

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SOLARIS OILFIELD SITE SERVICES OPERATING, LLC and SOLARIS
OILFIELD SITE SERVICES PERSONNEL, LLC,
Petitioners,

v.

MASABA, INC.
Patent Owner.

Case IPR2024-01179
Patent No. 11,780,689

DECLARATION OF JEREMY WEINSTEIN

1. My name is Jeremy Weinstein. I am a Senior Principal Mechanical Engineer for Solaris Oilfield Site Services Operating, LLC (“SOSSO”) and an employee of Solaris Oilfield Site Services Personnel, LLC (“SOSSP”) (collectively, “Solaris”). In this role, I am responsible for mechanical equipment design, and I manage mechanical research and development projects. I have held this role and worked at Solaris for the last 5 years. I am based at SOSSO’s headquarters in Houston, Texas.

2. I was the lead engineer for the projects to design and build the top fill bucket elevator system in SOSSO’s fleet, including the work and negotiations with Masaba, Inc. (“Masaba”) and Anchor Technical Services LLC (“Anchor”) to build a bucket elevator system for Solaris’s silos to be sold to SOSSO.

3. I have reviewed the declaration of Dan Brinkman and the declaration of Mike Stanton in this case, along with the exhibits attached to those declarations.

4. I received my bachelor’s degree in mechanical engineering from Texas Tech University in 1998 and my master’s degree in mechanical engineering from Texas A&M University in 2003. I am a Professional Engineer licensed by the Texas Board of Professional Engineers and Land Surveyors (PE #96573). I am also listed as an inventor on 10 U.S. Patents.

5. Before working at Solaris, I was an engineer for Baker Hughes from 2010 to 2020. At Baker Hughes I primarily designed stimulation equipment, including

hydration units, acidizing solutions, blenders, chemical additive equipment, pumps, and sand and cement equipment. From 2009 to 2010, I worked as an engineer at CH2M Hill in the pipeline and terminals group. From 2003 to 2009, I worked as an engineer at Halliburton where I designed stimulation equipment.

6. Prior to the project to design and build the Solaris top fill system, I had over 20 years of mechanical design engineering experience, including 17 years of oilfield specific experience in that area. Over the course of my career and in my time at Solaris, I have worked on various systems for handling and transferring frac sand and other particulate materials. For example, prior to that project, I worked as the primary design engineer on multiple pieces of oilfield equipment—most of which incorporates bulk handling systems such as feeders, conveyors, and belts. Some of those projects include the Halliburton FB4K Blender, the Halliburton Advanced Dry Polymer (ADP) Blender, the Baker Hughes Dry-on-the-Fly (DOTF) mobile hydration unit, and the Baker Hughes 125E trailer-mounted blender, as well as various pieces of sand and bulk cement equipment.

7. Since 2014, Solaris has delivered equipment and services for several aspects of oilfield services operations, including systems for transporting and handling materials used in hydraulic fracturing operations. In supporting hydraulic fracturing operations, Solaris provides solutions such as proppant management solutions (primarily for frac sand), fluid blending and management solutions, and

last-mile logistics. Since its inception, Solaris's proppant management solutions have focused on the use of silos for storing proppant such as frac sand at well sites, and services and equipment for transferring frac sand and other proppants into those silos from the trucks transporting those materials to the well sites. Prior to the work on the top fill bucket elevator system, Solaris had engineered numerous different designs of systems for moving proppant into silos, blenders, or other desired locations at a well site. Those systems incorporated various combinations of belt conveyors, pneumatic conveyors, chutes, and other mechanical components to transfer proppant to the desired location.

8. The original idea for the top fill system started at Solaris during the spring and summer of 2020. In May of 2020, I contacted Mike Stanton, the Business Development Manager at Anchor, and described the basic elements of the system that Solaris wanted: a series of conveyors to fill silos from an outlet at the top of the silo. On July 2, 2020, Mike Stanton sent me Anchor's initial proposal that included an inclined conveyor belt. This e-mail and its attachments were filed with this Declaration as **EX1116**. During our discussions about Anchor's proposal, we also discussed the idea of using a high-capacity corrugated incline belt like the one shown in paragraph 4 of Dan Brinkman's declaration (EX2006, ¶ 4). Mike Stanton sent an e-mail to me containing a brochure for Beltservice's corrugated sidewall belt, which is reproduced in **EX1117**. Solaris had also previously considered corrugated

sidewall conveyor belts of a similar configuration manufactured by various companies. All of this was before I had any contact with Masaba regarding the project.

