UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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FREIGHTCAR AMERICA, INC.,

Petitioner,

v.

NATIONAL STEEL CAR LIMITED,

Patent Owner

_____

IPR2025-01046 (Patent 8,166,892)

IPR2025-01047 (Patent 8,132, 515)

_____

Videotaped Deposition of Medhi Ahmadian, Ph.D., held at Knobbe Martens, 1717 Pennsylvania Avenue, NW, Suite 900, Washington, DC, commencing Thursday, March 5, 2026, at 9:07 a.m. pursuant to notice, before Okeemah S. Henderson, RPR, Notary Public in and for the District of Columbia.

Job No. 1489509

Reported by: Okeemah S. Henderson, RPR

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P R O C E E D I N G S

THE VIDEOGRAPHER: We are now on the record. This begins Videotape No. 1 in the deposition of Dr. Mehdi Ahmadian in the matter of FreightCar America, Incorporated, versus National Steel Car Limited, in the United States Patent and Trademark Office before the Patent Trial and Appeal Board, IPR numbers 2025-01046 Patent 8,166,892, and IPR2025-01047 Patent No. 8,132,515.

Today's date is March 5th, 2026. Time on the video monitor is 9:07 a.m. Eastern Time.

This deposition is being taken at Knobbe Martens at the request of Ice Miller.

The videographer is Jason Acqui of Magna Legal Services, and the court reporter is Okeemah Henderson, also of Magna Legal Services.

Will counsel and all parties present state their appearances and whom they represent.

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MR. KEELER: Robert Keeler from Ice Miller, LLP, on behalf of National Steel Car Limited.

MR. METJAHIC: Safet Metjahic, on behalf of National Steel Car, with Ice Miller.

MR. NELSON: Philip Nelson, Knobbe Martens Olson & Bear, for FreightCar America.

THE VIDEOGRAPHER: Will the Court Reporter please swear in the witness.

MEHDI AHMADIAN, Ph.D.,

was called as a witness, and having been first duly sworn or affirmed to testify to the truth, the whole truth, and nothing but the truth, was examined and testified as follows:

THE WITNESS: I do.

THE VIDEOGRAPHER: Please proceed.

DIRECT EXAMINATION

BY MR. KEELER:

Q. Good morning, Dr. Ahmadian.

A. Good morning.

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Q. Can you please state your full name for the record?

A. It's Mehdi Ahmadian, M-E-D-H-I, A-H-M-A-D-I-A-N.

Q. Have you ever been deposed before?

A. Yes.

Q. How many times?

A. Probably close to half dozen of times.

Q. And what kinds of litigations were those depositions in connection with?

A. Some of them have been on product liability cases and some of them have been on IP cases.

Q. How many IP cases have you been involved in?

A. Approximately four or five.

Q. And were those all patent cases?

A. Yes.

Q. In each of those cases, were

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you on the side of the patent owner or of the accused infringer?

A. It was a mix.

Q. Did any of those cases have to deal with rail cars?

A. Not directly, no.

Q. How about for the product liability cases, did any of those deal with rail cars?

A. No.

Q. Have you ever been involved in any other lawsuit aside from giving those depositions?

A. Not that I recall.

Q. So since you've been deposed, today I probably don't need to go through this, but I will anyway. Just a couple of ground rules for today.

If at any time you can't hear me, please let me know and I will speak up.

Is that fair?

A. Yes.

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Q. And I'll ask that you please wait for me to finish speaking to answer a question, and I will do the same for your answers.

Is that fair?

A. Sounds good.

Q. Okay. If you don't understand a question, please let me know and I will rephrase it. If you don't ask for clarification, can we agree that means you've heard and understood my question?

A. Sounds good.

Q. And we have a court reporter here today who is going to be taking down your answer. So please respond with a verbal response and not a gestural response; is that fair?

A. Sounds good.

Q. And your attorney may object to a question I may ask, but unless he instructs you not to answer, you understand that you need to answer it fully and

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completely, correct?

A. Yes.

Q. Okay. Is there any reason why you wouldn't be able to testify truthfully today?

A. No.

MR. KEELER: I'll mark as Exhibit 1 Patent Owner's Notice of Deposition of Dr. Mehdi Ahmadian.

(Exhibit 1 was marked for identification.)

BY MR. KEELER:

Q. Have you seen this document before?

A. I have.

Q. And what is this document?

A. It's a Notice of Deposition.

Q. And you understand that you're here today to testify in connection with this Notice of Deposition, correct?

A. Yes.

Q. And you put in declaration -- a declaration in IPR2025-01046, correct?

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A. Yes.

Q. And you did the same in IPR2025-01047?

A. Yes.

Q. And in those cases where you've testified before, has a party to any of those cases ever sought to exclude your testimony?

A. No.

Q. Are you an inventor on any patents?

A. I am.

Q. How many?

A. Approximately 12.

Q. How did you determine whether to file a patent application on an invention that you made?

A. Well, it's a accepted process, but ultimately if there is an invention that is -- has utility and has novelty and can be put to practice, then it is worthy of pursuing an invention disclosure and

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ultimately a patent application.

Q. And you understand that patents -- patent applications are examined at the United States Patent and Trademark Office, correct?

A. Yes.

Q. And the examiners look for criteria such as novelty, correct?

A. Yes, that's what my understanding is.

Q. And nonobviousness?

A. Again, that's what my understanding is.

Q. You're not some patent professional, right, a patent attorney or a patent agent?

A. I'm not.

Q. Have you ever worked as a patent examiner?

A. No.

Q. Are you familiar with the Patent Office's requirements for patent

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applications?

A. Not entirely. Somewhat I'm familiar with the patent process and it's filed by an attorney and it goes through its office actions.

Q. What are office actions?

A. It's examiner looking at the patent, considering all aspects that are relevant to that patent, deciding what claims are allowable and which ones are not. Communicating them with the filing parties and so and so forth.

Q. And you understand I'm here today representing National Steel Car, correct?

A. Yes.

Q. And you filed -- and you understand that you filed a declaration in support of the party FreightCar America, Inc., correct?

A. Yes.

Q. Are you familiar with the

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patent infringement action filed by National Steel Car against FreightCar America, Inc. in the District of Delaware?

A. Yes, I am.

Q. Have you ever seen the products that National Steel Car accused of infringing its patents?

MR. NELSON: Objection. Scope.

A. Yes, I'm fully aware of them.

BY MR. KEELER:

Q. You've looked at pictures?

A. I have looked at pictures.

Q. Have you seen them in person?

A. I don't have a direct recollection of them, but I've been around this industry for many years and I would not be entirely surprised if I have seen it and do not have a direct memory of it.

Q. Are you familiar with the Duluth, Missabe and Iron Range Railway?

A. I'm not directly familiar with it, no.

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Q. Have you ever seen rail cars that run on that railway?

A. Again, I don't have any recollection of it.

Q. Have you ever taken a trip to Proctor, Minnesota to look at rail cars?

A. I have been to Minnesota, but not specifically for looking at rail cars.

Q. Are you aware that National Steel Car asserts that it made rail cars that practice its patent inventions?

A. Yes.

Q. Have you ever seen those rail cars in pictures?

A. I have.

Q. Have you ever seen them in person?

A. Again, as I said earlier, I don't have a direct recollection of them.

Q. Have you ever designed a rail car?

A. I have designed various

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elements for rail vehicles, yes.

Q. For rail what, I'm sorry?

A. Vehicles.

Q. Vehicles. What type of elements?

A. Well, prior to joining Virginia Tech I was at GE Transportation Systems, and I was a designer for rail -- locomotive bogies or trucks.

Q. And that was bogies or trucks?

A. Yes.

Q. Are those the same things?

A. They are the same things. They are referred by different names.

Q. And what is a bogie or a truck?

A. Well, it's the under chassis of a locomotive or rail car. It's effectively the components or the collection of components that transfers the loads from the rail car to the truck. It's the part that moves the rail car along the rail.

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Q. So you mentioned it's the under chassis. Does that imply that there is something above it?

A. Yes.

Q. And what are the components that are above the under chassis?

A. Well, generally, it's a rail car, or in case it's a locomotive it's a locomotive body.

Q. So rail cars and trucks are two different things, correct?

MR. NELSON: Objection.

A. Trucks are a part of rail cars.

BY MR. KEELER:

Q. Have you ever designed components of rail cars that are not trucks?

A. I have not directly designed components that goes on rail car, but I have been involved in the design process nearly all of my life.

Q. How have you been involved in

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the design process?

A. Well, through my teaching at the university. Through various research projects that I have. And, as I said earlier, through my work experience in the industry.

Q. Has your teaching ever led to a component of a rail car other than a truck being actually built?

A. Not that I recall.

Q. Has your -- have your research projects ever led to a component of a rail car being actually built aside from a truck?

A. Again, not that I recall.

Q. And your work experience, has it ever led to a component of a rail car being built that isn't a truck?

A. Not that I recall.

Q. So is it fair to say that no component of a rail car other than a truck has ever been designed by you?

A. That's not fair to say, no,

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because a rail car has got many components in it that are all part of basic mechanical design. And, as I said, I have been involved in designing many mechanical components and structural components which would go into a structure such as a rail car.

Q. Can you identify one?

A. Of course. We have various systems in our lab that have got various structural components that has been directly designed by me and my students, and they all go through the same engineering principle that someone would consider for something like a rail car.

Q. So, can you identify one?

A. Yes. For instance, we have a roller rig that is operational in our lab. It has various structural components. Many of them not too entirely different from the rail car, and they have been designed, as I said, by myself and my students.

Q. Have they ever been put on the

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rail car in service?

A. They are in service for research purposes.

Q. But not in industry service, correct?

A. If you mean that they're running along the truck and on the railways, no.

Q. What is a roller rig?

A. A roller rig is an apparatus that is used for studying the forces and moments that are imparted between the rail and the wheels that are moving on it.

Q. Are you familiar with open-top hopper type rail cars?

A. I am.

Q. Have you ever designed a component that was used on a open-top hopper type rail car?

A. I don't have any recollection of it.

Q. There are many different types

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of rail cars, correct?

A. Yes.

Q. Can you name a few, please?

A. You have got hop cars, we've got boxes, we've got tanker cars, we've got flat cars. Like you said, there are different kind of rail cars.

Q. Why are there different types of rail cars?

A. Well, they are each used for their intended purposes.

Q. Do those intended purposes factor into the design of the different types of rail cars?

A. Yes, they do.

Q. How so?

A. Well, if a, let's say sake of argument, if a rail car is intended to carry let's say crude oil, then it's designed one way. If it's intended to carry a commodity, then it's designed another way. If that commodity happens to be in bulk aggregate

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form, it's designed like a hopper car that we're talking about here. It's -- if it was intended to carry a commodity that is in a different form, then it's designed otherwise.

Q. So for a rail car carrying crude oil, how is the design of that rail car be any different than a rail car carrying bulk aggregate?

A. Oh, they're different in many ways.

Q. How so?

A. They -- in terms -- in terms of their form, fit, function, various aspects of the design consideration that goes into the design of such a tank of car, and so and so forth.

Q. So what specific considerations would go into the design of a car carrying crude oil?

A. Well, beyond the ability to maintain its cargo within, it has to have certain puncture resistance and certain other

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aspects that are important in case there's an accident or derailment.

Q. What is puncture resistance?

A. Well, it's designing the outer shell of a tanker car such that in case of a blunt force it will not lose its structural integrity and will maintain the cargo within.

Q. And how is that design accomplished?

A. Well, it's designed through various means, by properly selecting the material that that tanker car is formed of by properly dimensioning the shell of the tanker car and other aspects.

Q. What are the other aspects?

A. Well, I mentioned the important ones, that some of our tanker cars have got, for instance, two shells, where there's an inner shell and there's an outer shell, and that is intended to provide further structural integrity in case of a blunt force, for instance, to the outside of

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that tanker car.

Q. What type of material would be selected to form the shell of a tanker car?

A. In general, it's steel. In general, it is a high strength steel.

Q. What is high strength steel?

A. In general, that refers to a steel alloy that has got higher carbon content and composition that makes it stronger to the forces that are applied to it.

Q. And so high strength steel is different than I guess what you would call regular steel or something like that?

A. We have many forms of, and grades, of steel. So, depending on the application that that steel is intended for, the designer will choose the steel grade that is suitable for that application.

Q. Is high strength steel heavier than a more common steel?

A. It may be marginally heavier,

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but not significantly.

Q. And how would one go about determining the dimensions for the shell of the tanker car?

A. In general, there are industry standards for the size of the tanker cars and such.

Q. Who publishes those industry standards?

A. In general, they're published by the Association of American Railroads, or AAR.

Q. In terms of hopper cars, what goes into the design of the hopper portion of a hopper car?

A. The hopper portion of a hopper car, I'm not clear what you mean by the hopper portion of a hopper.

Q. What is a hopper car?

A. It's an open top car that is intended for carrying bulk aggregate commodity.

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Q. And it has -- a hopper car would have trucks, correct?

A. Yes.

Q. And above the, trucks, what would you call that portion of the hopper car?

A. The box of the hopper car.

Q. So how would one go about designing the box of a hopper car?

A. Well, it all depends on its intended purpose. So, if I'm designing let's say a coal car, which is technically a hopper car, because it's open-top and intended for carrying aggregate material, then one designs it in a certain manner. And if one is designing a hopper car that is intended to carry a different kind of material, then it is, again, suitably designed for that material.

Q. What is aggregate material?

A. Aggregate material is anything that is in a loose form such as coal that

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comes out of a mine, such as grain that we carry in a lot of our rail cars, and even the ores that come out of mines. They're all aggregate.

Q. So in terms of designing a -- the box of a hopper car intended to carry coal, what specific considerations go into that?

A. Some of the considerations are ease of loading and ease of unloading, and providing sufficient capacity to carry the coal material within the allowable weight limits that we have for our rail cars.

Q. And what are the weight limits for rail cars?

A. In different parts of the -- in different regions they could be different. And based on the kind of rail car that we have, they could be different. In general, for most of the main lines in the U.S. we have a 286,000 pounds weight limit for the rail cars. And that's, as I said, in

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general, and within the guidelines of AAR.

Q. That 286,000 pound limit, that refers to the weight of the rail car in addition to whatever it's been loading with -- loaded with?

A. It is what we call the gross vehicle weight. And that gross vehicle weight includes everything.

Q. And by everything, you mean the weight of car and the weight of whatever it's carrying, correct?

A. Correct.

Q. So a heavier a car cannot carry as much weight of whatever it's carrying, correct?

A. Correct.

Q. Is that something that in designing a hopper car would be considered?

A. Yes. Among many things that are taken into consideration. And any kind of design, the cargo capacity would be one of them. And like you just mentioned, you might

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have a heavier car, then that could reduce the cargo capacity.

Q. And I guess the other things that would limit how much cargo a rail car could carry would be the volume of the hopper, correct?

A. Well, the volume of hopper and the density of the material, they go hand in hand. So it's not just the volume, but also the density of the cargo. And the two of them will determine the weight or the cargo weight that a rail car, or for that matter, any other element can carry.

Q. In addition to the volume density and gross rail -- gross vehicle weight, are there other limitations that are placed on the design of a hopper car?

A. Yes.

Q. And what are those?

A. Well, all of our rolling stock needs to conform to the dimensions that are required by moving that rail car on the rail

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properly.

Q. And what do you mean by that?

A. Well, for instance, all rail cars have to go through tunnels occasionally, and tunnels have got a defined size and form. And when we design a rail car, then it has to conform to the shape that is required for safely passing through the tunnels.

Q. Also, in addition to the size and shape of tunnels, are there other limitations on the dimensionality of a rail car?

A. As long as it is able to fit within the required form, generally referred to as the plait, then they -- they conform to the standards that is set by the industry.

Q. Hopper cars often have bottom discharge capability, correct?

A. Some do, yes.

Q. And when a hopper car has bottom discharge capability, what does it normally discharge into?

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A. Well, it depends on the depot that it is pulling the cargo to. So whatever is there, it's intended to discharge into whatever receiving facility may be available in that depot.

Q. So depending on the depot that a hopper car is intended to be used at, could that also provide limitations on the dimensionality of a hopper car?

A. Well, the dimensionality of any car, as we have been discussing, is set by the standards required by moving that rail car on the rail safely. And, in general, we design the depot to conform to the requirements for the shape and form of the rail cars that is it servicing.

Q. Could it be a case that the rail car is designed to conform to the depot?

A. To the best of my knowledge, that is the other way around.

Q. Based on your experience, you've never seen a rail car designed to

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conform to a depot in which it's intended to discharge its load?

A. Again, as I just mentioned, the primary concern often is the clearances that we have to keep relative to the track and relative to the surroundings that the rail car is passing through.

Q. So it's not a concern -- scratch that.

So in your experience, you've never seen a rail car designed to conform to a depot, correct?

MR. NELSON: Objection. Form.

A. Again, as I said, the primary concern is ensuring that that rail car conforms to its safe passage on the track within the industry standards. Now, to the extent that that plays into the practices at the depot, that is taken into consideration above and beyond the first requirement that I just mentioned.

BY MR. KEELER:

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Q. You said above and beyond the first requirement?

A. I'm not sure what the question is.

Q. Yes. So you stated that the primary concern is ensuring that the rail car conforms to its safe passage on the track within the industry standards. And you continued now to the extent that it plays into the practices that the depot that is taking into the consideration above and beyond the first requirement I just mentioned.

Why is that above and beyond?

A. Well, because if I have a requirement of the depot that puts me outside of the limits that are required for that safe passage, then I would not be able to move that rail car on the track.

Q. But if the rail car can't discharge its load at a depot, it's equally as ineffective as not being able to safely

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move, correct?

A. Well, there are ways of dealing with that and addressing that. And, again, as I said, we have done that over the years with different kind of commodities that the railroads are required to carry.

Q. What are the different ways of dealing with and addressing that?

A. So let's say that a hopper car since, that appears to be the main part of the this deposition, let's assume that I have a hopper car that is being pulled into depot that requires bottom discharge. Then that depot is designed properly for receiving that hopper car that is able to discharge from the bottom. And similarly, let's assume that I have a hopper car that is unlaymaned (ph) with a caretaker of some sorts, and then that depot is properly configured and designed for receiving that hopper car and emptying its content.

But you see with both of them, they are

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designed such that they can have safe passage on the tracks according to the industry standards before arriving at the depot.

Q. If you have a preexisting depot and you're designing a new hopper car, wouldn't it be cheaper to design the hopper car to work at the depot rather than redesign the depot?

A. It is so case dependent that I, without having all the circumstances involved, I would not be able to offer you an opinion on that.

Q. So for a commodity like oil, how is a depot designed to receive it from a tanker car?

A. They generally have a discharge mechanism that -- that empties the content. I have not been to one so I cannot speak directly speak to it.

Q. And for a commodity like iron ore, how is a depot designed to receive it from a hopper car?

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A. Again, depends on the type of hopper car that it receives.

Q. What are the different type of hopper cars?

A. As we have been mentioning, some of them could have a bottom discharge, some of them can be discharged from the top by turning the hopper car. If we go to some of our older hopper cars, they had a site discharge. So you see, there are all different kinds.

