train them on what the products are. And these products -- so we offer a series of these training courses from materials to products, and then the last course is product development where you actually take products and you disassemble them, you show them why things are made a certain way.... And I have also worked on many confidential projects

with industry for the past 40 years, and these have had to deal with problem solving, which is one of the things that we do. And problem solving, we call it slash product development.”), 15:14-16:13, 19:19-20:4 (“I actually developed the software to be able to measure how these materials distribute fluid in various directions, and that was back in the early ’90s that we did that”), 20:20-23:9 (“So if you look at the literature, we have published heavily. We have many projects dealing with how one can really define the structure of a nonwoven, and that includes its fiber orientation distribution, pore orientation”), 26:7-22 (“Q. You’ve dedicated your career to the design of these products, right? A. To the design evaluation of these products and many other things.”), 70:19-71:8 (collaborated with hundreds of companies including Procter & Gamble). Many of these collaborations are subject to confidentiality agreements.

7. The extent of my work in absorbent article design is also clear from my publications. I have published 397 papers since 1984 on the subject matter, including publications defining the structure of a nonwoven product by fiber orientation, distribution within an absorbent article, pore morphology, permeability, and pore orientation.

8. Finally, I would also like to address Mr. Sheldon’s analogy that compares my expertise in absorbent article design to an individual selecting materials for different portions of a car. EX2004-SheldonSupplDecl., ¶9. Beyond

ignoring my experience, in my opinion, this comparison is flawed. Unlike Mr. Sheldon's selected components of a car, the components of absorbent articles work together and interact with one another, and a detailed understanding of the overall article is required to make changes to any aspect of the design. In Mr. Sheldon's analogy, any considerations about the engine of the car would be irrelevant to the selection of interior materials. Mr. Sheldon acknowledges my expertise in optimizing nonwoven materials, which are optimized with the entirety of absorbent articles in mind through industry collaborations. *Id.*

9. A more appropriate analogy to design of a car would be an expert selecting materials and designs for components of an engine. It would be required that to make any change to one component of an engine, that all components of the engine and its overall operation would need to be considered and understood—just like in absorbent article design.

III. RESPONSE TO CERTAIN OF MR. SHELDON'S TECHNICAL BACKGROUND SECTION

10. Mr. Sheldon mischaracterizes my previous declaration and states it is my opinion that fluid must be absorbed into an absorbent layer at a single point at the speed it is delivered rather than having an absorbent article manage and distribute the fluid within the absorbent article at the speed the fluid is provided. EX2001-SheldonDecl., ¶46. My declaration clearly describes that absorbent articles must

effectively receive and direct fluid flow, and must not only rely on absorbent cores to prevent leakage. EX1002-PourdeyhimiDecl., ¶34.

11. I disagree with Mr. Sheldon's opinion that "[a]t the time the '138 patent was filed, the art taught that using an opening or channel in an absorbent layer in an incontinence product would be detrimental to fluid management." EX2001-SheldonDecl., ¶51. As I described in my previous declaration, there were numerous prior art absorbent articles that had openings or channels and that these channels can help fluid management. EX1002-PourdeyhimiDecl., ¶47. A person of ordinary skill in the art would have been further aware of U.S. Patent No. 6,852,101 owned by First Quality which likewise has a slit within its absorbent layer that is "designed to control fluid surge and minimize fluid leakage when fluid is discharged suddenly during the use of the article." EX1028-USP101, Abstract. Thus, holes or channels in absorbent articles were well-known at the time of the '138 patent's filings and a person of ordinary skill in the art would have known that these channels can help, not hinder fluid management.

IV. CLAIM CONSTRUCTION

12. Mr. Sheldon states that there is an issue of claim construction regarding the term "perforated polymeric layer." EX2004-SheldonSupplDecl., ¶21. Mr. Sheldon proposes that this term means "a polymeric layer that is pierced through

with holes or apertures such that the layer allows the free flow of liquid bodily waste therethrough.” *Id.*

13. I agree with Mr. Sheldon that a “perforated polymeric layer” would be “a polymeric layer that is pierced through with holes or apertures,” assuming “pierced through” just means that the holes extend from one surface of the layer to the other surface and does not impose any particular method of creating those holes or apertures. *Id.* But to the extent the second half of his interpretation, “such that the layer allows the free flow of liquid bodily waste therethrough,” places any requirement on the size of the holes beyond liquid being capable of passing through the pierced holes, I disagree.

14. To support his opinion that fluid must “flow freely” through the perforated polymeric layer, Mr. Sheldon cites four portions of the specification of the ’138 patent. *Id.* It is my opinion that these portions of the specification do not require the claimed perforated polymeric layer to have perforations of a specific size and simply describe different examples, or embodiments, of the ’138 patent.

15. First, Mr. Sheldon cites 3:29-49 of the ’138 patent. This excerpt describes that the perforations “may have an average size of 0.5-5mm” and that the “open area of the first perforated polymeric layer may be 5-30%, or 10-25%.” EX1001-USP138, 3:29-49. A person of ordinary skill in the art would have understood that this language is permissive because it says *may* and does not limit

the potential aperture size or open area to the provided examples. For example, the Cohen-'429 reference discloses that the hole size in an apertured material through which fluid can pass can be, on average, "0.3-10 mm in diameter." EX1016-Cohen'429, [0014], [0025]. Further, two examples with different ranges of permissible open areas of the first perforated polymeric layer cannot possibly disclose a requirement of a claim with neither limitation. Finally, these descriptions are included in other, dependent, claims of the '138 patent (claims 7 and 8), and therefore I understand cannot be limitations in independent claim 1.

16. Mr. Sheldon also cites 5:39-40 of the '138 patent, which states "[t]he first and second perforated polymeric layers may pass fluid therethrough." This description again is not limiting on the challenged claims as it describes one embodiment (that is not actually claimed as claim 1 does not require a second perforated polymeric layer).

17. Mr. Sheldon's citation of the '138 patent at 9:46-10:5 that describes methods for measuring the open area and hole diameter of the perforated polymeric layer likewise does not limit the perforation size. Indeed, the specification discloses the use of scanning electron microscopy as a method for determining the open area and perforation size, which a person of ordinary skill in the art would have understood can be used to characterize extremely small surfaces. EX1001-USP138, 10:3-5; EX1029-Vernon-Parry, 2 (scanning electron microscopy can enable "[m]uch

higher magnifications can be achieved (up to 1,000,000x), with an ultimate resolution of 1nm.”). Thus, the diameter of the perforations may be small.

18. Finally, Mr. Sheldon cites the '138 patent at 12:32-46, which describes an embodiment shown in Figures 3 and 4. These figures only describe permissible shapes and orientations of perforations, and provide no restriction on the size of the perforations.

19. Mr. Sheldon cites my testimony to state that it is my understanding that the polymeric perforated layer must have holes that allow fluid to pass into the absorbent core below. EX2004-SheldonSupplDecl., ¶22. I agree that fluid will generally pass through a perforated polymeric layer. However, Mr. Sheldon appears to be construing this requirement and interpreting my testimony to require certain sized holes or apertures that provide for a certain amount or rate of fluid flow, which I do not think is required by the plain and ordinary meaning of a “perforated polymeric layer.”

V. GROUND I – BERGSTROM-'059

20. My opinions relating to Ground I of the Petition have not changed. I incorporate those opinions herein. EX1002-PourdeyhimiDecl., ¶¶84-148.

21. Across his two declarations, Mr. Sheldon opines that Bergstrom-'059's forming element 60 is not a “first perforated polymeric layer” as claimed. EX2001-SheldonDecl., ¶¶108-118; EX2004-SheldonSupplDecl., ¶44. He also opines that

forming element 60 with acquisition layer 40 does not form a “fluid flow control structure.” EX2001-SheldonDecl., ¶¶119-131. I disagree with his opinions.

A. Bergstrom-’059’s forming element is a “perforated polymeric layer” as required by claim limitation 1[h]

22. As explained above, it is my opinion that a “perforated polymeric layer” requires a layer that has holes extending through the layer from one surface to the other. Bergstrom-’059 discloses that its forming element 60 has these perforations as it discloses the forming element can be made of a “perforated plastic film[.]” EX1004-Bergstrom’059, 9:34-10:3. Mr. Sheldon agrees that Bergstrom-’059 lists “perforated plastic film” as an option for making the forming element. EX1022-SheldonDepo., 185:20-187:1 (“[f]orming elements can be plastic films, perforated films, reinforced tissue, reinforced nonwovens.”).

23. A person of ordinary skill in the art would have understood this discloses a plastic film that has holes extending from one surface to the opposing surface such that fluid could flow through such holes. This is demonstrated by the plain meaning of “perforated,” and other references that support my opinion. EX1025]-Merriam-Webster’s, 3 (“perforated” defined as “having a hole or perforations”); EX1026-AmericanHeritage, 3 (“perforate” defined as “to pierce, punch, or bore a hole or holes in”); EX1027-RandomHouse, 3 (“perforated” defined as “pierced with a hole or holes.”). For example, a chapter on Nonwovens in

Absorbent Materials from 2002 explains that “perforated film[s]” are good facing materials for hygiene products that allow good “strike-through performance,” i.e., they allow fluid to flow through the material. EX1011-Gupta2002, 380-382. Therefore, a person of ordinary skill in the art would have understood “perforated plastic film” in Bergstrom-’059 to mean a perforated polymeric layer that has openings extending through the layer that allow fluid to flow through. For these same reasons, a person of ordinary skill in the art would have understood these perforated plastic films allow “free flow of liquid bodily waste” as they must be “liquid pervious” and function as facing material against a user’s body.

24. Mr. Sheldon first opines that I conflate “the potential use of a perforated *film* in forming element 60 with the requirement that the perforated polymeric *layer* itself must be perforated to meet this limitation of claim 1.” EX2001-SheldonDecl., ¶109 (emphasis in original). He then says, “[j]ust because an element is potentially made from a ‘perforated film,’ potentially in combination with other materials, does not mean that the element itself is a perforated polymeric layer.” *Id.* These sentences do not make sense. Bergstrom-’059 discloses that its forming element 60 can be made of a perforated plastic film—it explains that the forming element 60 is “suitably made of a non-absorbent material” that “should also have the required stiffness properties” and that such “suitable materials for the forming element 60 are plastic films, perforated plastic films and reinforced tissue or reinforced nonwoven

materials. Combinations of such materials in laminate form are also possible.” EX1004-Bergstrom’059, 9:34-10:4. Therefore, Bergstrom discloses each of these materials can be used individually to make the forming element, or, alternatively, they can be combined. If the forming element, which is a layer in the Bergstrom-’059 absorbent article, is made of a “perforated plastic film,” the entire layer is a “perforated polymeric layer.”

