UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

PERMIAN GLOBAL INC., and
MANTICORE FUELS, LLC,
Petitioners,
vs.
FUEL AUTOMATION STATION, LLC,
Patent Owner.

_____

Case: IPR2023-01238 U.S.; Patent No. 10,974,955
Case: 2023-01236 U.S.; Patent No. 10.815,118
Case: 2023-01237 U.S.; Patent No. 9,586,805

DEPOSITION OF JOHN RODGERS, Ph.D., P.E.
Tuesday, August 6, 2024
400 West Maple Road, Suite 350
Birmingham, Michigan

Job No.: 2024-951018
Pages: 1 - 227
Stenographically Reported By:
Alison C. Webster, CSR-6266, RPR, RMR, CRR, RDR

Deposition of JOHN RODGERS, Ph.D., P.E., produced as a witness at the instance of the Petitioner, and duly sworn, was taken in the above-styled and numbered cause on Tuesday, August 6, 2024, from 9:03 a.m. to 3:18 p.m. Eastern Time, before Alison C. Webster, RPR, CRR, RMR, RDR, CSR-6266 (Michigan); License No. 14559 (California); License No. 084.004953 (Illinois); License No. 23001848 (Washington); CSR-12432 (Texas), reported by stenographic method, located at 400 West Maple Road, Suite 350, Birmingham, Michigan, pursuant to the Federal Rules of Civil Procedure and the provisions stated on the record or attached hereto.

A P P E A R A N C E S

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T A B L E O F C O N T E N T S

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JOHN RODGERS, Ph.D., P.E.

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BY MS. FLANNERY: 224

E X H I B I T I N D E X

Exhibit Page

(Exhibits attached to transcript.)

EXHIBIT 1 9
Declaration of John Rodgers, Ph.D.,
P.E., Case No. IPR2023-01237
EXHIBIT 2 9
DECLARATION OF JOHN RODGERS, Ph.D.,
P.E., Case No. IPR2023-01238

E X H I B I T I N D E X C O N T I N U E D

EXHIBIT 3 9
DECLARATION OF JOHN RODGERS, Ph.D., P.E., Case No. IPR2023-01236
EXHIBIT 4 36
U.S. Patent 3,826,275 - Courtright
EXHIBIT 5 40
U.S. Patent 10,974,955 B2 - Shock
EXHIBIT 6 42
U.S. Pub. No. 2011/0197988 A1 - Van Vliet
EXHIBIT 7 92
Wayback Machine printout, AFD Onsite Refueling Equipment
EXHIBIT 8 107
Wayback Machine printout, Coxreels 1125 Series Competitor hand crank
EXHIBIT 9 121
ASTM International Designation: D975-13 Standard Specification for Diesel Fuel Oils

E X H I B I T I N D E X C O N T I N U E D

EXHIBIT 10 137
Scientific Research Publishing
document, Analysis of Emissions
Profiles of Hydraulic Fracturing Engine
Technologies
EXHIBIT 11 153
Wayback Machine printout, Designation
Ltd. Fuel Hose
EXHIBIT 12 167
Native Excel document, Flow
Calculations 5-28-2024
EXHIBIT 13 169
U.S. Patent 3,810,487 - Cable
EXHIBIT 14 221
Photos - CONFIDENTIAL

DEPOSITION OF JOHN RODGERS, Ph.D., P.E.

Tuesday, August 6, 2024

STENOGRAPHER: Dr. Rodgers, would you please raise your right hand.

Do you swear or affirm the testimony you are about to give in this matter will be the truth, the whole truth, and nothing but the truth?

DR. RODGERS: I do.

STENOGRAPHER: Thank you.

You may proceed.

MS. FLANNERY: Good morning.

THE WITNESS: Good morning.

JOHN RODGERS, Ph.D., P.E., was thereupon called as a witness herein, and after having first been duly sworn to testify to the truth, the whole truth and nothing but the truth, was examined and testified as follows:

EXAMINATION

BY MS. FLANNERY:

Q. Please state your full name for the record.

A. John Rodgers.

Q. And, Dr. Rodgers, where you do reside?

A. I live in Connecticut.

Q. Dr. Rodgers, I know you've been deposed before.

Roughly how many times in your career have you been deposed?
A. Let's just say, ballpark, 20.
Q. When was the last time you were deposed?
A. Wow, that's hard to place.
Q. Ballpark.
A. Certainly in the last year. I can't quite remember if I've had one in 2024 or not. My apologies.
Q. Well, since you've done this at least a handful of times we'll dispense with all the rules, but just a quick reminder since it may not have been too recently since you were deposed, just a reminder that we should avoid talking over each other to avoid aggravating the court reporter.
Is that acceptable to you?
A. It is.
Q. If at any time you need a break, please let me know, I'm happy to accommodate that. If there's a question pending, I will need you to go ahead and answer the question before we take a break. But just, you know, let me know and we should be able to manage that.
Is that acceptable to you?
A. It is.
Q. Okay. Very good.
Any reason you wouldn't be able to give

truthful and full testimony today?
A. No.
Q. Okay. And, Dr. Rodgers, I see you brought a binder with you today. Can you tell me what's in that binder?
A. These are clean copies of my three declarations in this case.
Q. I'm going to mark copies of those same declarations, I think. I'm happy for you to use those if you prefer, just make sure that you're looking at the same one that -- the right one --
A. Okay.
Q. -- when I'm asking questions, that's all.

MARKED FOR IDENTIFICATION:
EXHIBITS 1-3
9:06 a.m.

A. I just thought of one side note. I left my eyeglasses in Alex's office. I think I'll be okay, but we may reach a point where I can't read something and I'm going to need to run upstairs and grab those.
BY MS. FLANNERY:
Q. Okay. Just let me know if we need to do that.
A. This is fine. I can read, you know, the 12-point or 14-point font.
Q. All right, Dr. Rodgers, I've handed you what has been

1 marked as Exhibits 1, 2, and 3 to your deposition.
2 If you could just confirm for me Exhibit 1
3 is your declaration in the IPR for the '805 patent?
4 A. Yes.
5 Q. And Exhibit 2 is your declaration in the IPR for the
6 '118 patent -- oh, I got that wrong. Strike that.
7 Exhibit 2 is your IPR in the declaration
8 for the '955 patent.
9 A. That's right.
10 Q. And Exhibit 3 is your declaration in the IPR for the
11 '118 patent.
12 A. That's right.
13 Q. All right. Excellent.
14 Let's start with Exhibit 1. And I'd ask
15 for you to turn to paragraph 10 of Exhibit 1 --
16 A. Okay.
17 Q. -- under the heading Qualifications.
18 A. Yes.
19 Q. And under this heading, Qualifications, you've listed
20 certain portions of your experience; is that right?
21 A. Right.
22 Q. Certain portions of your experience that you felt was
23 relevant to this case?
24 A. Some of it might be more general than specifically
25 relevant. I'm not sure.

Q. Okay. Well, let's take as one example, in paragraph 10, in the last sentence or the -- yeah, in the last sentence of that, you talked about work that you had done involving the development of actuation systems for helicopter vibration control. Do you see that?

A. I do.

Q. Do you feel that that experience is relevant to the patents in this case?

MR. SZYPA: Objection to form.

A. It's relevant to my educational background. That's part of my -- the foundation on which I built my consulting business in downhole tools and oil field equipment, that kind of thing.

BY MS. FLANNERY:

Q. Okay. And have you found that educational background -- have you applied that background in your -- giving your opinions in this case?

A. It's part of it, sure. So, for example, it's not necessarily -- I can't remember if it's part of any of the claims, but diesel refueling systems have control systems. I learned about control systems doing that work on helicopters and applied the same technology, the same, you know, technical aspects to the work when I'm looking at something like a diesel

1 refueling control system.
2 That's just one example.
3 Q. Okay. Fair enough.
4 Going a little further into the
5 declaration, let's go to paragraph 12, which is the
6 next page.
7 And at the first sentence of that
8 paragraph, you state, "I have extensive experience in
9 directional drilling and in the development and
10 application of downhole tools used for this purpose."
11 Do you see that?
12 A. I do.
13 Q. The refueling systems that are the subject of the
14 patents in this case, those are not downhole tools; is
15 that correct?
16 A. That's right.
17 Q. Do you feel that that experience is still relevant to
18 the patents that are in this case?
19 MR. SZYPA: Objection. Form.
20 A. It's generally relevant because I just have a broad
21 array of experience working in the oil field, working
22 with operations that are going on on the rig site --
23 on the well site, excuse me. So the experience
24 specifically with directional drilling, it just
25 relates to my general background of the operations on

a well site.

BY MS. FLANNERY:

Q. And have you applied that general background experience in providing your opinions in this case?

A. I don't know if it plays into any specific opinion. It's just general background knowledge.

Q. You mentioned your experience in the oil field. What companies have you worked for in the oil and gas space?

A. Well, one customer is Halliburton. Shell. This is probably like 20 or so companies. Do you want -- how exhaustive of a list would you like?

Q. You know, four or five of the ones that you remember most recently, or the -- I guess I should say that you consider to be the most relevant to this case.

A. Most relevant to this case.

MR. SZYPA: Objection to form.

A. Boy, it's hard to remember them all.

Let's see... Innovex, formerly known as Team Oil Tools.

I'm drawing a blank.

KLX Energy.

BY MS. FLANNERY:

Q. I'm sorry, can you spell that?

A. K-L-X Energy.

Those are probably the ones I can remember most recently. I can't remember -- I'm sure there are others, I just can't think of them offhand.

Q. Understood.

Have you ever designed or built a fueling system?

MR. SZYPA: Objection. Form.

A. I cannot recall -- I don't think I've ever designed or built a fueling system, but I certainly understand how these systems work.

BY MS. FLANNERY:

Q. And to be clear, I'm not intending -- I wasn't intending to limit that to fueling systems in the oil and gas industry.

So is that consistent with how you understood the question?

A. It is.

Q. Okay. Have you ever worked with fueling systems for fracturing pumps?

A. I haven't -- I don't have specific work experience on fueling systems for frac pumps.

Q. Have you ever worked with any system that included hose reels?

MR. SZYPA: Objection. Form.

A. Boy, I'm trying to remember if I've come across it in

work experience. Certainly in my personal experience. Outside of my consulting business, I've certainly come across a lot of hose reels.

BY MS. FLANNERY:

Q. In your personal experience, what kinds of hose reels are you referring to?

A. I would be referring to, you know, water hose reels that you would find in a residential setting.

Q. Got it. I have one of those.

A. I've had many. Some better than others.

Q. Understood.

Have you ever been to a site where fracturing operations were being performed?

A. I have not been on-site during a frac operation. I have just seen a lot of videos and I've worked on a lot of the equipment involved, but I haven't been on the site during the actual operation.

Q. Have you been on a fracturing site either before or after the operation was performed, but you know that it was a site where fracturing was going to be performed?

A. I don't think so.

Q. The photos and videos of fracturing operations that you -- of equipment used in fracturing operations that you've seen, when would you have seen those? And

specifically -- I don't need a specific date. I'm looking for, was it before or after 2016.

A. I would say off and on over my entire career. So I've been working in the oil field since 2003, so off and on as I get projects related to operations, various operations going on in a well, some of them being fracking, then I would have reason from time to time to be either looking at the equipment or looking for how the equipment is used in the operations.

And certainly YouTube, for example, provides a lot of videos, marketing videos specifically from companies offering frac services. There have been videos out there for many, many years.

So I don't know exactly when I might have seen them, but I know it's been off and on for many years.

Q. Have you ever seen a video of a fueling system used on a frac site?

MR. SZYPA: Objection. Form.

A. Are you referring to one in operation?

BY MS. FLANNERY:

Q. Yeah, that was a poor question. Let me try it again.

Have you ever seen a video of a fueling system on a frac site in operation?

A. I don't recall. I can't think of one.

Q. Have you ever seen a video of people on a well site rigging up or rigging down a fueling system at a frac site?
A. I don't recall seeing a video of that. I just recall my inspection when I went down to Victoria, Texas, and inspected one of the FAS units and got to look at all the equipment there. That would be, you know, what informed me a lot about how these systems operate.
Q. Was the system operating when you went there and inspected it?
A. It was operating in a -- in a test demonstration inside their work space.
Q. Okay. So it wasn't connected to a frac pump that was actually pumping frac fluid down a hole into a well.
A. That's correct. It was just connected to fuel tanks, not to the actual frac pumps.
Q. Okay. Do you know how long that takes for personnel to rig up or rig down a fueling system at a frac site?
A. It takes quite a while because -- well, of course, it depends on the size of the frac job, the distances involved, how far they have to run the hoses. So it can vary quite a bit. Also the number of personnel that they dedicate to that task.
So it's a very broad range, but it's not a

very easy thing to do because of the distances and the amount of equipment that you have to work around in making sure you're not damaging or interfering with anything else, damaging your hoses or interfering with any other items that you have to work around on the site.

Q. So how do you know how long it takes?

A. I'm saying it varies quite a bit. So I can't answer the question specifically, but it -- you know, I can give you a broad range. It takes many hours, if not days. It depends on how many people you have to set that up and how big the frac site is.

So more likely it's hours to a day or two to get everything in position, and that's from, you know, looking at the equipment and talking to the operators there in Victoria.

Q. Okay. So that's -- the last part, I think is what you said, you said it takes -- you believe it takes many hours to days. What is the source of information for you to know that? Is it talking with operators in Victoria?

A. I don't believe I ever asked that specific question and got that specific answer, it takes X number of hours. I think I've just had many discussions talking in Victoria, and then I should also add that

weekly phone calls for a couple of months where the inventor, Mr. Shock, was on the calls.

So I've just had multiple discussions over a long period about the operation of these systems, and I can't recall specifically hearing a number. I've just got a lot of background about how these systems work and the challenges and risks of setting up the systems and operating the systems, and that's informed me about how long I think it would take to do that kind of thing.

Q. Okay. So I recognize you don't remember getting an hour. Did you get an estimate of the amount of time that it takes to rig up or rig down, from Mr. Shock or someone else on those phone calls?

MR. SZYPA: I'm going to caution you not to disclose any attorney-client communications in answering that, but you can -- if you can answer without doing that, then please go ahead.

A. I can't remember asking or getting an answer to a specific number. It's just the general background of how these things -- the process, the steps that have to be taken that informs me as a mechanical engineer, allows me to make a judgment about how long that would take to do.

BY MS. FLANNERY:

Q. Okay. So based on the description of the steps that need to occur, you have made an estimate of it taking hours to days to rig up a system like that; is that correct?

MR. SZYPA: Objection. Form.

A. I'm thinking about what you just asked.

So the general background has informed me so that I can make my own internal estimates, when you just asked me that question about how long it would take to do this. And as I answered, it's an extremely broad range depending on a lot of factors.

So it depends on how many people, how big the frac site is, how many hoses. Lots of factors go in, but I can tell you it's going to take a range of time going from many hours to more depending on the size and all those other variables.

BY MS. FLANNERY:

Q. Based on the information you have, you're comfortable it wouldn't take less than an hour.

A. Correct.

Q. And is that based -- and that is based on what information again?

MR. SZYPA: Objection. Asked and answered.

A. I don't know how to say it any differently. I feel like I've already answered that. All that

information I just explained that's come into my brain over the course of this period of time here.

BY MS. FLANNERY:

Q. Okay. I think you said earlier you have been working -- you had been doing work in the oil and gas industry for -- since 2003, I think is what you said.

A. That's right.

Q. Do you recall the first time that you did work with equipment used for hydraulic fracturing?

A. Well, I had exposure to equipment very early on in that -- in my oil field career, we'll say starting in 2003. So very early on I was familiar with Halliburton's mud pumps that are used, the horsepower that drives the high-pressure frac fluid into the well to fracture the rock.

So I had that type of exposure very early. I don't remember exactly what year that was.

And then by 2000 -- I want to say 2007 or so, I started working with Innovex on frac equipment that they use. Then -- yeah, I can't -- I can't recall exactly when I worked with other frac equipment at the moment. I think I'd have to think about that for a while. But I know I've worked on several different types of frac equipment over the years since that time.

So those are the only ones I -- those are the only details I can place at the moment.

Q. Okay. You mentioned having worked with mud pumps from Halliburton; is that correct?

A. Right.

Q. Are mud pumps used to pump fracturing fluid?

A. So there are different types of pumps. There's a range of different high-pressure pumps used in the industry, so some can be used for drilling, some are using for fracking. But in general, this class of very large pumps is what I'm referring to getting exposure to.

Q. Okay. So different types of pumps. Is -- are mud pumps one type of pump that you're talking about?

MR. SZYPA: Objection. Form.

A. There are specific types of pumps that are optimized for different purposes in the oil field. I'm referring in general to my experience in handling or -- not handling, that's the wrong word. Being exposed to very large pumps used to push high-pressure fluids into well bores.

So there are different reasons you might push fluids into well bores, different types of fluids you'll push, and so there are different optimizations of pump designs for various applications.

BY MS. FLANNERY:
Q. Okay. And are mud pumps the type that are optimized for fracturing operations?
A. I guess mud pumps generally are optimized for pumping drilling mud, for drilling operations, whereas pumps optimized for fracking would be optimized for fracking and carry that type of fluid.
Q. Okay. But I guess to your point, all of those different types of pumps are large pumps used in the oil industry for pumping fluids down a hole.
A. That's what I'm saying.
Q. Okay. What did you do to prepare for the deposition today?
A. I reviewed my declarations and the major piece of the prior art. Just reviewed the exhibits cited in my declarations. I met with Alex a couple of times last week and yesterday. I think that's about it.
Q. Okay. Your meetings with Alex, total how much time was spent at those meetings?
A. If I add it all together, probably four hours.
Q. Was there anyone else present for those meetings?
A. Matt Koziarz was in on the meeting briefly yesterday when I was here in person.
Q. Okay. The other meetings that were before yesterday were not in person?

A. Right.
Q. Okay. Anyone else present for those meetings?
A. No.
Q. Let's go back to Exhibit 1, which is your IPR on the '805 patent. And I'd like you to turn to page -- sorry, paragraph 68. It's under the heading Level of Ordinary Skill. Do you see that?
A. I do.
Q. And you've reviewed this definition and understand it?
A. I have.
Q. And you qualify as a person of ordinary skill in the art under this definition; is that correct?
A. I do.
Q. The first prong of it defines the person of ordinary skill as having a bachelor of science in mechanical engineering, electrical engineering, petroleum engineering or an equivalent field, as well as at least two years of academic or industry experience in the oil and gas industry, including well drilling completion or production.
Do you see that?
A. I do.
Q. Okay. Let's take the first of those under the "including," at the end of that sentence, the well drilling.

1 Generally speaking, that refers to the
2 process of actually drilling and forming the well bore
3 in the ground. Is that your understanding?
4 A. Yes.
5 Q. Okay. And I think you mentioned earlier that drilling
6 operations end up using drilling fluids, pumping those
7 drilling fluids into the -- into the ground; is that
8 right?
9 A. Well, it's a -- that's what spins the bit,
10 essentially, so you're drilling with that.
11 Q. Okay. Are those pumps -- and those -- those are mud
12 pumps that pump that fluid, spin the drill bit?
13 A. That's what they're referred to as, yes.
14 Q. Are those -- and I guess in this series of questions
15 I'm asking, I'm going back in time a little bit to the
16 2016 time period that we're using relating to these
17 patents. Understand that?
18 A. Yes.
19 Q. Okay. As of that time period, were mud pumps -- those
20 were powered by some sort of fuel. Right?
21 A. Right.
22 Q. Was it typically diesel?
23 A. I believe it was diesel.
24 Q. Do you know how the pumping pressures, when you're
25 pumping a drilling fluid, how that compares to the

pressure at which a fracturing fluid is pumped? Is it higher or lower?

A. Fracking requires higher pressure.

Q. Okay. Do you know generally how the fuel consumption for those mud pumps compares to the fuel consumption for, say, a fracturing pump?

A. I do not.

Q. Going back to the definition of the level of ordinary skill, after "well drilling," you see -- actually, I'm going to take it a little bit out of order. It refers to "production" at the end.

A. Right.

Q. Production refers to the process of getting the oil or gas out of the well. Is that fair to say?

A. Yes.

Q. Okay. Some of those operations use pumps as well. Right?

A. Yes.

Q. What types of pumps do -- does production end up using?

A. Well, the most common would just be a -- one of those beam pumps you see dotting the land across the United States where they're just using some sort of artificial lift to help get the oil and gas out of the well. So you'll see these beam pumps

1 cantilevered going up and down, as I'm indicating
2 with my arm.
3 Q. My friends that are in -- that are in the UK refer to
4 those as nodding donkeys, I think is what we're
5 talking about.
6 A. Nice.
7 Q. I think we're talking about the same equipment, yes?
8 A. Yes, I think so.
9 Q. Okay. All right. Are those types of pumps, are those
10 also fuel powered?
11 A. Those tend to be electric powered.
12 Q. Okay. Do you know why those are electric powered as
13 opposed to powered by diesel or some other liquid
14 fuel?
15 A. Well, in my estimation, it would be because it's just
16 a lot easier if you don't have to keep refueling your
17 diesel tank. Those electric pumps and these beam
18 pumps just run for years on end with minimal
19 intervention required, so you might as -- if you have
20 access to electric power, you are going to use that.
21 Q. And I recognize they are -- those pumps are not
22 necessarily pumping fluid into the well, they are
23 sucking the fluid out, but the pressure at which it's
24 doing that, do you know how that compares to the
25 pressure of a fracturing fluid?

MR. SZYPA: Objection. Form.

A. Well, the pressure at the bottom is going to be whatever the hydrostatic pressure is in the well. It's just the downhole pressure. I guess it could be a little higher if there's surface pressure.

So generally speaking, we're talking about lower pressures in general, and by the time they reach the surface, it's very low pressure.

BY MS. FLANNERY:

Q. And then back to the definition there in paragraph 68, we'll do the last one, at "completion," "completion operations," generally what does that term mean as you understand it?

A. Well, that's what you do to the well to prepare it for production, in general. So completing refers more to the -- you're putting casing in and you're perforating and getting the well ready so that it can flow back and produce.

Q. Okay. Fracturing is one type of well completion; is that right?

A. Well, fracturing is commonly a step done in the completion process.

Q. Okay. I think you mentioned a couple of other examples of completion. Running a casing; is that right?

A. Right.
Q. Are there any completion operations other than fracturing that you're familiar with that involve pumping a fluid down into the well?
A. Well, there are -- there are tools that operate in -- that are used in the completion process that require pressure to engage or activate, so there -- it's -- there are pumps involved, there are places where you need to pump fluid into the well bore for different purposes. It's used in a different way than you would during the fracking process.
Q. Can you give me an example of one of those types of operations where you're using fluid -- you're pumping -- you're using a pump to pump fluid into the well for a completion operation other than fracturing?
A. Sure. So there are downhole tools that are part of the tool strings that go into what we call completion tools where you are required to activate the tool by pumping pressure either through the annulus on the outside of the tools or through the interior of the tool string itself, and there -- that pressure, high-pressure fluid, is pushed down to shift a mechanism; for example, to set a packer or open up ports or even open up frac ports. It could be tools in the casing where you're applying pressure to open

up ports.

So that's the most common way. It's a way of communicating and providing the energy you need to shift something, to change its state.

Q. In those types of operations, do you have a sense as to whether the pressure at which the -- that fluid is pumped is higher or lower than a fracturing operation?

A. It would be lower.

Q. The pumps that are used in those types of operations, again, going back to the 2016 time, so still in that time period, were those pumps typically powered by a fuel-like diesel?

A. That would certainly be the most common way to do it, yes.

Q. Are there liquid fuels other than diesel that are used to power pumps, like some of the ones that we've described?

MR. SZYPA: Objection. Form.

A. I just don't recall. I can't think of an example.

BY MS. FLANNERY:

Q. What about other equipment at a well site? Certainly there are trucks, normal pickup trucks that are used at a well site in fracturing operations, yeah?

A. Sure, there are trucks. They would most often run on diesel. Some might be gasoline, but I imagine diesel

is more common.
Q. Any other types of equipment that might be gasoline powered as opposed to diesel?
A. I think diesel is generally preferred. I don't recall coming across applications where gasoline is preferred.
Q. In your experience, have you ever seen gasoline-powered equipment on a frac site?
A. I don't recall.
Q. Back in the 2016 period, was natural gas used to power fracturing pumps?
A. I'm not sure when natural gas started becoming more common. I'm sure it was used in some locations because of the prevalence of natural gas as all these shale plays were being pursued in the middle of the 20-teens time period. I don't know exactly what year those became more popular.
Q. Fracturing sites are usually remote sites, not in your big cities. Right?
A. More often than not, yes.
Q. To generate electricity at a frac site just for, you know, people to be able to be at a site comfortably, do you know how that electricity is generated?
A. Well, I'm sure if they have an opportunity to use natural gas, and natural gas is so prevalent, then

they try to use natural gas. Like I said, I don't know exactly the timing. I know there are operations that have used natural gas, that type of fuel, for generating power or for all sorts of different things because it's there.

