

**IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION**

IMPULSE DOWNHOLE SOLUTIONS	§	
LTD., AND IMPULSE DOWNHOLE	§	
TOOLS USA LTD.,	§	
	§	
Plaintiffs,	§	Civil Action No. 4:23-cv-02954
	§	
v.	§	
	§	
DOWNHOLE WELL SOLUTIONS, LLC,	§	JURY TRIAL DEMANDED
	§	
Defendant.	§	

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Impulse Downhole Solutions Ltd. and Plaintiff Impulse Downhole Tools USA Ltd. file this Complaint For Patent Infringement against Defendant Downhole Well Solutions, LLC, as set forth below:

PARTIES

1. Plaintiff Impulse Downhole Solutions Ltd. is a company organized and existing under the laws of the Province of Alberta, Canada, having a place of business at 5120 67th Avenue, Edmonton, AB T6B 3N9.

2. Plaintiff Impulse Downhole Tools USA Ltd. is a company organized and existing under the laws of Delaware and has a regular and established place of business in this District at 546 Stonegate Drive, Katy, Texas 77494.

3. Together, Impulse Downhole Solutions and Impulse Downhole Tools (collectively, “Impulse”) own all right, title, and interest to U.S. Patent No. 9,765,584 (**Exhibit 1**); U.S. Patent No. 9,637,976 (**Exhibit 2**); U.S. Patent No. 11,268,337 (**Exhibit 3**); U.S. Patent No. 10,648,265 (**Exhibit 4**); U.S. Patent No. 10,633,920 (**Exhibit 5**).

4. On information and belief, Defendant Downhole Well Solutions, LLC (“DWS” or “Defendant”) is a limited liability company organized and existing under the laws of Texas, with its principal place of business located in this District at 18300 Strack Drive, Spring, Texas 77379.

JURISDICTION AND VENUE

5. This is an action for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code. This Court has original and exclusive subject matter jurisdiction over this action under 28 U.S.C. §§ 1331 and 1338(a).

6. DWS is subject to personal jurisdiction because DWS resides in this District and because DWS has significant contacts with the State of Texas, and in particular with the Southern District of Texas. Specifically, DWS is a limited liability company organized under the laws of the State of Texas with its principal place of business located in this District. Moreover, upon information and belief, DWS has committed acts of infringement within this District.

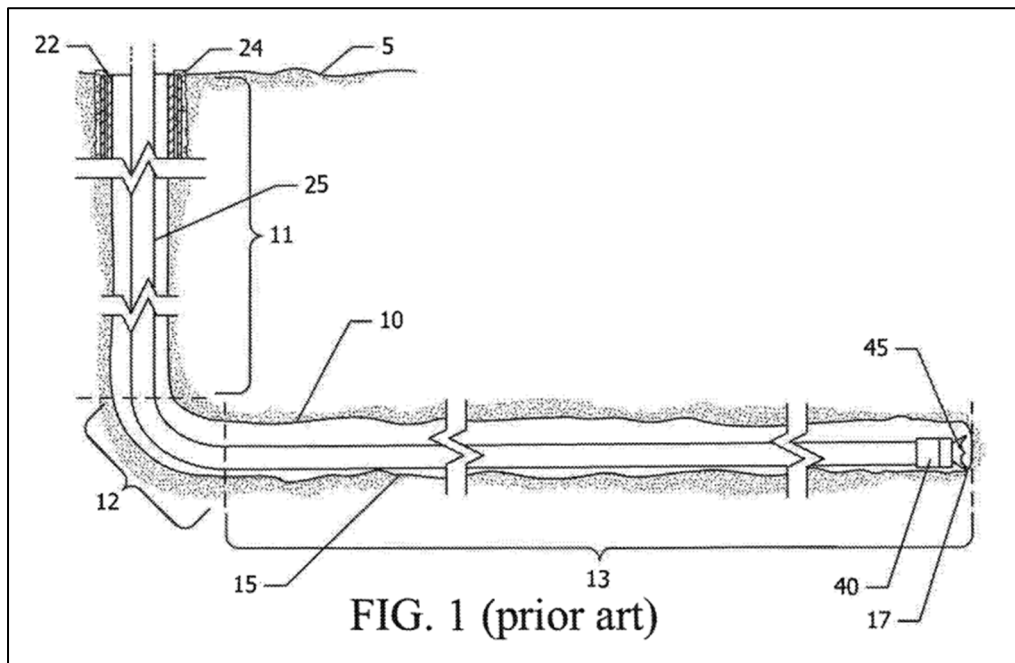
7. Venue is proper in this District pursuant to 28 U.S.C. §§ 1391(b), 1391(c) and 1400(b) because DWS resides in this District and this Court has personal jurisdiction over DWS.

FACTS COMMON TO EACH CLAIM FOR RELIEF

A. Technology Background as Described in the Patents

8. Oil and gas have been extracted from subterranean deposits for over a hundred years. While drilling vertically provides a relatively easy means to extract oil and gas from formations, it is of limited value when the rig cannot be positioned directly above the deposits. Directional drilling provides a means of deviating a well from its downward path to access deposits that lie within a formation at greater lateral distances (i.e., horizontally) from the rig’s surface location. For example, as illustrated below, a drilling string 25 extends from a drilling rig at the surface 5 through a vertical section 11, a build (curved) section 12, and a lateral section 13, terminating with the bottom hole assembly (“BHA”) 40 comprised of a drill bit 45, a motor, and

other tools such as measurement while drilling (MWD) tools, thrusters, shock tools, jarring tools, collars. **Exhibit 3** ('337 Patent) at 2:62–3:17.



Id. at Fig. 1.

9. Deflecting the bottom hole assembly from the vertical section 11 through the build section 12 to the lateral section 13 is commonly performed using a positive displacement motor (a “mud motor”) with a bent housing. A mud motor is a tool that converts hydraulic flow energy into rotation of a rotor. When using a mud motor with a bent housing, a straight drill path is accomplished by rotating the entire drill string while drilling (“rotary drilling”), whereas deflecting the path is accomplished by not rotating the drill string while drilling such that the bent housing causes the drill bit to drill at a slight angle to the current drill path (“sliding drilling”). During sliding drilling, the cessation of drill string rotation dramatically increases the frictional forces along the drill string as it contacts the inner surfaces of the wellbore, causing difficulty in advancing the bit and reducing the amount of force transmitted to the bit (“weight on bit”), which can slow or even stop forward progress of drilling. *Id.* at 1:37–45, 4:13–35.

10. Prior art vibration tools were developed to address these issues, such as U.S. Patent No. 6,508,317 to inventor Alan Eddison and assigned to NOV. However, such prior art tools were flawed, limited, and created additional challenges while drilling. *See, e.g.*, **Exhibit 1** ('584 Patent) at 1:26–35, 10:9–28, 10:60–63; **Exhibit 3** ('337 Patent) at 1:56–50, 3:59–4:12 (discussing disadvantages of prior art tools and advantages of the invention).

B. Impulse's Business and Patented Inventions

11. Impulse is a frontrunner in the drilling and completions industry, with an elite development team and multiple patents granted for its unique technology that provides significant improvements in the horizontal drilling process. Impulse's new technology is innovative and advantageously allows companies to drill longer wells more efficiently.

12. Since the onset of the technology described below, Impulse has grown and maintained market share in Canada and in the United States. Despite entering the United States market in only 2018, Impulse's patented tools have gained a sizeable market share in several regions without offering any significant price reductions, reflecting that Impulse's success is due to the benefits of its patented technology over the existing technology.

13. Impulse's commercial tools include the PowerPulse™ and ActiPulse™ tools. PowerPulse™ is an axial oscillation tool that is placed in the drill string and provides constant vibration when a drilling rig's pumps are engaged. PowerPulse™ provides many advantages for drilling operations, including an adjustable operating frequency, adjustable flow restriction to accommodate higher mud weights and flow rates, and lower operating pressure to provide increased efficiency. ActiPulse™ operates similar to PowerPulse™, but is designed to provide constant vibration when a drilling rig's pumps are engaged only after an activation device or projectile is dropped from the surface.

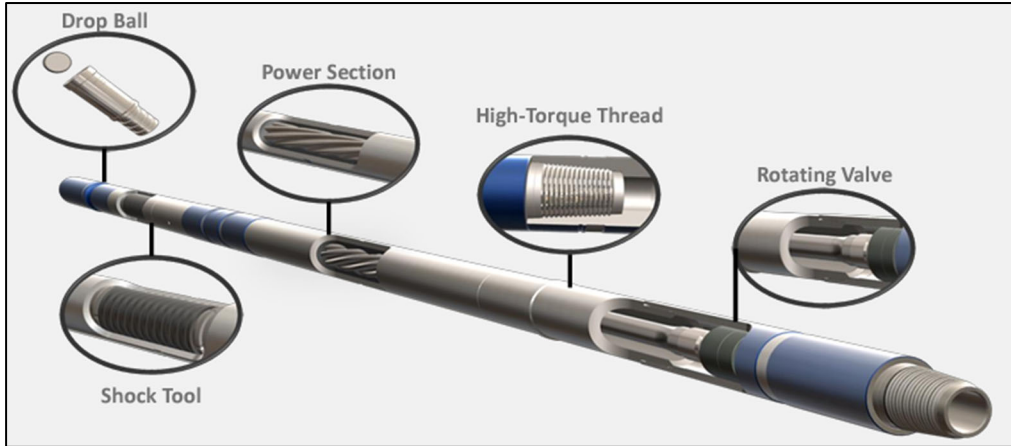


Exhibit 6 (Impulse Case Study).

14. ActiPulse™ is designed with the option to run multiple tools in series for long reach horizontals or complex directional profiles. For example, the PowerPulse™ tool can be run in tandem with the ActiPulse™ tool, with ActiPulse™ tool being activated as the lateral is advanced thus giving an efficient spread of energy across the entire drill string.

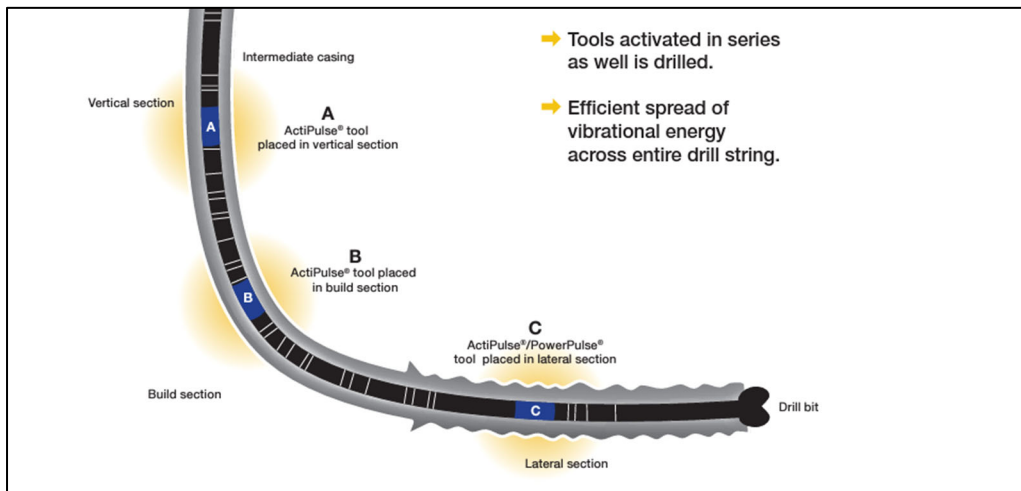


Exhibit 7 (Impulse Brochure) at 3.