Q. And depots have generally existed for each of those types of hopper cars, correct?

A. To the best of my understanding, yes.

Q. Do they still exist for each of those types of hopper cars?

A. Again, to the best of my understanding, yes.

Q. Does the type of commodity that a rail car carries affect the stresses

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on the rail car?

A. Yes, it can.

Q. How so?

A. Well, if I have a light material, let's say, that is fit within a given volume, then that light material weighs less than having a heavy material within the same volume.

Q. And how would that affect the design of the rail car?

A. Well, the weights, the forces, and other forces and other aspects, mechanical aspects, that are required for any design, rail cars or otherwise, are taken into consideration when we design that element for system.

Q. Does that affect the types of material that would be used on the rail cars?

A. It depends.

Q. What does it depend on?

A. Well, if I have a given rail car, let's say, that is carrying a given

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cargo of a given weight, or density, then the components for that rail car have been designed for the requirements for the intended cargo.

Q. So the material selected for carrying something like a fluid could be different than the material selected for carrying the -- a material such as iron ore, correct?

A. Potentially.

Q. And does how the rail car is loaded play into that consideration as well?

A. I'm not entirely clear by what you mean by how it's loaded.

Q. So if you're loading an open-top hopper with iron ore, the instantaneous forces on that hopper car would be different than say loading a tanker car with oil, correct?

MR. NELSON: Objection. Form.

A. Please define instantaneous forces for me.

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BY MR. KEELER:

Q. So are there forces that occur when one material hits another?

A. Yes.

Q. And if an open top hopper car has iron ore dumped into the hopper portion, there would be forces that occur from that dumping that then settle down to just the weight of the iron ore, correct?

A. Are you referring to the forces that an element like a hopper car would experience when it is first subjected to its cargo.

Q. Correct?

A. Well, it all depends on how that cargo is placed into that hopper car. So imagine if I have a cargo that is easily let into the hopper car, then that will impart less dynamic forces onto the hopper car. And if I have a hopper car that let's say its content are dropped into it at a -- from a height, then according to that height,

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that car would be subjected to different dynamics.

Q. So fair to say that if -- if cargo is dropped from a height into a hopper car, the dynamic forces would be higher than if it's gently placed into that hopper car?

A. Yes, that's fair to say.

Q. And that kind of consideration, it would be known when designing the hopper car if it's going to be dropped from a height or if it's gently placed, correct?

MR. NELSON: Objection to form.

A. Yes. All of those are considered into the design of an element.

BY MR. KEELER:

Q. And would that affect the type of -- would that affect the design?

A. Yes, it can.

Q. How so?

A. Well, the forces on a structure are according to a service, and to

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the extent that that service requires dynamic forces, then it is known to the designer to include those forces. In general, when we design a structure, we design it for its static forces and any other forces that it may receive in its intended use.

Q. So if a rail car was to be designed to have higher dynamic forces upon loading, would additional reinforcements of the hopper be required?

A. Yes, it can be.

Q. And how would that additional reinforcement be accomplished?

A. Well, there are many ways of reinforcing a structure. And it depends on the form and fit of that structure. Again, depending on the particular design and the specifics of that design, one would know how to select the form, fit, function such that it will satisfy the design requirements.

Q. So fair to say that the form, fit, and function that are appropriate for

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one -- appropriate to satisfy one set of design requirements may not satisfy another set of design requirements, correct?

MR. NELSON: Objection. Form.

A. Again, as I said earlier, every design is different, and we take a holistic approach to that design within its reality and intended use.

BY MR. KEELER:

Q. And so in designing rail cars, is any computer modeling performed?

MR. NELSON: Objection. Form.

A. Potentially. And that would greatly depend on the era in which that rail car is designed.

BY MR. KEELER:

Q. But fair to say for the last 20, 30 years, computer modelling is pretty industry standard, correct?

MR. NELSON: Objection. Form.

A. For the most part.

BY MR. KEELER:

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Q. When wouldn't it be in that time frame?

A. Well there are times that a designer uses their experience and common sense and designing an element that may not directly need an elaborate computer model.

Q. But generally speaking overall, for a rail car as a whole as opposed to an individual component, computer modeling would generally be performed, correct?

MR. NELSON: Objection. Form.

A. A person that's responsible for that design would take that into consideration and would take that approach if it's the most prudent approach.

BY MR. KEELER:

Q. What is "finite element analysis"?

MR. NELSON: Objection. Foundation.

A. As the name implies, it's breaking a structure into a number of finite

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number, of smaller elements that are each analyzed within their forces and moments.

BY MR. KEELER:

Q. In designing a rail car, is finite element analysis generally performed?

A. As I said earlier, depending on the design requirements and the judgment of the designer, certainly finite element analysis would be one of the tools that a designer can rely on.

Q. What are others?

A. Well, there are engineering analysis based on the mechanical design principles that one can do to determine the sufficiency of a structure for its intended forces and moments.

Q. And what are those mechanical design principles?

A. Well, it's evaluating the stresses and that a structure can be subjected to within it's -- the limits of its material properties. That's an example of

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them.

There are entire courses in mechanical engineering curriculum that covers all aspects of those.

Q. Is it fair to say that someone designing a rail car would have a mechanical engineering degree?

MR. NELSON: Objection. Form.

A. A mechanical engineering degree is not necessary, but a person must have a knowledge of designing a structure and many of the teachings in mechanical engineering such as the design principles that are taught there.

MR. NELSON: Counsel, we have been going about an hour. Is now a good time for a break?

MR. KEELER: Sure.

THE VIDEOGRAPHER: Off the record at 10:07 p.m.

(A break was taken at 10:07 a.m.)

(Proceedings resumed at 10:22 a.m.)

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THE VIDEOGRAPHER: We are now on the record. The time is 10:23.

BY MR. KEELER:

Q. I believe before our break you mentioned some coursework that's helpful for learning how to design mechanical structures; is that correct?

A. Correct.

Q. What type of coursework is that?

A. Well, there are different courses that teach the principle that would be involved in a structural design. And some of those are courses such as mechanical design, such as strength of materials and fracture mechanics, and so on and so forth. So there are a variety of courses that will build up in terms of their complexity and all that kind of thing.

Q. Do you teach any of those courses?

A. Yes, I have taught courses

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like mechanical design.

Q. Have you taught strength and materials courses?

A. I have not.

Q. How about fracture mechanics?

A. I have not.

Q. But those are typical courses that would be part of mechanical engineering course, correct?

A. No, they're not typical. They are part of what we call technical electives. So a student can elect to take those courses if they so wish to do that, but they're not the fundamental mechanical engineering courses that we have.

Another one that I did not mention is our senior design courses which they will include the practical design of an element structure or others that are intended to be a capstone course that will bring together all aspects of the learning for the students.

Q. So in those courses, the

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senior design courses, what type of projects are the seniors doing in those?

A. It varies. There are all facet of projects, and some of them will include a component or aspect that's part of machinery, some of them will include a vehicle of some form. So it's -- there is really a wide variety of topics that are covered in those classes.

Q. Is there always a physical requirement for those type of classes as opposed to just a theoretical one?

A. That is correct. The premise of those courses is that it has to have a design element.

Q. So a student interested in rail car design could design a component for a rail car or something like that, correct?

A. That's correct.

Q. Meanwhile a student interested in road vehicles could design something for a road vehicle?

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A. That is correct.

Q. Fundamentally, how does a rail car differ from a road vehicle?

A. Well, the primary differences are according to its mode of use and the kind of forces that ultimately each one is subjected to.

Q. So before we were talking about how rail cars have trucks. Do road vehicles have trucks?

A. Road vehicles have got elements that are designed to transfer the body forces and moments to the wheels that are in contact with the road. So from looking at it from first principle, then they have all the same aspects as a rail car.

Q. However some aspects are different, correct?

A. Every design has got aspects that are different.

Q. For example, a road vehicle with tires would transmit its forces into the

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road differently than the trucks of a rail car, correct?

MR. NELSON: Objection to form.

BY MR. KEELER:

Q. Into the tracks?

A. I do not know what you mean by differently. Because they are both transmitting forces from the body to the ground that -- or the surface that they are in contact with.

Q. The contact patch for a rail car to the track is different than the contact patch for a tire to the ground, correct?

A. Yes.

Q. How so?

A. Well, a rail car has got a smaller contact patch between a steel wheel and a steel rail than a car would have between a rubber tire and the road surface.

Q. How do those differences change how a load is transferred?

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A. I'm not entirely sure of the question.

Q. Does a rail car have a suspension?

A. Yes.

Q. Do road vehicles have suspensions?

A. Most do, yes.

Q. Are suspensions for rail cars different than suspensions for road vehicles?

A. In design they're different. Principally they serve the same purpose, though.

Q. So you couldn't put a suspension from a rail car onto a road vehicle, correct?

A. You could.

Q. Would it be effective?

A. Depends on the weight that is placed on top of that suspension.

Q. How would you figure out if the weight that's placed on top of that

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suspension would make it effective?

A. Well, one of the first principles that we consider in any suspension design is its ability to carry the static loads that are placed on top of it. So suspensions are generally composed of a compliant element, like a spring. And if I place a heavy load on top of a suspension that is not designed to carry that static load, then that suspension can compress and effectively become disabled. Or I should say compress excessively and become not as effective.

Q. How do the forces and moments experienced by a road vehicle differ from those experienced by a rail car?

A. Well, as we have been talking about, are vehicles receive forces and moments differently depending on the environment that they function in. So the fact that I have a road vehicle that is on tires at a road surface would be subjected to

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different kind of forces and moments of let's say a rail car that is on steel wheels and a guided track or a guided passageway.

Q. How would you determine how the forces and moments experienced by a road vehicle differ from those experienced by a rail car?

A. Well, that's according to how we use each one of them. And fundamentally, a road vehicle is used differently than a tracked vehicle, a rail car or a train.

Q. What is different about their uses?

A. Well, one of those differences would be the fact that we have different interfaces between the surfaces that they move on. We have already talked about that. And then another difference would be the manner that they are coupled together.

So if I have a rail car, more likely than not it's within a train and it receives the forces and moments that is as a result of

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its interface with the rest of the train.

If I have a automobile, sake of argument, then that automobile is operating standalone. So it doesn't have those forces that a rail car would be subjected to as it is put in a train

Q. So is it fair to say that if you were to -- scratch that.

So by having a rail car be part of a train, are there additional considerations that go into the forces and moments that it experiences as opposed to a standalone road vehicle?

MR. NELSON: Objection. Form.

A. Well, as we have been extensively discussing, whenever we design a vehicle, or for that matter another element than its operating environment is taken into consideration. So if one is designing a rail car that is intended to be placed in a train, then what would include the collective forces and moments that that rail car is subjected

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to. And to the extent that they are different from let's say an automobile, then they are taken into design consideration.

BY MR. KEELER:

Q. So the forces and moments experienced by a rail car can go into consideration for material section for that rail car, correct?

A. The entire design environment is taken into consideration in designing an element, and that consideration does include the material selection, amongst other things.

Q. What other things are considered?

A. Well, say the size and the shape of an element or component as the other most obvious one.

Q. So changing the size or shape of an element or component would have an impact on the entire design of a rail car, correct?

MR. NELSON: Objection. Form.

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A. It can. However, a designer is able to deal with such aspects. After all, the entire science of designing something is to be able to consider various interplay that exists between different elements in a subsystem or system.

BY MR. KEELER:

Q. And I think as we have been saying today, the entire purpose of design is to make sure something works for the environment or application that it will be used in, correct?

MR. NELSON: Objection. Form.

A. When one designs something, they certainly take into consideration its intended use.

BY MR. KEELER:

Q. And one part of design is the testing, verifying that the design would work for that intended use, correct?

A. It can be.

Q. It generally is for rail cars,

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correct?

MR. NELSON: Objection. Form.

A. Not necessarily.

BY MR. KEELER:

Q. When would it not be?

A. Well, there are times where one relies on the designer's experience. There are times that one would rely on any design analysis that had been performed. There are times where one would rely on any historical evidence that may exist from similar rail cars or systems that have been in practice. So testing is one method for determining the efficacy and -- and other aspects of a design, but it is not the method for determining that.

Q. Are there any standards about testing that should be performed for a rail car design?

A. Depends on what is -- what one is attempting to determine about that design.

Q. In what way?

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A. Well, let's say that I have a rail car and I am trying to determine its crashworthiness, then that is subjected to a different kind of test than trying to determine its dynamic response let's say to the track input.

Q. But both of those have standardized tests that go into them?

A. There are standards or general practices that are recommended by the Association of American Railroads. And as I said, they are recommended practices and they are not necessarily an industry requirement.

Q. Would it be malpractice or negligence not to follow those standards?

A. I am not a lawyer, so I really cannot speak to that aspect.

Q. Would you expect an engineer to follow those standards in designing a rail car?

A. All depends on what it is that is being performed.

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Q. It should be a goal of an engineer to design products that are safe, correct?

MR. NELSON: Objection. Form.

A. We certainly aim for safety.

BY MR. KEELER:

Q. Is there any instance where an engineer would not follow those standards?

A. That is such a broad question. And again, as I said, we aim for safety. One wound would not deliberately design something that knowingly is unsafe.

Q. Computer modeling has made it easier for engineers to determine whether a rail car structure can carry its intended load, correct?

A. As I mentioned earlier, it is one of the tools that we have at our disposal to do the design analysis.

Q. Okay. And these days every rail car that is built has a 3D model made of it, correct?

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MR. NELSON: Objection. Form.

There's a high likelihood that the rail car would have such a model. But again, as I said, it is not a requirement to have one.

BY MR. KEELER:

Q. Are you aware of any rail car manufacturer that does not use 3D modelling software these dates on every rail car built?

MR. NELSON: Objection. Form.

A. As I just said, more likely than not there is such a 3D model available simply because we have the tools at our disposal to generate one. But, again, it is not a requirement for a design.

BY MR. KEELER:

Q. And that would be true back in around 2009, correct?

MR. NELSON: Objection. Form.

A. It depends on the particular aspect and particular design of the system that is in question, and therefore, as I have

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been saying, it is one of the tools at our disposal.

BY MR. KEELER:

Q. Having a 3D model of a rail car makes it easier to perform computer analysis of the structure of that rail car, correct?

A. Depends on the 3D model, depends on the level of details that are included in that 3D model, and depends on other aspects of the model itself, and the intended analysis that you are mentioning. So, again, it's a very broad question that does not have a yes or no answer.

Q. Have you performed any computer analysis of 3D models of rail car designs since around 2009?

A. I don't recall having done that.

Q. So have you directed anyone to do so?

A. We've been involved in

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different projects that have included FEA analysis for various types of rail vehicles and tracks. So within the context of the broader rail industry, yes, I have been involved in finite element analysis.

Q. When you say finite element analysis of rail vehicles and tracks, what were you analyzing there?

A. Well, one of critical aspects of railroad operation is determining the life of the track and any wear that happens to the track, and how that wear could, for instance, affect the remaining life of that track. So we have worked, my students and I, and my colleagues, have worked with the U.S. railroads to provide some of those analysis to them.

Q. Has your finite element analysis of rail vehicles and tracks included analyzing the sufficiency of car body structure for containing an intended load?

A. Well, the particular example

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that you are mentioning is one of the ways that one would use for something like a finite element analysis. And aside from the specific example that you just mentioned, I have been involved in similar structural analysis for components that have got many of the same attributes that a component in a rail car has.

Q. But your finite element analysis of rail vehicles and tracks hasn't looked at the sufficiency of a car body structure as a whole to contain an intended load, correct?

MR. NELSON: Objection. Form.

A. If the question is directed to a specific rail car and a specific consideration for a specific intended purpose, then your premise is correct.

BY MR. KEELER:

Q. Are you familiar with manufacturing methods for rail cars?

A. There are all aspects to any

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manufacturing, so I'm not entirely sure what you mean.

Q. Have you ever manufactured a rail car?

A. I have not personally.

Q. Have you ever been in a facility that manufactures rail cars?

A. Yes.

Q. When was that?

A. I'm sorry?

Q. When was that? Or when was that. Sorry.

A. I'm trying to --

(Simultaneous conversation.)

Q. I wasn't sure if you heard me. I'm sorry.

A. No, I did hear you. I'm trying to remember.

I would say more likely than not within the past 20 years. I cannot give you specific date.

Q. So sometime since 2006-ish?

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A. More likely than not. Again, as I said, I would hesitate to give you any specific date because it's been a while.

Q. And what were you doing when you were at a facility that manufactures rail cars?

A. I was touring the facility.

Q. Who owned that facility?

A. FreightCar America.

Q. Was it in the last year?

A. No.

Q. Where was that facility?

A. In Roanoke, Virginia.

Q. And why were you touring that facility?

A. Again, it's been a while, and I'm trying to refresh my memory, but I had an occasion to go and tour that facility.

Q. What brought about that occasion?

A. As I just mentioned, I'm not entirely sure if that was part of a student

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group site visit that I was supervising or if I was there at their invitation for a different purpose.

Q. Have you been to that facility more than once?

A. I don't recall.

Q. Does that facility still exist?

A. I'm not entirely sure.

Q. Did you meet with anyone employed by FreightCar America while you were at that facility?

A. I met with a whole bunch of people while I was there.

Q. Do you remember any of their names?

A. No.

Q. Have you ever been to another facility that manufactures rail cars?

A. I don't have a direct recollection of that.

Q. What kind of rail cars were

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they manufacturing at the Roanoke facility when you were there?

A. I don't readily remember. It's been a while.

Q. Were they open-top hoppers?

A. I, again, as I said, I don't readily remember.

Q. Would FreightCar America have a record of your visit?

A. I'm not sure.

Q. Who is your current employer?

A. Virginia Tech.

Q. How long have you worked at Virginia Tech?

A. Since 1995.

Q. And Roanoke is about how far from Virginia Tech?

A. About 40, 45 minutes.

Q. So did you drive to the Roanoke facility at FreightCar America?

A. If I remember correctly, yes.

Q. Did anyone drive with you?

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A. Again, as I mentioned, I'm not entirely sure if I visited on my own or if the visit was part of a student group visit.

Q. Who would have organized the student group visit?

A. It would have been one of the student organizations.

Q. Aside from this lawsuit, do you maintain contact with anyone at FreightCar America?

A. Not that I remember. I go to a lot of industry conferences and I meet a lot of people from the industry, and it may very well be that I come across people who are employed with FreightCar America. So within that context, I may, may not.

Q. You mentioned that you have been employed by Virginia Tech since, what was it, 1999?

A. Correct.

Q. What is your title there?

A. I am a professor in mechanical

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engineering department. And the director of Center For Vehicle Systems and Safety. And the Director of Railway Technologies Laboratory.

Q. And have you been a professor in the mechanical engineering department the entire time you've been at Virginia Tech?

A. Yes.

Q. The Center For Vehicle Systems and Safety, what is that?

A. It's a center that has dedicated facility and sponsored projects for evaluating various vehicle systems and their safety aspects.

Q. Where does the funding for the Center For Vehicle Systems and Safety come from?

A. It varies. Some of it come from the Government, and some of it come from the industry.

Q. Has FreightCar America ever sponsored the Center For Vehicle Systems and

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Safety?

A. I don't have any recollection of that. I don't believe so.

Q. Has FreightCar America ever sponsored a project at the Center For Vehicle Systems and Safety?

A. I don't believe so.

Q. And what is the Railway Technologies Laboratory?

A. It is part of the center, and specifically it's the part that engages in research and engineering work related to the railway industry.

