

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

GREEN REVOLUTION COOLING, INC.,

Plaintiff,

v.

RIOT PLATFORMS, INC.

Defendant.

Civil Action No. 6:24-cv-152

JURY TRIAL

ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Green Revolution Cooling, Inc. (“GRC” or “Plaintiff”) files this Original Complaint for Patent Infringement against Defendant Riot Platforms, Inc. (“Riot” or “Defendant”) for infringement of U.S. Patent No. 9,992,914 (the “’914 Patent”). GRC, on personal knowledge as to its own acts, and on information and belief as to all others based on its investigation, alleges as follows:

SUMMARY OF THE ACTION

1. This is a patent infringement suit relating to Riot’s unauthorized and unlicensed use of the ’914 Patent. GRC’s patented technology supports the core of Riot’s systems, including all of Riot’s immersion cooling facilities in Texas.

2. GRC was founded in 2009 with a vision to change the way data centers are designed, built, and operated. Even back then GRC recognized that data was the lifeblood of businesses big and small. However, as data processing needs increased over time, more powerful (heat generating) servers were required to process this data. It became increasingly complicated and expensive for data centers to cool these servers using traditional air cooling. Traditional air-

cooling and the conventional solutions (more space and/or more air-cooling capacity) were becoming less cost effective, if not impossible. In fact, no matter how good the system, air cooling could only carry away so much heat, which meant it would be extremely difficult to effectively air cool with increasingly powerful, tightly packed servers. Moreover, air cooling equipment already consumed almost half of a data center's energy usage and formed a large portion of a data center's build-out cost. Creating more space was not practical for the same reasons. Traditional systems needed a Computer Room Air Conditioner ("CRAC"), chiller, cooling tower, backup generator, air-flow engineering (e.g., air ducting), hot/cold aisles, raised or special flooring, and rack rails to come online. As a result, these facilities were not easily reengineered or expanded.

3. GRC set its sights on solving this problem. The result was groundbreaking: a single-phase immersion cooling system compatible with commercially available servers. Single-phase immersion cooling systems work by immersing servers in a liquid coolant. Compared to air, single-phase immersion systems (when well designed) can cool servers with liquid at over 100°F versus air cooling which typically requires cooling the air down to 50 to 70°F. Cooling a liquid to 100°F requires less equipment and less complexity. As a result, GRC's immersion technologies cut lifetime cooling costs by around 85% and used around 95% less cooling power. In addition to these cost savings, GRC's innovations reduced the cost, complexity, and equipment needed to build a data center. Rooms no longer had to be designed for careful airflow. Backup generators could be 50% smaller as overall power consumption dropped. Server reliability increased by removing hotspots, allowing more time for disaster recovery, and eliminating fans and related vibration. GRC's use of dielectric coolant also meant that its systems relied on non-toxic fluids that carry 1,200 times more heat by volume than air.

4. The industry quickly took notice. GRC was awarded grants from the Department of Defense and the National Science Foundation. In 2009 and 2010, GRC won back-to-back “Disruptive Technology of the Year” awards at the Supercomputing Conference. The NSA also publicly praised GRC’s technology in a rare report. And for over a decade, GRC’s immersion systems have supported USAF military operations. More recently, IT giants Dell, Intel, and others have come to partner with GRC, whose technologies are currently at work in some of the world’s largest cloud, enterprise, education, government, and telecom organizations. GRC’s products have been deployed in the United States, Canada, Costa Rica, the United Kingdom, France, Spain, Sweden, the Netherlands, Austria, Romania, Serbia, Italy, Mali, Uganda, India, Singapore, Vietnam, South Korea, Australia, Taiwan, and Japan. Today GRC’s systems can power the data centers behind artificial intelligence, machine learning, edge computing, blockchain, and crypto-mining with substantial advantages over the competition.

5. With success comes copycats and others who seek to capitalize on GRC’s novel approach to immersion cooling. Riot is one example. Riot is a bitcoin mining company whose “vision is to be the world’s leading Bitcoin-driven infrastructure platform.” Riot Platforms FY 2023 Update, Feb. 27, 2024, <https://s3.amazonaws.com/b2icontent.irpass.cc/2865/193123.pdf>. In 2021, more than a decade after GRC launched its immersion cooling systems, Riot deployed infringing immersion cooling technology within its bitcoin mining facilities. Riot announced that after only “months of research and development,” it “pioneer[ed] . . . the use of cutting-edge immersion-cooling technology at an unprecedented scale.” Press Release, Riot Platforms, Riot Announces First Industrial-Scale Immersion-Cooled Bitcoin Mining Operation, Oct. 19, 2021, <https://www.riotplatforms.com/riot-announces-first-industrial-scale-immersion-cooled-bitcoin-mining-operation/> [hereinafter *October 2021 Press Release*]. Riot debuted these immersion-

cooling tanks at its Rockdale, Texas facility to reap all the same benefits noted above. And, through the improper use of GRC's patented technology, Riot now seeks to expand its infringing actions even further, launching additional immersion-based facilities in Rockdale and Corsicana, Texas. GRC brings this action to put an end to Riot's unauthorized use of GRC's '914 Patent.

PARTIES

6. Plaintiff Green Revolution Cooling, Inc. is a Delaware corporation with its principal place of business at 11525 Stonehollow Drive, Suite A-135, Austin, Texas 78758.

7. On information and belief, Defendant Riot Platforms, Inc. is a Nevada company with its principal place of business at 3855 Ambrosia Street, Suite 301, Castle Rock, CO 80109.

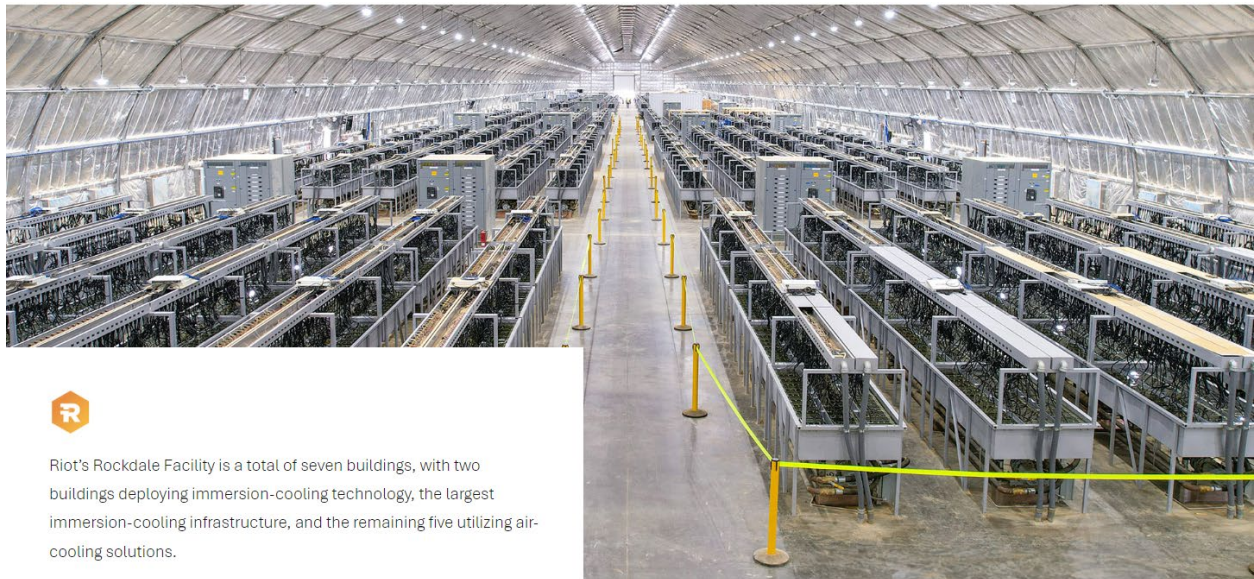
JURISDICTION AND VENUE

8. This is an action containing claims for patent infringement arising under the patent laws of the United States, Title 35, U.S.C. § 271. This Court has exclusive subject matter jurisdiction over those claims pursuant to 28 U.S.C. §§ 1331, 1367, and/or 1338.

9. This Court has personal jurisdiction over Riot because it either currently resides in the State of Texas, has a regular and established place of business within the State of Texas, has had minimum contacts with the State of Texas sufficient to confer the Court with general personal jurisdiction, or has committed acts within the State of Texas giving rise to the claims asserted herein.

