

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HALLIBURTON ENERGY SERVICES, INC.,
Petitioner

v.

U.S. WELL SERVICES, LLC,
Patent Owner.

IPR2023-00558
Patent 11,136,870 B2

Record of Oral Hearing
Held: June 27, 2024

Before LYNNE H. BROWNE, GEORGE R. HOSKINS, and
SEAN P. O'HANLON, *Administrative Patent Judges*.

IPR2023-00558
Patent 11,136,870 B2

APPEARANCES:

ON BEHALF OF THE PETITIONER:

ELIZABETH D. FLANNERY, ESQUIRE
CHAD C. WALTERS, ESQUIRE
BRANDON CHEN, ESQUIRE
Baker Botts L.L.P.

ON BEHALF OF THE PATENT OWNER:

BRIAN E. FERGUSON, , ESQUIRE
MATTHEW HOPKINS, ESQUIRE
J. TYLER BOYCE, ESQUIRE
Winston & Strawn LLP

The above-entitled matter came on for hearing on Thursday,
June 27, 2024, commencing at 1:00 p.m., at the U.S. Patent and Trademark
Office, 600 Dulany Street, Alexandria, Virginia.

P R O C E E D I N G S

- - - - -

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

JUDGE HOSKINS: This is Administrative Patent Judge George Hoskins with the U.S. Patent and Trademark Office. So, good morning or good afternoon, depending on where you find yourself here today. This is a hearing for oral argument in inter partes review number 2023-00558. The patent at issue here is U.S. Patent 11,136,870. I'm joined today by my two colleagues on the panel for this case, and so they are Judge Lynne Browne and Judge Sean O'Hanlon.

So, with that brief introduction, let me get some appearances from the parties, please. And we'll start with Counsel for Petitioner, please. I think you're muted, ma'am.

MS. FLANNERY: All right. Is that better?

JUDGE HOSKINS: It is. Thank you.

MS. FLANNERY: Thank you. My apologies for that. This is Liz Flannery from Baker Botts for the Petitioner. Here with me is also Lori Ding, who's Counsel for Petitioner as well. And I believe we have one more on the line for Petitioner.

JUDGE HOSKINS: Thank you. So, our Petitioner is Halliburton Energy Services, correct?

MS. FLANNERY: That's correct, yes.

JUDGE HOSKINS: Okay. Thank you. And so, will Counsel for Patent Owner please make an appearance?

MR. FERGUSON: Matt?

1 MR. HOPKINS: Oh, sorry. Matthew Hopkins, on behalf of Patent
2 Owner. With me is Brian Ferguson, Lead Counsel. And with me in the
3 room is also Scott Border.

4 JUDGE HOSKINS: Okay, so Mr. Hopkins, and yeah, so, the Patent
5 Owner then is U.S. Well Services, LLC, right?

6 MR. HOPKINS: That is correct, Your Honor.

7 JUDGE HOSKINS: All right, so you're our LEAP person today. Are
8 you going to be the principal arguer as well, Mr. Hopkins?

9 MR. HOPKINS: Yes, Your Honor. That's correct.

10 JUDGE HOSKINS: Okay, great. So, thank you for that and
11 welcome to the Board, everyone. I'm going to try to keep my introductory
12 comments brief. We have two experienced counsel on this case, and I don't
13 want to waste time on kind of routine stuff, but there are a couple points we
14 need to go over before we turn to argument.

15 The first is a few days ago, Patent Owner filed some objections to
16 three of Petitioner's demonstrative exhibits. We've reviewed those
17 objections, but we're not going to rule on them today. So, Ms. Flannery, you
18 can talk about those slides and the material on those slides, but the
19 objections are of record. And if we get to a patentability issue in the final
20 written decision that implicates what's on those slides, Mr. Hopkins, we will
21 turn to your objections and then we'll kind of see what happens at that point
22 in time. But for purposes of today's hearing, it's fair game and counsel can
23 talk about it and also talk about whether or not it's new on those issues. So,
24 that's point number one.

25 Point number two is the time allotted. We have 45 minutes for the
26 Petitioner and then 60 minutes for Patent Owner because of our LEAP

1 provisions. Given the relatively short time, the Panel intends to march right
2 on through without taking any breaks. Having said that, if somebody really
3 needs a break in between Patent Owner's argument and then Petitioner's
4 rebuttal, we'll give you a little opportunity to speak up at that time. But
5 we're really hoping to just march on through if that's possible for people to
6 do today.

7 And then also along those lines, we will be keeping track of your
8 time. We'll ask for any sort of reservation or rebuttal when you begin your
9 principal argument. That reservation is not set in stone. It's just a point
10 where when you get to that point in your allotted time, we'll give you a
11 reminder. You'll have the option at that point in time to continue your
12 principal argument if you want, or reserve the complete reserve time for
13 rebuttal. But if you do continue, of course, that reduces your time for
14 rebuttal.

15 Okay, those are my introductory comments. And so, let me just ask if
16 there are any questions about the procedure today. And I'll start with Ms.
17 Flannery, please?

18 MS. FLANNERY: No, I don't have any further questions, Your
19 Honor. Thank you.

20 JUDGE HOSKINS: Thank you. And Mr. Hopkins?

21 MR. HOPKINS: No further questions, Your Honor.

22 JUDGE HOSKINS: Thank you. So, then, Ms. Flannery, of your 45
23 minutes, would you like to reserve any of that time for rebuttal?

24 MS. FLANNERY: Yes, I'd like to reserve 15 as you indicated. It
25 may turn into more like 12 or 13, but I'd appreciate that warning at 15
26 minutes left.

1 JUDGE HOSKINS: Okay, 15 minutes. We'll give you a little
2 reminder and so you are free to begin your argument when you're ready.
3 And when you are ready, we'll start the clock on our end.

4 MS. FLANNERY: Okay, excellent. I'll get my slides up on the
5 screen share just to start.

6 JUDGE HOSKINS: We can now see that.

7 MS. FLANNERY: Thank you very much. I appreciate that. And so,
8 therefore, I'll begin. May it please the Board. My name is Liz Flannery. I'm
9 pleased to represent the Petitioner, Halliburton Energy Services, in this
10 hearing. And I just wanted to thank the Board for your time so that we can
11 talk about this matter with you today. I'm going to start on slide 4, with a
12 quick overview of the '870 Patent that's at issue here. The earliest priority
13 date that the '870 Patent claims is November 16, 2012. All of the prior art
14 references that we are relying upon predate that, and there is no dispute that
15 they qualify as prior art to the '870 Patent.

16 Moving to the independent claims, there are three independent claims.
17 Two of them are up here on the screen on slide 5. Claims 1 and 4 -- well, so
18 all of the independent claims of the '870 Patent are directed to methods or
19 systems for hydraulically fracturing underground formations. And all of
20 those claims require at least the elements of having pumps that are attached
21 and driven by electric motors, and then also a variable frequency drive or a
22 VFD, as we'll call it, that's connected to drive the motor. Claims 1 and 4
23 also include the additional requirement that the VFD performs electric motor
24 diagnostics to prevent damage to the one or more electric motors.

25 Independent claim 7 is a system claim. Similar base elements, but on
26 the variable frequency drive instead of requiring that it perform electric

1 motor diagnostics, the claim 7 requires that it have one or more power
2 semiconductor heat sinks, having thermal sensors that are monitored by a
3 microprocessor to prevent damage caused by excessive heat.

4 And so, moving to slide 10, we'll give a quick overview of the
5 grounds that we have against these claims. All of our grounds rely upon the
6 Coli reference for the elements of the electric motors, the pumps, and its
7 mention of the VFD. In all of those grounds, we combine Coli with one of
8 Toshiba Manual, Horikoshi, or Loucks, because those three references
9 disclose elements about the VFD, such as the electric motor diagnostics or
10 the heat sinks with thermal sensors.

11 And so, moving to slide 12, a quick overview. There's a number of
12 elements that aren't disputed between the parties in this IPR, but the
13 elements that are disputed are as follows. First, the parties dispute whether
14 the various prior art references disclose electric motor diagnostics or the heat
15 sinks with thermal sensors as required in the various claims. Patent Owner
16 also disputes whether there would have been a motivation to combine the
17 Coli reference with either Toshiba Manual or Loucks. And then they also
18 dispute a few elements on a few of the dependent claims, whether Coli
19 discloses those elements. We'll address those if we have time at the end.

20 And so, moving to slide 14, we'll talk about the first dispute, whether
21 or not the prior art discloses electric motor diagnostics as required in claims
22 1 through 6. And we have two different grounds on this. In ground 1, we
23 rely on the Toshiba Manual reference for its disclosure of electric motor
24 diagnostics, and in ground 2, we rely on the Horikoshi reference for that.

25 So, moving to slide 16, we'll first talk about the Toshiba Manual
26 reference. So, Toshiba Manual, which is Exhibit 1006 to our petition, is an

1 operating manual for a certain model of what's called an adjustable speed
2 drive. The parties agree that that's just another word for a variable frequency
3 drive, a VFD. So, there's no dispute on that.

4 Moving to slide 17, there's also no dispute that the VFD of Toshiba
5 Manual is designed to control the speed of a motor, and that can, in turn, that
6 motor, in turn, can power fans or blowers, or, relevant to this patent, pumps.
7 And so, moving to slide 18, Toshiba Manual also discloses that its VFD has
8 the ability to, as is shown here on the right, perform diagnostics. Toshiba
9 Manual includes a fault screen, which is shown here on the left, that
10 identifies the active fault that has been identified when the device performs a
11 diagnostic.

12 And then, moving to slide 19, Toshiba Manual includes a table. This
13 is at pages 182 through 186 of Toshiba Manual, table 12, that lists all of the
14 different kinds of faults that can be displayed on that fault screen. And in
15 that chart, it shows the possible causes of each of those different faults. This
16 slide, slide 19, we show a couple of selected faults that all relate to issues
17 that there might be with the motor. But I'd particularly draw the Board's
18 attention to the fourth one on the list, which is the motor overload fault.
19 Toshiba Manual specifically discloses that that fault may be caused by the
20 motor being locked or the load requirement of the motor being exceeded.
21 And so, we would submit that those and all of the others that we've
22 identified and qualify as motor diagnostics. Electric motor diagnostics.

23 And in slide 20, here again, Toshiba Manual on the right discusses
24 that overload protection falls a little bit further, and it specifically discloses
25 that that motor overload fault, the function of it is to protect the motor from
26 damage that could be caused from the overload. And then here on the left,

1 Petitioner's expert, this is the testimony that he discussed how this fault and
2 other types of faults that were listed in table 12, some of them can result in a
3 trip, and that trip is intended to stop the operation of the device to prevent
4 further damage to the electric motor.