15. Impulse’s valuable technology is protected by several patents, including U.S. Patent No. 9,765,584 (**Exhibit 1**); U.S. Patent No. 9,637,976 (**Exhibit 2**); U.S. Patent No. 11,268,337 (**Exhibit 3**); U.S. Patent No. 10,648,265 (**Exhibit 4**); U.S. Patent No. 10,633,920 (**Exhibit 5**).

16. Impulse’s patented technology generally relates to improved downhole vibration tools that create varying fluid pressure patterns to vibrate a drill string during drilling operations. **Exhibit 1** (’584 Patent) at 3:45–50. As shown in the exemplary embodiment below, the patented technology generally includes a motor having a rotor (purple), a rotary valve (blue) coupled to the motor, and a stationary valve (red) in fluid communication with the rotary valve.

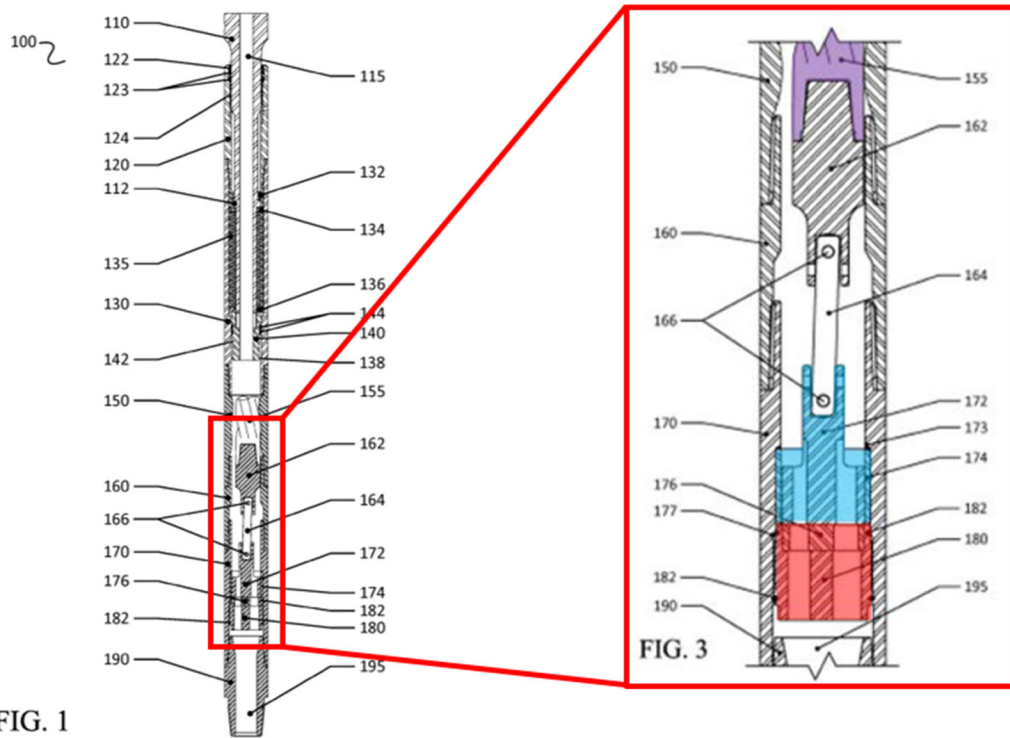


Exhibit 1 (’584 Patent) at Fig. 1, Fig. 3.

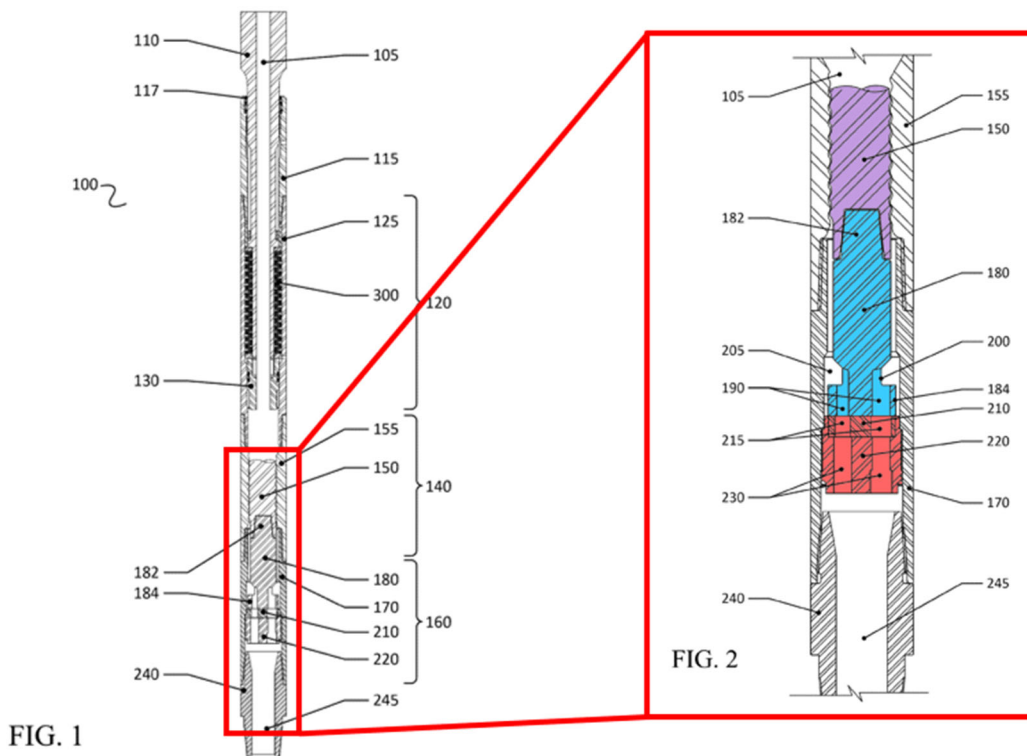


Exhibit 2 ('976 Patent) at Fig. 1, Fig. 2.

17. In contrast to the rhythmic pulse patterns generated by some prior art tools, which interfered with measurement while drilling (“MWD”) and other equipment, Impulse’s patented invention provides a fluid pressure pattern that is polyrhythmic or irregular with pressure spikes or peaks of varying magnitudes while drilling. **Exhibit 1** ('584 Patent) at 3:45–50, 10:9–28. These varying pressure patterns “assist in varying the tension along the drilling string and preventing the drilling string from sticking during downhole use,” which is particularly useful in long, horizontal drilling operations, and “can improve the overall effect and efficiency of steerable or directional drilling.” *Id.* at 10:22–28. Further, these varying pressure patterns can reduce interference with or damage to other downhole equipment, such as MWD and survey equipment. *Id.* at 10:60–63; *see also* **Exhibit 2** ('976 Patent) at Abstract, 1:25–30, 1:62–31, 7:1–41.

18. To accomplish the irregular pressure pattern, one or both the rotary valve and the stationary valve include at least one or a plurality of fluid ports. **Exhibit 1** ('584 Patent) at

Abstract. As exemplarily illustrated below, the ports on the rotary valve and the ports of the stationary valve enter into and out of alignment as the rotary valve rotates, thereby creating a varying pattern of pressure spikes which induces a varying vibrating effect on the drill string. *Id.* The varying pattern of pressure spikes is in part due to the eccentric motion induced by the motor and the relative configurations of the ports in the valves. *Id.*; *see also id.* at 2:17–33; **Exhibit 2** ('976 Patent) at 2:25–28. Moreover, this polyrhythmic pattern “may be considered to be relatively arrhythmic compared to simpler flow restriction arrangements utilizing, for instance, a single-port configuration controlling drilling fluid flow.” **Exhibit 2** ('976 Patent) at 2:28–31.

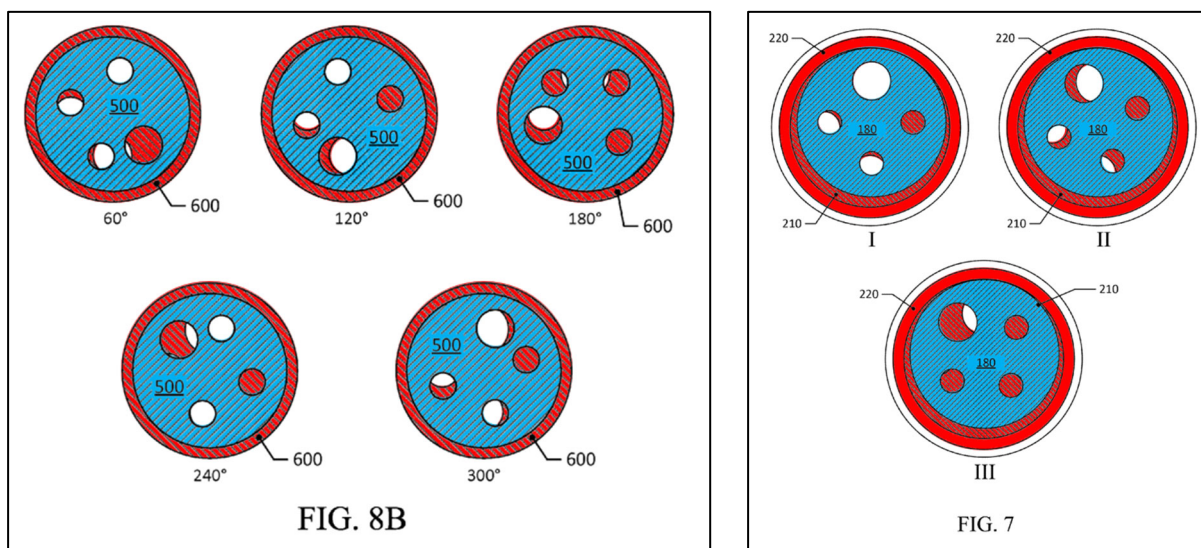
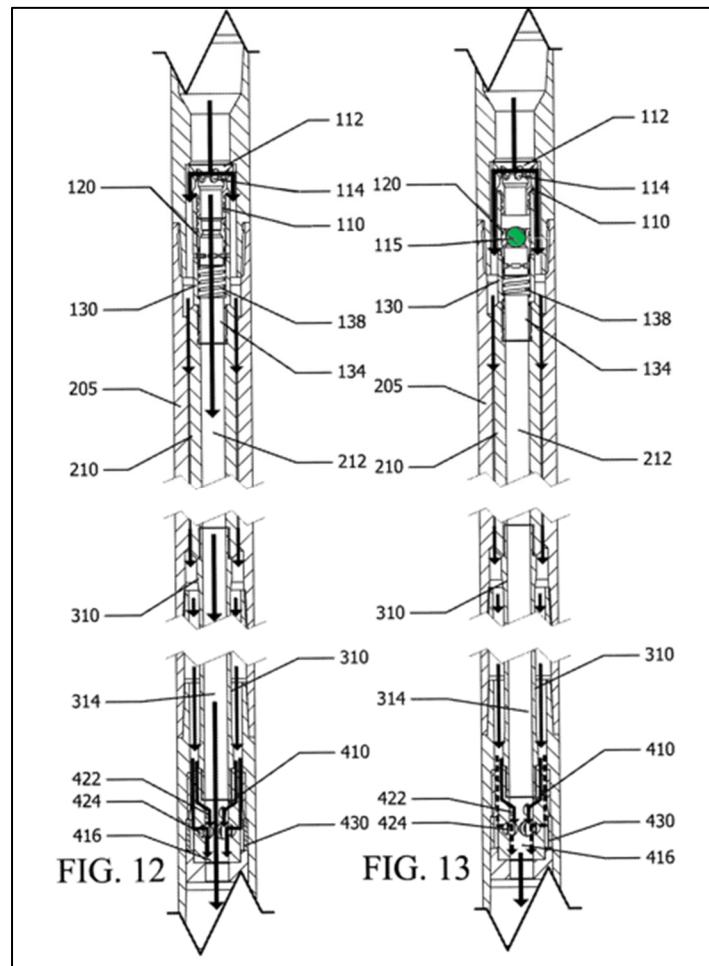


Exhibit 1 ('584 Patent) at Fig. 8B (left); **Exhibit 2** ('976 Patent) at Fig. 7 (right).