10. Riot does extensive business in this Division, District, and State. As shown below, Riot owns and operates an infringing immersion cooling facility in Rockdale, Texas, which is in the Waco Division of the Western District of Texas. Riot boasts that its "Rockdale Facility" is "believed to be the largest single Bitcoin mining facility in North America." *See* Riot Platforms, Inc., Annual Report (Form 10-K) 33, Feb. 23, 2024, <https://s3.amazonaws.com/>

sec.irpass.cc/2865/0001558370-24-001550.pdf [hereinafter *Riot 2023 10-K*]. It “currently provides 700 MW in total developed capacity.” *Id.* To a “large extent,” Riot relies on immersion cooling at the Rockdale Facility. *Id.* at 21. At least “200 MW [MegaWatts] of capacity across two [Rockdale] buildings [are] dedicated to immersion-cooled self-mining operations.” Riot Platforms Corporate Presentation 5, Dec. 6, 2023, <https://d2ghdaxqb194v2.cloudfront.net/2865/192541.pdf>. During 2023, Riot “paid \$31.2 million in deposits and payments to Midas Green Technologies, LLC . . . for the purpose of immersion cooling systems.” *Riot 2023 10-K* at 41.



Riot's Rockdale Facility is a total of seven buildings, with two buildings deploying immersion-cooling technology, the largest immersion-cooling infrastructure, and the remaining five utilizing air-cooling solutions.

11. Riot is also developing another facility in Navarro County, Texas (the “Corsicana Facility”) that currently employs or will employ immersion cooling. Riot states that “[t]he initial phase of the development of the Corsicana Facility involves the construction of 400 megawatts (‘MW’) of immersion-cooled Bitcoin Mining and Data Center Hosting infrastructure.” *See* *Riot 2023 10-K* at 5. In 2023, Riot “entered into a purchase agreement with Midas for the purchase of 200 MW of immersion cooling systems for its Corsicana Facility.” *Id.* at F-25. Delivery of these systems “began in the fourth quarter of 2023 and is expected to be completed in the first quarter of 2024.” *Id.* The “400 MW substation [at the Corsicana Facility] is expected to be energized by

the end of March 2024, and the first 100 MW building, A1, will commence operations immediately thereafter.” *See* Press Release, Riot Platforms, Riot Announces January 2024 Production and Operations Updates, Feb. 5, 2024, <https://www.riotplatforms.com/riot-announces-january-2024-production-and-operations-updates/>.

12. On information and belief, Riot has used, and is using, the claimed technology of the ’914 Patent within these facilities, thereby committing acts of patent infringement in this Division, District, and State. Riot has also derived substantial revenue from these infringing activities within this Division, District, and State. As one example, Riot announced 2023 financial results of “all-time highs of \$281 million in total revenues, 6,626 Bitcoin produced, and \$71 million in power credits earned . . .” Press Release, Riot Platforms, Riot Platforms Reports Full Year 2023 Financial Results, Current Operational and Financial Highlights, Feb. 22, 2024, <https://www.riotplatforms.com/riot-platforms-reports-full-year-2023-financial-results-current-operational-and-financial-highlights/>. Riot therefore has a regular and established place of business within this Division, District, and State; Riot regularly conducts business in this Division, District, and State; and Riot has committed purposeful acts within this Division, District, and State such that it should reasonably anticipate being haled into this Court.

13. Venue is proper in the Western District of Texas under 28 U.S.C. § 1400(b) as Riot has a regular and established place of business in this Division and District with its Rockdale Facility. And, on information and belief, Riot has committed acts of infringement at least at this location and within the State.

FACTUAL ALLEGATIONS

A. GRC Has a Rich History of Innovation in Immersion Cooling.

14. GRC was founded in Austin, Texas and has a long history of innovation in the immersion cooling space, spanning nearly 15 years. Around 2009, there were 30 million computer servers worldwide that used variants of air cooling. Conventional air-cooling systems nearly doubled data center energy consumption, required costly capital expenditures and special data center designs, and did not work well for high-density server hardware. This environment typically required chilling water to 10°C (50°F) to create an air temperature of 25°C (77°F) for use in air cooling the servers in a data center. Chilling alone added 25-33% to the power consumed by a data center. These facilities also needed fans to circulate the air and, because of layout considerations, air-cooling often created hotspots and/or vibration that could damage components and reduce data center reliability. Combined, fans and cooling equipment were responsible for roughly 50% of total power draw within a data center.

15. GRC co-founder and co-inventor, Christiaan Best, discovered these inefficiencies in early 2008 while working at a MEMS start-up in the air conditioning field. He and his co-inventor immediately began brainstorming for solutions to this problem. The result was a new, immersion-cooled system that used a safe, non-toxic, single-phase dielectric coolant in which data center components were immersed. GRC filed a patent application on this idea, which matured into the '914 Patent. GRC also began building these systems, and the first incarnation was called the "CarnotJet." It efficiently removed heat by fully submersing a data center's computer components in a single-phase dielectric coolant, with innovative hardware architecture, system design, and control software to optimize performance and reliability. GRC's CarnotJet system featured a horizontal rack that allowed data center technicians to easily remove or swap servers while the remainder of the system continued to function. And because the dielectric coolant was

safe for humans, the racks did not have to be sealed and no special considerations were needed to handle or interact with submersed servers. In recognition of these achievements, GRC won “Disruptive Technology of the Year” in 2009 and 2010.

16. One of the first to implement GRC’s then patent-pending technology in a live data center was Texas Advanced Computing Center (“TACC”) in April 2010. The results were astounding. GRC’s systems allowed TACC to consume 40% less total energy, and to use any OEM rack-mounted server, CPU, or GPU. This demonstration also showed that GRC’s systems could perform even for top supercomputing sites, like that of TACC. Swiss National Supercomputing followed suit in December 2010. Both installations exhibited 100% uptime and consumed 95% less cooling energy compared to standard air-cooled systems.

17. Since that time, many customers and partners have come to see the benefits of this technology for themselves. Between 2012 and 2013, the U.S. Air Force, Intel, the NSA, Vienna Scientific Cluster, Tokyo Institute of Technology, and other leading names in computing came on board. In June 2013, GRC released a containerized version of its systems for the Department of Defense. In 2015, GRC installed its technologies at Port d’Informacio Cientifica (“PIC”), which supports data processing for CERN’s Large Hadron Collider. And by 2019, GRC had entered partnerships with Hewlett Packard Enterprise, Dell, and other global partners. In short, GRC’s systems support some of the largest computing installations around the world, including those in the United States, Canada, Costa Rica, the United Kingdom, France, Spain, Sweden, the Netherlands, Austria, Romania, Serbia, Italy, Mali, Uganda, India, Singapore, Vietnam, South Korea, Australia, Taiwan, and Japan.

18. Today, GRC continues to innovate. It has over two dozen patents and applications that protect its technologies. GRC has also unveiled several products, including the ICeraQ,

ICEtank, HashRaQ, and HashTank. Each of them includes the basic principles on which GRC was founded—immersion cooling with safe coolants, along with additional features that are cost effective, scalable, resilient, and future-proof. These products can handle the extreme heat load of the newest generations of servers behind bleeding-edge technologies like artificial intelligence, machine learning, blockchain, and crypto-mining.

B. Riot Implemented, and Improperly Benefits From, GRC’s Patented Technology.

19. In May 2021, Riot acquired Whinstone, which had a 300 MW Bitcoin mining infrastructure in Rockdale Texas. “Immediately following the acquisition, Riot announced a 400 MW expansion” of the facility to be completed by Q2 2022. Press Release, Riot Platforms, Riot Blockchain Announces Investor Site Tour, Sept. 29, 2021, <https://www.riotplatforms.com/riot-blockchain-announces-investor-site-tour/>. About 200 MW of that expansion would be “immersion-cooling technology at [] Whinstone,” which has since been renamed the Rockdale Facility. *See* October 2021 Press Release.

20. Riot’s plan was to “leverage[] technology, industry-leading low power costs, and economies of scale” to drive “operating and capital efficiencies for its self-mining business and its institutional clients.” *Id.* This technology would also allow Riot to observe “an increase in the Company’s hash rate and productivity” without “having to rely solely on purchasing additional ASICs” *Id.* In fact, Riot expected “an estimated 25% increase in hash rate” and a 50% “increase [in] ASIC performance.” *Id.* Riot’s first immersion-cooled building came online in May 2022. Press Release, Riot Platforms, Riot Blockchain Announces July 2022 Production and Operations Updates, Aug. 3, 2022, <https://www.riotplatforms.com/riot-blockchain-announces-july-2022-production-and-operations-updates/>.