Q. If I refer to those two as the center and a laboratory, would that be fair?

A. Yes.

Q. And I assume you have students and/or post-ops that work at the center and laboratory?

A. That is correct.

Q. Do they ever go into the railroad industry?

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A. They go to all industries, and, yes, some of them do end up in the rail industry.

Q. What other industries do they go into?

A. As I said, I have had many students and they have been placed with all kinds of industries, all the way from high-tech to even the financial industry in places like Wall Street.

Q. When you say the students are placed, what does that mean?

A. Well, that's the term that I generally use for the place of employment once a student graduates.

Q. Do you know if any of your students were ever placed at FreightCar America?

A. I don't believe so. But again, as I said, they may have moved from one place to another, and I may not have any knowledge of it.

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Q. In manufacturing a rail car, different components need to be connected together, correct?

A. Most often, yes.

Q. What are some different ways of doing that?

A. Well, when we have different structural components or different components, that need to be connected together. There are various means of connecting them depending on the design, depending on the needs of the design and again the environment that a component is placed in.

Q. Would one way to connect different components be to weld them together?

A. That's one way.

Q. What's another way?

A. Well, we, can bolt structures together, for instance. As I said, there are many ways.

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Q. When would you choose to weld two components together as part of a design?

A. Most often than not, that determination is based on whether welding would be the most effective means of connecting the intended components together. Whether the components are conducive to being welded together, and whether that welding will satisfy the needs of the design.

Q. When would welding two parts together be the most effective means of connecting them?

A. Your question is very broad, and I hesitate to given an answer that is beyond. Whenever it is determined by the designer the most effective way of doing so.

Q. Does cost play into the considerations regarding whether to weld two components or connect them in a different way?

A. Cost is one of the criteria that we use in our design. And certainly one

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would consider cost, but it is not the criterion that is considered.

Q. Is weight another consideration?

A. Yes. Weight is also among the criterion that is considered in design.

Q. And bolting two components together would weigh more than welding them together, correct?

A. Not necessarily.

Q. What types of materials are conducive to being welded together?

A. All depends on the nature of the two materials that are welded together. More often than not, we choose welding for steel materials. From time to time, we do the same for aluminum.

Q. Can aluminum and steel be welded together?

A. No.

Q. Why not?

A. It's not a good practice.

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Q. Why is that?

A. Well, for one thing, we do not have a weld material that would lend itself to such a practice.

MR. NELSON: We have been going for about an hour. Is now a good time for a break?

MR. KEELER: Sure.

THE VIDEOGRAPHER: Off the record 11:17.

(A break was taken at 11:17 a.m.)

(Proceedings resumed at 11:31 a.m.)

THE VIDEOGRAPHER: We are now on the record. The time is now 11:31.

BY MR. KEELER:

Q. I'm going to mark as Exhibit 2 a document entitled "A Declaration of Mehdi Ahmadian in Support of petition for Inter Partes Review of U.S. Patent No. 8,166,892." It was Exhibit 1003 in the IPR.

(Exhibit 2 was marked for identification.)

BY MR. KEELER:

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Q. Have you seen this document before?

A. Yes, I have.

Q. What is this document?

A. It is my declaration for Patent No. 8,166,892.

Q. If you turn to the last page of this document, it doesn't have a page number, but is that your signature on it?

A. Yes, it is.

Q. And you signed this on May 27, 2025?

A. Yes, I did.

Q. Did you write this document?

A. I wrote it with consultation with the attorneys involved in this case.

Q. And you reviewed it before you signed it?

A. I did.

Q. And the opinions in this case document are yours?

A. Yes, they are.

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Q. Sitting here today, do you have any changes to your opinions?

A. Not that I can recall readily.

Q. You were asked to write this declaration by FreightCar America, correct?

A. I was asked to write this document by counsels involved representing FreightCar America.

Q. And what were you asked to examine in writing this document?

A. I was asked to examine the patent involved. And there is another patent that is also part of -- that's closely related to the patent that I just mentioned, it ends in 515. I commonly refer to it as '515 patent. So I was asked to review both of those patents and offer technical opinion on matters that would be of assistance to the parties and the Board.

Q. About how much time did you spend preparing the declaration in Exhibit 2?

A. I don't readily recall how

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much time I spent on the preparing it.

Q. Would you measure it in hours or days?

A. Again, as I said, I don't readily remember the extent of time that I spent. But I do remember that I did spend sufficient time to prepare the document and make sure that it covers the needs of the document.

Q. What were the needs of the document?

A. As I said earlier, the main purpose of what I was asked to prepare is to provide technical analysis on the aspects of the two patents that we were just mentioning that would be of assistance to the parties and the Board.

Q. In preparing this document, did you do any searches for prior art?

A. I did look for some of the prior arts, and some of them were made available to me by the counsel.

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Q. In your declaration, are any of the pieces of prior art ones that you found?

A. I have to refer to my records, but I don't recall readily. It's been a while.

Q. And the document in Exhibit 2 reflects all the opinions you intend to offer in IPR2025-01046, correct?

A. At this time.

Q. Are there additional opinions you intend to offer?

A. Well, there may be evidence and other documents that may come to light that I did not consider for this document. And if such occurs, then I reserve the right to amend the opinions that are expressed in this document.

Q. But right now, you're not aware of any additional evidence or other documents that would require you to alter your opinions, correct?

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A. I do not have an awareness of such a thing.

Q. So as of today, this declaration provides your complete opinions for IPR2025-101046, correct?

A. Based on the evidence that have been made available to me at this time, yes.

Q. You were asked to examine the novelty an obviousness of Patent No. 8,166,892, correct?

A. That's one of the aspects that I was asked to look into, yes.

Q. What are the others?

A. Well, in general, that's what one would look into and we'll consider, but they're also aspects related to my own engineering experience that will come into technical analysis that I have offered.

Q. You were compensated for preparing this declaration, correct?

A. Yes.

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Q. At what rate?

A. If I recall correctly, the rate is $550 dollars an hour for this work.

Q. Aside from counsel, did anyone help you prepare this declaration?

A. No.

Q. And if I refer to U.S. Patent No. 8,166,892 as the '892 patent, do you understand what I'm referring to there?

A. Yes.

Q. How did you go about developing your opinions that the '892 patent is not novel and is obvious, or rather -- let me strike that and start again for a clear.

How did you go about developing your opinions that the claims of the '892 patent are not novel and/or obvious?

A. Based on considering the evidence in the other patents that were either made available to me or I came across.

Q. Would you please turn to Page 1 of your declaration.

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A. (The witness complies.)

Q. In Paragraph 2, it stays that your compensation depends on the outcome of this proceeding.

Do you see that?

A. Yes.

Q. Does it depend on the outcome of the related District Court case?

A. No.

Q. In Paragraph 3 you provide a table of different descriptions thereof.

Do you see that?

A. Yes.

Q. Is that the evidence and documents you considered in preparing this declaration?

A. Yes.

Q. And Exhibit 1004 is excerpts from the 1946 Cyclopedia 7th addition.

Do you see that?

A. Yes.

Q. And if I use your nomenclature

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of 1946 Cyclopedia for that document, will you understand that I'm referring to that document today?

A. Yes.

Q. Did you find the 1946 Cyclopedia or did counsel provide that to you?

A. Counsel provided.

Q. Did you choose the excerpts to use or did counsel choose that?

A. I -- we had several discussions --

(Simultaneous conversation.)

MR. NELSON: Objection. Caution the witness not to reveal the contents of discussions with counsel based on privilege.

THE WITNESS: Thank you counsel.

So, again, as I said, this document collectively has been a -- was prepared in close collaboration with the counsel's involved in the case and within the context we had several conference calls and so on

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that we went back and forth on various exhibits and evidence that would -- were germane to this declaration. So that's how it kind of came about

Q. Have you seen the full 1946 Car Builders' Cyclopedia before?

A. I have seen electronic copies of certain sections of it. I cannot recall if it's the whole thing.

Q. In this table list, Exhibit 1005 is U.S. Patent No. 1321928 and calls it Lindstrom.

Do you see that?

A. Yes.

Q. Did you select -- did you find Lindstrom or was that provided to you by counsel?

A. If I remember correctly, that was one of the ones that the counsel had found, yes.

Q. If I refer to that patent as Lindstrom, you'll know to what I'm referring

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to?

A. Yes.

Q. Exhibit 1006 is U.S. Patent No. 4,941,411, and is given the name "Wong."

Do you see that?

A. Yes.

Q. And if I refer to that as Wong today, you'll understand what I'm referring to?

A. Yes.

Q. Did you phone Wong or did counsel?

A. Again, if I remember correctly, that's one of the ones that counsel had found.

Q. And Exhibit 1007 is excerpts from Lancashire and Yorkshire, Volume II, Noel Coates, Copyright 2006. Given the short name Coates.

Do you see that?

A. Yes.

Q. If I refer to that as Coates

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today, you'll understand what I'm referring to?

A. Yes.

Q. And did you find Coates or did counsel?

A. Again, if I remember correctly, counsel had found it.

Q. Okay. And did you choose the excerpts from Coates to include or did counsel?

A. As I said earlier, we had several discussions and went back and forth on what would be applicable here and what may not be directly related.

Q. And finally, Exhibit 1023, U.S. Patent No. 2,030,748, Gilpin.

Do you see that?

A. Yes.

Q. If I refer to that as "Gilpin" today, you'll understand what I'm referring to?

A. Yes.

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Q. Did you find Gilpin or did counsel?

A. If I remember correctly, the counsel had found it.

Q. If I refer to those exhibits 1004, 1005, 1006, 1007, and 1023 as prior art today, you'll know what I'm referring to?

A. Yes.

MR. NELSON: Objection with respect to 1002.

MR. KEELER: Oh, did I say 2?

MR. NELSON: Maybe not. But if not, I don't object.

BY MR. KEELER:

Q. Was the goal of this document to show that the claims of '892 patent are invalid?

A. It was to evaluate the claims of '892 in light of other art and practices that had existed prior to its priority date of September 2009.

Q. Was the goal to show the

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claims of the '892 patent were invalid?

A. I'm sorry, I didn't get the question.

Q. Was the goal to show that the claims of the '892 patent were invalid?

A. Well, as I said earlier, the goal was to provide a technical analysis on aspects that would be of assistance to the parties and the pool. So that was the main goal.

Q. Were there other goals?

A. On my end, no.

Q. Aside from the documents listed in Paragraph 3, did you consider any other documents in preparing this declaration?

A. I did. I did review some of the office actions and some of the file history. I did review various technical documents that were relevant to my opinions here. And so there were various aspects that I did consider here.

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Q. What other various technical documents did you review?

A. Well, I looked in some of the design books. I did do online searches that would involve different aspects of a rail car throughout their existence, and so on and so forth. When an expert like me prepares a document like this, then one looks at all aspects that are related to preparing that document. Now, on my end, I'm not a lawyer, and therefore I state within the technical context. And that was the primary things that I considered.

Q. What design books did you look at?

A. Various ones. And there are different design books that kind of gets into some of the main engineering practices. The one that is most often referred to by many is called Shigle, S-H-I-G-L-E, if I'm I remember the spelling correctly. So...

Q. Any others?

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A. If there were any, I cannot recall off the top of my head.

Q. What types of online searches did you do?

A. Well, generally related to the broad area of the patent. The technical aspects of the rail cars, some of the practices that they had over time, some of their evolution, and in general just things to that nature.

Q. Did you look at the FreightCar America rail cars that were accused of infringement in the District Court litigation in preparing this litigation?

A. I have an awareness of them. And I may have seen them in the past. But within the time frame that I prepared this document, I do not recall specifically looking at them.

Q. Did you look at the NSC rail cars that NSC contends embodied the claims inventions?

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A. Again, the same answer applies -- applies here, that I do have an awareness of them. I may have seen them in the past. But within the time frame that I prepared this document, I don't recall specifically looking at the NSC's correspondence.

Q. Could you turn to Page 2 of your declaration?

A. Yes. (The witness complies.)

Q. If Paragraph 5, you write [As read] "My experience and qualifications are summarized in my curriculum vitae, a copy of which is attached hereto as Exhibit A."

Do you see that?

A. Yes.

Q. Do you know if your CV was attached to this document as Appendix A when it was filed?

A. I do not know. It wasn't filed by me, so I have no direct knowledge of it.

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Q. But you reviewed this document before you signed it, correct?

A. I did.

Q. Was your CV attached to it when you signed it?

A. I reviewed it in the form that you just handed it to me.

Q. So would you be surprised to learn if Appendix A wasn't attached to your declaration?

A. Again, as I said, I'm not the one who filed it, so I have no knowledge of whether Appendix A was included or not. However, that hasn't been said, I think it is available and I'm sure that counsel can make it available to you.

Q. Do you know if anything else was missing from your declaration when it was filed?

A. I'm not the one who filed it, so I would not be able to answer that question.

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Q. In Paragraph 6, you talk about your employment at Virginia Tech, correct?

A. Yes.

Q. What is the Virginia Institute for Performance Engineering and Research?

A. It was an institute that I led in forming it, and it was intended for performing engineering work, dynamics analysis, and so on and so forth, related to performance vehicles, most specifically race cars.

Q. So, did that have anything to do with rail cars?

A. It was directly related to race cars.

Q. And what is the Advanced Vehicle Dynamics Laboratory?

A. It is the part of the Center For Vehicle Systems and Safety that is involved in dynamic analysis of vehicles.

So as I mentioned earlier, the Railway Technologies Laboratory mainly engages in

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research related to railway vehicles, and the Advanced Vehicle Dynamics Laboratory mainly engages in research in engineering work related to road vehicles, such as semitrucks.

Q. And in Paragraph 7, is it fair to say you go through your four advanced degrees?

A. Yes.

Q. And you got your Doctor of Philosophy (PhD) in Mechanical Engineering from SUNY, Buffalo in 1984, correct?

A. Yes.

Q. Did you have to do a thesis to obtain that degree?

A. I did.

Q. What was your thesis on?

A. It's been a while, counsel, so I don't -- I don't remember the exact topic -- or the exact title, but it involved various aspects of dynamics and controls of systems.

Q. And you have your MBA from

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Penn State university, correct?

A. Yes.

Q. And that was in 1994?

A. Correct.

Q. And your Master of Science in Mechanical Engineering from SUNY, Buffalo in 1982?

A. Yes.

Q. And did you have to do a thesis for that degree?

A. I did.

Q. What was that thesis on?

A. It was in the broad area of developing a computer design software for mechanical systems.

Q. And you got your Bachelor of Science in Mechanical Engineering from SUNY, Buffalo in 1980, correct?

A. Yes.

Q. And I guess while obtaining and after obtaining your MBA, you worked at General Electric Transportation Systems?

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A. Correct. It was within the same era.

Q. What was your job title there?

A. I was a senior engineer, if I remember correctly.

Q. And what were your responsibilities there?

A. I was the lead design engineer for the next generation of locomotive bogies or trucks for GE.

Q. Did you work on any other projects besides the locomotive bogies or trucks while at GE Transportation Systems?

A. Yes, I did.

Q. And what were those?

A. I worked on electromagnetic valves that are used as contact switches in the locomotive. I worked on different aspects of other bogies or trucks that we were designing at the time. So I had different projects.

Q. And you joined Virginia Tech

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as an assistant professor in 1995, correct?

A. Correct.

Q. And since being at Virginia Tech, you've authored hundreds of publications, correct?

A. Yes.

Q. Do any of those relate to the body design for a hopper car?

A. Not that I specifically recall, although many of them involved various aspects of design elements within either structures or systems. Many of them even more complex than let's say a rail car.

Q. Do you consider rail cars to be complex systems?

A. Every design has got its complexities, and ultimately what a designer considers is elements of complexity that exist within a design and try to work within them to make them workable.

Q. In Paragraph 8, you say that you have been an independent consultant on

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various cases.

Have you ever done any work for FreightCar America?

A. I have not.

Q. Have you ever done any work for National Steel Car?

A. I have not.

Q. Are you familiar with Canadian National?

A. I am.

Q. Have you ever done any work for Canadian National?

A. I supported a project that we had with Canadian National during my employment with GE Transportation Systems in which I did all the dynamic analysis for a new generation of bogies or cars that CN was interested in purchasing from us.

Q. And in Paragraph 9 you list a number of journals or publications that you have been involved with, correct?

A. Yes.

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Q. Are any of those primarily related to rail car design?

A. Well, all of these journals are sort of the leading journalling in their field, and they receive articles for publication consideration in a wide variety of engineering areas. And I don't have a direct recollection of any or which may have been directly related to rail car designs but I would not be surprised at all if there were some amongst the many that I had handled as either editor in chief or editor or as an associate editor, and so on and so forth.

Bear in mind, my involvement with these journals date back to as early as 1989. So it's been a lot of years

Q. In Paragraph 12 you list a number of patents that you are the inventor on, correct?

A. Yes.

Q. Do any of those relate to the design of the body of a rail car?

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A. Not directly. However, they have some of the main elements that were the subject of my investigation for the declaration that we're discussing here.

Q. On Page 5 on -- on the bottom begins a section of your declaration entitled "applicable legal standards," correct?

A. Yes.

Q. Where did you obtain the legal standards listed in this section?

A. I'm not sure what you mean by "legal standards."

Q. In Paragraph 15, you write [As read] "Although I have been involved as technical expert in patent matters before, I'm not an expert this patent law."

Do you see that?

A. Yes.

Q. And you continue, [As read] "Therefore, attorneys from Knobbe Martens Olson & Bear have provided me with guidance as the applicable patent law in this matter."

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Do you see that?

A. Yes.

Q. And then you say at the paragraphs below, [As read] "I expressed my understanding of how I must apply current principles related to patent validity in my analysis."

Do you see that?

A. Yes.

Q. So this section provides your understanding of legal principles related to patent validity analysis, correct?

A. To the extent relevant here and to the extent that I understand it as a nonlawyer.

Q. And these principles were provided to you by counsel, correct?

A. We had many discussions on many topics, and I am sure that throughout the course of those discussions there have been times where I have inquired on matters that are directly legal-related or would be

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on the fringes of the technical analysis that had been the direct part of my job here.

Q. In Paragraph 16 you provide your understanding of the doctrine of anticipation, correct?

A. Well, what I say there is that, as anticipated of a person of ordinary skill in the art, POSITA, would consider the evidence.

Q. And you state that that consideration would be given at the time of the invention, correct?

A. Yes.

Q. What was the time of the invention of the '892 patent?

A. It is my understanding that it had a priority date of sometimes in September of 2009, if I remember correctly.

Q. Would your opinions in this declaration change if the priority date was in say 2008?

A. Depends on the evidence that

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are brought forward above and beyond what I have considered here. As I mentioned on the record, everything that we have in this document is based on the evidence available to me at the time that I prepared it. And if there are new evidence, then certainly those would change, or could change.

Q. But sitting here today if the priority date was in 2008, would your opinions change?

A. Absent of any new evidence, no.

Q. In Paragraph 17, you give your understanding of what it means for a claim to be obvious, correct?

A. Yes.

Q. And you identify four factors in this paragraph, correct?

A. Yes.

Q. And one of those factors No. 2 is the differences, if any, between each claims of the '892 patent and the prior art

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correct?