19. Impulse’s patented technology includes selectively-activatable vibration tools that are used to produce fluid pressure pulses in downhole operations on demand. *See, e.g., Exhibit 3* ('337 Patent) at Abstract. Specifically, one may position an activation tool above the motor, which may be comprised of a catch assembly that receives a projectile such as a ball (green) falling from above and retains the projectile in place. *Id.* at 7:41–47. When the tool is not activated (i.e., no projectile), most of the drilling fluid flows into the bore 212 of the rotor 210 so as to not activate the rotor, as shown by the arrows in the figure below at left. *Id.* at 11:61–66; *see also Exhibit 5*

(’920 Patent) at 4:58–5:2 (recognizing that “[w]hile a small amount of drilling fluid may pass around the catch ... and enter the space defined by the rotor and stator of the motor, it may not be sufficient to activate the motor; or, if the motor is nevertheless activated, the torque generated by the motor may be significantly decreased or even substantially nil”). As illustrated below at right, when the projectile (green) is seated and the tool is activated, drilling fluid is substantially blocked from passing through the center bore and is directed toward the cavities of the motor defined by the rotor 210 and stator 205, providing sufficient flow to activate the motor and rotate the rotor, thereby driving the rotary valve component 410. **Exhibit 3** (’337 Patent) at 12:27–37.



Id. at Fig. 12, Fig. 13.

20. Impulse’s commercial tools, including the PowerPulse™ and ActiPulse™ tools, practice the claims of Impulse’s patents.

C. DWS’ Business and Infringing Acts

21. DWS manufactures, sells, offers for sale, rents, and/or offers for rent downhole vibration tools such as the PowerGLIDE and PowerGLIDE On Demand (“OD”). *See Exhibit 9* (Spec Sheet). According to DWS, the PowerGLIDE is a downhole vibration tool that “produces strictly axial oscillations, which are generated in conjunction with a bi-directional shock tool,” and is “able to increase ROP [rate of penetration] and weight transfer to the bit, while mitigating extended-reach drilling challenges such as stick-slip.” *See Exhibit 10* (DWS Website).



22. The PowerGLIDE OD “allows customers to easily turn on PowerGLIDE downhole with an activation ball. Simply drop the activation ball from surface and set PowerGLIDE in motion.” *Exhibit 11* (Social Media Posts) at p. 3 (5/1/2020 post).

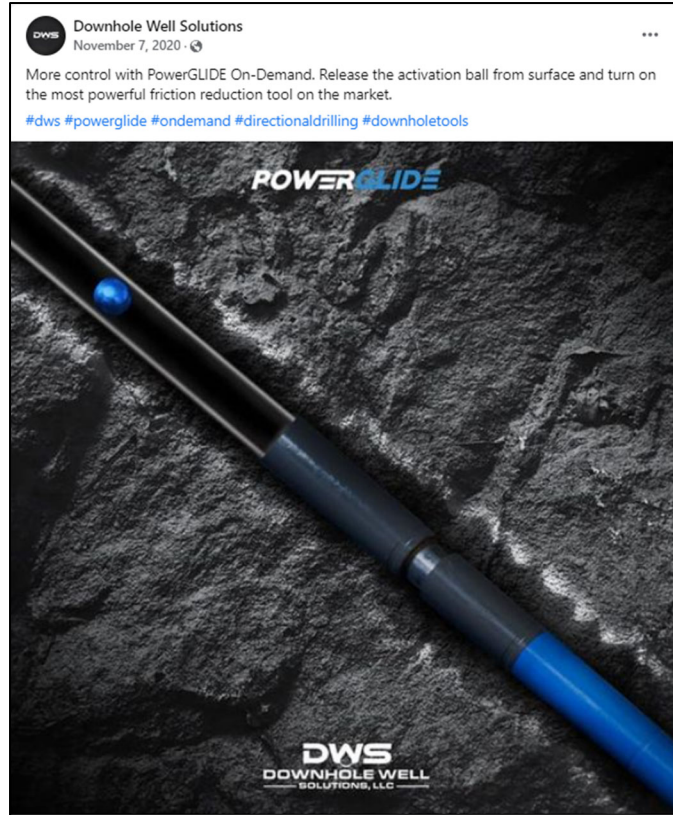


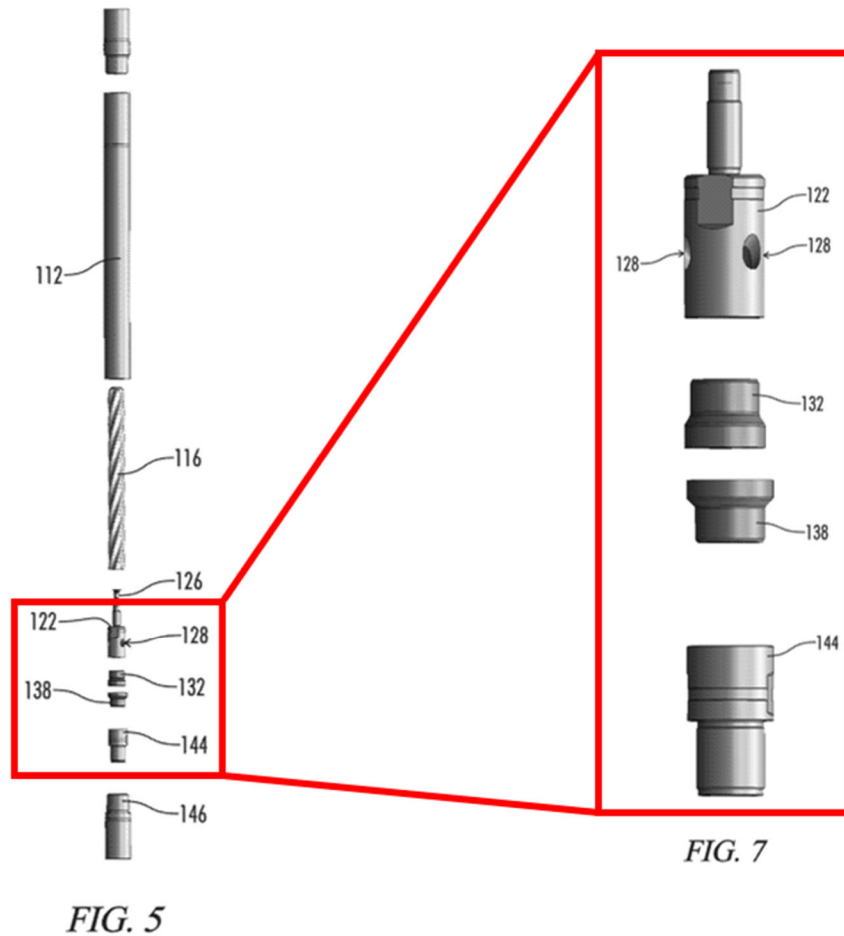
Exhibit 11 (Social Media Posts) at p. 7 (11/7/2020 post).

23. DWS was founded in 2019 by Taylor Janca, Chandler Janca, and Avinash Cuddapah. Mr. Cuddapah worked at NOV in NOV’s downhole tool business segment for several years before joining LEAM Drilling Services, where Mr. Janca worked. After working together for about 2 years at LEAM, Mr. Janca and Mr. Cuddapah founded DWS in 2018. *See, e.g.*, <https://downholewellsolutions.com/team> (last accessed July 18, 2023).

24. On information and belief, some or all of the operation of DWS’ PowerGLIDE and PowerGLIDE OD tools is described in U.S. Patent No. 10,590,709 to Mr. Cuddapah et al. (“Cuddapah Patent”). *See Exhibit 12*. The Cuddapah Patent was filed in July 2017 (*id.*), while Mr. Cuddapah was working at LEAM with Mr. Janca and before they co-founded DWS.

25. The Cuddapah Patent discloses “[a] downhole oscillation tool includes a Moineau-type positive displacement pulse motor and a valve assembly for use in a drill string.” **Exhibit 12**

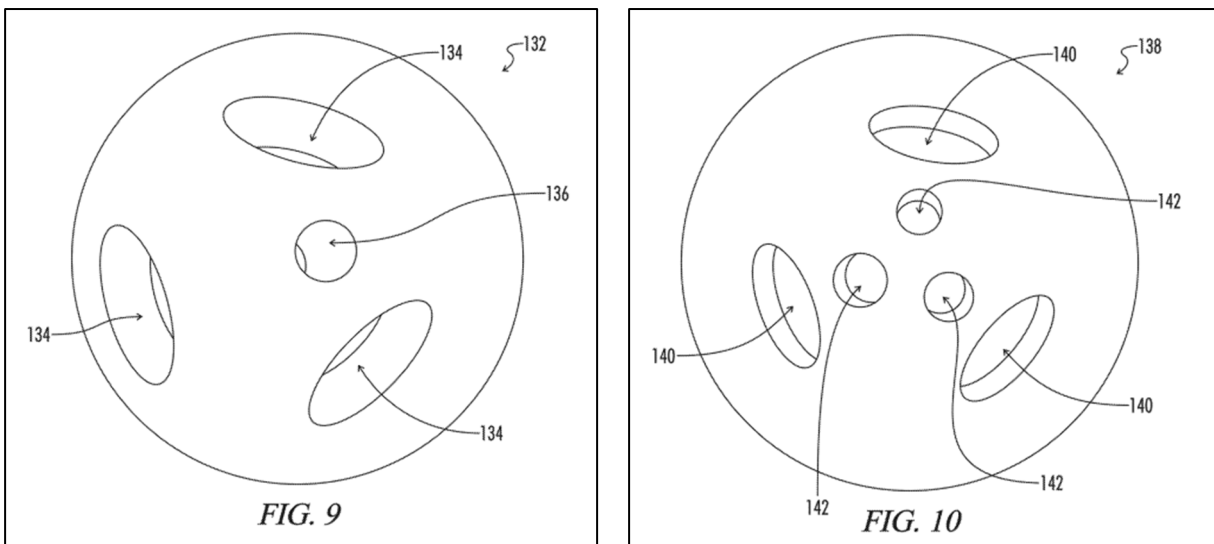
(Cuddapah Patent) at Abstract. Within the tool, the motor includes a rotor 116 configured to rotate within a stator 112, as well as a valve assembly with a rotary valve plate 132 connected to the bottom end of the rotor, which abuts a stationary valve plate 138. *Id.* As the rotary valve rotates, ports in the valve plates “intermittently overlap ... to create pulses in the drilling fluid which is pumped through the tool to power the motor and valve assembly” such that “[t]he tool can generate pulses of different amplitudes and different wavelengths in each rotational cycle.” *Id.*



Id. at Fig. 5, Fig. 7.