Q. As of 2016, not -- even if they hadn't used natural gas, would they have used diesel for those purposes?

A. Diesel has been around -- has been more prevalent much longer. So, yes, I know diesel has been around -- I'm sorry, has been more prevalent. I don't know the details on a shift to natural gas, when that might have occurred exactly.

Q. That's fair. And the order that I asked the questions might have been confusing. All I want to confirm is that as of 2016, using diesel or other liquid fuels to generate power at a well site, not necessarily for the fracturing pumps but for other things going on, that would have been a common practice. Right?

MR. SZYPA: Objection. Form.

A. I don't know -- I'm sorry, did you ask me diesel --

BY MS. FLANNERY:

Q. Yes.

A. -- in 2016? I don't know exactly what was more prevalent when. I know that there has been -- like I said, there's use of natural gas, there's use of

diesel. I don't know in 2016 which one might have been more prevalent, I just know there was still a lot of equipment using diesel for frac.

Q. Okay. And the only point I'm trying to clarify is that that equipment would have used -- would have included power generators, not just fracturing pumps. Correct?

MR. SZYPA: Objection. Form.

A. In general, they need power as well, so there would be power generation on a well site using either natural gas or diesel, maybe even some other fuel.

BY MS. FLANNERY:

Q. Do persons of skill in the art in this field -- again, including 2016, but this may be true now -- would they agree that time is money in fracturing operations?

A. Sure.

MR. SZYPA: Objection. Form.

BY MS. FLANNERY:

Q. And that's because all that equipment that we've been talking about has to be paid for at the well site while it's sitting there; is that right? That's at least one reason.

A. That's right.

Q. And if that equipment is sitting there idle, not doing its job, that's more time that's going to be paid for

for the equipment to perform the fracturing operation. Fair to say?

A. That's generally true.

Q. Okay. I'd like you to go to -- well -- so in a fracturing operation, would it be desirable to perform the steps that you have to perform as quickly as possible without sacrificing safety?

MR. SZYPA: Objection. Form.

A. That's just generally true in the oil field.

BY MS. FLANNERY:

Q. And fracturing isn't -- is not an exception to that. Right?

A. Right.

Q. All right. Let's go to Exhibit 2, which I believe is your declaration in the IPR on the '955 patent.

A. All right.

Q. Got it. All right. And if you could go to paragraph 65, please.

I believe this is in a section of your declaration where you kind of talk about the background of the technology involved.

A. Yes.

Q. Okay. And there in paragraph 65, you state that, "A POSITA would have known that not all hose reels have fluid passages to the hose."

Do you see that?
A. I do.
Q. When you're talking there about hose reels, does that include hose reels that are used in fueling operations?
A. This is just a general statement, so it includes everything.
Q. Okay. Is that true of hose reels that a person of skill in the art would have considered in designing fueling systems?
MR. SZYPA: Objection. Form.
A. This is just a general statement. It would include everything. So not all hose reels have a fluid passage to the -- to the hose. That's -- it's just a very general statement. Applies to everything.
BY MS. FLANNERY:
Q. It applies to everything including fueling systems. Correct?
A. It's just in general. I'm not excluding or including anything in particular.
Q. Okay. Further down in that paragraph, you've got a drawing here. I assume that's a drawing that you pulled from a patent; is that right?
A. Yes.
Q. You referred to Exhibit 2008. I will confess, I

1 looked at Exhibit 2008 and I could not find this
2 figure. I don't think we need to make a big goose
3 chase out of it because I think I found the patent. I
4 want to just confirm that I have the right patent.
5 A. Okay.
6 MARKED FOR IDENTIFICATION:
7 EXHIBIT 4
8 9:42 a.m.
9 BY MS. FLANNERY:
10 Q. If you could -- my only question here is if you could
11 just confirm that this is the patent where you got
12 that example out of.
13 A. Yes, it appears to be.
14 Q. So you cited this patent as an example in your
15 declaration of a hose reel that doesn't connect --
16 doesn't have a fluid passage; is that right?
17 A. That's right.
18 Q. In your view, this is a patent -- this is at least one
19 patent, one example of a patent that a person of skill
20 in the art who is designing a fueling system would
21 have -- at least could have become aware of.
22 A. I think that's fair.
23 Q. So going back to your statement, "A person of skill in
24 the art would have known that not all hose reels have
25 fluid passages to the hose," I want to take the

1 converse of that statement.
2 Would a person of skill in the art have
3 known that some hose reels had a fluid passage to the
4 hose?
5 A. A person of ordinary skill would be aware that there
6 are hoses out there that have -- excuse me -- that
7 some reels are out there that have fluid passages
8 through them.
9 Q. And the Coxreels reference -- you're familiar with
10 that reference in this case?
11 A. I am.
12 Q. That's an example of one of those types of hose reels
13 that has a fluid passage?
14 MR. SZYPA: Objection. Form.
15 A. Coxreels is an example, yes, of a reel that has a
16 fluid passage.
17 BY MS. FLANNERY:
18 Q. There are other examples of hose reels that a person
19 of skill in the art would have been aware of that had
20 fluid passages. Fair to say?
21 MR. SZYPA: Objection. Form.
22 A. I mean, I can't say specifically -- again, my focus
23 has been on rebutting the petition and what
24 Dr. Durham has written in his report, so I have
25 specifically focused on the Coxreels example that he

provided.

So I don't know -- I haven't gone and looked, to answer your question, for other examples. I focused on what the petition contained.

BY MS. FLANNERY:

Q. Okay. In your experience, are you aware of hose reels other than the one shown in Coxreels that has a fluid passage?

MR. SZYPA: Objection. Form.

A. Yeah, I have seen other reels in my experience.

BY MS. FLANNERY:

Q. Is that other than the residential ones that you mentioned?

MR. SZYPA: Objection. Form.

A. I can't recall specifically if I have or I haven't.

BY MS. FLANNERY:

Q. Okay. Let's stick with the -- let's see, I think it's Exhibit 2, your declaration on the '955 patent IPR, and go to paragraph 71, please.

A. Okay.

Q. Okay. In the heading of this section you refer to some claim language that I guess is in Claims 1, 11, and 19, "a hose connected with a different one of the reels." Do you see that?

A. I do.

Q. Okay. And in paragraph 71, you give the opinion that that phrase "should be construed to mean that the an end of the hose is coupled to the reel." Is that right?
A. That's right.
Q. So it's your opinion that describes -- that that phrase describes the type of connection between the hose and the reel.
A. I don't know about "describes the type of connection," it just -- when it says the hose is connected with a different one of the reels, it means it's connected, as in the end of the hose is somehow fluidically coupled to the reel. It's not just wound on it without that connection. So I'm just referring to that.
Q. Okay. So is it your opinion that a hose that is wound -- just wound around the reel, not connected the way you described a second ago, that it has no connection to the reel?
MR. SZYPA: Objection. Form.
A. That's what I'm saying. And that's what this construction -- my interpretation of this construction is that it's just wound on the reel. It does not mean that it's connected to the reel.
MARKED FOR IDENTIFICATION:

EXHIBIT 5

9:48 a.m.

BY MR. SZYPA:

Q. I'm going to hand you what has been marked as Exhibit 5. This is a copy of the '955 patent. Can you confirm that?

A. Yes, it is.

Q. I'm going to turn you to the claims, specifically Claim 1.

And I'll refer you to the limitations, about five limitations down, "a plurality of hoses, each said hose connected with a different one of the reels."

Do you see that?

A. I'm getting to the edge of what I can see without my glasses, unfortunately. I'm sorry.

Q. It's okay. I mean, we've been going about 50 minutes, if you want to take a break now so you can do that.

MR. SZYPA: We'll take a break.

(Off the record at 9:48 a.m.)

(Back on the record at 9:58 a.m.)

BY MS. FLANNERY:

Q. Dr. Rodgers, we were referring to Claim 1 of the '955 patent, which is Exhibit 5, before the break. Do you recall that?

A. I do.
Q. All right. And about the fifth, I think, limitation down, the limitation that starts, "A plurality of hoses, each said hose connected with a different one of the reels."
Do you see that?
A. Yes.
Q. Okay. And that's the language that we were referring to from -- you referred to as elements 1E, 11E, and 19E in your declaration. Correct?
A. 19F, I think.
Q. Oh, thank you.
A. What I see here. But yes.
MR. SZYPA: He's got his glasses now.
THE WITNESS: Yeah, I can see now.
BY MS. FLANNERY:
Q. I appreciate it. I appreciate it.
So a little further along in that limitation, right after where we just left off, it says, "Wherein a portion of the reels are connected to be fed from the first manifold."
Do you see that?
A. I do.
Q. Does that phrase describe a relationship between the hose and the reel, hoses and the reel?

MR. SZYPA: Objection. Form.

A. "A portion of the reels are connected to be fed." So, yes, it's referring to the reels.

BY MS. FLANNERY:

Q. Okay. Does that describe a connection between the reels and any of the hoses?

A. That particular connection is referring to the connection to the manifold, if that's what you're asking.

Q. Okay. So is it your position that's not referring to a connection to the hoses?

A. So just the phrase, "wherein a portion of the reels are connected to be fed from the first manifold," that's not referring to the hose side of the connection, it's referring to the manifold side of the connection to the reel.

Q. Okay. And you agree that that language, that requires a fluid connection between a portion of the reels and the first manifold?

A. Well, that phrase, "wherein a portion of the reels are connected to be fed," is referring to a fluid connection from the manifold to the reel so that fluid can be fed to the reel.

MARKED FOR IDENTIFICATION:

EXHIBIT 6

10:01 a.m.

BY MS. FLANNERY:

Q. All right, you've been handed what's been marked as Exhibit 6 to your deposition, which is a copy of the Van Vliet reference. Do you see that?

A. I do.

Q. And this is a reference you've reviewed in the course of your work in this case.

A. Yes, it is.

Q. I wanted you to have that because I'm going to have some questions in your declaration from the '955 patent that relate to that. And that's Exhibit 2.

So let's go to Exhibit 2. And go to paragraph 87 of that one, please.

A. Okay.

Q. And there in paragraph 87, you've got a reproduction of Figure 1 from Van Vliet. Do you see that?

A. I do.

Q. You'd agree that at least this figure discloses a plurality -- a system that has a plurality of hoses?

A. Yes, it does.

Q. Okay. And you agree that each of those hoses -- those are labeled 24 in the photo -- in the figure, yes?

A. Yes.

Q. You agree that each of those hoses 24 is associated

with its own reel 30?
A. Yes, I agree that it's associated.
Q. Okay. The reels 30 that are in this diagram, how are the spindles of those reels oriented relative to the side wall of the trailer that's shown here?
And obviously if you need to refer to Van Vliet as well, you have it.
A. Thank you.
MR. SZYPA: Objection to form.
A. Yeah, I don't recall. Just looking at Figure 1, I don't recall -- I don't see it in Figure 1 and I don't recall if it specifies -- where it specifies. I'd have to -- if you can refer me to something in my report that would remind me, but I don't remember that it specifies the orientation of Van Vliet.
BY MS. FLANNERY:
Q. Yeah, I'm not aware of anything either, but at least in Figure 1, your understanding of that figure, it doesn't specify what the orientation of the reels is?
A. I don't see it.
Q. What are the possible orientations that a person of skill in the art would understand from looking at this diagram?
MR. SZYPA: Objection. Form.
A. Well, from -- you know, this diagram doesn't help me

or would not help a POSITA in determining orientation, is what I'm saying.

BY MS. FLANNERY:

Q. Okay. Would a POSITA have an understanding as to what the possible orientations are?

A. I think a POSITA would, yeah, know that there are many ways a reel can be orientated.

Q. And what are some of those possible orientations relative to the side wall of the trailer?

MR. SZYPA: Objection. Form.

A. I would imagine you could orient it with a spindle parallel to the wall or with a spindle perpendicular to the wall, for example.

BY MS. FLANNERY:

Q. Okay. In this Figure 1, the hose 24 comes away from the reel and toward the side wall. Do you see that?

A. I do.

Q. Does that give you any indication as to how the spindle of the reel is oriented?

A. Not necessarily, no.

Q. You'd agree that the hoses are deployed through the side wall of the trailer in this figure. Right?

MR. SZYPA: Objection. Form.

A. Well, just -- with the caveat that this is a schematic. It's not, you know, like a detailed

drawing of the physical layout of the trailer. The hoses seem to come out through the one side wall.

BY MS. FLANNERY:

Q. Okay. So even though Figure 1 is a schematic, you can at least tell that level of information from it?

MR. SZYPA: Objection. Mischaracterizes the testimony.

A. I would have to read to see if Van Vliet describes that more specifically, but the indication is that they seem to have the intent to show they're coming off that side wall. That's just an estimation.

BY MS. FLANNERY:

Q. Okay. If we take your estimation, if we assume that that is true in Van Vliet, what would be the most logical orientation for the reel spindles?

MR. SZYPA: Objection. Form.

A. The most logical for a POSITA?

BY MS. FLANNERY:

Q. Yes.

A. Well, I think a POSITA would orient the spindle parallel to the wall. But I don't know that this is something that's stated anywhere. I don't recall it.

Q. You agree that in Figure 1, Van Vliet discloses two manifolds actually. Correct?

A. That's correct.

Q. And it shows one manifold serving one portion of the hoses and the other manifold serving the other portion?
A. Yes, that's right.
Q. Okay. Do you agree that all of the fluid delivered by the Van Vliet system shown here has to pass through a manifold to be delivered out one of the hoses?
A. That appears to be correct.
Q. Let's flip to Van Vliet, Exhibit 6. And if you could please go to paragraph 16 of the specification.
A. Okay.
Q. Okay. I guess the second sentence begins, "The fuel outlets 22," do you see that, about three lines down?
A. Yes.
Q. And it says that those fuel outlets 22 are located on the manifolds 36 and 38 and fluid flow through the fuel outlets 22 is controlled preferably at least by the manual valves 28.
Do you see that?
A. I do.
Q. And in Figure 2, those valves 28 are shown -- those are shown upstream of the reels. Do you see that?
A. I believe you're referring to Figure 1?
Q. Yes, Figure 1. Sorry about that.
A. Yes, that's correct.

Q. Okay. Do you agree that a person would need to be able to access those manual valves directly to operate them?
A. That's correct, they would need to.
Q. Okay. A person of skill in the art would understand that?
A. Yes.
Q. And so Van Vliet's trailer would need to be arranged to allow a person to access those manual valves 28?
MR. SZYPA: Objection. Form.
A. Yeah, I think a POSITA would understand that you need to access a manual valve to operate it.
BY MS. FLANNERY:
Q. Would it make sense to a POSITA to design the trailer of Van Vliet in a way that you couldn't access those valves?
MR. SZYPA: Objection. Form.
BY MS. FLANNERY:
Q. I'm sorry, what did you say?
A. I suppose there are many ways you can access a valve. It depends on the function of the valve, how often the valve is to be used, so I wouldn't just generally -- I don't know. I wouldn't draw any general conclusions about that.
Q. So you don't have an opinion one way or the other

about whether somebody in Van Vliet would design the interior of the trailer to allow a person to access those valves directly?

MR. SZYPA: Objection. Form.

A. Generally speaking, a manual valve has to be accessible in order to be used. What I'm saying is that, at least in our discussion right here, we haven't discussed what the purpose of that specific manual valve is, how it's to be accessed, when it's to be accessed. I'm just saying there are other factors that a POSITA would consider.

BY MS. FLANNERY:

Q. Okay. Van Vliet states that the fuel outlets -- that the flow through the fuel outlets 22 is controlled by those manual valves. Correct?

A. I believe that's correct.

Q. And fluid flow through those outlets has to be controlled in order for the system to dispense fuel. Correct?

MR. SZYPA: Objection. Form.

A. Well, I'll just qualify that and say, if the valves are open all the time, because valve 58 are the automatic valves or the electrically controlled valves, you could have valve 28 open all the time and never have to access them. That's my point.

1 So as long as valve 28, all of them are
2 open, then you can just electronically control,
3 automatically control 58 and control the flow of fuel.
4 BY MS. FLANNERY:
5 Q. If you go a little further down into paragraph 20,
6 it's just on the other side of that same page there,
7 it's sort of toward the bottom, it's the sentence that
8 begins, "Having a manual override." Do you see that?
9 A. I do.
10 Q. Okay. And it says, "Having a manual override may be
11 important to a customer."
12 Do you see that?
13 A. I do.
14 Q. Do you understand that sentence and the sentence that
15 follows it is talking about the manual valves 28?
16 A. I see that, yes.
17 Q. So based on that, would a POSITA understand that the
18 flow of fluid through the fluid outlets could be
19 controlled solely using the automatic valves 58?
20 A. Well --
21 MR. SZYPA: Objection. Form.
22 A. -- the sentence as you just referred to in
23 paragraph 20 indicates that valves 28 are for the
24 purpose of the manual override, and so that would
25 indicate that you would need to be able to access

that manual override in order to cut the flow, if you wanted to, manually.

BY MS. FLANNERY:

Q. Okay. So a person -- a human being would need to be able to access valves 28 at least to initiate the manual override that's described here. Correct?

A. Yes. A human being would have to access them in some way. We don't know exactly how they accessed them, but some way to control that manual valve.

Q. In some way. What are the ways that a human could access that other than putting their hand on it?

MR. SZYPA: Objection. Form.

A. This is -- that's actually what I was exactly getting to. So just because it has to be accessible doesn't mean you have to put your two hands on it and turn a handle. It could be something that you use a tool to reach it from some distance. I don't know. There's many ways you can access a manual valve in order to change it from open to closed state. That's the point I was making.

BY MS. FLANNERY:

Q. Okay. Would accessing it with your hands be the simplest way?

MR. SZYPA: Objection. Form.

A. It's pretty simple to use a tool, so I don't know.

There's -- you know, just going off course here a little bit, but, you know, utility valves that are in the ground for civil purposes in cities, wherever, you don't send a man down into the ground to turn a handle on a valve. You use a tool to reach into the ground so the man doesn't have to go in there and turn the valve, is what I'm saying.

They would use a rod with some sort of feature on the end that they can turn from the surface so you don't have to actually touch the valve. That's what I'm saying. I don't know that they have to put their hands on it.

There are very easy ways to do it and it's done all over the place using a tool.

BY MS. FLANNERY:

Q. I'm just asking about the two options, putting a person's hand on it versus using a tool. Of those two, which is simpler?

MR. SZYPA: Objection to form.

A. It depends on how you define --

MR. SZYPA: Asked and answered.

THE WITNESS: Sorry.

MR. SZYPA: You can answer.

A. It depends on how you define "simpler." There are advantages and disadvantages. They are both very

simple, in my mind.

BY MS. FLANNERY:

Q. A manual override, is that something that might be used like in the case of an emergency?

A. It's possible.

Q. In the case of -- in the case of an emergency, would it be simpler for someone to access something with their hands or to have to look for the tool to actuate the valve?

MR. SZYPA: Objection. Form.

A. Well, the way you ask the question, you assume the tool is not already there attached to the valve. You could have a tool attached to that valve so it was accessible all the time without having to go look for the tool, and then it's just equally simple and safe.

BY MS. FLANNERY:

Q. So in your view, it's equally -- it's equally effective in that circumstance for someone to access a tool that's there versus simply using their hands to turn the manual valve?

A. Yes. Same either way.

Q. In that circumstance where you have the tool that's there at the valve, the tool would need to be accessible. Correct?

A. That's true.

Q. Let's see, let's flip back to your declaration on the '955 patent IPR, Exhibit 2, and let's go to paragraph 104.
A. Okay.
MR. SZYPA: I'm sorry, which one was that?
MS. FLANNERY: This is Exhibit 2, paragraph 104.
BY MS. FLANNERY:
Q. Also discussing the Van Vliet reference that we were just talking about. Correct?
A. Yes.
Q. Okay. And, I'm sorry, I'm going to skip to 105, which is the immediately following paragraph. Still talking about Figure 1 of Van Vliet. Correct?
A. Yes.
Q. Okay. And here you state that, "Figure 1 is a simplified or symbolic representation."
Do you see that?
A. Right.
Q. Do you use those words kind of interchangeably with "schematic"?
A. Meaning "symbolic representation" with "schematic"?
Q. Yes.
A. Yeah, I think that's fine.
Q. Okay. For any of those words, I guess the point is

that what's shown is not a physical representation like a photograph or a physical -- you know, physical rendering of what is shown here in Figure 1. Right?

A. That's right.

Q. Okay. Would you agree that Figure 1 shows connections or relationships between the different number pieces of equipment?

A. Yes.

Q. Would you agree that it shows fluid flow?

A. To some extent.

Q. It shows the path through which fluid flows through the different pieces of equipment that are shown there?

A. To some extent.

Q. Would you agree that the reels 30 -- well, let's just take one of them so that I'm not asking my question in a plural.

So the reel 30 that's all the way down on the left, do you see that?

A. Yes.

Q. Okay. Do you agree that that reel is between the hose 24 and the fluid outlet 22?

MR. SZYPA: Objection. Form.

A. I believe that in this symbolic representation or schematic, it is physically drawn in-between that

box -- it's between 22 and 24, but I do not believe that it's, you know, fluidically connected because the -- Van Vliet specifically says it isn't, as I wrote in my declaration.

BY MS. FLANNERY:

Q. So I just got a little bit confused. You said that it is physically located between fluid outlet 22 and the hose 24.

A. Yes, but --

MR. SZYPA: Objection. Hold on. I don't -- is that even a question?

MS. FLANNERY: I just want to make sure he said it.

MR. SZYPA: Okay, then, objection. Mischaracterizes testimony.

Go ahead.

A. I used a poor word. I should have clarified. I meant physically looking at this drawing on the page, as in the ink on the page, not in 3D real space. I mean, I'm talking in the two-dimensional paper.

BY MS. FLANNERY:

Q. Understood. So let me try to get at, perhaps, a clearer question that you can agree with without getting into what's in the ink.

Is the -- is the reel shown schematically

located between fluid outlet 22 and hose reel 24?

MR. SZYPA: Objection. Form.

A. Yeah, on the paper, it is between -- it is drawn between 22 and 24. It is not an indication that it is connected through the reel.

BY MS. FLANNERY:

Q. So in this schematic, what is the relationship between those two? Between -- what is the relationship between fluid outlet 22, reel 30, and hose 24?

A. Well, it is an indication that the hose is wrapped around the reel. So you have to go from 22 to 24 by wrapping the hose around the reel, but it does not indicate a fluid passageway through the reel.

Q. Okay. What in Figure 1 indicates that the hose is wrapped around the reel?

MR. SZYPA: Objection. Form.

A. Well, that comes from reading the specification.

BY MS. FLANNERY:

Q. Okay. Let's go to the specification. Can you point me to what describes that?

A. Well, it's referring to my declaration, which refers to paragraph 22, that says, "Each hose 24 is connected to a fuel outlet 22 by a dry connection 60 and to a cap 26 by a dry connection 62."

So that quote tells me that the hose is

connected to the fuel outlet directly, not going through the reel, which leaves the reel to simply be a place to store a hose. It's wound around -- the hose would be wound around the reel, but not fluidically connected through the reel.

Q. Okay. So it's the description in paragraph 22 that supports -- that you believe supports your reading that the hose is wrapped around the reel.

A. Yes, I believe a POSITA would understand the reel is there for a reason. It's not fluidically connected but it's there so you can wind the hose around the reel for storage.

Q. In building a refueling system like the one that's shown in Van Vliet, do you agree that a POSITA would try to minimize the cost in building it?

MR. SZYPA: Objection. Form.

A. There are so many factors involved, so many tradeoffs, so I can't just say you minimize cost. You have so many different variables that I can't agree to that.

BY MS. FLANNERY:

Q. Okay, fair enough. All else being equal, other than two different cost options, would you agree that a POSITA building a system like Van Vliet would choose the option that would provide a lower cost, all other

variables being equal?

MR. SZYPA: Objection. Form.

A. That's so hard to think about. There's a lot of reasons you would go with more costly materials or equipment because you want a better quality product, you want something that the customers are going to appreciate is better quality, so it's hard for me to say.

All other factors being equal, I don't really know what -- how to apply that. You don't just pick the cheapest thing from Amazon and put it on your diesel refueling trailer, right?