A. Yes.

Q. How do you evaluate the differences between the prior art and the claims of the patent?

A. Well, you consider each prior art you would consider a language of the patent, and then bring them together using your experience and any other facts that may be available.

Q. And No. 4 in your list in this paragraph states, [As read] "Additional considerations, if any, that indicate the invention was obvious." And you continue, [As read] "I understand that these additional considerations are often referred to as secondary considerations or objective indicia of nonobviousness."

Do you see that?

A. Yes.

Q. Were there any additional considerations that you considered as part of

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your analysis of the '892 Patent?

A. Well, again, as I said, I did consider the office action, for instance. And I looked at various information that may be available publicly. And, you know, collectively, I consider those to be secondary consideration. And I differentiate that from the primary consideration, which is ultimately a patent or patents themselves and other similar arts and evidence that are available.

Q. Would an invention being a commercial success be an additional consideration of nonobviousness?

A. To the best of my understanding, and, again, please keep in mind that I'm not a lawyer, that commercial success on its own it is not a criterion for patenting something.

Q. So you didn't consider whether the invention in the '892 patent was a commercial success, correct?

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MR. NELSON: Objection. Form.

A. It is my understanding as a nonlawyer that, as I mentioned earlier, that commercial success on its own is not a primary consideration for issuing and allowing a patent by the United States Patent Office.

BY MR. KEELER:

Q. But did you consider commercial success in forming your opinions in this declaration?

A. I do know that the NSC cars existed in commercial domain, but that was not a primary factor in my determination of their validity or lack of.

Q. Was it an additional consideration?

A. You know, I am struggling to answer your question, Counsel, simply because when you say "additional," then that really covers an entire gamut of things. If something happens to be a small fraction of

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something else, is that additional? And if it's additional, is it meaningful or is it significant. So I think the best way I may be able to answer your question is that it was not a significant consideration in the document that you have in front of you.

Q. Okay. So just to be clear for the record, I'm using the term "additional considerations" because you used that term in Paragraph 17.

So yes or no, was commercial success considered as an additional consideration?

A. Within the context of what I have in Paragraph 17, no.

Q. Do you know if the inventions claimed in the '892 Patent were copied by anyone?

A. I do not have direct knowledge of that.

Q. Did you seek out information regarding whether the invention was copied in preparing this declaration?

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A. That was not one of the things that I had been asked to do.

Q. Do you know if there was any industry praise or customer recognition of the inventions claimed in the '892 patent when you prepared this declaration?

A. I'm not entirely clear on the question and what you mean by "industry praise."

Q. What does that phrase mean to you?

A. Well, I could run into you at an event or meeting and I praise you for being a good guy. That doesn't mean that I'm praising you for being a competent lawyer. So, you know, the color form of that praising can come in all sorts of forms, and I just -- I just don't know what that really means "industry appraise." Are you referring to any specific awards or accolades, that -- a specific railcar may have received?

Q. No, not specific. Just

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generally, are you aware of any industry appraise for the inventions of '892 patent?

A. That was not something that I have seeked out.

Q. And I understand you weren't asked but did you look into any copying of the inventions claimed in the '892 patent?

A. Again, my answer remains that is not something that I had been asked to do.

Q. So no, you did not?

A. I think I answered that question clearly.

Q. In Paragraph 18 you talk about the hypothetical person of ordinary skill in the pertinent art.

Do you see that?

A. Yes.

Q. And in the last sentence to that paragraph you state, [As read] "I understand the hypothetical person of ordinary skill is presumed to have knowledge of all pertinent prior art references."

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Do you see that?

A. Yes.

Q. Your declaration only looks at a handful of prior art references, though, correct?

A. As I mentioned on the record, beyond what is listed in the table that we just covered, I had considered and looked at other pertinent information and documents to the extent that I was able to seek them out.

Q. But in your declaration, you only rely on a handful of references, correct?

MR. NELSON: Objection. Mischaracterize testimony.

A. As the document makes clear, those are the primary references that I had considered. And, again, as I stated earlier, in preparing a document like this, there are a fair amount of implicit information and a fair amount of other elements that goes into the preparation that falls outside of one

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can -- what one can list in their totality in the document.

BY MR. KEELER:

Q. It's fair to say you looked at a large number of drawings and photographs of various rail cars in developing your opinions, correct?

A. It wasn't just drawings and photographs. It may have been written text or other such information.

Q. And all that information -- would it be fair to say that it showed a wide variety of rail car designs?

A. Rail car designs had been around for a long, long time. And we have different forms, different designs. I guess it's fair to say that by 2009 they were not a new thing.

Q. Have you seen the complaint in the District Court action between NSC and FreightCar?

A. I don't have any recollection

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of that.

Q. Have you ever looked at pictures of NSC product that NSC contends is practicing its claimed inventions in the accused product from FreightCar America?

MR. NELSON: Objection. Form.

A. As I said, I am familiar and have seen pictures of the NSC cars that are the subject of this litigation.

BY MR. KEELER:

Q. And you've seen pictures of products from FreightCar America that are accused of infringement right?

A. I'm also aware of FreightCar America rail cars that have been mentioned in some of the documents that I have come across.

Q. Have you seen them?

A. What do you mean by have I seen them?

Q. Have you seen pictures of them?

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A. I have seen pictures of them, yes.

Q. Side by side they look very similar, correct?

MR. NELSON: Objection. Form.

A. Mr. Keeler, if I have you stand by the side of a railroad track and watch a train going by, and I ask you to tell me the differences between different rail cars that roll through, I promise you will be challenged.

Q. Okay.

A. Rail cars that we are discussing here, as I said, at the time of the invention they were not new, and they predominantly look similar, not only to each other but also to many that had existed well before then.

Q. Is it your understanding that NSC contends that FreightCar America copied its rail car design?

A. That's what my understanding

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is, yes.

Q. Is it your understanding that NSC contends that FreightCar America copied its claimed inventions in the '892 and '515 patents?

A. Again, based on what I recall from various discussions, that's what I understand to be the case.

Q. However, copying wasn't an additional consideration you looked at as part of preparing your declarations, correct?

MR. NELSON: Objection. Form.

A. The primary purpose of the document that we have in front of us was to look at the subject patent, and then look at its claims, and then provide an opinion on those claims considering other art and patents that were in existence prior to the date of the invention.

BY MR. KEELER:

Q. So yes or no, copying wasn't an additional consideration you looked at as

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part of preparing your declaration?

MR. NELSON: Objection. Form.

A. Again, I -- within -- within the context of what I prepared, then putting the two rail cars next to each other and determining if one was exactly identical to the other ones, that was not something that I was either asked to do or I endeavored into.

BY MR. KEELER:

Q. Going back to the statement in your declaration that a hypothetical person of ordinary skill is presumed to have knowledge of all pertinent prior art references, would that be true if there was a prior art reference that was, for example, in a private library inaccessible to the hypothetical person?

MR. NELSON: Objection. Form.

A. Well, I find the premise of the question to be hypothetical, and I would hesitate to answer that simply because I would be offering you a hypothetical answer

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that's not any good.

BY MR. KEELER:

Q. What if a reference was in another language, is the POSITA still considered to have knowledge of that reference?

A. Again, I find the question to be hypothetical, and as such I would hesitate to answer it. And part of my hesitation comes from the fact that the document may have been in a different language, but we have translation tools available to us, or it may have been translated into one's language.

So there's a whole bunch of different parameters that really goes into this hypothesis that I would hesitate to endeavor into.

Q. In Paragraph 19, you refer to analogous art.

Do you see that?

A. Yes.

Q. And analogous art is defined

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as being in the same field of endeavor as the patent.

Do you see that?

A. Yes.

Q. What is the field of endeavor to for the '892 and '515 patents?

A. They are rail cars, and specifically hopper car.

Q. Is the field of endeavor of those patents limited to a certain type of commodity that those rail cars carry?

A. Not necessarily. As we have been discussing, hopper cars in general can carry different commodities. And as such, when the term hopper car is used within the regular industry, one understands what it is meant by.

Q. And then the second part of the analogous art definition here, you state that, [As read] "It must be pertinent to the problem that the inventors were trying to solve."

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Do you see that?

A. Yes.

Q. What is the problem that the inventors were trying to solve with the '892 and '515 patents?

MR. NELSON: Objection. Form.

A. It would be my best estimation that the primary intent would have been to have a rail car design that will serve the purposes that a hopper car intends to serve. And I say that with a slight bit of hesitation in the sense that I wasn't one of the inventors. So I -- and I haven't talked to any one of them, so I wouldn't be able to sit here definitively and tell you that this was the exact problem that they were trying to -- or the pertinent problem they were trying to solve.

But from a distance, based on my experience and design and similar systems, I can tell you that when one designs something like what we're discussing here, then they

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will consider those elements.

BY MR. KEELER:

Q. Does the '892 patent identify problems that it was trying to solve?

A. Its primary purpose was to provide elements that would bring strength to the hopper cars that we're discussing here, and even more specifically to their site structure, and so on and so forth.

Q. Does the '515 patent identify the problems that it was trying to solve?

A. The primary intent of '515 appears to be providing a machinery space on one end of the rail car that would be able to accommodate placing any machinery that may be pertinent to the functioning of that rail car such as air brake system.

Q. Any others?

MR. NELSON: Objection. Form.

A. Depends on the needs of the rail car. And, again, we often have different elements on board on rail cars.

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The one that I can recall most readily that is applicable to a lot of our hopper cars is the pneumatic brake system machinery that often those rail cars are equipped with.

BY MR. KEELER:

Q. In Paragraph 20, continuing on from Page 7 to Page 8, you state that, [As read] "The world recognizes several rationals for combining references or modifying reference to show obviousness of claimed subject matter."

Do you see that?

A. Yes.

Q. And you list nine different rationals between pages 8 and 9, correct?

A. Correct.

Q. Do you understand that there are any other rationals for obviousness?

A. If you give me a chance, let me just make sure that I scan through these.

Q. Sure.

A. To refresh my memory.

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MR. NELSON: After this question will be a good time to take a break for lunch.

GOVERNMENT COUNSEL: I'll do a couple more.

A. These are the primary ones that I remembered or I considered when I wrote this document. So I stand by.

BY MR. KEELER:

Q. In Paragraph 22 you state that, [As read] "Secondary considerations must be considered as part of the obviousness analysis when present."

Do you see that?

A. Yes.

Q. And in the list of eight different secondary considerations that you give, that includes "commercial success of a product covered by the patent and deliberate copying of the invention," correct?

A. Yes.

Q. And those must be considered

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as part of obviousness analysis, right?

A. Well, as I said earlier, they are amongst the things that we do consider secondarily. And, again, as I said earlier, it is my understanding that -- that commercial success that is listed here is not a predominant factor or a factor in the issuance of a patent. But nonetheless, whenever we have a patent, it has to be something that is practical and can be put to practice. So within that context, then yes, it has to be something that would stand a chance of being a commercial product, or being able to be put into practice.

Q. Does secondary considerations mean they were secondary in importance?

A. I think the term "secondary" is quite abundantly clear. It's not primary.

Q. What does the term "secondary" mean to you?

A. It is not the main consideration. It is not the key

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consideration. It is a consideration above and beyond the primary considerations.

Q. Could secondary mean secondary in time?

A. I'm not exactly sure what you mean by "secondary in time."

Q. In Paragraph 23 you state that, [As read] "When assessing obviousness, using hindsight is impermissible."

Do you see that?

A. Yes.

Q. What steps did you take to avoid using hindsight in forming your opinions?

A. What steps I took to using hindsight?

Q. To avoid using hindsight?

A. To avoid using hindsight. Well -- when one considers an invention, then one also considers what had been put in place. So it wasn't so much that I was bringing a hindsight into my analysis, but it

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was really the fact that we had evidence of a given practice that had been documented in one form or another, or shown in photographs and designs that it existed.

Q. In Paragraph 24 you state that, [As read] "An obviousness analysis must consider the invention as a whole as opposed to just a part or element of the invention."

Do you see that?

A. Correct.

Q. What steps did you take as part of your analysis to ensure you considered the invention as a whole as opposed to just a part or element of the invention?

A. I considered the entire patents that I evaluated. And since we're talking about the '892 patent, in any evaluation of that patent, I considered the entire patent in that evaluation.

Q. Did you consider each and every element of every claim of the '892

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patent?

A. Again, as I said, I considered the whole patent. And when I prepared my report, I included all the elements that I believed by technical analysis was needed for assisting the parties and the Board.

Q. What is an invention?

MR. NELSON: Objection. Form.

A. In its broadest form, invention is something that offers novelty and unobviousness. So if something is not obvious and has got elements of novelty, then that could be considered an invention.

BY MR. KEELER:

Q. Is an invention in a patent defined by the claims?

A. I'm not sure if I follow the question.

Q. A patent contains normally a number of claims at the end of it, correct?

A. Yes.

Q. Is the invention in the patent

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defined by a claims?

A. The invention in the patent is defined by its entire document. It is defined by the description, and it is defined by the claims. Or at least that's what my understanding of what a patent represent is.

Q. And you considered the inventions in the '892 and '515 patent as a whole, correct?

A. Yes.

MR. KEELER: It's a good time for a break.

THE VIDEOGRAPHER: Off the record at 12:44 p.m.

(A break was taken at 12:44 p.m.)

(Proceedings resumed at 1:39 p.m.)

THE VIDEOGRAPHER: We are now on the record. The time is 1:39.

BY MR. KEELER:

Q. Okay. Dr. Ahmadian, could you please turn to Page 12 of Exhibit 2?

A. (The witness complies.) Yes.

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Q. And in Paragraph 27 of your report, you reproduce the examiner's reasons for allowance of '892 patent.

Do you see the?

A. Yes.

Q. Do you agree with the examiner's reasons for allowance?

A. I understand what he's trying to say.

Q. What is he trying to say?

A. Well, it's describing a -- an element that it calls sidewall stiffener. So, it's located at the sidewall and it provides that stiffening function. And that sidewall stiffener here it says that it's got width continuity, and then it has the first and second portion. And the first portion of the stiffener is laterally outboard of the first region. And the second portion of that stiffener is laterally inboard of the second region.

And the examiner, based on the

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information that he or she considered or were available to them, considers that to be an unobviousness improvement over the art of record.

Q. Do you believe those features of the claim are an unobviousness improvement of the art in the record?

A. I do not.

Q. Why not?

A. Well, because what I haven't been able to find prior practices and prior art that have all of those features in them.

Q. What is "web continuity"?

A. It is -- if I have two elements that are positioned in a manner that some aspect of them let's say the web is -- are aligned together, then one consider -- can consider that to be web continuity.

Q. What is the web?

A. Web is a part of a structure that is often serves as a central part of that structure. So, for instance, if I were

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to consider an I-beam, which is a known formal structure, then that I-beam has two flanges, one on each end that are connected together by an element that we commonly call the web. So that's an example of what a web is. And here web continuity means I have two elements that a part of them that is considered to be the web are aligned together that we structurally consider them to be continuous, therefore they have that web continuity.

Q. What is the purpose of the web?

A. In different structures they serve different purpose. So as I gave you an example of an I-beam, for instance, that web provides a connection between two flanges, and it often provides the direction of application that provides bending strength, or strength in bending direction.

Q. And is that the same purpose as the web used in the claims of the '892

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patent?

A. Again, as I said, for every form of a structural element, the aspect in the part that would be considered as the quote/unquote "web" is different, and as such its intent may be slightly different. But predominantly, the web is the part that contributes in one form or another to the structural strength of a structural element.

Q. Do the first and second portions of the sidewall stiffener as claimed in the '892 patent provide or strengthen the structure in the bending direction?

A. And I want to make sure that that bending direction that you are referring to it is in the same claim that I would consider to be the bending direction. But nonetheless, one -- one can consider it to be such.

Q. And what claim is the bending direction to the sidewall stiffener of the '892 patent?

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A. Well, based on the application of these rail cars, then one could expect that bending plane to be in the direction where the cargo is pushing the sidewalls out trying to move them apart from each other. So I would consider that to be the bending direction for the sidewalls that we're discussing here.

Q. And how about for the stiffeners, what is the bending direction of those?

A. Well, when we apply those stiffeners, we apply them in a manner that they will provide stiffening in that same direction that I was just mentioning. So as much, I would consider those stiffeners to be applied in a manner that they're bending direction, the direction that they're expected to provide strength, to be the same as the direction that I just described for the sidewalls.

Q. If you can turn to Page 13 of

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your report, please.

A. Yes. (The witness complies.)

Q. In Paragraph 30 you give your definition of a person of ordinary skill in the art?

A. Yes.

Q. And that's for the '892 patent, correct?

A. Yes.

Q. And in the last clause of your definition of the person of ordinary skill in the art, you state, [As read] "And at least two years of experience designing or analyzing rail cars or similar vehicles."

Do you see that?

A. Yes.

Q. What similar vehicles are you referring to?

A. Well, as we have discussed earlier, different structures, and in this case if we want to look at them within the context of different vehicles, they have

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various aspects structurally that are similar to each other. So when we talk about the analysis that I consider to be germane to the qualifications of a POSITA, then that analysis could contain something like rail cars that we are discussing here, or vehicles that would follow some of the same physical and engineering principles. And, again, we have discussed those vehicles all throughout the day.

If I were to give you an example, right, when we design a, let's say a trailer for a tractor semitrailer, and that trailer is expected to carry cargo, it's expected to have certain structural strengths, so it has some of the same physical and engineering requirements as the rail cars here. So there is that commonality.

Q. Are there any similar vehicles besides rail cars that have bottom discharge?

A. Some of our trailers could have a bottom discharge.

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Q. Any others?

A. None that comes to mind at the moment, but if I have a commercial vehicle that is intended for similar uses as what we are discussing for our rail cars here, and it's -- wouldn't be unexpected for them to have someone that -- discharging elements.

Q. On the bottom of Page 13, the section of your report is entitled "claim construction."

Do you see that?

A. Yes.

Q. And it continues on to Page 14, correct?

A. Yes.

Q. You do not provide any specific claim constructions for use in your declaration, correct?

MR. NELSON: Objection. Foundation.

A. I don't recall having provided any claim construction for this declaration,

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no.

BY MR. KEELER:

Q. And starting on Page 14 of your report, you have a section entitled "concepts related to the '892 patent," correct?

A. Which paragraph is that?

Q. Starting on Page 14.

A. Oh, yes, I see it. Yes.

Q. And that continues, that section, all the way through Page 22, correct?

A. If you would allow me to check.

Q. Sure.

A. Yes, that appears to be the case.

Q. If you turn to Page 18 of your report, please.

A. (The witness complies.)

Q. On that page there is a graphic in the middle of the page.

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Do you see it?

A. Yes.

Q. Did you prepare this graphic?

A. I did not. I consulted in its preparation, but I did not prepare it.

Q. And in the graphic, on the right-hand side, there are pictures, annotated pictures, of 3 rail cars from the 1946 cyclopedias, correct?

A. Correct.

Q. Do you know if those rail cars were shown in cyclopedias that were given to the examiner as part of the prosecution of the '892 patent?

MR. NELSON: Objection. Foundation.