5 So, moving on to slide 21, Patent Owner's only response, only dispute
6 on this depends on their proposed construction of electric motor diagnostics.
7 In their preliminary response, the Patent Owner had argued that electric
8 motor diagnostics required, as claimed, required that the VFD actually has to
9 interrogate the motor directly. The Board rejected that in the Institution
10 Decision, namely because there wasn't any support in the specification or
11 file history for such a construction. In their Patent Owner response, the
12 Patent Owner has sort of taken that same concept and rewarded it into a
13 different construction that they propose. Here, they propose that electric
14 motor diagnostics should be construed as diagnostics for the electric motor
15 alone. The Board should reject this construction for exactly the same
16 reasons. It's kind of, I think it's kind of the same concept that they were
17 getting at in the prior, in their POPR, but they're simply stating they're going
18 to, rather than saying affirmatively what has to happen with the VFD, they're
19 saying, well, to the exclusion of other potential components.

20 But similarly, there's no support in specification for such an
21 exclusionary construction. In their briefing here on the right, they say that
22 this is in view of the specification and file history, but it's notable that they
23 don't actually cite anything in the file history that supports such an
24 exclusionary construction. They cite their expert's testimony here in Exhibit
25 2002, but he simply parrots that construction. He doesn't explain why that

1 construction would be required or why a person of skill in the art would
2 understand it.

3 And moving on to slide 22, in fact, Petitioner's expert flatly rejected
4 this construction. He was asked about it during his deposition and he
5 explained that even though it says electric motor diagnostics, that doesn't
6 mean to a person of skill in the art that it is to the exclusion of other
7 components. As long as the electric motor is in some way involved, a part
8 of what is being diagnosed, then that would be sufficient for the plain
9 meaning of this phrase.

10 So, moving on to ground 2, this is where we rely on Horikoshi as
11 disclosing electric motor diagnostics. And moving on to slide 24, there's no
12 dispute in the case that Horikoshi discloses at least one electric motor
13 diagnostic. Patent Owner doesn't dispute that. Instead, they narrow the
14 meaning, the plain meaning of this term, electric motor diagnostics, to
15 require multiple different types of electric motor diagnostics. It's important
16 to note Patent Owner still has not sought a claim construction in any of their
17 briefing or so far on this issue. They've constantly said that they're relying
18 on the plain meaning that the language just simply says that, well,
19 diagnostics is plural, so it must be multiple.

20 However, even under that plain meaning, first of all, going back to
21 what we talked about, there's no dispute that Toshiba Manual discloses
22 plural electric motor diagnostics, whatever the appropriate meaning of that
23 is. But electric motor diagnostics, if we're operating under the plain
24 meaning, that could mean that could be satisfied by multiple types of
25 diagnostics, but it also could mean and could be satisfied by multiple
26 iterations of the same diagnostic. Either one of those should satisfy the plain

1 meaning, and the Patent Owner simply hasn't justified or sought a
2 construction of that phrase otherwise.

3 And moving to slide 26, we see that Horikoshi does disclose multiple,
4 performing an electric motor diagnostic multiple times. Petitioner's expert
5 talked about how Horikoshi discusses that it performs its fault diagnostic
6 functions during operation. And what that means to a person of skill in the
7 art is that when we're talking about during operation, that means that you're
8 going to be performing the diagnostic more than once over the life of the
9 VFD. So, that meets the plain meaning of this phrase.

10 Another point to note on slide 28 here, the Board actually considered
11 Horikoshi and considered whether it disclosed exactly the same term,
12 electric motor diagnostics. This was in a cousin patent to the '870 Patent. It
13 was the '601 Patent. The final written decision on that was attached as
14 Exhibit 1048 to our petition. And there the Board found that Horikoshi
15 disclosed exactly the same limitation. Patent Owner's only dispute about
16 this, they talk about this in their sur-reply on page 17, is that, well, the Board
17 just didn't consider this issue; they didn't consider whether they were plural
18 diagnostics. But here again, there's not been any claim construction sought.
19 Patent Owner is arguing that this is required by the plain meaning of electric
20 motor diagnostics. Presumably the Board applied the plain meaning of
21 electric motor diagnostics in that other IPR. And so, if we're still supposed
22 to be applying the plain meaning, the exact same analysis should apply. If
23 Patent Owner is relying on a construction of electric motor diagnostics, they
24 waive that. They've not asked for a construction of that, at least on this
25 plurality issue, that their construction dealing with diagnostics alone is.

26 JUDGE HOSKINS: Ms. Flannery?

1 MS. FLANNERY: Yes.

2 JUDGE HOSKINS: This is Judge Hoskins again. It's my
3 understanding that that other case, IPR2021-01033, I think it is, is currently
4 on appeal to the Federal Circuit still. Is that correct?

5 MS. FLANNERY: That is my understanding, yes, sir.

6 JUDGE HOSKINS: Do you have any -- do you know whether oral
7 argument has been held in that? I'm trying to get a handle on when a
8 decision might be coming out of the Federal Circuit. That's my basic
9 question.

10 MS. FLANNERY: I do not. That is something that we can
11 potentially look at, or my colleague, Mr. Walters, who I believe argued in
12 that IPR, if it would be okay to allow him to answer that question.

13 JUDGE HOSKINS: That'd be great. Thank you.

14 MR. WALTERS: Your Honor, oral argument has not been scheduled
15 in any of those IPRs' appeals.

16 JUDGE HOSKINS: Great. Thank you very much.

17 MS. FLANNERY: Excellent. Well, we'll move on to slide 29, which
18 highlights the next disputed issue in the IPR. Whether there is a motivation
19 or rationale to combine Coli with Toshiba Manual, as is in ground 1 of our
20 IPR.

21 And so, just moving to slide 30, just to reorient the Board to Coli. As
22 we talked about, Coli, no dispute discloses an electrically powered fracturing
23 system. And it talks about how in that system, electric motors are used to
24 power the pump. And those electric motors are controlled by VFDs. It
25 specifically says that. But Coli doesn't provide a lot of detail about how the
26 VFD operates.

1 And so, moving to slide 31. Based on this, in our briefing, we
2 presented two reasons why, based on this culling, this teaching in Coli, a
3 person of skill in the art would have combined in some way Coli with
4 Toshiba Manual. And we provided two different ways of doing that. The
5 first one is that a person of skill in the art would find it obvious to substitute
6 VFDs that are used in Coli with Toshiba Manual's VFDs.

7 The second theory that we presented is that a person whose skill in the
8 art, even if they're still using that same VFD that's in Coli, they would at
9 least be motivated to enhance its functionality with some of the
10 functionalities in Toshiba Manual, either the diagnostic functionality that we
11 talked about or the temperature monitoring functionality that we are going to
12 talk about described there. On the second of those rationales, Patent Owner
13 doesn't actually dispute any of the evidence. They simply say that the
14 argument and the expert testimony that we presented on that was conclusory.
15 Our position is that it's not. And we're going to go through the expert's
16 testimony. But he explained how this combination would be applying a
17 known technique in Toshiba Manual fault detection or temperature
18 monitoring to predictably improve the VFD of Coli in the same way. And
19 so, that was his basis. And he walks through exactly why he thinks that.

20 Slide 32 has some testimony from our expert where he notes that
21 Toshiba was a manufacturer of electric motors and in fact actively marketed
22 their motors in the oil and gas industry. He cites evidence for that. He also
23 notes his own personal experience that Toshiba had actively participated in
24 industry organizations to develop electrical equipment for the oil and gas, in
25 the petroleum industry. Patent Owner doesn't dispute any of that.

1 And then when we go to Slide 33, our Petitioner's expert, Dr. Durham,
2 he notes that Coli, again, he notes that Coli mentions using a VFD, and that
3 Coli also discloses paragraphs 65 and 66, that the VFD and the motor
4 operations need to be controlled and they need to be monitored. So, based
5 on that need expressly described in Coli, a POSITA would have needed to
6 look to literature like Toshiba Manual to find how they would monitor the
7 VFD. For example, using diagnostics to prevent damage to the electric
8 motor or techniques to prevent overheating that would involve using a heat
9 sink that's monitored by a thermal sensor.

10 And specifically on that second one, on preventing overheating, Dr.
11 Durham also noted, and this is not disputed, that it was widely known to
12 persons of ordinary skill in the art that a VFD as a power semiconductor
13 device, it's necessarily going to generate heat, and that heat needs to be
14 dissipated in order for the device to work properly. And that was not only
15 undisputed by Patent Owner's expert, Patent Owner's experts actually
16 confirmed that. This slide 36 is a cite to some deposition testimony of
17 Patent Owner's expert in a prior IPR where they were addressing this exact
18 same issue. He noted, Dr. Schaff noted that, yes, VFDs are known to
19 produce heat and it was known to use heat sinks because you would need to
20 dissipate that heat. It was a known best practice, good practice, I believe, is
21 what he said.

22 So, going back to slide 33, Dr. Durham kind of ties all this together.
23 And he says, look, these are known techniques that are disclosed in Toshiba
24 Manual. And so, it would have been obvious for somebody to take those
25 techniques and apply them, and they would have simply produced
26 predictable results that would have been obvious to a person of skill in the

1 art. And that testimony is also shown at slide 33 here. Again, none of this
2 testimony is disputed by Patent Owner. And it's certainly more than enough
3 to show that it would have been obvious to take the functionalities of
4 Toshiba's VFD and enhance the VFD of Coli with those functions.

5 So, I'm going to move to slide 37, addressing that the second of the
6 ways that we said it would have been obvious to combine Toshiba Manual
7 and Coli. This is the theory where we take the Toshiba Manual VFD, and
8 we substitute that in to Coli, for the Coli VFD. Patent Owner disputes that
9 because they, based on this paragraph, paragraph 49 of Coli, and they say
10 that based on this, Coli talks about having to run a pump that's rated for 2250
11 horsepower. And they note that Toshiba Manual, the VFD and Toshiba
12 Manual, one of them is not equipped to provide that amount of power. And
13 so, they say, based on that, a person of skill in the art wouldn't have thought
14 it was obvious to make that combination.