BY MS. FLANNERY:

Q. Understood.

A. That's what I'm saying.

Q. Cost would at least be one of the factors that a person of skill in the art would consider in designing a refueling system like Van Vliet. Is that fair to say?

A. Yes.

Q. And in general, the consideration of that cost would be -- for that one factor, they would prefer that the cost would be lower than higher. True?

A. That's generally true.

Q. Okay. In building a system like Van Vliet's, do you

1 agree that a person of skill in the art would look to
2 literature to understand what kinds of hose reels
3 would be available to use as hose reel 30?
4 MR. SZYPA: One second.
5 Objection. Form.
6 A. A POSITA might go look for information on hose reels,
7 yes.
8 BY MS. FLANNERY:
9 Q. Okay. Do you think they would look at -- would a
10 person of skill in the art look at information about
11 commercially available hose reels in designing that
12 kind of system?
13 MR. SZYPA: Objection. Form.
14 A. I suppose they would, but I think the important point
15 here is that the petition relied on Coxreels. So I'm
16 not sure why we're talking about commercially
17 available reels other than Coxreels. That's what I
18 did my analysis on.
19 BY MS. FLANNERY:
20 Q. If a person of skill in the art who was designing the
21 Van Vliet system, if they decided that commercially
22 available hoses like Cox -- hose reels like the one in
23 Coxreels wasn't acceptable, would they look for other
24 possibilities or would they try to design the hose
25 reel from scratch?

MR. SZYPA: Objection. Form.
A. I don't know what they would do. They have many options they could consider.
BY MS. FLANNERY:
Q. Designing a hose reel from scratch would be one option?
A. I'm sure that's an option, yes.
Q. Okay. If they decided to do that, would a person of skill in the art consider known reel designs in putting together that design from scratch?
MR. SZYPA: Objection to form.
A. A POSITA could go and look at whatever they wanted to. That would include other reels out there, sure.
BY MS. FLANNERY:
Q. So even though they were designing one from scratch, it's not like they would ignore designs that exist in putting that design together. Fair to say?
MR. SZYPA: Objection to form.
A. Yeah, this is just a hypothetical, nothing I've analyzed, but I suppose a POSITA would hypothetically go look and see what else is out there.
BY MS. FLANNERY:
Q. Would they consider -- in looking to see what else is out there, would they consider looking at the types of features or functionalities that other reels have?

MR. SZYPA: Objection. Form.

A. Hypothetically, they would certainly look at what other types of reels are out there and what types of features they had.

BY MS. FLANNERY:

Q. Would they look at sort of the size, the dimensions of the reels that are out there, in considering how to design their own?

MR. SZYPA: Objection. Form.

A. I don't know why they would need to, really.

BY MS. FLANNERY:

Q. So it's your opinion that a person of skill in the art wouldn't need to look at the dimensions of existing reels in designing their own?

A. I'm not sure why they would need to. They could look if they wanted to. They don't -- they wouldn't need to look. You would design it to whatever dimensions you desired for your application.

Q. If you were designing or selecting -- well, not you. Let me phrase it a little more broadly.

If a person of skill in the art was designing or selecting a hose reel to use as hose 30 in the Van Vliet system, what are some of the features that a person of skill in the art would have considered important for that?

MR. SZYPA: Objection. Form.

A. I don't know. This is not any analysis I've done for my declaration. I don't know how to answer that. They would consider all features, whatever they needed for the job. I don't know.

BY MS. FLANNERY:

Q. Okay. Would they consider the -- some sort of functionality that allows the hose to wrap flat without crimping?

MR. SZYPA: Objection to form.

A. I would say they would try to avoid crimping the hose. I'm not sure about features for that purpose. I'm not sure.

BY MS. FLANNERY:

Q. So you don't know if a person of skill in the art would consider it important for the hose reel to have some sort of way of making sure that the hose, the coils -- the coil wraps lay flat?

A. I don't know that that's necessary because you could just manually wind the hose on and make sure it lays flat or you could have a feature that makes it lay flat. There's no indication that a POSITA would go one way or the other. They have many options.

Q. Having the wraps lay flat, that -- having that result at least would be important in the hose reels of

Van Vliet. Do you agree with that?

MR. SZYPA: Objection to form.

A. It's generally a good idea not to crimp or damage your hose. You want it to lay flat. I guess I'll use the term, I guess it's a little -- I'll use the term loosely, but I know what you mean.

BY MS. FLANNERY:

Q. Okay. And you said there are different ways that someone could do that in the system of Van Vliet; they could either have somebody make sure that happens manually or there could be some functionality in the reel itself that helps with that?

MR. SZYPA: Objection. Form.

A. That's nothing I've analyzed. I'd just assume a POSITA would know that there are different ways to achieve that.

BY MS. FLANNERY:

Q. Let's go to your declaration in the '805 patents, Exhibit 1. It may be low in the stack. We haven't talked about it in a while.

A. Exhibit 1, yes.

Q. And turn to paragraph 127.

A. Okay.

Q. Okay. And I'm looking at a sentence about two-thirds of the way down that paragraph, it begins, "In order

for the hose to be properly directed onto the reel."

Do you see that?

A. Yes.

Q. Okay. And just to be clear, in this paragraph you're talking about a system of Van Vliet as modified by Cable; is that right?

A. That's right.

Q. And so you stated that, "In order for the hose to be properly directed onto the reel, roller guides or other features would need to force the hose entering through the side wall to make at least one 90-degree bend to turn into the reel."

Do you see that?

A. I do.

Q. And then a little -- if you want to read the sentence in-between, that's fine, but I'm going to skip down to the next sentence. It says, "As the 700 feet of hose is wound onto the reel, it will become impossible for the hose to wrap onto the drum in any controlled manner as all the hose will tend to pile up on one location."

Do you see that?

A. I do.

Q. So this is a concern that you believe a person of skill in the art would have in using hose reels in

Van Vliet.

MR. SZYPA: Objection. Form.

A. This is a concern I have using the hose reels as taught by Cable specifically.

BY MS. FLANNERY:

Q. Okay. So using a hose reel oriented in the way that Cable describes, you believe a person of skill in the art would have this concern that you've described.

MR. SZYPA: Objection to the form.

A. That's correct.

BY MS. FLANNERY:

Q. Okay. A couple of sentences down, you note that, "This is particularly challenging given the 700-foot length and small 3/8-inch diameter of the specified hose."

Do you see that?

A. I do.

Q. In the next sentence you say, "The long small diameter hose is much more difficult to wind onto the reel as the settling of the coil wraps and effects of twist in the hose will create a compounding challenge."

Do you see that?

A. I do.

Q. Could that happen regardless of the orientation of the hose -- or regardless of the orientation of the reel?

Excuse me.
A. It's not as big a challenge -- of a challenge, but it still could be a challenge.
Q. So this challenge that you've described here of having this coil wrap settle, regardless of how the reels in Van Vliet are oriented, that could be a potential challenge.
MR. SZYPA: Objection. Form.
A. I'm saying it could be -- it could be a potential challenge. It's certainly a much bigger challenge using Cable's orientation.
BY MS. FLANNERY:
Q. And I think we talked about before, Van Vliet doesn't actually say how those reels are oriented; is that right?
A. I think that's where we left it, unless there's something I'm not remembering in the specification.
Q. That's what I remembered as well.
And so in designing the system in Van Vliet, regardless of how those reels are oriented, this is at least one challenge that a person of skill in the art would have considered.
MR. SZYPA: Objection to form.
A. Yeah, if a -- I disagree with the use of a 3/8 hose at 700 feet long in general, so I don't think a

POSITA would choose that in the first place so it's not as big an issue, but if a POSITA were -- if we were to assume a POSITA wanted to use a 700 foot, 3/8 inch diameter hose, then a POSITA would know that would be something to consider.

BY MS. FLANNERY:

Q. If you were using a shorter hose or a wider or a larger diameter hose, are you saying this wouldn't be a problem at all?

MR. SZYPA: Objection. Form.

A. I'm saying it's not necessarily no problem at all, but the risk diminishes that you will have an issue. The larger the diameter of the hose and probably the shorter the length, the less risk there is of having some sort of problem reeling it in.

BY MS. FLANNERY:

Q. So the risk is never zero no matter what size of hose or length of hose you're using, right, in terms of risk of coil wraps not settling.

A. Well, I'm sure we could find a zero case, but it diminishes.

Q. Okay. A sliding scale, you would say?

A. Yes.

Q. Okay. And a POSITA would recognize that in designing a system for Van Vliet?

A. They would recognize that there is risk and it depends on the length and the diameter.
Q. The Van Vliet trailer is mobile, it's intended to be towed from location to location. Right?
A. That's right.
Q. When you're transporting that trailer, would it be problematic if the reels sort of turn on their own while you're driving down the highway, different forces are acting on those reels?
A. It seems like something you would want to avoid.
Q. Okay. You would avoid that in designing the Van Vliet system.
A. If there was actually a risk of that, I would imagine you would do something to mitigate that risk.
Q. What are some of the things you might do to mitigate that risk?
A. I don't know. I can't remember if Van Vliet talks about a specific method for that concern. I don't recall.
Q. Are there ways of doing that that a POSITA would be familiar with?
A. I'm sure a POSITA could come up with ways of mitigating that.
Q. In 2016, the time that the patents were filed in this case, were there known ways of preventing a hose reel

from spinning on its own like that?
A. Yes, I'm sure there are ways that you could keep a hose reel from spinning.
Q. Can you give any examples of that?
MR. SZYPA: Objection. Form.
A. This is not something I've looked into, just hypothetically you would put something on it to keep it from rotating, some sort of a lock.
BY MS. FLANNERY:
Q. And so that's one thing a person of skill in the art might consider doing in designing the system of Van Vliet.
A. If that was a concern of theirs, then, yes, they could consider something like that.
Q. Do you have any reason to think that that wouldn't happen in the system of Van Vliet?
A. I don't know if there would be any forces that would cause those reels to turn. I don't know. I don't know that. It would depend on the reels and the hoses and factors that I'm not familiar with.
Q. Okay. Even though the trailer is intended to be driven down the highway? Or, I guess, attached to a vehicle driven down the highway?
A. Yeah, it would depend on the design of the rest of the system, see if there was a risk or not.

Q. Okay. I think we talked earlier when we were talking about your declaration, the '955 patent, that you talked about it was known that there were some hose reels used for storing a hose that had fluid passages in the reel, those were known in 2016. Correct?

MR. SZYPA: Objection. Form.

A. Yes, that was known.

BY MS. FLANNERY:

Q. And there were hose reels that were known as of that time that did not have a fluid passage through the reel. Correct?

A. That is correct.

Q. And are those two options, were those known in the fueling context?

A. I mean, there's nothing in the petition that describes that. Are you asking generally, or...

Q. I'm asking about your knowledge.

A. To my knowledge personally, I don't know. I don't know that I thought about it before working on this particular matter, whether there were or weren't in 2016. I don't know.

Q. Okay. So we have one category at least, as to the -- as to the fluid passage element, one category, hose reels that have a fluid passage and hose reels that don't have a fluid passage. Those are the two options

we've been talking about. Correct?
A. Yes.
Q. Is there a third option for a reel of some other variation on that particular feature?
MR. SZYPA: Objection. Form.
A. I haven't thought about it. I don't know. I don't know if there are other options. I don't know.
BY MS. FLANNERY:
Q. Not that you've considered in this case. Right?
A. I don't think so.
Q. Okay. Let's go back to the '955 patent. It's Exhibit 5. There you go.
And if you could go to Figure 2, please.
And do you agree that this is a -- and you can pick whichever the words, a schematic, symbolic representation of the -- of the system that's shown?
A. It's a bit of a mix. Some of the -- some of the depictions are, you know, rather physical, as far as the layout goes, the physical placement of the equipment and the size of the equipment. So it looks to be a little bit of a mix of what I consider just symbolic representations and actual physical representations.
Q. So can you give me an example of something that you know is a symbolic representation?

A. Let's see...
Q. And to be clear, I'm referring to Figure -- something in Figure 2. Sorry if the question wasn't clear on that.
A. Sure. For example, the pumps, number 30, in this -- they're shown as a circle with a triangle in it. You know, it's not a physical representation of a pump, it's more of a symbol representing the pump.
Q. Okay. And so what are the things that you think are physical representations? Can you give me an example of that in this figure?
A. Yeah, you can see the -- like, the walkway or aisleway 24 running down the center, you know, it's actually depicted as a floor grading that goes from one end to the other. That's a pretty -- that's a physical representation of how that would be laid out, and the arrangement of the reels with the hoses wrapping around on either side, you know, those are physical depictions of how the trailer would be laid out.
Q. So it's your view that Figure 2 shows a physical depiction of a reel?
A. Well, it's not the exact -- like if you look at Figure 3, for contrast, that is showing, you know, a 3D model, actual CAD model of the reels and the wrap.

Spectrophotometer system, so that has full detail.

What they've done in Figure 2 is they've used a more simplified representation. They haven't shown the reels in full detail, but they've given you enough information so that I can see the hose wraps around the reels and the hose coming off the reels.

Q. All right. So it is -- it does not show the full detail that is shown in Figure 3. Fair to say?

A. That's right.

Q. Okay. But it adds some details from what would be just in a normal schematic.

A. Yeah, I'm just cautious of the use of the word "schematic" because "schematic" doesn't mean any one particular thing, at least as we've talked about it. So it's, you know, somewhere between using just representative symbols like circles with triangles in them and the physical three-dimensional CAD. It's somewhere between that.

Q. Okay. And for the reels, the detail that you're saying is shown here that represents something more than just circles or boxes, is what?

A. I'm seeing a rectangle -- rectangular depiction of a reel, which gives me an idea of the width of the reel and the diameter of the reel, and I can see the hose

wraps around the reel.

And let's see what else. Make sure I'm quoting this correctly.

Yeah, that's -- I'll leave it there.

Q. Okay. Is Figure 2 drawn to scale, do you believe?

A. I don't know. I would have to read to see if it referred to that figure as actual scale.

Q. Okay. Unless there's something in the patent, in the specification that says it's to scale, is it your understanding that it's not? I'm just trying to make sure I understand your answer.

A. I wouldn't assume it's exactly to scale unless it said it was.

Q. Understood. Fair enough.

In a schematic drawing, does a person of skill in the art understand that the distances that are shown in the schematic may not reflect the physical distances in real-life?

MR. SZYPA: Objection to form.

A. That's generally true. A schematic doesn't necessarily carry with it the physical distances, that type of information.

BY MS. FLANNERY:

Q. Okay. So a person of skill in the art would understand that the distance may be different from the

relative distance that's shown in the schematic?
A. I think, in general, that's true.
Q. Okay. So there in Figure 2, the reels are element 42 or 42a. Right?
A. It looks like 42 is pointing to the reel.
Q. Okay. And the hoses are 40 or 40a?
A. 40, yes, I see that.
Q. And in Figure 2, the fluid goes into those hoses from manifolds 38 and -- well, I guess manifolds 38; is that right?
MR. SZYPA: Objection. Form.
A. Let me verify.
Yeah, manifolds 38, that's correct.
BY MS. FLANNERY:
Q. All right. Is the reel -- are the reels 40 between the manifolds 38 and the hoses 40?
Let me try that again. Sorry. I got the numbers messed up.
Are the reels 42 between the manifolds 38 and the hoses 42?
MR. SZYPA: Objection. Form.
A. Well, you're looking at more of a physical representation here. So from the top view, the manifold is down below, so you see the reel above because -- I'm using my arms, but the manifold is

down low, kind of in one line longitudinally along the trailer, and then you are seeing the top row of reels from the top view which sit above that and have the hose spooling off out the side wall.

So this representation you would not be able to see, necessarily see the connection to the manifold below other than seeing that the control valve -- and I believe that's 44 -- is sitting there on the side, so you know the plumbing is coming up through that.

BY MS. FLANNERY:

Q. So setting aside the physical relative positioning of the manifold. So let's talk about the fluid flow.

So how does the fluid path -- how does the fluid get to the reel from the manifold?

A. It's coming up through that control valve and entering through the connection on the spindle of the reel.

Q. And the control valve is 44?

A. Right. You can see it in Figure 4, the blowup of that connection.

Q. 44 is just shown as a circle. Would you agree that that's sort of a symbolic representation of a valve?

A. Yes, that's right.

Q. And so it's your understanding based on that symbolic

representation that fluid flows from the manifold 38 through that valve to the reel?

A. That's correct.

Q. How do you know from Figure 2 that it's flowing into the reel 42 as opposed to the hose 40?

MR. SZYPA: Objection. Form.

A. Well, I've read the specification. I'm looking at Figure 4 right now on the next page. I've read the specification that explains how the flow goes from the manifold through the valve into the spindle, which is part of the reel. So the connection is from manifold to control valve to the reel.

BY MS. FLANNERY:

Q. Okay. So let's talk about Figure 4, the one that you just pointed to.

A. Right.

Q. So, again, we've got the symbolic representation of the valve 44. Correct?

A. Yes.

Q. Okay. And from there, the fluid goes to which element?

A. It's going into the reel at the -- on the center line of the reel, the spindle.

Q. And when you say it's going into the center line, what is it in Figure 4 that makes you think it's going into

the center line of the reel?

A. Well, that's the way it's depicted. It's depicted as a -- you see the -- it's horizontal on the page. The spindle, which is the axis about which the reel spins, is depicted by this horizontal line that runs right, you know, at the midpoint of that reel. That's where the spindle is located, and it's spinning about. That's where the connection is made to 44.

Q. Okay. Are you familiar with hose reels -- I think you said you are familiar with hose reels that don't have a fluid passage in them. Correct?

A. Yes.

Q. Is the spindle of some such reels hollow still, even though fluid doesn't flow through that spindle?

MR. SZYPA: Objection. Form.

A. I don't know. I haven't really analyzed any specific reels.

BY MS. FLANNERY:

Q. Would it be possible to design a hose with a hollow spindle where the hose is passed through the hollow spindle?

A. Would it be possible hypothetically? Yeah, just hypothetically, sure, you can make a hole and pass a hose through it. I don't know why you would, but you

could.
Q. Is that possibly what's depicted here in Figure 4?
A. No.
Q. How do you know that?
A. Because this patent describes a hose reel that's fluidically coupled between 44 the control valve and the reel.
Q. Let's go to the description of Figure 4.
Do you see where the specification -- oh, here we go. So this is column 4, around line 15. Do you see that?
A. I'm there.
Q. And so what in that description of Figure 4 tells you that it's the reel connected as opposed to the hose passing through the reel spindle?
A. It says right here, in the -- starting on line 15, "each hose 40 is connected to a respective one of the reels 42."
And I've already -- well, we've already discussed today "connected to" means fluidically coupled.
Q. That's your -- you've given the opinion that that's the construction of "connected"?
A. Yes.
Q. Going back to Figure 4. So if a hose was passed

through a hollow spindle -- let me rephrase that.

If the hose 40 was connected to the valve 44 and then passed through the hollow spindle, would the flow path be the same as what's depicted here in Figure 4?

MR. SZYPA: Objection. Form.

A. Well, you're speaking hypothetically. If -- that's not what's shown in the patent and I'm not sure how you would do what you're saying. I'm not quite sure what you're suggesting.

BY MS. FLANNERY:

Q. So if I had a hose 40, one end of the hose is shown there at 40a. Right?

A. Right.

Q. Figure 4 doesn't show the other end, 40b, the other end of hose 40. Right?

A. Right.

Q. Okay. If there was another end of that -- presumably, though, hose 40 has another end. Fair to say?

A. Yeah, it's connected to the reel at the inside of that coil.

Q. Okay. Is that shown in Figure 4?

A. I cannot see that in Figure 4.

Q. Okay. If instead of connecting that other end of hose 40 to the reel, if that other end of hose 40 was

connected directly to the valve 44, but passed through a hollow spindle of the reel, would the fluid flow path be the same as what is depicted here in Figure 4, that right angle into the middle of the reel that you referred to?

MR. SZYPA: Objection to form.

A. Well, your hypothetical just doesn't make any sense because you wouldn't be able to spin the reel without damaging the hose. So I don't know why or how you could do something like that.

BY MS. FLANNERY:

Q. So setting aside what might happen to the reel. Let's set aside what's going on in the internal -- when you actually spin the reel. Just the stationary reel.

Would a hose with the other end connected to valve 44 and pass through a hollow spindle that doesn't have a fluid passage, would the flow path be the same as what's shown here in Figure 4?

MR. SZYPA: Objection. Asked and answered.

A. I mean, it's nothing a POSITA would ever consider as feasible because it's impossible. Yes, in terms of could it be done, yes, but a POSITA would never interpret this patent to indicate that.

BY MS. FLANNERY:

Q. It's impossible.

A. It's impossible.
Q. So there's no way to connect the hose to that valve in a way that would allow the spindle to rotate?
A. I'm saying a POSITA would never -- it's impossible to the extent that a POSITA would consider it.
Physically, could you possibly do what you described in routing a hose? Yes, you could route a hose that way, but a POSITA would never interpret this patent to indicate that.
Q. Okay. A POSITA could not interpret Figure 4 as showing a hose connected to the valve and then passing through a hollow spindle? You're saying that is not possible.
MR. SZYPA: Objection. Asked and answered.
A. It's impossible for a POSITA to conclude that from reading this patent.
BY MS. FLANNERY:
Q. Okay. And, I'm sorry, let me just ask one more question about Figure 4.
A. Sure.
Q. Is Figure 4 a schematic?
A. Yes, again, I'm not going to pin down schematic to mean any one thing in particular because we haven't defined it. It has elements that are symbolic and it has elements that are more physical. It's not a full

3D CAD, but yet it's not just symbols, so it's somewhere in between.

Q. Okay. An example of something that is shown in schematic is valve 44. Right?

A. Right.

Q. Okay. An example that -- where there is more physical detail would be the hose 40 wrapped around the reel 42.

A. That's right.

Q. Okay.

A. And the manifold as well.

Q. Okay. Is there any representation, physical or schematic, of the connection between the reel and the hose?

A. Well --

Q. In Figure 4. I'm specifically talking about Figure 4. Sorry.

A. I cannot see that connection because it's inside the coil. So from this illustration, I can't see that.

Q. Okay. There isn't a schematic representation of it either.

A. Well, it is a schematic representation. That's what we're looking at. The hose -- I'm sorry, the connection is coming in through the spindle on the side and that's what a POSITA would interpret as

connecting that spindle on the inside to that other end of the hose that we can't see.

Q. So is there a schematic representation of the connection between the hose and the reel in this Figure 4?

A. That is -- that is what is indicated here. The line going from 44 to the reel is a schematic representation of that connection.

Q. And where does the connection occur there? I'm going to give you a pen, it's red, so that everybody can see it. If you can mark where the connection between the reel and the hose is in Figure 4.

A. Well, again, I can't see it, so I can't draw it. It's under the hose wraps.

Q. I'm asking for, in this figure -- I recognize that you can't see it physically --

A. Right.

Q. -- in this. Is there any schematic representation of that connection in Figure 4, whether or not you could physically see the connection or not?

MR. SZYPA: Objection. Asked and answered.

A. I'm struggling to understand what you're asking for. There's a schematic line. I don't want to start drawing until we make sure I understand the question.

BY MS. FLANNERY:

Q. Uh-huh.
A. There's a schematic line here that's going from 44 up into the spindle of the reel. That is the symbolic representation of the connection that would go to the inside of the reel and connect to the end of the hose that we can't see on the inside of the coil.
Q. Okay, let's start with the spindle of the reel. Is there a representation, schematic or physical, of the spindle of the reel in Figure 4?
A. I don't think I see the spindles per se. I know that the horizontal line where this connection is made is representative of that center line about which the spindle will rotate. The spindle itself is not shown because, again, you can't see it. It's under the hose. It's not visible.
Q. Okay. So based on that horizontal line, that's where you believe -- you understand the spindle to be.
A. That's right. That's where a POSITA understands the spindle would be on a reel.
Q. Okay. And the connection to -- well, the connection to 44 on that reel, is there a schematic representation of that connection in Figure 4?
A. That's the line. So the line that takes the right angle turn from vertical to horizontal and goes into the center of the reel halfway through, that's

1 indicative of the fluid connection from 44 to the
2 reel where the connection would be made to the end of
3 the hose.
4 Q. Okay. So the same line that is the representation of
5 the spindle, it's your testimony that that is also the
6 representation of the connection to the spindle?
7 A. Let me clarify.
8 I didn't say or I didn't intend to say that
9 the horizontal line represents the spindle. I said a
10 POSITA would understand the spindle is going to be
11 along that horizontal line because that's the center
12 line. We know that the reel is going to spin about
13 that center line, but it's not a representation of the
14 spindle itself. I can't see it because it's under the
15 hose. That's what I was intending to get across.
16 Q. So let me back up a couple questions, then.
17 A. Okay.
18 Q. In Figure 4, is there a schematic representation of
19 the spindle shown?
20 A. No, I cannot see the spindle, it is hidden under the
21 hose, but I know, a POSITA would understand, it's
22 along that horizontal line because that represents --
23 it is located on the center line about which the hose
24 reel would rotate.
25 Q. So there's no schematic representation of the spindle

but a POSITA would know that it's there. Is that your testimony?