A. I do not know what was given to the examiner. So I cannot answer that question.

Q. If the examiner had these images without the annotations in front of them during prosecution, and the examiner

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allowed the patent application, wouldn't the examiner presumably have thought that these images do not show the claims inventions of the '892 patent?

MR. NELSON: Objection. Form.

A. I have no knowledge of what the examiner had available to him or her, or what he or she considered in reaching the unobviousness that we discussed earlier. Hence, I'm not really able to answer your question without speculating in the absence of that knowledge.

BY MR. KEELER:

Q. Did you review the prosecution history of the '892 patent?

A. I did look over it.

Q. Is it your understanding that the prosecution history includes the references that were provided to the examiner during that prosecution?

A. Again, I have glanced through that prosecution history. I have not spent a

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great deal of time on it. I am not able to recall exactly what the examiner considered or did not consider, and whether he or she considered the 1946 Cyclopedia that we were mentioning here. So, as I said, all I can go by is the opinion that we just read into the record.

Q. Do you know that patents are entitled to a presumption of validity when they are issued?

MR. NELSON: Objection. Form.

A. Well, again, I'm not a lawyer, so I cannot offer any legal opinion on it. But just from common person's perspective, if a patent is issued, then one presumes that it is valid, unless it is challenged, such as the process we have here before us, and it is proven that the assertions and the assumptions made and the issuance were not sound.

Q. In the next section of your report, starting on Page 18 entitled

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"interpreting technical schematics from the 1940s."

Do you see section?

A. Yes.

Q. How did you come up with your methodology of interpreting technical schematics from the 1940s?

A. How did I come up with my method of evaluating it? I'm not entirely clear on what the question is.

Q. Well, this section of your report describes how to interpret technical schematics from the 1940s, correct?

A. Correct.

Q. How did you determine how to interpret technical schematics from the 1940s?

A. Well, it's not so much interpretation as it is looking at a set of drawings, such as what we have on Page 19 of my declaration, which shows a composite layout of a certain rail car, and in this

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case it just happens to be a National Steel Car, and then using my knowledge of such drawings and my experience with such aspects of the design to be able to understand them and then offer them here for the purpose of my declaration.

Q. Have you ever drafted drawings of rail cars?

A. I have drafted drawings.

Q. But not of rail cars?

A. I don't recall them being for rail cars.

Q. Have you ever drafted a drawing with the quadrant views shown in the figure on Page 19?

A. I don't recall. Because it's been long while ago.

MR. KEELER: I'm going to mark as Exhibit 3 a document entitled "Declaration of Mehdi Ahmadian in Support of Petition for Inter Partes Review of U.S. Patent No. 8,132,515."

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(Exhibit 3 was marked for identification.)

BY MR. KEELER:

Q. Have you seen this document before?

A. I have.

Q. What is this document?

A. It is my declaration for Patent No. 8,132,515.

Q. And how long did you spend preparing this declaration?

A. I can't recall exactly how many hours or how much time I spent in preparing it.

Q. And if you turn to Page 1 of your declaration, please, in Exhibit 3.

A. (The witness complies.)

Q. Roman numeral one.

A. (The witness complies.)

Q. Okay. Similar to Exhibit 2, in Paragraph 3 of this declaration, you have a chart showing various documents that you considered in preparing this declaration,

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right?

A. Yes.

Q. And in Exhibit 2 we already discussed Exhibit 1004, which is the 1946 Cyclopedia.

We see that in this document as well, right?

A. Yes.

Q. And we already discussed Lindstrom, Wong, and Coates, correct?

A. Correct.

Q. So that brings us to U.S. Patent No. 992,192, Hart.

Do you see that one?

A. Yes.

Q. Is that a document that you found or that you were provided by counsel?

A. I was provided a document by the counsel.

Q. Okay. And then we have three more cyclopedias, starting with the 1906 Cyclopedia.

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Is that a document you found or you were provided?

A. I was provided with that document.

Q. And the 1912 Cyclopedia, were you provided that one as well?

A. Yes.

Q. And the same question for the 1922 Cyclopedia, were you provided --

A. Yes.

Q. Then we have U.S. Patent No. 1,537,051, which is "Campbell '051."

Is that one you were provided by counsel as well?

A. Yes.

Q. And U.S. Patent 1,999,652, which is defined as Campbell '652."

Is that one you were provided by counsel?

A. Yes.

Q. And U.S. Patent No. 3,710,729, Schuller.

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Is that one provided by counsel?

A. Yes.

Q. And U.S. Patent No. 4,348,962, Smith.

Was that one provided by counsel?

A. Yes.

Q. And next we have excerpts from Coal Cars: The First Three Hundred Years by Martin Robert Karig, III.

Is that one you were provided by counsel?

A. Yes.

Q. And how did you determine which excerpts to use from that document?

A. Well, again, as I said, I prefer this document in close consultation with counsel, and I -- my best recollection is that we've gone back and forth and figured out in parts of that whole book that would be germane to this particular declaration.

Q. Have you ever seen a full copy of Karig?

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A. I have not seen a copy of that book in print form.

Q. Have you ever seen an electronic copy with all the pages?

A. I have seen parts of it, yes.

Q. And then going back to the 1906 Cyclopedia, have you ever seen an electronic copy of that book with all the pages?

A. I have seen parts of it.

Q. Same question for the 1912 Cyclopedia?

A. The same answer.

Q. Okay. And for the 1922 Cyclopedia? Same question?

A. Yes. The same answer.

Q. Okay. Will it be the same answer for the rest of the books that are excerpted as well?

A. Yes.

Q. All right. That brings us to Modern Private Owner Wagons on British Rail

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by David Ratcliff, Exhibit 1017.

Is that one that you were provided by counsel?

A. Yes.

Q. And Private-Owner Wagons in Colour for the Modeller and Historian by David Ratcliffe.

Is that one you were provided by counsel?

A. Yes.

Q. And were you provided Wagons of the Final Years of British Railways by David Larkin by counsel?

A. Yes.

Q. And were you provided Working Wagons: Volume 3 by David Larkin by counsel?

A. Yes.

Q. Were you provided Wagon Recognition: Volume 1, Carkinds B to W by Martin Buck and Mark Rollinson by counsel?

A. Yes.

Q. And were you provided Private

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Owner Wagons: Volume 1 by Andrew Marshal by counsel?

A. Yes.

Q. And starting on the next page of this declaration, it starts your experience and qualification section.

Do you see that?

A. Yes.

Q. And correct me if I'm wrong but I think this is identical to the other declaration we were looking at earlier?

A. You're correct.

Q. So any questions I ask about this section, you would answer the same for this declaration?

A. That would be correct.

Q. And then starting on Page 6, you have your applicable legal standard section.

Do you see that?

A. Yes.

Q. And if I'm not mistaken, this

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section with the swap out of the identity of the 892 patent for the 515 patent is the same as your other declaration, correct?

A. To the best that I can recall, yes.

Q. And so if I asked you the same questions that I asked you earlier about this section, your answers wouldn't change?

A. As long as the text is the same, yes.

Q. If you could turn to Page 13 and 14 of your declaration, please.

A. (The witness complies.)

Q. Earlier we talked about the priority date for the '892 patent. Do you understand the priority date for the '515 patent is the same as that of the '892 patent?

A. To the best that I remember, and I have to go back to the specific documents to refresh my memory, but whatever I have in my declarations I stand by it.

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Q. In Paragraph 30 of your declaration it states that the priority date for the '515 patent is September 11, 2009, correct?

A. That's what my recollection is, yes.

Q. If that priority date was slightly older, say in 2008, would your opinions in this declaration change?

A. What I mentioned earlier about '892 stands here that absent of any new evidence that comes to light within that period that came 2008, then 2009, then I do not anticipate any change in the opinions that I have offered here even if the priority date was 2008.

Q. And beginning on Page 13 there's section entitled "prosecution history of the '515 patent."

Do you see that?

A. Yes.

Q. And in Paragraph 31, you state

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that, [As read] "On November 30th, 2010, the examiner rejected claims 1, 2, 23, and 24, as being anticipated by Smith."

Do you see that?

A. Yes.

Q. And on the next page, there is a figure from Smith where you have called out the elephant ears in Smith, correct?

A. Correct.

Q. Is that the only example of elephant ears in the prosecution history?

MR. NELSON: Objection. Foundation.

A. I got to go back and take a look at the prosecution history. Based on what I recall, and the current document, I believe them to be the only ones or the only ones that were prominent in that prosecution history.

BY MR. KEELER:

Q. Were there smaller elephant ears shown in the prosecution history?

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A. I don't recall. I have to re-examine that.

Q. But if there were, you would have probably identified them in this section, correct?

MR. NELSON: Objection. Foundation.

A. Again, as I said, without looking at the prosecution history and refreshing my memory, I would not be able to definitively answer that question.

BY MR. KEELER:

Q. What are elephant ears?

A. Well, it's a term that is used somewhat colloquially to refer to a structure that is predominantly triangular shaped, somewhat resembles the ears of an elephant. I personally like to think of them as a gusset like structure. We often refer to them as such, especially if they are in smaller forms. But nonetheless, you know, in this case, they -- that's a term that's

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chosen for them and we can go along with it.

Q. And in Paragraph 33 of your report, you state that, [As read] "On October 13th, 2011, the applicant requested continued examination and submitted an information disclosure statement listing additional prior art."

Do you see that?

A. Yes.

Q. And you reviewed that information disclosure statement?

A. I have not reviewed it in detail, like I was mentioning earlier, that when it came to the prosecution history and the office action, I did glance through the whole thing and I -- but for the purpose of what we have before us, the primary documents that I considered were the patents themselves and other documents that are listed in the table that we just reviewed.

Q. Could you please turn to Page 21 of your declaration -- of your

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report -- declaration?

A. (The witness complies.) Yes.

Q. On the beginning of this page there is a section titled "claim construction," correct?

A. Yes.

Q. And you don't apply any claim construction to the terms of the '515 patent in your declaration, correct?

A. No. For the purpose of this IPR, I have not offered any claim construction.

Q. And on Page 22, there's a section entitled "level of ordinary skill in the art of the '515 patent."

Do you see that?

A. Yes.

Q. And in Paragraph 44 of your declaration -- I'm sorry, in paragraph -- yes, 44 of your declaration, you provide your definition of a person having ordinary skill in the art, correct?

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A. Yes.

Q. And that definition is the same one as for the '892 patent, correct?

A. Yes, it is.

Q. So the questions I asked you before about your definition for the '892 patent, you would answer the same for the '515 patent?

A. Yes.

Q. In the next section of your report, it's entitled "concepts relating to the '515 patent," correct?

A. Yes.

Q. And many of those concepts are the same concepts that we discussed earlier regarding the '892 patent, correct?

A. Yes, to the extent I recall. Yes.

Q. So, to the extent that I asked you questions on those, you would respond the same way regarding the '515 patent?

A. Yes.

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Q. Let's go back to your declaration regarding the '892 patent, and specifically to Page 22.

A. (The witness complies.) Okay.

Q. And here on this page begins a section entitled "Ground 1A Claim 1 anticipation by obviousness over the 1946 Cyclopedia," correct?

A. Yes.

Q. What is "Cyclopedia"?

A. It's a book that recites a collection of knowledge regarding a particular topic.

Q. And in this section that ends on Page 30, you provide your opinions as to why independent Claim 1 of the '892 patent is anticipated by our obviousness over the 1946 Cyclopedia, correct?

A. Yes.

Q. And you provide your opinion specifically regarding the claim limitations numbered 1A, 1C, 1D, and 1E, correct?

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A. Yes, that's what appears to be the case.

Q. How did you pick those limitations claims regarding?

A. Well, again, as I said earlier, this document was prepared in close working consultation with attorneys, and those were the claims that we determined that my technical opinion would be of assistant to the parties and the Board. So that's how I have selected them.

Q. And in the section you don't offer any opinions regarding any other claims or limitations for this section, correct?

MR. NELSON: Objection. Foundation.

THE WITNESS: I'm sorry, I didn't quite get the question.

BY MR. KEELER:

Q. Sure. In this section that begins on Page 22 and ends on Page 30, you don't provide any other opinions besides the

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ones listed regarding other claims or claim limitations, correct?

MR. NELSON: Same objection.

A. Well, those were the claims that were not included in this document simply because I was not asked to provide any opinions on it or was determined that no technical assistance would be needed.

BY MR. KEELER:

Q. Right. So you don't offer any opinions regarding other claim limitations or claims in this section, correct?

MR. NELSON: Same objection.

A. It relates to this declaration, yes.

BY MR. KEELER:

Q. Do you intend to offer opinions?

A. I'm sorry, I didn't get the question.

Q. I withdrew it.

Beginning on Page 31, starts section

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entitled Ground 1B Claims 2 to 8, and 10 to 14, obviousness over the 1946 Cyclopedia in view of Lindstrom and obvious and optionally in view of Wong."

Do you see that?

A. Yes.

Q. And first in this section you provide an opinion regarding Claim Limitation 2F, correct?

A. Yes.

Q. And then on Page 35 you provide opinions regarding Claim Limitation 2G, correct?

A. Yes.

Q. And then on Page 38, Limitation 2H?

A. Yes.

Q. And on Page 42, Limitation 2I, correct?

A. Yes.

MR. KEELER: I would like to stop for a moment. I'm going to mark as Exhibit 4

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U.S. Patent No. 8,166,892.

(Exhibit 4 was marked for identification.)

BY MR. KEELER:

Q. Have you seen this document before?

A. Yes, I have.

Q. What is this document?

A. It's a U.S. patent.

Q. And this is the '892 patent that is the subject of your declaration in Exhibit 2, correct?

A. Correct.

Q. And it lists three inventors, correct?

A. Yes.

Q. Have you ever met any of those three inventors?

A. I don't recall if I ever met them.

Q. If you turn to Figure 1, which is on the third page.

A. (The witness complies.) Yes.

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Q. What is shown in Figure 1?

A. It shows a rail car, and specifically shows a hopper car.

Q. And the element labeled 86, is that the top chord?

A. That's how it's defined in the pack.

Q. And if we turn to Figure 3A, please.

A. (The witness complies.) Yes.

Q. This figure shows the end section of that rail car, correct?

A. Yes.

Q. And the component labeled 140, that is a cross-wise beam, correct?

A. Allow me to look at the definition in the patent because I thought that was 130.

So the patent defines it to be a laterally extending end slope sheet reenforcement being 140. So I take it to be a laterally extending end slope sheet

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reenforcement.

Q. So going back to your declaration on Page 42.

A. Are we talking about...

Q. '892.

A. '892. Did you say Page 42?

Q. Yes. Claim Limitation 2Y states that, [As read] "upper longitudinally upward end of said first end slope sheet being reenforced by a first cross-wise extending beam."

Do you see that?

A. Yes.

Q. Would the structure shown in Figure 3A as 140 be the first cross-wise beam?

A. Would you repeat the question?

Q. Sure.

Would the structure shown as Number 140 in Figure 3A --

(Simultaneous conversation.)

A. Yes.

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Q. -- be the first cross-wise beam -- cross-wise extending, I should say?

A. The patent defines it to be a cross-wise extending beam.

Q. And the cross-wise extending beam is not the top chord, correct?

MR. NELSON: Objection. Misstates.

A. The top chord is attached to what we are calling here a cross-wise battery extending beam. So to the extent that they form a singular structure, I view them to be same components, the same structural elements within the locations that they are attached to.

Q. Where in the patent does it say that top chord 86 is attached to cross-wise beam 140?

A. Well, from the diagram that we have here, the top chord is extending laterally, and so is that cross-wise beam that we are referring to. We call it first cross-wise beam. And the two of them appear

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to be connected together. And before they -- even though they're labeled differently in the patent, they are forming a co-joint structure.

Q. But there are different components that form that structure, correct?

A. Yes, structure can be formed on different components. But within the overall substance, or structure, they come together to serve a structural purpose. Most often that structural purpose is for maintaining things together or for providing strength to the structure. And that's exactly what I see here with the coin jointed elements that we're talking about.

Q. And is it fair to say that all the components described in the '892 patent form the structure of a rail car?

MR. NELSON: Objection. Form.

A. Collectively they form different parts of a rail car as the patent shows it in its Figure 1.

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BY MR. KEELER:

Q. What do you mean by collectively they form different parts of a rail car?

A. Well, if you look at, for instance, the rail car that is described in this patent, we see a collection of different structures. And that collection of different structures have one purpose, and that is to conform together in a manner that it will satisfy the intented use of this rail car, as we had discussed earlier. So that's what meant by the statement.

Q. What are the different parts that form the collection?

A. They are shown in various figures that we have in this packet. I certainly don't want me to go through every single one of them. Do you?

Q. Well, I guess I'm just a little confused as to where you're drawing a line between a part of the collection, the

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individual labeled components, and the rail car as a whole.

A. Well, the individual labeled components form the car as a whole. So I'm not sure if one would draw a clear distinction between various parts to the extent that they are connected together. Why have two elements that are structurally connected together and those two elements are forming a structure that is intended to serve a particular purpose. So if I have beam A connected to beam B, then that collection is intended to carry loads and moments for the purpose of the discussions we're having here, in a manner that the individual structure could not do each on their own.

Q. So what is the purpose of the top chord?

A. As I see it here, it serves the purpose of connecting various parts of the rail car from one side to the other side. It provides the means for the strengthening

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the rail car in that lateral direction as well as to this extended that it is strong in the vertical direction. It further provides the means for connection with other components that may be important for forming that rail car.

Q. And what is the purpose of the first cross-wise beam of the '892 patent?

A. Well, in general, when we have a reenforcement, such as shown here, and you are referring to and the patent refers to as the first cross-wise member, then that element is intended to bring in a lateral strength to provide structural support and strength to that part of the structure and the lateral direction or otherwise. Or other directions.

Q. And here specifically that cross-wise beam is reenforcing the slope sheet, correct?

A. The slope sheet certainly connects to it. And one of the purposes of

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that cross-wise beam is strengthening the slope sheet in that area. But we need to keep in mind that that slope sheet is also connected to other structural members that also provide structural strengthening.

Q. So those other structural members and the first cross-wise beam all work together to reenforce the slope sheet, correct?

A. Again, as we have been discussing, whenever we have different structures co-jointed or connected together, then they collectively serve to provide structural strength. And in this case what we see with the slope sheet and what is referred to as the first cross-wise member and so on and so forth is no different.

Q. So in other words, all of these components were designed to work together to reenforce the slope sheet?

A. That's always the case for any structure that we design. And a slope sheet

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is no different. That we have different parts of the structure in place because it commonly serve the purpose, and within the context of this discussion that purpose would be predominantly for providing structural strength to the rail cars.

Q. So if you were to remove the first cross-wise beam, the slope sheet may not be adequately reinforced, correct?

MR. NELSON: Objection. Foundation.

A. Not necessarily. It's the forum that is shown here. It's typically one way of strengthening the slope sheet. And one should not take it as the way to strengthen. There are certainly other ways of strengthening a structure, such as a slope sheet, within a system such as a rail car that we are discussing here and to see such designs and some of the rail cars that predated the '892 patent.

Q. But as disclosed in this

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patent, these components were designed to work together as a system, correct?

MR. NELSON: Objection. Foundation.

A. As I said earlier, that the principle of structural design will dictate that parts and components and the structures that are connected together are there to all work together. And that is not limited to this one patent. It would exist across all structures that are in existence.