15 Again, just to clarify, this argument is only relevant if you are
16 substituting the VFD of Toshiba Manual in for Coli. If you're -- under the
17 other theory that we talked about, this simply isn't relevant because you'd
18 simply be using the Coli VFD rated for appropriate power, presumably, and
19 just enhancing its functionality. But nevertheless, to respond to this
20 argument, it's also not true that this passage of Coli would mean that you
21 couldn't combine it at all, because this passage doesn't say that you always
22 have to have a VFD that gets to those horsepower ratings. This is in the very
23 first words of that paragraph, it notes that this is an illustrative embodiment.
24 Two lines down, it says that it's discussing a particular configuration of the
25 system that's in Coli. And so there's nothing -- so, the rest that follows in
26 this paragraph is not a statement about what the entire invention requires, it's

1 just talking about certain embodiments. This distinguishes some of the cases
2 that Patent Owner cited. I believe it was the Unwired Planet case where
3 courts look at sentences that say, when you're talking about the present
4 invention, then that is talking about the entire reference. Coli doesn't say
5 that. And Coli is certainly not limited to particular horsepower levels. This
6 would not prevent any substitution of the Toshiba Manual into all
7 embodiments of the Coli VFD.

8 JUDGE HOSKINS: Ms. Flannery, just to let you know, you have
9 about 10 minutes left to go in your initial argument time before you start
10 eating into your rebuttal time.

11 MS. FLANNERY: Thank you very much. I appreciate that.

12 So, now let's go to slide 41. One more. There we go. And so, we can
13 move on to the next disputed area, whether or not the prior art references
14 disclosed heat sinks having thermal sensors as claimed in independent claim
15 7. And again, we have two different grounds where we addressed this. The
16 first one is ground 3, where we relied on the Loucks prior art reference for
17 its disclosure of heat sinks having thermal sensors. And Patent Owner
18 presented three arguments in response to that particular ground.

19 The first one, on slide 43 now. They dispute whether Loucks is
20 analogous art to the '870 Patent. We argue that Loucks meets the second of
21 the two tests for analogous art under the In re Bigio case. That Loucks is
22 reasonably pertinent to the problem, to a problem that the '870 Patent
23 inventors were looking at in their invention.

24 And moving to slide 44. The Board already found in its Institution
25 Decision, it identified one of those problems in the '870 Patent. They said
26 one particular aspect. The Board notes that one particular aspect of the

1 problem was how to use a VFD to drive an electric motor. The petition and
2 Petitioner's expert repeatedly discussed exactly this as one of the problems
3 addressed in the '870 Patent. This was specifically discussed, for example,
4 in exhibit -- in Petitioner's expert declaration, Exhibit 1002 at paragraph 46.
5 I don't have that on the slide, but in referring back to that, Petitioner's expert
6 specifically talked about the prosecution history and the point of novelty in
7 the '870 Patent was apparently using a VFD with certain types of features.
8 We saw that in the independent claims we looked at and that was also
9 discussed in the petition at page 6.

10 I also refer the Board to paragraph 128 of Exhibit 1002. That was the
11 Petitioner's expert declaration, where he was talking about Horikoshi, and he
12 specifically noted that Horikoshi is quote, in a field of art, VFDs, that is
13 highly relevant to the '870 Patent, exactly as the Board already found. And
14 so true with regard to Horikoshi and certainly also true of Loucks.

15 Now, Patent Owner takes issue with this problem. They say in their
16 sur-reply at page 8 that using a VFD to drive an electric motor can't possibly
17 be the right problem to look at because using electric motors -- using VFDs
18 to drive electric motors was common practice. It was ubiquitous at the time
19 of the '870 Patent. The problem is Patent Owner doesn't cite any case law,
20 not at all, narrowing what the relevant problem could be. There's no case
21 law that says it has to be a problem that the '870 Patent Owners were
22 considering, and it also has to be something that wasn't ubiquitous or wasn't
23 well known. No case law that supports that. And clearly we have evidence
24 supporting what the Board has already found.

25 And moving to slide 45, again, Petitioner's expert goes on to talk
26 about why Loucks is specifically relevant to that problem of using a VFD

1 effectively to drive an electric motor. They note that overheating is a
2 particularly big problem for a variable loaded system. And so, based on
3 that, Petitioner's expert has testified that a POSITA would have understood
4 that Loucks is relevant to that problem of using a VFD to drive a motor.

5 Move to slide 50. This is the next argument that Patent Owner
6 provides on Loucks. They dispute Loucks's disclosure. They don't actually
7 dispute that Loucks discloses heat sinks having thermal sensors. What they
8 dispute is whether the thermal sensors are monitored to prevent damage
9 caused by excessive heat. And so, we'll move to slide 51. Let's look at what
10 we said about that in the petition.

11 The petition identified that Loucks discloses a cooling efficiency
12 method that includes monitoring a power electronics heat sink temperature
13 sensor 510. So, what Loucks does, as we talk about in the petition, is it
14 monitors the temperature from that heat sink, from that temperature sensor.
15 It uses that in combination with ambient temperature to calculate a cooling
16 efficiency. And so, it makes sure that the cooling is actually working at the
17 appropriate level. Now, in the part that's highlighted in orange here, we also
18 noted that Loucks's point of doing that, as Loucks says, is to make sure that
19 you detect any problems with your cooling before you get to alarm limits.
20 And our expert noted that when you read, when a person of skill in the art
21 reads that, you understand that the reason that you're doing that, the reason
22 you're doing this cooling efficiency monitoring technique is so that you don't
23 get to those alarm limits, you don't get to those high temperatures that would
24 prevent damage. So, we rely on that statement about the alarm limits to
25 establish that this whole cooling efficiency method, the whole purpose of

1 that is to avoid damage caused by excessive heat, which is exactly what
2 claim 7 calls for.

3 JUDGE HOSKINS: So, Ms. Flannery, can you go back to, I think it
4 was your slide, one more slide. Slide 50, I guess. Okay. Yeah.

5 MS. FLANNERY: All right.

6 JUDGE HOSKINS: Thank you. So, I agree with you in terms, you
7 know, Mr. Hopkins can have a chance to talk about what Patent Owner's
8 position is here in a moment. But I agree with you in terms of what their
9 position is on this, on this point. That is, you know, their view is that
10 Loucks does not monitor that sensor that we see in Figure 5 of Loucks to
11 prevent damage. And to the extent I understand the argument from Patent
12 Owner, I think their point is that there's no, what I would say there's no
13 feedback loop. That is, yes, that sensor is giving you a temperature, a
14 thermal temperature of the heat sink, which could be on a, it's on a piece of
15 electrical equipment. So, yes, it's giving you a temperature. But we're -- but
16 Loucks is not using that monitored temperature then as a control feedback to
17 its cooling system. The cooling system is operating independently of what
18 that sensor is reporting. To the extent I understand what Patent Owner's
19 position is, it is that.

20 And so, I'm just wondering if you could, would you agree with that in
21 terms of Loucks, that there is no feedback, there is no control of the cooling
22 system based on the thermal sensor? Or is your response to that, that that
23 orange section you highlighted on the next slide kind of combining
24 paragraph 18 with the rest of Loucks's disclosure to say, yes, there is a
25 feedback to the cooling system based on the sensor measurements?

1 MS. FLANNERY: Yes, I don't think we're arguing that Loucks uses
2 that temperature -- discloses using that temperature measurement as a
3 feedback loop, as you say, directly feeding back to say, oh, it's too high, you
4 need to stop. But, well, the last portion, when it talks about the point of
5 doing this, the whole point of monitoring cooling efficiency, and that is
6 using the temperature measurement. That is monitoring the temperature
7 measurement. It's monitoring it to make sure that the cooling is working
8 properly to avoid the damage caused by excessive heat. So, I agree, there is
9 kind of a, there is an intermediate step in between the notion of you have the
10 temperature sensor and you're preventing damage caused by excessive heat.
11 But the claim doesn't preclude that possibility. As long as whatever you're
12 doing with the temperature sensor is with the measurement from the
13 temperature sensor is being done to prevent damage against excessive heat,
14 then that meets the claim element. Just because you do other things with it,
15 that doesn't preclude Loucks's method from meeting the claim element. That
16 would be our position.

17 JUDGE HOSKINS: So, help me understand then in the combination,
18 in your combination of Coli and Loucks, what is the system doing with the
19 thermal sensor data that it's getting? So, we do have to have a sensor. The
20 claim says there's a sensor. And we do have to have a microprocessor. I
21 can't remember exactly what, but that those signals are going to a
22 microprocessor and then to quote, unquote, prevent excessive heat. What is,
23 how exactly is your combination of Coli and Loucks satisfying that claim
24 requirement?

25 MS. FLANNERY: Because what Loucks discloses is taking that
26 measurement from temperature sensor 510. And it uses that temperature

1 measure to calculate a differential between the temperature on the heat sink
2 and an ambient temperature. And it uses that temperature differential and it,
3 this is what we described here on the left, to calculate a cooling efficiency
4 based on a number of factors, but at least in part on that temperature
5 differential. And if the cooling efficiency factor is too low, if it's not cooling
6 efficiently enough, then it's detecting, oh, there's a problem, it's not going to
7 be dissipating heat enough. And Loucks talks about the things that can be
8 triggered, a notification that can be triggered in response to that. So, that is
9 how, that process is how it gets to avoiding damage caused by excessive
10 heat. The discussion of alarm limits is just showing what it is we're trying to
11 avoid. We're trying not to get to that high temperature that can cause
12 damage.

13 JUDGE HOSKINS: Thank you. And you have about, I think, a little
14 bit more than a minute left to go on your initial period. Thank you.

15 MS. FLANNERY: Okay. I'm sure I'll go a little bit into that other
16 time, but that's time well spent. No problem.

17 So, I'll use my last few minutes to talk about why a POSITA would
18 have been motivated to combine Coli and Loucks. This is the third thing
19 that Patent Owner disputes. Patent Owner disputes that because they looked
20 at this portion of Coli, and they say this portion of Coli teaches away from
21 adding any sort of equipment or procedures; it teaches away from using
22 Loucks to monitor cooling efficiency. It simply doesn't do that at all when
23 you look at this passage. It does say that the need for certain types of
24 cooling systems, including circulating pumps and fluids, is significantly
25 reduced. But notably, Coli never says that the need for all cooling is
26 eliminated. It talks about eliminating certain types of equipment in the

1 preceding sentence, the transmission, the clutch, and the drive shaft. You
2 don't need that stuff anymore because you're using an electric motor instead
3 of diesel. So, that it says, yes, that's eliminated.

4 But in terms of the cooling systems, it just says that, well, you're not
5 going to need as much of that. And again, that's consistent with the
6 undisputed testimony that we saw earlier on slides, I believe it was 34 and
7 36, where both sides agree, a person of skill in the art would know that a
8 VFD necessarily needs to be cooled. That's undisputed testimony here.

