CERTIFIED TRANSCRIPT

NATIONAL FEDERAL MILK MARKETING ORDER

PRICING FORMULA HEARING

DOCKET NO.: 23-J-0067; AMS-DA-23-0031

Before the Honorable Jill Clifton, Judge

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Carmel, Indiana

October 5, 2023

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(Please note: Appearances for all parties are subject to change daily, and may not be reported or listed on subsequent days' transcripts.)

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M A S T E R I N D E X

SESSIONS

---o0o---

M A S T E R I N D E X

WITNESSES IN CHRONOLOGICAL ORDER

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M A S T E R I N D E X

INDEX OF EXHIBITS

IN CHRONOLOGICAL ORDER:

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THURSDAY, OCTOBER 5, 2023 - - MORNING SESSION

THE COURT: Let's go back on record.

We're back on record at 8:00 a.m. on October 5, 2023. It's Thursday. I'm Jill Clifton. I have one preliminary matter before we resume.

Most of you know that the reason I'm here is that on September 22, 2023, Chief Judge Channing Strother tested positive for COVID. On September 29, 2023, he tested negative for COVID and has ever since. He still had difficulty having the energy that he's used to having and was sleeping a lot, but still doing his job from -- from home, isolating. And now he's fully back.

Many of you have been concerned about him. His residuals at this point are congestion and a cough, and from talking to other people who are similarly situated, apparently that is common. And it goes away, but it takes time.

He has all through my involvement in this proceeding been mindful of how you all are doing. He was so hopeful that no one else that he had been closely situated with also had COVID.

And I have assured him that I'm aware of nobody else having it. I know all of you are beat up from the long hours and from the difficulties, but -- but I'm very pleased that everyone is healthy enough to continue.

He asked me for continuity to take also the November segment, which is the week following the Thanksgiving weekend. We're beginning at 1:00 p.m. on

that Monday and going that full week. And I am delighted. I'm the one having the fun, and so I'm appreciative.

I thought it might be useful for those of you who may not know what the function of the presiding Administrative Law Judge is in a rulemaking hearing such as this. It is a limited function. It is to gather in the evidence and certify for the record what that is. We call it a certification of the transcript, but it's actually the transcript and the exhibits.

So after the hearing, both judges who have been witnesses, that is Chief Judge Strother and myself, both of us will sign off on those documents. We each observed different portions, so we will both be signing off on those documents.

In the meantime, we're behaving separately in that Chief Judge Strother indicated he's working on a ruling on a matter that came up while he was presiding. He will still do that. He will finish that. And I will do the rulings that come before me.

So I just wanted to clarify we're both assigned the case. He is senior. We'll both sign off on the documents at the end.

All right. Now, are there any other preliminary matters before we assume taking testimony?

I see none.

Would you state and spell your name, please.

THE WITNESS: My name is Stephen Koontz, S-T-E-P-H-E-N, K-O-O-N-T-Z.

THE COURT: Now, your voice is robust which is good, except it wasn't quite loud enough, and it all has to do with positioning.

I don't know, can you move closer toward me and still see your laptop and your document?

THE WITNESS: Yes.

THE COURT: I think that will help. Very good.

Have you previously testified in this proceeding?

THE WITNESS: No, I have not.

THE COURT: I'd like to swear you in. Would you raise your right hand, please.

STEPHEN KOONTZ,

Being first duly sworn, was examined and testified as follows:

THE WITNESS: Yes.

THE COURT: And that was a "yes"?

THE WITNESS: Yes.

THE COURT: See, again, you know, you have to be fairly close to that microphone unfortunately. It's awkward when you have things in front of you.

Counsel.

MS. HANCOCK: Thank you, Your Honor.

DIRECT EXAMINATION

BY MS. HANCOCK:

Q. Good morning, Dr. Koontz. Thank you for being here today.

Would you mind providing your business address for the record?

A. I'm located at Colorado State University. My office is 266 Nutrien Agricultural Sciences Building, Fort Collins, Colorado, 80523.

Q. I want to first start off by getting to know a little bit more about your background.

Can you start by telling us about your educational background?

A. I have a BS and MS degree from Virginia Tech in agricultural economics, and I have a Ph.D. in agricultural economics from the University of Illinois.

Q. And following your Ph.D., what have you spent your time doing in your professional career?

A. I have been academic faculty the entire time. I worked at Oklahoma State University in the Department of Agricultural Economics for six years. Moved from there to the Department of Agricultural Economics at Michigan State University, and had an opportunity to go to Colorado State University. My department there is the Department of Agricultural and Resource Economics.

Q. Okay. The proceeding is being pushed out by Zoom, as well as having a court reporter here, so we're trying really hard to make sure the audience online can hear, but most importantly, that our court reporter can capture everything that you are saying so we have a good record.

A. Absolutely. If I'm not doing it right, please let me know. It's not intentional.

Q. Yeah, yeah. And it's something that we've been -- it's been a common theme for us.

So throughout your professional career in academics, you have also had some other opportunities to use your experience in agricultural economics to testify in front of Congress.

Can you tell us about that?

