

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTELLIGENT WELLHEAD SYSTEMS, INC.,
Petitioner,

v.

DOWNING WELLHEAD EQUIPMENT, LLC,
Patent Owner.

IPR2024-00300
U.S. Patent 11,560,770

**DECLARATION OF TIMOTHY MARVEL
IN SUPPORT OF PATENT OWNER'S RESPONSE**

I, Timothy K. Marvel, hereby declare as follows:

I. INTRODUCTION

1. I submit this declaration in connection with Downing Wellhead Equipment, LLC's (Downing) Patent Owner Response to IWS's Petition for *Inter Partes* Review of U.S. Patent No. 11,560,770 (the '770 patent). I understand that the '770 patent relates to continuously pumping fluid in a well and was invented by Jordan Kuehn, Austin Johnson, Ronnie Beason, and Nicholas Cannon. I have been asked to prepare this declaration to provide information regarding the industry praise Downing's commercial product has received. I base this declaration on my personal knowledge.

2. I am a licensed professional engineer in the state of Texas. I completed my undergraduate studies at the Colorado School of Mines, where I received a Bachelor of Science in Mechanical Engineering in 1995. I have since spent my career working in the oil and gas industry. I started in the oil and gas industry at Baker Hughes in 1995, where I was employed for over 18 years. I held various roles at Baker Hughes, including Product Development Engineer, Research Engineer, District Manager, Director of Product Development, Director of Technology, Drilling, and Evaluation, and Director of Business Development and Marketing for Completions Services.

3. In 2014, I left Baker Hughes to join Alcoa as Managing Director. I remained there until 2016, when I moved to Dover Energy Automation as Vice President and General Manager of Production Optimization.

4. In 2017, I joined SEF Energy as Vice President of Business Development and Technology. I have remained there since. Although I officially work for SEF Energy, I am involved in Downing's business because Downing is a subsidiary of SEF Energy.

II. DOWNING'S CONTINUOUS PUMPING WEBPAGE

5. On October 12, 2020, Downing published a webpage describing continuous pumping with the Freedom Series Completion Series ("Freedom Series") on its public-facing internet website. This webpage was publicly accessible at <https://downingusa.com/freedomseries/continuouspumping>. The Internet Archive Wayback Machine archived a copy of this webpage on October 20, 2020, eight days after I published it. This archived version is accessible at <https://web.archive.org/web/20201020115107/https://downingusa.com/freedomseries/continuouspumping>, which is accurately reflected in Ex.2001. I have reviewed the October 20, 2020 archived version of Downing's continuous pumping webpage captured in Ex.2001 and it is the same as the version I originally posted on October 12, 2020 via WordPress. Ex.2002 is a true and correct copy of the WordPress version of the webpage I posted on October 12, 2020. Ex.2002 correctly indicates

in the header that the WordPress version is from “Oct 12, 2020 @ 3:13 pm.”

Ex.2002, 1.

6. Since Downing introduced the continuous pumping capability, I have continued updating the webpage promoting that capability. Ex.2014 is a true and correct version of the webpage promoting the continuous pumping capability today.

7. The description on the webpage about the Freedom Series enabling “instant transitions” refers to the continuous pumping swap feature implemented in the Freedom Series. Ex.2001, 1; Ex.2014, 1. Specifically, a continuous pumping swap is described on the webpage with the language “transition[s] the zipper valves from one well to the other, opening the second well and subsequently shutting-in the first well, all while pumping.” Ex. Ex.2001, 1; Ex.2014, 1. The figure on the webpage depicting fluid conditions in three wells illustrates performing continuous pumping swaps between the wells. This figure was generated from actual continuous pumping swaps performed by the Freedom Series.

8. This continuous pumping swap feature of the Freedom Series described on the webpage is the subject of the ’770 Patent. I was involved with the commercialization of the continuous pumping swap feature, and I know that the ’770 Patent was filed to protect that feature of the Freedom Series.

III. INDUSTRY PRAISE FOR THE FREEDOM SERIES

9. Downing designs, makes, and sells a fracturing completion system called the Freedom Series Completion System (“Freedom Series”). Ex.2014. The Freedom Series is a system that can automate and control latches, valves, and pumps of the completion system, including lubrication of latches and greasing of valves. Ex.2014. The Freedom Series can control the opening and closing of valves associated with wells on a zipper manifold. Ex.2014. The Freedom Series also facilitates data communication between multiple components of the completion system, centralizing and distributing data from the fracturing system, wireline, and pad. Ex.2014.