9 The other point here that helps us clarify what Coli is teaching is that
10 it talks about the goal of reducing footprint at the onsite region. So, to have
11 less big, bulky equipment, that's the goal. And moving to slide 56,
12 Petitioner's expert talked about how cooling systems like pumps and fans,
13 forced cooling devices, those are the ones that have big footprint. Those are
14 the ones that have big footprint, as what Coli mentions. But Patent
15 Owner -- but Petitioner and Petitioner's expert aren't using anything like that
16 from Coli. All they're using is a heat sink and its associated temperature
17 sensors in its software. So, to the extent there's anything taught away from
18 in Coli, Coli does away from using the things that we combine from Loucks.

19 I'll use just a couple of minutes here at the end to talk about our other
20 ground for addressing claims 7 through 16. The fact that Toshiba Manual
21 discloses a heat sink having thermal sensors. Reorienting the Board to claim
22 7. Again, we've got the claim language that says you've got one or more
23 power semiconductor heat sinks having thermal sensors. Now, Patent
24 Owner wants to construe this as requiring that the thermal sensor is located
25 on the heat sink. It's true that the Board did, in its Institution Decision,
26 consider where the heat -- where the thermistor in Toshiba Manual is

1 located. But they never actually require, the Board doesn't actually require,
2 in order to meet the claim language, that the thermistor be located on the
3 heat sink. In fact, in the Institution Decision, the Board allowed for what the
4 plain meaning says. It simply said that at least on the record at the time,
5 there wasn't -- the Board didn't believe there was sufficient evidence that
6 inherently associated the heat sinks with the thermal sensors. Now at the
7 time that was the Board's view. But now things have changed. In Patent
8 Owner's sur-reply as we have here on slide 60, they've conceded that in
9 view of evidence submitted with our petition that Toshiba's heat sink is
10 indeed associated with the thermistor. So, we have agreement on this now.

11 The only dispute is whether or not this evidence. And here we have
12 on slide 62, this is the evidence on which they conceded that heat sink is
13 associated with the thermistor. This is a parts list attached to schematics for
14 Toshiba Manual's VFD, and it calls the only thermistor in the parts list the
15 heat sink thermistor. Patent Owner argues that this is a new argument. They
16 argue that this was presented for the first time in the reply. However, I think
17 in our petition we made it very clear that we were relying on Exhibit 1007,
18 which, sorry, going back to slide 62 is where this parts list resides.

19 On slide 63, we have here in our petition we cited to Exhibit 1007
20 profusely. This Exhibit 1007 was a combination of Toshiba Manual itself
21 and other documents that were published at that same Toshiba website. So,
22 this was the declaration that we used to show all of those documents. And
23 again, in the petition here on slide 64, the top box there, this is language
24 from our petition where we specifically noted that a person of skill in the art
25 looking at Toshiba Manual would have reviewed the Toshiba website. We
26 specifically called out the website. And then Petitioner's expert in his

1 declaration, he again noted that the website published these schematics of
2 the power electronics to accompany Toshiba Manual. And he cites a page
3 from those schematics, literally three pages after the one that we have in
4 slide 62. So, we think it was very clear from our petition that this was all
5 part of the evidence that a person of ordinary skill in the art would have been
6 considering in determining whether Toshiba Manual, whether its thermistor
7 was inherently associated with the heat sink. And now we believe we don't
8 have any dispute over whether or not that evidence shows that.

9 And with that, I think I'll leave the rest of the issues on our briefing
10 unless the Board has any further questions for me at this time.

11 JUDGE HOSKINS: Thank you, Ms. Flannery. I do not. And
12 hearing none from my colleagues, I have 10 minutes left for your rebuttal
13 time when it, when it comes back around. So, thank you for that.

14 And so, Mr. Hopkins, would you like to reserve time for sur-rebuttal?

15 MR. HOPKINS: Yes, Your Honor, I'd like to reserve 20 minutes.

16 JUDGE HOSKINS: Twenty minutes, okay. So, feel free to begin
17 your argument when you are ready. And we'll start a clock here when you
18 begin. Thank you.

19 MR. HOPKINS: May it please the Board. I'd like to start off on
20 slide 3 and just kind of go over some high-level issues here. That is
21 primarily that Petitioner has failed to prove that all the challenged claims are
22 unpatentable by (inaudible). Ground 1 was insufficient because the petition
23 failed to show that the Toshiba Manual inherently discloses of VFD had a
24 heat sink. Ground 3 is insufficient for two reasons. One, Petitioner has
25 failed to prove that a skilled artisan would combine Coli and this reference.

1 The second is that Petitioner's combination fails to show that variable
2 frequency drive has appropriate as heat sinks (inaudible).

3 Now, the other set of claims, claims 1 through 6, and those recite the
4 electric motor diagnostics feature, importantly grounds 1 and 2 that
5 Petitioner uses to challenge those claims have no prior art that discloses
6 multiple record motor diagnostics. Ground 1 also has the added flaw that a
7 POSITA would not have combined the Coli and Toshiba reference.

8 The dependent claims also have additional flaws that I'll address.
9 Now, I'd like to jump to slide 29 real quick, because this goes to Judge
10 Hoskins's question earlier where we were talking about Coli and Loucks
11 combination and whether the alarm limits and basically Patent Owner's
12 main problem, the Petitioner's ground there.

13 So, turning to slide 29, we have an excerpt from the petition. And
14 here the petition basically says that Loucks's cooling efficiency monitoring
15 technique is combined with Coli's VFD. And that happens before the
16 temperatures reach alarm limits. Now, Loucks's alarm limits are monitored
17 to prevent damage caused by excessive heat, which is required by the claim,
18 as shown in the claim language at the top of slide 29. The proposed
19 combination does not include these alarm limits. Petitioner admits as much
20 in its reply on page 12, where it states the relevant grounds of the petition do
21 not, as PO asserts, rely on Loucks's high-temperature limits or alarms
22 described in paragraph 18 for any of the '870 Patent.

23 So, turning now to slide 30. So, this is what Loucks's cooling
24 efficiency monitoring technique. At the bottom left-hand side, we have Dr.
25 Durham's deposition testimony where he admits that Figure 2 illustrates

1 Loucks's cooling efficiency monitoring technology. And that is at Exhibit
2 2003, page 59, lines 12 through 15.

3 Now, notably missing from this figure is any mention of high-
4 temperature limits or alarm limits. Instead, Loucks's cooling efficiency
5 monitoring technique uses a baseline operating threshold, and this is shown
6 in item 250. And what that does is it primarily acts as a baseline to keep the
7 system operating at an efficient temperature. Does not prevent, again,
8 equipment damage caused by excessive heat.

9 Now, Loucks also discloses in the top and left, top left-hand side of
10 this slide, the high-temperature limits and the alarm limits. But notably
11 those limits, and this is in paragraph 18. Notably, those limits are not
12 included in Figure 2.

13 JUDGE HOSKINS: So, Mr. Hopkins, is your disagreement with
14 Loucks, essentially then, efficiency versus damage? Is that the distinction?

15 MR. HOPKINS: That's correct, Your Honor. The claims require that
16 the thermal sensor be monitored by a microprocessor to prevent damage
17 caused by excessive heat. Those are done by high-temperature limits and
18 alarm limits and Loucks does not include those in its cooling efficiency
19 monitoring technique. So, effectively, without those limits, Your Honor,
20 Petitioner's proposed combination is missing that element.

21 JUDGE HOSKINS: And so, I guess your view would be the only
22 disclosure then -- and I don't know if it's Lowks (phonetic) or Lukes
23 (phonetic), so I apologize if I've been mispronouncing it. Is that paragraph
24 18 and so, which is kind of talking about, well, I don't know if it's talking
25 about the prior art. But it's just that paragraph 18 that sets limits on, alarm
26 limits on the cooling technique that Loucks uses?

1 MR. HOPKINS: Yes, Your Honor, that's correct. That's what we
2 believe the disclosure in Loucks that will disclose preventing excessive use
3 for alarm use, so.

4 JUDGE HOSKINS: Okay. Thank you.

5 MR. HOPKINS: Turning to slide 31, this is deposition testimony
6 from Dr. Durham. Exhibit 2003, page 65, lines 4 through 20. And there,
7 when he was asked whether the limits in describing paragraph 18 in Loucks
8 are the same limits in Figure 2, he said they were completely different. And
9 then when we asked how he knew they were different, he explained that he
10 knew they were different because they used different units of measurement.

11 Now turning to slide 32, both experts agree that the high-temperature
12 limits and alarm limits are not part of the petition's proposed combination.
13 Petitioner admits as much on page 12 of the rebuttal. So, paragraph 73 and
14 74 of Dr. Nikolaou's declaration, and this is shown on the left-hand side of
15 slide 32, explains that the high-temperature limits and alarm limits are not
16 part of Loucks's cooling efficiency monitoring technique. And that's the
17 same technique that was implemented in Coli's VFD. And without these
18 alarm limits, the proposed combination has no thermal sensor monitored to
19 prevent damage caused by excessive heat.

20 JUDGE HOSKINS: So, can you help me understand, so what
21 Loucks does disclose is this efficiency monitoring technique. Just give one
22 more level of detail of your view of what that is in Loucks. So, this relies on
23 the data from the thermal sensor. How does it use that data? Does it just
24 record it or does it actually then use some sort of feedback to modify
25 something else in the system?

1 MR. HOPKINS: So, I think this is shown in Figure 2. And this is
2 on, of Loucks, shown on slide 30, where it primarily calculates a cooling
3 efficiency technique. And then it compares that against a threshold. And if
4 it is exceeding that threshold, it provides a notification to the system.
5 Otherwise, it just kind of keeps determining whether the system is operating
6 at an efficient level or calculating the efficiency indicator of that based on
7 the differential.

8 JUDGE HOSKINS: So, all it does is if it goes outside of its
9 efficiency parameters, it tells somebody that it's gone outside the efficiency
10 parameters and then that's basically it. That's your view of Loucks?

11 MR. HOPKINS: Yes, Your Honor.

12 JUDGE HOSKINS: Okay, thank you.

13 MR. HOPKINS: So, I'd like to jump back now to claims 7 through
14 16 that involved the heat sink feature. And these are challenged with
15 grounds 1 and 3. So, turning to slide 5, we have claim 7. And the primary
16 disputed issue is the last limitation, and that is: a variable frequency drive
17 having one or more power semiconductor heat sinks that have thermal
18 sensors.