25. Mr. Sheldon then opines that Bergstrom-’059’s forming element 60 is always liquid-impermeable. EX2001-SheldonDecl., ¶¶110-113, 115, 117; EX2004-SheldonSupplDecl., ¶44. Mr. Sheldon’s opinion is that because Bergstrom-’059 discloses that “forming element 60 is typically liquid-impermeable” such that it “makes liquid flow around the edges of the forming element 60...” forming element 60 must *always* be liquid-impermeable. EX2001-SheldonDecl., ¶110. In fact, Mr. Sheldon opines that the “forming element 60 is invariably described as a barrier to fluid flow.” *Id.*, ¶113. But that is incorrect—Bergstrom is simply describing a preferred embodiment.

26. Interpreting forming element 60 as always liquid-impermeable contradicts what would have been the understanding of a person of ordinary skill in the art and plain English. Bergstrom-’059 states that forming element 60 is “*typically* liquid-impermeable.” EX1004-Bergstrom-’059, 9:24. This would have

signaled to a person of ordinary skill in the art that forming element 60 may or may not be liquid-impermeable. Otherwise “typically” has no meaning at all.

27. I disagree with Mr. Sheldon’s opinion that because Bergstrom-’059 discloses that forming element 60 provides stiffness to the absorbent article that it cannot provide fluid flow control. EX2001-SheldonDecl., ¶111. A person of ordinary skill in the art would have understood that components of absorbent articles could be multifunctional. In fact, the ’138 patent itself notes that its fluid flow control structure preferably has a “high bending stiffness.” EX1001-USP138, 2:64-66. The use of perforated materials having a high basis weight, which is characterized by a higher stiffness, in absorbent articles was well-known at the time of the alleged invention. *See, e.g.*, EX1007-Ponomarenko-’236, 10:4-17, 10:31-41.

28. Mr. Sheldon also opines that “[f]orming element 60 from Bergstrom is visually and conceptually very different from the perforated plastic polymeric layer disclosed by the ’138 Patent.” EX2001-SheldonDecl., ¶112. He provides no explanation for this statement as both are shown to be rectangular layers, and Bergstrom-’059 describes its layer can be perforated.

29. Mr. Sheldon opines that there are a number of different requirements for the “first perforated polymeric layer” as claimed in the ’138 patent that are not disclosed by Bergstrom-’059’s “perforated plastic film.” EX2001-SheldonDecl., ¶¶113-114. He opines that “first perforated polymeric layer” requires penetrating

apertures that (1) have an aperture size of 0.5-5 mm, (2) an open area of 5-30% or 10-25%, and (3) are three-dimensionally formed or funnel-shaped. *Id.* As explained above in Section IV, the aperture size and open area are not requirements of the challenged claims. Similarly, requiring that the apertures be funnel-shaped is also not part of the plain and ordinary meaning of “perforated polymeric layer.” That is one example of how the apertures *can* be shaped. Notably, the ’138 patent states “*in particular embodiments*, the apertures are funnel-shaped,” and claims that the apertures form protrusions through the perforated polymeric layer in dependent claim 4. EX1001-USP138, 3:33-34 (emphasis added), claim 4. Therefore “perforated polymeric layer” does not require any of these extra features Mr. Sheldon mentions in paragraphs 113 or 114.

30. Mr. Sheldon opines that when Bergstrom-’059 states a “perforated plastic film” can be used to make forming element 60, it is describing a material that must still be “liquid-impermeable” with certain stiffness properties, and therefore the perforations are not apertures in the material, but instead “mechanical perforation to affect softness or physical properties.” EX2001-SheldonDecl., ¶115. Mr. Sheldon further testified one could “use needle punching” to make a material softer in a way that does not “impact fluid migrations through the plastic.” EX1022-SheldonDepo., 187:5-20. I disagree with this opinion. As explained above and further below, a person of ordinary skill in the art who has experience with hygienic

and absorbent articles, would have understood that “perforated plastic films,” as that term is used in Bergstrom-’059 and the industry, refers to a material that has penetrating apertures.

31. If Bergstrom-’059 were describing material that has been manipulated, including with micropores or needle punching, it would have described that explicitly as those are specific material properties or methods of manufacturing. For example, needle-punching is actually not typically used on a plastic film because it would potentially break the needles, but is a method for creating nonwoven products by mechanically bonding a nonwoven web. For such a product, “barbed needles are pushed through a fibrous web forcing some fibers through the web, where they remain when the needles are withdrawn.” EX1030-Patel, 1. Bergstrom-’059 does not describe these techniques, nor does it disclose changing the stiffness of the materials used to make forming element 60. Even if Bergstrom-’059 did disclose “mechanical perforation,” such perforations would still be penetrating apertures that allow fluid to flow through the forming element, as “mechanical perforation” describes a perforation created through mechanical means, instead of other means like vacuum. EX1031-USP020, 2:1-13, 3:31-37, 7:20-37.

32. Mr. Sheldon also opines that Bergstrom uses “apertured plastic film” rather than “perforated plastic film” to describe a material where “bodily fluid should be able to pass through it without hindrance.” EX2001-SheldonDecl., ¶116. I

disagree with his interpretation of Bergstrom and the phrases “apertured plastic film” and “perforated plastic film.” A person of ordinary skill in the art would have understood that the difference between “perforated” and “apertured” relates to how the materials are manufactured, not whether penetrating holes are present in the materials. All evidence submitted in this proceeding indicates that a perforated material must have penetrating holes in it that allow fluid flow. EX1025-Merriam-Webster’s, 3; EX1026-AmericanHeritage, 3; EX1027-RandomHouse, 3; EX1001-USP138, 3:29-34; EX1005-Kim, 5:15-19 (differentiating a printed pattern and perforations); EX1011-Gupta-2002, 380-381; EX1019-EP0701805, [0002]-[0003], [0005]. Because of the stiffness requirements of forming element 60, it likely would have been mechanically perforated rather than vacuum apertured to create holes for fluid to flow through. EX1004-Bergstrom-’059, 2:34-35, 9:34-10:3. Conversely, the topsheets that Bergstrom-’059 refers to as “apertured” are the layer of the absorbent article that comes into contact with the wearer, which is why Bergstrom-’059 discloses that these materials being “soft, non-irritating and comfortable against the skin” is advantageous. EX1004-Bergstrom-’059, 10:31-33. Thus, as Bergstrom-’059 discloses, it would be advantageous for the topsheet to be apertured and the forming element 60 to be perforated to provide their channels for fluid flow.

33. In his supplemental declaration, Mr. Sheldon further opines that the “perforated plastic film” Bergstrom-’059 discloses forming element 60 can be made out of is like disclosed the gas-porous backsheet. EX2004-SheldonSupplDecl., ¶44. I disagree with this opinion. Mr. Sheldon does not point to any description in Bergstrom-’059 that characterizes forming element 60 as gas and moisture vapor permeable, or limited to the same materials as the backsheet. *See id.* Indeed, Bergstrom-’059 discloses that suitable materials for backsheets are “porous polymeric films, nonwoven laminates from spunbond and meltblown layers, laminates from porous polymeric films and nonwoven materials.” EX1004-Bergstrom-’059, 11:15-18. Noticeably absent from materials suitable for backsheets are “perforated plastic films.” In this context, a person of ordinary skill in the art would have understood “perforated” to mean a layer has penetrating holes rather than referring to a gas-permeable material like Bergstrom-’059’s backsheets. If Bergstrom-’059 meant that forming element 60’s perforations differed from the ordinary meaning of perforated, it would have explicitly described the forming element as gas permeable—just as it does for porous backsheets. *Compare id.*, 10:1-3 *with* 11:15-18. Bergstrom-’059 also describes forming element 60 as “typically liquid-**impermeable**,” *id.*, 9:24, while it explains backsheet 102 “**should be** liquid-impermeable” and is typically “liquid **impervious**.” *Id.*, 11:9-12.

34. A person of ordinary skill in the art would have expected the backsheet in Bergstrom-'059 to be liquid-impermeable because the purpose of an absorbent article is defeated if the backsheet were liquid-permeable. *See* EX1004-Bergstrom-'059, 11:9-12. The backsheet is the last layer preventing fluid from contacting the wearer's clothes. *See id.* If the backsheet allowed fluid to flow through it, then the absorbent article would not accomplish one of its primary functions of keeping the wearer's clothes dry. This is different from a component placed between two absorbent layers that is described as "perforated."

35. I would also like to clarify a portion of my deposition testimony as it has been improperly applied to Ground I. Patent Owner argues my testimony regarding the meaning of "liquid-impermeable" in the context of Nakazawa-'190's backsheet is instructive to the interpretation of Bergstrom's forming element 60. Response, 60-61. I disagree. I was not asked about Bergstrom-'059 during my deposition, nor was it mentioned. *See generally* EX2005-Pourdeyhimi-Depo. And, as mentioned above, absorbent articles fail if the backsheet is liquid-permeable. My testimony is clear in that context. Patent Owner's distortion of my testimony ignores the embodiments of Bergstrom-'059 where forming element 60 is liquid-permeable.

B. Bergstrom-'059's forming element 60 and acquisition layer 40 together form a "fluid flow control structure" as required by claim limitation 1[e]

36. I disagree with Mr. Sheldon's opinion that forming element 60 and acquisition layer 40 do not constitute a fluid flow control structure because they do not accomplish the same function. EX2001-SheldonDecl., ¶¶119-130.

37. It is clear from Bergstrom-'059's disclosure that these components are layered on top of one another and placed in the same location in the absorbent article, and they work together to control the flow of fluid. Mr. Sheldon acknowledges that acquisition layer 40 "acts to . . . *distribute [liquid] evenly to the upper and lower absorbent cores*, 20, 30." EX2001-SheldonDecl., ¶125; EX1004-Bergstrom-'059, 6:18-30. He also points out that forming element 60 "*makes best use of the upper and lower absorbent cores 20, 30, by distributing liquid.*" EX2001-SheldonDecl., ¶128; EX1004-Bergstrom-'059, 9:24-27. A person of ordinary skill in the art would have understood that forming element 60 would accomplish this distribution in the X-Y plane in embodiments where forming element 60 has perforations and allows fluid to flow through such perforations. This distribution is governed by the Lucas-Washburn equation and Lucas-Washburn spreading:

$$L^2 = \frac{r \gamma \cos \theta}{2\mu} t$$

$$L(t) \propto \sqrt{t}$$

Where L = penetration length, r = the radius of the perforation γ = surface tension, θ = the contact angle between the fluid and the layer, μ = the liquid viscosity, t =

time, and $L(t)$ = penetration distance. EX1032-Washburn, 8 (liquid viscosity shown as η in equation). These equations teach that because fluid does not flow instantaneously through perforated layers, it laterally spreads in the X-Y plane before passing through any perforations in the forming element 60, just as described in Bergstrom-'059. Bergstrom-'059 also unambiguously discloses that forming element 60 and acquisition layer 40 are located together, EX1004-Bergstrom-'059, 8:32-33, and since they work together to have common fluid control functions, they are a fluid flow control structure.