10. In September 2020, I learned that the Downing team had successfully performed continuous pumping using the Freedom Series. Beginning October 2020, Downing began advertising the Freedom Series’ continuous pumping swap (“CP swap”) feature that allows continuous pumping while transitioning between stimulating wells attached to the same zipper manifold, and has offered that feature in the Freedom Series ever since. Ex.2001. That feature continues to be offered in the Freedom Series today. Ex.2014. As discussed further below, the Freedom Series has received an industry award and significant praise from participants in the oil and gas industry based on the continuous pumping swap feature.

a. Best Completions Technology Award

11. The Freedom Series received the Gulf Energy Information Excellence Award for Best Completions Technology in 2023. Ex.2015, 1. This was a significant achievement for the Downing team. I attended the gala where Downing was recognized for this award. Below is a photo of the Downing team after receiving the award.



12. I nominated the Freedom Series for the Gulf Energy Information Excellence Awards on behalf of Downing. Specifically, I nominated the Freedom Series for Best Completion Technology and Best Controls, Instrumentation, and Automation Technology. Ex.2019, 2; Ex.2017, 1. In nominating the Freedom Series, I highlighted some key aspects related to the continuous pumping swap feature and continuous pumping. In particular, I noted that Downing “has developed an automated completion system that methodically eliminates time

between plug and perf stages with the goal of fracturing the reservoir 24 hours a day, 7 days a week.” Ex.2019, 1. I explained that “Downing identified the primary barriers to fracturing the reservoir 24/7,” including “the time between stages (this includes transition time and pressure tests).” *Id.*, 1. I then explained that “[t]aking these problems into account, Downing developed an automated completion system that has methodically eliminated” the identified issues. *Id.*, 1. In particular, “[t]he system *eliminates the time between stages with near instantaneous transitions from one stage to the next enabling operators to continuously pump* for the duration of the completion. Through automation and interlocks with wireline and frac systems, *the system eliminates NPT associated with gate valves.*” *Id.*, 1 (emphasis added). The term “NPT” as used here means “non-productive time.” I highlighted that Downing’s Freedom Series “has broken multiple pumping records across US basins including hours pumped continuously and stages completed. In addition, the system has over a dozen industry ‘firsts’ that have changed completion operations.” *Id.*, 1.

13. In explaining the impact of the Freedom Series, I highlighted the benefits associated with the continuous pumping swap feature and its ability to enable continuous pumping. I explained that “[t]he automated completion system” “enables 24/7 fracturing representing up to a 50% increase in current pumping efficiency (significantly reducing the number of days required to frac a pad as well

as the cost per well). Multiple basin pumping records have been set with the system leading to significant operator cost savings.” *Id.*, 1–2. I also indicated that the judges could visit “www.continuouspumping.com for photos and videos of the system,” which is the website associated with Exhibits 2001, 2002, and 2014. *Id.*, 2; *see* Ex.2001; Ex.2002; Ex.2014. I noted that the Freedom Series had “been adopted by major operators including EQT, Oxy, and Devon.” Ex.2019, 2. On this submission, the Freedom Series received the Best Completions Technology Award.

14. My understanding of the Gulf Energy Information Excellence Awards process is as follows. In 2023, the Gulf Energy Information Excellence Awards solicited for nomination submissions for the awards. Ex.2017. The awards were to “recogniz[e] excellence in the international energy market” and intended to “cover all industry sectors and recognize exceptional achievements in technology, corporate leadership, people, projects, and HSE.” Ex.2017, 1. Once all submissions were received, a first stage judging team would review the submissions and select finalists for each category of awards. Ex.2018. From the finalists, a second stage set of judges selected from “industry experts from the field and academia” would review the submissions and select winners for each category. Ex.2018.

15. The Freedom Series was selected first as a finalist and then as the winner for Best Completions Technology. World Oil initially published a list of the

finalists for the 2023 Gulf Energy Information Excellence Awards, including “Freedom Series Completion System – Downing Wellhead Equipment” under “Best completions technology.” Ex.2016, 1 (emphasis omitted). That finalist list is accessible at <https://www.worldoil.com/news/2023/8/31/upstream-finalists-revealed-for-inaugural-gulf-energy-information-excellence-awards/>. Ex.2016.