9. In August of 2020, I began working with Masaba and Anchor to assemble the features that Solaris had requested into a design drawing. Mike Stanton sent me the preliminary concept drawing on August 13, 2020, which is shown in **EX1102**. As noted above, Solaris had suggested a corrugated sidewall belt for the inclined conveyor prior to this date. At this time, Anchor also suggested the possibility of using airslides for the extension at the top of the conveyor and pointed out Dynatek's articulated airslide systems (like those shown in with **EX1014** at pages 28–29) that included 2 slewing joints like the airslide system shown in **EX1102**. We noted that airslides were a commonly-used type of conveyor in the marketplace at that time.

10. In my experience, incorporating an articulated loader like the Dynatek conveyor systems into this system was an obvious way to more effectively reach the inlets at the top of the silos from the top of the conveyor. Articulated loaders with double slewing joints like the Dynatek EconoLoader were well known and commonly used for conveying bulk dry materials. For example, LeBlansch Vortex offered an articulating arm for locating a loading spout without moving the unloading vehicle since at least 2014. *See* **EX1126**, at 7. DCL has offered articulating positioning arms with conveyors which provide increased speed and

efficiency in dry bulk material loading since at least 2009. *See* **EX1127**, at 11. Another example of an articulated loader that existed before 2020 is Midwest International's Articuloader (at least 2001) (*see* **EX1128**).

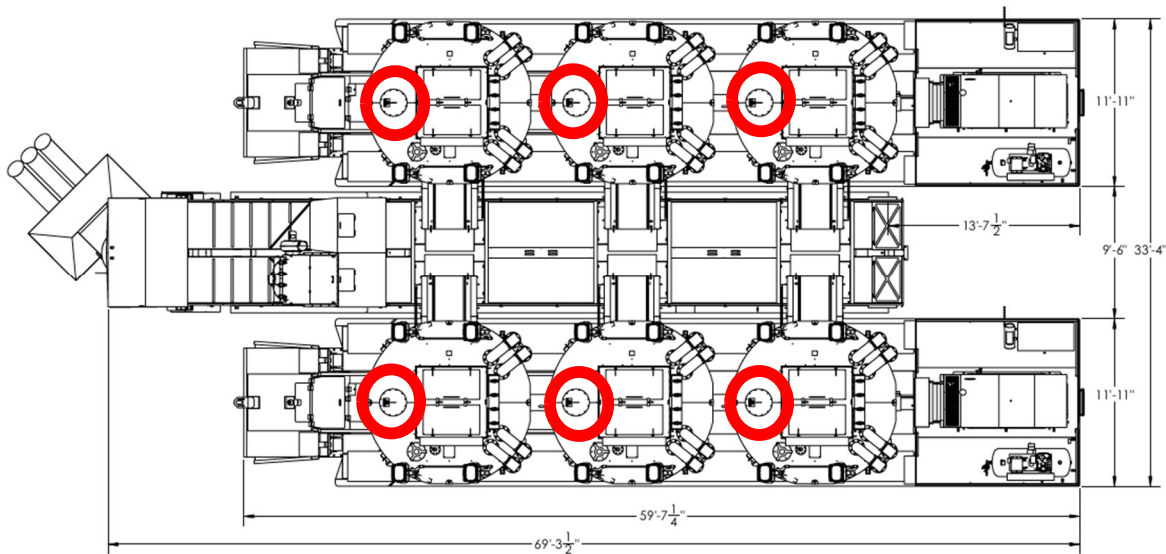
11. Other Solaris employees and I reviewed the articulated loader concept, and because it was well known and commonly used, we approved Masaba and Anchor using a loader like the Dynatek conveyors in the system they were designing for Solaris.

12. Masaba's August 13, 2020 drawing also showed the truck unloader as a separate piece of the system, which was Masaba's original design. By the end of September 2020, however, I suggested to Mike Stanton that we might incorporate the truck unloader into the system with the inclined conveyor, and told Mr. Stanton that we wanted to discuss that among other features at a subsequent meeting with Masaba. My e-mail to Mike Stanton about that issue is reproduced in **EX1118**. I sent this e-mail in the ordinary course of my work at Solaris to document the issues we wished to discuss with Masaba on this project, and I have maintained it in my e-mail records in the ordinary course of my work.