26. Both the rotary valve and the stationary valve can include multiple ports that are configured to allow drilling fluid to pass therethrough. *Id.* at 7:65–8:19. The valve ports can have different sizes, shapes, and/or radial offsets, and the arrangement of ports in the stationary valve

plate can be different from the rotary valve plate. *Id.* at 8:3–15. For example, as illustrated below, the rotary valve plate 132 (at left) includes one circular inner port and three elongated outer ports, and the stationary valve plate 138 (at right) includes three circular inner ports and three elongated outer ports. As the rotary valve plate rotates on the stationary valve plate, drilling fluid flows through the valve plates “at varying pressures and flow rates as the overlap between the [rotary] axial ports and [stationary] axial ports—and thus the flow area available to the drilling fluid—varies.” *Id.* at 8:54–60. Hence, “[b]y designing the valve plates ... with a valve geometry that produces multiple pressure pulses of the drilling fluid per revolution of the rotor 116, the minimum total flow area (TFA) of each pulse can be designed to have different values,” which “produce[s] a different pulse amplitude.” *Id.* at 9:22–32.



Id. at Fig. 9, Fig. 10.

27. The Cuddapah Patent also discloses that the tool can include a “drop ball assembly” for opening and closing the fluid pathway to the rotor bore. *Id.* at 6:14–18. When placed in the vertical section of the well, the tool is initially inactive (i.e., without an obstructing ball) such that “all of the drilling fluid can pass directly through the rotor bore and bypass the sealed cavities between the stator 114 and rotor 116” to avoid rotating the rotator and activating the tool, thereby

“avoid[ing] damaging vibrations to components of the drill string and surface equipment.” *Id.* at 6:19–26. To activate the tool, “a small ball ... can be pumped down the drill string” that will “mechanically close the rotor bore 118 by closing the small seating opening,” which will redirect drilling fluid to “activate the power section 119 by forcing the drilling fluid to flow through the sealed cavities between the stator 114 and rotor 116, thereby rotating the rotor.” *Id.* at 6:29–39.

28. DWS’ downhole oscillation tools, including the PowerGLIDE and PowerGLIDE OD, any reasonably similar tools, the components thereof, and any related products or services are collectively referred to herein as the “Accused Products.”

COUNT I
INFRINGEMENT OF U.S. PATENT NO. 9,765,584

29. Impulse re-alleges and incorporates herein by reference the allegations in each of the preceding paragraphs as if fully set forth herein.

30. On September 19, 2017, U.S. Patent No. 9,765,584 (“the ’584 Patent”) was duly and legally issued by the U.S. Patent and Trademark Office to Troy Lorenson, David Nicholson, and Petr Macek, entitled “Flow controlling downhole tool.” A true and correct copy of the ’584 Patent is attached as **Exhibit 1**. The ’584 Patent is presumed valid pursuant to 35 U.S.C. § 282.

31. All right, title and interest in the ’584 Patent was assigned to Impulse Downhole Solutions.

32. DWS has directly infringed and continues to directly infringe, either literally or under the doctrine of equivalents, one or more claims of the ’584 Patent by, without authority, making, using, selling or renting, and/or offering to sell or rent the Accused Products. Alternatively, DWS has indirectly infringed indirectly infringed and continues to indirectly infringe the ’584 Patent with the Accused Products, as set forth below.

33. For example, the Accused Products constitute “[a] downhole tool assembly,” as recited by the preamble of claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 9** (Spec Sheet); **Exhibit 10** (DWS Website) (“Maximize your efficiency by introducing the PowerGLIDE oscillation tool into your drilling operations.”); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“A downhole oscillation tool includes a Moineau-type positive displacement pulse motor and a valve assembly for use in a drill string.”).

34. The Accused Products include “a motor,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 9** (Spec Sheet) (“Utilizes premium materials and more efficient rotor speed for more reliable and consistent performance throughout the run”); **Exhibit 10** (DWS Website) (“The PowerGLIDE produces strictly axial oscillations, which are generated in conjunction with a bi-directional shock tool.”); Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“A downhole oscillation tool includes a Moineau-type positive displacement pulse motor and a valve assembly for use in a drill string. The pulse motor includes a rotor configured to nutate within the bore of a stator.”).

35. On information and belief, the Accused Products include “a flow head comprising a plurality of ports permitting fluid communication therethrough and arranged around a central axis of the flow head, the flow head being coupled to a rotor of the motor to be driven thereby in rotational motion around the central axis,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 10** (DWS Website) (“The PowerGLIDE produces strictly axial oscillations, which are generated in conjunction with a bi-directional shock tool.”);

Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at 7:60–8:6 (“While the first valve plate 132 is attached to and rotates with the rotor 116, the second valve plate 138 is preferably stationary and can be fixedly attached to the main body 112 As also shown in FIGS. 8 and 9, the first valve plate 132 can include multiple openings or ports that extend axially through the first valve plate 132 and permit the flow of drilling fluid that gathers in the ported connector cavity 130 to flow downwards through the drill string 100. ... The first valve plate 132 can include varying arrangements of axial ports”).

36. On information and belief, the Accused Products include “a flow restrictor in fluid communication with the flow head, the flow restrictor comprising a plurality of ports permitting fluid communication therethrough, the flow restrictor being stationary with respect to the rotational motion of the flow head,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 10** (DWS Website) (“The PowerGLIDE produces strictly axial oscillations, which are generated in conjunction with a bi-directional shock tool.”); Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at 7:60–8:24 (“While the first valve plate 132 is attached to and rotates with the rotor 116, the second valve plate 138 is preferably stationary and can be fixedly attached to the main body 112 As also shown in FIGS. 10 and 11, the second valve plate 138 can include one or more second outer axial ports 140. ... configured to allow drilling fluid to pass therethrough.”).

37. On information and belief, with the Accused Products, “rotation of the flow head with respect to the flow restrictor causes one or more of the plurality of ports of the flow head to enter into and out of alignment with one or more of the plurality of ports of the flow restrictor such that fluid pressure resulting from fluid flow through the ports of the flow head and the flow restrictor is constrained to a cyclic, polyrhythmic pattern,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“The first valve ports and second valve ports intermittently overlap as the first valve plate slides across the second valve plate to create pulses in the drilling fluid which is pumped through the tool to power the motor and valve assembly. The tool can generate pulses of different amplitudes and different wavelengths in each rotational cycle.”); *id.* at 8:54–60 (“Generally, as the first valve plate 132 slidably rotates on the second valve plate 138, drilling fluid flows through the first and second valve plates 132, 138 at varying pressures and flow rates as the overlap between the first axial ports and second axial ports—and thus the flow area available to the drilling fluid—varies.”); *id.* at 9:22–32 (“By designing the valve plates 132, 138 with a valve geometry that produces multiple pressure pulses of the drilling fluid per revolution of the rotor 116, the minimum total flow area (TFA) of each pulse can be designed to have different values. Each of these distinct minimum TFA values can produce a different pulse amplitude.”).

38. Accordingly, on information and belief, the Accused Products directly infringe at least claim 1 of the '584 Patent.

39. Further, on information and belief, DWS has indirectly infringed and continues to indirectly infringe the '584 Patent by inducing others to directly infringe the '584 Patent, either literally or under the doctrine of equivalents, such as its customers and end-users of the Accused Products by providing or requiring use of the Accused Products. DWS has also taken active steps, directly or through contractual relationships with others, with the specific intent to cause them to use the Accused Products in a manner that infringes one or more claims of the '584 Patent, including, for example, claim 1. Such steps by DWS have included, among other things, advising or directing customers or end-users to use the Accused Products in an infringing manner; advertising and promoting the use of the Accused Products in an infringing manner; and/or distributing instructions that guide users to use the Accused Products in an infringing manner. *See, e.g., Exhibit 9* (Spec Sheet); *Exhibit 10* (DWS Website) (“Maximize your efficiency by introducing the PowerGLIDE oscillation tool into your drilling operations.”); *Exhibit 11* (Social Media Posts). On information and belief, DWS has been performing these steps with knowledge of the '584 Patent, that the induced acts constitute infringement, and that the normal and customary use of the Accused Products by others would infringe the '584 Patent.

40. DWS has indirectly infringed and continues to indirectly infringe by contributing to the direct infringement of the '584 Patent by others (such as DWS' customers, end-users, personnel, and contractors) by manufacturing, marketing, and selling the Accused Products. *See, e.g., Exhibit 9* (Spec Sheet); *Exhibit 10* (DWS Website); *Exhibit 11* (Social Media Posts). The Accused Products have special features that are specially designed to be used in an infringing way and that have no substantial uses other than ones that infringe one or more claims of the '584 Patent, including, for example, claim 1. The special features constitute a material part of the invention of one or more of the claims of the '584 Patent and are not staple articles of commerce

suitable for substantial non-infringing use. On information and belief, DWS made the Accused Products with knowledge that such use is infringing and that the Accused Products are put to such infringing uses.

41. On information and belief, DWS will continue to directly and/or indirectly infringe one or more claims of the '584 Patent unless enjoined by this Court.

42. DWS has been aware of the '584 Patent and that its actions constitute infringement of the '584 Patent prior to the filing of this Complaint. For example, in May 2019, the publication of the application which led to the '584 Patent (U.S. Patent Publ. 2016/0281449) was cited by the Examiner during the prosecution of the Cuddapah Patent when rejecting the claims of the Cuddapah Patent. **Exhibit 12** (Cuddapah Patent) at p. 2.

43. Additionally, in October 2022, Impulse sent a letter to DWS' managing partners, including Mr. Taylor Janca, Mr. Chandler Janca, and Mr. Cuddapah, notifying DWS of Impulse's patents and that DWS may be infringing Impulse's patents, including specifically the '584 Patent.

44. Additionally, in May 2023, Innovex acquired a minority interest in DWS.

45. Innovex acquired Rubicon Oilfield International in November 2020, who was previously sued by Impulse for infringing the '584 Patent in the Western District of Texas, which resulted in settlement. *See Impulse Downhole Solutions Ltd. v. Tercel Oilfield Products U.S.A., LLC, and Rubicon Oilfield International Holdings LLC*, No. 6:19-cv-00378 (W.D. Tex. 2019).

46. Despite this knowledge, and thus opportunities to avoid infringement, in May 2019, October 2022, and May 2023, DWS made no changes to its system that would avoid infringement.

47. DWS' actions are at least objectively reckless as to the risk of infringing a valid patent and this objective risk was either known or should have been known by DWS.

48. DWS' continued actions in making, using, selling or renting and/or offering to sell or rent the Accused Products has been and continues to be willful, intentional, deliberate, and/or in conscious disregard of Impulse's rights under the '584 Patent.