38. Mr. Sheldon restates his opinion that forming element cannot be part of a fluid flow control structure because it is liquid impermeable and is “disparate in every way” to the acquisition layer. EX2001-SheldonDecl. ¶¶122, 125.

39. To support his opinion that forming element 60 and acquisition layer 40 do not constitute a fluid flow control structure, Mr. Sheldon imports requirements into the claims from the specification that (a) each of the two layers must be “porous to allow the flow of fluid through the structure and into the absorbent layers of the absorbent article,” and (b) have edges that “may act as barriers to the fluid distribution transversely to the side edges of the absorbent article.” EX2001-SheldonDecl., ¶¶122-123. Mr. Sheldon’s opinion is that because Bergstrom-'059’s forming element 60 does not have “a porous internal structure,” and, in one embodiment, moves fluid to the edges of the absorbent article, it is not part of the

claimed “fluid flow control structure.” *Id.* I disagree. Neither of these limitations are required by the plain language of the claim. In the patent’s description, the “porous internal structure” refers to the internal structure of the entire fluid flow control structure and the description ascribes this porous structure to the fibrous layer placed between two perforated layers. All that is required by the claim is that the fluid flow control structure have (1) a perforated polymeric layer, and (2) a non-perforated fibrous polymeric layer. EX1001-USP138, claim 1. As I opined previously, the acquisition layer 40 of Bergstrom is the non-perforated fibrous polymeric layer that does allow this “flow of fluid through the structure.” Bergstrom-’059, 6:18-20 (“The acquisition layer 40 acts to receive liquid rapidly, to temporarily hold it and to distribute it evenly to the upper and lower absorbent cores 20, 30.”). The claim does not limit the structure further, nor does it dictate how fluid flow must be controlled. *Id.* Further, it is clear from Mr. Sheldon’s own citation of the ’138 patent that edges acting as barriers are an embodiment, not a requirement, because the excerpt recites that this feature “may” be present and it is absent from the claim. EX1001-USP138, 2:42-45.

40. Further, the ’138 patent describes many other potential aspects of the fluid flow control structure, including several aspects that are shared with forming element 60 and acquisition layer 40:

- it “may be of rectangular shape” or have “other shapes and configurations,” EX1001-USP138, 7:38-42; EX1004-Bergstrom-’059, 6:27-29;
- it “should have a same or shorter width and same or shorter length than the absorbent core,” EX1001-USP138, 7:40-45; EX1004-Bergstrom-’059, 2:34-3:4;
- it may “have a high resistance to compression,” EX1001-USP138, 5:47-49; EX1004-Bergstrom-’059, 8:35-9:3;
- its materials may be “non-absorbent,” EX1001-USP138, 4:7-9; EX1004-Bergstrom-’059, 9:34-35;
- the layers may be “attached to each other by means of an adhesive,” EX1001-USP138, 3:63-64; EX1004-Bergstrom-’059, 10:6-10; and
- it may have a “relatively high bending stiffness,” EX1001-USP138, 2:63-66; EX1004-Bergstrom-’059, 8:29-9:3.

41. Mr. Sheldon contends that just because acquisition layer 40 and forming element 60 are placed next to one another does not make them a structure. EX2001-SheldonDecl., ¶126. I generally agree with that premise, but I disagree as it relates to Bergstrom-’059 because the appropriate placement and functionality of the two layers means that the acquisition layer 40 and forming element 60 meet the claimed limitations of a “fluid flow control structure” as recited in the ’138 patent. As I discussed above, both layers manage the flow of fluid. Further, acquisition

layer 40 and forming element 60 share characteristics with the “fluid flow control structure” as described by the ’138 patent. Like the “perforated polymeric layer of the fluid flow control structure” forming element 60 is nonabsorbent. EX1001-USP138, 4:7-9; EX1004-Bergstrom-’059, 9:34-35. Together, acquisition layer 40 and forming element 60 also provide stiffness and are attached by an adhesive, just as the ’138 patent describes its “fluid flow control structure.” EX1001-USP138, 2:63-66, 3:63-64; EX1004-Bergstrom-’059, 2:34-35, 8:29-32, 10:6-10.

42. Contrary to Mr. Sheldon’s opinion, I did not tacitly admit that forming element 60 is not a part of a fluid flow control structure and does not allow fluid flow in the Z-direction because I described that forming element 60 distributes fluid in *at least* the X-direction as Mr. Sheldon opines. EX2001-SheldonDecl., ¶128; EX1002-PourdeyhimiDecl., ¶106. Forming element 60’s disclosure of fluid flow in the X-direction shows that it *does* control the flow of fluid. EX1004-Bergstrom-’059, 6:17-20, 8:30-9:27. Further, as I have discussed in detail above, Bergstrom-’059’s forming element 60 also allows flow in the Z-direction when it is made from a perforated plastic film. A person of ordinary skill in the art would have understood that fluid would flow in both the Z-direction and the X-direction when interacting with the perforated plastic films suitable for use as forming element 60 in Bergstrom-’059 consistent with the Lucas-Washburn equation and Lucas-

Washburn spreading. These concepts were well-known at the time of the '138 patent.

43. Mr. Sheldon offers opinions only related to embodiments of Bergstrom-'059 where forming element 60 is liquid impermeable in an attempt to argue it does not disclose a fluid flow control structure because there would be no flow in the Z-direction. EX2001-SheldonDecl., ¶129. As noted above, however, even where forming element 60 only distributes fluid in the X-direction it still controls fluid flow. Moreover, consistent with the meaning of “perforated,” fluid will flow in the Z-direction when a perforated plastic film is selected as forming element 60 and the absorbent material directly below forming element 60 would be exposed to fluid. A person of ordinary skill in the art would have found the liquid-permeable perforated plastic films to be useful so that more surface area of the lower absorbent core would be effectively used.

44. Mr. Sheldon also opines that claims 3, 21-22, and 24-25 are not invalid in view of Bergstrom-'059. EX2001-SheldonDecl. ¶¶132-134. However, these opinions rely on his same incorrect claim construction opinions and incorrect view of Bergstrom-'059 that I respond to above. Therefore, it is still my opinion that claims 3, 21-22, and 24-25 are invalid in view of Bergstrom-'059.

VI. GROUND II – NAKAZAWA-'190 AND GLAUG-'753

45. My opinions relating to Ground II of the Petition have not changed. I incorporate those opinions herein. EX1002-PourdeyhimiDecl., ¶¶149-224.

A. A Person of Ordinary Skill in the Art Would Have Been Motivated to Combine Nakazawa-'190 and Glaug-'753

46. Mr. Sheldon opines that neither Nakazawa-'190 nor Glaug-'753 disclose a “fluid flow control structure.” EX2001-SheldonDecl. ¶¶136-138. He also accuses me of “arbitrarily and invariably” referring to diffusion sheet 63 as a “fluid flow control structure.” *Id.*, ¶136. It is unclear what “invariably” means in this context as I clearly explain that it is my opinion that the claims are invalid in view of Nakazawa-'190 when combined with Glaug-'753, either by adding the lower acquisition layer 64 to diffusion sheet 63, or by replacing diffusion sheet 63 with the two-layer fluid acquisition system 34. EX1002-PourdeyhimiDecl., ¶¶176-192. I very clearly state that “Nakazawa-'190 does not disclose a second, non-perforated fibrous layer for the fluid flow control structure as the fluid flow control structure is described in the '138 patent.” *Id.*, ¶178.

47. Mr. Sheldon's opinion that Glaug-'753's fluid acquisition system 34 is not a “fluid flow control structure” is incorrect. EX2001-SheldonDecl. ¶138. This opinion, as explained in his declaration, is based on the fact that the fluid acquisition system is not in the correct position in the Glaug-'753 reference. It is correct that fluid acquisition system is not between two absorbent cores in the Glaug-'753

reference; that is why I opined on modifying Nakazawa-'190 in view of Glaug-'753. Glaug-'753's fluid acquisition system meets all the requirements of the claimed "fluid flow control structure": it is comprised of two layers (EX1006-Glaug-'753, 6:11-18, 8:1-2; EX1022-SheldonDepo., 95:14-16); both the lower and upper acquisition layers contribute to fluid flow management and control (EX1006-Glaug-'753, 4:5-8, 4:35-39, 6:11-18, 9:17-49; EX1022-SheldonDepo., 119:15-122:14); and one layer of the fluid acquisition system is a perforated polymeric layer while the other is a nonperforated fibrous polymeric layer (EX1006-Glaug-'753, 3:67-4:4; EX1022-SheldonDepo., 296:20-297:4). Therefore, it is a fluid flow control structure as claimed.

1. Nakazawa-'190 Does Not Teach Away from Combining with Glaug-'753

48. Mr. Sheldon opines that Nakazawa-'190 teaches away from using "lower nonperforated fibrous layer 64 from Glaug, or Glaug's fluid acquisition system 34, as part of a fluid flow control structure" because it would impede fluid flow. EX2001-SheldonDecl. ¶140. This is based on Mr. Sheldon's focus on Nakazawa-'190's description of the embodiment shown in Figure 15 of Nakazawa, where the hydrophilic sheet that wraps the lower absorbent layer does not extend to the "region corresponding to the openings in the hole portions 65 formed in the first absorbent material 62a." EX1008-Nakazawa-'190, [0085]. I disagree with this

opinion. In fact, Nakazawa-'190 discloses multiple embodiments, including Figures 14A-14B, and 23 where the diffusion sheet and hydrophilic sheet are on top of one another, including under the hole portions of the first absorbent material. *Id.*, [0122] (“In these drawings, the diffusion sheet is wrapped in a hydrophilic sheet, but the diffusion sheet may be disposed on top of a hydrophilic sheet.”), [0084].

49. As explained in my previous declaration, Nakazawa-'190 describes different ways that the hydrophilic sheet can be placed around the lower absorbent material. One example, which Mr. Sheldon agreed was described, is that the lower absorbent material is wrapped entirely in the hydrophilic sheet. EX1022-SheldonDepo., 246:19-247:1. This would necessarily create multiple layers of material between the two absorbent cores. *Id.*, 256:2-7. Mr. Sheldon's response to this disclosure is that it is not a “preferred embodiment” in Nakazawa-'190. *Id.*, 248:18-22. I do not agree that this is not a preferred embodiment as Nakazawa-'190 discloses it as an option and does not state it is a bad option. Nevertheless, because it is described as one possible embodiment, Nakazawa-'190 does not teach away from having multiple layers of material below the hole portions formed in the first absorbent material and above the second absorbent material.