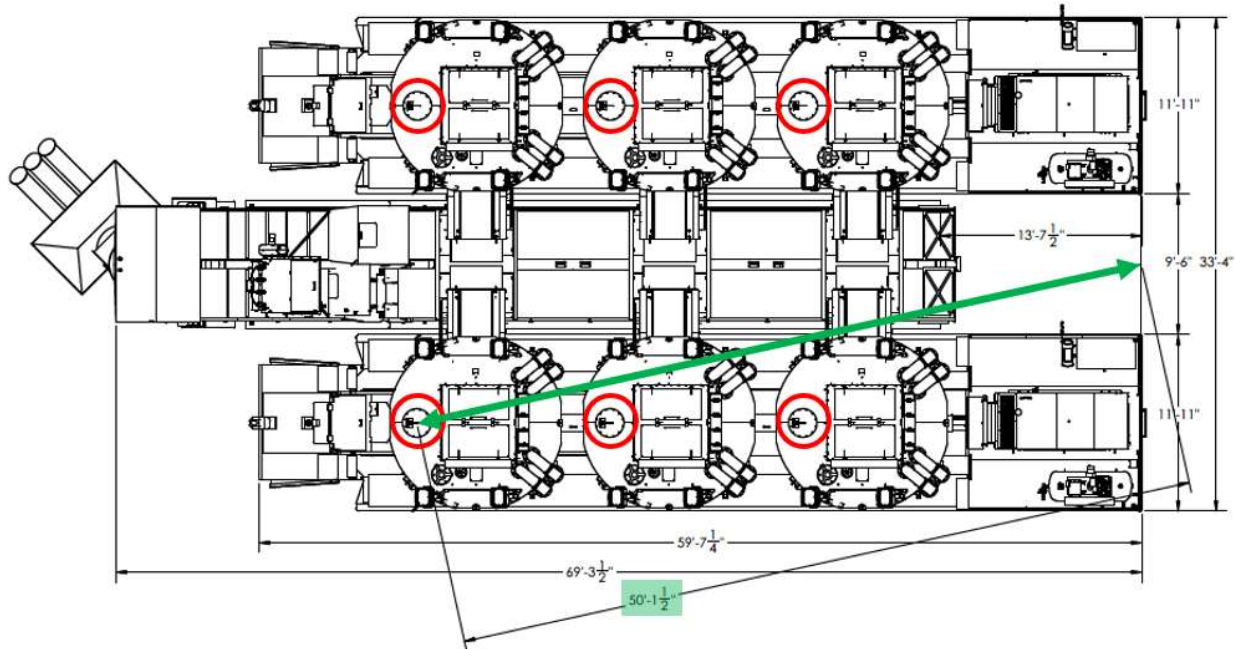
13. Solaris provided Masaba and Anchor with information regarding the specifications and dimensions for the top fill system during the fall of 2020. For example, in October 2020, I sent Mike Stanton a specification that included the desired dimensions for the system at that time, such as the maximum collapsed

height of 13'6", maximum collapsed width of 8'6", and a maximum total weight of 80,000 lbs. This specification and my e-mail sending it are shown in **EX1104**. I sent the specification and e-mail in the ordinary course of my work at Solaris to document the desired specifications for the system, and I have maintained it in my e-mail records in the ordinary course of my work.

14. Additionally, Solaris sent drawings of Solaris's pre-existing equipment to Masaba and Anchor for their use in creating drawings. An e-mail to Mike Stanton at Anchor showing an instance when Solaris sent engineering drawings of its silo equipment as early as May 2020 is reproduced in **EX1124**. This e-mail was sent in the ordinary course of work at Solaris on this project, and I have maintained it in my e-mail records in the ordinary course of my work. Before the top fill system was designed, Solaris typically provided a set of six silos in a standardized arrangement (sometimes called a "six pack"), which is illustrated on the first page of those drawings. The fill ports for those silos are circled in red below. Solaris still uses a similar six pack arrangement of silos today. The system for filling these silos would need to be deployed around the perimeter of the six pack shown below.



15. I also sent 3D CAD files of Solaris's standard arrangement of silos to Dan Brinkman at Masaba in early December 2020. Mr. Brinkman's request for these CAD files is shown in an e-mail reproduced in **EX1125**. The 3D CAD files could be opened on a computer and used to measure any dimension relating to Solaris's silo six pack, including the silo's height and the distance to the fill port for each silo. For example, the lateral distance between the location where the top of the inclined or elevating conveyor would be and the fill port for the farthest silo in the six pack can be measured on these files and is 50 feet, 1.5 inches, as shown in green below. *See EX1129*. The dimensions from these files were useful for determining various dimensions of the top fill system.