A. I have testified twice. I work -- my primary research area has been in market organization and performance, and it's largely on the cattle and beef markets. I have worked with major cattle feeding organizations and also the packing industry, beef packing industry.

Q. And what kind of information or topics do you -- do you present when you are testifying in front of Congress?

A. The topics of lately have been price discovery, and in that entire area, price reporting, price discovery. And long-term, it's more along the lines of market power, industry structure, and market participant conduct over time.

Q. Okay. All related to the feed industry -- or cattle feed industry?

A. Cattle and I have -- by working with the cattle industry, I have also had to be solid in my understanding of what goes on in commodity markets, primarily feed markets, forage markets, things like that.

Q. Okay.

MS. HANCOCK: Your Honor, at this time we would move to recognize Dr. Koontz as a commercial agricultural

economist with cattle and beef markets and cattle feed.

THE COURT: Tell me again. Commercial agricultural?

MS. HANCOCK: Economist, cattle and beef markets and cattle feed.

THE COURT: Does anyone wish to voir dire the witness with regard to his qualifications before I accept him as an expert witness?

There is no one. I do.

Now, next, does anyone object to my accepting Dr. Stephen Koontz as an expert as indicated?

There are no objections. I do accept Dr. Stephen Koontz as an expert in commercial agri- -- as an expert as -- in the field of commercial agricultural economics, and cattle and cattle feed? Do I have it right?

THE WITNESS: Cattle markets and production.

THE COURT: Cattle markets and production, including feed. All right. Good. Thank you.

We are very happy to have you here. Welcome.

THE WITNESS: Thank you.

THE COURT: Ms. Hancock?

MS. HANCOCK: He wasn't sure if you were being serious.

BY MS. HANCOCK:

Q. Dr. Koontz, would you mind providing us with your testimony in Exhibit 304? And as you read your testimony, just be mindful of both the volume of your voice and then the speed that -- make sure that it's slow enough that our

court reporter can capture it.

A. Yes. Absolutely.

MS. HANCOCK: Your Honor, I don't know if I marked this. I'm sorry. Thank you.

This is Exhibit NMPF-55, and I believe the next exhibit number is 304.

(Exhibit Number 304 was marked for identification.)

THE COURT: I have my copy now. And, yes, this is Exhibit 304.

Dr. Koontz, you may proceed.

THE WITNESS: Thank you. The purpose of this testimony is to comment on the proposed changes to the producer milk price surface and the potential impacts on milk production in the dairy industry in Colorado.

I'm a professor in the Department of Agricultural and Resource Economics at Colorado State University. Been on faculty there since 1989, prior to that at Oklahoma State and Michigan State.

THE COURT: May I interrupt?

THE WITNESS: Yes, please.

THE COURT: Your statement says 1998. You said 1989.

THE WITNESS: I'm sorry. '89 at Oklahoma State, and 1998 at Colorado State.

THE COURT: Ah, thank you.

THE WITNESS: My apologies.

THE COURT: No worries.

THE WITNESS: I'm -- I was pleased to hear you describe what I do for a living. I'm not sure I could tell that to my parents, so I'll -- I'll have to write down some of these shortcuts. They are helpful.

I consider myself a livestock and commodity market economist. I have a three-way split. I hold an extension, teaching, and research position, and over the years I have worked on issues relevant to commercial agriculture in Colorado.

I have conducted economic education with producers regarding market outlook, risk management, and also policy questions. I've worked with the cattle industry and the USDA Agricultural Marketing Service, the Market News Division, on issues related to fed cattle pricing and price reporting.

I was engaged during the transition from voluntary price reporting to the implementation of livestock mandatory reporting, and have worked with the National Cattleman's Beef Association in the industry effort recently to improve cash market participation in fed cattle trade.

I have testified to Congress regarding market structure and conduct in cattle and beef industries, and working in extension and teaching in Colorado has required me to also develop a solid understanding of grain and forage markets upon which livestock industries rely.

Agricultural in Colorado contributes approximately $10 billion annually to the state economic output.

Approximately 60% of that wealth creation is related to livestock industries, cattle, cattle feeding, dairy, poultry, and pork, and specialty livestock. The remaining 40% is from crop-related industries, specifically hay, corn, corn silage, wheat, barley, a variety of fruits and vegetables, and specialty crops.

Of the $6 billion associated with livestock, the dairy production at the farm level contributes about $800 million annually. And these are all roughly value-added contributions. It's not double counting pieces associated with the different industries.

Dairy production in Colorado is an important contributor and has grown considerably in the last 20 years. As the national dairy industry has migrated West and transitioned into milk production for dairy product manufacturing, Colorado has participated, as have many high plains and western states. There is new production, considerable new production, milk production for manufacturing products that comes out of Idaho, New Mexico, Western Texas, Kansas, and Colorado.

Prior to 2000, the population of milk cows in the state was less than 85,000 animals, and by January 2023 population was over 200,000 animals. The annual growth is regularly between 3 and 10,000 animals, and the only decrease in the dairy cow herd population was in 2010. Prior to 2000, annual milk production in the state was less than 2 billion pounds, and by 2022 the annual production was almost 5.5 billion pounds.