50. Mr. Sheldon also opines that Nakazawa-'190 teaches away from Nakazawa-'190 because it distinguishes its invention from “conventional absorbent articles in which a diffusion layer is disposed between the top sheet and the absorbent

material.” EX2004-SheldonSupplDecl., ¶29. Nakazawa-’190 does propose a different absorbent article design than that shown in Glaug-’753, but that would not have discouraged a person of ordinary skill in the art from using Glaug-’753’s fluid acquisition system in the Nakazawa-’190 absorbent article. As I discuss further below, nothing in Nakazawa-’190 teaches away from using Glaug-’753’s fluid acquisition system and a person of ordinary skill in the art would have been motivated to modify Nakazawa-’190’s diffusion sheet in view of Glaug-’753’s fluid acquisition system.

2. A Person of Ordinary Skill in the Art Would Have Been Motivated to Modify Nakazawa-’190’s Diffusion Sheet in view of Glaug-’753’s Fluid Acquisition System

51. Mr. Sheldon opines that a person of ordinary skill in the art would not have been motivated to combine Nakazawa-’190 and Glaug-’753 because Nakazawa-’190 requires fluid flow both towards and away from a wearer’s body (in both Z-directions), and that Glug-’753’s fluid acquisition system is antithetical to this capability because it is a “one-way fluid highway” because it utilizes an apertured film. *See* EX2004-SheldonSupplDecl., ¶¶31-34; EX2001-SheldonDecl., ¶¶143-148; EX1022-SheldonDepo, 72:9-73:8, 89:1-19, 92:2-16, 140:3-7, 141:16-142:5, 158:1-6. I disagree as I describe in detail below.

52. Contrary to Mr. Sheldon’s opinion, Nakazawa-’190 does not require that its diffusion sheet, when positioned between two layers of absorbent material,

promote fluid flow in both Z-directions. EX2001-SheldonDecl., ¶143; EX2004-SheldonSupplDecl., ¶¶30-31. All that Nakazawa-'190 states is that the diffusion sheet has a "higher liquid permeability than the absorbent material." EX1008-Nakazawa-'190, [0172]. Nakazawa-'190 teaches that a diffusion sheet has a higher liquid permeability than an absorbent material if absorption time is quicker when the diffusion sheet is present above the absorbent material than when it is not. *Id.*, [0035]-[0037]. The test that Nakazawa-'190 sets up to evaluate the difference in absorption time is pouring a set amount of fluid over an absorbent material that is between a top sheet and a backsheet, measuring how long it takes for that fluid to be absorbed, and then pouring the same amount of fluid over an absorbent material with a diffusion sheet on top that is placed between a top sheet and a backsheet. *Id.* If the absorption time is lower with the diffusion sheet, then it has a higher liquid permeability than the absorbent material. *Id.*, [0037]. Here, higher liquid permeability is referring to how quickly fluid can permeate through the material, not, as Mr. Sheldon suggests, how much lateral distribution occurs. *Id.*; EX1022-SheldonDepo., 78:9-17 ("I'm saying that Tredegar AQUIDRY has no absorbent characteristics. It's not permeable."). Nakazawa-'190 also teaches that its diffusion sheets can help distribute fluid along the back surface of the absorbent material. EX1008-Nakazawa-'190, [0024]. This says nothing of allowing fluid flow in both Z-directions. Further, a person of ordinary skill in the art would have understood

that once fluid is in an absorbent core, it would not flow across the diffusion sheet in either Z-direction, because if fluid exited the absorbent cores, the article would not effectively retain fluid. EX1010-Amerji2010, 6 (“not-leaking is just a minimum standard”), 12 (describing leakage from absorbent material as disfavored).

53. Moreover, Mr. Sheldon’s opinion fails to acknowledge that Nakazawa-’190 discloses use of the same apertured film layer for its diffusion sheet that is used in Glaug-’753 to achieve this result. EX1006-Glaug-’753 3:67-4:1; EX2001-SheldonDecl., ¶¶144-146; EX1022-SheldonDepo, 72:9-73:8, 89:1-19, 92:2-16, 140:3-7, 141:16-142:5, 158:1-6; EX2004-SheldonSupplDecl., ¶¶31-34. Specifically, Nakazawa-’190 teaches that an “AquiDry™” apertured film can be used as a diffusion sheet. EX1008-Nakazawa-’190, [0068], [0177]. Mr. Sheldon testified that Glaug-’753’s apertured polymeric film layer 62, which is described as “three dimensional in nature” and is made by “Tredegar Film Products...under the trade designation C120,” is an apertured film called AquiDry™ made by Tredegar. EX1006-Glaug-’753, 8:1-9, 3:67-4:1; EX1022-SheldonDepo, 103:7-21. The apertured AquiDry™ films were known well before the ’138 patent was filed. *See* EX1016-Cohen’429, [0032].

54. A person of ordinary skill in the art would have understood that the AquiDry™ film described in both Nakazawa-’190 and Glaug-’753 would be effective between Nakazawa-’190’s two absorbent layers because Nakazawa-’190

discloses that it is. Nakazawa-'190 states its diffusion sheet may be a "porous plastic film" having "funnel-shaped" pores. EX1008-Nakazawa-'190, [0062], [0068]. Nakazawa-'190 tests the Aquidry™ film, which has such "funnel-shaped pores," between two absorbent layers in laboratory testing. *Id.*, [0177], [0205]-[0211]. Nakazawa-'190 also discloses this specific diffusion sheet material has a "higher liquid permeability" than the absorbent materials with which it was tested and improved absorbency, thus meeting the design goal for diffusion sheet material and promoting adequate fluid flow. *Id.*, [0186], [0200], [0061]. The laboratory tests of Nakazawa-'190 evaluated the absorbency of absorbent articles by providing insults of 100 ml of saline solution and measuring the time for the solution to be absorbed into the absorbent material. *Id.*, [0201]. The tests considered seven combinations of absorbent materials and diffusion sheets. *Id.*, [0207]. In example 7, the Aquidry™ film was placed between two absorbent layers. *Id.*, [177], [0194], [0205]-[0211]. The results show that the Aquidry™ film performed well, exhibiting the second fastest absorbency time of any diffusion sheet tested, negligibly slower than the fastest arrangement, and significantly faster than all other tested setups:

		Ex. 3	Ex. 4	Ex. 5	Ex. 6	Ex. 7	Ex. 8	Ex. 9
Hole portion in absorbent material (Yes/No)	1st absorbent material	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	2nd absorbent material	No	Yes	Yes	Yes	Yes	Yes	Yes (Position mismatch)
Diffusion sheet	1st diffusion sheet (2)	Diffusion sheet a	Diffusion sheet a	Diffusion sheet a	No	Diffusion sheet b	Diffusion sheet a	Diffusion sheet a
	2nd diffusion sheet (2)	No	No	Diffusion sheet a	Diffusion sheet a	Diffusion sheet a	Diffusion sheet b	Diffusion sheet a
Amount of saline (ml)		100	100	100	100	100	100	100
Absorbency time (sec)		81	77	63	82	20	19	81

EX1008-Nakazawa-'190, [0207] (annotated); *see also id.* [0206]. Mr. Sheldon concedes that Nakazawa-'190 discloses AquiDry™ as a material for its diffusion sheet and that Nakazawa-'190 discloses this film works well. EX1022-SheldonDepo, 93:18-94:5, 102:5-10.

55. Contrary to Mr. Sheldon's opinion, Nakazawa-'190's use of an AquiDry™ film as its diffusion sheet in laboratory testing instead of a commercialized product would not have affected a person of ordinary skill in the art's understanding that AquiDry worked well in Nakazawa-'190's absorbent article. *See* EX1022-SheldonDepo, 68:21-69:8 (Nakazawa-'190 tested AquiDry films but chose to commercialize "the diffusion sheet"), 71:22-72:8 ("[t]here's a difference" between testing and "saying to use" AquiDry films as the diffusion sheet). Nakazawa-'190 does not disclose a commercialized product for any material diffusion sheet it tests. A person of ordinary skill in the art would not have expected a patent publication to disclose a commercial product because patent applications are generally filed before commercialization to avoid loss of intellectual property rights. Moreover, a person of ordinary skill would have viewed the tests of Nakazawa-'190 as effective analogs to performance in a commercial product because the test evaluated a 100 ml volume of fluid, which is approximate to the average bladder size of an infant wearing a diaper and the results show that the AquiDry™ film performed well as a diffusion sheet. EX1033-EP456, [0314]

(showing testing of diapers with fluid insults of 40-150 ml depending on the prospective age of the wearer).

56. Mr. Sheldon and Patent Owner take two statements I made during my deposition that have been taken out of context. Response, 33; EX2004-SheldonSupplDecl., ¶35. First, I testified that “once [a] diffusion sheet is wet and it’s in contact with the absorbent core, it can move up or down depending on where it’s located.” EX2005-PourdeyhimiDepo., 64:6-65:5. Mr. Sheldon contends that this means I agree there must be “some fluid in the +Z-direction back toward the body for Nakazawa’s invention to work.” EX2004-SheldonSupplDecl., ¶35. I simply testified that fluid will flow from a diffusion sheet to an absorbent core that it is in contact with. A person of ordinary skill in the art would have understood that fluid would move up to an absorbent core in contact with a diffusion sheet based on wicking associated with (1) capillary suction from the upper absorbent core; (2) direct solid-liquid contact between the wetted diffusion sheet and the upper core; and (3) the rate at which an absorbent core can absorb fluid. EX1008-Nakazawa-’190, [0024], [0031], [0045]. That is the basis of my testimony that this is “nonwovens 001, not even 101.” EX2005-PourdeyhimiDepo., 69:14. I did not testify that the diffusion sheet of Nakazawa-’190 must actively provide fluid flow in both Z-directions because that would be contrary to Nakazawa-’190’s disclosure that an apertured film can be used as its diffusion sheet. EX1008-Nakazawa-’190,

[0177]. The scope of my testimony was simply a statement that fluid will flow from a diffusion sheet to an absorbent core that it is in contact with, whether the core is located above or below the diffusion sheet.