16. For example, the height of Solaris's silos dictated the total height of the top fill system and its bucket elevator in its operational configuration. The dimensions of the silo six pack and the locations of the fill ports on the silos dictated the necessary reach and range of motion of the loader at the top of the bucket elevator. The dimensions and specifications for the unloader and its ramps were dictated by the size of the trucks that dump frac sand onto the unloader belt.

17. In December 2020, I recall Jason Brenden (of Masaba), Dan Brinkman (of Masaba), Mike Stanton (of Anchor) and Dan Trantham (of Anchor) also visited a Solaris job site in South Texas to observe Solaris's silos so they could build the top fill system to fit Solaris's silos' dimensions and requirements.

18. I have reviewed the statements that Mike Stanton attributed to me in paragraph 4 of and Appendix A to his declaration. However, I do not recall telling

Mike Stanton or anyone else that Solaris needed the new top fill system that Masaba was building “in order to gain back market share.” *See* EX2006, ¶ 4 & App. A. The new top fill system certainly was an important project for Solaris, and the market for proppant delivery was starting to move away from pneumatic systems (which used air to blow proppant up to the top of the silo) and toward gravity-fed, belly-dumping systems. But I did not say to Mike Stanton or anyone else that I believed Solaris had lost market share or that Solaris needed the new top fill system to gain back market share.

19. I understand that Dan Brinkman and Mike Stanton both stated that Solaris representatives stated that bucket elevators did not have a good reputation in the oil field. However, we were not skeptical of the functionality of bucket elevators because we knew of other companies like ForeSite, Schlumberger, and NOV who were successfully using bucket elevator systems to fill silos at frac sites. We only believed that bucket elevators require more maintenance and were known not to dissipate heat well. But we also knew that, generally speaking, bucket elevators could transfer sand at a much faster rate as compared to most pneumatic systems.

20. In fact, in December 2020 I communicated to Mr. Stanton some ideas based on existing silo filling systems that we were open to using. One system I suggested looking into was the ForeSite system which had a vertical “tower” elevator and a telescoping belt conveyor. This communication is reproduced in

EX1119. I sent this e-mail in the ordinary course of my work at Solaris to document the ideas we wished to discuss with Masaba on this project, and I have maintained it in my e-mail records in the ordinary course of my work. That was a month before the January 12, 2021 drawing shown in paragraph 9 of Mr. Brinkman's declaration (EX2005, ¶ 9). I was also aware of NOV's portable sand silos that each contained an internal bucket elevator, which I had first observed in 2013.

21. I instructed Masaba to begin work on the design incorporating a vertical bucket elevator in January 2021. Solaris wanted to get these systems deployed in 2021, and at that time Masaba had been unable to get the design with the corrugated belt conveyor to work at the angle we wanted. So, Solaris was willing to try the vertical bucket elevator design instead. When I provided these instructions to Masaba, I emphasized that the delivery schedule was of primary importance to Solaris.

22. Shortly after this instruction, Jason Brenden, a Design Engineer at Masaba, sent me a schematic showing potential loading areas and orientations of the system as well as a brochure for the Dynatek belt-based EconoLoader having an articulated belt conveyor. Mr. Brenden told me that Masaba was "looking to put something like the EconoLoader at the top of the bucket elevator and make it long enough to reach all six silos without modifying the silo ports." This e-mail and its attachments are reproduced in **EX1120**. I have maintained this email in my e-mail

records in the ordinary course of my work at Solaris. I understood Mr. Brenden's statement to mean that Masaba was going to use an articulated belt conveyor like the Dynatek EconoLoader to provide more range of motion so the unit could fill all six silos in Solaris's standard six pack arrangement without repositioning the entire unit. This was consistent with Solaris's prior approval to Masaba and Anchor to consider the Dynatek EconoLoader designs because it contained elements like a conveyor and slew gear which we knew were commonly and widely used in the industry at that time. And that is how Masaba proceeded to implement the design—incorporating an articulated double slewing conveyor belt loader like the Dynatek EconoLoader at the top of the vertical bucket elevator.

23. During the course of the design process, Masaba was not able to conform the collapsed dimensions and total weight of the system to the ones we sent in October 2020. Through several meetings with Masaba, Solaris advised Masaba on the legal transport limits, and those limits ultimately determined the final collapsed dimensions of the unit. The completed unit had a collapsed height of 14', collapsed width of 12', and total weight of 100,000 pounds.