49. As a result of DWS' infringement, Impulse is suffering irreparable harm for which it has no adequate remedy at law. Unless enjoined by this Court, this infringement will continue and will result in further irreparable harm to Impulse.

50. Impulse is entitled to recover damages from DWS not less than the profits lost by Impulse due to DWS' unlawful behavior. In the alternative, Impulse is entitled to recover damages from DWS not less than a reasonable royalty adequate to compensate for the infringement.

51. To give competitors notice of the patented invention, Impulse's patented products are marked with the '584 Patent.

52. Upon information and belief, DWS' conduct presents an exceptional case such that Impulse is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

COUNT II
INFRINGEMENT OF U.S. PATENT NO. 9,637,976

53. Impulse re-alleges and incorporates herein by reference the allegations in each of the preceding paragraphs as if fully set forth herein.

54. On May 2, 2017, U.S. Patent No. 9,637,976 ("the '976 Patent") was duly and legally issued by the U.S. Patent and Trademark Office to Troy Lorensen, David Nicholson, and Petr Macek, entitled "Downhole drilling tool." A true and correct copy of the '976 Patent is attached as **Exhibit 2**. The '976 Patent is presumed valid pursuant to 35 U.S.C. § 282.

55. All right, title and interest in the '976 Patent was assigned to Impulse Downhole Solutions.

56. DWS has directly infringed and continues to directly infringe, either literally or under the doctrine of equivalents, one or more claims of the '976 Patent by, without authority, making, using, selling or renting, and/or offering to sell or rent the Accused Products. Alternatively, DWS has indirectly infringed indirectly infringed and continues to indirectly infringe the '976 Patent with the Accused Products, as set forth below.

57. For example, the Accused Products constitute “[a] drilling tool assembly for use in a drill string,” as recited by the preamble of claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 9** (Spec Sheet); **Exhibit 10** (DWS Website) (“Maximize your efficiency by introducing the PowerGLIDE oscillation tool into your drilling operations.”); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“A downhole oscillation tool includes a Moineau-type positive displacement pulse motor and a valve assembly for use in a drill string.”).

58. The Accused Products include “a motor comprising an eccentrically-driven rotor,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 9** (Spec Sheet) (“Utilizes premium materials and more efficient rotor speed for more reliable and consistent performance throughout the run”); **Exhibit 10** (DWS Website) (“The PowerGLIDE produces strictly axial oscillations, which are generated in conjunction with a bi-directional shock tool.”); Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“A downhole oscillation tool includes a Moineau-type positive displacement pulse motor and a valve assembly for use in a drill string. The pulse motor includes a rotor configured to nutate within the bore of a stator.”).

59. On information and belief, the Accused Products include “a flow head comprising a plurality of ports permitting fluid communication therethrough, the flow head being coupled to a rotor of the motor to be driven thereby in eccentric rotational motion,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 10** (DWS Website) (“The PowerGLIDE produces strictly axial oscillations, which are generated in conjunction with a bi-directional shock tool.”); Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at 7:60–8:6 (“[T]he first valve plate 132 is attached to and rotates with the rotor 116 As also shown in FIGS. 8 and 9, the first valve plate 132 can include multiple openings or ports ... and permit the flow of drilling fluid that gathers in the ported connector cavity 130 to flow downwards through the drill string 100.”).

60. On information and belief, the Accused Products include “a flow restrictor in fluid communication with the flow head, the flow restrictor comprising a plurality of ports permitting fluid communication therethrough, the flow restrictor being stationary with respect to the rotational motion of the flow head,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 10** (DWS Website) (“The PowerGLIDE produces strictly axial oscillations, which are generated in conjunction with a bi-directional shock tool.”); Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at 7:60–8:24 (“[T]he second valve plate 138 is preferably stationary and can be fixedly attached to the main body 112 As also shown in FIGS. 10 and 11, the second valve plate 138 can include one

or more second outer axial ports 140. The second outer axial ports 140 can be configured to allow drilling fluid to pass therethrough.”).

61. On information and belief, with the Accused Products, “rotation of the flow head with respect to the flow restrictor causes the plurality of ports of the flow head to enter into and out of alignment with the plurality of ports of the flow restrictor such that fluid flow through the ports of the flow head and the flow restrictor is varied in an irregular pattern, the irregular pattern comprising a pattern in which an orientation of the flow head at a defined position in a cycle of the rotor is different between consecutive cycles of the rotor,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“The first valve ports and second valve ports intermittently overlap as the first valve plate slides across the second valve plate to create pulses in the drilling fluid which is pumped through the tool to power the motor and valve assembly. The tool can generate pulses of different amplitudes and different wavelengths in each rotational cycle.”); *id.* at 8:54–60 (“Generally, as the first valve plate 132 slidably rotates on the second valve plate 138, drilling fluid flows through the first and second valve plates 132, 138 at varying pressures and flow rates as the overlap between the first axial ports and second axial ports—and thus the flow area available to the drilling fluid—varies.”); *id.* at 9:22–32 (“By designing the valve plates 132, 138 with a valve geometry that produces multiple pressure pulses of the drilling fluid per revolution of the rotor 116, the minimum total flow area (TFA) of each pulse can be designed to have different values. Each of these distinct minimum TFA values can produce a different pulse amplitude.”).

62. Accordingly, on information and belief, the Accused Products directly infringe at least claim 1 of the '976 Patent.

63. Further, on information and belief, DWS has indirectly infringed and continues to indirectly infringe the '976 Patent by inducing others to directly infringe the '976 Patent, either literally or under the doctrine of equivalents, such as its customers and end-users of the Accused Products by providing or requiring use of the Accused Products. DWS has also taken active steps, directly or through contractual relationships with others, with the specific intent to cause them to use the Accused Products in a manner that infringes one or more claims of the '976 Patent, including, for example, claim 1. Such steps by DWS have included, among other things, advising or directing customers or end-users to use the Accused Products in an infringing manner; advertising and promoting the use of the Accused Products in an infringing manner; and/or distributing instructions that guide users to use the Accused Products in an infringing manner. *See, e.g., Exhibit 9* (Spec Sheet); *Exhibit 10* (DWS Website) (“Maximize your efficiency by introducing the PowerGLIDE oscillation tool into your drilling operations.”); *Exhibit 11* (Social Media Posts). On information and belief, DWS has been performing these steps with knowledge of the '976 Patent, that the induced acts constitute infringement, and that the normal and customary use of the Accused Products by others would infringe the '976 Patent.

64. DWS has indirectly infringed and continues to indirectly infringe by contributing to the direct infringement of the '976 Patent by others (such as DWS' customers, end-users, personnel, and contractors) by manufacturing, marketing, and selling the Accused Products. *See, e.g., Exhibit 9* (Spec Sheet); *Exhibit 10* (DWS Website); *Exhibit 11* (Social Media Posts). The Accused Products have special features that are specially designed to be used in an infringing way and that have no substantial uses other than ones that infringe one or more claims of the '976

Patent, including, for example, claim 1. The special features constitute a material part of the invention of one or more of the claims of the '976 Patent and are not staple articles of commerce suitable for substantial non-infringing use. On information and belief, DWS made the Accused Products with knowledge that such use is infringing and that the Accused Products are put to such infringing uses.

65. On information and belief, DWS will continue to directly and/or indirectly infringe one or more claims of the '976 Patent unless enjoined by this Court.

66. DWS has been aware of the '976 Patent and that its actions constitute infringement of the '976 Patent prior to the filing of this Complaint. For example, in October 2022, Impulse sent a letter to DWS' managing partners, including Mr. Taylor Janca, Mr. Chandler Janca, and Mr. Cuddapah, notifying DWS of Impulse's patents and that DWS may be infringing Impulse's patents, including specifically the '976 Patent.

67. Despite this knowledge, and thus opportunity to avoid infringement, DWS made no changes to its system that would avoid infringement.

68. DWS' actions are at least objectively reckless as to the risk of infringing a valid patent and this objective risk was either known or should have been known by DWS.

69. DWS' continued actions in making, using, selling or renting and/or offering to sell or rent the Accused Products has been and continues to be willful, intentional, deliberate, and/or in conscious disregard of Impulse's rights under the '976 Patent.

70. As a result of DWS' infringement, Impulse is suffering irreparable harm for which it has no adequate remedy at law. Unless enjoined by this Court, this infringement will continue and will result in further irreparable harm to Impulse.

71. Impulse is entitled to recover damages from DWS not less than the profits lost by Impulse due to DWS' unlawful behavior. In the alternative, Impulse is entitled to recover damages from DWS not less than a reasonable royalty adequate to compensate for the infringement.

72. Upon information and belief, DWS' conduct presents an exceptional case such that Impulse is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

COUNT III
INFRINGEMENT OF U.S. PATENT NO. 11,268,337

73. Impulse re-alleges and incorporates herein by reference the allegations in each of the preceding paragraphs as if fully set forth herein.

74. On March 8, 2022, U.S. Patent No. 11,268,337 ("the '337 Patent") was duly and legally issued by the U.S. Patent and Trademark Office to Douglas Kinsella, Kevin Leroux, Troy Lorenzen, and Dwayne Parenteau, entitled "Friction reduction assembly." A true and correct copy of the '337 Patent is attached as **Exhibit 3**. The '337 Patent is presumed valid pursuant to 35 U.S.C. § 282.

75. All right, title and interest in the '337 Patent was assigned to Impulse Downhole Solutions.

76. DWS has directly infringed and continues to directly infringe, either literally or under the doctrine of equivalents, one or more claims of the '337 Patent by, without authority, making, using, selling or renting, and/or offering to sell or rent the Accused Products, including specifically the PowerGLIDE OD tool. Alternatively, DWS has indirectly infringed indirectly infringed and continues to indirectly infringe the '337 Patent with the Accused Products, as set forth below.

77. For example, the Accused Products constitute "[a] friction reduction assembly," as recited by the preamble of claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief,

Section C; **Exhibit 9** (Spec Sheet); **Exhibit 10** (DWS Website) (“Maximize your efficiency by introducing the PowerGLIDE oscillation tool into your drilling operations.”); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“A downhole oscillation tool includes a Moineau-type positive displacement pulse motor and a valve assembly for use in a drill string.”); *id.* at 1:30–32 (“Producing oscillations or vibrations to excite the drill string can be used to reduce the friction between the drill string and the wellbore.”).

78. The Accused Products include “a motor comprising a rotor,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 9** (Spec Sheet) (“Utilizes premium materials and more efficient rotor speed for more reliable and consistent performance throughout the run”); **Exhibit 10** (DWS Website) (“The PowerGLIDE produces strictly axial oscillations, which are generated in conjunction with a bi-directional shock tool.”); Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“A downhole oscillation tool includes a Moineau-type positive displacement pulse motor and a valve assembly for use in a drill string. The pulse motor includes a rotor configured to nutate within the bore of a stator.”).