According to World Oil, the Gulf Energy Information Excellence Awards would “bring together hundreds of upstream innovators and industry leaders” and “celebrate and recognize cutting-edge technological developments and the people behind them that drive the industry forward.” Ex.2016, 1. After the gala, World Oil published the list of winners, recognizing “Freedom Series Completion System – Downing Wellhead Equipment” as “Best Completions Technology.” Ex.2015, 1. The winners list is accessible at https://worldoil.com/news/2023/10/11/2023-gulf-energy-information-excellence-award-winners-honored-at-live-houston-gala/?oly_enc_id=1249B4872812A8U. Ex.2015. The World Oil article stated that the Gulf Energy Information Excellence Awards “recognized the energy industry’s leading innovations and thought leaders.” *Id.*, 1. The article included a statement from Lee Nichols, Vice President, Content for Gulf Energy Information, who stated that Gulf Energy Information Excellence Awards “received more than 400 submissions this year, the most we have ever received!” *Id.*, 1.

16. The 2023 Gulf Energy Excellence Awards nominations webpage is still currently publicly accessible at <https://e2awards.com/nominations/>. The Internet Archive Wayback Machine archived a copy of this webpage on June 1, 2023. The archived version is accessible at <https://web.archive.org/web/20230601195241/https://e2awards.com/nominations/> and is accurately reflected in Ex.2017. The nominations webpage also provides a link to its judging methodology, which is currently accessible at <https://e2awards.com/wp-content/uploads/2023/04/Energy-Excellence-Award-Methodology.pdf>. The Internet Archive Wayback Machine archived a copy of the awards methodology on March 4, 2024. The archived version is accessible at <https://web.archive.org/web/20240304110602/https://e2awards.com/wp-content/uploads/2023/04/Energy-Excellence-Award-Methodology.pdf>, which is accurately reflected in Ex.2018.

17. I contacted the Gulf Energy Information Excellence Awards and obtained a copy of my nomination submission from 2023. Ex.2019 is a true and correct copy of my correspondence, including my original submission for the 2023 Gulf Energy Excellence Awards. Ex.2016 is a true and correct copy of the World Oil webpage listing the finalists for the 2023 Gulf Information Excellence Awards. Ex.2015 is a true and correct of the World Oil webpage listing the winners of the 2023 Gulf Information Excellence Awards.

b. Record-Setting Continuous Pumping Duration

18. The Freedom Series has received significant praise for its ability to achieve record-setting continuous pumping durations in fracturing operations. One such operation was with Liberty Oilfield Services (“Liberty”). In 2021, Downing worked with Liberty to “optimize the use of each of the 1,440 minutes in a day for pumping and perforating operations, effectively eliminating non-productive and non-pumping time.” Ex.2020. The Liberty operation used a version of the Freedom Series with the continuous pumping swap feature. Ex. 2020, 2 (“Liberty teams utilized Downing's Freedom Series iControl, a completion system that instantaneously transitions from one well to the other, opening the second well and subsequently shutting-in the first well, all while pumping, eliminating the time between stages.”). A press release issued by Liberty announced that it had reached the “milestone achievement of 24 hours of continuous pumping time.” Ex.2020, 1 (capitalization and emphasis removed); *see id.*, 1–2. Liberty worked with Downing and used the Freedom Series to “safely achieve the momentous goal of eliminating downtime and continuously pumping all 1,440 minutes in the day.” *Id.*, 2.

19. Others who participated in the Liberty operation praised the Freedom Series for its continuous pumping swap feature. XStim Consulting, a consulting company that “provides well site supervision and technical support to the Oil & Gas Industry in various fields throughout the world,” was also involved in the

Liberty operation. Ex.2021, 2; Ex.2022, 2; Ex. 2023, 1. XStim Consulting stated that the Liberty operation was “the first ever continuously pumped zipper frac” and noted that “Downing Freedom Series System and iControl [gave] us the opportunity to continuously pump.” Ex.2023, 1. Aaron Dressel of XStim Consulting stated that the Liberty operation was “[b]y far the most impressive week of fracking. The records set this week are not possible without Downing’s Freedom Series. Downing has set a new precedent for zipper frac operations.” Ex.2024, 1. As XStim Consulting and Mr. Dressel recognized, no one had previously been able to achieve 24 hours, or 1,440 minutes, of continuous pumping before. *See* Ex.2023; Ex.2024. And as XStim Consulting and Mr. Dressel also recognized, it was the Freedom Series’ ability to continuously pump while transitioning between wells that enabled the records set during the Liberty Operation. Ex.2020, 2 (“Liberty teams utilized Downing's Freedom Series iControl, a completion system that instantaneously transitions from one well to the other, opening the second well and subsequently shutting-in the first well, all while pumping, eliminating the time between stages”).