19 So, Petitioner challenges with two grounds, one of those being ground
20 one, and this ground involves the Coli and Toshiba method. So, turning to
21 slide 7, the petition concedes that the Coli does not disclose a VFD having
22 (inaudible). The petition instead relies on the Toshiba Manual, Exhibit 1006
23 to render this feature obvious. Now, in doing so, the petition points to two
24 disclosures from the Toshiba Manual. The top one being from page 14,
25 which discloses a heat sink, and the bottom one disclosing an internal
26 thermistor, on page 180.

1 Now, importantly, neither passage describes that the heat sink has an
2 internal thermistor. Turning to slide 8. So, without evidence showing this,
3 the petition relied on an inherency argument. This is shown on the left of
4 petition, page 37 through 38, and on its supporting expert declaration at
5 paragraph 186. And importantly, there is no additional evidence cited to
6 this. And it uses the words necessarily have. And those two things together
7 make this an inherency argument.

8 So, turning to slide 9. The Board's Institution Decision recognized the
9 Petitioner was making an inherency argument, and the Board determined at
10 Institution that the evidence didn't support this inherency argument. And
11 that was at a lower burden of proof, and there was a reasonable likelihood of
12 success. But now at the final written decision, Petitioner has to show it by a
13 preponderance of the evidence.

14 So, turning to slide 10. This is evidence of why it's not necessarily
15 present -- or why the internal thermistor is not necessarily present with the
16 heat sink. And here it's from Loucks. This is Exhibit 1009, paragraph 3.
17 And this is not part of the ground, but it's evidence that thermal sensors can
18 have various internal locations. So, shown at the top of the slide is
19 paragraph 3. And it says that the temperature can be measured at various
20 internal locations, such as the inlet air, exhaust air, heat sinks, or other areas
21 of the equipment.

22 Now, at the bottom of this slide on slide 10 is paragraph 68, which the
23 Board didn't have at its Institution Decision. And here it's Patent Owner's
24 expert, Dr. Nikolaou, confirming that based on the above disclosure from
25 Loucks, that this is evidence that thermal sensors may be placed in various
26 different internal locations. And so, the evidence shows that Toshiba's

1 internal thermistor may have various internal locations and not necessarily
2 located on the heat sink. The Toshiba Manual does not inherently disclose
3 this feature.

4 JUDGE HOSKINS: Mr. Hopkins, I think part of what Petitioner
5 would say in response is that Exhibit 1007 that they were walking us through
6 before. And I understand you think their reliance on that is untimely. You
7 can talk about that if you want. But what I would particularly be interested
8 in is, let's suppose that we conclude Exhibit 1007 is fair game. Do you think
9 that gets Petitioner to this heat sink having thermal sensors?

10 MR. HOPKINS: Your Honor, I think the claims require a heat sink
11 having a thermal sensor, and the having is an additional requirement that has
12 to be located on Petitioner. I think we disagree about whether being
13 associated with the heat sink, whether having the internal thermistor, being
14 associated with the heat sink is enough. I think the claim requires a heat
15 sink having a thermal sensor and that requires that the thermal sensor
16 actually be located on the heat sink.

17 And I'm sorry, just to make sure I answer --

18 JUDGE HOSKINS: So, the phrase then in that Exhibit 1007, heat
19 sink thermistor, quote, that's not enough in your view, to get the thermistor
20 to be located on the heat sink?

21 MR. HOPKINS: Yes, Your Honor, that's exactly what I was saying,
22 yeah.

23 JUDGE HOSKINS: Okay. Perfect. Thank you.

24 MR. HOPKINS: So, turning to slide 11. After the Institution
25 Decision, the Petitioner posited two new theories in its reply. Both these
26 theories are new and improper, as they were never presented in the petition.

1 So, one of the Petitioner's new theories is obviousness. And this is on
2 Petitioners reply, page 16. And here it said, to the extent that the Board
3 determines that Toshiba Manual does not disclose the heat sink has thermal
4 sensors, a POSITA would have deemed that obvious. So, this is effectively
5 changing their unpatentability theory from one that uses inherency to one
6 using obviousness. And that's an improper new ground. And I'd also like to
7 note that this new theory is unsupported by their expert declaration. So, it
8 would just be pure attorney argument.

9 So, turning to slide 12. Petitioner's other new theory relies on new
10 evidence to show that the Toshiba Manual discloses the heat sink feature.
11 So, slide 12 shows an Institution Decision involves the Toshiba Manual,
12 which is Exhibit 1006, and that disclosed the heat sink feature is what
13 Petitioner's ground says. Notably, ground 1 does not include any other
14 exhibits. So, why is that important?

15 Turning to slide 13. Petitioner is now trying to rely on Exhibit 1007
16 to show that the Toshiba Manual discloses this feature. Now, Exhibit 1007
17 is a 300-page exhibit that is an affidavit from a Wayback Machine employee
18 that authenticates various different documents about Petition that GX7 VFD.
19 And now slide 13 is an excerpt from the Petitioner reply 14-15, where they
20 talk about just one of these documents, and that's the standard specification.
21 So, the key important issue here is whether the Toshiba Manual alone,
22 Exhibit 1006, and the only reference used in ground 1, described and used in
23 the petition, discloses the heat sink having thermal sensors. Other references
24 cannot fix the deficiency if Exhibit 1006 does not disclose that feature.

25 Now, there's also the added procedural issue here that raised the
26 problem, and that's that none of this evidence was cited in the petition and

1 none of the -- like, none of the evidence cited in the Petitioner reply with
2 regard to Exhibit 1007 was cited in petition, nor was it cited in their expert
3 declaration. So, Patent Owner is prejudiced because they were not able to
4 cross-examine Petitioner's expert on this point because they didn't have
5 Petitioner's position on this new evidence at the time of when they took that
6 deposition.

7 Turning to slide 14, the remaining evidence from Petitioner's reply is
8 improper for the same reason. This is, again, a different document from
9 Exhibit 1007 to show that Toshiba's VFD discloses featured. Here,
10 Petitioner refers to it as a drawing and equipment list. And again, this
11 document is uncited in the petition and uncited in the expert declaration.
12 The ground 1 includes just the Toshiba Manual, Exhibit 1006. None of the
13 other documents cited in the Petitioner reply come from that document.

14 The key issue, based on what the ground was in the petition, is
15 whether Exhibit 1006 alone discloses the heat sink having a thermal sensor.
16 We ask the Board to maintain the same determination that it made in
17 Institution Decision that the petition failed to show that Exhibit 1006
18 inherently disclosed this.

19 So, I'd like to turn now ground 3 that addresses the same claims.
20 Those are claims 7 through 16. And the key issue for ground three is
21 whether Petitioner has shown that a POSITA would have combined Coli and
22 Loucks by a preponderance of the evidence. So, turning now to slide 18.
23 Before you can determine whether you combine two references, you must
24 determine that those references qualify as analogous art and that test is set
25 forth In re Bigio. This is shown on slide 18.

1 The first test and the reference can satisfy either of these tests is
2 whether the prior art comes from the same field of endeavor. The second
3 test is whether the prior art is reasonably pertinent to the particular problem
4 with which the inventor of the challenged patent is involved.

5 Turning now to slide 19. On Institution, the Board correctly
6 determined that Loucks failed the first field of endeavor test. Petitioner does
7 not challenge the determination. Turning now to slide 20. This leaves us
8 with the second test about whether Loucks is reasonably pertinent to a
9 particular problem with which the inventor is involved.

10 So, I think it's kind of important to understand the history of how this
11 argument developed and that was Patent Owner initially raised this in its
12 preliminary response and noted that the petition failed to provide any
13 evidence or argument that Loucks satisfies either analogous art test. The
14 Board correctly determined that the Petitioner can fix this at a later time of
15 proceeding. Patent Owner then again pointed out the same deficiency in its
16 Patent Owner response. And then Petitioner was aware that it could fix this
17 deficiency when it cited Corephotonics v. Apple in its reply at 17, note 6.

18 Now, in that case, the Petitioner filed a supplemental declaration with
19 its reply to squarely address whether the prior art was analogous. Now,
20 unlike Corephotonics, here, the Petitioner never filed a supplemental
21 declaration to fix that evidentiary deficiency, despite having the full
22 opportunity to do so. So, the key fact here is shown on slide 20. Without a
23 supplemental declaration, we're left with just paragraph 40 of Dr. Durham's
24 declaration. This is the only testimony that identifies a particular problem
25 facing the inventor of the challenged patent. There, he says it's only
26 problems associated with diesel.

1 Now, there's no testimony from Dr. Loucks -- or from Dr. Durham
2 saying that Loucks is reasonably pertinent to that problem or any other
3 problem facing the inventor of the challenged patent. So, Petitioner's reply,
4 which cites this paragraph 40, is pure attorney argument because it does not
5 actually identify the problem pointed out that it says that was defined.
6 Petitioner's reply identifies a different problem that is unsupported by the
7 declaration. The Petitioner's reply relies on the Board's problem that it noted
8 at its Institution Decision. But importantly, Board's Institution Decision
9 didn't have an expert dec supporting that with a particular problem facing the
10 inventor, and Petitioner could have fixed that by filing a supplemental
11 declaration that put this evidence into the record. So, without that evidence,
12 Petitioner's argument is pure attorney argument.

13 Turning now to slide 21. This is Dr. Nikolaou's testimony from
14 paragraphs 101 and 102, and this stands unrebutted. These paragraphs
15 address both the problem mentioned by Dr. Durham and that is the only
16 problem facing the inventor of the challenged patent associated with diesel
17 pumps and these, also, he identifies a broader problem of implementing a
18 portable VFD. Dr. Nikolaou then concludes that Loucks does not address
19 either of these problems.

20 So, there's no expert testimony to the contrary. And Dr. Nikolaou is
21 the only expert who's opined about whether Loucks is analogous art to the
22 challenged patent. And the important thing here is that Petitioner bears the
23 burden to show that Loucks is analogous art by preponderance of the
24 evidence. And that burden cannot be satisfied by unsupported attorney
25 argument that outweighs the only expert testimony saying that Loucks is
26 non-analogous.

1 If the Board does determine that Loucks is analogous art, petitioner
2 still fails to show that a POSITA would have combined Coli and Loucks.
3 The petition, as we talked about a little bit earlier, was, from both
4 combinations, was using or using Loucks cooling efficiency monitoring
5 technique in the Coli's VFD. That's the proposed combination of the
6 petition. This is shown on slide 23. Two excerpts from the petition of 52-54
7 that explain that it's just a POSITA would have been motivated to employ
8 Loucks's cooling efficiency monitoring technique with Coli's VFD. But
9 Coli has an express statement and this is shown on slide 24 at paragraph 39,
10 that discloses that because of Coli's invention, the need for cooling systems
11 is significantly reduced. Now, paragraph 95 of Dr. Nikolaou's declaration,
12 shown on the bottom of this slide, confirms that Coli's disclosure teaches
13 away from implementing Loucks's cooling efficiency monitoring technique
14 into Coli's.