A. Yes.

Q. Okay.

MR. SZYPA: Sorry, objection.

THE WITNESS: Sorry.

BY MR. SZYPA:

Q. Same question with regard to the connection between valve 44 and the spindle; is there a schematic representation of that connection?

A. That is what the vertical, then horizontal line, represents. It's the fluid connection from 44 into the spindle of the reel.

Q. In Figure 4, there's no labeled port on the reel. Right?

A. That's true.

Q. Okay. And then the connection between the reel 42 and the hose 40, is there a representation in Figure 4 of that connection?

A. I feel like I'm answering the same thing. That line from 44 into the reel is representing the fluid connection from 44 into the center spindle and where it would terminate at the end of the hose that we can't see. So that vertical, then horizontal line is representing the fluid connection from 44 to the

other end of the hose.
Q. We can't see that connection in this figure. Right?
A. That's right. It's inside that coil.
Q. And there's no physical or schematic representation of it neither.
MR. SZYPA: Objection. Form.
A. I interpret this as a symbolic schematic representation, if we want to call it schematic. I interpret that as the connection.
BY MS. FLANNERY:
Q. The connection between the hose and the reel?
A. The hose and the reel and the reel to the valve, that's what a POSITA would interpret from this patent taken as a whole, understanding that that's what the -- that line is representing, that fluidic connection from the control valve to the reel to the hose.
Q. The point at which the reel -- according to your interpretation, the point at which the reel is connected to the valve and the point at which the hose is connected to the reel, those are two separate points in space; is that right?
A. If we're talking physically, well, they're different components. We know that there are different components often. There's going to be some sort of

1 swivel, for example, in between that allows for
2 rotation to occur on the reel without twisting up the
3 nonrotating part of the connection. So we know
4 there's something in between.
5 A POSITA understands that you can make a
6 reel -- sorry, that line, the vertical then horizontal
7 portion is representing that fluid connection that
8 goes through whatever swivel is necessary and into the
9 end of the hose.
10 Q. And Figure 4 doesn't describe any of the swivel or
11 other two pieces of equipment -- two connectors that
12 you just described, does it?
13 MR. SZYPA: Objection to form.
14 A. No, there's no specific physical representation of
15 the different pieces along the way that might or
16 might not be involved. We would have to, you know,
17 look to other portions of the patent to get more
18 detail on that specific information.
19 BY MS. FLANNERY:
20 Q. Okay. Do you believe that the patent contains
21 descriptions of those components?
22 A. I don't recall.
23 Q. You don't -- sitting here right now, there's nowhere
24 in the patent that you can point me to on that.
25 Right?

MR. SZYPA: Objection. Form.
A. I would be happy to look through the patent, but I just can't recall off the top of my head if they discuss the swivel or not.
BY MS. FLANNERY:
Q. You didn't discuss that in your declaration, did you?
A. I really don't remember. I would have to look through it.
Q. Okay.
MR. SZYPA: We've been going for a while now. Do you want to take a break soon, or...
THE WITNESS: I can go a little further if you'd like. Whatever is convenient. If you're in the middle of something --
MS. FLANNERY: Let me see if I'm -- I am actually at a stopping point, so let's --
MR. SZYPA: Okay.
MS. FLANNERY: We can take a break.
MR. SZYPA: Okay.
(Off the record at 11:05 a.m.)
(Back on the record at 11:27 a.m.)
BY MS. FLANNERY:
Q. Dr. Rodgers, let's go to Exhibit 1, which is your declaration on the '805 patent IPR. And go to paragraph 193 of that.

A. All right.
Q. And this is in the section where you discuss the AFD reference; do you recall that?
A. Yes.
MARKED FOR IDENTIFICATION:
EXHIBIT 7
11:28 a.m.
BY MS. FLANNERY:
Q. And you've been handed what has been marked as Exhibit 7 to your deposition. Do you recognize this as that AFD reference that you discuss here?
A. Yes, I do.
Q. Okay. Great.
So I want to ask you about your statements in paragraph 193 of your declaration.
And you're referring to -- I guess, in this section, you've referred to photos that are on pages 2, 3, and 4 of Exhibit 7. Correct?
A. Yes.
Q. Okay. And with regard to the photo in -- on page 2, it might be helpful to have that photo along with your statement --
A. Okay.
Q. -- your statements in your declaration kind of side-by-side.

In paragraph 192, I believe you're referring to the photo that's on page 2, but can you confirm that?

A. That's right.

Q. Okay. And you see in the photo, underneath the trailer that's shown here in the foreground, that there are hoses apparently on the ground somewhere behind -- somewhere in the distance in the background of that photo. Do you see that?

A. I see what you're referring to, yes.

Q. Okay. And you stated in paragraph 192 of your declaration that it is not clear where those hoses are being deployed from.

A. That's correct.

Q. And you stated there that it is clear that the photo was modified, cropped to at least remove the background, as is evident from the lack of any background in the photo. Do you see that?

A. I do.

Q. Okay. Were you relying on any of your expertise in giving that opinion?

A. I was making -- I guess it's my experience as an engineer working for, you know, whatever, a long time since I went to school, in doing a lot of figures for a lot of reports, recognizing that that figure has

the background cropped out.

Q. Okay. And so your work has involved considering whether or not photos that are given to you, not work -- not photos that you cropped, but whether somebody gives you a photo, you've applied your expertise to determine whether or not a photo was cropped?

A. Yes, it's come up many times.

Q. You've given that kind of opinion before?

A. I know this issue has come up before, sure, and other issues --

Q. In what context --

A. Sorry.

Q. I'm sorry. I apologize.

In what context?

A. I can't remember exactly, you know, what case I was working on or what have you, but certainly, first, there's many times when I've done myself, I've cropped out backgrounds of figures to use in some sort of engineering report just because you want to clean up the figure to make it more clear.

In the context of legal work, it's come up several times where we're looking at figures and trying -- or photographs or patent figures or whatever and trying to figure out exactly what it is or is not

representing. So this kind of issue comes up a lot, in my experience.

Q. In your work in the oil -- in this field -- well, let me ask you this: Have you done that -- have you performed that kind of analysis in the context of oil and gas projects?

A. So analysis of a photograph to determine whether it has or hasn't been cropped out, is that what you mean?

Q. Yes.

A. I think so. I think it's come up before.

Q. Okay. You can't remember the circumstances of it, though?

A. No, I can't exactly remember. I think it was -- boy, I don't know, some downhole tool probably, but that's pretty broad. I can't remember exactly where I've seen it before.

Q. Okay. And did you offer an opinion, like in court, based on that analysis?

A. I can't remember if that went all the way to, you know, a trial situation. I don't recall.

Q. Or given that opinion in the context of like a commercial consulting job?

A. I don't recall.

Q. Okay.

A. I don't remember.
Q. Not that you remember.
A. No, I just -- I know I've dealt with the issue before.
Q. But you don't recall giving an opinion either in court or for a consulting customer --
A. I don't --
Q. -- using that analysis?
A. I'm sorry, I don't recall one way or the other.
Q. Okay. Do you know what -- well, sorry, let me -- in paragraph 193 you state that, "Since no background is shown, it is plausible that there was another system or piece of equipment behind the depicted trailer that was removed when the photo was modified."
Do you see that?
A. I do.
Q. Okay. That's based on that analysis that you described a second ago; because there's no background, it must have been cropped?
A. Yeah, it's not really much of an analysis. It's kind of obvious that it's all white, so unless they took that thing into a special photo studio that created no shadows and no background, it's going to always have something behind it. So this has clearly been cropped. It's not much of a stretch to conclude

that.
Q. Do you know what was in the background there?
A. There is nothing depicted in the background, it's just blank white space, so nobody knows what's in the background.
Q. Understand. So you're not expressing an opinion one way or the other about what is in the background of that photo?
A. I'm just expressing an opinion that we don't know what's in the background so we can't conclude anything about what's behind the truck.
Q. You don't know if there was any equipment back there that had hoses.
A. I don't know one way or the other because it's been cropped out.
Q. Okay. So the hoses that are depicted sort of on the ground, you see what I'm -- that -- the same thing that I was referring to earlier in my questions that you said you saw?
A. Yes.
Q. You simply don't know where those were coming from.
A. That's correct.
Q. Okay. If it's not the AFD trailer that's shown in the foreground here, then it's coming from something else. Is that your testimony?

A. It could be coming from something else, it could be another trailer behind it, I don't know.
Q. But it's some other equipment that has the same black fuel hoses that are coming out of the AFD trailer. Right?
A. Well, they're so -- they're so small, there's not a lot of pixels there to even conclude that they're quote, unquote the same hoses. It just looks similar that there are hoses back there that are coming from somewhere. Just don't know where.
Q. You don't see any differences in your analysis.
A. Differences in what?
Q. Between the hoses that are coming out of the front of the trailer here and the hoses that are on the ground there behind.
A. Well, my statement is that the resolution is not great enough to draw great conclusions about if they're the same hoses or not. They have similarities in the way they look.
Q. Okay. And you may need your glasses for this as well because I'm asking you about something very small. So in those hoses that are in the background, can you see that they are dangling or suspended in some way from something above the ground?
A. Well, I can say that at least a few of them have

portions that are elevated above the ground, but then it's obscured by the trailer in the foreground.

Q. And how many -- I see at least five places where that seems to be happening with the hoses in the background. Do you see that?

A. Yeah, at least five.

Q. So there are five locations sort of spaced along that length where there are hoses coming down in the back.

A. Well, let me back up a question. I was counting individual hoses, but you're asking, I think, about groups of hoses?

Q. Yes, I am.

A. Let me roll back then and look again.

Q. That's fine.

A. The spacing is a little bit irregular on whatever's behind there so it's hard for me to say, but I think five is probably a fair number.

Q. And those are spaced perhaps not regularly across what's shown here where they pass the bottom edge of the trailer.

A. Yeah, they're not regularly spaced.

Q. Do you know if their point of origin further up is equally spaced? Can you tell that from the photo?

A. No, I don't know anything about them.

Q. Okay. If those hoses are coming from another piece of

equipment, not the AFD trailer that's shown here, how close would that equipment have to be to the AFD trailer?

A. I don't know. It's in the background. It's not clear how far away in the background they might be.

Q. Does it appear that those hoses are 50 feet away from the AFD trailer shown here?

A. You know, it -- I would say that it would be something that's close by. Not 50 feet away because I think the hoses would be much smaller, relatively speaking, assuming they are similar in size. We don't know the diameter of the hoses, but it just seems like if it was 50 feet away it would be a little harder to see.

Q. So reasonably close, I think is what you would -- I'm not trying to put words in your mouth. I just want to confirm what you had said.

MR. SZYPA: Objection to form.

A. Yeah, I wouldn't disagree with "reasonably close."

BY MS. FLANNERY:

Q. Okay. Let's flip back to your declaration. And in paragraphs 195 and 196, you discuss the windows along the side of the AFD trailer with the hose guides. Do you see that?

A. Yes.

Q. Okay. And it's your position -- and I think you have a blown-up version of one of those windows on the following page. Do you see that?
A. Yes.
Q. Okay. And so it's your position that each of the six windows that's shown across the bottom of the AFD trailer has -- well, let me step back.
For those six windows that are coming out of the AFD trailer in the foreground, you'd agree there are two hoses coming out of each of those. Right?
A. Yes.
Q. Okay. And so -- and your position is that each window has two more empty hose guides that don't have a hose in them in this photo; is that right?
A. That's right.
Q. And so it's your position that AFD would deploy 24 hoses -- could deploy 24 hoses out of one side of this trailer.
A. That's right.
Q. In any of the photos in Exhibit 7 here, the AFD reference, are there four hoses coming out of any one window in any of the photos shown there?
A. I don't see any example of that.
Q. So they only ever show a maximum of two hoses coming

out of each window?
A. Well, min and max, it's always two, in the three examples I see.
Q. And Exhibit 7, this is a -- from a website of AFD. Right?
MR. SZYPA: Objection. Form.
A. Yes.
BY MS. FLANNERY:
Q. Okay. Fair to say that this would be AFD's, sort of, marketing material communicating to customers the capabilities of their device, their system?
MR. SZYPA: Objection. Form.
A. Generally speaking, it looks like that kind of information that you would expect to find on their website.
BY MS. FLANNERY:
Q. All right, you can set Exhibit 7 aside. We're going to go back to the declaration now, Exhibit 1. And if you would go to paragraph 151 of the declaration, please.
MR. SZYPA: Is this still Exhibit 1, you said?
MS. FLANNERY: Yes. Paragraph 151.
A. Okay.
BY MS. FLANNERY:

Q. And this is in the section where you discuss the Coxreels reference?
A. Yes.
Q. And there in paragraph 151, you stated that Coxreels is not directed to -- let's go to paragraph 152 instead. Sorry. It's on the following page.
And in the second sentence there, you said, "To the extent Coxreels suggested use of the 1125 Series in the oil industry, a POSITA would have understood the oil industry is too broad to be of practical use," is an opinion you gave?
A. Yes.
Q. Is the -- the term "oil and gas industry," would a POSITA have an understanding of what that means?
A. Yes.
Q. Okay. What about the "oil field industry," would a POSITA have an understanding as to what that means?
A. Yes.
Q. So despite that, the "oil industry," that's too broad, that -- a POSITA wouldn't understand what that means?
MR. SZYPA: Objection to form.
A. Well, you've proposed two other -- I say the "oil industry" in paragraph 152, if we call it the oil and gas industry or...
BY MS. FLANNERY:

Q. Oil field?
A. Oil field. Thank you. Whichever term we use, they're all very broad, and so the point is the same. A POSITA would understand that it's too broad to be of practical use. You wouldn't be able to determine whether a particular Coxreels model would be applicable in that industry because the industry is so broad, whatever we call it.
Q. Okay. Is it your understanding that a POSITA would have to be able to determine whether a Coxreels reel is applicable in an industry in order to consider its teachings?
MR. SZYPA: Objection to form.
A. I'm simply saying that just -- if something is marketed as useful in the oil industry, that's not enough to conclude that it's applicable in any possible way it might be used in the oil industry.
BY MS. FLANNERY:
Q. It's not enough to conclude that.
A. That's right.
Q. Is it your understanding that stating that the Coxreels reel is useful in the oil industry would be enough for a POSITA to consider it in designing a fueling system regardless of whether they would conclude that it's applicable?

MR. SZYPA: Objection. Form.

A. I would think a POSITA would possibly come across it if it was marketed in that particular industry. They are more likely to have come across that Coxreels publication if it's marketed for a certain industry.

BY MS. FLANNERY:

Q. And in designing a reel -- we talked earlier today about how -- things a POSITA might consider in designing or selecting a reel for a system like Van Vliet's. Do you recall those questions?

A. Yes.

Q. And if a -- if a type of reel is marketed for the oil industry such that they would have come across it, would they have considered it in that design process that we talked about earlier?

MR. SZYPA: Objection. Form.

A. I think it would be something where you might consider it to the extent that you come across it in a Google search and you say, okay, these reels are marketing in the oil industry.

You would immediately go to the next level of trying to determine if it was applicable to the particular task that you needed it for, in this case fuel delivery, so you -- and that's still very high-level.

1 So just saying it's in the oil industry or
2 marketed in the oil industry, it's very weak as far as
3 giving you any indication that it's going to be useful
4 for your application. It's just going to get it in
5 front of you maybe just on your radar, but no further
6 than that.
7 BY MS. FLANNERY:
8 Q. When you say "no further than that," do you mean they
9 would not consider buying that reel and including it
10 in their system?
11 A. They would --
12 MR. SZYPA: Objection. Form.
13 A. They would not consider it. They would immediately
14 need more information to know whether to pursue and
15 even consider it at all.
16 BY MS. FLANNERY:
17 Q. What more information would they need?
18 A. They would need a lot more detail about the design
19 and construction, the specifications of the
20 particular reel, so that's not something that you
21 would get just from knowing it's marketed in the oil
22 industry.
23 Q. If a POSITA saw that something was marketed in the oil
24 industry, would they just stop looking for that
25 information?

MR. SZYPA: Objection. Form.

A. Well, as I said, it would -- it might get on their radar and they might then request more information.

BY MS. FLANNERY:

Q. Okay. In paragraph 151, you've got a reproduction of a portion of Coxreels that list the possible field of application. Do you see that?

A. I do.

Q. You understand this list is not intended to be exhaustive?

A. I don't understand that one way or the other. I have no indication of that.

Q. Well, here, let's do this.

MARKED FOR IDENTIFICATION:

EXHIBIT 8

11:48 a.m.

BY MS. FLANNERY:

Q. I've handed you what's been marked as Exhibit 8 to your deposition, which is the Coxreels reference that we've been discussing.

A. Yes, I see it.

Q. Okay. And this has, in context, the possible fields of application that you reproduced in your report. Right?

A. Right.

Q. In this context, do you have an understanding as to whether or not this list is intended to be exhaustive?
MR. SZYPA: Objection. Form.
A. Well, as is -- as this is a, you know, marketing type document from their website, generally you want to present the -- the Coxreels folks would want to present it in as broad a way as possible to try to attract as much -- or as many customers as possible, so I would expect it to be a very broad list.
BY MS. FLANNERY:
Q. Would you expect it to be exhaustive?
MR. SZYPA: Objection. Form.
A. I don't know if it's exhaustive or not.
BY MS. FLANNERY:
Q. Okay. Do you have any experience putting together marketing materials for systems such as this?
A. Well, not this particular system, but other designs over the years.
Q. You've put together marketing documentation for that?
A. I have.
Q. Okay. What types of systems?
A. It would be related to, you know, examples of downhole tools I would have used or would have been part of the design team for or software systems. Or even going back to my days before oil field, I was

1 working in aerospace and defense and I worked for a
2 small company where, you know, it was part of my job,
3 just we did everything.
4 So it's come up multiple times over the
5 years.
6 Q. And when you put those marketing materials together,
7 did you include an exhaustive list of the possible
8 applications for what you were advertising?
9 MR. SZYPA: Objection. Form.
10 A. The goal is to make it as broad as possible to reach
11 as wide a potential group of customers as possible,
12 so that's the intent of these marketings. You
13 certainly don't want to make it narrow. You want to
14 include everything you think it might be, you know,
15 something worth considering. That's the wrong words,
16 but I think you get my point.
17 BY MS. FLANNERY:
18 Q. Is there a reason you might leave some things off?
19 A. I can't think of why you would leave things off on
20 purpose. The intent is to sell it.
21 Q. Are there circumstances where you might leave off
22 certain applications because you didn't want to
23 suggest that it was suitable for certain things?
24 A. I'm having trouble thinking of why that might be the
25 case, where you wouldn't want to list something.

Q. If it was something you didn't have expertise in, would you have wanted to suggest that it had application in that particular area?

A. Like, say, putting it on a rocket or something? I don't know. Something out -- yeah, way outside the scope of reasonable.

Yes, that -- if it's a situation where it certainly is not applicable, well, then you would leave it off the list.

Q. If it's an area where you don't have the expertise to say whether it's applicable or not, would you leave it on or off?

MR. SZYPA: Objection to form.

A. I'm having trouble with the hypothetical, to think of how you would not know, you would not have the expertise to know. I don't know. I think you'd just broadly say it's applicable to as many industries as possible. You don't have to be an expert in a particular industry to try to sell a product in that industry when you're -- at least when you're starting out with a product like this.

BY MS. FLANNERY:

Q. So you would be comfortable putting -- listing a possible application for use in something that you're not sure if it would work or not?

A. I think generally in terms of marketing you could list things like that. Clearly we're talking about "oil field" here, and "oil field" is a very, very broad industry with many, many different types of fluids that are pumped through hoses.

So just saying "oil field" is very broad. I think that's the point.

Q. Suggesting that the Coxreels reel has application in the oil field, do you understand that, as a suggestion, that it has use in every possible application in oil?

A. Well, my opinion is that it means it is -- it does not necessarily mean that it is applicable to every application in oil. It's only narrowly applicable in certain areas. That's the point.

Q. And it's communicated to customers that it might be applicable in their particular area.

MR. SZYPA: Objection. Form.

A. Well, this is not communicating to customers that it's applicable to any particular job in the oil industry, it's just generally -- I think the point of the petition was that it's been -- I forget exactly -- marketed in the oil industry, and I'm saying it does not specify fuel delivery as an application of this Coxreels model.

BY MS. FLANNERY:
Q. The Coxreels website does suggest that this model is -- does suggest it could be used in the oil industry. It's not on this page, but it was elsewhere in the documentation. Correct?
A. That's what I was referring to --
MR. SZYPA: Objection. Form.
THE WITNESS: Sorry.
A. That's what I was referring to. There's some general indication of applicability to the oil industry, but that's not specific enough because the industry is so broad.
BY MS. FLANNERY:
Q. And why would Coxreels have made that statement?
A. Because they want to sell reels.
Q. To people in that industry?
A. Yes.
Q. Okay. And a POSITA would understand that.
A. A POSITA would understand that that's why they're marketing, to sell everywhere they can.
Q. Of the list of possible fields of application, again in Exhibit 8 but also reproduced in your declaration, are any of those -- do any of those categories involve dispensing hydrocarbon liquids through the hose that's stored on the reel?

A. I don't see any indication of that.
Q. You're not aware of circumstances in which a construction site might use a hose to dispense a hydrocarbon fluid?
A. Well, it's the same as talking about the oil industry, construction industry. It's so broad. There are so many different ways that fluid is moved through hoses in the construction industry. Just saying -- just seeing construction sites on a list doesn't tell me that it's been used or could be used with fuel.
Q. Are you aware of construction sites that need fuel?
A. Yes.
Q. A POSITA would be aware of those construction sites?
A. Yes. And from this list, they couldn't conclude that it would be applicable.
Q. Let's go to paragraph 157, a little further down. And in the heading just preceding that paragraph, you said, "A POSITA would have recognized that the Coxreels 1125 Series reel would have been susceptible to reliability issues."
Do you see that?
A. I do.
Q. I assume that this is referring to "would have been susceptible to reliability issues" if used in a

fueling system.

A. Yes.

Q. Now, in forming the opinions that you stated in this paragraph, you've assumed that in combining Coxreels with Van Vliet, you would either be using a reel that has a brass inlet or a nickel-plated inlet with the AFLAS seal; is that right?

A. That's right. And that's because that's what Coxreels offers in its catalog.

Q. If we go to paragraph 160, the second sentence there, you say, "Copper and copper-containing alloys, i.e., brass (copper-zinc alloy), should not be used with fuel."

Do you see that?

A. I do.

Q. Is that true in all conditions, all temperature and weather conditions?

A. Well, certainly these -- this application for refueling requires a very large temperature range of operation because it can be used from North Dakota to the heat of -- in the winter, to the heat of Texas in the summer. So it's a very large temperature range.

So whatever a POSITA is looking for, they know that they've got to meet -- they've got to be able to operate safely and reliably in that full range

of temperatures.

Q. So you've assumed that the POSITA is going to design the system to operate in the full range of temperatures? You've assumed that?

A. Well, that's what I've stated in my opinions. There are reasons that you don't want to use AFLAS in cold temperatures because it's not suitable, and there's reasons you don't want to use copper at all with fuel.

Q. Okay. So just to kind of close the loop, you've assumed -- that is -- that statement that a POSITA would be having to accommodate those cold temperatures, you've assumed that the POSITA would be designing the fuel delivery system for the entire range of possible temperatures?

MR. SZYPA: Objection. Asked and answered.

A. It seems like it would be pretty silly to eliminate such a large portion of the market if you're trying to sell a product. If you're developing a product for the oil industry in the United States, you're going to want to develop it to work anywhere in the United States any time of the year. Otherwise, you're losing a lot of business.