57. Second, I testified that in Glaug-'753 "you want to move the fluid in and not allow it to go back to the top layer because you want to keep the skin dry and safe." EX2005-PourdeyhimiDepo., 49:14-50:13. The reason no fluid flow is disclosed in the +Z-direction in Glaug-'753 is simple: there is no absorbent layer above the fluid acquisition system. A person of ordinary skill in the art would have understood that there should not be fluid flow in both Z-directions through the fluid acquisition system of Glaug-'753 because fluid flowing in the +Z-direction would have moved outside of the absorbent article. Moreover, a person of ordinary skill in the art would have understood that both gravity and the absorbency of the single absorbent core below the fluid acquisition system in Glaug-'753 would facilitate fluid flow in the -Z-direction. This is different from the arrangement in Nakazawa-'190's article, where the diffusion sheet, which may be an Aquidry™ film, allows fluid "to diffuse upward into the upper absorbent core and downward into the lower absorbent core." EX2004-SheldonSupplDecl., ¶31.

58. Mr. Sheldon opines that Glaug-'753's fluid acquisition system does not teach a benefit over the prior art and that a skilled artisan would not have been motivated to combine Nakazawa-'190 and Glaug-'753 for this reason. EX2004-

SheldonSupplDecl., ¶¶26-28. I disagree. Glaug-'753 notes that prior art articles “leave something to be desired from the standpoint of fluid retention capacity and fluid transfer into a high capacity core.” EX1006-Glaug-'753, 3:19-22. Glaug-'753 teaches numerous benefits of its “fluid acquisition system” including “optimiz[ing] the fluid penetration rate and volume into the absorbent core” while “minimizing the fluid from exiting the diaper 20 when it is saturated and under high stress.” EX1006-Glaug-'753, 9:41-46. Further, the two layers “cooperate to manage, transport, accommodate and/or direct high volumes and high flow rates of urine or other body fluid received from the top sheet target zone into the absorbent core 36 at a rate that the core can handle, despite multiple insults of such fluid.” EX1006-Glaug-'753, 6:14-18; *id.*, 4:5-8 (“The fluid acquisition system cooperates with the core to facilitate the transference of fluid, e.g., urine, into the core for absorption and retention in the core even under repeated insults.”). These benefits are compatible with the desired characteristics of Nakazawa-'190's diffusion sheet as I describe below.

59. I disagree with Mr. Sheldon's opinion that the fluid acquisition system of Glaug-'753 would move fluid too quickly to operate effectively. EX2001-SheldonDecl., ¶144; EX2004-SheldonSupplDecl., ¶34. Mr. Sheldon performs no specific analysis in support of this opinion. Instead, he relies on an incorrect premise that Nakazawa-'190 teaches that quick fluid flow is undesired. Moving fluid quickly

towards an absorbent material is exactly what Nakazawa-'190 wants. Nakazawa-'190 requires its diffusion sheets to have a "higher liquid permeability" than its absorbent materials, which it defines as facilitating a lower absorption time when placed above an absorbent material than if the absorbent material were alone. EX1008-Nakazawa-'190, [0035]-[0037]. As discussed above, Nakazawa-'190 even discloses a working example with the Aquidry™ film, the same material of Glaug-'753's first acquisition layer, as its diffusion sheet. Further, a person of ordinary skill in the art would have identified the advantages of including Glaug-'753's lower most layer 34 in Nakazawa-'190 because Nakazawa-'190 teaches that distributing fluid laterally is advantageous and Glaug-'753's lower acquisition layer provides this function. EX1008-Nakazawa-'190, [0024]; EX1006-Glaug-'753 9:34-39. In sum, combining the two references, a person of ordinary skill in the art would have recognized that the Aquidry™ film would move fluid away from a user as desired by both Nakazawa-'190 and Glaug-'753 and that adding Glaug-'753's lower most layer 34 would provide additional lateral distribution that Nakazawa-'190 teaches is advantageous. Thus, a person of ordinary skill in the art would have had a reasonable expectation of success in making the proposed combination as the materials are known, it is well-understood how fluid interacts with the materials, and fluid flow is well-understood.

60. Mr. Sheldon's opinion that the fluid acquisition system of Glaug-'753 is "designed for a singular absorbent core" does not negate the disclosure of both Nakazawa-'190 and Glaug-'753 that show the fluid acquisition system would have been effective between Nakazawa-'190's two absorbent cores. EX2001-SheldonDecl., ¶146. First, Nakazawa-'190 and Glaug-'753 disclose effective use of the same Aquidry™ film as described above. Second, Nakazawa-'190 teaches that lateral diffusion between cores is advantageous to the operation of its articles with two absorbent layers and Glaug-'753's lower most layer 34 of its fluid acquisition system provides this functionality. EX1008-Nakazawa-'190, [0024]; EX1006-Glaug-'753 9:34-39. Thus, a person of ordinary skill in the art would have recognized that although Glaug-'753's fluid acquisition system is disclosed in an article with one absorbent core, that its fluid acquisition system could be added in addition to or replacing Nakazawa-'190's diffusion sheet successfully.

61. I disagree with Mr. Sheldon's opinion that because he and Mr. Glaug did not consider using Glaug-'753's fluid acquisition system between an absorbent article with two absorbent cores that a person of ordinary skill in the art would not have been motivated to in view of Nakazawa-'190's disclosure. EX2001-SheldonDecl., ¶147. First, Mr. Sheldon does not state that he was aware of Nakazawa-'190 when he was working with Mr. Glaug, rendering this opinion irrelevant. Second, as I state above, Nakazawa-'190's diffusion sheet and

Glaug-'753's fluid acquisition system do not "perform two very different functions" because Glaug-'753 teaches that the same material that can be used as Nakazawa-'190's diffusion sheet can be used as its top layer and that its lower most layer provides lateral distribution, which Nakazawa-'190 says is desired. Thus, the clear teachings of both references contradict Mr. Sheldon's irrelevant anecdote.

62. My opinions regarding the combination of Nakazawa-'190's diffusion sheet and Glaug-'753's fluid acquisition system cannot be minimized to "a layer is a layer, and two layers are interchangeable for one" as Mr. Sheldon opines. EX2001-SheldonDecl., ¶148. Indeed, I provided numerous details and supporting evidence on the common advantages and features of Nakazawa-'190's diffusion sheet and Glaug-'753's fluid acquisition system that would have provided motivation for a person of ordinary skill in the art to combine them in the manner recited by the claims. *See*, EX1002-PourdeyhimiDecl., ¶¶184-192.

3. Mr. Sheldon's Opinions on Cost and Manufacturing Complexity Are Unsupported and Do Not Defeat Obviousness

63. I disagree with Mr. Sheldon's opinion that substituting the diffusion sheet of Nakazawa-'190 with the fluid acquisition system of Glaug-'753 would have added significant cost sufficient to deter a person of ordinary skill in the art from combining Nakazawa-'190 and Glaug-'753. EX2001-SheldonDecl., ¶149. Mr. Sheldon alleges that the substitution of layers "can easily cost hundreds of thousands

or even millions of dollars.” *Id.*, ¶150. Mr. Sheldon concedes that he performed no analysis or calculations to determine the cost of adding Glaug-’753’s fluid acquisition system. EX1022-SheldonDepo, 138:9-12.

64. To the extent that Mr. Sheldon’s opinion is that the difficulties he alleges are generally present in substituting layers from an article with a single absorbent core to an article with two absorbent cores applies to the combination of Nakazawa-’190 and Glaug-’753, I disagree. EX2001-SheldonDecl., ¶64. The combination does not require completely restructuring the articles disclosed in either Nakazawa-’190 or Glaug-’753. Instead, all that is required is either adding a layer to Nakazawa-’190’s diffusion sheet or substituting Glaug-’753’s two-layer fluid acquisition system for Nakazawa-’190’s diffusion sheet.

65. Mr. Sheldon’s opinion that a person of ordinary skill in the art generally would have been discouraged “from using additional layers, holes, openings, or non-absorbent materials within an absorbent hygiene product” because adding “layers increases size, weight, or complexity and may lead to decreased absorbent capacity” does not consider the teachings of either Nakazawa-’190 or Glaug-’753. EX2001-SheldonDecl., ¶45. Nakazawa-’190 teaches diffusion sheets that move fluid quickly away from the wearer and that distribute fluid laterally and Glaug-’753 teaches that its two-layer fluid acquisition system performs these functionalities well. Thus, Mr.

Sheldon's generic testimony about the "field" does not properly take into account the details of the proposed combination.

66. Mr. Sheldon's general opinion that a person of ordinary skill in the art would have preferred "a single acquisition or diffusion layer" to a two layered fluid acquisition system to balance "efficiency and cost" is incorrect. EX2001-SheldonDecl., ¶55. It ignores the disclosure of Glaug-'753 and Ponomarenko-'236, both of which describe two-layered fluid acquisition systems and describe the advantages of such systems. These two-layered systems were also well-known in the art as Mr. Sheldon testified. EX1022-SheldonDepo., 168:10-18 ("It's pretty much every single product out in the marketplace handles [fluid] the same way is what Ponomarenko discusses.").

67. I disagree with Mr. Sheldon's analogy that substituting layers of absorbent materials is akin to designing a car to have more backseat space. EX2001-SheldonDecl., ¶65. The combination of Nakazawa-'190 and Glaug-'753 would not change the dimensions or general configuration of the overall absorbent article. Instead, a more fitting analogy would be replacing a manual car seat with an electric one, i.e., replacing a component part with a more effective component part for the same purpose.

68. Mr. Sheldon's testimony makes clear that the cost would not have been burdensome as I describe below.

69. I agree with Mr. Sheldon's deposition testimony that the fluid acquisition system of Glaug-'753 could have been formed into one piece and subsequently "fed into the production line as one layer, one unit." EX1022-SheldonDepo, 155:2-11. A person of ordinary skill in the art would have understood that replacing the diffusion sheet of Nakazawa-'190—a component added as a layer between two absorbent cores—with another composite layer in the production line would have been a trivial replacement. This is because during the manufacture of absorbent articles, components are built as layers. The bottom absorbent core fused to the backsheet would be constructed and fed into a machine to add the fluid acquisition system of Glaug-'753. From there, the upper absorbent core and topsheet would be fused to complete the absorbent article. This manufacturing process was well-known in the art and would have required no more than substituting Glaug-'753's fluid acquisition system for Nakazawa's diffusion sheet. EX1009-White2003, Fig. 3 (showing a production machine for incontinence products with multiple unwinds to be formed into an absorbent article). Thus, the addition of the fluid acquisition system of Glaug-'753 would have been straightforward and would not have increased costs that much.