BY MR. KEELER:

Q. Could you turn to Page 44 of your declaration, please?

A. Yes. (The witness complies.)

Q. On this page there's a figure in the center to the page.

Do you see it?

A. Yes.

Q. And it is blown up to show a ends top chord that's part of this, correct?

A. Yes.

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Q. And this is from the 1946 Cyclopedia, this is the NSC -- 1946 NSC ore car, correct?

A. Yes. That's what it appears, yes.

Q. That end top chord there, that doesn't support the slope sheet, does it?

A. That top chord provides structural strength at the slope sheet at the location that is attached to it to support the slope sheet and provide structural strengthening.

Q. There was no structure analogous to the first cross-wise beam in the NSC car, correct.

A. If your question is intended to imply that it doesn't look exactly like the first cross-wise beam that we were just discussing in Figure 3A of the '892 patent, then that is correct. It does not look exactly like it. But the premise of a top chord structure like that, or is one similar

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to it, would remain that it is intended for providing structural strength to that end slope sheet and strengthening.

Q. Does the 1946 NSC ore car have a vertical end sheet?

A. A -- the question is once again that you said it has a what sheet.

Q. A vertical end sheet?

A. A vertical end sheet. And if you would help me understand what you mean by a vertical end sheet.

Q. Similar to the portion of the '892 patent labeled 130 or 132.

A. Got you. No, it does not appear to have one.

Q. And the 1946 NSC ore car would have been made of steel, correct?

A. More likely than not. Within the time frame that it was designed in and for the intended purposes that it served, it would have made sense for it to be made of steel.

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Q. And going back to Page 43 of your declaration, please.

A. (The witness complies.) Yes.

Q. And on this page there's an annotated figure from the Wong reference, correct?

A. Correct.

Q. And do you see the annotation that points to a cross-wise extending beam?

A. Yes.

Q. And you see the annotation that points to an end sheet, correct?

A. Yes.

Q. Are the cross-wise extending beam and the end sheet the same structure?

A. They can be. They don't have to be. They could be connected in a form or another that structurally will make them serve as single member. But as far as their construction is concerned, they may not start as one single element. And, in fact, we often do that. That I can have a structure

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that is composed of similar structures and we bring them together to serve a purpose that requires strengthening and multiple dimension.

Q. Does the drawing show the cross-wise extending beam and the end sheet are the same structure?

A. Well, the drawing that's here is intended to provide a concept that could be put into practice with proper engineering design. So, it shows the concept. It simply shows a member that is vertically-oriented. It is labeled as an end sheet. And that member has an end point that is extended longitudinally. And is connected to the slope sheet in one form or another. So it's a conceptual design, it is not intended to be an engineering drawing that provides all the necessary details that would be needed for detailing that design.

Q. So the portion labeled the cross wise extending beam is just a bent end

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of the end sheet, correct?

MR. NELSON: Objection. Misstates evidence.

A. It is an element that, as the drawing shows, is extended longitudinally and as such it provides strengthening along its principle axis in that area in the longitudinal direction as it connects to the slope sheet.

BY MR. KEELER:

Q. Why do you consider the longitudinally bent end of that sheet a beam?

A. A beam is a term that is often used interchangeably with a reenforcement member. And, in face, if we refer to the patents themselves, we find examples where the terms "beams" or "reenforcement members" are used interchangeably.

Q. Wong doesn't refer to that portion -- that bent portion as a reenforcement member, does it?

A. I must admit, I don't have a

MAGNA LEGAL SERVICES

recollection of that. I need to go through Wong to be able to answer your question with any definitiveness.

MR. KEELER: Okay. We marked Exhibit 5 U.S. Patent 4,941,411 to Wong.

(Exhibit 5 was marked for identification.)

BY MR. KEELER:

Q. Have you seen this document before?

A. Yes.

Q. What is this document?

A. So it's Patent No. 4,941,411, and the inventor is Stephen Wong.

Q. And this is the Wong document you discussed in your declaration, correct?

A. Yes, it is.

Q. And it's entitled "steel end structure for aluminum rail car," correct?

A. Yes.

Q. And Wong as a whole is concerned with using steel to bear significant loads and aluminum to withstand

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lower loads and reduce weights, correct?

MR. NELSON: Objection. Foundation.

A. Now, like all patents, they have a primary teaching within the context of the broader scope that they have. And certainly the premise of the primary teaching of this patent, as Wong describes it in the patent, is what you just said. However, Wong needs to keep in mind that the patent has many other aspects that directly relate to rail cars, hopper cars. And it is within the context that I have considered this patent and found it to be relevant to the two patents that we are discussing here.

BY MR. KEELER:

Q. Do the stiffnesses of steel and aluminum differ?

A. Yes, they do.

Q. By what amount -- what factor, I should say?

MR. NELSON: Objection.

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Foundation.

A. Well, at a structural level, often in broad terms, steel has got three times more strength than aluminum. Now, Wong, however, needs to be very careful and not to misunderstand what I just said within the context of a structural design. In other words, I can design a structure out of aluminum that is just as strong as a structure that is made of steel. And conversely, I can design a structure that is made of steel that is weaker than a structure made of aluminum.

So the response to your question is that if I look at the material at the material level, certainly aluminum is not a as strong material as steel would be. However, within the design context, and as I use them in a structures, then they can be each made to satisfy the needs of that structure

BY MR. KEELER:

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Q. And Wong doesn't refer to the bent portion of end sheet 24 as a reenforcement member, does it?

A. As I said earlier, I need to go through the patent to be able to answer that question definitively. However, what is abundantly apparent to a person of ordinary skill in the art is that the manner in which that structure is formed and makes contact with the slope sheet, and can be co-jointed with the slope sheet, that it would provide the strengthening in the direction, longitudinally direction, as we have been discussing it here.

Q. Wouldn't there be better ways to add structural reenforcement than bending the send sheet and simply connecting it to the end slope sheet?

A. You know, no design is intended to be the end all be all in achieving a purpose. And as such, you know, as a designer, one can conjure up other forms

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that could potentially serve the same or similar purposes.

But that having been said, I look at what Wong is showing here, I do not see anything wrong with it. I find it to be elegant, and I find it to serve its intended purpose of supporting and strengthening the end slope sheet. So within that context, I consider it to be adequate and serving the purpose.

Q. And on Page 45 of your report, on the bottom half of that page there are two figures annotated, the first one on the left, showing just an annotated version of the 1964 NSC ore car. And the second on the right showing a modification of that ore car.

Do you see that?

A. Uh-huh.

Q. And in that second figure of the modification is to add a cross-wise extending beam to the 1946 NSC ore car.

Do you see that?

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A. Yes.

Q. Was the support for the 1946 NSC ore car's slope sheet inadequate?

MR. NELSON: Objection. Foundation.

A. I do not have any indication that it was inadequate. To the best of my knowledge, these considers were in service. And for all I know, they were adequately serving their intended purpose. So looking at from that context, one cannot call it inadequate.

But again, that's not the purpose of what is shown here. The purpose of what is shown here is teaching a method and showing a method that will be able to provide that structural strengthening through a cross-wise extending beam, not to unlike what's included in '892 and '515 patents.

Q. How far across the 1946 ore car do you propose that the cross-wise extending beam would extend?

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A. As cross-wise as it needed to provide support that it's intended for.

Q. And how far is that?

A. Well, without sitting here and doing a detailed design analysis for you, it would make plainer sense for that to extend from sidewall to sidewall, or as fall along in that lateral direction, and as the rest of the design could accommodate.

Q. Now, if you turn to Page 46 there's a little bit of blow up of that image, of that cross-wise beam, that you propose adding. That wouldn't extend from sidewall to sidewall, right, because the -- it doesn't go all the way to the ends, correct?

MR. NELSON: Objection. Foundation.

A. It could go from sidewall to sidewall. I am not entirely certain why you are asserting that it doesn't go from sidewall to sidewall, or it couldn't go from

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sidewall to sidewall.

BY MR. KEELER:

Q. How do you propose dementioning that cross-wise beam?

MR. NELSON: Objection. Foundation.

A. Well, that's a very good question. And that's exactly the kind of questions that we ask ourselves in a detailed design stage. After all, the whole premise of designing structure and what a design engineer and structural engineer would do, is exactly answering the question you just asked. But that's not what the purpose of what we you're showing here is. It is simply showing an alternative concept that would have been understood and would have been known to a person of ordinary skill in the art, at the time of the invention in 2009.

MR. NELSON: When is the last time that we first started this session?

THE VIDEOGRAPHER: An hour and 28

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minutes.

MR. NELSON: Can we take a break?

MR. KEELER: Yes.

THE VIDEOGRAPHER: Off the record at 3:07 p.m.

(A break was taken at 3:07 p.m.)

(Proceedings resumed at 3:24 p.m.)

THE VIDEOGRAPHER: We are now on the record. The time is 3:24.

BY MR. KEELER:

Q. Dr. Ahmadian, can you please turn to Page 62 of your declaration?

A. For '892?

Q. Correct, yes.

A. (The witness complies.) Yes. I'm there.

Q. And you see this section of your declaration discusses what's defined as Claim Limitation 6B, correct?

A. Yes.

Q. And that reads, [As read] "Said hopper includes first and second slope

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side sheets. Said first slope side sheet meets side first sidewall at said transition portion."

Do you see that?

A. Yes.

Q. And then Paragraph 63, you discuss how NSC has construed slope sill side sheet to refer to slope side sheet 50 in the '892 patent, correct?

A. Yes, that's what I see here. And if you allow me to refresh my memory on the side slope sheet 50 from the patent.

(Witness reads document.)

Yes, I see that.

Q. And on Page 66 of your declaration.

A. (The witness complies.)

Q. You'll see at the top of that page there are figures in the Lindstrom and the NSC ore car.

Do you see that?

A. Yes.

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Q. And the NSC's ore car shown in this figure has a slope side sheet that extends down into the right of what would be considered the transition portion, correct?

MR. NELSON: Objection. Foundation.

A. I see it extending downward. I see it continuing on past the side sill. And I do not see a clear indication of it going past what you called the transition region. So what I see here in the patent on Figure 1, I see the side slope sheet 50, as we just talked about it, and I -- you did call it the transition region, right?

BY MR. KEELER:

Q. Correct.

A. Well, if I remember correctly, the patent '892 describes the transition region to be where the wall 92 and the slide slope sheets come together in the area that is marked as 94 to 96. But again, just if you allow me to study that, because I'm

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purely going by memory and I want to make sure that I'm not speaking incorrectly on the record.

Q. Maybe I can help out a bit. Is it your understanding that the transition portion would be 98 in Figure 2C?

A. In figure?

Q. 2C?

A. 2C. (Witness reads document.)

MR. NELSON: Objection. Foundation.

A. Yeah, that whole area, what is marked as 98, appears to be the transition reading according to my understanding.

BY MR. KEELER:

Q. Then on Page 62 of your report, you discuss how -- I'll give you a second to get there. 62.

A. (The witness complies.) Yes.

Q. You discuss how NSC is interpreting this claim term, correct? And you show a figure from NSC's infringement

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contentions?

A. Well, what I'm saying there is that I understand NSC has construed, quote/unquote side slope sheet to refer to the, quote/unquote, side slope sheet 50 in '892 patent.

Q. Uh-huh.

A. And then I say because it's confirmed by the arrows in NSC's chart point to the portion of the hopper that is not part of the side sheet. So that figure at the bottom of Page 62 shows the transition portion, as I understand it, it shows a side wall, and it also shows a side slope sheet. So I think a figure appears to be clear. So I'm not sure what the question is.

Q. So then on Page 66 of your report, you apply that definition of side slope sheet, and you identify a similar portion of the NSC ore car on this page as providing that side slope sheet?

A. I am showing a side slope

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sheet separating from the lower stiffener and then I'm -- so that's the blue that we have there. And that's what I see on the NSC ore car figure that is to the right of the figure on top of Page 66.

Q. And then in the Lindstrom figure, you show that the sidewall wraps to the lower stiffener creating a bit of a drop before the whatever is loaded into Lindstrom reaches its doors, correct?

A. That's what Lindstrom is knowing; that is correct.

Q. And in this section you state that POSITA would modify Lindstrom to have the side slope sheet at the NRC ore car, correct?

A. I'm sorry, I didn't quite hear the question.

Q. I'm sorry, if you can turn to Page 68, that might be easier.

A. (The witness complies.) Yes.

Q. And in these figures, you're

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showing that a slope side sheet can be added to an NSC ore car, correct?

A. Yes. Or I'm showing that with the NSC ore car sheet, as it exists, that -- or also it exists, can be modified to include that portion of the sidewall that goes from the slope form into a vertical form. And here the figure shows it to be, quote/unquote, the first region of sidewall.

Q. Okay. Great.

MR. KEELER: I'm going to mark as Exhibit No. 6 the 1946 Car Builders' Cyclopedia used in the IPR as Exhibit 1004.

(Exhibit 6 was marked for identification.)

BY MR. KEELER:

Q. Have you seen this document before?

A. Yes.

Q. What is it?

A. 1946 Car Builders' Cyclopedia that we have been discussing.

Q. Can you turn to Page 27 of

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this document, please?

A. (The witness complies.) Yes.

Q. And this is the schematic of the NSC ore car we've been discussing today, correct?

A. Yes.

Q. And if you look at the two images on the left-hand side of this page, towards the center of those images there are two vertical pieces that look like they're bolted to the rail car.

Do you see those?

A. Yes.

Q. Who do you call those?

A. I call them sidewall posts.

Q. Those side wall posts, what type of cross section do they have?

MR. NELSON: Objection. Foundation.

A. As I understand it from these drawings, they have a cross section that is in general form shaped like a U with two

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flanges on either side of it. So think of it as a reenforcement element, if you wish you can call it a beam, and they are formed like a U, and they've got two flanges on either side of that U for connection purposes.

BY MR. KEELER:

Q. And how would those U-shaped sidewall posts be made?

A. How are they going to be made?

Q. Yeah.

A. Well, it all depends on who is manufacturing it. But if I were to make them, I would start with a flat sheet of metal and I would form them into the shape that we see in the drawings.

Q. And on this page, you see that it states that, [As read] "This is a plan elevation sections of a Canadian pacific 50 ton center discharge ore car."

Do you see that?

A. Yes.

Q. And could you turn to the next

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page?

A. Yes. Page 28?

Q. Yes, please.

A. (The witness complies.)

Q. And on the bottom of that page, Figure 2673, there is a Canadian National 50 ton center discharge ore car.

Do you see that?

A. Yeah. At the bottom.

Q. In your declaration, you equate these to rail cars, correct?

MR. NELSON: Objection. Misstates evidence.

A. The document itself and the figure captions is telling us that, that if I look at the caption of Figure 2670 on Page 27, it makes a reference to Figure 2673 by saying see also that figure. And when I go to the Figure 2673 on Page 28, it does the same thing towards the first figure. So that's how I equate them to be the same.

BY MR. KEELER:

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Q. But one of them refers to Canadian specific ore car and the other one refers to a Canadian National ore car, correct?

A. Well, the particular railroad that was operating these two rail cars may have been different in terms of one being Canadian pacific and one being Canadian National. That is besides the point of what is shown in these drawings. What is shown in the figure on Page 28 and the drawings on Page 27 is the details how a rail car that was formed in that shape. Certainly as the manufacturer, one sells these rail cars to different railroads. And, yeah, it may have been two different railroads are operating the same rail cars.

Q. Now, in the schematics in Figure 2670, those show an inside length of 19 feet and 7 and 9 16th inches, right?

A. They show an inside length of 9 feet and some change -- inches, yes.

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Q. And meanwhile, the Figure 2673 says that the length and size is 19 feet 8 inches, correct?

A. Yes. Which is predominantly the same as what is specified on the drawing.

Q. But it's not equal, correct?

A. Well, I mean, they've just simply round it up. And that photo that is shown there, which is not uncommon, you know, one is a photo and the other is a more precise engineering drawing.

Q. In Figure 2671 at the top of Page 28, it specifies a height of 6 foot, 6 and 5-th inches, correct?

A. Yes, that's what it shows.

MR. KEELER: I'm going to mark as Exhibit 7 U.S. Patent No. 131928 to Lindstrom.

(Exhibit 7 was marked for identification.)

BY MR. KEELER:

Q. And you've seen this document before, right?

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A. Yes, I have.

Q. And this is Lindstrom patent referred to in your reports?

A. Yes, it is. One of the two.

Q. Can you turn to Page 6, please, to Figure 6?

A. (The witness complies.) Yes.

Q. On the right-hand side of this figure, there's a component labeled 41. Is that another side post, I believe is the term you used?

A. Yes.

Q. And does that also have the U-shaped cross section?

A. I would like to look at the patent description to answer your question.

(Witness read documents.)

I am not entirely sure what the patent specifies, or if it specifies a cross section for the member.

Q. Yeah, I can direct you to Page 12 using the page numbers on the bottom.

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A. Yeah.

Q. And starting at Line 39 in the left-hand column, if you want to read that sentence.

A. Thank you. (The witness complies.)

Yes. It says that there are stakes as what the term that they use. The term stakes and posts are often changed interchangeably and place like this to a U-shape. Yes.

Q. Can you turn to Page 104 of your declaration regarding the '892 patent?

A. '892 patent you said?

Q. Yes.

A. On Page 104?

Q. Correct.

A. Please allow me to find my place in the document. I got it. And I'm on Page 104.

Q. Okay. On this page starts your discussion of Claim Limitation 6B, which reads, [As read) "Said hopper include first

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and second slope side sheets, then said first slope side sheet meets said first sidewall at said transition portion."

Do you see that?

A. Yes, I see that.

Q. Okay. If we turn to Page 107 of your report, we can see the figure on this page you are identifying annotations the side sheet transition portion, correct?

A. Correct, that's what was shown.

Q. And you're also identifying the slope side sheet, correct?

A. Yes.

Q. Are you applying a different interpretation of the term "slope side sheet" for this ground than the one -- the ground we were talking about earlier regarding the same claim limitation?

A. No, I'm not.

Q. Why not?

A. Well, the transition portion,

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or more specifically the side sheet transition portion, that in itself is a portion of the sloped side sheet. So the two of them are separate from each other in the sense that when we specify them to be separate and, you know, as the figure here show, the transition portion is where the side slope at the posts are transitioning into the side sheets. So one should not take the side sheets to be the same as the transition portion because they're different.

Q. But you identify the same structure here at providing both to side sheet transition portion and the slope side sheet, correct?

MR. NELSON: Objection. Foundation.

A. Well, the intent here is similarly to show that the transition portion is part of the side slope sheet. Imagine a slope sheet where we pick a particular section on that slope sheet and we call that

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particular section, or slice of that sheet, to be the transition portion, and that's where the side posts comes together with the slope sheet -- the sloped side sheets.

BY MR. KEELER:

Q. That's different than your interpretation on Page 68 of your report, correct?

A. I don't believe so.

Q. Why not?

A. We're showing the same thing there where we are showing a side sheet transition portion. That's where the side post comes together with a sloped side sheet.

Q. But the sloped side sheet is a different sheet than the side sheet transition portion, correct?

A. As I said, the transition portion is part of the sloped side sheet.

Q. But that's not what you're showing in these figures on Page 48, right, the side sheet transition portion is shown in

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blew and the sloped side sheet is shown in green?