21. As part of this plan, Riot set out to expand its Texas footprint. By early 2023, Riot had completed expansion of its Rockdale Facility, which it “believed to be the largest single

Bitcoin mining facility in North America.” *See* Riot 2023 10-K at 33. At least “200 MW of capacity across two [Rockdale] buildings [are] dedicated to immersion-cooled self-mining operations.” Riot Platforms Corporate Presentation at 5.

22. And by October 2022, Riot “ha[d] officially broken ground at [its] 1 gigawatt (‘GW’) expansion project (‘the Corsicana Facility’) in Corsicana, Navarro County, Texas.” Press Release, Riot Platforms, Riot Announces Groundbreaking at 1 GW Data Center Facility n Corsicana, Navarro County, Texas, Oct. 19, 2022, <https://www.riotplatforms.com/riot-announces-groundbreaking-at-1-gw-data-center-facility-in-corsicana-navarro-county-texas/>. “The first phase of the Corsicana Facility’s development is expected to consist of four 100 MW buildings utilizing immersion cooling technology similar to what is already in place at Riot’s Rockdale Facility.” *Id.* Riot plans to complete the Corsicana Facility in 2024. *See* Riot 2023 10-K at F-25.

23. On information and belief, Riot has used, and is using, the claimed technology of the ’914 Patent within these facilities, thereby committing acts of patent infringement. Riot has also derived substantial revenue from these infringing activities.

24. For example, “[f]or the years ended December 31, 2023 and 2022, [Riot’s] Bitcoin Mining revenue was \$189.0 million and \$156.9 million, respectively.” *Id.* at 36.

25. Similarly, Riot provides Data Center Hosting services, deriving “revenue from the fabrication and deployment of immersion cooling technology for Bitcoin mining customers.” *Id.* at 33. “For the years ended December 31, 2023 and 2022, [Riot’s] Data Center Hosting revenue was \$27.3 million and \$36.9 million, respectively.” *Id.* at 36.

26. Finally, Riot derives revenue from offering “power back to the grid at market-driven spot prices,” which Riot describes as “integral to [its] overall strategy.” Press Release, Riot Platforms, Riot Platforms Reports Full Year 2023 Financial Results, Current Operational and

Financial Highlights, Feb. 22, 2024, <https://www.riotplatforms.com/riot-platforms-reports-full-year-2023-financial-results-current-operational-and-financial-highlights/>. According to Riot, it earned power credits from these activities totaling \$71.2 million dollars in 2023 and \$27.3 million in 2022. *Id.*

COUNT 1: INFRINGEMENT OF PATENT NO. 9,992,914

27. GRC incorporates by reference the preceding paragraphs, as if set forth herein.

28. GRC’s immersion cooling technologies are protected by various patents including the ’914 Patent asserted here.

29. The ’914 Patent is valid and enforceable under United States Patent Laws.

30. GRC owns, by assignment, all right, title, and interest in and to the ’914 Patent, including the right to collect for past damages.

31. A copy of the ’914 Patent is attached as Exhibit A.

A. The ’914 Patent

32. The ’914 Patent is entitled “Commonly Submersed Servers with Velocity Augmentation and Partial Recirculation in Tank.” It was filed on March 24, 2015, and claims priority to: U.S. Patent Application No. 13/057,881 filed on August 10, 2009; U.S. Provisional Application No. 61/188,589 filed on August 11, 2008; U.S. Provisional Application No. 61/163,443 filed on March 25, 2009; and U.S. Provisional Application No. 61/165,470 filed on March 31, 2009. The U.S. Patent and Trademark Office issued the ’914 Patent on June 5, 2018, to co-inventors Christiaan Best and Mark Garnett.

33. Prior to the inventions described in the ’914 Patent, data centers typically relied on air cooling. Ex. A at 1:56-64. Air cooling uses “vents that allow external air to flow” into the data center, and its server components, by a fan. *Id.* at 2:4-14. Air in a data center “usually passe[d] through a heat exchanger for cooling the air . . . before entering a server.” *Id.* at 6-10. “In some

data centers, [a] heat exchanger [was] . . . mounted to [a] rack to provide ‘rack-level’ cooling of air before the air enter[ed] a server.” *Id.* at 2:10-13. In other installations, “the air [was] cooled before entering the data center.” *Id.* at 13-14. Such designs accounted for “[m]ore than one-third of data center electricity consumption . . . , which could equate to more than about 1% of all U.S. electricity consumed by 2011.” *Id.* at 1:31-34. Thus, the “overall cost of cooling [was] a large and growing part of the total cost of operating a data center.” *Id.* at 1:34-38.

34. In addition, because “spacing heat-dissipating components from each other (e.g., reducing heat density) makes cooling such components less difficult,” conventional data centers “compensated for increased power dissipation (corresponding to increased server performance) by increasing the spacing between adjacent servers.” *Id.* at 2:46-48, 2:53-55. Consequently, even some “state-of-the-art data centers are capable of cooling only about 150 Watts-per square- foot, as opposed to cooling the more than about 1,200 Watts-per-square-foot that could result from arranging servers to more fully utilize available volume (e.g., closely spacing servers and racks to more fully utilize floor-to ceiling height and floor space).” *Id.* at 3:8-14.

35. The co-inventors therefore recognized the “need for an effective, efficient and low-cost cooling alternative for cooling electronic components” especially since “commercially available methods of cooling have not kept pace with increasing server and data-center performance needs, or the corresponding growth in heat density.” *Id.* at 3:17-20, 4:23-25.

36. To address this, the '914 Patent “provides novel apparatus, systems, and methods for efficiently cooling computing devices having heat-generating electronic components.” *Id.* at 4:29-33. In one embodiment, the '914 Patent describes systems that hold and cool rack-mountable servers that have heat producing electronic components. *See, e.g., id.* at 9:58-62. These systems include “a tub or tank [] containing a dielectric liquid coolant into which a plurality of servers [] may be immersed.” *Id.* at 10:9-11; *see also id.* at 13:6-8. The servers may be mounted to “[m]ounting members or rails . . . positioned within the interior volume of the tank.” *Id.* at 10:11-14; *see also id.* at 13:8-10. Preferably, “the mounting members are configured to mountably receive the plurality of servers in a vertical orientation . . . for easy installation and removal of a server without the need to remove or disturb any other server within the tank.” *Id.* at 14:46-52. An exemplary illustration of the '914 system embodiments is shown below:

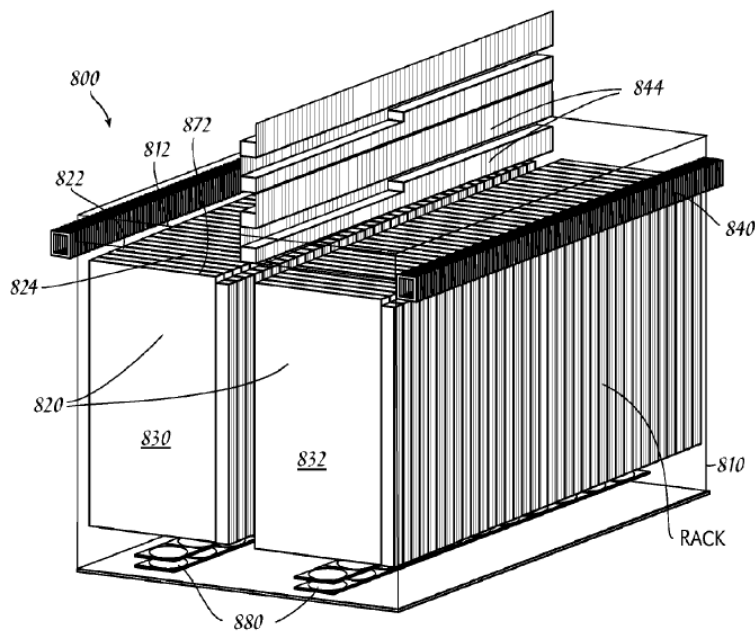


Fig. 11

Id. at Figure 11.