79. The Accused Products include “a variable choke assembly having a rotary component and a stationary component, each of the rotary component and stationary component being provided with passages that enter into and out of alignment when the rotary component rotates with respect to the stationary component, the rotary component being drivable by the rotor connected to the rotary component,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 9** (Spec Sheet) (“Utilizes premium materials and more

efficient rotor speed for more reliable and consistent performance throughout the run”); **Exhibit 10** (DWS Website) (“The PowerGLIDE produces strictly axial oscillations, which are generated in conjunction with a bi-directional shock tool.”); Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at 7:60–8:24 (“While the first valve plate 132 is attached to and rotates with the rotor 116, the second valve plate 138 is preferably stationary and can be fixedly attached to the main body 112 [T]he first valve plate 132 can include multiple openings or ports that extend axially through the first valve plate 132 and permit the flow of drilling fluid that gathers in the ported connector cavity 130 to flow downwards through the drill string 100. ... [T]he second valve plate 138 can include one or more second outer axial ports 140. The second outer axial ports 140 can be configured to allow drilling fluid to pass therethrough.”); *id.* at 8:54–60 (“Generally, as the first valve plate 132 slidably rotates on the second valve plate 138, drilling fluid flows through the first and second valve plates 132, 138 at varying pressures and flow rates as the overlap between the first axial ports and second axial ports—and thus the flow area available to the drilling fluid—varies.”).

80. With the Accused Products, “the rotary component, stationary component, and rotor each compris[e] a central bore defining a central passage permitting drilling fluid flow through the assembly,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 11** (Social Media Posts) at p. 7 (11/7/2020 post: “More control with PowerGLIDE On-Demand. Release the activation ball from the surface and turn on the most powerful friction reduction tool on the market.”); Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include

a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at 5:23–26 (“The pulse tool 106 can be connected to the remainder of the drill string 100 so that its throughbore generally maintains fluid communication with the bore of the remainder of the drill string 100.”); *id.* at 6:29–39 (“Once activation of the downhole oscillation tool 104 is desired and/or required, a small ball ... can be pumped down the drill string 100 from the surface. The small ball can mechanically close the rotor bore 118 by closing the small seating opening section 121B.”).

81. With the Accused Products, “the assembly [is] activatable when drilling fluid flow through the central passage is blocked with a projectile to divert the drilling fluid flow through the motor to thereby activate the rotor and drive the rotary component,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 9** (Spec Sheet) (“Now Available With PowerGLIDE On-Demand”).

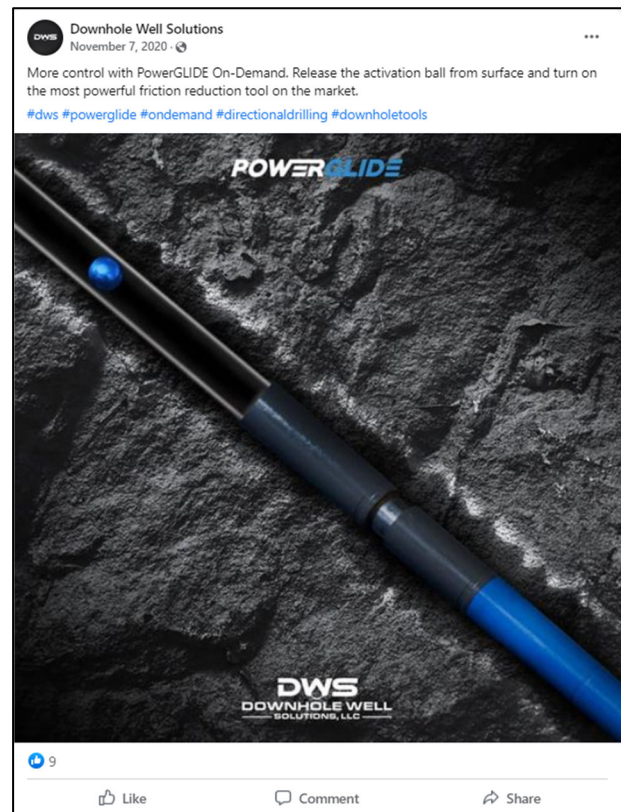


Exhibit 11 (Social Media Posts) at pp. 3, 7 (5/1/2020 & 11/7/2020 posts); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“The tool further includes a drop ball assembly configured to activate and deactivate the tool.”); *id.* at 6:29–39 (“The small ball can mechanically close the rotor bore 118 by closing the small seating opening section 121B. The resulting redirection of the drilling fluid can activate the power section 119 by forcing the drilling fluid to flow through the sealed cavities between the stator 114 and rotor 116, thereby rotating the rotor.”).

82. With the Accused Products, “at least some drilling fluid enters the passages of the rotary and stationary components as the rotary component rotates to thereby produce fluid pressure pulses,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“The tool can generate pulses of different amplitudes and different wavelengths in each rotational cycle.”).

83. Accordingly, on information and belief, the Accused Products directly infringe at least claim 1 of the ’337 Patent.

84. Further, on information and belief, DWS has indirectly infringed and continues to indirectly infringe the ’337 Patent by inducing others to directly infringe the ’337 Patent, either literally or under the doctrine of equivalents, such as its customers and end-users of the Accused Products by providing or requiring use of the Accused Products. DWS has also taken active steps, directly or through contractual relationships with others, with the specific intent to cause them to use the Accused Products in a manner that infringes one or more claims of the ’337 Patent, including, for example, claim 1. Such steps by DWS have included, among other things, advising

or directing customers or end-users to use the Accused Products in an infringing manner; advertising and promoting the use of the Accused Products in an infringing manner; and/or distributing instructions that guide users to use the Accused Products in an infringing manner. *See, e.g., Exhibit 9* (Spec Sheet); *Exhibit 10* (DWS Website) (“Maximize your efficiency by introducing the PowerGLIDE oscillation tool into your drilling operations.”); *Exhibit 11* (Social Media Posts). On information and belief, DWS has been performing these steps with knowledge of the ’337 Patent, that the induced acts constitute infringement, and that the normal and customary use of the Accused Products by others would infringe the ’337 Patent.

85. DWS has indirectly infringed and continues to indirectly infringe by contributing to the direct infringement of the ’337 Patent by others (such as DWS’ customers, end-users, personnel, and contractors) by manufacturing, marketing, and selling the Accused Products. *See, e.g., Exhibit 9* (Spec Sheet); *Exhibit 10* (DWS Website); *Exhibit 11* (Social Media Posts). The Accused Products have special features that are specially designed to be used in an infringing way and that have no substantial uses other than ones that infringe one or more claims of the ’337 Patent, including, for example, claim 1. The special features constitute a material part of the invention of one or more of the claims of the ’337 Patent and are not staple articles of commerce suitable for substantial non-infringing use. On information and belief, DWS made the Accused Products with knowledge that such use is infringing and that the Accused Products are put to such infringing uses.

86. On information and belief, DWS will continue to directly and/or indirectly infringe one or more claims of the ’337 Patent unless enjoined by this Court.

87. DWS has been aware of the ’337 Patent and that its actions constitute infringement of the ’337 Patent prior to the filing of this Complaint. For example, in October 2022, Impulse

sent a letter to DWS' managing partners, including Mr. Taylor Janca, Mr. Chandler Janca, and Mr. Cuddapah, notifying DWS of Impulse's patents and that DWS may be infringing Impulse's patents, including specifically the '337 Patent.

88. Despite this knowledge, and thus opportunity to avoid infringement, DWS made no changes to its system that would avoid infringement.

89. DWS' actions are at least objectively reckless as to the risk of infringing a valid patent and this objective risk was either known or should have been known by DWS.

90. DWS' continued actions in making, using, selling or renting and/or offering to sell or rent the Accused Products has been and continues to be willful, intentional, deliberate, and/or in conscious disregard of Impulse's rights under the '337 Patent.

91. As a result of DWS' infringement, Impulse is suffering irreparable harm for which it has no adequate remedy at law. Unless enjoined by this Court, this infringement will continue and will result in further irreparable harm to Impulse.

92. Impulse is entitled to recover damages from DWS not less than the profits lost by Impulse due to DWS' unlawful behavior. In the alternative, Impulse is entitled to recover damages from DWS not less than a reasonable royalty adequate to compensate for the infringement.

93. Upon information and belief, DWS' conduct presents an exceptional case such that Impulse is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

COUNT IV
INFRINGEMENT OF U.S. PATENT NO. 10,648,265

94. Impulse re-alleges and incorporates herein by reference the allegations in each of the preceding paragraphs as if fully set forth herein.

95. On March 12, 2020, U.S. Patent No. 10,648,265 ("the '265 Patent") was duly and legally issued by the U.S. Patent and Trademark Office to Douglas Kinsella, Kevin Leroux, Troy

Lorenzen, and Dwayne Parenteau, entitled “Lateral drilling method.” A true and correct copy of the ’265 Patent is attached as **Exhibit 4**. The ’265 Patent is presumed valid pursuant to 35 U.S.C. § 282.

96. All right, title and interest in the ’265 Patent was assigned to Impulse Downhole Solutions.

97. DWS has directly infringed and continues to directly infringe, either literally or under the doctrine of equivalents, one or more claims of the ’265 Patent by, without authority, making, using, selling or renting, and/or offering to sell or rent the Accused Products, including specifically the PowerGLIDE OD tool and/or the PowerGLIDE OD tool in tandem with another PowerGLIDE tool. Alternatively, DWS has indirectly infringed indirectly infringed and continues to indirectly infringe the ’265 Patent with the Accused Products, as set forth below.

98. For example, the Accused Products are used to perform “[a] drilling method,” as recited by the preamble of claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 9** (Spec Sheet); **Exhibit 10** (DWS Website) (“Maximize your efficiency by introducing the PowerGLIDE oscillation tool into your drilling operations.”); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“A downhole oscillation tool includes a Moineau-type positive displacement pulse motor and a valve assembly for use in a drill string.”); *id.* at 1:5–9 (“[T]he present disclosure pertains to a drilling apparatus and a drilling method, and to a flow pulsing method and a flow pulsing apparatus for a drill string.”).

99. On information and belief, the drilling method performed with the Accused Products includes “activating a first friction reduction tool in a drilling string” and “drilling a portion of a wellbore using a drilling string comprising a bottom hole assembly and the active first friction reduction tool connected to the drilling string at a first interval above the bottom hole

assembly,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 10** (DWS Website) (“Maximize your efficiency by introducing the PowerGLIDE oscillation tool into your drilling operations.”); *see also* **Exhibit 12** (Cuddapah Patent) at 3:1–22 (“In another embodiment the invention, a drill string can include a bottom hole assembly having a drill bit connected to a drilling motor, a first downhole oscillation tool having a pulse motor that includes a rotor having at least two helical lobes along a length of the rotor, and a stator surrounding a stator bore, and having at least three helical lobes along a length of the stator. ... According to a second option, the first downhole oscillation tool can include a drop ball assembly configured to activate and deactivate the first downhole oscillation tool and the drill string further include a second downhole oscillation tool spaced apart from the first downhole oscillation tool by a length of drill pipe.”).

100. On information and belief, the drilling method performed with the Accused Products includes “connecting a second friction reduction tool to the drilling string at a second interval above the active first friction reduction tool,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C.