So a POSITA is going to want to design for the full range. It doesn't have to even just be North

1 Dakota. It could be Colorado, where you could see
2 temperatures that would exceed the capabilities of
3 AFLAS or even west Texas. So you have to be careful.
4 BY MS. FLANNERY:
5 Q. I'm just saying that those, that viewpoint that you
6 just described, that is a -- that is one of the
7 premises for your opinions that you've expressed here;
8 is that true?
9 MR. SZYPA: Objection. Asked and answered.
10 A. I'm not sure about it being an assumption or a
11 premise, I'm just stating the facts in my report.
12 BY MS. FLANNERY:
13 Q. Is that one of the reasons why a person of skill in
14 the art would not -- you believe a person of skill in
15 the art would not have considered the Coxreels reel
16 for use in the Van Vliet system?
17 MR. SZYPA: Objection. Asked and answered.
18 A. That is true. I would expect a POSITA to not
19 consider this model for the diesel refueling because
20 it would not meet the requirements of the
21 application; that includes temperature range.
22 BY MS. FLANNERY:
23 Q. If that turned out -- if that fact that you stated
24 turned out to not be true, if it was not true that a
25 POSITA had to design it for the entire full range of

temperatures, would your conclusion still apply?

MR. SZYPA: Objection to form.

A. If you wanted to design a system for a narrow temperature range of operation, then you could make different decisions and then maybe you could live with a certain type of seal, but that's certainly not what would be typical for the industry.

BY MS. FLANNERY:

Q. Okay. And at least the concerns that you raised about the AFLAS seal would not apply to somebody who was not designing a system for that cold temperature range that you described.

MR. SZYPA: Objection. Form.

A. Yeah, I'm trying to think how you -- where in the United States you could use it. Maybe if you were in south Texas you could get by with a -- or Louisiana or along the coast you could probably get by for a large portion of the year. There wouldn't be much opportunity for the temperature to drop below the range of AFLAS. But it would be a very narrow window where you could use that equipment year-round.

BY MS. FLANNERY:

Q. So there is a window where you could use that equipment year-round.

MR. SZYPA: Objection. Form.

A. I don't know that there is. I'm saying that would be the most extreme limitation. You certainly wouldn't be able to run a business that way because you wouldn't be able to be financially successful if you had such limitations on your equipment. That's not how oil field equipment is made.

BY MS. FLANNERY:

Q. Are the reels in the Van Vliet system used for fuel storage?

A. Yes, to some extent they are.

Q. How long is fluid stored in one of those reels?

MR. SZYPA: Objection. Form.

A. I can't give you a specific answer of how long it's stored, but it's certainly -- fluid is in the reels for extended periods of time.

BY MS. FLANNERY:

Q. The same fluid sits in the reel for an extended period of time. Is that what you're saying?

A. It could, sure.

Q. And when you say "an extended period of time," on the -- I'm looking for a ballpark of the amount of time you're talking about. Is this days? Weeks?

A. Yes, yes.

Q. And would that occur -- that wouldn't occur during operation of the system; is that right?

A. It would depend on whether or not a particular reel or hose was active during a particular job. If it's inactive, then there's diesel fuel sitting there.
Q. So for an active hose reel, a reel where the hose is being used to dispense fluid, that reel is not being used for storage of diesel at that point in time. Right?
A. Well, in that example, a hose reel that's got fluid coming through it wouldn't have storage, it would just be passing fluid through, but that's still not desirable because you still don't want your diesel exposed to brass even in a short period of time.
Q. And in the reels where you say fluid might -- diesel might be stored for a longer period of time, days, weeks, when that reel is connected to a fuel tank, would there be any effort to flush the diesel that was in that reel out before you start dispensing fluid?
A. I'm not familiar with that process or that procedure being a requirement or part of anybody's operating process. I've never heard that discussion before.
Q. Is that something a POSITA could do, would know how to do?
A. I think it would be extremely inefficient to waste all that fuel. You could have a job where you pull up with a truck with ten reels but you only need

nine, and there's one reel that's not going to be used for the entire job and may sit there in the yard before it gets to the next job. So it could be a very long time where that fluid is just sitting there. You wouldn't want to waste that fuel and have to dump fuel every time you restart the system and you might need that hose again and that reel. It just doesn't -- it's not an efficient process.

Q. Do you know if that's a practice that's used in the field, or I guess I should say was used in the field in 2016?

A. I'm not familiar with dumping fuel. That's generally very inefficient and environmentally not a good idea. You have to take precautions to dispose of that fuel so it's an expense as well to get rid of it.

Q. I want to make sure I'm asking my question clearly. Do you know for a fact that was not done, or you're just not aware of it being done?

A. I'm not aware of it being done because it would be so costly and inefficient to do such a thing. You want to make sure you have a system that's reliable and not going to cause any problems for your fuel. Why would you want to add a risk and add a problem that would cause you to take additional steps. It just wouldn't make any sense.

Q. Are you familiar with the technique of putting additives in diesel to improve its suitability for long-term storage?
A. Yes.
Q. Are you familiar with those being effective?
A. Yes, but that's unrelated to the brass issue. I'm not familiar with any additives that would counter the effect of copper or brass exposure.
Q. Are you familiar with additives that are used to deactivate copper that are -- that's dissolved in diesel?
A. I can't recall specifically. I don't recall that, seeing that in the petition or in Dr. Durham's report.

MARKED FOR IDENTIFICATION:
EXHIBIT 9
12:05 p.m.

BY MS. FLANNERY:
Q. All right, you've been handed what's been marked as Exhibit 9 to your deposition. Do you recognize this as one of the documents that you cited in your declaration?
A. I do.
Q. Okay. And if you turn to page 9 of Exhibit 9, sort of a heading, two-thirds of the way down, X3. Storage and

Thermal Stability of Diesel Fuels.
A. Yes.
Q. And there in the definitions, under X3.2, there's an X3.2.3.1. Do you see that?
A. Yes.
Q. And do you recall citing this portion in your declaration for stating that brass would form degradation products in diesel?
A. It looks familiar, yes.
Q. At the end of that paragraph -- later in that paragraph on the next page, it talks about, "The formation of degradation products can be catalyzed by dissolved metals, especially copper salts."
Do you see that?
A. Yes, I see that.
Q. So this is what you were relying on for your statements about copper should not be used to -- in the storage of diesel fuel?
A. I would have to refer back to my report to see what I refer to.
Q. Okay.
A. I believe there are several things. Certainly, this -- okay, go ahead. Next question. Sorry.
Q. Okay, I didn't want to interrupt you.
A. I don't know where I was going.

Q. Okay. A little further up, so in the Scope section, section X3.1.1. Do you see that?
A. Yes.
Q. It says, "This appendix provides guidance for consumers of diesel fuels who may wish to store quantities of fuels for extended periods or use the fuel in severe service or high temperature applications."
Do you see that?
A. I do.
Q. Do you know what temperatures are considered high temperature applications here?
A. I don't remember. I would have to look.
Q. Okay. Do you know if fracturing operations are performed in the kinds of high temperatures that are referred to here?
A. I would have to look first. If you like, we can look through and see if we can define the high temperature applications.
Q. Is that something you -- I'm sorry.
A. I was just going to say, but that's -- it's an "or." That first sentence we're reading in X3.1.1 talks about fuel use in severe service or high temperature -- sorry, let me back that up. I didn't quote that quite right.

"Who may wish to store quantities of fuels for extended periods or use the fuel in severe service or high temperature [applications]."

So it's not required that it be a high temperature application for this to apply, is what I'm saying.

Q. Is that part of what you considered in your analysis? I guess let me ask it a little bit differently.

Which of those possibilities does fracturing operations apply to?

A. Well, in fracturing you certainly could store it for an extended period. That's what I was interested in. The storing the fuel for an extended period is what creates the risk with exposure to copper.

Q. In a mobile refueling system like what's in Van Vliet, is it your understanding that the diesel fuel is actually stored on the truck -- on the trailer? Sorry. In-between jobs, for example?

A. It is my understanding that the fuel remains in the system. The system is filled with diesel fuel between jobs.

Q. Between jobs, it would sit full of diesel fuel?

A. Yes, it could.

Q. Okay. That would be typical?

A. Well, I suppose it depends on what the practice is,

1 but like I said before when we discussed this, it
2 would be an expense to have to deal with getting rid
3 of a lot of unused fuel. You want to use that fuel
4 as best you can, so you want to store it in a safe
5 manner. You wouldn't want to create a risk by adding
6 copper to a system that has no need to have copper in
7 it. Zero reason to have copper in that system. You
8 would never do it.
9 Q. And do you know, if the fuel is stored between jobs,
10 do you know if it's stored -- you said you wouldn't
11 want to get rid of it. Would there be an option to,
12 instead of storing it in the mobile fueling system, to
13 put it in another storage tank?
14 A. That's yet another expense. You're making -- you're
15 doing things that you don't need to do. Why would
16 you make the system more complex, more costly to
17 operate, when you can simply not put brass in in the
18 first place because brass is not suitable for use
19 with diesel.
20 Q. So for the moment I'm not talking about including
21 brass. I'm just talking about the fuel that is stored
22 in the Van Vliet system between jobs --
23 A. Okay.
24 Q. -- okay? In that system. Those reels are made of
25 something. Right?

A. Yes.
Q. Okay. If there is fuel remaining in that system after a fracturing job is performed, do you know what the typical practice would have been in 2016 for either storing that -- leaving that fuel on the mobile trailer or putting it into another storage tank?
A. I'm not familiar with ever removing diesel fuel from the system. The system is always going to contain diesel fuel.
Q. And when you say you're not familiar with removing it, are you aware that that never happened or are you just not aware of it ever occurring?
A. I'm saying a POSITA would not expect that you would have to remove all diesel from a system in 2016 between jobs.
Q. There would be no reason to do that.
A. I can't think of a good reason to do that because it's an extra effort and expense to deal with that. I'm not saying it's impossible. You could do it, but it's going to be an extra expense and make the operation less efficient.
Q. Are you aware of any safety regulations that would require that?
A. I can't recall, but if there's something that you can point me to, I'd be happy to look at it.

Q. If there are any, you didn't consider them in your analysis.
A. Well, if I didn't cite it -- and you can remind me, I don't remember everything I wrote in this report -- but if I didn't cite it, then I did not consider it.
Q. Okay. Let's go back to paragraph -- to your declaration, Exhibit 1. And let's go to paragraph 167.

And here you said that a POSITA would have known that a mobile delivery -- mobile fuel delivery station like the one disclosed in Van Vliet would be used in extreme conditions, such as North Dakota where the winter -- in the winter where well site temperatures can fall below 30 degrees Fahrenheit, 34 degrees Celsius.

Do you see that?

A. I see it says "negative 30 degrees," important negative sign.
Q. Thank you for the correction. I appreciate that. I'm from Texas, I'm unfamiliar with that.
A. That's all right.
Q. And so it's your testimony that there would be some fracturing operations that would be performed in negative 34 degree Celsius temperatures?
A. Yes, that's possible.

Q. When you're talking about these temperatures in North Dakota, you're talking about sort of the outside temperature. Right?
A. That's right.
Q. Okay. Would you say that of the fracturing operations performed in the United States, that a substantial number of them are performed at temperatures below negative 3 degrees Celsius?
A. Yes.
Q. About how -- what percentage of fracturing operations in the country do you think are of that temperature?
A. I can't give you a number.
Q. Do you know if it's more than half?
A. I would say, ballpark, it could be a large portion, maybe not as much as half.
Q. Do you think it would be a third?
A. Yeah, I don't know the distribution of how many jobs are in Texas; you know, how many in North Dakota. Certainly in the Bakken, yes. West Texas, there's quite a lot of cold weather you get in the panhandle and west Texas, so -- but I can't put a number on it.
Q. Do you know what -- is there anywhere in the continental U.S. that in the summer the temperatures are below negative 3?
A. Hopefully not.

Q. Anywhere in the spring where that occurs?
A. Certainly when you get up in the Bakken you could be below freezing, you know, probably ten months of the year. It could happen overnight at least.
Q. Do you know if temperatures in that range, negative 3 degree Celsius, do you know if that affects the viscosity of diesel?
A. Certainly the viscosity is going to vary with temperature.
Q. When the temperature goes down, the viscosity will increase; is that generally the relationship?
A. Yes.
Q. You would agree that there are many fracturing operations that were performed in the 2016 time period at -- strike that. Let me just back up.
Everything we talked about in terms of the temperature ranges in the U.S., global warming notwithstanding, were those generally the same back in 2016 as what we were talking about a second ago?
A. Yes.
Q. Okay. In 2016, would you agree that there were many fracturing operations that were performed in outdoor climates that were above negative 3 degree Celsius?
A. Yes.
Q. Would you say it's more than half of the fracturing

operations in the continental U.S. at that time? Would that be an unreasonable assumption?

MR. SZYPA: Objection to form.

A. I can't put a number on it.

BY MS. FLANNERY:

Q. Would it be unreasonable to think that -- would you be surprised if it was more than half?

MR. SZYPA: Objection to form.

A. I wouldn't be surprised if it was half or around half.

BY MS. FLANNERY:

Q. Let's see...

So in the next section of your declaration, it starts around paragraph 170, but in the paragraphs that follow, you did some calculations regarding flow rates and pressures that would be required to deliver the amount of fuel needed for frac jobs?

A. Yes.

Q. Have you ever done that sort of -- that sort of analysis for any other system that you've built or designed or considered in your prior work before this case?

A. Sure.

Q. In what kinds of context?

A. Boy, I don't know. Fluid flow is such a basic

1 element of mechanical engineering. I've been doing
2 it since I was an undergraduate, doing fluid
3 calculations like that.
4 Q. Have you ever evaluated -- have you ever done those
5 calculations to evaluate whether a hose reel that
6 could be connected with a fluid connection would be
7 suitable in a particular system?
8 A. I don't recall analyzing a hose reel in the past, but
9 it's all the same analysis, it's all the same
10 equations behind it.
11 Q. Any analysis like that for hoses?
12 A. Probably, yes.
13 Q. Okay. In what context, would you say?
14 A. I can't remember. I know I've done hose flow
15 calculations before, I just can't remember where I
16 was doing that.
17 Q. Okay. Do you know if the calculations that you did
18 were the same as the ones you did here?
19 A. Yeah, they were the very -- the very same basic
20 equations and types of calculations that you learn as
21 an undergraduate.
22 Q. Okay. Let's go to paragraph 173 of your declaration.
23 Still on Exhibit 1. And here you state gallons of
24 diesel in a 12-hour period for small, large, and super
25 frac, fracturing operations. Right?

A. Right.
Q. Okay. And I think -- and I'm flipping back to your -- I don't know if it's an appendix -- yeah, Appendix A, you had listed those -- those same volumes of fluid on page 82. Do you see that? The 7,500, 12,000, and 24,000 gallons per 12 hours.
A. Yes.
Q. Okay. And it says "per information from FAS." Do you see that?
A. Yes.
Q. So you got that information from the patent owner in this case.
A. Yes, the general -- I asked questions about the general size of the jobs that they would have encountered during that time period.
Q. Who at FAS did you get that information from?
A. That would be talking to Mr. Shock.
Q. The inventor on the patents.
A. Yes.
Q. Do you know what Mr. Shock does today? Do you know what his role is?
A. He's retired. He's a consultant to them in some form.
Q. Do you know when he retired?
A. I don't know exactly. I think it was in a few --

within a few years. Not long ago.
Q. Was there anybody else from FAS that you got information like this from or was it just Mr. Shock?
A. I think it was just Mr. Shock on that topic.
Q. Okay. Did you ask Mr. Shock when -- like what time period these numbers would have been typical?
A. Yes, we've talked about time periods as well.
Q. And which time periods did he indicate that these were representative?
A. When we were talking about the 2016 time frame in particular, but certainly over time the portion of jobs that are getting larger and larger is increasing over time in the history of fracking from, let's just say, 2010 through now. The jobs just keep getting bigger and bigger. That's typically the way it goes.
Q. So Mr. Shock told you that these were typical ranges for fracturing operations in 2016 or around 2016.
A. That's correct. This is a range of what you could expect to find in a frac environment.
Q. In that time period.
A. That was the intent, yes.
Q. I understand that was the intent. Is that what he told you?
A. Yeah, that's what he -- that's what we discussed.
Q. And, again, these are the numbers that would be

typical for the pumps that are powering -- I'm sorry, for the diesel powering of the frac pumps themselves, the pumps that are pumping the frac fluid into the formation. Right?

A. Generally, yes, but there's other equipment as well that's using diesel. It doesn't have to just be those pumps.

Q. Okay. So the 7,500 gallons per 12 hours, is that representing the entire frac spread -- is that representing all of the equipment on the frac site or is that just the pumps?

A. It could be any equipment on the frac site.

Q. Okay. So the pumps would be some subset of that?

A. That's right.

Q. Do you know what proportion of the -- of these numbers would be the frac pumps?

A. No, I don't have that information.

Q. Do you know if it would be more than half?

A. I would think it probably would be.

Q. Do you know if it would be more than two-thirds?

A. I don't know specifically. It seems like it would be a fairly large proportion, but I'm not sure.

Q. You haven't done that analysis.

A. I don't have any data to analyze on that breakdown.

Q. You didn't ask Mr. Shock or anybody at FAS about that.

A. I was only concerned with the total fuel consumption. Basically, what are the FAS units outputting. That was the basis for my analysis.
Q. Is it your understanding that the FAS units output all of the diesel needed at the frac site regardless of what equipment it's for?
A. Not necessarily.
Q. The frac pumps that consume some of this diesel at a frac site, those are pumps that are pumping frac fluid at high pressures that we talked about earlier. Right?
A. Yes.
Q. And as we talked about, not all oil field operations -- well, let me take a step back.
Drilling fluid, for example, doesn't get pumped at that high of a pressure.
A. That's right.
Q. Would you expect the fuel consumption rates for drilling for a mud pump in a drilling operation to be higher or lower than those of a frac pump?
A. I don't have any data on that.
Q. Okay. Are you familiar with dual fuel pumps?
A. Generally, yes.
Q. What's your understanding of what a dual fuel pump means?

A. It means you can use natural gas to power it or diesel.
Q. Okay. Those would use, potentially, no diesel; is that right?
A. Potentially. That's right.
Q. Is it more often a combination that's used with diesel and natural gas in those circumstances?
A. I'm not sure I know the answer to that. If it's per pump or piece of equipment, I'm not sure.
Q. I'm sorry, what do you mean by that?
A. There could be some pieces of equipment that are running on diesel, some that are running on natural gas. I'm saying they're different pieces of equipment on the same frac site. They don't all have to be running one or the other, is my point.
Q. Okay. So the concept of dual fuel, your understanding would mean you might have one pump that is running -- that is a diesel pump and one pump that is a natural gas powered pump.
A. I'm saying that's one possibility. Another possibility is a pump could be designed to take either fuel. Then you'd call that a dual fuel unit. You're going to use either A or B. I'm not sure if you would do A and B at the same time.
Q. Okay. Over the course of use, you might switch back

and forth between the diesel and the natural gas on that one pump, is that --

A. I'm not familiar with whether or not that is the practice or not.

Q. Okay. For whatever period of time that pump is using natural gas, it would not be consuming at least as much diesel as if it were being powered solely by the diesel. Right?

A. That's right.

Q. Okay. Let's see. In paragraph 173, this is where you had the -- again, the 7,500, 12,000, 24,000 gallons numbers you cited. Let's see, you say -- just before these numbers, you refer to a BJ Energy study.

A. Right.

Q. Okay.

MARKED FOR IDENTIFICATION:
EXHIBIT 10
12:26 p.m.

BY MS. FLANNERY:

Q. All right, you've been handed what's been marked as Exhibit 10 to your deposition. Is this the BJ Energy study that you were just talking about?

A. Yes.

Q. Okay. And can you tell me where in this study supports the numbers that you describe here?

A. Yeah.
Q. You said -- if it helps you, it says, "For a Tier 2 emissions-standard diesel engine." You said that, "The consumption ranged from 14,000 to 31,000 gallons per 12 hours of operation."
A. Right. Generally -- give me one second. I want to make sure I'm answering that correctly.
Q. Yeah.
A. So generally the odd-numbered tables, starting with Table 11 which is on page 22 -- basically there was an alternation of the table numbering, and the odd-numbered ones are the ones that indicate the diesel fuel consumption. So I was generally referring to those tables.
Q. Okay. So I'm looking at Table 11 on page 22.
A. Right.
Q. Okay. And so the T4F and the T2 -- or I guess the T2 is what you're referring to.
A. I refer to T2. That's right.
Q. Okay. So that's within that range of 14 to 31,000.
A. Yeah. Unfortunately, the FAS units, they talk about per shift, like every 12 hours how much fuel they consume, so that's why those are in 12 hours.
Q. Ah.
A. And this BJ reference they talk per day, so I had to

1 put a factor of 2 in there.
2 Q. So you just divided those numbers by 2 to confirm that
3 they were in that range.
4 A. Yeah.
5 Q. Understood. Okay. And then you said it was the
6 odd-numbered tables, so then also Table 13?
7 A. Yeah, these are cases. You'll see Case 1 is
8 Table 11. Case 2 is Table 13. Case 3 is Table 15.
9 Case 4 is Table 17. Case 5 is Table 19.
10 Q. Ah, got it.
11 A. I think that's it.
12 Q. Okay. Great.
13 In each of those tables they list the T2,
14 which I guess is the T2 emissions-standard diesel
15 engine.
16 A. Right.
17 Q. And then they list T4F; do you know what that is?
18 A. It's a more recent emission standard. So, basically,
19 I think they're federal standards that tightened up
20 the emission controls on the T4 units, so newer
21 systems might be designed to that standard. But just
22 for uniformity and sticking with the 2016 time frame,
23 I stuck with the T2 units straight across the board.
24 But the numbers are similar anyway.
25 Q. Do you know if the T4 standards were in effect in

2016?
A. I can't remember. I think I did look at that, but I can't remember exactly when they came in effect.
Q. Okay. And then the T4F dual fuel, do you see that?
A. Yeah.
Q. So is that one of the types of -- which flavor of dual fuel is that? Is that one piece of equipment that can run on either?
A. Yeah, as I said before, I would have to read to be sure. I don't want to answer it incorrectly. So I'm not positive if it's portion of time or if they actually can mix it. They might be able to mix it, but I'm not positive.
Q. Okay. In either event, this T4F dual fuel example used some amount of natural gas and some amount of diesel. Whether or not it was on the same piece of equipment, that we don't know?
A. We might be able to find out, but it wasn't relevant to me because I was only concerned with diesel, diesel consumption on a diesel job.
Q. So you didn't consider instances where there might be pumps that are operating using sometimes natural gas, sometimes diesel?
A. I simply considered the ranges of consumption that I quoted, 7,500, 12,000, or 24,000 gallons per 12-hour

shift. So wherever it's going, I don't know, it's just that's how much fuel is leaving the trailer, the distribution system.

Q. The amounts of diesel that are used in the dual fuel example here, those are below the ranges that you gave in your report. Correct?

A. I would have to look. I don't know.

Q. So, I mean -- well, let's look at Table 13. That's the one I've got open here.

A. Okay.

Q. So the amount of diesel fuel, to use gallons per day, is 6,451 gallons. Right?

A. Right.

Q. So in a 12-hour shift, that's about 3,200.

A. That's right.

Q. Okay. And so that is lower than the range -- that's lower than any of the numbers that you gave even for a small fracturing operation; is that right?

A. That is correct, for that dual fuel application.

Q. Okay. All right. Let's go back to your declaration. And we'll go to, let's see, page 82.

MR. SZYPA: This is still Exhibit 1?

MS. FLANNERY: Yes, still Exhibit 1.

BY MS. FLANNERY:

Q. And this is that short table that we were referring to

just a second ago that had the peak fuel consumption per 12-hour numbers that we were just talking about. Do you see that?

A. I do.

Q. Okay. And then in the rows that are below there, there are average duty cycle numbers. Do you see that?

A. Yes.

Q. And you consider the average duty cycles as 90 percent and 50 percent. Correct?

A. Yes.

Q. And so the total flow rate required under each of those duty cycles -- so that's the -- so just as -- let's take one example.

So for the 90 percent average duty cycle, the total flow required -- flow rate required to get to 7,500 gallons per 12 hours is 12 gallons per minute; is that right?