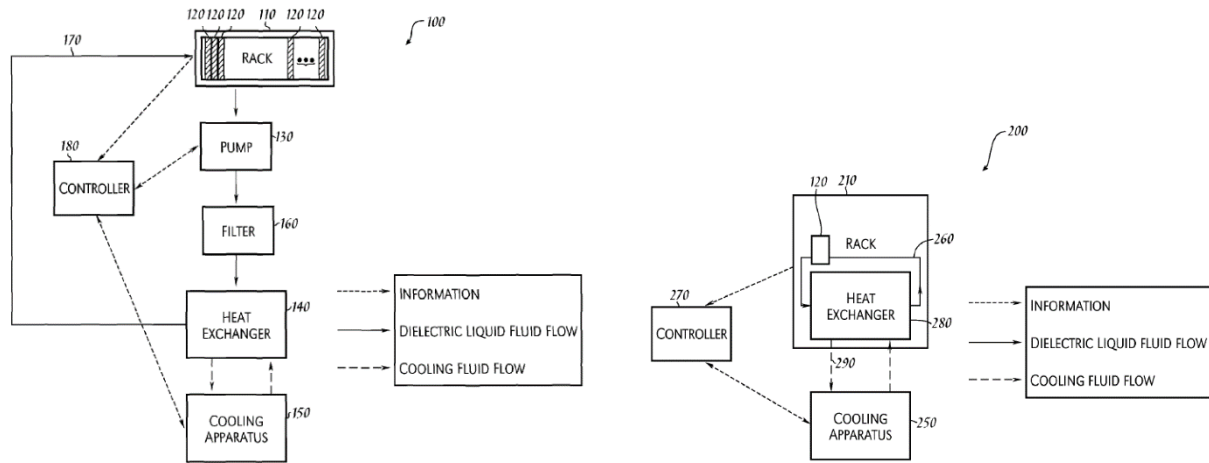
37. As the servers generate heat through their operation, the liquid coolant also becomes heated. *Id.* at 10:23-25. In one embodiment, a pump “may pump liquid coolant from [an]

external heat exchanger through the piping system into the tank [] to maintain coolant fluid circulation within the tank.” *Id.* at 15:6-9. In some configurations, the “liquid coolant heated by the heat generating components in the servers [] naturally rise[s] through the servers and exit[s] through the top or ‘front panel’ of the servers.” *Id.* at 15:14-17. In other embodiments the piping “may be reversed such that the heated liquid coolant may exit from the installed servers through its ‘rear panel.’” *Id.* at 15:25-28. The liquid coolant may then be “fluidly coupled through suitable piping or lines to a pump [], which pumps the heated liquid coolant through suitable piping or lines to a remotely or distally located heat exchanger.” *Id.* at 10:23-28; *see also id.* at 13:18-22. The heat exchanger “rejects the heat from the incoming heated liquid coolant and fluidly couples the cooled liquid coolant through a return fluid line or piping [] back into the tank.” *Id.* at 10:28-31; *see also id.* at 13:22-45. The tank therefore may be “fabricated to have an inlet pipe or line [] from a piping system connected to a heat exchanger for the flow of lower temperature or cooled liquid coolant into the tank [] and an outlet pipe or line [] connected to the collection piping for the flowing or pumping of heated coolant out of the tank to the external heat exchanger . . .” *Id.* at 14:37-44.

38. In certain embodiments the '914 systems also include a controller for monitoring and maintaining the system. *Id.* at 10:41-43; *see also id.* at 13:46-55. For instance, the controller may “monitor[] the temperature of the liquid coolant at at least one location within the fluid circuit[,]” it “may also monitor the temperature of the heat-generating electronic components in the servers[,]” or it “may also monitor the flow of the dielectric liquid coolant.” *Id.* at 10:51-60; *see also id.* at 13:55-64. Based on this information, “the controller [] may output signals to the pump [] and heat rejection or cooling apparatus [] to adjust the flow of the liquid coolant through the fluid circuit and the amount of the heat being rejected by the heat rejection or cooling apparatus

[] for sufficiently cooling each respective server . . .” *Id.* at 10:60-66; also *id.* at 13:64-14:18.

Exemplary control systems can be seen below:



Id. at Figures 1A, 1B.

B. '914 Patent Allegations

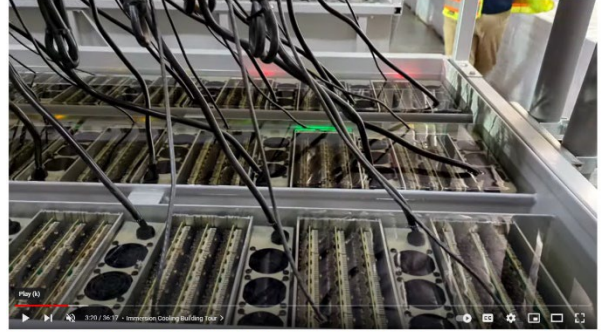
39. Upon information and belief after reasonable investigation, the immersion-cooled portions of Riot’s Rockdale and Corsicana Facilities (the “Accused Products”) infringe the ’914 Patent. As one example, Riot uses apparatuses for holding and cooling rack-mountable servers having heat producing electronic components according to claim 15. For example, Riot’s Accused Products use immersion-cooled bitcoin mining infrastructure where bitcoin mining ASICs are submerged in a specialized fluid to keep the ASICs’ integrated circuits operating at lower temperatures. *See* October 2021 Press Release (explaining Riot’s use of immersion cooling); *see also* Chad Everett Harris, Riot Blockchain’s 700 MW Bitcoin Mining Facility – 200MW Industrial-scale Immersion System, YouTube (Jan. 18, 2022), https://www.youtube.com/watch?v=aQ3o_QDTYV4 [hereinafter 700 MW Bitcoin Mining Facility Video] (video showing Riot’s use of immersion cooling system that include apparatuses for holding and cooling rack-mountable servers having heat producing electronic components).

40. Riot's Accused Products use a tank defining an open interior volume and having a coolant inlet for receiving a dielectric liquid coolant within the open interior volume and having a coolant outlet for allowing the coolant to flow from the open interior volume, the coolant inlet and the coolant outlet being fluidly coupled to each other. For example, Riot's Accused Products use a tank that has an open interior volume as shown below:





Riot Blockchain's 700 MW Bitcoin Mining Facility - 200MW Industrial-scale Immersion System

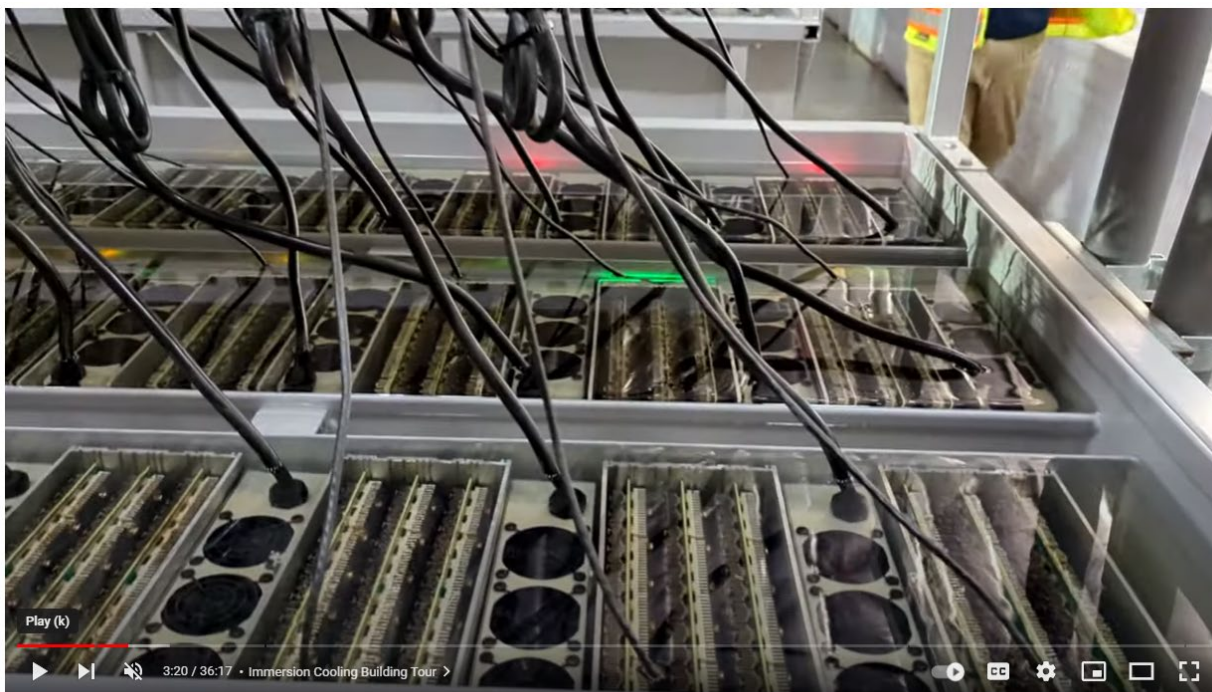


Private Tour of Riot's MASSIVE Whinstone Bitcoin Mining Facility & Exclusive Interview with the CEOs

See id; *see also* 700 MW Bitcoin Mining Facility Video; Jimmy is Promo, Private Tour of Riot's MASSIVE Whinstone Bitcoin Mining Facility & Exclusive Interview with the CEOs, YouTube (Mar. 3, 2022), <https://www.youtube.com/watch?v=La7vMl1txCU> [hereinafter Private Facility Tour Video].