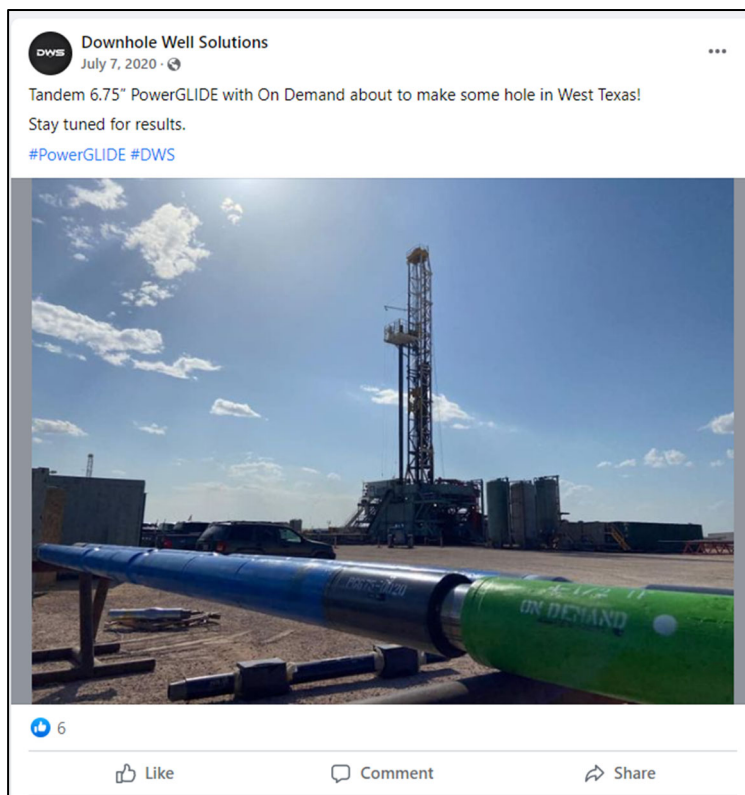


Exhibit 11 (Social Media Posts) at p. 5 (7/7/2020 post); *id.* at p. 12 (6/9/2021 post discussing another “PowerGLIDE Tandem Run with On Demand”); *see also* **Exhibit 12** (Cuddapah Patent) at 3:17–22 (“According to a second option, the first downhole oscillation tool can include a drop ball assembly configured to activate and deactivate the first downhole oscillation tool and the drill string further include a second downhole oscillation tool spaced apart from the first downhole oscillation tool by a length of drill pipe.”); *id.* at 5:6–19 (“The downhole oscillation tool 104 can be separated from the drill bit 110 by intermediate drill string section 103, which can include ... additional downhole tools. Additional downhole tools can include ... additional downhole oscillation tools.”); *id.* at 6:54–58 (“This selective activation and deactivation permits multiple downhole oscillation tools 104 to be utilized in a drill string 100, and each of the downhole oscillation tools can be activated when appropriate based on the drilling conditions.”).

101. On information and belief, with the Accused Products, “the second friction reduction tool comprises a variable choke assembly having a rotary component and a stationary component, and an oscillating unit, each of the rotary component and stationary component being provided with passages that enter into and out of alignment when the rotary component rotates with respect to the stationary component, the rotary component being drivable by a rotor of a motor of the second friction reduction tool,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 9** (Spec Sheet) (“Utilizes premium materials and more efficient rotor speed for more reliable and consistent performance throughout the run”); **Exhibit 10** (DWS Website) (“The PowerGLIDE produces strictly axial oscillations, which are generated in conjunction with a bi-directional shock tool.”); Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at 7:60–8:24 (“While the first valve plate 132 is attached to and rotates with the rotor 116, the second valve plate 138 is preferably stationary and can be fixedly attached to the main body 112 ... [T]he first valve plate 132 can include multiple openings or ports that extend axially through the first valve plate 132 and permit the flow of drilling fluid that gathers in the ported connector cavity 130 to flow downwards through the drill string 100. ... [T]he second valve plate 138 can include one or more second outer axial ports 140. The second outer axial ports 140 can be configured to allow drilling fluid to pass therethrough.”); *id.* at 8:54–60 (“Generally, as the first valve plate 132 slidably rotates on the second valve plate 138, drilling fluid flows through the first and second valve plates 132, 138 at varying pressures and flow rates as the overlap between the first axial ports and second axial ports—and thus the flow area available to the drilling fluid—varies.”).

102. On information and belief, with the Accused Products, “the rotary component, stationary component, and rotor each compris[e] a central bore defining a central passage permitting drilling fluid flow from above the second friction reduction tool to below the second friction reduction tool,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 11** (Social Media Posts) at p. 7 (11/7/2020 post: “More control with PowerGLIDE On-Demand. Release the activation ball from the surface and turn on the most powerful friction reduction tool on the market.”); Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at 5:23–26 (“The pulse tool 106 can be connected to the remainder of the drill string 100 so that its throughbore generally maintains fluid communication with the bore of the remainder of the drill string 100.”); *id.* at 6:29–39 (“Once activation of the downhole oscillation tool 104 is desired and/or required, a small ball ... can be pumped down the drill string 100 from the surface. The small ball can mechanically close the rotor bore 118 by closing the small seating opening section 121B.”).

103. On information and belief, the drilling method performed with the Accused Products includes “activating the second friction reduction tool in the drilling string while the active [first] friction reduction tool is active, wherein activating the second friction reduction tool comprises: blocking the drilling fluid flow through the central passage with a projectile to divert the drilling fluid flow through the motor to thereby activate the rotor and drive the rotary component, wherein at least some fluid enters the passages of the rotary and stationary components as the rotary component rotates, thereby producing fluid pressure pulses to activate the oscillating unit,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C;

Exhibit 11 (Social Media Posts) at p. 7 (11/7/2020 post: “More control with PowerGLIDE On-Demand. Release the activation ball from the surface and turn on the most powerful friction reduction tool on the market.”); Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at 5:23–26 (“The pulse tool 106 can be connected to the remainder of the drill string 100 so that its throughbore generally maintains fluid communication with the bore of the remainder of the drill string 100.”); *id.* at 6:29–39 (“Once activation of the downhole oscillation tool 104 is desired and/or required, a small ball ... can be pumped down the drill string 100 from the surface. The small ball can mechanically close the rotor bore 118 by closing the small seating opening section 121B.”); *id.* at 8:54–60 (“Generally, as the first valve plate 132 slidably rotates on the second valve plate 138, drilling fluid flows through the first and second valve plates 132, 138 at varying pressures and flow rates as the overlap between the first axial ports and second axial ports—and thus the flow area available to the drilling fluid—varies.”).

104. Accordingly, on information and belief, the Accused Products directly infringe at least claim 1 of the ’265 Patent.

105. Further, on information and belief, DWS has indirectly infringed and continues to indirectly infringe the ’265 Patent by inducing others to directly infringe the ’265 Patent, either literally or under the doctrine of equivalents, such as its customers and end-users of the Accused Products by providing or requiring use of the Accused Products. DWS has also taken active steps, directly or through contractual relationships with others, with the specific intent to cause them to use the Accused Products in a manner that infringes one or more claims of the ’265 Patent, including, for example, claim 1. Such steps by DWS have included, among other things, advising

or directing customers or end-users to use the Accused Products in an infringing manner; advertising and promoting the use of the Accused Products in an infringing manner; and/or distributing instructions that guide users to use the Accused Products in an infringing manner. *See, e.g., Exhibit 9* (Spec Sheet); *Exhibit 10* (DWS Website) (“Maximize your efficiency by introducing the PowerGLIDE oscillation tool into your drilling operations.”); *Exhibit 11* (Social Media Posts). On information and belief, DWS has been performing these steps with knowledge of the ’265 Patent, that the induced acts constitute infringement, and that the normal and customary use of the Accused Products by others would infringe the ’265 Patent.

106. DWS has indirectly infringed and continues to indirectly infringe by contributing to the direct infringement of the ’265 Patent by others (such as DWS’ customers, end-users, personnel, and contractors) by manufacturing, marketing, and selling the Accused Products. *See, e.g., Exhibit 9* (Spec Sheet); *Exhibit 10* (DWS Website); *Exhibit 11* (Social Media Posts). The Accused Products have special features that are specially designed to be used in an infringing way and that have no substantial uses other than ones that infringe one or more claims of the ’265 Patent, including, for example, claim 1. The special features constitute a material part of the invention of one or more of the claims of the ’265 Patent and are not staple articles of commerce suitable for substantial non-infringing use. On information and belief, DWS made the Accused Products with knowledge that such use is infringing and that the Accused Products are put to such infringing uses.

107. On information and belief, DWS will continue to directly and/or indirectly infringe one or more claims of the ’265 Patent unless enjoined by this Court.

108. On information and belief, DWS has been aware of the ’265 Patent and that its actions constitute infringement of the ’265 Patent prior to the filing of this Complaint. For

example, in October 2022, Impulse sent a letter to DWS' managing partners, including Mr. Taylor Janca, Mr. Chandler Janca, and Mr. Cuddapah, notifying DWS of Impulse's patents and that DWS may be infringing Impulse's patents, including specifically the '337 Patent which claims priority to the '265 Patent. *See Exhibit 3* ('337 Patent) at p. 1 ("Continuation of ... Pat . No. 10,648,265").

109. Despite this knowledge, and thus opportunity to avoid infringement, DWS made no changes to its system that would avoid infringement.

110. DWS' actions are at least objectively reckless as to the risk of infringing a valid patent and this objective risk was either known or should have been known by DWS.

111. DWS' continued actions in making, using, selling or renting and/or offering to sell or rent the Accused Products has been and continues to be willful, intentional, deliberate, and/or in conscious disregard of Impulse's rights under the '265 Patent.

112. As a result of DWS' infringement, Impulse is suffering irreparable harm for which it has no adequate remedy at law. Unless enjoined by this Court, this infringement will continue and will result in further irreparable harm to Impulse.

113. Impulse is entitled to recover damages from DWS not less than the profits lost by Impulse due to DWS' unlawful behavior. In the alternative, Impulse is entitled to recover damages from DWS not less than a reasonable royalty adequate to compensate for the infringement.

114. Upon information and belief, DWS' conduct presents an exceptional case such that Impulse is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

COUNT V
INFRINGEMENT OF U.S. PATENT NO. 10,633,920

115. Impulse re-alleges and incorporates herein by reference the allegations in each of the preceding paragraphs as if fully set forth herein.

116. On April 28, 2020, U.S. Patent No. 10,633,920 (“the ’920 Patent”) was duly and legally issued by the U.S. Patent and Trademark Office to Troy Lorenzen, Kevin Leroux, Dwayne Parenteau, and Douglas Kinsella, entitled “Selective activation of motor in a downhole assembly.” A true and correct copy of the ’920 Patent is attached as **Exhibit 5**. The ’920 Patent is presumed valid pursuant to 35 U.S.C. § 282.

117. All right, title and interest in the ’920 Patent was assigned to Impulse Downhole Solutions.

118. DWS has directly infringed and continues to directly infringe, either literally or under the doctrine of equivalents, one or more claims of the ’920 Patent by, without authority, making, using, selling or renting, and/or offering to sell or rent the Accused Products, including specifically the PowerGLIDE OD tool. Alternatively, DWS has indirectly infringed indirectly infringed and continues to indirectly infringe the ’920 Patent with the Accused Products, as set forth below.

119. For example, the Accused Products constitute “[a] downhole assembly for use in a drilling string,” as recited by the preamble of claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 9** (Spec Sheet) (“Utilizes premium materials and more efficient rotor speed for more reliable and consistent performance throughout the run”); **Exhibit 10** (DWS Website) (“Maximize your efficiency by introducing the PowerGLIDE oscillation tool into your drilling operations.”); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“A downhole oscillation tool includes a Moineau-type positive displacement pulse motor and a valve assembly for use in a drill string. The pulse motor includes a rotor configured to nutate within the bore of a stator.”); *id.* at 1:30–32 (“Producing oscillations or vibrations to excite the drill string can be used to reduce the friction between the drill string and the wellbore.”).