24. On February 23, 2021, Solaris issued a purchase order for the first unit, a copy of which is shown in **EX1107**. The shipping release date was May 19, 2021. The promptness of delivery was especially important because Solaris wanted to get the units out in the field for customer use quickly.

25. At some point during the design process, Solaris had discussions with Masaba about belt mistracking, because it was a known potential issue for conveyor belts that were not completely level side-to-side. However, the features mentioned in paragraph 14 of Dan Brinkman's declaration that Masaba used to address those issues were already known solutions to that problem at the time of the project. *See* EX2005, ¶ 14. First, using outriggers to make a conveyor belt substantially level and stable was a common solution for this problem and was used in other systems. Second, the guy wires do not increase stability nor do they make the conveyor system more stable. Third, hydraulically actuated lock pins (which were known) were simply used to hold the conveyors in place, and there is nothing unique about the hydraulically actuated aspect that helps avoid belt mistracking. Finally, using guide rollers to guide the belt and prevent mistracking was a known way to avoid belt mistracking. For example, I understand from Solaris' engineering records that Solaris used guide rollers on its sand silo shuttle belts by the end of 2012, and guide rollers were a readily available item that could be purchased from industry suppliers' catalogs before 2020.

26. On April 6, 2021, representatives from Solaris, Masaba, and Anchor met at Masaba's Vermillion, South Dakota facility to learn more about Masaba's capabilities and discuss the work on the system. Greg Garcia, Michael Bertrand, Kelly Price, and I attended on behalf of Solaris. My supervisor, Scott Lambert, did

not attend this meeting. In attendance for Masaba were Andrew Wells (sales), Jared Higman (CEO), Jim Peterson (President), and Dan Brinkman. In attendance for Anchor were Mike Stanton and Dan Trantham (President).

27. Initially, the Solaris representatives were given a tour of the Masaba facility to see Masaba's fabrication and manufacturing capabilities. Afterwards, we met in a conference room, and Masaba told us that they expected to deliver the first unit by end of June 2021. We also discussed purchasing additional units, and Masaba confirmed they were interested in building more units by the end of 2021 and were reserving space at their facility to do so.

28. In June 2021, I went to another meeting at Masaba's facility with representatives from Masaba and Anchor. Masaba was behind schedule for completion of the first unit. We met with Masaba because we wanted to get the first unit as soon as possible. During this time, Mike Stanton repeatedly confirmed to me that he was "doing everything possible" to move the project along. *See* **EX1109**.

29. On June 2, 2021, Solaris issued a purchase order for a second unit, as shown in **EX1108**. The purchase price for this second unit was significantly higher than the purchase price of the first unit. Solaris issued this second purchase order in order to demonstrate Solaris's good faith intentions to purchase additional units even though Masaba had not completed the first unit. The second unit was originally scheduled to be delivered in October 2021; however, due to delays in delivering the

first unit, the delivery schedule for the second unit was further delayed, and ultimately that second unit was never delivered.

30. Kelly Price, Michael Bertrand, Scott Lambert, and I went to Masaba's South Dakota facility to see the first unit tested on Friday, July 30, 2021. Unlike our April 6th visit, the atmosphere at Masaba's facility felt unwelcoming. Masaba representatives would not allow us to enter their building where the unit was held, and instead insisted that they bring the unit out of the building for all testing. The other Solaris representatives and I were only allowed to view the testing from a distance even though the test only consisted of pulling the system out, standing it up, and running the conveyors and bucket elevator.

31. The other Solaris representatives and I attended further testing at Masaba on August 1, 2021. For this test, Masaba took the system out and ran sand through it.

32. Another reason the July 30th test felt unwelcoming was because Mike Stanton was supposed to meet me and the other Solaris representatives at the Masaba facility for the testing, but when we arrived that morning, Mr. Stanton sent me a text message stating that someone else would meet us because he was "having some issues." A screenshot from my phone of that text message from Mr. Stanton is reproduced in **EX1122**. Dan Trantham later told me that Mr. Stanton was having a stress-related issue that day that prevented him from coming out to meet us because

he needed to rest. Either Mr. Stanton or Mr. Trantham later told me that Mr. Stanton had received medical treatment around that same time related to stress issues. Particularly in dealing with the delays throughout this project, Mr. Stanton seemed to be experiencing a great deal of stress, which was confirmed by what I learned about Mr. Stanton's whereabouts that day.