41. As shown in Riot's videos above, the tank has a coolant inlet for receiving the dielectric liquid coolant, which then flows into and fills the tank. The tank also has a coolant outlet that allows the coolant to flow from the tank's interior volume. The coolant inlet and coolant outlet are fluidly coupled to each other as also shown in the videos. Additionally, these features are described in a Riot news release, explaining that Riot uses tanks to hold "a specialized fluid" that is "pumped and circulated to assist in dissipating the heat" and "pumped back through the immersion tank." *See* October 2021 Press Release.

42. Riot's Accused Products also use a volume of dielectric coolant in the tank. For example, Riot has stated that its "[b]itcoin [m]ining activities require large volumes of a specialized non-conductive fluid." *See* Riot 2023 10-K at 8. According to the October 2021 Press Release, this fluid is what is pumped into the tank. Riot also describes its "[p]rocess of [i]mmersion-[c]ooling as "a technique where Bitcoin mining ASICs are submerged in a specialized fluid, which is circulated to keep the ASICs' integrated circuits operating at lower temperatures." *See* October 2021 Press Release. The fluid can also be seen flowing and reflecting light in Riot's videos:

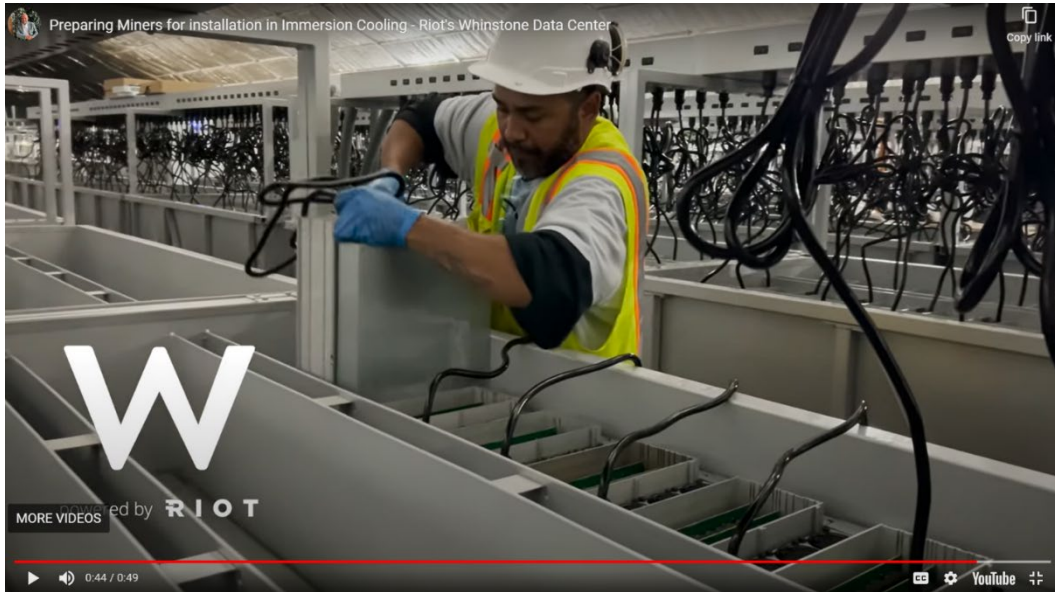


Private Tour of Riot's MASSIVE Whinstone Bitcoin Mining Facility & Exclusive Interview with the CEOs

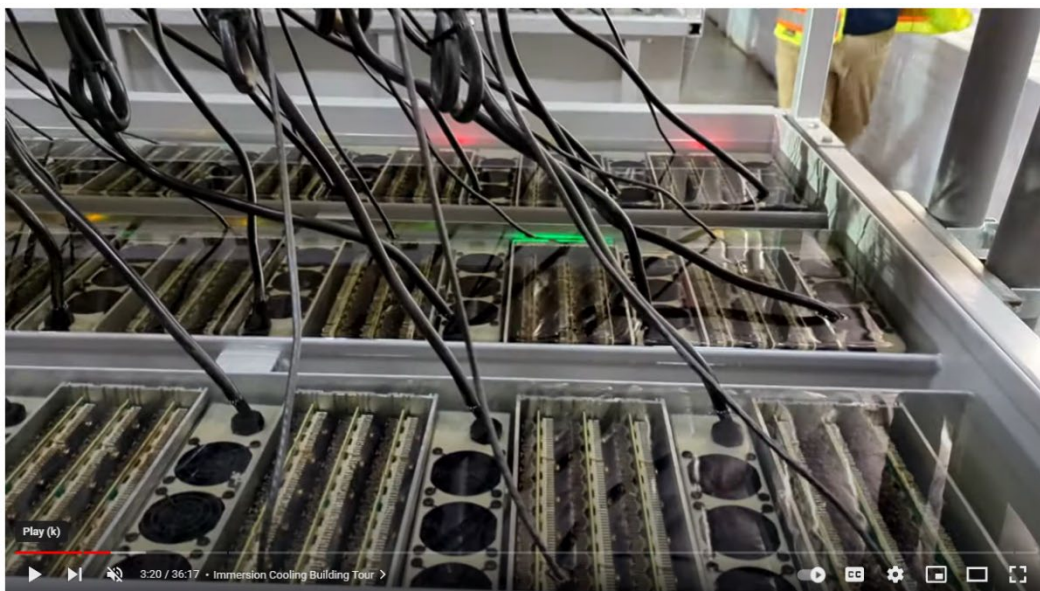
See Private Facility Tour Video.

43. Riot's Accused Products also use one or more mounting members positioned within the interior volume and configured to hold a plurality of rack-mountable servers in a horizontally stacked relationship with one another, with the rack-mountable servers in a vertical orientation within the interior volume such that the plurality of servers are commonly at least partially submersed in the volume of the dielectric liquid coolant. For example, Riot's videos show servers

being mounted vertically via mounting brackets in the tank. The brackets hold the servers in a horizontally stacked relationship with one another, and in a vertical orientation within the tank, all while being at least partially submerged in the coolant:



See Chad Everett Harris, Preparing Miners for installation in Immersion Cooling – Riot’s Whinstone Data Center, YouTube (Jan. 8, 2022), <https://www.youtube.com/watch?v=vXyrS5WHUqg>.



See Private Facility Tour Video.

44. Riot's Accused Products use one or more pumps configured to move at least a portion of the dielectric liquid coolant in the tank. For example, Riot's October 2021 Press Release states that the fluid which the servers are submerged in is "pumped and circulated" to a "secondary heat exchanger," after which the cooled fluid is "pumped back through the immersion tank." And as shown in the video below, the pumps receive coolant and pump it back up and into the tank:

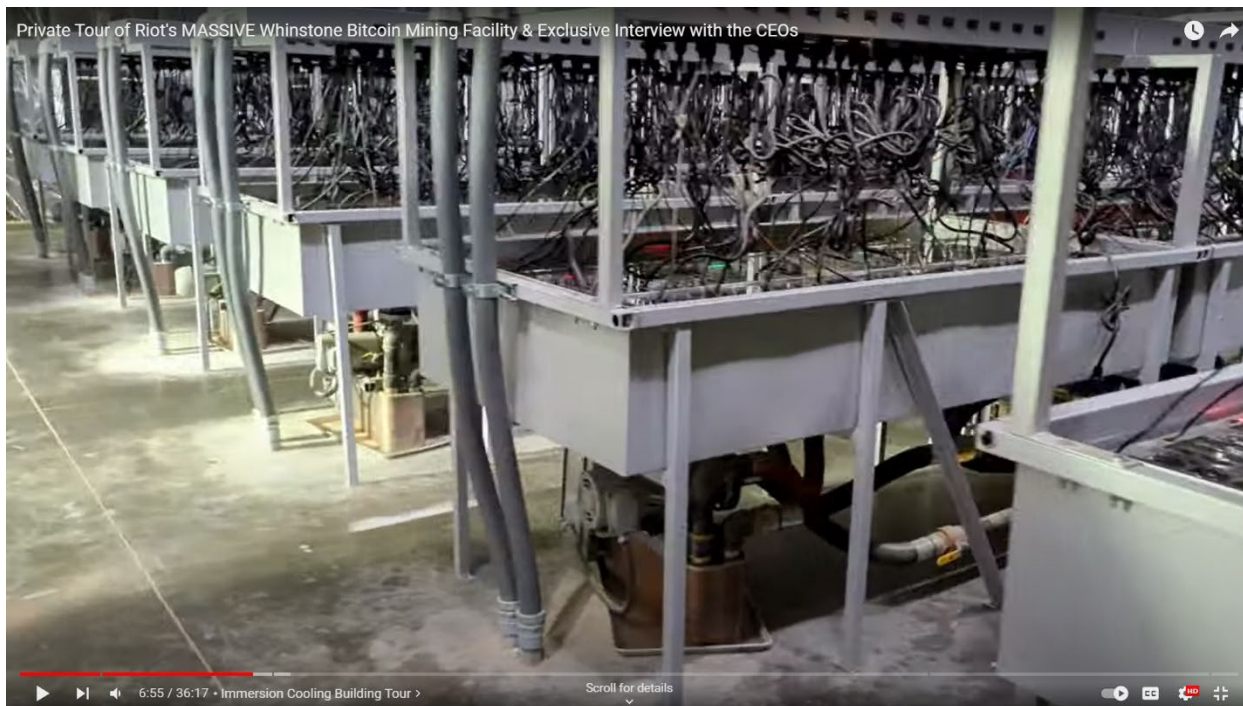


See Private Facility Tour Video.

45. Riot's Accused Products also use a controller configured to maintain a temperature of the dielectric liquid coolant in the range of about 90°F to 130°F. For example, in a purchase agreement for servers, Riot is subject to the requirement that its data center include "infrastructure designed to enable the Miners to be operated at a (liquid) working temperature (inlet) of" a specified temperature range (redacted in the filings). Riot Platforms, Inc., Master Purchase & Sale

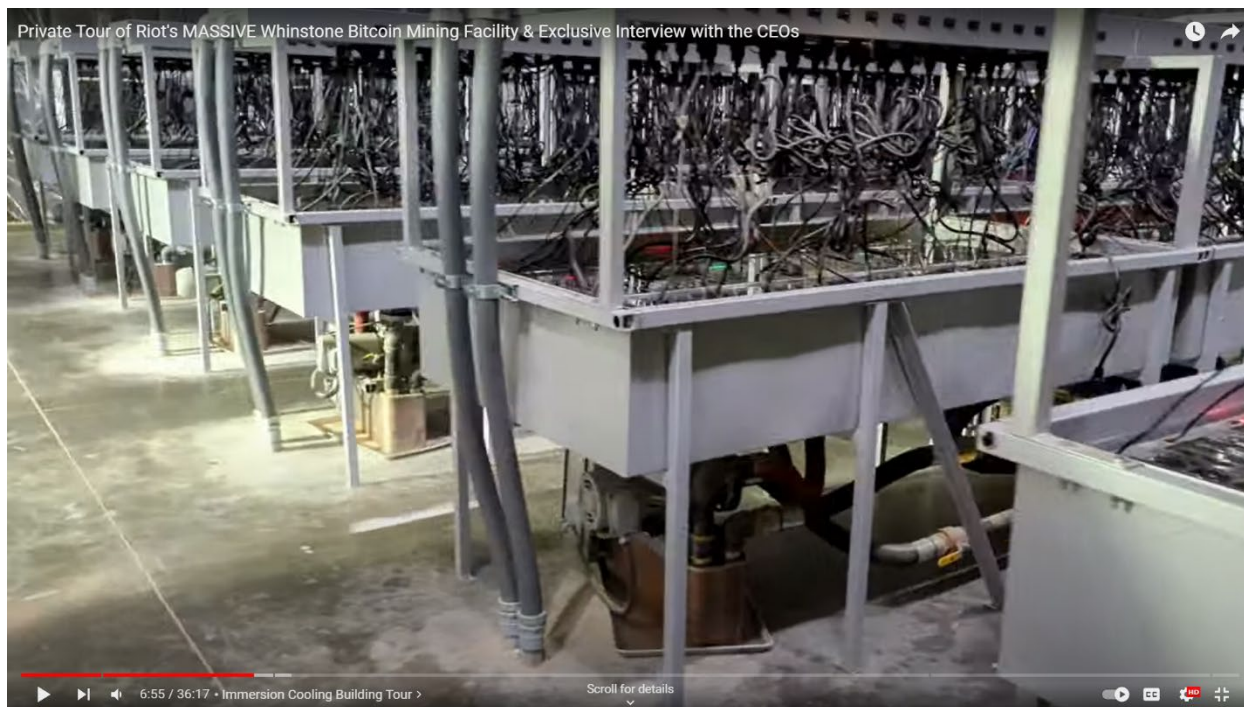
Agreement (Ex. 10.1 to Form 8-K) (June 30, 2023). On information and belief, this temperature range is approximately 90°F to 130°F. Temperatures used in immersion cooling are generally determined by the highest temperature at which the servers being immersed can reliably operate. A range of 90°F to 130°F would be consistent with that temperature for the servers in typical data centers. *See, e.g.,* <https://www.nextplatform.com/2019/03/06/lighting-a-fire-under-liquid-immersion-cooling/> (explaining the typical temperature range in immersion cooling as no higher than 122°F); <https://www.youtube.com/watch?v=gpA2k9NW-zc>; U.S. Patent No. 10,405,457.

46. Riot's Accused Products also use a liquid-to-liquid or liquid-to-refrigerant heat exchanger outside of the tank. For example, as stated in the October 2021 Press Release, "the heated fluid is pumped and circulated to assist in dissipating the heat via a secondary heat exchanger." The heat exchanger can be seen in Riot's videos outside of the tank:



See Private Facility Tour Video.

47. In Riot's Accused Products, the volume of dielectric liquid coolant is thermally coupled to a distal location via the liquid-to-liquid or liquid-to-refrigerant heat exchanger. For example, the heat exchanger can be seen in the Riot's videos:



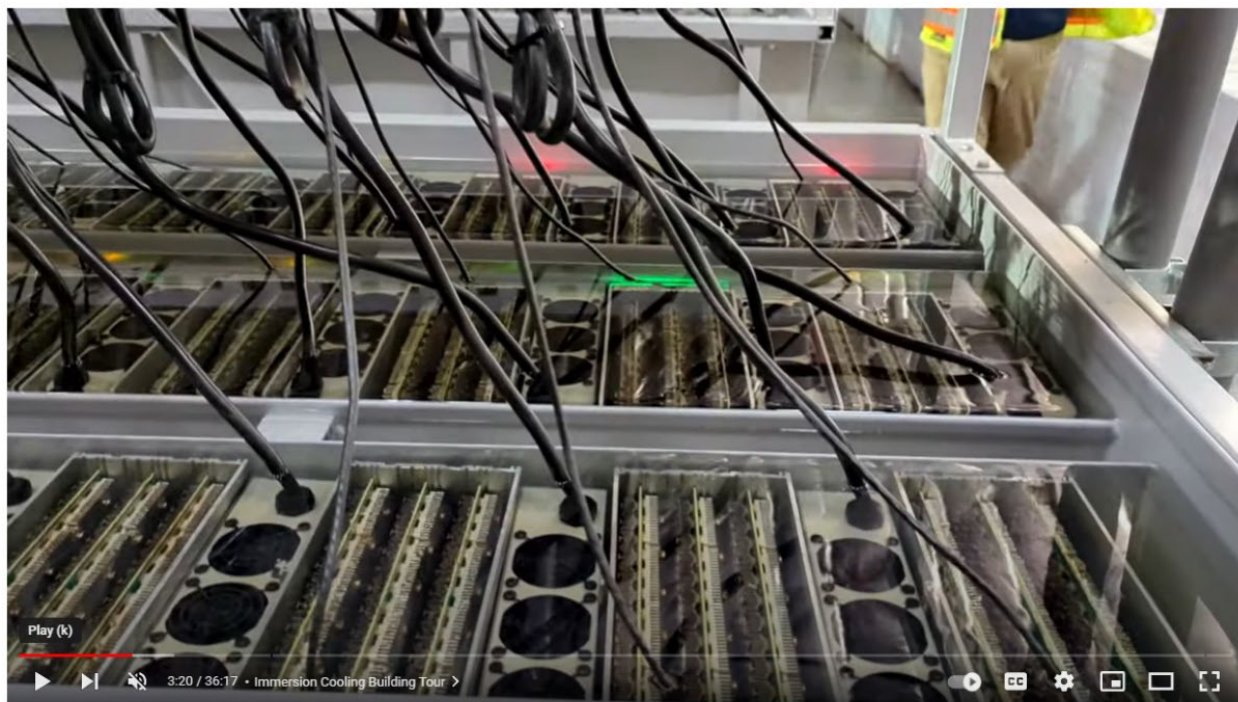
See id.