A. Yeah, you read that right.

Q. Okay. So you just calculated those total flow rates based on the consumption and the duty cycle.

A. Right.

Q. Okay.

A. And that -- just to be clear, that page, that table, I'm not sure that was specifically used in my

1 declaration -- sorry, in the body of it where I'm
2 discussing that, I forgot what paragraph that was, I
3 was mostly referring to calculations done on the
4 prior page, page 81 of this appendix.
5 Q. Understand.
6 A. That was just kind of a reference table.
7 Q. So this was a reference table in that these are the
8 flow rates. In order to achieve -- in our example, in
9 order to achieve 7,500 gallons per 12 hours at a
10 90 percent duty cycle, you would need to use a
11 12-gallon-per-minute flow rate.
12 A. Right. That's the total from all the hoses. So the
13 prior page of the Appendix A there is where I break
14 it down and look at what's flowing through the hoses,
15 and that's where I calculate the pressure losses
16 through the hoses.
17 Q. Understood. Yeah. Total flow rate means through all
18 the hoses.
19 A. Right. And I don't know that that's achievable, is
20 what I'm getting at. So this is just a reference
21 table on page 82, second page of Appendix A. It's
22 the prior page that I actually do the calculations to
23 determine what can be pumped through those hoses.
24 Q. Right. So -- and when you say "what can be pumped
25 through those hoses," you calculated the pressure that

1 comes out. Right?
2 A. Pressure and flow rate through each of the hoses.
3 Q. Okay. Okay. We'll come back to that in a second.
4 Let's go flip back in the declaration to
5 paragraph 171. And so based on Dr. Durham's
6 testimony, you dub what was called the "Durham
7 configuration" which refers to one of two models of
8 reels. Right?
9 A. Right.
10 Q. And based on -- in that configuration, you assumed
11 that the hose would be 700 feet long?
12 A. I believe that's what Dr. Durham specified, 700 foot
13 of -- 700 feet of hose.
14 Q. He said, "I think 700 feet would be a good number for
15 maximum length." He said that.
16 A. Oh, yeah, there it is, the quote, yes.
17 Q. Okay. Is it your understanding that a 700-foot hose
18 would be the minimum requirement for a refueling
19 system at a frac site?
20 A. No, that's not my understanding.
21 Q. Okay.
22 A. I was just quoting him.
23 Q. Understood. Do you know if 700-foot hoses are
24 required for all refueling systems at frac sites?
25 MR. SZYPA: Objection. Form.

A. It -- in my opinion, it is not. I was just, again, referring to what Dr. Durham indicated.
BY MS. FLANNERY:
Q. Okay. You chose what he referred to as the maximum.
MR. SZYPA: Objection. Form.
A. Well, I believe in his deposition he was asked, you know, which model, and this was his answer.
BY MR. FLANNERY:
Q. He said 700 feet would probably be a good number for the maximum length.
A. So my understanding is he would pick the model, specific model he interpreted from the table of models available in the 1125 Series. He picked the one that would be capable of 700 feet of hose storage.
Q. Is that the hose reel that a POSITA would choose?
A. I'm not concerned with a POSITA. I'm concerned with what Dr. Durham was putting forth in his deposition which supported his declaration.
Q. In his declaration, did he say he was using a 700-foot hose?
MR. SZYPA: Objection to form.
A. He did not indicate what he was using in his declaration, which is why I believe he was asked that question in his deposition, to try to figure out

which model he was talking about.

BY MS. FLANNERY:

Q. Let's see, going down to paragraph 178. And in this paragraph you talk about the number of hoses that would be used in a refueling system at one time?

A. Yes.

Q. Okay. And it was your testimony that a limit of three simultaneous hoses would be considered safe.

A. Yes. Safe, and that's ideal.

Q. You said five or six hoses would also be considered marginally safe.

A. Right. It's a sliding scale. The more hoses you add, the more risk you add, the more potential for problems.

Q. Okay. These numbers of three, five, and six hoses, where -- what were you basing those numbers on?

A. It started with conversations with Mr. Shock in our weekly calls over the past -- in the months I was working on the report or declarations, plus the inspection down in Victoria, so -- and seeing the units in operation, seeing the control systems, and just conversations with how these units are run in the field.

So that gave me the foundation, you know, plus my own experience in the industry and judgment to

1 come up with these numbers as being what would be
2 reasonable.
3 Q. Okay. So let's unpack some of what you said there.
4 A. Sure.
5 Q. The inspection down in Victoria, did you see -- I
6 think you had said that was being -- that the system
7 was being operated in a -- in a demonstration
8 facility?
9 A. Well, it was just inside their workshop building. I
10 think Dr. Durham saw the same thing.
11 Q. Okay. Not on an active frac site.
12 A. That's right.
13 Q. Okay. You said, conversations with Mr. Shock. Did
14 Mr. Shock tell you that these are the numbers of hoses
15 that would be safe to operate or marginally safe to
16 operate at once?
17 A. He did not. He did not specifically say, this is the
18 number. He told me about their operations, their
19 experience in operating units in the field, and I
20 got -- like I said, I got to see the operation.
21 I got to, you know, learn about the
22 technician on-site and how they monitor all the
23 operations from the control room and have to be
24 familiar with -- or maintain, as best possible, the
25 condition of all the hoses on the frac site, traveling

these distances to the different pieces of equipment and making sure that they've got, you know, good engagement at the fuel cap where they're -- the far end of the hoses are located.

So the operator, the one person that's operating that unit, has to be on top of all the stuff that's going on.

And so the more hoses that you're running simultaneously, the greater the workload you're placing on that individual, so that has a lot to do with how you constrain those numbers of hoses that you can run simultaneously.

Q. And did anyone, whether it was Mr. Shock or somebody else at FAS, tell you that six or seven was considered marginally safe?

A. I believe, you know, discussions were along the lines of, you know, three is what they're typically comfortable doing. Sometimes they'll go higher than three.

So I definitely had discussions about what their experiences were, and I used that to make the judgments about how far I thought you'd go before you'd hit that line where it's just too much, too much to handle with one person operating the unit.

Q. So when you say "they," who was this other than

Mr. Shock?
A. I'm just talking about FAS in general, when they're operating their units and whoever the technician is out there operating it in the field, wherever they are.
Q. Someone communicated this to you?
A. Mr. Shock.
Q. Mr. Shock. Okay. So all of this information about how many hoses would be -- they were -- they were comfortable with, FAS was comfortable with, that came from Mr. Shock to you?
A. Anything I got came from Mr. Shock. He would be the only person I spoke to about that. But some of this is coming from my own judgment after all the information came in that I talked about, conversations plus inspection and demonstration.
Q. Do you know if Mr. Shock has ever monitored hoses on a refueling site -- or refueling system?
A. Yes.
MR. SZYPA: Objection. Form.
Go ahead.
BY MS. FLANNERY:
Q. Do you know if he has?
A. I believe he has, yes.
Q. Okay. Was that his job?

A. Mr. Shock did everything. I mean, I'm talking about literally everything. He designed those units, built them up from scratch. The first units were built and operated with Mr. Shock involved. 100 percent.

MS. FLANNERY: I'll object to the lack of foundation on that.

BY MS. FLANNERY:

Q. Just to be clear, you have not seen one of FAS's -- other than the demonstration location that you saw, you have not seen FAS's refueling systems operating on an active frac site. Right?

A. That's right.

Q. Do you know how many operators would be present to monitor those systems at one time on a frac site?

A. You mean the FAS operator, the FAS unit operator?

Q. Or if somebody was operating one of these systems in 2016, like the Van Vliet system.

A. Well, I can tell you what's typical, and I believe there is -- I can't remember which exhibit number talks about the launch of the Frac Shack. There's an article I cited in multiple of these declarations, I think, and they talk about it.

To be cost-effective or cost-competitive, you can't afford to have too many people out there on the site, so you might have multiple individuals

temporarily or for the shorter time to get set up, to speed it up, but then you're going to have one individual you're going to rely on for one refueling unit because you've got to be cost-competitive with others.

Q. So is your testimony that operating those types of systems -- oh, and so -- just let me back up.

The Frac Shack system, that existed before 2016. Right?

A. That's right.

Q. So in those systems, is it your understanding that there was only one individual who was monitoring the hoses on those sites?

A. I'm saying in my understanding of the experience from FAS in particular and what I've learned all about their operations, one individual is typical because, just like for the reasons described in the Frac Shack article, you need to minimize your costs. You can't afford to have multiple individuals at the same time. You have one per shift monitoring that trailer. That's how the system is designed to be used.

Q. Let's see, paragraph 177. Let's see...

You noted for a given flow rate that there would also be required pump pressure needed to achieve that flow rate, and that for safety purposes the pump

pressure should be limited to approximately 60 psi.
A. That's right.
Q. Do you see that? Where did that 60 psi number come from?
A. Well, specifically, that's the limit they set on the units for the FAS, FAS units. They set it at 60. But it's also my engineering judgment that that's a safe level to operate when you're pumping fuels.
Q. And that's today, in 2024. Right?
A. That's at any time.
Q. It's your understanding that that was the limit in -- well, so let me -- let me take a step back.
FAS units weren't being sold in 2016. Right? The refueling systems.
A. I'm trying to remember. I think they might have started in 2017, but I'm not positive.
Q. Okay. For the refueling system like Van Vliet, would there have been a 60 psi pump pressure limit?
A. I don't recall what their limit -- if I know what their limit was at Van Vliet.
Q. Okay. Do you know what a -- what a pressure limit would have been for the Frac Shack systems that we talked about?
A. I don't know specifically. I'm saying based on my engineering judgment, nothing has changed from any

point in time from 1900 till now that would say a certain amount of pressure -- like it would have been safe to use more pressure earlier, like earlier in time.

Generally when you're dealing with high pressure and you have any risk of a leak for any reason, high pressure is bad because it can cause the diesel to spew out or shoot out, spray out, which could cause injury to people in the vicinity so that -- the point is, the safety hasn't changed in this time period. It's the same.

Q. Do you know if the pumps that were used in, for example, the Frac Shack or the AFD systems, do you know if those were operated at a pump pressure higher than 60 psi?

A. I don't know that, but I would say that it would be unsafe to operate -- you know, you're adding risk when you operate higher than 60. It doesn't mean you can't, it just means that you're adding risk.

So why would you add the risk if you don't need to? You're adding -- it's a tradeoff. You don't want risk. You avoid it.

Q. Last one before our break.

MARKED FOR IDENTIFICATION:

EXHIBIT 11

12:47 p.m.

BY MS. FLANNERY:

Q. And so in performing your calculations to determine if the pressure in the system would exceed -- you considered whether or not the pressure in the system might exceed a hose pressure limit. Right?

A. That's right.

Q. Okay. And this is the document that you referred to in determining what the pressure limits would be for certain types of hoses.

A. Well, this is the hose that Dr. Durham specified. That's why I used it. That's the reference.

Q. Is it your understanding that the combination of Coxreels with the Van Vliet reference requires using this hose?

MR. SZYPA: Objection. Form.

A. I'm just -- I'm not saying that. I'm saying that this is the hose that Dr. Durham said he would use, he would consider for the application, so I used that as a reference for what a high-pressure limit might be on a hose of this type.

BY MS. FLANNERY:

Q. There may be combinations of Coxreels and Van Vliet, for example, that don't necessarily use the hose that's shown in Exhibit 11; is that right?

MR. SZYPA: Objection. Form.

A. I am just referring to what is in Dr. Durham's declaration and petition. I'm not speaking generally as to all hoses on the market. That's too broad. I'm just -- I'm responding to what Dr. Durham put forth.

BY MS. FLANNERY:

Q. Did the petition cite this document -- or this hose?

A. I need to refer back to my declaration because now I'm -- I can't remember.

Q. Okay.

A. I think this came from Dr. Durham. Well, I know this particular brand hose came from Dr. Durham.

Q. I'm asking about the petition. You referred to the petition.

A. I'm sorry. I don't know if it's in just the declaration or if it made it to the petition. I don't remember.

Q. And so in looking at the -- there's a couple of different size hoses that are listed here. Right? Different inside diameters, different outside diameters?

A. Right.

Q. Okay. And you looked at the 10-millimeter -- I think these are millimeter hose --

A. That's correct.
Q. -- ID hose?
A. Correct.
Q. And you noted that that one has a pressure limit psi of 90 psi.
A. Yes.
Q. Okay. You know there are some other hoses that are listed on this document that can withstand higher pressures. Yes?
A. Yes, but they're even smaller. The -- yeah. They're even smaller.
Q. Do you know if there were -- if there were larger ID hoses that existed in 2016 that would have withstood higher pressures?
MR. SZYPA: Objection. Form.
A. I haven't looked for a specific product. I was just referring to what Dr. Durham cited. You can buy high-pressure hoses. I don't recall -- I didn't look for any specifically that I can recall.
MS. FLANNERY: Okay, now is a good time for a break.
(Off the record at 12:50 p.m.)
(Back on the record at 1:26 p.m.)
BY MS. FLANNERY:
Q. I'm going to go back to Exhibit 1, which is still your

1 declaration in the '805 IPR.
2 A. Yes.
3 Q. All right. And go to the -- we'll go to page 81,
4 which is that first page of your appendix. And I
5 think -- this is the spreadsheet that you said you
6 used to perform the calculations that were reflected
7 in your report --
8 A. Yes.
9 Q. -- is that right? Okay.
10 I don't have the native version of this,
11 and so I'm going to be struggling a little to kind of
12 ask you what you remember. Well, do your best.
13 Do you have still a native version of this
14 document?
15 A. I do.
16 Q. Okay. Do you have it here today?
17 THE WITNESS: Do you have a copy of it? I
18 think I do.
19 MR. SZYPA: Do you want me to send it to
20 you and I can --
21 MS. FLANNERY: That is probably going to be
22 the easiest thing. I kind of -- I want to make it an
23 exhibit. I just don't want to be harder for him to
24 review this than what is necessary.
25 MR. SZYPA: Yeah.

MS. FLANNERY: And so I want to make it an exhibit to the deposition.

MR. SZYPA: Let me look. If I don't, then you could probably email it to me.

MS. FLANNERY: Right.

BY MS. FLANNERY:

Q. Let me ask some of my initial -- I think I do have some questions that can be answered without that, and then if we get to a point where we need that, we'll go there.

A. All right.

Q. So looking at page 81 here, the, sort of, shaded boxes, do I understand that those were sort of -- those were inputs that you would have put in, sort of typed in the numbers as opposed to representing a formula?

A. That's probably right, yes.

Q. Okay. All right. That would be my convention too.

And so if I'm looking at the conditions that you have here shown, you were assuming for this calculation shown running three hoses at a 50 percent duty cycle.

A. That's right.

Q. With a flow rate of 11.5 gallons per minute.

A. Right.

Q. And that 11.5 gallons per minute is the total flow rate.
A. Through all the hoses. That's right.
Q. Okay. So that's the total flow rate for all three hoses in this calculation.
A. Yeah, if you added them up.
Q. Got it. Okay.
Why did you -- so you talked about a 50 percent duty cycle in your declaration as that being a comfortable way to operate these systems. Do you recall that?
A. Yes.
Q. What is that -- where did you obtain that information?
A. That's just engineering judgment. That's a nice, safe place to operate. You're not taxing the system. You have plenty of time to address issues that might arise without threatening the operation of the frac.
Q. Is that something you discussed with Mr. Shock?
A. I don't recall specifically if I talked to him about that number.
Q. Okay. Do you know if FAS or AFD or Frac Shack, any of the companies that have operated mobile fuel -- mobile refueling systems for frac sites, do you know if they have operated those at higher duty cycles?
A. I don't have any data on that.

Q. Okay. And the 11.5 gallon total flow rate, so you said that was the total flow rate through the three hoses. Why did you select that rate as opposed to a higher rate?

A. Well, yeah, so we're not looking at the native document. This is -- well, even if we were, this is just whatever state the file was left in when I happened to email it to the attorneys. So you can just change those input numbers that we discussed and get a different condition.

So I tested many, many, many different configurations in the development of my analysis that went into the declaration. This is just something -- I'm not sure if this represents any particular condition.

Q. Okay. So let's turn over the page to page 82.

MR. SZYPA: By the way, I think I have the native here, if you want to -- can we go off the record for --

MS. FLANNERY: Let me finish this set of questions and then let's talk about it.

MR. SZYPA: Yeah, yeah, yeah.

BY MS. FLANNERY:

Q. So on the next page, page 82, you had here listed some total flow rates corresponding to certain duty cycles.

Right?
A. Right.
Q. And so taking, for example, the 50 percent average duty cycle for the 7,500 peak fuel consumption, the flow rate -- the total flow rate corresponding to that was 21 gallons per minute --
A. That's right.
Q. -- right?
A. So the -- maybe to clarify, the net table on the second page is not coupled in any way to the table on the first page. That was just a reference -- I was trying to describe before lunch, just a reference table. I wasn't using that in the calculations on the first page.
Q. Okay. Is there any reason you wouldn't use a 21-gallon-per-minute total flow rate instead of the 11.5 that you -- that appears on page 81?
A. Page 81 is just a generic calculator, so I could put in whatever I want. So if I wanted to test that condition, yes, I would put in 21.5, if that's what I was interested in.
Q. And would 21.5 gallons per minute -- I mean, it is listed in -- on page 82. I assume that that is a -- that is a flow rate that would be acceptable to use since you list it here.

A. So the table on 82, I just have the -- yeah, the typical large and super frac designations for the size of the job, and depending on the duty cycle, this gives you an idea of what the total flow rate needs to be. So, yeah, so for 7,500 and 50 percent, 21(g) p.m. total is how much fuel you would need to pump.

Q. A POSITA would recognize that for that 50 percent duty cycle to get to 7,500 psi, you would need to pump that rate.

A. Right.

Q. And that's true of any -- no matter if you're using a small hose or a large hose. Right?

A. That's right. I'm not analyzing hoses on that sheet. That's the first sheet, page 81.

Q. The flow rate -- the total flow rate is determined independently of how many hoses you're using.

A. Yeah, it's just volumetric calculation, how much fluid is flowing.

Q. Understood. Okay. So looking at the calculation you have here on page 81, this version -- and we'll get to the native version -- the total fuel per 12 hours that is delivered by this system is only 4,100 gallons per 12 hours; is that right?

A. Yeah, that's the current output of the spreadsheet on

that page only.
Q. Got it.
A. Yeah.
Q. Would that be enough for some fracturing operations?
A. It's possible. That's a very small job. It could only require that much. So I probably should have left the spreadsheet in a better state when I handed it to the attorneys because I didn't intend to mean anything. There's no -- nothing to take away from those particular numbers. I'm not sure why, if that's where the spreadsheet was left.
Q. Understood. Would that be enough -- 4,100 gallons per 12 hours, would that be enough for other types of oil field operations, like powering a drilling pump?
A. That's not something I've analyzed. I don't know the answer to that.
Q. And so Models, I guess, A and B that are listed here on the left-hand side, those are two different models, two different calculations that you did using these -- using whatever conditions you had plugged in at the top; is that right?
A. That's right. A is -- A is more typical of a FAS unit, whereas B is typically what I was looking at, whatever Dr. Durham was configuring in his declaration and plus testimony.

Q. Okay. So let's talk about Model B. And so in the inner diameter, the ID, that's the 3/8 of an inch for the hoses that's listed there?
A. Yes.
Q. And this is -- this shows a 200-foot length hose; is that right?
A. That's right, in this particular set of inputs.
Q. Okay. And again, under A and B, the shaded numbers, those would be numbers you directly input as opposed to a calculation.
A. Yes.
Q. Okay. So you did run these numbers for a 700-foot hose?
A. I ran, yeah, every possible set of numbers. I was probably just playing with the numbers at the time this got saved.
Q. Okay. Model A there you said was a -- that's typical of an FAS unit. What did you mean by that?
A. As a reference, I looked at what the -- the FAS unit that I inspected in Victoria, I put in numbers that were, you know, roughly representing that unit.
Q. Okay. And the ID of the hose in that unit was 1 inch?
A. Yes.
Q. And its length was 200 feet?
A. Yes.

Q. How many hoses -- well, this model still assumes that only three of those hoses on that model are being used at any given time; is that right?
A. That's the input that we're looking at on that particular snapshot.
Q. Got it. Okay.
A. Just, again, don't read anything into it. It's just that's where it was at the time I left it.
Q. Okay.
A. It doesn't mean that all these numbers are necessarily accurately representing the FAS unit either, I was just playing with the numbers. I see it as a generic calculation tool that I can do whatever I need to.
Q. Okay. So let's go back to paragraph 180 of your declaration, Exhibit 1.
A. All right.
Q. And so what you describe here, the Durham configuration with three hoses delivered simultaneously in a comfortable duty cycle of 50 percent, you calculated the estimated pressure required to meet the fuel delivery for 7,500 gallons for 12 hours would be 440 psi?
A. That's right.
Q. Okay. And the Durham configuration, again, that's the

3/8 of an inch diameter hose of 700 feet long?
A. That's right.
Q. Okay. And you got to that 440 psi using the spreadsheet that we were just talking about on page 81?
A. That's right.
Q. Do you know what flow rate you were using?
A. I would adjust the flow rate to get the total fuel for 12 hours to be whatever I needed, 7,500 or -- you know, I adjust the inputs until I get the -- yeah.
Total fuel per 12 hours, which is a white cell, that's a calculated cell, which is currently reading 4,100, I would adjust the total flow and duty cycle to get that number to read 7,500 if that's what I was trying to write about in my report.
Q. Okay. And do you know what flow rate you used?
A. Where?
Q. To get to the 44 -- 440 psi in that calculation.
A. I'd have to go back to 180, you said?
Q. Yes.
A. So it's three hoses, 50 percent duty cycle, 7,500 gallons in 12 hours. So we could look at page 82 and I'll tell you what the input would have been. I already forgot it. 50 percent, 2,500. So it would have been 21-gallon-per-minute total flow. Am I

reading that -- yeah, that's what I'm reading.

So at 21 gallons per minute, that would give me 7,500 gallons per 12 hours with a 50 percent duty cycle.

Q. Okay. So going from the version of the spreadsheet that you've got on page 81 here, in order to get to the 440 psi as that max pressure, you would change the total flow rate GPM from 11.5 to 21.5.

A. Yes.

Q. Okay.

A. And the hose length. And as printed here, I'm only showing 200 feet of hose versus 700 feet.

Q. Okay. So it's your testimony that if you make those two changes, the 21.5 flow rate -- total flow rate and the 200 feet to 700 feet, you get a 440 psi pressure?

A. I think I need to just check my work here, make sure I'm telling you the right thing. Give me one second. Let me read my declaration.

Yes, that's -- that seems to be correct.

Q. Okay.

MS. FLANNERY: Let's go off the record.

(Off the record at 1:41 p.m.)

(Back on the record at 1:45 p.m.)

MARKED FOR IDENTIFICATION:

EXHIBIT 12

1:45 p.m.

BY MS. FLANNERY:

Q. Dr. Rodgers, I am bringing you my laptop which has an Excel file on it entitled flow calcs -- the file name is flowcalcs.xlsx. Do you see that?

A. I do.

Q. Okay. Is this -- and do whatever you need to do to confirm, but is this the spreadsheet -- is this the live version of the spreadsheet that you printed and attached as the appendix to your declaration Exhibit 1?

A. It is.

Q. Okay.

MS. FLANNERY: And for the record, I'm going to immediately email this to the court reporter and opposing counsel.

And this will be marked as Exhibit 12 to your deposition.

BY MS. FLANNERY:

Q. Dr. Rodgers, what are the benefits of having a hose reel that has a fluid passage that can be connected to a hose as opposed to a hose reel that doesn't?

MR. SZYPA: Objection. Form.

A. Generally speaking, if you have the fluid passage through, you can reel it in in a more automated or --

you can crank it in more easily than if you just have to wrap a hose around a reel manually without having the flow of passage through.

So it's different in that way.

BY MS. FLANNERY:

Q. Would a POSITA have known that in the 2016 time frame?

MR. SZYPA: Objection. Form.

A. I think we talked about that earlier, but in general, a POSITA would be aware that some -- there are -- there exist reels with fluid passages that can be reeled in in this way.

MARKED FOR IDENTIFICATION:

EXHIBIT 13

1:49 p.m.

BY MS. FLANNERY:

Q. All right, Dr. Rodgers, you've been handed what's been marked as Exhibit 13 to your deposition. This is the patent reference by Russell Cable that you reviewed in this matter; is that correct?