15 And I covered this earlier in my presentation about the language does
16 not disclose of heat sink having thermal sensors that are monitored in terms
17 of heat. If there's any further questions on that, I can address those.

18 JUDGE HOSKINS: No further questions. But it's getting a little bit
19 difficult to hear you, so I'm wondering if you have a microphone that you
20 can move.

21 MR. HOPKINS: Move, maybe you could.

22 JUDGE HOSKINS: I can hear you just fine. I'm more worried about
23 the court reporter. So, let me just ask the court reporter. Are you having
24 trouble picking up Mr. Hopkins?

1 COURT REPORTER: I'm hearing him. Occasionally a slight
2 difficulty, but when I've had that, he's usually referring to something on the
3 slide, so I can understand. So.

4 JUDGE HOSKINS: Okay.

5 COURT REPORTER: Thank you.

6 JUDGE HOSKINS: Okay, so sorry to interrupt, Mr. Hopkins. I have
7 you roughly about halfway through your initial argument time at this point,
8 so you have about 20 minutes left before you start eating into your rebuttal.
9 Thank you.

10 MR. HOPKINS: So, I'd like to turn now to address claims 1 through
11 6, and these are the claims that involve the electric motor diagnostic feature.
12 Petitioner advances to grounds here. Ground 1 involves the Toshiba Manual
13 and ground 2 involves Horikoshi. Both are fundamentally problems. I'll
14 talk first about the Toshiba.

15 So, on slide 35, we have claim 1. And again, the disputed issue
16 primarily comes down to the last limitation, and that's a variable frequency
17 drive connected to the electric motor, and wherein the variable frequency
18 drive performs electric motor diagnostics. So, turning to slide 37, Petitioner
19 lists VFD faults from the Toshiba Manual that supposedly satisfy the electric
20 motor diagnostics. On the left, the petition provided a single sentence on
21 page 31 that addresses this limitation. The cited evidence provided no
22 further explanation of how these faults satisfy electric motor diagnostics.
23 The petition itself didn't provide any kind of explanation about how certain
24 faults or any faults satisfied the electric motor diagnostics as well. So, the
25 cited evidence included Exhibit 1007 and page 162, which was kind of a

1 page from the Toshiba Manual that doesn't mention any of these faults. It
2 was unclear what that was.

3 There was paragraphs 150 and 166 (phonetic) of Dr. Durham's
4 declaration that pretty much parrot this sentence from the petition, but
5 provide additional cites to Exhibit 1006. And the most level of detail is in
6 paragraph 117 of Dr. Durham's declaration. And this provides a list and
7 provides individual cites to Exhibit 1006. But again, there's no description
8 or explanation of how these individual faults satisfy electric motor
9 diagnostics. So, without such an explanation, Patent Owner would have
10 thought a plain construction of electric motor diagnostics was necessary to
11 decide this issue.

12 So, turning to slide 36. Patent Owner proposed the following
13 construction for electric motor diagnostics. Which is diagnostics for an
14 electric motor alone. This construction emphasizes electric motor has some
15 type of limiting effect for the claim diagnostics. Petitioner has provided no
16 formal construction, or proposed no formal construction. But on the left-
17 hand side, you see the arguments made in the Petitioner reply. And there,
18 Petitioner argues that electric motor diagnostics does not exclude diagnostics
19 on the electric motor and on something else. So, the big problem with that
20 construction is that it includes diagnostics on something else, and that is,
21 which are unrelated to the electric motor.

22 So, under Petitioner's apparent construction, the claimed diagnostic
23 can be satisfied by diagnostics for the system generally. And that does not
24 satisfy the claimed electric motor at all.

25 JUDGE HOSKINS: Mr. Hopkins, this is Judge Hoskins. Let's not
26 worry about what Petitioner's construction is for a moment. I'm worried

1 about your construction. So, diagnostics for an electric motor alone, I have a
2 couple kind of hypotheticals for you on that. So, let's suppose that there's a
3 VFD that performs what everybody would agree are diagnostics on the
4 VFD. Okay? So I'm not talking about electric motor right now. I'm just
5 saying that we've got a VFD that has some self-diagnostics to make sure its
6 own internal machinery is running correctly. Is it your view that that fact
7 alone would exclude that VFD from what's being claimed in claim 1?

8 MR. HOPKINS: Not that it would exclude it, Your Honor. It would
9 not be a type of electric motor diagnostic. The claim is a comprising claim.
10 So, it would include a system that included other types of diagnostics. The
11 question here is, you know, these are kind of diagnostics for the system
12 generally, as opposed to the claim requires electric motor diagnostics, which
13 are diagnostics for a specific component of the system.

14 JUDGE HOSKINS: So, then a follow-up question. Let's suppose we
15 have a VFD that does perform. I want to take Toshiba Manual out of the
16 equation for a moment. I'm just talking claim construction here. So, we've
17 got a VFD that under your view of diagnostics for an electric motor alone. It
18 does that. Okay. But it also does the self-diagnostics that I was talking
19 about earlier. It does both. Is that something that your view would be
20 covered by claim 1?

21 MR. HOPKINS: I'm not sure I follow your --

22 JUDGE HOSKINS: Yeah, that was a poor question. It was a poor
23 question. I apologize. Let me, I'll retract it. Let's suppose that we have a
24 VFD that performs electric motor diagnostics, and it also performs VFD
25 diagnostics. Is that VFD included in the scope of claim 1 or not?

1 MR. HOPKINS: The one that you just described, if they perform -- if
2 the VFD that performs electric motor diagnostics, it's within the scope of the
3 claim.

4 JUDGE HOSKINS: Even if it also does VFD diagnostics?

5 MR. HOPKINS: That's correct. You know, I'd like to, I guess,
6 follow it up to make sure that it's clear on the Toshiba VFD faults, you
7 know.

8 JUDGE HOSKINS: Please. That was my next question. Thank you.

9 MR. HOPKINS: Okay. And so, I think the big difference between
10 the analogy is that the Toshiba VFD faults are faults for everything kind of
11 lumped together for the system. They're not specific to the electric motor.
12 And though the electric motor may have some causes, if this fault is caused,
13 it might be a problem completely unrelated to the electric motor and not be
14 an electric motor diagnostic.

15 I think of this more of like, it's a genus, you know, a system fault.
16 And the claim requires a species, which is like an electric motor diagnostics.
17 And, you know, this is the question of the prior art teaching the genus and
18 whether that is actually rendering obvious the species, which is the limited
19 type of diagnostic here, and that's electric motor diagnostics.

20 JUDGE HOSKINS: Okay, thank you. So, then I have just to
21 make -- I think I've got this. But I'm looking in Toshiba Manual. I'm
22 looking at page, the PDF page. So, the lower right-hand corner, page 184.
23 Are you able to pull that up?

24 MR. HOPKINS: You said page 184. Is that on the PDF, Your
25 Honor?

1 JUDGE HOSKINS: Correct. The lower right-hand corner. Yes,
2 thank you. So, right there. So, right at the top. So, at the top. Yeah. At the
3 top of that page, there's a fault screen display of motor overload. So, if I'm
4 understanding your position, kind of taking this as an example of where
5 Toshiba Manual falls short, we've got five listed causes there for quote,
6 unquote, motor overload. And so, your view is that some of those may be
7 the VFD and some of those may be the motor, but what we really need is all
8 of those to be the motor in order for this to be a motor, an electric motor
9 diagnostic. Do I have that right?

10 MR. HOPKINS: That's correct, Your Honor.

11 JUDGE HOSKINS: Okay, thank you.

12 MR. HOPKINS: So, this, kind of, here's the evidence of, I'm turning
13 to slide 38 of, kind of, Dr. Nikolaou going through and identifying which of
14 these identified faults have causes that are unrelated to the electric motor.
15 Here, shown on paragraph 59 of Exhibit 2002, he provides a list of the VFD
16 faults and the possible causes. And there he emphasizes which ones are
17 unrelated to a motor. This is shown on slides 38 and 39, same paragraph in
18 Dr. Nikolaou's declaration.

19 So, I think there's another aspect of this claim, electric motor
20 diagnostics, that even under Petitioner's apparent construction, the Toshiba
21 VFD faults do not satisfy the claimed electric motor diagnostics. And
22 shown in Exhibit 2002 is paragraph 58. And this is shown on slide 40,
23 where Dr. Nikolaou explained that these are faults for the VFD and
24 separately, which is a separately claimed element and not for the electric
25 motor. And the key thing here is Toshiba's VFD faults are not the same
26 thing as electric motor diagnosis.

1 Now, turning to slide 41. You know, how do we know they're not the
2 same thing? It's because the challenged patent tells us so. So, on slide 41,
3 we have on the left-hand side we have column 4, lines 20 through 25, where
4 the challenged patent mentions motor diagnostics and electric motor
5 diagnostics. On the right, we have column 5, lines 42 through 46. And there
6 it mentions a pump VFD fault indicator.

7 Now, paragraph 54 of Dr. Nikolaou's declaration confirms the VFD
8 fault indicator shown on the right is the same thing as the Toshiba VFD
9 faults. Dr. Durham agreed during his deposition on Exhibit 2003, page 29,
10 line 7 through 18. So, the important point that I want to point out here is that
11 when a patent describes two things differently and chooses only to claim
12 one, and that's the one on the left, the patent challenger should have to prove
13 that the claims encompass both things mentioned in the patent, because, you
14 know, it's just, the patent is describing two things as being different and it's
15 only choosing to claim one. And so, Petitioner has failed to meet its burden,
16 even under its own apparent construction that the VFD faults are the same
17 thing as the electric motor.

18 So, I'd also, now, I'd like to turn to the whether Petitioner and how
19 they failed to prove that one would combine Coli and Toshiba reference. So,
20 shown on slide 43 is a passage from the petition at page 23 and a passage
21 from Dr. Durham's declaration at paragraph 155. These both say that it
22 would be obvious to simply substitute the VFD of Toshiba for the VFD of
23 Coli, a one-to-one type of substitution.

24 Now, paragraph 78 of Dr. Nikolaou's declaration confirms that a
25 simple substitution would not work because the Toshiba VFD lacks the
26 necessary horsepower requirements to power Coli's 2500 horsepower pump.

1 And on slide 45 we have where the problem is. And this is paragraph 49 of
2 Coli. And there it says, in contrast, in the last sentence, the present system
3 can deliver a true 2500 horsepower. And the fact that it uses the words the
4 present system has a limiting effect on Coli's disclosure.