48. As shown in the above video, the dielectric fluid is thermally coupled to a distal location through piping and various connections via the heat exchanger.

49. In Riot's Accused Products, at least one of the pumps, the coolant inlet, the coolant outlet, and the mounting members are configured such that the at least one pump is operable to move at least a portion of the dielectric liquid coolant vertically across heat producing components of the rack-mountable servers. For example, as shown in Riot's videos, the pump(s) move at least a portion of the coolant from the bottom of the tank vertically across the servers:



See 700 MW Bitcoin Mining Facility Video.



Private Tour of Riot's MASSIVE Whinstone Bitcoin Mining Facility & Exclusive Interview with the CEOs

See Private Facility Tour Video.

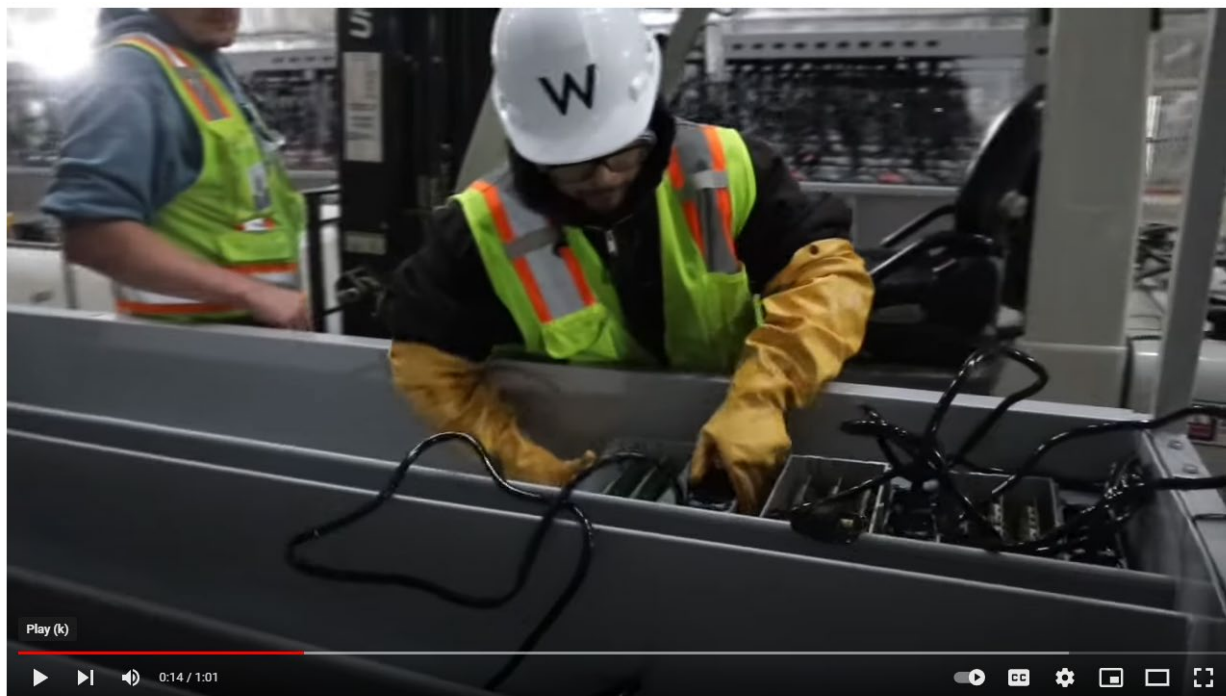
50. As the coolant heats, it rises to the top such that the coolant moves vertically across the servers. The dielectric coolant being moved vertically across the servers can be seen from the bubbling and overflow of fluid in Riot's videos:



See Private Facility Tour Video.

51. In Riot's Accused Products, the one or more mounting members hold the rack-mountable servers such that at least one of the rack-mountable servers is independently removable, through an opening in the top of the tank, from the volume of dielectric liquid coolant while at least two other rack-mountable servers remain commonly submerged in the volume of dielectric liquid coolant in the tank and sufficiently submerged to maintain cooling by the flow of the dielectric liquid coolant in the tank across heat producing electronic components of the at least two other rack-mountable servers, wherein any one or more of the servers can be removed while at least one other of the servers remains operating. For example, the mounting brackets of the tanks hold the servers so that they are independently movable (and thus removable) as shown in the video below. The servers are inserted or removed from the top, also as shown below. Multiple

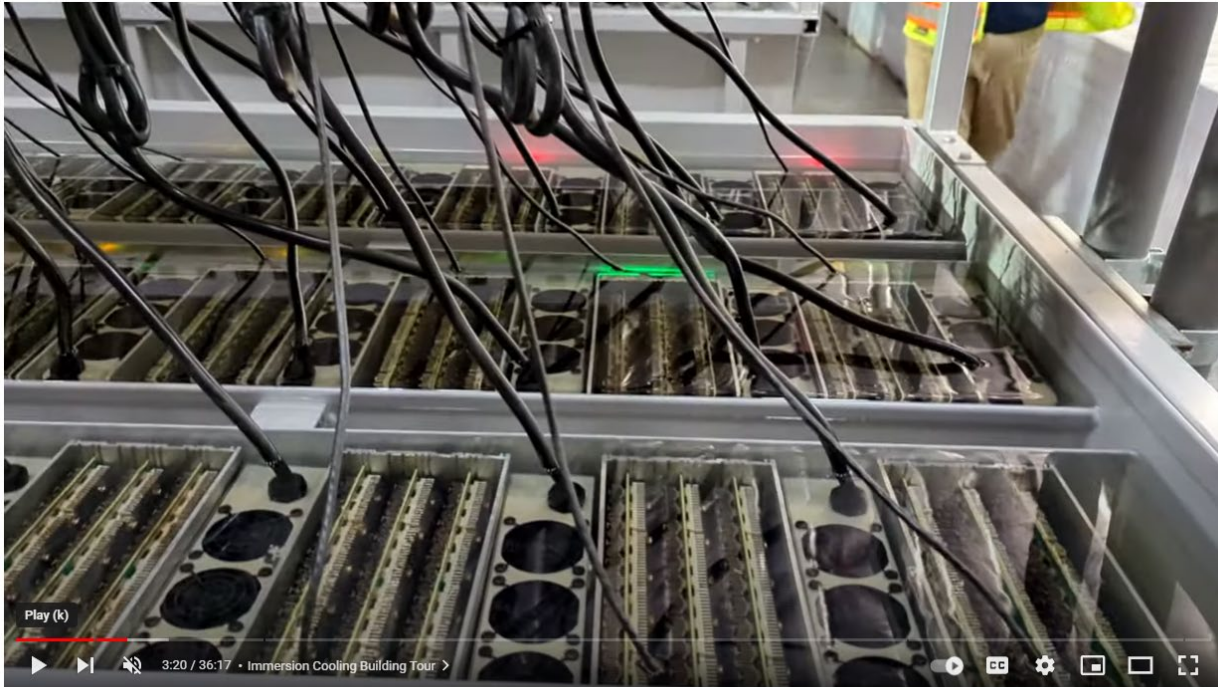
servers are installed in each tank, and one may be removed while the others remain in place, submerged in the coolant to maintain cooling by flow of the coolant in the tank across the servers. As a result, the remaining servers may continue to operate while others are removed.



Riot Blockchain's 700 MW Bitcoin Mining Facility -200MW Industrial-scale Immersion System

See 700 MW Bitcoin Mining Facility Video.