4. A Person of Ordinary Skill in the Art Would Have Had a Reasonable Expectation of Success in Combining Nakazawa-'190 and Glaug-'753

70. Mr. Sheldon opines that a person of ordinary skill in the art would not have had a reasonable expectation of success in combining Nakazawa-'190 and Glaug-'753 because the combination would require adding multiple manufacturing elements that “would be a very time-consuming process using very expensive and temperamental equipment and would be unlikely to be successful.” EX2001-SheldonDecl., ¶151. As I discuss above, Mr. Sheldon’s opinions on manufacturing are unfounded and he provides no evidence to support them. In fact, he testified that the '138 patent which provides no detail on the requirements of manufacturing the claimed articles other than the arrangement of the component parts “describes enough information that an engineering company could manufacture – build a machine to make it.” EX1022-SheldonDepo., 134:19-135:1.

71. It is my opinion that a person of ordinary skill in the art would have had a reasonable expectation of success in combining Nakazawa-'190 and Glaug-'753. My opinion is based on my understanding of the legal standard for a reasonable expectation of success, which I have been informed by counsel and understand is the likelihood of success in combining or modifying prior art disclosures to meet the limitations of the claims. EX1002-PourdeyhimiDecl., ¶16. I have been informed and understand this can be shown, for example, when the claim “unites old elements with no change to their respective functions or alters prior art by mere substitution of one element for another known in the field, and that combination yields

predictable results.” *Id.* There is a reasonable expectation of success here as the components of the claimed invention are well-known and it would have been predictable how they would function when combined.

72. Mr. Sheldon testified that he applied a different standard, which is clear from his opinions. EX1022-SheldonDepo., 140:18-22 (testifying that reasonable expectation of success requires “[s]ome kind of an improvement in performance, in functionality, in consumer desirability”).

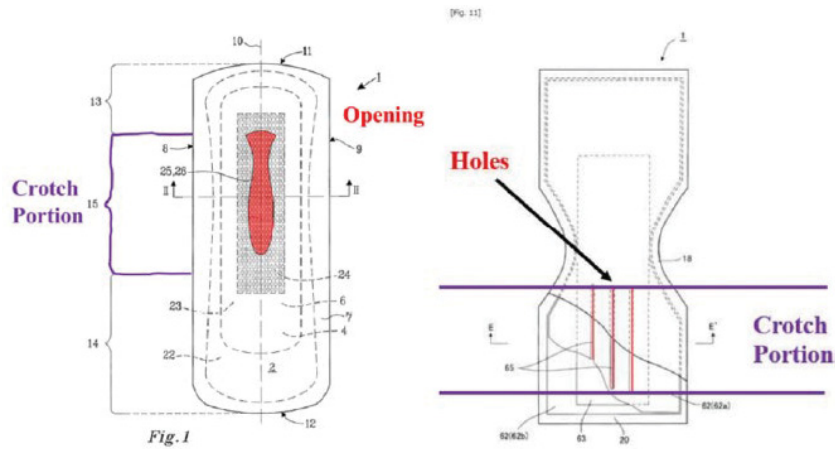
73. I disagree with Mr. Sheldon’s opinion that a person of ordinary skill in the art would not have had a reasonable expectation of success in making the proposed combination because “an acquisition system with layers for rapidly moving fluid down into an absorbent article is very different from a diffusion sheet for moving fluid both up into an upper absorbent core and down into a lower absorbent core via capillary action.” EX2001-SheldonDecl., ¶152. Like he does throughout his declaration, Mr. Sheldon ignores the common desired features of Nakazawa-’190’s diffusion sheet and Glaug-’753’s fluid acquisition system and the fact that both references disclose using the same material, Aquidry™ film, to control fluid flow. A person of ordinary skill in the art would have expected the combination to perform as described in Nakazawa-’190 and Glaug-’753 to move fluid quickly away from the wearer and distribute it laterally to use both absorbent cores effectively. The disclosure of Nakzawa-’190 and Glaug-’753 is consistent with fluid

dynamics principles that would have been known to a person of ordinary skill in the art at the time of the '138 patent, including those associated with the Lucas-Washburn equation described above.

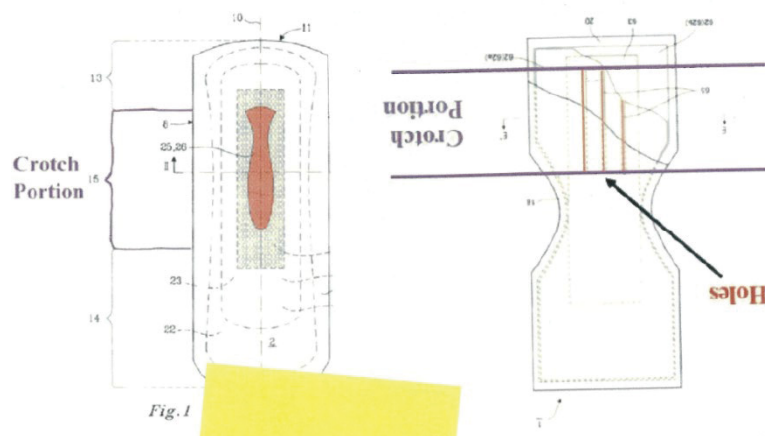
B. Claim 21 Is Invalid in View of Nakazawa-'190 and Glaug-'753

74. I disagree with Mr. Sheldon's opinion that my diagrams showing Nakazawa-'190's crotch portion and the holes extending therethrough are "incorrect, misleading, and conclusory." EX2001-SheldonDecl., ¶153. I annotated the diagrams consistent with the meaning of "crotch portion" in both Nakazawa-'190 and the '138 patent, which is described as the urination site of the wearer that can be asymmetrically placed in the longitudinal direction of the absorbent article. EX1001-USP138, 5:62-63 ("The crotch portion includes the wetting area of the article and can be asymmetrically placed in the longitudinal direction of the article"); EX1008-Nakazawa-'190, [0032].

75. Mr. Sheldon provides a misleading comparison of my annotation of Nakazawa-'190's crotch portion and the crotch portion of the '138 patent to support his opinion that Nakazawa-'190's holes do not go through the entire crotch portion—in fact he states there "is in fact very little if any overlap of the hole portion 65 in Nakazawa with the actual crotch portion as defined in the '138 Patent":



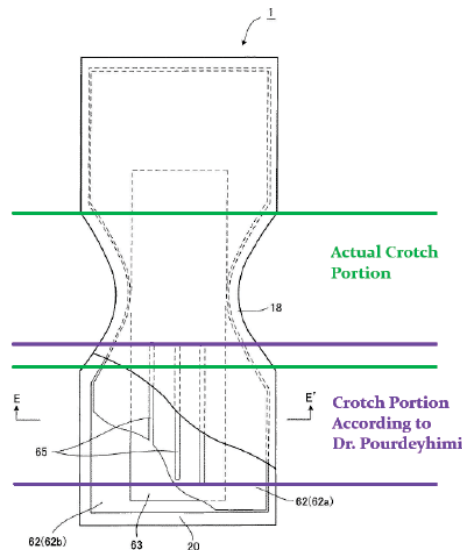
EX2001-SheldonDecl., ¶¶154-155; EX1023-SheldonDepoExA. However, Mr. Sheldon agreed that the side-by-side comparison is inaccurate because in the '138 patent figure on the left, the front of the person is at the top of the absorbent article, whereas the front of the absorbent article is at the bottom of the Nakazawa-'190 figure on the right. EX1022-SheldonDepo., 153:8-19. He agreed that, if you oriented the two figures to face the same direction, it would result in the following image:



EX1024-SheldonDepo-ExB; EX1022-SheldonDepo., 153:21-154:8; 204:7-20.

When oriented in the same direction, the images make clear that the crotch portions are in similar locations.

76. Following his misleading comparison of my annotations, Mr. Sheldon provides an inaccurate annotation of Nakazawa-'190's crotch portion:



EX2001-SheldonDecl., ¶155. He contends that the portion with holes is the “end portion” of Nakazawa-'190 providing only a conclusory assertion that his interpretation of the location of the crotch portion of Nakazawa-'190 is correct. *Id.* A person of ordinary skill in the art would have understood the urination site to be where I have annotated it because Nakazawa-'190 teaches that its holes improve fit *at the urination site*. EX1008-Nakazawa-'190, [0049].

77. I disagree with Mr. Sheldon's opinion that Nakazawa-'190 provides disclosure that “necessarily means that the holes do not extend throughout an entire

crotch portion” and that doing having such holes “would make the article less effective in preventing leakage.” EX2001-SheldonDecl., ¶156. Nakazawa-’190 directly contradicts both assertions. First, Nakazawa-’190 discloses that the absorbent component covers “at least the crotch portion” of an article, and that the placement of hole portions in the absorbent material is unrestricted. EX1008-Nakazawa-’190, [0053], [0169]. Nakazawa-’190 further discloses absorbent articles where the hole extends along the length of the entire article, undoubtedly including the entire crotch portion. EX1008-Nakazawa-’190, [0055], Fig. 9B. Second, Nakazawa-’190 teaches that the use of these holes “*improves* the leakage prevention effect.” *Id.*, [0049].

**VII. GROUND III: NAKAZAWA-’190, GLAUG-’753, AND COHEN-’429
RENDER CLAIM 7 INVALID**

78. I disagree with Mr. Sheldon’s opinion that the combination of Nakazawa-’190, Glaug-’753, and Cohen-’429 does not render claim 7 of the ’138 patent obvious because a person of ordinary skill in the art “would not be motivated to take an apertured 3D-polymeric layer disposed under the top sheet as explained in Glaug and Cohen and insert it between the absorbent cores disclosed in Nakazawa.” EX2001-SheldonDecl., ¶¶159-160. This opinion is functionally the same opinion Mr. Sheldon made for the combination of Nakazawa-’190 and

Glaug-'753 based on his criticisms of the AquiDry™ film. This opinion is misguided for the same reasons I discuss above. *See supra* Section VI.A.

VIII. GROUND IV – NAKAZAWA AND PONOMARENKO

79. My opinions relating to Ground IV of the Petition have not changed. I incorporate those opinions herein. EX1002-PourdeyhimiDecl., ¶¶232-273. I further incorporate my opinions above from Ground II related to Nakazawa that are equally applicable here. *See supra* Section VI.

A. A Person of Ordinary Skill in the Art Would Have Been Motivated to Combine Nakazawa-'190 and Ponomarenko-'236

1. Nakazawa-'190 Does Not Teach Away from Combining with Ponomarenko-'236

80. I disagree with Mr. Sheldon's opinion that Nakazawa-'190 "teaches away from using the multi-layer 30 of Ponomarenko as a fluid flow control structure." EX2001-SheldonDecl., ¶166. As I discuss related to Ground II, this depends on Mr. Sheldon's focus on Nakazawa-'190's embodiment of Figure 15 and fails for the same reasons. *See supra* Section VI.A.1; EX1008-Nakazawa-'190, [0082]. Specifically, Mr. Sheldon fails to account for the fact that Nakazawa-'190 discloses a hydrophilic sheet wrapping the entirety of the second absorbent material. Also, there is no teaching in Nakazawa-'190 to not implement the sublayer 30 disclosed in Ponomarenko-'236 in its absorbent article.