A. Yes.

Q. I would direct you to Figure 2 of Exhibit 13. It's on the second page.

A. Yes.

Q. And you see Figure 2 is a top view of the vehicle that's shown in Figure 1. Do you agree with that?

A. Yes.
Q. Okay. And that top view shows, I believe, what the specification calls spacing 22 between the two tanks 19 and 21?
A. Yes.
Q. Would that spacing 22 allow access to equipment in the rear compartment of this vehicle?
A. It allowed the driver to move from the front of the truck where the driver's seat is and go all the way back through the back doors for servicing vehicles, you know, through the back doors.
Q. Would it permit that person to access any portions of tank 19 or 21 while walking through that space?
A. Well, the -- some portions. Not all portions. But yes.
Q. For example, that person would be able to access the -- let's see. Do you see plate 82?
A. I don't see it. Why am I missing 82?
Q. It wouldn't be the first patent that didn't label something.
If you flip to column 4 of Cable, at the very bottom -- I'm kind of looking at the portion that bridges column 4 and column 5 on the following page -- do you see where it says, "To fill tanks 28 and 29, a threaded plug is removed from the inlet opening of

1 plates 82 and 93"?
2 A. Yes.
3 Q. And it says, "For example, plug 85 may be removed from
4 plate 82"?
5 A. Yes.
6 Q. All right. And so flipping back to Figure 2, do you
7 see plug 85?
8 A. I do.
9 Q. And so if a person is walking back through spacing 22,
10 would they be able to access that area where plug 85
11 is?
12 A. Presumably. I don't know if it says that
13 specifically, but it's on the near side or the inner
14 side of the tank, so that might be possible.
15 Q. All right. And if you could look in your declaration,
16 again Exhibit 1, the same one we've been looking at
17 earlier, if you go to paragraph 97 of that, please.
18 And in the heading that precedes that
19 paragraph you stated that, "A POSITA would not have"
20 looked to modify -- "looked to Cable to modify
21 Van Vliet."
22 Do you see that?
23 A. I do.
24 Q. And you stated one of the reasons was that a POSITA
25 would have understood that the equipment in Cable's

truck is configured for fast service in a roadside environment.

Do you see that?

A. I do.

Q. Is it your opinion that the configuration that's in Cable is only useful for servicing road vehicles in a fast service environment?

MR. SZYPA: Objection. Form.

A. I don't know. I haven't analyzed other reasons that it might be useful, I think is the word you used. I forget.

BY MS. FLANNERY:

Q. So you just haven't done the analysis to give that opinion one way or the other?

A. I haven't thought about what other purposes -- it's clear that they created an aisle walkway from the driver's compartment through to the rear door so that the driver could go right to the back and out the back door. That's how it's designed. So that's the point I made in my declaration.

Q. Okay. You weren't intending to say here that the configuration in Cable is only useful for that particular environment.

MR. SZYPA: Objection. Form.

A. I don't know. I haven't done an analysis on what

other reasons you might want to have that.

BY MS. FLANNERY:

Q. For example, you noted that the hoses in Cable are deployed out the rear of the truck that's shown there. Correct?

A. That's right.

Q. Is that something that would only be suitable in a roadside environment?

A. Meaning could it be suitable in other environments?

Q. Correct.

A. I suppose it could be suitable in other environments. You know, the points I made are based on the Background section of Cable where they describe all these different mobile fueling, you know, quick lube kind of systems that Cable follows on.

Q. And I think you mentioned in your declaration that one of the things that makes that so useful is that the Cable -- the truck that's in Cable can be backed up to be in front of whatever vehicle it's servicing. Right?

A. That's right.

Q. Could that be done somewhere other than a roadside environment?

A. Hypothetically, you could do that in another environment, yes. It's well suited for that

1 particular application.
2 Q. Okay. Is it your opinion that a POSITA would not
3 consider Cable's teachings unless that POSITA was
4 looking to design a roadside service vehicle?
5 MR. SZYPA: Objection. Form.
6 A. My point was that it's not very closely related to
7 the refueling application that Van Vliet is
8 targeting. It's a very different application.
9 So my point is, yes, you would -- if you
10 are designing a diesel refueling system for frac
11 sites, looking at a van that's for use in, you know,
12 quick lube on vehicles is not necessarily relevant.
13 It's pretty far apart.
14 BY MS. FLANNERY:
15 Q. So it's your view that Cable is not relevant
16 because -- Cable is -- let me try it again.
17 It's your view that Cable would not be
18 relevant to a POSITA designed by the Van Vliet system,
19 for example, because Cable teaches something that is
20 useful for a roadside environment?
21 A. It's roadside, among other factors. That's just one
22 factor.
23 Q. Okay. And the other factor was the fast service, I
24 think you mentioned?
25 A. Fast service is another factor.

Q. Okay.
A. And there are other things in my declaration we can go through in this section.
Q. All that's stated in your declaration. Right?
A. Yeah.
Q. Would you expect service vehicles that are used in a roadside environment to need a desk in the vehicle?
A. I'm quite positive --
MR. SZYPA: I'm sorry, did you say a desk? I'm sorry.
MS. FLANNERY: Desk.
MR. SZYPA: Desk.
A. Yeah, quite possibly.
BY MS. FLANNERY:
Q. What purpose would a desk serve in that kind of vehicle?
A. Well, I guess -- I haven't read -- I can't recall what I've read specifically in Cable, but my estimation is they would use it for paperwork when you're invoicing your customer. You're going out to a remote environment, you're going to perform the lube service, and there's going to be some sort of invoicing receipt that has to be made, and having that desk station provides that opportunity for the technician, driver of the truck, to do that kind of

1 thing.
2 Q. Would a desk be useful in the Van Vliet system for an
3 operator using that system?
4 A. A desk? Yeah, totally different. The desk would be
5 perhaps more useful because you have operators
6 sitting there for the hours and days of the
7 continuous operation that that trailer would be
8 expected to be working in, so you have -- it's nice
9 to have a cabin where the operator of that equipment
10 can sit and spend many, many hours, 12-hour shifts.
11 So there might be other reasons to have a desk in
12 that environment.
13 Q. It would be safer for the person to be able to do that
14 in the trailer of Van Vliet, for example, than, say,
15 sitting outside the trailer?
16 A. Well, yeah, that has nothing to do with the desk.
17 You just have to have a cabin. That's more of a
18 cabin issue, control room/cabin that's safer for the
19 operator to be in.
20 Q. And in a roadside environment like Cable, it would be
21 safer for the person to be doing that work at a desk
22 in the van as opposed to sitting on the side of the
23 highway?
24 A. Generally speaking, that's such a small percentage of
25 the time that's being spent in the Cable operation

that -- it's all a manual operation in Cable. So the technician/operator is going to be standing there at the back of the truck manipulating hoses, valves, putting fluid in, taking fluid out. Whatever they're doing, it's all very manual operation and it happens outside the vehicle.

So it's just not possible in Cable to protect the operator by keeping them in a safe place in the vehicle because it's a manual operation. They're out there anyway.

So this is just a convenience to be able to write up something, whatever they need to do, because everything they're doing is quick on the outside and then they're driving off to the next customer.

Q. Are you saying there's no reason to have a desk in Cable?

A. I'm saying the reason is just to have it as an easy way to have a convenient surface for writing on to fill out an invoice or, you know, to provide a receipt, that kind of thing.

Q. But that would be even more useful in the context of Van Vliet?

MR. SZYPA: Objection. Form.

A. What I said was in Van Vliet, it's just important to have a cabin/control room space. So there are

1 different reasons to have it. I'm not too concerned
2 with the five minutes it takes to fill out a form if
3 there's something like that in the Van Vliet
4 application. It's more the 12-hour shift where you
5 have an operator sitting there and needing a place to
6 go.
7 BY MS. FLANNERY:
8 Q. So in the Van Vliet system, you would expect that that
9 person would be sitting at the desk on the trailer
10 longer than they would be sitting -- than the operator
11 in Cable would be sitting at a desk there?
12 A. I don't expect the Cable operator to ever be sitting
13 at a desk.
14 Q. Ever. Okay.
15 A. It's a workstation, essentially, just to fill out a
16 form or something like that. You're not operating
17 the equipment from there. It's not a control room.
18 Q. If you could go back to Exhibit -- Cable, which is
19 Exhibit 13. And again, looking at -- well, looking at
20 Figure 1, which is on that same page as Figure 2,
21 Figure 1 shows that the van truck has both a driver
22 compartment and a rear compartment. Do you see that?
23 A. I don't see how they're two different compartments.
24 Q. Okay. Let's go to column 2 of Cable. Around line 48,
25 the paragraph begins, "Referring now more

1 particularly."
2 Do you see that?
3 A. Yes.
4 Q. It describes a mobile lubrication apparatus 15 with a
5 conventional van truck 16 having a driver compartment
6 as well as a rear compartment.
7 A. I see that.
8 Q. Okay. And would you agree that Figure 2 shows the
9 layout for that rear compartment?
10 A. Yes.
11 Q. Would you agree that the equipment that's used to
12 perform that -- to deliver lubricant is in the rear
13 compartment?
14 A. Yes.
15 Q. You'd agree that the rear compartment of Cable is
16 generally rectangular in shape?
17 MR. SZYPA: Objection. Form.
18 A. In Figure 2, it appears to be rectangular.
19 BY MS. FLANNERY:
20 Q. It has side walls and a rear wall with rear doors?
21 MR. SZYPA: Objection. Form.
22 A. That's generally true. I don't -- well, Figure 2
23 doesn't show the doors, but I know from Figure 1 that
24 they're there.
25 BY MS. FLANNERY:

Q. Okay. Would you agree that the equipment -- some of the equipment that's shown in the rear compartment of Cable, some of that -- some of that equipment is also -- let me try that again.

As to the equipment that's shown in the rear compartment of Cable, would you agree that that overlaps with some of the equipment that's shown in Van Vliet's trailer?

MR. SZYPA: Objection. Form.

A. There are some components that may be the same or similar and there are several that are very different. In general, the layout is very different.

BY MS. FLANNERY:

Q. Does Cable indicate that the existence of the front compartment, the driver compartment, is relevant to how the rear compartment is configured?

A. I'm not sure how to answer that. Can you rephrase, maybe?

Q. Sure. So I think we just talked about how Figure 2 of Cable shows the layout for how the equipment in the rear compartment is arranged --

A. Right.

Q. -- fair? Does Cable say anything to indicate that that particular arrangement of equipment that's shown for that rear compartment is related to the existence

of the driver compartment?
A. I'm still struggling with that, I'm sorry. The driver compartment connects to the rear compartment... I'm not sure I can answer that, sorry.
Q. Yeah, let me ask that a little bit differently.
Is there something about the positioning of the driver compartment that requires, for example, the tanks to be where they are in the rear compartment?
A. Well, certainly you need the tanks in the rear, then there's reasons to put it where they did, ahead of the front -- or the rear axle so the weight is carried between the two axles. It's the heavy component of a system. So that's why the tanks are where they are.
The driver obviously is going to sit in front. The tanks are going to be behind him.
Q. Okay. If the driver compartment didn't exist, if this was -- if Cable was converted to a trailer as opposed to a driver compartment --
A. Right.
Q. -- would you be able to use the same layout of equipment for the rear compartment that's shown here?
MR. SZYPA: Objection. Form.
A. I mean, that's not what Cable describes, so that's just hypothetical. I don't know.

BY MS. FLANNERY:
Q. You don't know if taking the driver compartment away and converting this to just a standing trailer that has to be towed, you don't know if that would mean that you'd have to make changes to the rear compartment?
MR. SZYPA: Objection. Form. Asked and answered.
A. It's a hypothetical. It has different design requirements to turn this into a towed trailer, for example, so I don't know how that would change the distribution of the equipment.
BY MS. FLANNERY:
Q. You just didn't consider that.
A. No.
Q. The three patents that are involved in these IPRs, the '805, the '955, and the '118, do those patents cover fast service vehicles?
MR. SZYPA: Objection. Form.
A. Fast service vehicles. No, I don't believe they cover -- you know, fast service vehicles in the context of what we've been talking about with the Cable van. These are automated refueling systems that sit and operate for a long period of time in a stable configuration.

BY MS. FLANNERY:

Q. What in the specification of the Shock patents makes you think that it could not cover a fast service vehicle?

A. It just wouldn't make any sense. A POSITA would know that you have this huge piece of equipment with all these big hoses and reels, and the capacity to pump so much diesel fuel, that's not -- you don't need to pump diesel fuel for a short period of time in a quick service environment. You don't just go, you know, to refuel one piece of equipment quickly.

It's made for a frac site where you have many pieces of equipment sitting here for days or more at a time, and you're continually refueling, refueling, refueling, in an almost continuous process.

Q. Would a system of the -- of one of those patents, the three patents that we talked about, would any of those systems ever have a driver compartment?

MR. SZYPA: Objection. Form.

A. No, they don't have driver compartments. They're trailers. Or I guess they could be a container.

BY MS. FLANNERY:

Q. Do those three patents that we just mentioned, do they cover a drivable road vehicle?

MR. SZYPA: Objection. Form.

A. They are just trailers. They're not -- they don't have an engine or a driver compartment.
BY MS. FLANNERY:
Q. Would you agree that the Cable and the Van Vliet references that we've talked about today, they are both mobile fluid delivery systems?
MR. SZYPA: Objection to form.
A. Mobile, meaning you can move them. Right?
BY MS. FLANNERY:
Q. I'm okay with that understanding.
A. Okay. Mobile fluid delivery... I'm sorry, I forgot the words.
Q. No, that's okay. Mobile fluid delivery systems.
A. Mobile fluid delivery. So they are mobile and they are delivering fluid. So I would say, yes, they are fluid delivery, just not fuel, not frac. Not, you know, all that other stuff we talked about.
Q. Is it your understanding that the Cable system is only used for delivering lubricant?
A. No.
Q. You agree it is used to deliver fluids other than lubricant?
A. Yes. Just not fuel.
Q. You agree Cable doesn't mention, in the four corners of the document, delivering fuel.

A. I agree.
Q. Is there anything about the Cable system that indicates it could not be used to deliver fuel?
MR. SZYPA: Objection. Form.
A. There's nothing in that reference that describes fuel because fuel is something that's required more regularly in larger volumes and they have -- there's different types of tankers that would deliver fuel remotely to other vehicles.
This type of vehicle is not suited to that particular application because fuel requires so much of a greater volume than the types of fluids that they're delivering in Cable. You wouldn't deliver it with those small tanks that they have configured in the back of the Figure 2 of Cable, for example. It's just not suited to that type of application.
BY MS. FLANNERY:
Q. So it's your understanding that Cable is not suited to deliver fuel because the tanks aren't big enough?
A. Well, that's one reason. You'd have -- you'd have a different type of vehicle. A POSITA would understand that refueling trucks are very common in the industry and multiple industries, and you don't design refueling trucks like this because you wouldn't be able to refuel very much at all because there's not

enough capacity in that truck.
Q. Does Cable talk about the volume of its tanks?
A. I don't recall.
Q. Okay.
A. I'm just familiar with the types of fluids that they do describe and the volumes involved, which are small.
Q. Do you know the -- what is the volume of lubricant that would be used in a roadside vehicle? Is that something that you have experience with?
A. Well, yeah.
Q. And what is your experience with that?
A. Changing oil in a lot of different types of vehicles and --
Q. Uh-huh.
A. -- coolant and lubricants. So, yeah, doing all those kind of things.
Q. Is that part of your professional experience or is that just life?
A. Professional and personal.
Q. In your professional experience, you've changed oil? Really?
A. Okay, I'll be... that's good. Let me clarify.
As an engineer designing these systems and working with systems, I would be familiar with that.

Q. I was about to be really surprised.
When you say "as an engineer designing these systems," what kind of systems are you talking about?
A. Just working around different types of, you know, vehicles, say, that are used in the oil industry and service equipment. Not particularly a Cable van, per se, but other types of equipment. Other, you know, large engines, that sort of thing.
Q. So in your work in the oil field industry, you've been around vehicles that are used to refuel equipment used in those industries.
A. Yes.
Q. Have you been around equipment used to deliver lubricant in a roadside environment?
A. No. I think Cable would be the -- I'm most familiar with Cable for an example of a lubricant delivery vehicle.
Q. Or any of the other fluids that Cable talks about delivering to roadside vehicles?
A. Right. Those are small-volume maintenance fluids that you do once every, you know, 5,000, 10,000 miles, that kind of thing, or number of service hours. Not something that you would do regularly like refueling every, you know, day or two depending

on how fast you consume the fuel.
Q. And your experience with those small-volume maintenance fluids, your professional experience with those is what?
A. Not actually changing the fluids myself, but understanding the types of engines that are used and the types of fluids that they need in their regular maintenance schedule, and knowing that those things have to be changed every so often, number of service hours, number of miles.
So it's the -- my experience would be with the -- that type of equipment.
Q. And that's your professional experience with roadside vehicles.
A. Yes.
Q. And what -- what work have you done with roadside vehicles in your professional experience?
A. I'm saying working with -- experience in the oil industry, working with different types of operations on a well site where you have different types of vehicles, familiarity with different types of vehicles and the types of engines and the types of maintenance they would require --
Q. So your --
A. -- that's what I'm saying.

Q. I'm sorry. I didn't mean to interrupt you.
Your experience with roadside vehicles is in the context of your work in the oil field -- in the oil industry?
A. Yes.
Q. Okay.
A. Professionally.
Q. Right. That's assumed.
Let's go back to your declaration, paragraph 114, if you would, please.
And let's see, paragraph 114, you list a number of items of equipment that's in Cable. Do you see that?
A. I do.
Q. And at the end of that, you say, "None of these pieces of equipment are found in Van Vliet."
Do you see that?
A. Right.
Q. And then paragraph 115, you do the reverse, mention equipment that's in Van Vliet but is not found in Cable. Correct?
A. Yes.
Q. Is it your understanding in combining Van Vliet with Cable that a POSITA would have to accommodate every piece of equipment from Cable into the Van Vliet

trailer?

MR. SZYPA: Objection. Form.

A. No, that's not my understanding.

BY MS. FLANNERY:

Q. It would be possible for a POSITA to pick certain aspects of the equipment or the design of Cable to incorporate.

A. Yeah, it's --

MR. SZYPA: Objection to form.

A. -- it's possible. And my point is just that the equipment is different, so you can't learn much from the layout of one when you're applying it to the other. So you can't learn much from the layout in Cable when you're dealing with different equipment in Van Vliet. Very different equipment. So there's not a lot to be gained there.

BY MS. FLANNERY:

Q. So is it your opinion that a POSITA would only look to other references that has completely identical equipment in figuring out how to design a system?

A. Well, if they were looking for something to replicate or learn from, they would want to pick something that better matched the application and the equipment involved. Cable is just not it.

Q. Does that require that the equipment be identical

between the two systems?

MR. SZYPA: Objection. Form.

A. It doesn't require it to be identical, but at least similar would be good.

BY MS. FLANNERY:

Q. Let's go back to Exhibit 13, Figure 2 of Cable. Sorry, keep flipping back.

And notice the hose assembly is 25 and 26, the back of the rear compartment?

A. Yes.

Q. You agree those were arranged on either side of the compartment?

MR. SZYPA: Objection. Form.

A. They're arranged at the back adjacent to rear doors, so they're split left and right side from those rear doors.

BY MS. FLANNERY:

Q. And again, there's the spacing 22 that we talked about between the two tanks, there's at least that same amount of spacing between the hose assemblies 25 and 26. Do you agree with that?

A. Yeah. Assuming this is to scale, it's approximately the same.

Q. Okay. Let's flip back to page -- paragraph 118 of your declaration.

A. Okay.
Q. And talking about Cable's arrangement here in paragraph 118, you state a little further down in that paragraph that that arrangement would impede access to the reels for maintenance and repairs because only one side of the reels facing the aisle would be inaccessible -- would be accessible, since the other side would be back to the trailer side wall and thus be inaccessible.
Do you see that?
A. I do.
Q. Is it your understanding that in combining Van Vliet with Cable, that the spindles of the reels would have to be oriented perpendicular to the aisle in the combined system?
MR. SZYPA: Objection to form.
A. I'm basing that on the petition and Dr. Durham's declaration, that there's no discussion of anything other than that, using Cable's reels as Cable defined them.
BY MS. FLANNERY:
Q. So you believe that the petition states that in the combination, the reel -- the spindles of the reels have to be oriented perpendicularly to the middle walkway?

MR. SZYPA: Objection. Asked and answered.

A. Yes, same as Cable. It's basically Cable's orientation inserted into Van Vliet, is what I understand it to be.

BY MS. FLANNERY:

Q. Are you assuming that the reels would be placed up against the side walls with no space in-between the side wall and the reel?

MR. SZYPA: Objection. Form.

A. Well, there's only so much space across the 96-inch width of the trailer or the road vehicle, we know.

So if you're going to use the Cable arrangement with an aisle down the middle, it necessarily means that the reels are going to be placed pretty close to the walls, to the side walls, as they've done here in Cable, and you're just not going to have walkway access or much of any access to what's on the wall side, the outer edge there.

BY MS. FLANNERY:

Q. Is it your view that if there isn't a walkway, you can't access the reels?

A. It certainly makes it harder to access the reels. It would depend on, you know, how much space. But certainly if you had one row of reels in the vehicle, that gives you a lot more -- much more space in that

96 inches to work with so that you can design it so you can have access all the way around.

So it's preferable for access purposes to not have an aisle walkway down the middle.

Q. Wouldn't it be just as easy if you had a tool that could be used to access those reels?

A. No.

MR. SZYPA: Objection.

A. Sorry, no.

BY MS. FLANNERY:

Q. No? Why is that?

A. Because for assembly and maintenance, troubleshooting, whatever, you need to be able to access all sides. Ideally, you would want to be able to get all the way around and access anything.

Q. Is that true just of reels?

A. That's generally true of equipment in general.

Q. Is it your understanding that the reels in Cable are permanently welded or installed in place or are they removable?

A. I don't recall if Cable describes that or not.

Q. Did you make an assumption about that one way or the other in your analysis?

A. I didn't make -- need to make an assumption. I know for installation, assembly, maintenance, any of that,

it's going to be easier if you can access all sides, and in Cable they can easily do that. They just open up the rear doors, which you can't do that in Van Vliet.

Q. In combining -- so in using the Cable configuration in Van Vliet, would the reels be permanently welded in the trailer?

A. I don't know if they would or wouldn't be, but either way it's going to be very hard to access. It would be very hard to weld them. It would be very hard to assemble them if you didn't have access as compared with a situation where you did not have a center aisle and you only had, say, one row front to back of reels. So it's relative.

Q. Let's go a couple of paragraphs down to paragraph 121 in the declaration.

A. Okay.

Q. And in that paragraph there's one sentence, I guess, and then 122 and 123 you do some analysis as to what the width of the walkway would be if there was going to be a walkway in Van Vliet with the Coxreels reels?

A. Right.

Q. And it's -- you gave the opinion here that the -- that the aisleway in the proposed combination would be too narrow.

A. That's right.
Q. And so in your calculation, you assumed -- and I'm looking at paragraph 122 here -- that the Coxreels reels would take up at least 83 inches of trailer width total if you had two of them.
A. Correct.
Q. Would you agree that a POSITA would find a walkway sufficiently wide for the Van Vliet system if it complies with OSHA standards?
A. There could be other factors besides just OSHA standards, I would imagine.
Q. Okay.
A. That would be one thing they would consider.
Q. What else would they consider?
A. Their operations and what they felt they needed to have an efficient and reliable operation.
Q. Okay. On page 42 there of your declaration, I think you have a reproduction of Coxreels size charts; is that right --
A. Yes.
Q. -- dimensions charts? And the 41-1/2 inch width, I think you sort of put it in a box here, that corresponds to the reel width. Correct?
A. Yes.
Q. Okay. If you look at -- kind of at the top, that's

the W column.
A. Right.
Q. Let's look back at Coxreels, is one of the exhibits in your stack, I think, Exhibit 8.
A. Okay.
Q. All right. And Exhibit 8, on the front page there, in addition to that chart that you reproduced it has, sort of, little thumbnail sketches of the reels indicating where those different measurements are?
A. Yes.
Q. And I know it's very small, but the W that's in the thumbnail on the left-hand side, do you see that spans the distance from the left -- the left end of that spout on the left to the end of the hand crank on the right? Do you see that?
A. I see that.
Q. In your analysis, when you were using these dimensions to calculate the width of the aisle, you assumed that this reel would be facing the rear of the trailer. Right?
A. The Cable orientation. So spindle axis perpendicular to the aisle.
Q. I think as we talked about earlier, Van Vliet didn't require that orientation. Right?
MR. SZYPA: Objection to form.

A. Yeah, I'm referring to the orientation that Dr. Durham described in the combination, basically taking Cable's reel and putting it into Van Vliet.

BY MS. FLANNERY:

Q. That orientation didn't come from Van Vliet, though, is my point.

A. It's Cable's orientation.

Q. Not Van Vliet's.

MR. SZYPA: Objection. Asked and answered.

A. Van Vliet didn't specify orientation, as I recall.

BY MS. FLANNERY:

Q. There you go. Okay.

If the reels were rotated to face the side walls of the trailer in Van Vliet, the dimension that would be perpendicular to the aisleway would be the L dimension that's showing here in Coxreels. Right? It's in the other thumbnail.