33. I understand that in his declaration, Dan Brinkman said that the unit Masaba built was marked "patent pending" in several places at the testing. *See* EX2005, ¶ 20. I do not recall seeing any "patent pending" marks during my trips to Masaba for the manufacturing and construction of the unit before it was tested. Similarly, I don't believe I could have observed any "patent pending" marks during the July 30th testing because Masaba kept us at a considerable distance from the system. During the August 1st sand test, I recall observing some "patent pending" marks only on the truck unloader, but nowhere else on the system.

34. I understand that in his declaration, Mike Stanton stated I was "impressed and excited" by the results of the tests of the Masaba unit and that "no one I was aware of that could have designed it." *See* EX2006, ¶ 9. At that time, I was impressed that Masaba had both engineering and manufacturing capabilities in-house. Many other vendors that I had worked with focused only on engineering, or alternatively, only on manufacturing, but often did not have significant capabilities in both areas. I believed that the combination of those capabilities was relatively unique and helped

Masaba to turn Solaris's design into engineering drawings and build the first unit more quickly than what a combination of other companies could have done. I was not impressed by any particular design of Masaba, because it was based on substantial direction from myself and others at Solaris and obvious design choices. Despite having engineering and manufacturing capabilities under one roof, I was ultimately not impressed by Masaba because of its failure to meet deadlines and the system that it built failed due to basic design flaws, which are discussed further below.

35. Masaba was finally ready to deliver the first unit in late August 2021—three months later than the shipment date in the purchase order and two months later than Masaba had promised at the April 6th meeting. While transporting the unit to Texas on August 24, 2021, the unit was involved in an accident just south of the Hebron Weigh Station on Highway 81 in Thayer County, Nebraska. As I later learned, an axle broke in the middle of the highway and the wheels fell off, which caused the entire unit to crash and drag along the highway. Pictures that were sent to me by Joseph Markward, a Solaris employee, showing the unit on the highway with the wheels off are reproduced below:



36. Solaris immediately sent one of its employees, Joseph Markward, to the

crash site in Nebraska. Masaba arranged for recovery of the unit, but I am not aware that Masaba sent any representatives to the crash site. We later learned that the cause of the accident was that Masaba chose an axle that was designed to only accommodate 2 wheels mounted in line with the axle, but Masaba mounted 4 wheels offset from the axle. In my experience, this was a basic design error that most competent engineering companies would not have made in a project of this significance.

37. Once the damaged unit was brought back to Masaba's facility, it had to be rebuilt and repaired. However, Masaba had stopped prioritizing the work on the unit and dedicating resources to it. During one of my visits to Masaba's facility during the rebuild, Sheldon Watterson, a Project Manager at Masaba, told Mike Stanton and me that the project for Solaris was no longer a priority for Masaba, and they had other customer projects that were taking priority for shop space. Anchor supplied much of the manpower for repairs, and essentially took over the rebuild and repair of the damaged unit. An e-mail from Mr. Stanton reporting on the status of these repairs is reproduced in **EX1121**. Solaris also built and furnished many of the parts for the repair at its own expense, and Solaris was never reimbursed for these costs.

38. Around that same time, Anchor's President Dan Trantham told us that he thought Masaba was "worn out". He said that he thought Masaba was "extremely embarrassed" because of the failure of the axle that caused the damage, and that the

incident had “nearly broke them emotionally”. An e-mail from Mr. Trantham reporting on the status of these repairs is reproduced in **EX1123**.

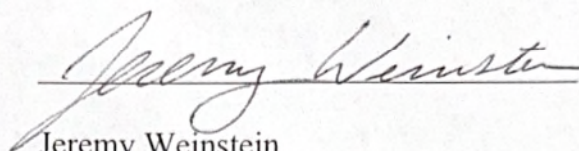
39. In view of the above and Masaba’s history of problems, extended delays, and eventual unwillingness to prioritize the project, and unwillingness to agree to a reasonable price to build additional units, Solaris decided that we could no longer depend on Masaba to build these units for Solaris.

40. All statements made herein of my own knowledge are true, and all statements made on information and belief are believed to be true. I further understand that willful false statements and the like are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code. I declare under penalty of perjury that the foregoing is true and correct.

Declaration of Jeremy Weinstein
IPR of USP 11,780,689

I, Jeremy Weinstein, declare under penalty of perjury that the foregoing statement is true and correct.

Executed on July 24, 2025.

A handwritten signature in cursive script, reading "Jeremy Weinstein", written over a horizontal line.

Jeremy Weinstein
Senior Principal Mechanical Engineer
Solaris Oilfield Site Services Operating,
LLC