52. In Riot's Accused Products, and as set forth in claim 19, at least one of the pumps and the mounting members are configured such that a portion of the heated dielectric liquid coolant is moved horizontally at the surface of the volume of dielectric liquid coolant after exiting out of the top of the rack-mountable servers. For example, Riot's Accused Products include pump(s) and mounting members as set forth above. In addition, and as shown in the video below, the heated coolant exits the top of the servers and flows horizontally across the surface of coolant in the tank:



Private Tour of Riot's MASSIVE Whinstone Bitcoin Mining Facility & Exclusive Interview with the CEOs

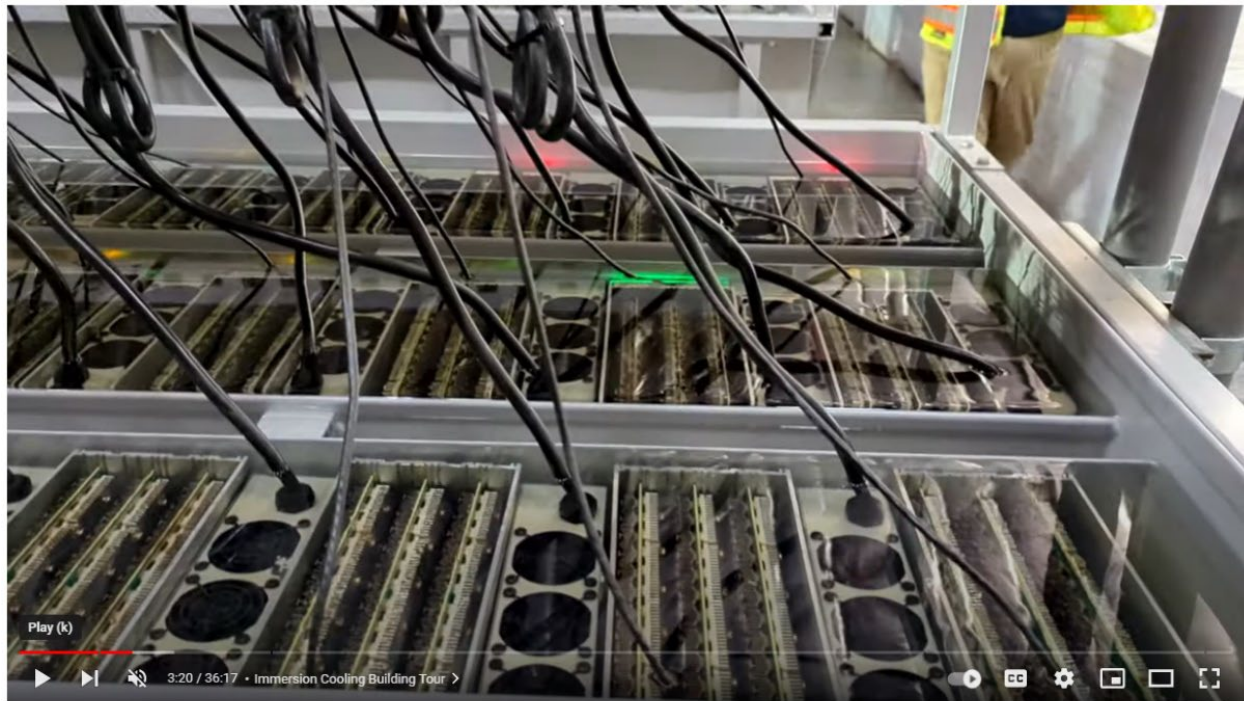
See Private Facility Tour Video.

53. In Riot's Accused Products, and as set forth in claim 20, the tank, at least one of the pumps, the coolant inlet, the coolant outlet, and the mounting members are configured such that the at least one pump moves at least a portion of the dielectric liquid coolant vertically across heat producing components of one of the rack-mountable servers in parallel flow with dielectric liquid coolant moved vertically across heat producing components of at least one other of the rack-mountable servers and such that dielectric liquid coolant that has been heated by heat producing components in multiple ones of the rack-mountable servers at least partially collects in a manifold area proximate to the surface of the volume of dielectric liquid. For example, Riot's Accused Products include pump(s), a coolant inlet, a coolant outlet, mounting members, and coolant configured as set forth above. In addition, and as shown in Riot's videos, the pump(s) move at least a portion of the coolant from the bottom of the tank vertically across the heat producing

components of the servers in parallel flow with coolant moved vertically across heat producing components of at least one other server:



See 700 MW Bitcoin Mining Facility Video.



Private Tour of Riot's MASSIVE Whinstone Bitcoin Mining Facility & Exclusive Interview with the CEOs

See Private Facility Tour Video.

54. As the coolant heats, it rises to the top such that the coolant moves vertically across the servers and at least partially collects in a manifold area proximate to the surface of the volume of dielectric liquid. This can be seen from the bubbling and overflow of fluid in Riot’s videos:



See Private Facility Tour Video.

55. Riot has infringed and is infringing, individually and/or jointly, either literally or under the doctrine of equivalents, at least claims 15-21 of the '914 Patent in violation of 35 U.S.C. §§ 271, et seq., directly and/or indirectly, by making, using, offering for sale, selling, offering for lease, or leasing in the United States, and/or importing into the United States without authority or license, the Accused Products as explained above. *See also* Riot 2023 10-K at 33 (Riot “generate[s] engineering and construction services revenue from the fabrication and deployment of immersion cooling technology for Bitcoin mining customers”).

56. Riot has been, and currently is, an active inducer of infringement of at least claims 15-21 of the '914 Patent under 35 U.S.C. § 271(b). Direct infringement is the result of activities performed by third party mining companies or suppliers of the Accused Products as detailed above.

57. On information and belief, Riot has and continues to induce infringement of the '914 Patent by actively and knowingly inducing others (including each other) to make, have made, use, sell, or offer for sale in the United States, or import into the United States the infringing immersion cooling systems or components that embody or use the inventions claimed in at least claims 15-21 of the '914 Patent. Riot has done so at least by providing directions, designs, and/or instructions to third party mining companies to make or use immersion cooling systems or components that are involved in the Accused Products. *See id.* (“[w]e provide energized space and operating and maintenance services to third-party mining companies who locate their mining hardware at our Rockdale Facility”). Riot has also done so at least by providing directions, designs, and/or instructions to suppliers to make immersion cooling systems or components that are involved in the Accused Products. *See id.* Riot performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '914 Patent and with the knowledge or willful blindness that the induced acts would constitute infringement.

58. On information and belief, Riot has knowledge of the '914 Patent. Shortly before selecting Midas for Riot's immersion cooling needs, Riot had discussions with a GRC partner about using GRC's patented systems. GRC's website takes care to explain that it holds numerous patents on its immersion cooling technologies. And Midas has been aware of GRC's patent portfolio since at least 2016 based on the prosecution history of Midas's U.S. Patent No. 10,405,457. Midas has also known of the '914 Patent family since at least 2022 because of ongoing litigation between Midas and Rhodium. On information and belief, Riot would have been made aware of the '914 Patent through at least one of these channels. Finally, should Riot contend that it did not have knowledge of the '914 Patent, this Complaint will serve as notice.

59. Allegations of Riot's knowledge of the '914 Patent and willful infringement will likely have additional evidentiary support after a reasonable opportunity for discovery.

60. Riot's infringement of the '914 Patent is willful and deliberate, entitling GRC to enhanced damages and attorneys' fees.

61. Riot's infringement of the '914 Patent is exceptional and entitles GRC to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

62. GRC has been damaged by Riot's infringement of the '914 Patent and will continue to be damaged unless Riot is enjoined by this Court. GRC has suffered and continues to suffer irreparable injury for which there is no adequate remedy at law. The balance of hardships favors GRC, and public interest is not disserved by an injunction.

63. GRC is entitled to recover from Riot all damages that GRC has sustained as a result of Riot's infringement of the '914 Patent, including without limitation, lost profits and/or not less than a reasonable royalty.

JURY DEMAND

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, GRC respectfully requests a trial by jury of any issues so triable by right.

PRAYER FOR RELIEF

Wherefore, GRC respectfully requests that this Court enter judgment in its favor and against Riot and respectfully requests the following relief:

1. A judgment that Riot infringed and continues to infringe the '914 Patent;
2. A judgment and order requiring Riot to pay GRC's monetary damages sufficient to compensate GRC for Riot's infringement of the '914 Patent, but in no event less than a reasonable royalty under 35 U.S.C. § 284;

3. An award of enhanced damages pursuant to 35 U.S.C. § 284;
4. An award of treble damages for willful infringement;
5. A judgment and order requiring Riot to pay GRC's pre-judgment and post-judgment interest on the damages award, to the full extent allowed under the law, as well as its costs;
6. A judgment and order finding this to be an exceptional case under 35 U.S.C. § 285 and requiring Riot to pay costs of this action and attorneys' fees;
7. A permanent injunction against all Riot products found to infringe the '914 Patent;
8. In lieu of an injunction, an award of a compulsory forward royalty;
9. An order for an accounting of damages; and
10. An award of such further relief as the Court may deem appropriate and just under the circumstances.

Dated: March 22, 2024

Respectfully submitted,

MICHELMAN & ROBINSON, LLP

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**ATTORNEYS FOR PLAINTIFF
GREEN REVOLUTION COOLING,
INC.**