A. Yes, in that hypothetical situation, the other dimension of the reel is more the diameter of the reel itself, is the L dimension.

Q. Okay. And the L value for all of the models that are shown here in Exhibit 8 is 17-5/8 inches. Right?

A. That's right.

Q. So two of those reels would occupy a total of 36 inches.

A. Roughly.
Q. A little less than that, actually. Right? Okay.
A. Details.
Q. And so with a 96-foot -- if that was incorporated into a 96-foot trailer, just the math, that would leave 60 inches of open space not occupied by the reels. Correct?
MR. SZYPA: Objection. Form.
A. Yes, 96 inches. You said feet, but I know you mean inches, so...
BY MS. FLANNERY:
Q. I appreciate that.
A. So, yeah, in this hypothetical, if you turn the reels the other direction then that would leave you closer to, yeah, I think what you said, 60.
Q. Would 60 inches, would that be wide enough for a walkway in the system of Van Vliet?
MR. SZYPA: Objection to form.
A. Hypothetically speaking, it could be. That's certainly, yeah, not what I read from Dr. Durham's declaration.
BY MS. FLANNERY:
Q. I'm sorry, you said that's not what -- what did you say just a second ago? I'm sorry.
A. Specifically, I said that's not what I read from

Dr. Durham's declaration.

Q. And when you said that's not what you read, that's not what you read from Dr. Durham's declaration, are you saying he said 60 inches wouldn't be wide enough?

A. Sorry. This configuration is not something he described, is what I mean.

Q. I'm just asking, would 60 inches be wide enough -- a wide enough walkway? That's all I'm asking.

A. Yes. And I'm just --

Q. That's all I'm asking.

MR. SZYPA: Objection. Asked and answered.

A. I'm just qualifying my answer to say that's nothing that I was rebutting because that's not in Dr. Durham's declaration.

BY MS. FLANNERY:

Q. Okay. Fair enough.

In paragraph 123, the next paragraph of your declaration here, Exhibit 1, you noted that the least wide Coxreels 1125 model is 19.5 inches wide. Do you see that?

A. Yes.

Q. Ah, so that's like the first one that's listed, the 1125-4-100?

A. Correct.

Q. Okay. And so if that one was placed in the

1 configuration depicted in Cable, facing out the rear,
2 you noted that that would leave 57 inches for an
3 aisleway plus any other spacing that was needed, not
4 occupied by the reels.
5 A. Correct.
6 Q. Would a POSITA consider 57 inches sufficiently wide
7 for an aisleway in the system of Van Vliet?
8 A. Yeah, that's sufficient for an aisleway.
9 Unfortunately, not sufficient for -- the reels
10 wouldn't be big enough to hold enough hose to be
11 useful.
12 Q. In the orientation of Cable, where the reels are
13 deployed out the back, what's the benefit of doing
14 that, of deploying them out the rear as opposed to
15 somewhere else?
16 A. Well, you have those two large van doors in Cable, so
17 you can open up those doors, all the reels are right
18 in front of you, and you can pull your hoses straight
19 out off those reels to service the vehicle that you
20 need to change the oil on or whatever.
21 Q. Okay. So -- let's make it easier with the figures.
22 So looking at Cable Figure 2 again --
23 A. Yes.
24 Q. -- so when I'm looking at the reels -- which are, in
25 part, hose assemblies 25 and 26. Right?

A. Right.
Q. I'm going to be pulling them -- the hoses off those reels in a direction that is parallel to the orientation of the spacing 22. Do you agree with that?
A. Yes.
Q. Okay. So you agree that Cable teaches -- and -- well, let me back up.
And so the spindle -- in this orientation, the spindles of those reels are transverse or perpendicular to that spacing 22. Right?
A. Yeah. Just to be clear, when you say spacing 22, you just mean the access of the aisleway down the middle?
Q. There you go. Thank you.
A. Got it. Just wanted to be clear. I agree.
Q. Okay. And so Cable teaches orienting the spindles perpendicular to that direction, that direction of that axis.
A. Yes.
Q. The direction in which the hoses are going to be pulled out is also in that same direction as that axis. Right?
A. Generally. It doesn't have to be directly straight. I don't know exactly. But probably. Because you think it's servicing the vehicle that it's going to

back up to right behind it.
Q. Generally parallel to that axis.
A. Yes.
Q. Okay. And so you agree that Cable teaches orienting the spindle perpendicular to the axis or the direction in which those hoses are going to be deployed.
A. Yes.
MR. SZYPA: Objection. Form.
A. Cable does, but it has very different requirements.
BY MS. FLANNERY:
Q. Okay.
A. It's not the same set of requirements.
Q. Let's go to paragraph 127. And in this paragraph -- this is that long one that goes over to the next page -- you talked about several issues that could occur if the hoses in Van Vliet were deployed out the side wall if the reels face the rear of the compartment. Right?
A. Right.
Q. Okay. Would you agree that these issues would be at least lessened if the hoses were deployed out the side wall with the reels facing the side wall?
MR. SZYPA: Objection. Form.
A. So hypothetically speaking that's not something I saw in Dr. Durham's declaration, but, yes, theoretically,

you could alleviate some of these concerns by reorienting those reels.

BY MS. FLANNERY:

Q. With the spindle parallel to the side wall.

MR. SZYPA: Objection. Form.

A. Spindle parallel to the side wall is what we're talking about, yes.

BY MS. FLANNERY:

Q. Yeah. And just to be clear, spindle perpendicular to the direction in which they're being deployed.

A. Yes.

Q. I know it's a lot of directions, a lot of geometry. I appreciate you bearing with me.

A. No, sure. Just want to make sure I'm being accurate.

Q. Me too. Me too.

Let's see. Let's go to paragraph 137.

And here, in this paragraph, you talk about how Cable's teaching of a walkway and a storage area would not be complying -- I think what you're saying is it wouldn't be complying with OSHA standards; is that right?

A. That's right.

Q. Okay. So is spacing 22 -- spacing -- just to be clear, spacing 22 is that area that it discusses as being an aisleway or a walkway and a storage area.

A. Yes.
Q. Okay. Would you say that Figure 2 in Cable is a schematic representation?
MR. SZYPA: Objection. Form.
A. It looks more to be of a physical layout than a schematic.
BY MS. FLANNERY:
Q. Would you assume that it's to scale?
A. I can't assume it's exactly to scale, no, but hopefully it's representative.
Q. Okay. So that spacing 22 that forms the walkway and the storage area, if the truck in Cable was driving down the highway to go service a vehicle, would it be safe for somebody walking through -- to be walking through that walkway?
MR. SZYPA: Objection. Form.
A. You know, generally you don't want to be walking around when you're driving down the highway, if that's what you mean. You want to be seated.
BY MS. FLANNERY:
Q. This is a good point. If one person was driving that truck, they're probably not going to be walking in that walkway. Fair to say?
A. I wasn't even thinking of that, but yes.
Q. It wouldn't be possible.

A. I was thinking of a second person.
Q. Well, let's first ask the first one. If there's one person in the vehicle, they can't possibly be walking down that walkway. Right?
A. Not if they're driving.
Q. Yes. And if there are two people that are in that vehicle, while the first person is driving, the second person probably shouldn't be walking in that walkway. Fair to say?
A. Fair.
Q. Okay. And a POSITA would have recognized that back in 2016.
A. Yes.
Q. That's not new.
A. That not new.
Q. Okay. So when would people be walking through the walkway?
A. Well, when the vehicle is parked for servicing, probably.
Q. Okay. So that would be during a time when the vehicle is being used to service some other vehicle that it's parked near.
A. Right.
Q. And the equipment would be being used for that servicing.

A. Right.
Q. Okay. And the equipment -- that's all the equipment that would have been transported to that site using the van.
A. Yes.
Q. Let's see. Paragraph 140, just a little bit further down.
Let's see, you stated that Cable has eight reels that all feed hoses out the rear of the truck. Van Vliet has ten. And so a POSITA would have recognized that Cable's arrangement would have required adding two more reels?
A. At least, yes.
Q. Does Van Vliet require ten reels?
A. Well, Van Vliet is designed to service fracs, so they design -- the embodiment of Van Vliet at least has ten reels, and a POSITA would understand that for the frac refueling operation you need at least ten reels in 2016, if not more.
Q. Why would you need ten reels -- at least ten reels, if not more?
A. Because you want to be able to service all the diesel equipment on the well site for the frac.
Q. And that requires ten reels?
A. Correct. If you don't have ten reels, then you can't

1 handle the full -- you wouldn't be able to handle as
2 many jobs because you -- like if you had a job that
3 required 12 and you only have 10, well, then you
4 can't handle that job, so it reduces your market.
5 Q. What is it that dictates how many reels you would need
6 at a frac site?
7 MR. SZYPA: Objection. Form.
8 A. The number of pieces of equipment you wish to refuel
9 in the automated refueling system.
10 BY MS. FLANNERY:
11 Q. So is that a 1:1, basically, one reel to one piece of
12 equipment?
13 A. Ideally, it is.
14 Q. Would you expect the operator to be able to monitor
15 all ten reels at the same time?
16 MR. SZYPA: Objection. Form.
17 A. In Van Vliet, are you referring to?
18 BY MS. FLANNERY:
19 Q. Yes.
20 A. Yes, it's an automated refueling system, so you've
21 got to be able to monitor those reels, like we talked
22 about earlier. I wouldn't expect them to operate all
23 ten simultaneously because of the operational
24 considerations we discussed earlier. So there's that
25 caveat to your question.

Q. So you're saying that ten reels would be needed in the system of Van Vliet, but they wouldn't all operate simultaneously?

A. Yeah. Let me just make the distinction, you know, when you set up one of these refueling systems, you want to lock the hoses in to each piece of equipment that you're going to service, that you're going to be refueling. That's a separate discussion from how many of those hoses are actively pumping diesel at any one time.

So that's what I was referring back to, that latter point, referring back to my discussion that, you know, three hoses is ideal, seven is too many, or that's at the redline. That's what I'm referring to.

Q. So do the Shock patents require operating in that manner to attach a hose to one piece of equipment and then not moving it until the frac site -- the frac operation is done? Is that required?

MR. SZYPA: Objection to form.

A. I don't recall that limitation. I would have to look at it. It certainly would be inefficient to do that. It requires manpower to go out and change those, connect to a different tank, for example.

BY MS. FLANNERY:

Q. Not optimal.
A. It just takes more time, more manpower, or a second unit to cover more pieces of equipment than your one unit can handle.
Q. And is that undesirable?
A. Well, it's going to cost more.
Q. Okay. And to be clear, would at least ten hoses have been required in 2016 as opposed to today? I just want to make sure that everything we talked about is applicable to 2016.
A. I was referring to 2016.
Q. Okay.
MS. FLANNERY: Can we take a quick break? Let's go off the record.
(Off the record at 2:43 p.m.)
(Back on the record at 2:54 p.m.)
BY MS. FLANNERY:
Q. I'm going to ask you to dig into your pile. Going back to the '955 patent, which is Exhibit 5. And while you're digging, if you wouldn't mind pulling out Van Vliet as well.
A. Okay.
Q. They were Exhibits 5 and 6.
A. Got it.
Q. All right. So if you could go in Exhibit 5, which is

the '955 patent, to Claim 19, which is at the very end.

A. All right.

Q. And the fourth element after the preamble is "a register between the at least one pump and the at least one manifold."

Do you see that?

A. Yes.

Q. Okay. What is the function of the register there?

A. It's counting or tracking how much fuel is passing through it.

Q. In the context of the system, why is that information useful?

A. You need to know how much fuel you're delivering so that you can charge your customers for the fuel that they consume.

Q. Can those registers -- would they measure a flow rate or a -- would they directly measure a volume? How would that measurement occur?

A. Well, technically, they're probably measuring a flow rate and then integrating or accumulating it to get a total.

Q. Okay. So to measure that flow rate, where does the flow meter have to be located to measure -- to do that measurement?

MR. SZYPA: Objection. Form.

A. Anywhere in the flow lines that go through the system.

BY MS. FLANNERY:

Q. And so is that register, the register between the pump and the manifold, is that capable of measuring the flow rate out of the pump?

A. Just to be clear, are we talking about the configuration in the '955 patent?

Q. Yeah, I'm talking about Exhibit 5.

A. Okay. So -- well, I'm picturing a figure in my report, which is Van Vliet, not the '955. That's why my brain was processing that.

Okay. So your question was --

Q. Yeah, is -- I'm sorry, go ahead. You want me to repeat it?

A. Would you repeat it, please?

Q. Probably be better.

A. I lost it.

Q. Yeah, that's fine. So the register between the pump and the manifold, is that capable of measuring the flow rate out of the pump?

A. Well, it depends on what else the pump is connected to. If one pump is driving one manifold, then -- and you put a register between it, it's going to tell you

how much flow is going through that pipe.
Q. And the manifold is located upstream of the hoses and the tanks that are receiving the diesel that are being fueled; is that right?
A. That's right.
Q. So let's look at Van Vliet now. Figure 1 I think probably is just as good as any.
And so if a fluid register was installed upstream -- so -- well, let me back up.
The pumps in Van Vliet are labeled 32 and 34. Right?
A. Right.
Q. If a register was installed upstream of those pumps, so, for example, for 34, if it was installed sort of where that indicator line for 42 is pointing --
A. I see, yes.
Q. -- you understand that location?
A. Yes.
Q. Would it be able to measure the flow of fluid coming out of the pump?
A. Yes. Because the flow going into the pump is the same as the flow going out of the pump.
Q. That would be true as long as there's nothing wrong with the pump. Correct?
A. Wrong with the pump, as in it's leaking?

Q. Right.
A. I think if the pump were leaking that much to make a difference in the flow measurement, you would have a bigger problem which is a big safety issue. So generally these systems are sealed so that you can measure anywhere along that line and you're going to get the same measurement.
Q. So a POSITA would understand, looking at the system of Van Vliet, that you're going to get the same measurement regardless of where that pump is -- regardless of where your register is located. Excuse me.
A. Yeah, anywhere along that flow system. I mean, by your argument, you would have to have the flow meter right at the delivery, the tank you're delivering to, the customer delivery, because you could have a leak anywhere along the way. So it's arbitrary where you put it.
Q. Do you believe it's arbitrary where you put the register?
A. I think you need to put the register anywhere along the flow lines that makes it convenient within the bounds of the trailer. You could have a register at the customer site if you wanted to, if you wanted to track each one out there and the customer believed

that was a good idea. It just makes it a little bit harder because you've got to wire it out there and bring the cables back with the rest of your cables, your level sensor, but it can be done. So you can put that register anywhere you want.

Q. Would a POSITA, for purposes of measuring the amount of -- the amount of fuel being delivered by the system, would a POSITA consider all of -- any location along the line sufficient?

MR. SZYPA: Objection. Form.

A. You could pick anywhere along the lines depending on what you wanted to do. If you wanted to break it down by different hoses to track different potential customers on a rig site, you could do that. You could have multiple LCRs and add them together and still get a total for one customer.

It's any way you want to configure it. There's no reason a POSITA would think you had to put it in any one particular location.

BY MS. FLANNERY:

Q. A POSITA would consider those locations equivalent for purposes of measuring the amount of fluid?

A. Depending on what their goals were for that measurement and how they wanted to invoice their customers, yes, they could put it anywhere in that

system.

Q. Would you agree that a system that has multiple -- well, okay, let me take the example that you provided.

Would it be possible to install multiple fluid registers in multiple different locations in the system of Van Vliet?

A. Yes, and you would have to if you put it downstream of the branches on the manifold. You would obviously need more than -- well, there's two manifolds, right, in Figure 1 that we're looking at, so you would at least need two if you're downstream of the pumps.

If you go into the branches, where the manifold branches off to the different reels and hoses, well, then you would need one, two, three, four -- five on each manifold to hit each one of the ten total hoses.

So it's just a question of what the POSITA was desiring or what the designer was desiring in a configuration.

Q. So in the system of Van Vliet, tank 1 is in communication with pump 32. Right?

A. Right.

Q. And then tank 2 is in communication with pump 34. Right?

A. Right.

Q. And 34 services the manifold on the right, and 32 services the manifold on the left. Right?
A. Right.
Q. Okay. So in this system, is there anywhere that you could place just one register and measure the fluid for the entire system?
A. No, you would need at least two in this embodiment in Figure 1.
Q. Okay. And so using at least two -- and just so I understand, these fluid registers that are used for this type of -- this type of use, how expensive are they?
A. I don't know the price on one of those units. I'm not sure what they're using exactly.
Q. Is it sufficient enough to where it would be non-negligible to have five or six of the registers?
A. Yeah, I don't think that's going to change the -- in the big picture, the cost of the entire unit, no.
Q. Would a person of skill in the art, if you have multiple -- the more of those registers you have, there are more that could possibly break. Fair to say?
A. Sure.
Q. Okay. And so if a POSITA only wanted to use two registers to measure the fluid for all of Van Vliet --

A. Right.
Q. -- they could place those registers on lines 40 or 42 -- 40 and 42, excuse me. Correct?
A. Correct.
Q. Okay. Are there any other locations that they could place them in?
A. Well, between the pumps -- the respective pumps and the manifolds. Is it downstream of the pump or upstream of the pump before it branches off.
Q. For any other location where you would install, you would need more than two registers to measure the fluid flow for the entire system. Fair to say?
A. That's correct.
MS. FLANNERY: All right, I don't think I have any further questions. I pass the witness at this time.

EXAMINATION

BY MR. SZYPA:
Q. Dr. Rodgers, I'm going to point you to Exhibit 1, starting at page 77.
A. Okay.
Q. On pages 77 and 78, you link to a YouTube video in your declaration. Do you see that?
A. I do.
Q. Did you watch that video?

A. Yes.
Q. Let's look at Exhibit 5 now, which is the '955 patent.
A. Okay.
Q. Do you recall some discussions about whether Figure 4 showed the spindle today?
A. Yes.
Q. I want to point you to Figure 3. Let me know when you're there.
A. I'm looking. Yes.
Q. Does Figure 3 show any reel spindles?
A. Yes.
Q. And a POSITA would interpret Figure 3 to show reel spindles?
A. Yes.
Q. Do you recall being asked whether certain things were fast service vehicles today?
A. Yes.
Q. And the system shown in Van Vliet, which is Exhibit 6, is that a fast service vehicle?
A. No, it is not.
Q. Do you recall some discussion today during your deposition about diesel being stored on the reels of a system like Van Vliet in-between jobs?
A. Yes.
Q. Are there other periods of time other than in-between

jobs where diesel might be stored within a particular reel for a prolonged period of time?

A. Well, it can be stored in that reel during a job if a particular hose and reel are not in use on that particular job. So if you're using 11 out of the 12, the 12th one is not active for that particular job -- just making up numbers here -- or 9 out of 10 or whatever. One of the -- one of the reels may not be in use for the entire job and then you could still have diesel sitting in that.

Q. Okay. Thank you.

Let's look at the Cable reference, which is Exhibit 13.

A. Okay.

Q. And I think you testified today that the reels are oriented to let the hoses out of the back of a truck in Cable; is that correct?

A. Yes.

Q. And the spindles, if you will, are perpendicular to the length of the aisle.

A. Right.

Q. Are you aware of any other prior art cited by the petitioner that teaches a reel orientation in a trailer or a truck?

A. I am not aware.

MR. SZYPA: So I'd like to mark this as 14.
MARKED FOR IDENTIFICATION:
EXHIBIT 14
3:10 p.m.

BY MR. SZYPA:

Q. Dr. Rodgers, you mentioned an inspection that you conducted in Victoria, Texas, of the Fuel Automation Station unit; is that correct?

A. Yes.

Q. Okay. And this Exhibit 14 that I'm showing you, do you recall when I showed you these photographs last week?

MS. FLANNERY: Object to form. Outside the scope.

BY MR. SZYPA:

Q. You can go ahead and answer.

A. I can answer?

Q. Yes.

A. Yes, I recall.

Q. And what is your understanding of how these photographs were obtained?

MS. FLANNERY: Same objection.

A. These photographs, I believe, were obtained during the inspection of the F-A-S, FAS unit.

BY MR. SZYPA:

Q. And whose inspection was that?
MS. FLANNERY: Same objection.
A. I believe this is when Petitioner inspected the unit.
BY MR. SZYPA:
Q. And by "Petitioner," do you mean Dr. Durham?
MS. FLANNERY: Same objection.
A. Yes.
BY MR. SZYPA:
Q. And you were present at that inspection. Right?
A. Correct.
Q. You inspected the Fuel Automation Station unit on a different day.
A. That's right.
Q. And that was also in Victoria?
A. It was.
Q. And that was a different unit from the Unit 1022 that's shown here?
A. I understand it was a different unit. I can't remember exactly. I'd have to look back at photographs to remember what the number was on the other unit. But it looks look it's in the same facility.
Q. Sure. Let's go back to Exhibit 1, at paragraph 179.
A. Okay.
Q. And on here, you conclude that "the FAS Unit includes

each and every limitation of at least the independent claims...of the '118 patent."

Sorry, I'm looking at Exhibit 3. I'm sorry. Let's start that over.

Well, okay, in Exhibit 3, at paragraph 179, you conclude that. Correct?

MS. FLANNERY: Objection to form. Outside the scope.

MR. SZYPA: Sure.

A. Yes.

BY MR. SZYPA:

Q. And in Exhibit 1 you make a similar conclusion based on the independent claims of the '805 patent at paragraph 214; is that correct?

MS. FLANNERY: Object to form. Outside the scope.

A. That's correct.

BY MR. SZYPA:

Q. And in Exhibit 2, you make a similar conclusion with regard to the independent claims of the '955 patent at Exhibit [sic] 219; is that correct?

MS. FLANNERY: Object to form. Outside the scope.

A. After I read 219, yes.

BY MR. SZYPA:

Q. And for all of those conclusions, you say that's at least partially based on your physical inspection of a FAS unit. Correct?
A. Yes.
Q. Seeing these pictures in Exhibit 14 that you've looked at today, do you see anything that changes those conclusions that we just discussed?
MS. FLANNERY: Object to form. Outside the scope.
A. No, I do not.
MR. SZYPA: No further questions.
MS. FLANNERY: Okay. Just a couple of quick followups, Dr. Rodgers.
RE-EXAMINATION
BY MS. FLANNERY:
Q. Patent owner's counsel asked you about having watched a YouTube video showing the FAS unit?
A. Yes.
Q. And you testified that you watched that video?
A. That's my recollection, yes.
Q. When did you watch it?
A. I mean, sometime between March and May of 2024.
Q. You watched it before executing your declaration.
A. Yes.
Q. Okay. The photos that were marked as Exhibit 14 that

were shown to you, were you present when those photos were taken?
A. I was not.
Q. Do you know when those photos were taken? The date?
A. I knew at one point but I can't remember right now.
Q. And you said you're not sure if this is the same unit that you inspected?
A. I would have to compare against my own photos to try to see what, if anything, was different, but my understanding is it wasn't the same unit.
Q. Okay.
A. And, yeah, going back to the previous question, I do remember because I was on vacation when that inspection occurred, which I think was -- what was the date? I think it was the week of July 25th, so a couple weeks ago.
Q. And you don't know if there are any differences between the unit that is depicted in Exhibit 14 and the unit that you inspected sometime before May?
A. I was there in March, I believe. Everything looks like it's configured the same way as what I recall when I inspected the unit in that same facility.
Q. Have you considered whether there are any differences between the unit that you saw and the unit that's depicted in Exhibit 14?

A. I have not done any analysis to try to ascertain whether a specific difference exists.

Q. Did you speak with your counsel today about the subject matter of your testimony during the deposition? And I'm just asking for a yes or no right now.

A. No.

Q. So during the breaks, you didn't have any conversations with patent owner's counsel about the substance of your testimony?

A. I did not.

MS. FLANNERY: Okay, I don't have any further questions.

(Proceedings concluded at 3:18 p.m.)

CERTIFICATE OF NOTARY

STATE OF MICHIGAN)
) SS
COUNTY OF OAKLAND)

I, ALISON WEBSTER, certify that the deposition of JOHN RODGERS, Ph.D., P.E. was taken before me via videoconference on the date hereinbefore set forth; that the foregoing questions and answers were recorded by me stenographically and reduced to computer transcription; that this is a true, full, and correct transcript of my stenographic notes so taken; and that I am not related to, nor of counsel to, either party nor interested in the event of this cause.

ALISON C. WEBSTER, CSR-6266, RPR, RMR, CRR, RDR
Notary Public, Oakland County, Michigan
My commission expires: May 1, 2029

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