120. The Accused Products include “a motor assembly comprising a stator and a rotor assembly,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 9** (Spec Sheet) (“Utilizes premium materials and more efficient rotor speed for more reliable and consistent performance throughout the run”); **Exhibit 10** (DWS Website) (“The PowerGLIDE produces strictly axial oscillations, which are generated in conjunction with a bi-directional shock tool.”); Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“A downhole oscillation tool includes a Moineau-type positive displacement pulse motor and a valve assembly for use in a drill string. The pulse motor includes a rotor configured to nutate within the bore of a stator.”).

121. With the Accused Products, “the rotor assembly compris[es]: a rotor body having a fluid passage extending between an inlet and an outlet, the fluid passage extending through at least part of the length of the rotor; and a catch component provided on the rotor body,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 9** (Spec Sheet) (“Utilizes premium materials and more efficient rotor speed for more reliable and consistent performance throughout the run ... Able to maintain strong performance throughout a wider flow rate range without needing re-dress ... Now Available With PowerGLIDE On Demand”); Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); *see also* **Exhibit 12** (Cuddapah Patent) at Abstract (“The tool further includes a drop ball assembly configured to activate and deactivate the tool.”); *id.* at 6:29–36 (“Once activation of the downhole oscillation

tool 104 is desired and/or required, a small ball ... can be pumped down the drill string 100 from the surface. The small ball can mechanically close the rotor bore 118 by closing the small seating opening section 121B.”).

122. With the Accused Products, “the catch component compris[es] a receiving end and an interior seat for receiving and retaining a blocking implement, and a fluid passage permitting flow of drilling fluid entering the receiving end to the fluid passage of the rotor body when no blocking implement is retained in the rotor assembly,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 9** (Spec Sheet) (“Now Available With PowerGLIDE On-Demand”).

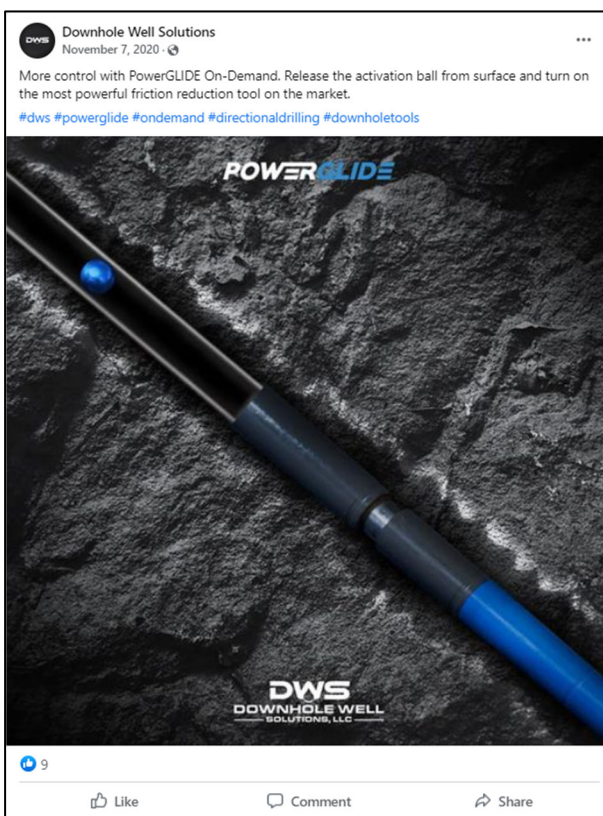


Exhibit 11 (Social Media Posts) at pp. 3, 7 (5/1/2020 & 11/7/2020 posts); *see also* **Exhibit 12** (Cuddapah Patent) at 6:19–36 (“By leaving the rotor bore 118 fully open without obstructing the drop ball assembly 120, all of the drilling fluid can pass directly through the rotor bore and bypass

the sealed cavities between the stator 114 and rotor 116. With the drilling fluid bypassing the sealed cavities between the stator 114 and the rotor 116, the rotor does not rotate and the downhole oscillation tool 104 remains inactive. Once activation of the downhole oscillation tool 104 is desired and/or required, a small ball ... can be pumped down the drill string 100 from the surface. The small ball can mechanically close the rotor bore 118 by closing the small seating opening section 121B.”).

123. With the Accused Products, “the receiving end permit[s] flow around the catch component and into the motor to thereby activate the motor when the blocking implement is retained in the rotor assembly,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; Taylor Janca YouTube Interview (Nov. 11, 2019) at 24:00–25:30, available at <https://youtu.be/ffrtQQyy9Ms> (stating that Accused Products include a motor comprised of a rotor and a stator, a valve assembly that creates a pressure drop, and a shock tool); **Exhibit 9** (Spec Sheet) (“Now Available With PowerGLIDE On-Demand”); **Exhibit 11** (Social Media Posts) at p. 7 (11/7/2020 post: “Release the activation ball from surface and turn on the most powerful friction reduction tool on the market.”); *see also* **Exhibit 12** (Cuddapah Patent) at 6:29–39 (“The small ball can mechanically close the rotor bore 118 by closing the small seating opening section 121B. The resulting redirection of the drilling fluid can activate the power section 119 by forcing the drilling fluid to flow through the sealed cavities between the stator 114 and rotor 116, thereby rotating the rotor.”).

124. On information and belief, with the Accused Products, “the receiving end is substantially funnel-shaped and comprises at least one aperture permitting drilling fluid flow from an interior of the receiving end to an exterior of the catch component,” as recited by claim 1. *See, e.g., supra* Facts Common To Each Claim For Relief, Section C; **Exhibit 11** (Social Media Posts)

at p. 7 (11/7/2020 post: “Release the activation ball from surface and turn on the most powerful friction reduction tool on the market.”); *see also* **Exhibit 12** (Cuddapah Patent) at 6:29–39 (“The small ball can mechanically close the rotor bore 118 by closing the small seating opening section 121B. The resulting redirection of the drilling fluid can activate the power section 119 by forcing the drilling fluid to flow through the sealed cavities between the stator 114 and rotor 116, thereby rotating the rotor.”).

125. Further, on information and belief, DWS has indirectly infringed and continues to indirectly infringe the '920 Patent by inducing others to directly infringe the '920 Patent, either literally or under the doctrine of equivalents, such as its customers and end-users of the Accused Products by providing or requiring use of the Accused Products. DWS has also taken active steps, directly or through contractual relationships with others, with the specific intent to cause them to use the Accused Products in a manner that infringes one or more claims of the '920 Patent, including, for example, claim 1. Such steps by DWS have included, among other things, advising or directing customers or end-users to use the Accused Products in an infringing manner; advertising and promoting the use of the Accused Products in an infringing manner; and/or distributing instructions that guide users to use the Accused Products in an infringing manner. *See, e.g.,* **Exhibit 9** (Spec Sheet); **Exhibit 10** (DWS Website) (“Maximize your efficiency by introducing the PowerGLIDE oscillation tool into your drilling operations.”); **Exhibit 11** (Social Media Posts). On information and belief, DWS has been performing these steps with knowledge of the '920 Patent, that the induced acts constitute infringement, and that the normal and customary use of the Accused Products by others would infringe the '920 Patent.

126. DWS has indirectly infringed and continues to indirectly infringe by contributing to the direct infringement of the '920 Patent by others (such as DWS' customers, end-users,

personnel, and contractors) by manufacturing, marketing, and selling the Accused Products. *See, e.g., Exhibit 9* (Spec Sheet); *Exhibit 10* (DWS Website); *Exhibit 11* (Social Media Posts). The Accused Products have special features that are specially designed to be used in an infringing way and that have no substantial uses other than ones that infringe one or more claims of the '920 Patent, including, for example, claim 1. The special features constitute a material part of the invention of one or more of the claims of the '920 Patent and are not staple articles of commerce suitable for substantial non-infringing use. On information and belief, DWS made the Accused Products with knowledge that such use is infringing and that the Accused Products are put to such infringing uses.

127. On information and belief, DWS will continue to directly and/or indirectly infringe one or more claims of the '920 Patent unless enjoined by this Court.

128. On information and belief, DWS has been aware of the '920 Patent and that its actions constitute infringement of the '920 Patent prior to the filing of this Complaint. For example, in October 2022, Impulse sent a letter to DWS' managing partners, including Mr. Taylor Janca, Mr. Chandler Janca, and Mr. Cuddapah, notifying DWS of Impulse's patents and that DWS may be infringing Impulse's patents, including specifically U.S. Patent No. 10,927,601 which claims priority to the '920 Patent. *See Exhibit 8* ('601 Patent) at p. 1 ("Continuation of ... Pat. No. 10,633,920").

129. Despite this knowledge, and thus opportunity to avoid infringement, DWS made no changes to its system that would avoid infringement.

130. DWS' actions are at least objectively reckless as to the risk of infringing a valid patent and this objective risk was either known or should have been known by DWS.

131. DWS' continued actions in making, using, selling or renting and/or offering to sell or rent the Accused Products has been and continues to be willful, intentional, deliberate, and/or in conscious disregard of Impulse's rights under the '920 Patent.

132. As a result of DWS' infringement, Impulse is suffering irreparable harm for which it has no adequate remedy at law. Unless enjoined by this Court, this infringement will continue and will result in further irreparable harm to Impulse.

133. Impulse is entitled to recover damages from DWS not less than the profits lost by Impulse due to DWS' unlawful behavior. In the alternative, Impulse is entitled to recover damages from DWS not less than a reasonable royalty adequate to compensate for the infringement.

134. Upon information and belief, DWS' conduct presents an exceptional case such that Impulse is entitled to an award of its reasonable attorneys' fees, as provided by 35 U.S.C. § 285.

PRAYER FOR RELIEF

135. WHEREFORE, Impulse prays for judgment and seeks relief against Defendant DWS as follows:

- (a) For a judgment that one or more claims of the '584, '976, '337, '265, and '920 Patents (collectively, "the Asserted Patents") have been and continue to be infringed by Defendant DWS;
- (b) For a judgment that Defendant DWS' infringement has been willful;
- (c) For a judgment and an award of all damages sustained by Impulse as the result of Defendant DWS' acts of infringement, including supplemental damages for any continuing post-verdict infringement up until entry of the final judgment with an accounting as needed;
- (d) For a permanent injunction enjoining Defendant DWS from infringing one or more claims of the Asserted Patents;

- (e) For a judgment and an award of enhanced damages pursuant to 35 U.S.C. § 284;
- (f) For a judgment and an award of attorneys' fees pursuant to 35 U.S.C. § 285 or as otherwise permitted by law;
- (g) For a judgment and an award of all interest and costs; and
- (h) For a judgment and an award of such other and further relief as the Court may deem just and proper.

JURY DEMAND

In accordance with Fed. R. Civ. P. 38 and 39, Impulse asserts its rights under the Seventh Amendment to the United States Constitution and demands a trial by jury on all issues that may be so tried.

DATED: August 10, 2023

Respectfully submitted,

By: /s/ John R. Keville

John R. Keville

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