2. A Person of Ordinary Skill in the Art Would Have Been Motivated to Modify Nakazawa-'190's Diffusion Sheet in view of Ponomarenko-'236's Sublayer

81. Like he does in Ground II, Mr. Sheldon criticizes Ponomarenko-'236's sublayer 30 as unable to provide fluid flow in both Z-directions and opines that this functionality is required by Nakazawa-'190's diffusion sheet. EX2001-SheldonDecl., ¶169; EX2004-SheldonSupplDecl., ¶37. Not only is this opinion incorrect for the same reasons I describe above with respect to Ground II, but it also cannot apply to the combination of Nakazawa-'190 and Ponomarenko-'236 because Ponomarenko-'236's perforated polymeric layer has two dimensional perforations that do not have the tapered cone structure Mr. Sheldon criticizes in Glaug-'753. This is apparent in Ponomarenko-'236's perforated acquisition layer 36 in Figures 6 and 7 below:

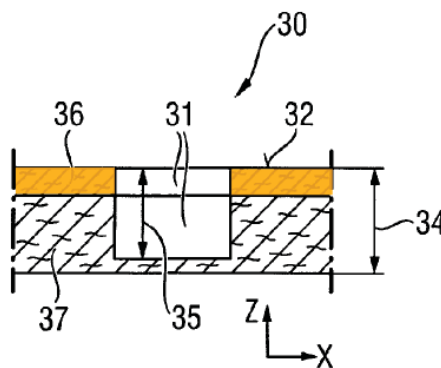


Fig. 6

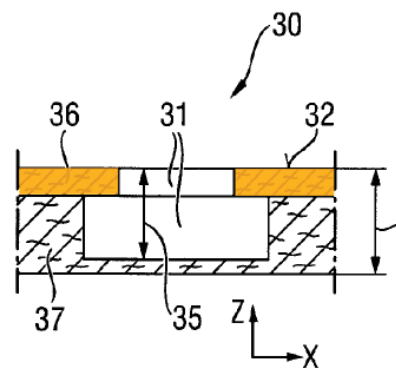


Fig. 7

Ponomarenko-'236, Figs. 6, 7 (annotated); *see supra* Section VI.A.2.. This structure of Ponomarenko-'236's perforated polymeric layer is more like the two-dimensional film of Glaug-'753 that Mr. Sheldon admits would promote more flow in the +Z-direction than it is the Aquidry™ film Mr. Sheldon criticizes as not allowing fluid to flow in the +Z-direction. EX1022-SheldonDepo, 115:1-116:11; EX1006-Glaug-'753, 8:12-16.

82. Mr. Sheldon opines that “Ponomarenko *never* refers to sublayer 30 as having any impact on fluid flow” and that “[e]ven when fluid or urine is mentioned with respect to sublayer 30 in Ponomarenko, it is only with respect to the pressure resistance of the sublayer after wetting.” EX2001-SheldonDecl., ¶¶170, 173. Both opinions are clearly incorrect. Ponomarenko-'236's sublayer 30 controls fluid flow in addition to managing feces. EX1007-Ponomarenko-'236, 7:8-19 (“In general, the sublayer (30) herein is (serves as) an acquisition layer and optionally also (as) a distribution layer, *capable to acquire liquid (urine) and temporarily hold the liquid and allow it to pass, or transport it* to the absorbent core underneath (in Z-direction), and optionally also distribute it in the X and Y direction of the sublayer (30).” (emphasis added)); *see also id.*, 6:39-49. Mr. Sheldon agreed Ponomarenko-'236 has this disclosure during his deposition. EX1022-SheldonDepo, 167:3-18. He also agreed that diapers are well-known to manage both feces and fluids. *Id.*, 164:6-11, 165:18-166:5.

83. Mr. Sheldon's opinion that a person of ordinary skill in the art would have understood Ponomarenko-'236 to be an improvement for feces management would not have affected a person of ordinary skill in the art's understanding of the fluid management capabilities of its sublayer as part of an absorbent article. EX2001-SheldonDecl., ¶¶171-172; EX2004-SheldonSupplDecl., ¶38. Regardless of Ponomarenko-'236's advances related to feces management, a person of ordinary skill in the art would have simultaneously recognized its teachings that sublayer 30 has fluid management functionalities by use of a perforated polymeric layer and a non-perforated fibrous layer as I described in my previous declaration. A person of ordinary skill in the art would have further recognized that both Nakazawa-'190 and Ponomarenko-'236 are absorbent articles in the same field of endeavor as discussed above.

84. Mr. Sheldon opines that I made no attempt to explain why a person of ordinary skill in the art would have been motivated to substitute the diffusion sheet of Nakazawa-'190 with Ponomarenko-'236's sublayer. EX2001-SheldonDecl., ¶174. I disagree. As I explained in detail in my previous declaration, a person of ordinary skill in the art would have been motivated to modify Nakazawa-'190 to make use of Ponomarenko-'236's sublayer for several reasons. EX1002-PourdeyhimiDecl., ¶¶238-246.

85. I disagree with Mr. Sheldon's opinion that a person of ordinary skill in the art would not have been motivated to place Ponomarenko-'236's sublayer 30 between the absorbent cores of Nakazawa-'190 because, in that location, it would not be exposed to feces and that the top surface of the absorbent core would interact with feces and cause discomfort. EX2001-SheldonDecl., ¶175. The sublayer would still provide its fluid management benefits when positioned between the two absorbent layers. Also, Nakazawa-'190 must already be able to deal with feces because, as Mr. Sheldon admits, Nakazawa-'190 discloses it can be a diaper and diapers must manage both feces and fluids. EX1022-SheldonDepo, 164:6-11, 165:18-166:5.

86. Mr. Sheldon also opines that a person of ordinary skill in the art would not have been motivated to place Ponomarenko-'236's sublayer between two absorbent cores because it would cause additional unwanted pressure on the sublayer 30 during manufacture and use, causing the sublayer to not work as intended. EX2001-SheldonDecl., ¶176. Mr. Sheldon did not perform any analysis or calculations to quantify the alleged impact of pressure on Ponomarenko-'236's sublayer placed between two absorbent cores. *See id.* To support his position, Mr. Sheldon relies on a statement in the background of Ponomarenko-'236 that describes it is beneficial if acquisition layers are "pressure resistant even after wetting." EX1007-Ponomarenko-'236, 1:65-2:3. The offered opinion ignores the disclosure

of Ponomarenko-'236 showing that sublayer 30 effectively resists pressure, contradicting Mr. Sheldon's opinion that pressure would have caused sublayer 30 to not work as intended. Ponomarenko-'236 specifically describes that its response to pressure changes preferably "less than 10%" after wetting. EX1007-Ponomarenko-'236, 8:63-9:1. A person of ordinary skill in the art would have recognized that sublayer 30 can effectively resist pressure as disclosed by Ponomarenko-'236.

87. I disagree with Mr. Sheldon's opinion that a person of ordinary skill in the art would not have been motivated to combine Nakazawa-'190 and Ponomarenko-'236 because Nakazawa-'190 focuses on fluid management and Ponomarenko-'236's inventive aspect is regarding feces management. EX2001-SheldonDecl., ¶¶177-178. As I addressed above, diapers must manage both fluids and feces. Both Nakazawa-'190 and Ponomarenko-'236 can be diapers. EX1008-Nakazawa-'190, [0029]; EX1007-Ponomarenko-'236, 2:55-59. This means that both Nakazawa-'190 and Ponomarenko-'236 must have been capable of handling multiple insults of fluid and being changed after a user defecates in the ordinary course of diaper use. Nakazawa-'190 Ponomarenko-'236 each describe fluid management consistent with this use. EX1007-Ponomarenko-'236, 7:13-16 (sublayer 30 "facilitates the absorption of the fluid by the absorbent core below"); EX1008-Nakazawa-'190, [0035] ("a sheet with a higher liquid permeability than the

absorbent material disposed on the top surface side of the diffusion sheet is used as the diffusion sheet.”). Mr. Sheldon provides no evidence to support his opinion that contradicts the disclosure of Nakazawa-’190 and Ponomarenko-’236. Thus, a person of ordinary skill in the art would have been motivated to replace the diffusion sheet of Nakazawa-’190 with Ponomarenko-’236’s sublayer 30.

88. Mr. Sheldon’s opinion that a person of ordinary skill in the art would not have been motivated to combine Nakazawa-’190 and Ponomarenko-’236 “because such a modification would disrupt the flow of fluid required by the diffusion sheet in Nakazawa” and “very little is known about the flow through the interfaces” between components of an absorbent article distorts the plain disclosure of the prior art and the knowledge of a person of ordinary skill in the art. EX2001-SheldonDecl., ¶179. First, there is no mystery regarding how fluid will flow through the interface between the two layers of Ponomarenko-’236’s sublayer because it is expressly disclosed. A person of ordinary skill in the art would have understood that fluid flows in the Z direction and the X-Y direction as described above. The Lucas-Washburn equation and Lucas-Washburn spreading would have informed a person of ordinary skill in the art how fluid would interact with Ponomarenko-’236’s perforated polymeric layer as described above. The disclosure of Nakazawa-’190 regarding how fluid interacts at the back of its upper absorbent layer in contact with its diffusion sheet, which can be a perforated polymeric layer, shows how

Ponomarenko-'236's perforated polymeric layer would interact with the upper absorbent core in Nakazawa-'190. Thus, the fluid interaction between all interfaces that exist in the proposed combination is known.

89. My opinions regarding the combination of Nakazawa-'190's diffusion sheet and Ponomarenko-'236's sublayer cannot be minimized to "a layer is a layer, and two layers for fecal management are interchangeable for one layer for urine management" as Mr. Sheldon opines. EX2001-SheldonDecl., ¶180. Indeed, I provide detail on the common advantages and features of Nakazawa-'190's diffusion sheet and Ponomarenko-'236's sublayer that would have provided motivation for a person of ordinary skill in the art to combine them in the manner recited by the claims. *See*, EX1002-PourdeyhimiDecl., ¶¶238-246.