A. It is simply saying it is the transition portion of the side sheet. And that's what is meant by side sheet transition portion. It's not to be taken as an element on its own and separate from the sloped side sheet.

Q. So it's your understanding that you're not applying two different interpretations on Page 68 and Page 107 of your report?

A. I'm not.

Q. So just to be clear, these are the same interpretations?

MR. NELSON: Objection. Foundation.

A. They're intended to teach the same thing, yes.

BY MR. KEELER:

Q. And you're aware that it is improper to interpret the claims differently

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in doing a validity analysis, correct?

MR. NELSON: Objection.

Foundation.

BY MR. KEELER:

Q. Let me rephrase the question.

You're aware that it is improper to interpret the same claim term differently in doing a validity analysis, correct?

MR. NELSON: Same objection.

A. The same claim terms -- each claim term is applied within its own context. And as long as that context remains the same, then the premises (inaudible) is correct. Otherwise, it's not.

BY MR. KEELER:

Q. Now, this claim term hasn't been construed, correct?

MR. NELSON: Objection.

Foundation.

A. Again, I think the declaration is pretty clear on what it includes.

BY MR. KEELER:

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Q. So on Page 68, you're modifying the NSC ore car to have a piece of the side wall that wraps around to the lower stiffener, correct?

A. Yes; that's what we're showing.

Q. And you're identifying a slope side sheet that meets the transition portion, correct?

A. Well, what we're showing is the slope side sheet. And then that slope side sheet in that portion could be shaped to have a vertical extension, like the figure shows, that will extend along the side slope.

Q. And on Page 107, how does the slope side sheet meet the side sheet transition portion as required by the claim?

A. And the question was?

Q. How does a slope side sheet meet the slope -- I'm sorry, let me start it over.

How does the slope side sheet meet the

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side sheet transition portion?

A. The -- I have been saying the side sheet transition portion is part of the slope side sheet. It is where the side post meets or comes together with the sloped side sheet.

Q. You submitted a declaration in the District Court case regarding claim construction, correct?

A. I --

(Simultaneous conversation.)

MR. NELSON: Objection. Beyond the scope.

A. Again, that's not really what I'm here to testify to.

BY MR. KEELER:

Q. But you did, right?

MR. NELSON: Objection. Beyond to scope.

A. I would have to go back and take a look at my records.

BY MR. KEELER:

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Q. And do you understand that one of the terms in contention was "slope side sheet"?

MR. NELSON: Same objection.

A. I have to reference that document.

BY MR. KEELER:

Q. And do you understand that the dispute between the parties was between these two different interpretations, the one shown on Page 107 and the one shown on Page 68?

MR. NELSON: Same objection.

A. Again, I have expressed all of my opinions regarding both of these in my declaration as it is stated here.

BY MR. KEELER:

Q. Do you know if the court has resolved that claim construction dispute?

MR. NELSON: Objection. Beyond the scope.

A. I have no reason to know one way or another.

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BY MR. KEELER:

Q. Would it surprise you if the court has to pick one or the other?

MR. NELSON: Objection.

BY MR. KEELER:

Q. Of these dissertations?

A. Again, as I said, I have no reason to know one way or another. What you were asking me are expressing statements and offering opinions that goes beyond to scope of my testimony here and I would rather not to offer any speculation.

Q. Which of the two interpretations do you contend is incorrect for trial in this matter?

MR. NELSON: Objection. Beyond the scope.

A. I'm not sure if I follow your question.

BY MR. KEELER:

Q. In the figure on Page 107, how does the first slope side sheet meet the

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first sidewall at the transition portion?

MR. NELSON: Objection. Asked and answered.

A. Well, I think we have discussed it plenty of times. And the claims make it clear that there is a portion that is upward of the first region and there's a portion that is inboard of first region. And they can come together in several different ways, and that's really all we're saying here. So I think the figures kind of speak for themselves, and they description that I had any my definition speaks to them.

BY MR. KEELER:

Q. So in paragraphs 62 to 65, do they come together in a different way than in paragraphs 84 to 86 of your declaration?

A. In paragraphs 66?

Q. 62 to 65.

A. 62 to 65.

Q. Or 63 to 68, I should say.

A. I don't believe so. I think

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they describe one of the same.

Q. Could you please turn to Page 107 of your declaration?

A. (The witness complies.) Okay.

Q. And you see on the bottom, you start -- you begin your discussion of Claim Limitation 8B which reads, [As read] "And then post extends from said draft sale to said end top chord, said end posting mounted above said draft sill between said truck center and said striker."

A. Yes, I see that.

Q. And then on Page 108, in the first sentence, you state [As read] "A POSITA would have been motivated to modify Lindstrom's design to incorporate an end post extending from the draft sill to the top chord similar to the end post in the NSC car."

Do you see that?

A. Yes.

Q. In Lindstrom originally it

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doesn't have a post that extends from the draft sill to the end top chord, correct?

A. That's what my recollection of Lindstrom is.

Q. And why would you need to further strengthen the top chord and end wall of Lindstrom?

A. You don't necessarily need to. It's just one form of adding a stiffening element and we have been discussing. Often in designing something there are different ways of achieving designing and really all we're showing here are all I'm showing here is a matter of meeting the design requirements that is identical or nearly the same as what the '892 patent is showing.

Q. Lindstrom on Page 10 of the document, starting at Line 34, reads [As read] "Another object of our invention is to provide a dunking car having novel framings at its sides and ends which frames are rigidly connected together and which are well

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adapted to take care of the stresses and strains set up in the car."

A. I must admit you lost me. It's Page 10, what line?

Q. Page 10, starting Line 34 to 39.

A. Got you. Yeah.

Q. Now, if Lindstrom is well adapted to handle stresses and strain set up in the car, why would a person having ordinary skill in the art seek to modify its structure?

A. Well, again, as I said, it's not that one would have to modify that structure to meet its intended needs. It is that if such a need existed that the structure that's shown in Lindstrom could readily be modified to meet the design needs using the same method and means as is used in '892 patent.

Q. There are other ways that Lindstrom could be modified using the 1946

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NSC ore car, correct?

A. Potentially, yes. Just like any other design.

Q. And we could sit here all day and come up with different ways to modify Lindstrom with the 1946 NSC ore car, correct?

MR. NELSON: Objection. Foundation.

A. Again, the purpose of my declaration was not to come up with all the possible ways. And the, what the figure on Page 108 is showing, is a method that would have achieved what '892 is teaching in its claims.

BY MR. KEELER:

Q. So, is it fair to say the purpose of your declaration was to come up with the possible ways that the prior art showed what the '892 patent was teaching?

MR. NELSON: Objection. Foundation.

A. As I said earlier, the purpose

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of my declaration has simply been to provide technical provocation (ph) and technical analysis in areas that are of assistance to the parties and the Board.

MR. KEELER: Now, is probably a good time for a break.

THE VIDEOGRAPHER: Off the record at 4:16 p.m.

(A break was taken at 4:28 p.m.)

(Proceedings resumed at 4:28 p.m.)

THE VIDEOGRAPHER: We are now on the record. The time is 4:28.

BY MR. KEELER:

Q. Could you please turn to Page 35 of your declaration regarding the '515 patent?

A. (The witness complies.) Yes, I'm there.

Q. Okay. What is primary structure?

A. Well, I think the name is pretty clear. It's any structure that serves

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a primary purpose.

Q. And what is a primary purpose?

A. Well, with each design, that's different. So the term primary structure could be taken differently as we move from one design to another design. I think it's sort of the term primary structure speaks for itself.

Q. Does the term "primary structure" defined in the '515 patent?

A. I have to refer to that patent.

GOVERNMENT COUNSEL: And I will mark as Exhibit 8 the '515 patent.

(Exhibit 8 was marked for identification.)

BY MR. KEELER:

Q. The '515 patent has about the same specification as the '892 patent, correct?

A. If my memory serves me directly, predominantly for the most part I believe that to be the case.

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Q. And on -- in the 14th column of the '515 patent, I'll give you a second to get there?

A. Yes.

Q. In the 14th column starting at Line 50, the '515 patent says, [As read] "For the purposes of this description, primary structure is defined as an under frame, including side sills and center sills, i.e., including the draft sill, the side walls, the slope sheets, and top chords. The hopper construction, including the stationary parts of the discharge section as well as any cross bearers, cross ties, bolsters stores, shear plates, and so on. Primary structure excludes secondary or ancillary structure or system such as ladders, cat walks, and other safety appliances, brakes, brake rods, and brake fittings, air hoses, reservoirs and pneumatic fittings, movable door members, door operating linkages and so on."

Do you see that?

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A. Yes.

Q. So is that your understanding of term "primary structure" in the context of '515 patent?

A. Yes. For the most part, I agree with what's stated here.

Q. And in Claim Limitation 1E, which you begin discussing on Page 35 of your report, that limitation states -- Claim Limitation 1E states, [As read] "Said hopper car being free of primary structure directly above said share plait of said first end section under said overhang of said first end slope sheet of said hopper."

A. Yes, I see that.

Q. And the '515 patent teaches a rail car that does not have primary structure under the slope sheet, correct?

A. Well, as we just talked about it, however, it does have structures under the slope sheet.

Q. What are those?

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A. Well, for instance, it's got the upper beam, as we talked about before, there's a middle beam that's shown here, there is a lower beam that's shown here. All of those happen to be below the sloped end plate.

Q. So in paragraph 66 of our record, you state that limitation 1E should be interpreted to cover the only embodiment disclosed in the 300 patent.

Do you see that?

A. Yes.

Q. And then you continue on to say, [As read] "The reenforcement beam shown in Figure 3A, do not prevent the '515 patent hopper car from satisfying the beam free of primary structure clause of Limitation 1E"; correct?

A. Correct.

MR. KEELER: And I'll mark as Exhibit 9, U.S. Patent No. 992,192 to Hart.

(Exhibit 9 was marked for identification.)

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BY MR. KEELER:

Q. And you've seen this document before, correct?

A. Yes, I have.

Q. This is Hart, right?

A. Yes.

Q. On Paragraph 70 of your declaration, you state that [As read] "Corner post B6 is not directly the shear plate but longitudinally outboard of shear plate"; correct?

A. Yes.

Q. Where does the shear plate end longitudinally in Hart?

A. Well, in Hart, the shear plate extends from the draft shell to the bolster.

Q. And in your declaration you state that the incline brace B7 is not under the shear plate, correct?

A. That's correct.

Q. How do you come to that conclusion?

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A. Well, what I see here is a number or a beam and we've been calling them a strengthening member, that is attached to the edge of the sloped end sheet or end slope sheet. And I see the plus member B7 that is attached to that member that we just established is running along the edge of the slope sheet, or attached to the edge of the slope sheet, and therefore by virtue of what is shown in Figure 1 of Hart that that member is extending from the site sill up to the -- to the -- to that member on the edge of the end slope sheet.

Q. How do you know that B7 isn't in the middle of the car?

A. Well, we're not able to see it, and other planes that are shown in the same patent.

Q. Are you able to see B7 in any of the other figures in the patent?

A. I'm not able to see it. It appears to be falling on the same lines as

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the end sales. So it's common that two structures that are in the same plane when viewed in a plain vertical both of them, that one could obscure the other one.

Q. What do the dashed lines mean in Figure 1 of Hart?

A. They generally mean a line or a member or a plane that is out of view, out of direct view when one looks at the structure from that plane if.

Q. Hart doesn't show an end wall, does it?

MR. NELSON: Objection. Foundation.

A. To the best I am able to determine how it show as post. That extends from the sale to the corner of the end slope sheet.

BY MR. KEELER:

Q. But Hart doesn't show an end wall like end wall 30 in the '515 patent, correct?

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A. It doesn't appear to show one. And as we may have established already, having an end wall in that area is one way of achieving the structural demands of a hopper car like this. And one could extend that end slope sheet at way to the top chord like what it appears to be shown in Hart and meet the same purpose.

Q. Adding an end wall like that, though, would change the center of gravity of Hart, though, right?

A. It changes the central gravity?

Q. Uh-huh.

A. I must admit, that is something that I do not believe would happen, or at least it will not happen in any meaningful sense. If I have a hopper car like this that is often loaded with material that exceeds the weight of the car itself empty, then more often than not the central gravity of the hopper car in its intended

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loaded form is governed by the loading. Therefore I do not agree with this premise that adding an end wall will central ground team with a car like this in any meaningful way or any way that would interfere or in any significant way change its intended use.

Q. And again, an end wall would add weight to the car in Hart, correct?

A. Not necessarily. We could have an end wall like you're suggesting, and that would mean that other parts of the structure could be lengthened to compensate for any added weight as a result of the end wall.

Q. So if you were to add an end wall to Hart, you would have to make additional modifications?

A. Not necessarily. As I said we could add an end wall. Its something that would have been obvious by the time of this patent. As we are able to see it in many other rail cars that preceded 2009. So I

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would not consider that to be an impediment to any changes that needed to be made here.

Q. One way to add an end wall to Hart would be to increase the overall height to the hopper, correct?

A. Possibly. One would have reasons to end -- to have an end wall, to increase the height of the hopper car like this, but that's -- that may not be the only reason for adding it, an end wall.

Q. Increasing the overall height of the hopper could render it unable to travel on certain rails, correct?

A. Not necessarily. Again, as we established at the very beginning of this deposition that rail cars are designed according to the industry standards for fitting within the routes that they are traveling on, and any such addition would be done within the specified limits by the industries. And these are standards that are readily available and would be understood by

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a person of ordinary skill in the art.

Q. So depending on if it met the standards or not, it's possible you wouldn't add an (inaudible) by increasing the overall height of the car?

MR. NELSON: Objection. Foundation.

A. It is entirely possible to add an end wall and remain within the height limits that are specified for traveling on given routes.

BY MR. KEELER:

Q. And the other way that an end wall could be added would be by reducing the inclination of the slope sheets, correct?

A. Well, as we have established already, every design is taken within its entirely. So if adding an end wall would require reducing the slope angle of the end sheet, yes, that will be certainly taken into consideration by the designer.

Q. Does Hart have an end post?

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A. Well, as we have discussed, Hart has two posts that appears to be added at the end of the rail car. So if you choose to call them end posts, then yes.

Q. What are those labeled with?

A. B6. They're at the end of the rail car.

Q. And by the end, are they --

(Simultaneous conversation.)

A. Longitudinal end of the rail cars.

Q. And laterally where do they sit?

A. Laterally they sit -- appear to sit on the side sills. But again, one could just as easily replace them with a single end post like is shown in '515 that extends from a primary structure such as the draft sill to the top of the rail car.

Q. Why would a person of ordinary skill in the art do that?

A. Well, because it's just

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another way of supporting the end of the rail car. It's another way of supporting the overhang that is presented by the slope sheet at the end of it.

Q. Is the design of Hart inadequate for the loads it will encounter?

MR. NELSON: Objection. Foundation.

A. It appears for it not to be inadequate for its intended loads.

Q. So why change it?

A. Again, as I said, one is not necessarily motivated to change it but one can change it if to replace one structural member with other structural members. So it's not that Hart is inadequate or it is not serving its intended purpose, but it very easily could have been modified to have the same elements that '515 is showing.

Q. Does Hart teach a striker plate?

A. It does.

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Q. Does that extend to the longitudinally outward end of rail car, in Hart?

MR. NELSON: Objection. Form.

A. The striker plate is located at the end of the draft sill. And it is my understanding that that's what Hart teaches as well.

Q. Does Hart shear plate extend in the longitudinally upward end of its rail car?

A. It extends longitudinally outward of its rail cars you said?

Q. Yeah. Does Hart shear plate extend to longitudinally outboard end of the rail car?

A. As I said earlier, what I see in the drawings that are in Hart, the shear plate is longitudinally extended between the draft sill and the bolster, which is located at the center of the bogie or the trunk.

Q. But the shear plate doesn't go

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all the way to the longitudinally upward end of draft beam, correct?

A. The longitudinally upward ends of the draft beam, I'm not sure exactly what you mean.

Q. If you were to add an end post in Hart like the one in the '515 patent, what would it extend upwards from?

A. In the -- you said like '515?

Q. Correct.

A. Well, it would extend from a downward structure. And in this case, that could be the draft sill. And it would extend upward toward the end of the slope sheet. Now, if that slope sheet has got an end wall, it will most likely extend to that end wall. And if an end wall is not present, then it will continue extending to the top of the rail car which we often refer to as the top chord.

So again, just like everything else when it comes to structural design, there are

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different ways of meeting objectives depending on the form, fit, and function.

Q. Now, Hart teaches the corner post that's labeled at D1 or D Prime, correct?

A. Correct.

Q. And that extends all the way up to Hart's top chord, correct?

A. Yes.

Q. It doesn't stop at the slope sheet, correct?

A. It appears not to.

Q. And going back quickly to B7, the upper end of B7, that inclined brace, that is connected to a part that is laterally inboard of the corner post D1 or D Prime, correct?

A. It is right on the edge of -- did you say it laterally inboard of the end post?

Q. Correct.

A. It appears to be by virtue of

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the fact that the line disappears behind an end post.

Q. How far laterally inboard?

A. What I'm able to establish here is that that is a -- I have been establishing a flange type or a whip type plate. Most likely than not it would have been a flat plate that was that was attached to the edge of the slope sheet. So it's immediately behind the end posts that are marked as D prime. And I make that determination by a fact that the end post D prime appears to be attached to that whip like element that I just mentioned. There appears to be connections between the two of them, which a good structural design would dictate for that to be the case.

Q. And that web like element is also behind what's labeled as B6, correct?

A. It's immediately adjacent to it, yes.

Q. How do you know it's

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immediately adjacent?

A. Similarly because B6 is extending to it and it is in the corner of the end slope sheet. And we already established that that wet like element is also in the corner of the end slope sheet. So the two of them would be immediately adjacent to each other.

Q. Can you turn to Page 53 of your declaration, please?

A. (The witness complies.) I'm there.

Q. And on Page 54 you have an annotated figure that shows how Hart has doors that can either dump its lading downwards or out of its sides, correct?

A. Correct.

Q. And in this section of your declaration you state that it would have been obvious to replace Hart's doors with the doors of Schuller, correct?

A. Yes.

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Q. And in doing so, you suggest removing Hart's side dumping ability, correct?

A. Potentially, yes, because of the pneumatic type cylinders and the pneumatic type openers -- pneumatic type of mechanisms that are adopted for the -- for such arrangements are often better suited to the bottom opening as opposed to the side opening.

Q. In what direction does the door actuating member of the Hart move?

A. Which one? The bottom one or the side one?

Q. Let's start with the bottom one?

A. Well, common sense would dictate that they would move in an upwardly direction away from the bottom of the rail car so that they can provide an opening for the laden to move through and empty the rail car.

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Q. Is it fair to say that the door actuating member of Hart is a chain that moves under rotational actuation?

A. There are many ways of meeting the actuation needs of a pivoting doors like we would often need in designs like this. And what Hart is showing is simply one means of achieving a pivot door through what appears to be chains.

Q. And Schuller uses a pneumatic actuator that moves in a linear direction, correct?

A. The linear actuator that got their serve as to actuation mechanism that would move linkages that activate the pivot doors. And again, as we established there are different ways of achieving that actuation. The pneumatic centers of Schuller are teaching simply a more automated fashion of opening those doors than what would have been common at the time of Hart's design in 1911.