5 Now, the four examples talked about before is primarily talking about
6 exemplary conventional systems, and those are what's contrasted with the
7 present system. Here, on slide 46 at Exhibit 1047, at page 1, the top right,
8 we show that Toshiba's VFD has a maximum horsepower of only 800
9 horsepower. That is not enough to power Coli's 2500 horsepower pump.

10 So, during Dr. Durham's deposition, this is Exhibit 2003, page 92,
11 lines 18 through page 93, line 8. When asked whether, do you have enough
12 data to determine whether POSITA would have been motivated to simply
13 substitute the VFD in Coli or a single VFD in Toshiba, he said he didn't have
14 enough data to make that. But that's contradictory to his what he said in
15 paragraph at 155 of his declaration. Toshiba also has an express disclosure
16 shown at Exhibit 1006 at page 24, this is on slide 49, that teaches away from
17 the disclosed (inaudible). Specifically, the disclosure says, do not use this
18 VFD with a motor that has a power rating that is higher than the rated output
19 of the ASD. And that higher rating would have been like the one in Coli's
20 2500 horsepower.

21 Shown below is paragraph 82 from Dr. Nikolaou's declaration. He
22 confirms that this warning would have taught against someone combining
23 the Toshiba's VFD with Coli's electric motor and pump. Now, in Petitioner's
24 reply, they advanced, they pivoted, and now advanced the theory that a
25 POSITA would have understood how to run multiple Toshiba VFDs in

1 (inaudible). This theory was not found in their original petition, nor is it
2 supported by their expert declaration.

3 JUDGE HOSKINS: Mr. Hopkins, you have about, just so you know,
4 you have about 4 minutes left before you start hitting your rebuttal.

5 MR. HOPKINS: Thank you. So, turning now to slide 52,
6 Petitioner's remaining obviousness combinations for combining Coli and
7 Toshiba are insufficient, failure based on conclusory expert testimony.
8 Now, this shows the petition at page 23 and Dr. Durham's declaration at
9 paragraph 156, where he primarily just makes a statement. I know that
10 Petitioner has taken issue with whether this is conclusory testimony. So, I'm
11 just going to bring this up at pages -- paragraphs 154 through 156 that don't
12 cite any evidence for why he's making those statements.

13 So, I'd like to turn now to claims 1 through 6. And this is the
14 Horikoshi ground 2. Now, shown on slide 55. The claims require multiple
15 diagnostics, not just a single one. The Board's Institution Decision at page
16 21 recognized the claims required a plurality of diagnostics. Shown on slide
17 56, this is an excerpt from Petitioner's reply at page 5. There, Petitioner
18 admits that Horikoshi discloses a single diagnostic. Specifically, in the first
19 sentence where Petitioner says, because it discloses performing its electric
20 motor diagnostic, singular, it being Horikoshi. And then in the highlighted
21 next sentence where it says, so Horikoshi must perform the fault diagnostic.
22 It's a single diagnostic.

23 Now, during the opening, they mentioned that it was Patent Owner's
24 issue with this, that we never sought a claim construction that would
25 preclude or propose on this. What's important was we didn't seek any claim
26 construction because this was a brand new theory presented in the

1 Petitioner's reply for the first time. So, they were the ones that actually
2 proposed this new theory that whether a single electric motor diagnostic
3 performed multiple times satisfies the claimed electric motor diagnostics.
4 That theory is unsupported by the expert declaration, and it's also an
5 improper new theory that's never mentioned in the petition.

6 So, if you actually look at Exhibit 1002. So, this is turning to slide 61.
7 This is an excerpt from the Petitioner reply. The paragraph cited in Exhibit
8 1002 at the end of this excerpt, contends that the claimed plurality of
9 diagnostics can be satisfied by performing one diagnostic multiple times.
10 So, to the extent that Patent Owner should have advanced claim construction
11 to closing, we were unaware that this was going to be an issue up until
12 Petitioner's reply.

13 And just turning to slide 59. The intrinsic record supports Patent
14 Owner's construction of the claimed electric motor diagnostics. This here is
15 shown column 4, lines 20 through 25 of the challenged patent. There, we
16 state multiple diagnostics can either be performed or can be disabled.
17 Neither sentence refers to a single diagnostic, and the challenged patent
18 primarily refers to a plurality of diagnostics in both sentences. Turning also
19 to slide 60, this is paragraph 61 from Dr. Nikolaou's declaration shown on
20 the right. There, he just confirms that the claim diagnostics cannot be
21 satisfied (inaudible).

22 Your Honor, if I may ask how much time I have before my rebuttal
23 time?

24 JUDGE HOSKINS: Sure. So, I've got you at exactly your 40
25 minutes for your principal argument. So, right now you have 20 minutes
26 left, total.

1 MR. HOPKINS: I think for the dependent claims, I'd like to rest on
2 my papers unless the Board has any specific questions with regard to the
3 dependent claims. And then I'd like to just wrap up in a short conclusion,
4 otherwise.

5 JUDGE HOSKINS: I do not, and it seems my colleagues do not. So,
6 thank you for the opportunity.

7 MR. HOPKINS: So, Petitioner has failed to prove by a
8 preponderance of the evidence, the challenged claims are unpatentable. All
9 of the unpatentability challenges of the independent claims fail. Petitioner
10 has failed to satisfy its burden to show that the prior art renders obvious a
11 VFD having a heat sink, having a thermal sensor, or a plurality of electric
12 motors. For these reasons, Patent Owner asks the Board to determine that
13 the claims were not shown to be unpatentable.

14 JUDGE HOSKINS: Thank you for that, Mr. Hopkins. I have one
15 question that I just want to make sure. I think there's a typographical error in
16 the Patent Owner response. And I just want to make sure I have that right,
17 because I'm not positive. So, I'm looking at page 31 of the Patent Owner
18 response. So, if you could pull that up, I would appreciate it.

19 MR. HOPKINS: Yes.

20 JUDGE HOSKINS: Thank you for showing it here on the screen.
21 So, I'm looking at the first full paragraph, which begins, in its Institution
22 Decision, and then it says the Board incorrectly found that Loucks is
23 reasonably pertinent to problems in the '870 Patent. It's the next sentence
24 that I really have a question about. So, it says, the Board's only nexus
25 between the problem it defined and then it says, and Coli's disclosures is that

1 Coli includes a VFD. I think you wanted Loucks there instead of Coli, but if
2 you, if you could confirm that, I would appreciate it.

3 MR. HOPKINS: That's correct, Your Honor, I believe that was
4 supposed to be Loucks, and that's the idea that Loucks does not disclose.

5 JUDGE HOSKINS: Okay, thank you very much for that
6 presentation. So, you have then 18 minutes left when we come back to you
7 for sur-rebuttal. And I promised, you know, I said before, before I turn
8 things back over to Petitioner's Counsel, I said before, I'd give an
9 opportunity for taking a break if anybody wants it, but I think the panel
10 would prefer to keep on marching on through, if that's okay with everybody.
11 So, let me just pause for a moment. If anybody does need a break, please
12 speak up.

13 Okay, great. So, thank you very much for that. So, Ms. Flannery, you
14 have 10 minutes left for your rebuttal argument, and you may begin when
15 you are ready.

16 MS. FLANNERY: Thank you very much. Ms. Ding, if you could
17 bring up Patent Owner's slide deck and go to slide 40 and 41, please. So, I'd
18 like to start with something that Patent Owner mentioned in their argument.
19 First of all, I think we need to be really clear about what Patent Owner has
20 actually disputed with regard to Toshiba Manual's disclosure of electric
21 motor diagnostics. Their arguments are 100 percent based on their claim
22 construction that requires diagnostics for the electric motor alone.

23 I heard in Patent Owner's argument that they said that, well, look, we
24 have this testimony from Dr. Nikolaou where he said that VFD faults aren't
25 electric motor diagnostics. The only analysis that they give there is their
26 construction. And Dr. Nikolaou's testimony is based on he was applying the

1 claim construction that he said he thought was appropriate. That means
2 diagnostics for the electric motor alone.

3 So, we have this preliminary issue as to whether or not that is an
4 appropriate construction. And still, until now, Patent Owner has not cited
5 anything in the intrinsic record that suggests that you can remove things that
6 are electric motor diagnostics, undisputably, because they're -- simply
7 because they also may include something else. That concept is in no way
8 supported by the '870 Patent specification. The only thing they cite is the
9 portion of the specification that talks about the VFD fault indicator. First of
10 all, I would note that's a totally different passage from the discussion of
11 electric motor diagnostics in the '870 Patent. There's nowhere in the patent
12 where they talk about electric motor diagnostics in one breath, and then they
13 contrast that in some way with a VFD fault.

14 The other issue is that when the '870 Patent talks about the VFD fault
15 indicator, it doesn't say that electric motor diagnostics couldn't be displayed
16 there. So, here again, we have the Patent Owner sort of trying to thwart
17 what's in the '870 Patent specification and trying to use that to justify an
18 exclusionary construction, which I've seen no case law indicating that
19 simply based on using certain words, you can construe a claim term to
20 exclude other words. I've seen no case law that would justify such a
21 construction.

22 If we could go to Petitioner's slide deck now, Ms. Ding. And if we
23 could go to slide 67, please. Oh, that's actually just one down from where
24 we already are. And so, I'd like to respond to some of the arguments that
25 Patent Owner presented about our theory in our petition that Toshiba Manual
26 is assuming that the heat sink being located on the thermistor is actually

1 what's required by claim 7, which again, we dispute that the claim language
2 requires that. But if the Board agrees that that language having heat sink
3 having thermal sensors requires that the thermal sensor be located, not
4 merely associated with the heat sink. We do put forward the argument that
5 that would be an obvious modification. And as we discussed in our reply
6 brief, Patent Owner's expert, shown here on slide 67, conceded that the heat
7 sink is certainly one location that the thermistor could be placed. What the
8 Federal Circuit's precedent tells us in Uber Technologies and the Supreme
9 Court tells us in the KSR cases, when you have a finite set of potential
10 locations for something, that it would be obvious for a person of ordinary
11 skill in the art to try those locations. Doesn't have to be the most obvious
12 location. It's just if you have a finite set, those would be obvious to try.

13 And again, pointing to the evidence of record that we have here,
14 Exhibit 1007, that parts list that we discussed the appropriate inquiry
15 because a person of skill in the art would be considering all of that evidence.
16 What is the most logical location? What is the most obvious location for the
17 heat sink thermistor? What Toshiba calls the heat sink thermistor. There's
18 simply nothing to -- that evidence alone is enough to find that it
19 would -- probably the first one that a POSITA would try is to put the heat
20 sink, to put the thermistor on the heat sink.