20. The Freedom Series has also received praise by Occidental Petroleum Corporation (“OXY”) in connection with its completions operation in Delaware. Based on my personal knowledge, OXY began using the Freedom Series with the continuous pumping swap feature in its Delaware operation in June 2022. In

OXY's Second Quarter 2023 Earnings Conference Call, OXY announced that its "Delaware completions team shattered Oxy's previous record for continuous frac pumping time by nearly 12 hours for a total of 40 hours and 49 minutes. Four years ago, the same job would have taken about 84 hours. 40 hours back then was unthinkable, but our teams have made this a reality. We expect that the efficiencies generated by advancements in drilling and completions pumping will result in lower cost and reduce time-to-market." Ex.2025, 3; Ex.2026, 1. OXY's ability to "shatter records" associated with continuous pumping resulted from the Freedom Series' continuous pumping swap feature that allows continuous pumping.

21. The Liberty press release is available at <https://libertyenergy.com/liberty-announces-milestone-achievement-of-24-hours-of-continuous-pumping-time/>. Ex.2020 is a true and correct copy of the press release.

22. Information about XStim Consulting is available at <https://www.xstimconsulting.com/> and <https://www.xstimconsulting.com/about-us/>. Ex.2021 and Ex.2022, respectively, are true and correct copies of these webpages. XStim Consulting's feature of the Liberty operation is accessible at <https://www.xstimconsulting.com/news/fourteen-forty-pump-time-record/>. Ex.2023 is a true and correct copy of XStim Consulting's feature of the Liberty operation.

23. Mr. Dressel of XStim Consulting verbally praised the Freedom Series. Mr. Dressel authorized me to record his statement and use it to promote the Freedom Series. I prepared a LinkedIn post promoting the achievements of the Liberty operation including Mr. Dressel's statement. I published the post to Downing's LinkedIn around September 2021. That post is available at https://www.linkedin.com/posts/downingusa_permianbasin-permian-eagleford-activity-6849475549518192640-tX5_/. Ex.2024 is a true and correct capture of my LinkedIn post with Mr. Dressel's quote. In the post, I tagged Mr. Dressel, XStim Consulting, and Liberty Oilfield Services. Ex.2024

24. Ex.2025 is the transcript from OXY's Second Quarter 2023 Earnings Conference Call. This transcript is available at <https://www.oxy.com/siteassets/documents/investors/quarterly-earnings/oxy2q23transcript.pdf>. Ex.2025 is a true and correct copy of the transcript for OXY's Second Quarter 2023 Earnings Call. Shortly after I learned about OXY's statement referencing the Freedom Series, I prepared a LinkedIn post promoting the achievements of Delaware's OXY operation. I posted OXY's achievement to Downing's LinkedIn page around August 2023. The post is available at https://www.linkedin.com/posts/downingusa_haynesville-midcon-permianbasin-activity-7094430459455033344-

[jm8R?trk=public_profile_like_view](#). Ex.2026 is a true and correct capture of my LinkedIn post referencing OXY's earnings call statement.

c. Instant Transitions to Eliminate Non-Pumping Time

25. The Freedom Series has also received extensive praise for its ability to eliminate non-productive, non-pumping time. For example, the Liberty press release repeatedly highlighted the elimination of non-productive time:

- “By delivering a full 1,440 minutes of pumping time with ***zero non-productive time***, Liberty crews were able to attain the premier goal of Liberty's Operation 1440.” Ex.2020, 1.
- “Liberty teams worked together to assess how to optimize the use of each of the 1,440 minutes in a day for pumping and perforating operations, ***effectively eliminating non-productive and non-pumping time***.” Ex.2020, 1.
- “Liberty frac and wireline crews worked in tandem ***to eliminate non-productive time*** on location and utilize real-time data to dynamically respond to above ground equipment maintenance, subsurface design changes, and logistics coordination.” Ex.2020, 1.
- “Liberty frac and wireline crews worked in concert with Downing to safely achieve the momentous goal of ***eliminating downtime*** and continuously pumping all 1,440 minutes in the day.” Ex.2020, 2.