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Q. And if you were to replace Hart's doors mechanism with that of Schuller, you would have a completely different geometry at the bottom of the hopper, correct?

A. I'm not sure if that would have been necessary as we have established already in discussing other parts that a design can be achieved in one of different forms. I think one needs to remember that it is a concept that is a reported here in terms of how the doors would open to empty the load within the hopper car.

Q. But if you left the geometry alone as it is and got rid of the side doors, you would have to two right triangles on the side of Hart would be focused lading with no way to get them out, correct?

A. Well, Hart shows one form of bottom design, and that form could be modified to meet the new reality of a new dumping mechanism for rail car. And again,

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this is something that would have been well understood by 2009. We had many rail cars, hopper cars that work for their intended purposes successfully. So I'm not able to find anything in '515 that teaches anything beyond what was all common practice by that time.

Q. In Hart, is the short side sill B20 is coplainer with the shear plate?

MR. NELSON: Objection. Foundation.

A. So Hart teaches B20 to be as short side sill extending from the bolster toward the end of the car. And your question was?

BY MR. KEELER:

Q. Whether the short side sill B20 is coplainer with the shear plate?

A. Well, more likely than not the shear plate would be sitting on top of B20. So I'm not entirely sure what you mean by coplainer. They would be arranged in a

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manner that they would conform to each other.

Q. Now, B4 in Hart, what would you call that element?

A. Did you say B4?

Q. Correct.

A. I call that a hollow section laterally extended reenforcing element or beam.

Q. That hollow section laterally extending reenforcement element or beam, does that sit between the sidewalls?

A. As it appears here, it appears to sit immediately below the side slope sheet and immediately adjacent to what I would identify as the sidewalls.

Q. But to the between the sidewalls?

MR. NELSON: Objection. Misstates testimony.

A. It does extend from one sidewall to another sidewall. So it is not sitting outside of sidewalls. It is in deed

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sitting between the sidewalls.

Q. But there was no piece of sidewall that is bounding the hollow section before, correct?

MR. NELSON: Objection. Form.

A. If what you are implying is that -- that B4 is abutting into the sidewalls, from what I'm seeing here it doesn't appear to abut into the sidewalls, that's what you're implying, but what I do see is an element that as I said is extending between the sidewalls. It's certainly is not sitting outside of the sidewalls.

And bear in mind, the sidewalls are from one side to another and this element is laterally so when I say it's not sitting outside of the sidewalls, what I mean, is it's not laterally sitting outside the sidewalls?

BY MR. KEELER:

Q. But longitudinally it's outside of the sidewalls, correct?

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MR. NELSON: Objection. Misstates testimony.

A. As we already established it is sitting immediately next to the sidewall.

BY MR. KEELER:

Q. Next to, but not between the two sidewalls, correct?

MR. NELSON: Objection. Misstates testimony.

A. I believe that it is laterally sitting between the sidewalls.

BY MR. KEELER:

Q. Do you believe it's longitudinally sitting between the sidewalls?

MR. NELSON: Objection. Asked and answered.

A. As it is shown here, it is not. But that having been said, there would have been absolutely no reason why one could not have it so that longitudinally it's sitting between the sidewalls.

BY MR. KEELER:

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Q. But that wasn't the opinion you provided in your report, correct?

MR. NELSON: Objection. Misstates testimony.

A. Well, my opinion speaks for itself, but what I'm providing here is that that element is laterally sitting between the sidewalls.

BY MR. KEELER:

Q. Could you turn to Page 61 of your report?

A. (The witness complies.)

Q. Where between paragraphs 106 and 108 do you state that the hollow beam B4 is laterally between the sidewalls.

A. Again, the statement that I have there is in response to independent claim 7 or 7H that 106 and 107 are addressing. And I believe that they provide their intended purpose. But in response to your question here, I'm providing information that based on what I see in Hart that that

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element is sitting in between the sidewalls from side to side laterally speaking.

Q. But you don't say that in your report, correct?

A. Again, as I said what I have in 106 and 107 are addressing the Claim 7H.

Q. And 108 too, correct?

A. And 108 as well, yes.

Q. And the last portion of Claim Limitation 7H reads, [As read] "the cross section of a second hollow section beam extending cross-wise across said hopper car between said first and second sidewalls."

Do you see that?

A. Yes.

Q. You don't include any opinions about that portion of that claim limitation, correct?

MR. NELSON: Objection mischaracterizes his testimony.

A. I believe that the figures that we have in my report, they abundantly

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make that clear that we have an element that goes across from one sidewall to another.

BY MR. KEELER:

Q. But you don't include that until you're in session, correct?

A. Well, it was included in the declaration. For instance, you know, if you go to Page 57, that figure is included.

Q. But you say nothing about what that figure shows there, correct?

MR. NELSON: Objection. Mischaracterize evidence.

A. I'm not entirely sure what you mean by I don't say nothing about.

BY MR. KEELER:

Q. The '515 patent defines a machinery space, correct?

A. I believe so.

Q. And that machinery space is bounded by the slope sheet, the end post, and the corner post, and the shear plate, correct?

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A. That's how it's mentioned, but yes.

Q. Hart doesn't each all those elements in the machine space, correct?

MR. NELSON: Objection.

A. I'm not sure what you mean by Hart doesn't teach that.

BY MR. KEELER:

Q. There is no end post in Hart as we have established, correct, like in '515 patent?

A. Hart has got element B6 that, as we already established, will serve the exact same purpose as the end post that is shown in 515.

Q. Can you turn to Page 81 of your report, please?

A. (The witness complies.) I'm there.

Q. And in this section you discuss adding the bent portion of the end sheet of Wong to Lindstrom, correct?

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A. Correct.

Q. Why would Lindstrom need additional support for its slope sheet as you suggest?

A. I'm not suggesting that. All I'm saying is that if one would have chosen to form the end slope sheet as the side sheet like that, then one would have been able to do that?

Q. And on Page 84 of your report you discuss Claim Limitation 31I, correct, in that section?

A. 31I?

Q. Correct.

A. On Page 84?

Q. Correct.

A. That's not what I'm seeing. On Page 84, I see 32I.

Q. What did I say? I meant 32I. My apologies.

A. No worries.

Q. And in that section you

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discuss modifying Lindstrom to angle and end post it, correct?

A. Let me refresh my memory here.

Q. You can pull out Exhibit 7 if you would like it in order to look at Lindstrom.

A. Yes. Yes. The figure on Page 86 shows an end post modification that could extend from the top of the draft sill to the top post.

Q. And what would that end post modification support?

A. Well, in general, when you have something like that, it is intended to support the loads that that member is subjected to. So in this case it would be whatever load that that member is subjected to at top. And it would serve as a load path for those loads from the top to a primary structure like the draft sill.

Q. But isn't there already a vertical post there bringing those loads

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down?

A. Yes, there is. And again, just like some of the other things that we have discussed, this is not intended to imply in any form or shape that what was there in place was insufficient or inadequate. It is simply intended to imply that a person of ordinary skill in the art would have been able to modify Lindstrom to included that structure simply because it existed in other places and simply because it would have been an obviousness to a person of ordinary skill in the art.

Q. Could you turn to Page 87 of your report, please?

A. (The witness complies.) Yes.

Q. And on Page 87, that begins your discussion of Claim Limitation 32K, correct?

A. Yes.

Q. And in that session you discuss incorporating the hollow

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reinforcement being B4 from Hart into Lindstrom, correct?

A. Yes, that's what it appears this says.

Q. Now, Lindstrom Figure 6, it appears that there is equipment already where that hollow reenforcement beam in Hart would sit.

Do you see that?

A. I do see the equipment but I disagree with the notion that they area sitting where that narrow extending cross member before would have been attached to. What I see there are the mechanisms, the linkages that are used for operating the doors, the lading doors, and in general they would sit clear of where that before would be generally attached to. F1 chooses to adapt structure to include before.

Q. So, for suggesting and post end before to Lindstrom, correct?

A. I am suggesting, as we have

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discussed earlier, that the person of ordinary skills in the art would have been able to modify Lindstrom to incorporate one or both of those elements in it.

Q. It would have to be both, right?

A. I'm not clear. Why would it have to be both.

Q. Because both limitations are in claim 32, correct?

A. Well if one is trying to meet both limitations, yes, certainly one could do that.

Q. And you don't include a figure in your report showing the final modification to match claim 32, correct?

A. It would have been obvious. I mean, one can take what is shown on Page 88, and what is shown on Page 86 and kind of learn from both of them to integrate both structures as you're suggesting to satisfy claim 32K.

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MR. KEELER: I think we have been going about an hour. We can take a break.

THE VIDEOGRAPHER: Off the record. The time is 5:30.

(A break was taken at 5:31 p.m.)

(Proceedings resumed at 5:40 p.m.)

THE VIDEOGRAPHER: We are now on the record. The time is 5:40.

BY MR. KEELER:

Q. Dr. Ahmadian, as we were talking about earlier today, it is your understanding that for a patent claim to be invalid, each and every element of that claim must be considered, correct?

A. I would like to have further clarification on what you mean as to each and every.

Q. I mean, all elements of the claim?

A. For each specific claim?

Q. Yes. For every -- if a claim is invalid, each and every element must be

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taught or suggested in the prior art, correct?

A. Well, we can have a claim, to the best of my understanding as a technical person, that would have multiple aspects and multiple parts, that if one is determined obvious or invalid for one reason or another, then the other aspects could go on. But again, as I said, I would hesitate to answer your question with any degree of definitiveness simply because I believe that it is a legal question and it would be outside of the bounds of my technical expertise.

Q. And in addition, for a claim to be invalid, the claim as a whole must be considered, correct?

A. Again, as I said, I view that to be a legal question that is outside of the bounds of my technical expertise.

Q. And in your two reports we discussed today, there are a number of claim

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limitations and claims that aren't discussed, correct?

A. As I mentioned earlier, I was asked to provide a technical opinion on aspects of the patent that would have helped the parties and would have helped the Board, and that was the primary intent of the two declarations that I have offered.

Q. And as we discussed earlier today, you did not consider any copying of the inventions in the '892 or the '515 patent as part of your records, correct?

A. I'm sorry, did you say any copying?

Q. Copying?

A. I'm not sure what you mean by "copying."

Q. Well, we talked earlier today about copying of the inventions, correct?

A. Refresh my memory. We're getting to the end of the day.

Q. Yeah. What does it mean to

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copy an invention?

A. Well, on a surface, copying means duplicating something. So -- but I'm not sure, again, what you mean by copying an invention.

Q. Well, earlier today we discussed how NSC alleges that FreightCar America copied its inventions, correct?

A. What I do understand is that there's a dispute in the courts and before the Patent Board as to the invalidity of the two patents owned by NSC. And they are specifically talking about '892 and '515. So that's the understanding that I have.

Q. So you didn't consider any issues of copying in making your reports, correct?

MR. NELSON: Objection. Mischaracterizes testimony.

A. I think I've answered the question in many different ways. And within the context of my declarations that we are

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discussing here, all elements that I considered and opined on are clear.

Q. And yes or no, that doesn't include copying, right?

MR. NELSON: Objection. Asked and answered. You can answer.

A. Again, I believe I answered that. And my declarations make it abundantly clear what has been considered or not been considered.

BY MR. KEELER:

Q. Can you show me in your declarations where you considered copying?

A. What I considered copying?

Q. Yeah.

A. Again, to the extent that it's there, it's in the reports, and if it's not there, it's not there.

Q. So you can't show me?

A. Well, without us sitting here and me going through it. And again, I'm struggling to understand what you mean by

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copying a rail car. It's not like we can take a design and run it through a copier machine and generate one that is an exact duplicate of it. So...

Q. How did you prepare for your deposition today?

A. Well, I viewed the material that I had used in preparing my declaration. I reviewed my declaration. And I had several meeting with counsel to discuss various aspects of my declaration.

Q. When did you meet with counsel?

A. It's been in different occasions in the past couple of weeks.

Q. For about how many hours?

A. I don't recall. I would have to refer to my records.

Q. Who did you meet with?

A. Predominantly, Mr. Nelson.

Q. Who else?

A. I just said predominantly

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Mr. Nelson.

Q. But there were other people you met with?

A. Not extensively, no.

Q. We took a number of breaks today. Did you talk to anyone about the substance of your testimony today during those breaks?

A. No.

Q. Is each patent claim an invention?

A. Is each patent claim an invention?

MR. NELSON: Objection. Scope.

A. I must admit that's a great question that goes beyond my technical expertise. So...

MR. KEELER: I have no further questions.

MR. NELSON: Okay. Dr. Ahmadian, I have a couple of follow-up questions on a few very specific topics if you don't mind.

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THE WITNESS: Okay.

CROSS-EXAMINATION

BY MR. NELSON:

Q. Do you mind pulling out your 892 declaration?

A. (The witness complies.) Okay.

Q. And let's turn to Paragraph 17 in that declaration.

A. (The witness complies.)

Q. Okay. Would you mind reading the first two lines of that paragraph for me?

A. Paragraph 17?

Q. Yes, please.

A. [As read] "It's my understanding that a claim is, quote/unquote, "obvious" if the claimed subject matter is as a whole would have been obvious to the person of ordinary skill in the art at a time of the alleged invention."

Q. Thank you. You see the words "as a whole" in the second line there?

A. Yes.

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Q. Is this consistent with your analysis that you performed for this declaration and the other declaration?

A. Yes.

Q. So you did consider the claims as a whole?

MR. KEELER: Objection. Leading. Sorry.

A. Again, as I have mentioned on the record, and also in my declaration, that is the case.

BY MR. NELSON:

Q. Okay. Please turn to Paragraph 34.

A. (The witness complies.) Okay.

Q. Can you please read that paragraph for the record?

A. [As read] "In general, unless the intrinsic evidence indicates that the inventors adopted a special definition of a claim term, I have interpreted each claim term in accordance with its plain and

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ordinary meaning as it would have been understood by person of ordinary skill in the art at the time of the invention."

Q. There was some earlier questions about applying claim constructions in your declarations. Within today's testimony, did you mean to change anything stated in Paragraph 34?

A. No. Again, it is understood that when one prepares a document such as this, that if there are terms that are taken that are unclear or outside of their ordinary and meanings, then what one provides the construction for those terms -- one provides claim construction.

Q. Okay. Turn to Paragraph 65, please.

A. (The witness complies.) Okay.

Q. Would you mind reading the first paragraph for me those three lines?

A. [As read] "Under NSC's construction once you interpret sloped side

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sheet to refer to the slide slope sheet" -- let me back up and reread that.

"Under NSC's instruction which interprets, quote unquote, sloped side sheet to refer to the, quote/unquote, side slope sheet 50, limitation [6b] is satisfied by an obvious modification of the 1946 Cyclopedia's NSC ore car design in view of the

Q. In today's testimony, did you mean to change anything stated here?

A. I stand by the terms as they have been used in this paragraph and as they have been shown on the two drawings that we have on the following page that shows Lindstrom and NSC ore car unmodified, side by side.

Again, bear in mind that the terms "sloped side sheet" and "side slope sheet" are very close together, and it is easy during a cross-examination like this for one to kind of mix them a little bit. But I believe that they -- my testimony today is

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within the context of what I have in my declaration and is not intended to in any form of shape dispute it

Q. For other places in your declaration referring to a claim construction in today's testimony, did you mean to change anything stated in your written analysis?

A. As it is included in my declaration? No, I stand by my declaration.

Q. Do you mind picking up the '892 patent and looking at Figure 2b?

A. (The witness complies.) Okay.

Q. Based on this Figure 2b, is the patent showing the corner post as part of sidewall?

MR. KEELER: Objection. Outside the scope.

A. So the patent describes Figure 2B as a side view of the sidewall of Figure 2A. And so within that context, one would take the corner posts to be -- or the side posts -- not to corner posts, the side

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posts, to be part of the sidewall.

Q. There was an earlier discussion where I believe you discussed with counsel whether the transfers beam B4 in the Hart reference was laterally between the sidewalls.

Do you remember that?

A. I do.

Q. And I believe the question was asked whether it was also longitudinally between the sidewalls.

Do you remember that?

A. Yes.

Q. Based on Figure 2B that we just looked at, do you believe that the corner post is laterally and longitudinally between the sidewalls?

MR. KEELER: Objection. Leading.

A. Again, if I take the corner post as they are taught in '892, and as Hart shows it, then one would take B4 to be insight of those corner posts, to the extent

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that one would take the corner posts to be part of the sidewalls, then the lateral element before would be also laterally within side posts. Because it's to the insight of the corner posts, laterally speaking.

BY MR. NELSON:

Q. Okay. My last question relates to two paragraphs, 68 and 107, in this declaration.

A. Which one are we talking about?

Q. The '892 declaration.

A. '892.

Q. Actually it's pages 68 and 107.

A. (The witness complies.) Okay.

Q. Earlier we talked about the Paragraph 65, which is also coincidentally on Page 65 --

(Simultaneous conversation.)

A. Yes.

Q. -- of your declaration.

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A. Uh-huh.
Q. Remember we read that?
A. Yes.
Q. And do you remember the first line of that what that states in the first line of 65?
A. Yes.
Q. Remind me what that says, first line?
A. It says under USC's construction.
Q. Under what?
A. I'm sorry, USC's construction.
Q. Sorry, one more time. Under?
A. USC's -- I'm sorry, NSC's construction which interprets, quotation open, slope side sheet, quotation closed, to refer to the, quotation open, slide slope sheet, quotation closed, 50.
Q. In you view of that statement, can you compare the figures on 68 and 107 of your declaration?

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Are these the same interpretation or do they use different constructions, alternative constructions?

MR. KEELER: Objection. Form.

A. They use alternative constructions.

MR. NELSON: Thank you. No further questions.

MR. KEELER: I have no questions.

THE VIDEOGRAPHER: Okay. Would you like to put transcript orders on record or video?

MR. KEELER: Whatever my paralegal says. She knows better than I do.

MR. METJAHIC: Do we want to mark this -- this one is public?

MR. NELSON: I don't know anything confidential.

THE VIDEOGRAPHER: Off the record. The time is 6:05.

THE COURT REPORTER: Counsel, did you want a copy of the transcript?

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MR. NELSON: Yes, please.

THE COURT REPORTER: Regular delivery?

MR. NELSON: That will be fine.

THE COURT REPORTER: Thank you. Did you want a rough or anything or just transcript only?

MR. NELSON: If you're e-mailing out a rough, we'll be happy to be on that list.

THE COURT REPORTER: Okay.

MR. KEELER: We'll do rough and three to four day delivery.

(Deposition concluded at 6:05 p.m.)

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CERTIFICATE OF SHORTHAND REPORTER

I, Okeemah S. Henderson, RPR, the officer before whom the foregoing proceedings were taken, do hereby certify that the foregoing transcript is a true and correct record of the proceedings; that said proceedings were taken by me stenographically and thereafter reduced to typewriting under my supervision; that reading and signing was not requested; and that I am neither counsel for, related to, nor employed by any of the parties to this case and have no interest, financial or otherwise, in its outcome.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal this 12th day of March, 2026.

My commission expires:

September 30, 2029

Okeemah S. Henderson

Okeemah S. Henderson, RPR

Official Court Reporter

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