3. Mr. Sheldon's Opinions on Cost and Manufacturing Complexity Are Unsupported and Do Not Defeat Obviousness

90. It is my opinion that a person of ordinary skill in the art would not have been discouraged from combining Nakazawa-'190 and Ponomarenko-'236 due to the cost and complexity of adding an additional layer to an absorbent article. Like in Ground II, Mr. Sheldon did not perform any analysis or calculations regarding the cost of adding Ponomarenko-'236's sublayer to Nakazawa-'190. *See* EX2001-SheldonDecl., ¶¶181-184. Instead, he merely states conclusory opinions that the product resulting from the combination would need to have less absorbent material

to function as designed because Ponomarenko-'236's sublayer 30 adds bulk and cost.

91. I disagree with Mr. Sheldon's opinion that a person of ordinary skill in the art would have been discouraged from combining Nakazawa-'190 and Ponomarenko-'236 because Ponomarenko-'236's "topsheet and sublayer system [] would be very expensive and cumbersome to manufacture." EX2001-SheldonDecl., ¶183. A person of ordinary skill in the art would have understood that layers could be added or substituted for another in absorbent articles in a straightforward manner. Diaper machines utilize unwinds to add different components and materials to the absorbent article. EX1009-White2003, Fig. 3 (showing unwinds require little space and can be driven by a motor elsewhere on the assembly line, making the addition of further unwinds to a production line straightforward). Mr. Sheldon acknowledges that diaper machines have "a lot of unwinds." EX1022-SheldonDepo, 231:21. Further, Mr. Sheldon testified that the '138 patent provides sufficient disclosure for an engineering company to build a machine to manufacture the claimed absorbent article even though the '138 patent does not describe any manufacturing specifications or processes. EX1022-SheldonDepo, 134:19-135:1. Thus, the addition of the layers would not have deterred a person of ordinary skill in the art from substituting the layers of Ponomarenko-'236's sublayer 30 for

Nakazawa-'190's diffusion sheet and a person of ordinary skill in the art would have understood that no absorbent material would need to be removed.

92. It is my opinion that Mr. Sheldon's anecdote that he "evaluated the Ponomarenko reference when [he] was working on designing and manufacturing absorbent articles" but decided it "would be too difficult, expensive, and complex to manufacture" because it was "understood at that time that Ponomarenko only taught an improved feces management an immobilization system" is an irrelevant anecdote. EX2001-SheldonDecl., ¶184. Mr. Sheldon's inability to read Ponomarenko-'236 for its disclosed fluid management capabilities does not mean that a person of ordinary skill in the art would have been similarly unable to understand the clear disclosure of Ponomarenko-'236's sublayer. Further, Mr. Sheldon does not represent that he reviewed Nakazawa-'190 during this time, which provides a motivation to substitute its diffusion sheet with Ponomarenko-'236's sublayer as I describe above. Thus, Mr. Sheldon's personal experience is not representative of what a person of ordinary skill in the art would have understood from the combination of Nakazawa-'190 and Ponomarenko-'236.

4. A Person of Ordinary Skill in the Art Would Have Had a Reasonable Expectation of Success in Combining Nakazawa-'190 and Ponomarenko-'236

93. I base my opinion of the reasonable expectation of success that a person of ordinary skill in the art would have had in combining Nakazawa-'190 with

Ponomarenko-'236 on the same standard I describe related to Ground II. *See supra* Section VI.A.4. Mr. Sheldon's opinions again demonstrate his lack of understanding of this standard.

94. Mr. Sheldon repeats his opinion from Ground II concerning Nakazawa-'190 and Glaug-'753 that a person of ordinary skill in the art would not have had a reasonable expectation of success in combining Nakazawa-'190 and Ponomarenko-'236 because the combination would require adding multiple manufacturing elements that "would be a very time-consuming process using very expensive and temperamental equipment and would be unlikely to be successful" and applies it to Ponomarenko-'236. EX2001-SheldonDecl., ¶185. I disagree for the same reasons I identify above. *See supra* Section VI.A.4.

95. I disagree with Mr. Sheldon that a person of ordinary skill in the art would not have had a reasonable expectation of success in combining Nakazawa-'190 and Ponomarenko-'236 because "a sublayer with layers for storing and immobilizing feces is very different from a diffusion sheet for moving fluid both up into an upper absorbent core and down into a lower absorbent core." EX2001-SheldonDecl., ¶186. As discussed above, Ponomarenko-'236 unambiguously discloses fluid management capabilities and Nakazawa-'190 does not require fluid flow both Z-directions across its diffusion sheet.

96. I also disagree with Mr. Sheldon's opinion that a person of ordinary skill in the art would not have expected the combination of Nakazawa-'190 and Ponomarenko-'236 to work because Ponomarenko-'236's "sublayer would cause the fluid to quickly pass through the acquisition system into the second absorbent material, reducing the rate of absorption at the back surface of the first absorbent material and causing leaks, rewet, and/or discomfort of the wearer due to inefficient fluid flow." EX2004-SheldonSupplDecl., ¶39. This ignores the disclosure of Ponomarenko-'236 that its sublayer holds fluid and distributes it laterally. Ponomarenko-'236's sublayer 30 controls fluid flow in addition to managing feces. EX1007-Ponomarenko-'236, 7:8-14 ("In general, the sublayer (30) herein is (serves as) an acquisition layer and optionally also (as) a distribution layer, capable to *acquire liquid (urine) and temporarily hold the liquid and allow it to pass*, or transport it to the absorbent core underneath (in Z-direction), and optionally *also distribute it in the X and Y direction of the sublayer (30)*"); *see also id.*, 6:32-49, . A person of ordinary skill in the art would have understood that while the fluid is distributing in the X and Y direction of the sublayer, that fluid could be wicked into Nakazawa-'190's upper absorbent core as described in Nakazawa-'190. This understanding is consistent with basic fluid mechanics principles as described in the Lucas-Washburn equation and with Lucas-Washburn spreading discussed above.

B. Claim 2 Is Invalid in View of Nakazawa and Ponomarenko

97. Mr. Sheldon also opines that a person of ordinary skill in the art would not have been motivated to combine Nakazawa-'190 and Ponomarenko-'236 to provide a first perforated polymeric layer with a basis weight of from 60g/m² to 100g/m² because Nakazawa-'190's selection of diffusion sheets depends on "whether the diffusion sheet is more liquid permeable than the absorbent material" and Ponomarenko-'236 "does not compare the liquid permeability of any of the materials in sublayer 30 to the absorbent material." EX2001-SheldonDecl., ¶¶188-190. I disagree. A person of ordinary skill in the art would have understood that a perforated layer of the high-basis weight cellulose fibres disclosed by Ponomarenko-'236 are more fluid permeable than its (or Nakazawa-'190's) absorbent cores. *See* EX1007-Ponomarenko-'236, 7:8-16 (sublayer 30 "facilitates the absorption of the fluid by the absorbent core below"). This is because Ponomarenko-'236's perforations in sublayer 30 assist in causing fluid to flow. *Id.* Providing quicker absorption times is precisely what Nakazawa-'190 describes as having "higher liquid permeability." EX1008-Nakazawa-'190, [0035]-[0037]. Thus, a person of ordinary skill in the art would not have been discouraged from combining Nakazawa-'190 and Ponomarenko-'236 because Ponomarenko-'236 does not explicitly describe the fluid permeability of its high basis weight materials.

IX. GROUND V – NAKAZAWA

98. My opinions relating to Ground V of the Petition have not changed. I incorporate those opinions herein. EX1002-PourdeyhimiDecl., ¶¶274-292.

99. My opinions are based on Patent Owner’s interpretation of the claims of the ’138 patent in the parallel district court litigation where it has identified industry standard core wrap that is wrapped around the lower absorbent core in the accused product as the alleged non-perforated fibrous polymeric layer of the “fluid flow control structure.” EX1002-PourdeyhimiDecl., ¶275. I further restate that the core wrap identified by Patent Owner as a part of the claimed “fluid flow control structure” is a well-known component that is not considered a part of an acquisition / distribution layer that does not “provide[] the article with high intake capacity” as the ’138 patent states the fluid flow control structure does. *Id.*, ¶276; EX1001-USP138, 2:21-22.

100. I agree with Mr. Sheldon’s testimony that a person of ordinary skill in the art would have understood the “hydrophilic sheet” that can wrap the absorbent material in Nakazawa-’190 could have been made from a “hydrophilic treated nonwoven fabric,” which is a non-perforated fibrous polymeric layer. EX1022-SheldonDepo, 254:6-255:7; EX1008-Nakazawa-’190, [0043]. I agree that this type of hydrophilic sheet is industry standard core wrap. EX1022-SheldonDepo, 265:9-266:18.

1. Applying Patent Owner's Interpretation of the Claims,
Nakazawa-'190 Discloses a Fluid Flow Control Structure

101. Mr. Sheldon corrected his mistaken opinion that Nakazawa-'190 does not disclose a core wrap that is a hydrophilic sheet wrapped around the entirety of Nakazawa-'190's lower absorbent core at his deposition. EX1022-SheldonDepo, 248:18-22, 256:2-7; *see* EX2001-SheldonDecl., ¶194. This correction also applies to Mr. Sheldon's other opinions that depend on Nakazawa-'190 not disclosing a hydrophilic sheet wrapped entirely around the lower absorbent core. EX2001-SheldonDecl., ¶¶195, 197-199.

102. Under Patent Owner's interpretation of the claims, I disagree with Mr. Sheldon's opinion that even when the absorbent core is fully wrapped with the hydrophilic sheet that it is not a fluid control structure because its purpose is "to prevent leakage of superabsorbent polymer and to prevent deformation of the absorbent material on the production line." EX2001-SheldonDecl., ¶196 (quoting Nakazawa-'190, [0082]); EX1022-SheldonDepo, 265:9-266:18, 268:5-21, 274:7-14, 282:15-19. In Patent Owner's accusations of infringement, it identifies the industry standard core wrap that Mr. Sheldon opines is not a non-perforated fibrous polymeric layer as a non-perforated fibrous polymeric layer. EX1014-Complaint at Appendix A, 49. Therefore, based on this interpretation, Nakazawa-'190 discloses a fluid flow control structure.

X. CONCLUSION

103. For the reasons stated above and in my previous declaration, it is my opinion that all challenged claims in each ground are unpatentable.

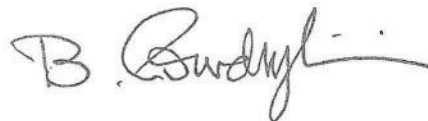
XI. AVAILABILITY FOR CROSS-EXAMINATION

104. In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. If cross-examination is required of me, I will appear for cross examination during the allotted time.

XII. JURAT

105. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine, imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: December 12, 2025



Dr. Behnam Pourdeyhimi