The Freedom Series’ ability to eliminate non-productive time comes from the continuous pumping swap feature, as recognized by the Liberty press release itself: “Liberty teams utilized Downing's Freedom Series iControl, a completion system that instantaneously transitions from one well to the other, opening the second well and subsequently shutting-in the first well, all while pumping, *eliminating the time between stages.*” Ex.2020, 2.

26. Others have praised the Freedom Series’ elimination of time between transitioning stages. Based on my personal knowledge, Crescent Point Energy used the Freedom Series with the continuous pumping swap feature from about October 2021 to August 2023. After using the Freedom Series, Addison Kowal, a completion engineer at Crescent Point Energy shared that while Crescent Point had “targeted 18 days with decreased well swap time while ensuring safe operations,” the “Freedom Series with iControl enabled [Crescent Point] to safely achieve [their] most efficient pad in the basin, shaving an additional 1.3 days off [their] target.” Ex.2027, 1. While Crescent Point had planned for “decreased well swap time,” the Freedom Series’ elimination of time between transition stages allowed Crescent Point to reach their target even faster. Although Mr. Kowal verbally praised the Freedom Series, he authorized me to record this statement and use it to promote the Freedom Series. I prepared a LinkedIn post promoting Crescent Point’s successes using the Freedom Series including Mr. Kowal’s statement. I

published the post to Downing's LinkedIn page around January 2022. This post is accessible at https://www.linkedin.com/posts/downingusa_permianbasin-permian-eagleford-activity-6885324063816912896-4RM4. Ex.2027 is a true and correct capture of my LinkedIn post with Mr. Kowal's statement. In the post, I tagged Mr. Kowal and Crescent Point Energy. Ex.2027, 1.

27. In addition, Chesapeake Energy Corporation ("Chesapeake") has praised the Freedom Series in connection with its Haynesville operation. Based on my personal knowledge, Chesapeake began using the Freedom Series with the continuous pumping swap feature in its Haynesville operation around January 2023. In Chesapeake's Second Quarter 2023 Earnings Release, Chesapeake published that in Haynesville, "continuous pumping technology employed in 2023 has led to a greater than 20% increase in efficiencies relative to previous zipper operations." Ex.2028, 1. This statement shows that Chesapeake's increase in efficiencies came from the continuous pumping technology it used in 2023—the Freedom Series with the continuous pumping swap feature. Ex.2028 is the press release from Chesapeake's 2023 Second Quarter Results. This press release is publicly available at <https://investors.chk.com/2023-08-01-CHESAPEAKE-ENERGY-CORPORATION-REPORTS-2023-SECOND-QUARTER-RESULTS>. Ex.2028 is a true and correct copy of the press release of Chesapeake's 2023 Second Quarter Results. Shortly after I learned about Chesapeake's statement in

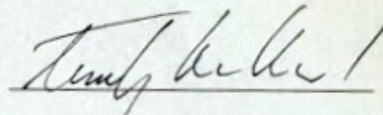
their earnings results, I prepared a LinkedIn post promoting Chesapeake's accomplishments in its Haynesville operation. I posted Chesapeake's statement to Downing's LinkedIn page around August 2023. The post is available at https://www.linkedin.com/posts/downingusa_haynesville-midcon-permianbasin-activity-7092898981432754176-zo98?trk=public_profile_like_view. Ex.2029 is a true and correct capture of my LinkedIn post referencing Chesapeake's statement in its earnings results.

28. Accordingly, the Freedom Series' continuous pumping swap feature has received an industry award and significant praise from numerous industry participants because it allows fracturing operators to continuously pump for record-breaking durations and run more efficient operations by reducing non-productive and non-pumping time.

IV. CONCLUSION

29. I declare that all statements made in this declaration upon my knowledge are true and that all statements made upon information and belief are believed to be true, and further declare that these statements were made knowing that willful false statements and the like are made punishable by fine, imprisonment, or both, under 18 U.S.C. § 1001.

Date: September 19, 2024

A handwritten signature in black ink, appearing to read "Timothy K. Marvel", written over a horizontal line.

Timothy K. Marvel