21 Now, Patent Owner argues that they believe this is a new argument
22 and it wasn't appropriate to be considered. We would submit that it is
23 appropriate, to the extent that the Board considers this new argument, it's
24 perfectly appropriate to consider this under the Apple v. Andrea Electronics
25 case shown here on slide 68, 949 F.3d 697. I would note that all of -- we are
26 not relying on any additional evidence. The Patent Owner seems to be

1 faulting us for not submitting an expert declaration. Under the case law, it
2 actually says, if you're not submitting any new evidence, if you're just using
3 the evidence of record, that's actually a good factor in considering whether
4 or not we should consider this new argument. And so, we relied on all of the
5 same evidence of record and we're not changing the ground either. This is
6 still looking at a combination of Coli and Toshiba Manual exactly as ground
7 1 discussed in the original petition. And per the Apple case, this new
8 argument, to the extent the new argument is also responsive to the Patent
9 Owner's response.

10 There was never any discussion -- there's nothing specific in the claim
11 that says that the thermistor has to be located on the heat sink. This is a new
12 argument presented by the Patent Owner in their response. And so, we
13 believe that it's perfectly appropriate for us to respond to that argument by
14 showing that that would be an obvious location.

15 Patent Owner argues that they were prejudiced because they couldn't
16 have known that this would -- that our position would be that the schematics
17 have a relevant disclosure. But again, I would point the Board to our
18 petition where we, on slide 64, where we specifically mention the website
19 and how a person of skill in the art would rely upon that material on that
20 website. And, in fact, our expert cited, again to not just somewhere in that
21 300-page document, but to the exact schematics page 254, three pages after
22 the parts list that we're relying on here. So, I don't think there's any
23 argument the Patent Owner is prejudiced by our relying on evidence that is
24 clearly within the gamut of what we said we were going to rely upon.

25 How much time do I have left, Your Honor?

26 JUDGE HOSKINS: About three minutes.

1 MS. FLANNERY: Okay, I'll go back to slide 62. Also, a note about
2 the Toshiba Manual disclosure of the heat sink thermistor. Even under the
3 inherency theory that we described, it's appropriate for the Board to consider
4 this evidence as the Hospira versus Fresenius case of the Federal Circuit 946
5 F.3d 1322 stands for the unremarkable proposition that even an inherency
6 analysis isn't necessarily limited to just the evidence in Exhibit 1006 that is
7 the prior art reference. A person of skill in the art is allowed to consider
8 extrinsic evidence in determining what would have been inherently
9 disclosed, particularly extrinsic evidence that's specifically mentioned in our
10 petition and our Petitioner's declaration.

11 Finally, I'll talk about Loucks. Ms. Ding, if we could go over to the
12 Petitioner's deck, slide 29, please. I'm sorry. Patent Owner's deck. Excuse
13 me. Now here, I think this involves some of the Board's questions about
14 what exactly we're relying on with Loucks. And are we relying on the alarm
15 limits or not?

16 And I'm sorry, just go one more slide over to, I believe it's slide 30.
17 There we go. That's perfect. So, to be very clear, the monitoring that we are
18 relying on in Loucks is the monitoring of the temperature sensor for, in order
19 to calculate the cooling efficiency. Now, there was the question as to
20 whether or not there was feedback. It's true that that temperature
21 measurement isn't used, necessarily, in Loucks, to trigger some other action.
22 That is true.

23 But as Figure 2 of Loucks clearly shows, we're not doing this
24 calculation for no reason at all in Loucks. If there's a problem with the
25 efficiency of the cooling method, there will be a notification announced,
26 notification 260. And that is part of the method that we're relying on. And

1 paragraph 18, when we -- and that's the portion here that's quoted above.
2 This is the part of the specification where Loucks explains to a person of
3 skill in the art why they're doing these things. Why are they issuing that
4 notification? What is the point of the invention? And the point of the
5 invention is because if you wait until a high-temperature limit was reached
6 in some other system, then you would have damage.

7 So, instead, Loucks is using its notification, its cooling efficiency
8 method, to make sure that you give a notification before that alarm limit is
9 reached. And there's no dispute that the alarm limit is the point at which
10 damage would start to be incurred. I don't think there's any dispute about
11 that. And so, again, while that is not part of the method that we are relying
12 on, that is clearly evidence that we are relying on. We cited it in our
13 petition. That's not a new theory. That is evidence that the method that is
14 shown in Figure 2 of Loucks, the point of it is to reduce damage caused by
15 excessive heat. And so, that's, we seem to have some sort of
16 misunderstanding as to what the read is. But hopefully that's a little bit
17 clearer now.

18 I think that's all I have. And I'm probably close to out of time.

19 JUDGE HOSKINS: That is about right. So, thank you. Thank you
20 for that.

21 Mr. Hopkins, so, you have 18 minutes left for your sur-rebuttal, and
22 you may begin when you are ready. Thank you. You may be muted. I can't
23 tell if you're trying to talk or not, so.

24 MR. HOPKINS: Trying to get the screen sharing working.

25 JUDGE HOSKINS: Fair enough. Well, I have not started the clock
26 yet, so thank you.

1 MR. HOPKINS: So, thank you, Your Honor. I heard Petitioner
2 mention that claim construction is dispositive (phonetic) to the claim. And I
3 do want to point out that whether the VFD, whether Toshiba's VFD fault
4 satisfies the electric motor diagnostics does depend on the claim
5 construction. Notably, Petitioner does not argue that the Toshiba VFD fault
6 satisfied Patent Owner's construction. So that if the Board does determine
7 the Patent Owner's construction is correct, that's dispositive on the issue.
8 Additional mapping requires that the Board adopt its imperfect instruction.

9 Now turning to that, the Petitioner brought up these passages and
10 showed these slides and there, they were, kind of putting the burden on
11 Patent Owner to show that whether these mean different things. And what's
12 important here is it's not Patent Owner's burden to show that the patent
13 discloses things and it means them to be different. It's actually Petitioner's
14 burden as held in Dynamic Drinkware throughout the proceeding in that IPR
15 to show that they mean the same. Petitioner bears the burden to show this
16 by a preponderance of the evidence.

17 So, I'm going to turn now to one of Patent Owner's slides where they
18 pointed out, this is slide 67, Patent Owner's slide, where they noted that
19 Patent Owner's expert in his declaration said the internal thermistor could be
20 placed in various internal locations. Now, just because something could be
21 done doesn't mean it's evidence of obviousness. And we've actually cited a
22 case *Polaris v. Arctic Cat*, that Petitioner also showed evidence what could
23 be. And just because something is evident of what could be done does not
24 mean that it's evidence of obviousness. And that's what *Polaris v. Arctic Cat*
25 claims.

1 JUDGE O'HANLON: Mr. Hopkins, this is Judge O'Hanlon. Just for
2 clarity of the record, I believe you're showing Petitioner's slides. I believe
3 you said Patent Owner's slides.

4 MR. HOPKINS: I'm sorry, I meant to say Petitioner's slide 67.
5 Thank you, Your Honor. And again, for it to be obviousness it matters what
6 would be done and not what could be done. So, turning to slide 68, this is
7 Petitioner's presentation with regard to the Apple v. Andrea case. The key
8 here was what the petition said about the heat sinks having thermal sensors.
9 And that was, it was inherently disclosed and it says it was necessarily
10 present in (inaudible). Their Exhibit 1007 is not Exhibit 1006. So, there is
11 different evidence, paper multiplayer (phonetic) replies using evidence. And
12 the ground is effectively being kind of shape-shifted here where it's not in
13 light of the Toshiba Manual, but in light of the Toshiba VFD as a whole.
14 And the reply was very careful in wording of saying the Petitioner just failed
15 to prove, I'm sorry, the Patent Owner response was careful to note that
16 Petitioner failed to prove that this is important. It didn't open the door to
17 allow additional arguments and additional evidence that, to demonstrate that
18 the heat thermistor having -- sorry, the heat sink having a thermal sensor was
19 either obvious or disclosed. It was -- so. Then I'd also like to talk about the
20 Hospira case, which here is shown on Petitioner's slide 62. And here, I think
21 there's some important differentiating facts that need to be brought up for
22 Hospira. First, this is the District Court proceedings. Second, if you look at
23 the next page from this site at 1330, the District Court had a full expert
24 report that addressed this extrinsic evidence. The person -- or the party on
25 the other side of the -- was able to depose the expert on that. They were able
26 to understand the theory before the case. Here we're getting this with the

1 Petitioner reply cited, no expert declaration, and it wasn't included in the
2 petition. So, we were prejudiced in not being able to know how Petitioner
3 planned to use these documents. So, that's a key difference, I think, in the
4 Hospira case versus this proceeding.

5 So, with that, Your Honors, I have nothing more. So, I take this time
6 to answer any questions that you might have.

7 JUDGE HOSKINS: Thank you, Mr. Hopkins. I do not have any
8 further questions and it appears my colleagues also do not. So, I want to
9 thank all the Counsel today. This was really an excellent presentation from
10 both Counsel representing our two parties here today. We will obviously get
11 you your final written decision in due course. It's a little bit closer this time
12 because we had to set back the hearing, but it'll come out by the statutory
13 deadline. And again, the, you know, the Patent Owner's objections to the
14 demonstratives still stand, and if we need to reach those, we'll reach those
15 one way or another.

16 So, thank you again for your time. We're going to adjourn, but just
17 hold the line everyone, for a moment please, and we can make sure that the
18 court reporter has all the information that he needs.

19 COURT REPORTER: Looks like I've got all the info I need. The
20 demonstratives were helpful. If I have any questions, I will submit an email
21 to all other parties. Anyway, we're good. Thank you.

22 JUDGE HOSKINS: Okay, thank you Mr. Watson. So, again, thank
23 you all and have a good day.

24 MS. FLANNERY: Thank you, Your Honors.

25 (Whereupon, the proceedings at 2:41 p.m. were concluded.)

IPR2023-00558
Patent 11,136,870 B2

PETITIONER:

Elizabeth D. Flannery
Chad C. Walters
Brandon Chen
BAKER BOTTS L.L.P.
liz.flannery@bakerbotts.com
chad.walters@bakerbotts.com
brandon.chen@bakerbotts.com

PATENT OWNER:

Brian E. Ferguson
Matthew Hopkins
J. Tyler Boyce
WINSTON & STRAWN LLP
beferguson@winston.com
mhopkins@winston.com
tboyce@winston.com