Dairy is the growth industry in Colorado agriculture and has been since the year 2000. And that's in terms of the contribution to the Colorado economy. Dairy -- Colorado dairy is also a rather innovative industry. Annual production per cow was below 21,000 pounds in 1999; peaked at modestly above 26,000 pounds per animal in 2020. Production per cow is -- was the second largest in the country behind Michigan in 2022.

The proposed changes in milk pricing that are being considered by the USDA AMS have the potential to make substantial impacts, specifically on milk production and the dairy industry in Colorado if milk prices are lowered, what I would consider substantially, a dollar to $2 per hundredweight. This testimony is offered to communicate details on the feed costs in Colorado versus portions of the U.S. further east, and also to discuss the economic environment in Colorado as it currently stands and likely future conditions, and then talk about -- outline some potential impacts on Colorado of the proposed policy changes.

The National Milk Producers Federation asked me to comment on the impact on the dairy -- Colorado dairy farmers if the policy changes, resulted in milk manufacturing Make Allowance increasing about $0.50 per hundredweight, and Colorado producer price surface that followed the Wisconsin models output with no adjustments. Ed Gallagher at DFA, at Dairy Farmers of America, asked me to consider the impact of approximately a $0.50 decrease

in the blend price or producer price differential, the values on Colorado dairy farmers, if the Wisconsin model was followed with no adjustments.

His testimony, Ed's testimony, will cover the estimated decline. According to Mr. Gallagher, the combined impact would result in milk price in Colorado as paid to producers decreasing by about a dollar per hundredweight.

This change in the milk price surface has the potential to be substantially negative on Colorado dairy industry. I would also like to note that he's informed me that there are other potential policy changes that could Make Allowances (sic) substantially more, and with this change alone, the decrease in milk prices paid to Colorado producers would be about $1.45 per hundredweight.

I'm not testifying about the various Make Allowance policy options, but it is clear to me that any policy change that results in a decrease in Colorado milk prices of a dollar or more would be rather harmful to the Colorado dairy industry.

Colorado achieved what I consider to be a competitive advantage in dairy production due to increases in productivity relative to the cost of production and, in particular, variable cost of production associated with feed costs.

Colorado's a relatively high feed cost environment, and I'm planning to illustrate that magnitude. The USDA Farm Service Agency has a dairy

margin management product, and the valuation of that is based on national corn prices, or costs, national alfalfa hay prices, and soybean meal prices for meal in Illinois. Decatur, Illinois, is the U.S. hub of soybean meal production, and prices across the nation are pretty closely tied to prices from transactions at that production point.

This margin calculation is the Dairy Margin Coverage Program, the DMC. Dairy animal feed is essentially composed of: A roughage component, hay, and usually high quality hay such as alfalfa; an energy component, made up usually of corn or some type of related product; and a high protein component such as soybean meal or another high protein meal.

Dairy animal rations can have a multitude of components. There may be hundreds of potential inputs that are considered when you are blending a ration, but the multitude of elements of any given ration are priced rather similar to these three main ingredients, that being alfalfa hay, corn, and soybean meal.

So if I can, I would like to pull up Figure 1. Thank you.

So what I'm doing in Figure 1 is demonstrating -- I'm calculating the -- that USDA FSA margin, and I'm using prices received by farmers from Colorado and South Dakota. USDA NASS monthly prices received are used for corn and alfalfa hay for each state. And I'm sticking with the soybean meal price that's used by FSA in the insurance

product, the USDA AMS price for meal in Decatur, Illinois.

As far as I know there's no public price data that's routinely reported for soybean meal in different states, but the delivery costs to Colorado from Decatur or from some crush facility in the Upper Midwest, for example, would be greater to Colorado than to South Dakota. So that's something that this particular graph is holding constant. It's just -- it's using the soybean meal price, but it is not changing that across regions.

This variable cost margin converts corn, hay, and meal prices to a variable cost associated with milk production. In essence, this margin measures feed costs in terms of a milk price and is in dollars per hundredweight of milk.

The variable cost margin for Colorado across the '07 to 2022 period was $10.20 a hundredweight, and for South Dakota the average for the same period was $8.90 per hundredweight and, again, measured per hundredweight of milk. The minimum and maximum for Colorado was $6.68 and $15.64 per hundredweight. Minimum and maximum for South Dakota is 5.66 -- $5.66 and $15.02 per hundredweight.

For perspective, the average minimum and maximum using the U.S. national prices and the Decatur soybean meal price results in a dairy margin of $9.83, $6.61, and $15.29 per hundredweight.

THE COURT: Dr. Koontz, would you read those prices again, please?

THE WITNESS: Certainly. Where would you like me

to go back to?

THE COURT: Start with $9.83.

THE WITNESS: Oh. So using, for perspective, backing up and looking at the national U.S. prices, the resulting dairy margin is $9.83 for an average, the minimum is $6.21, and the maximum is $15.29 per hundredweight.

THE COURT: Thank you.

THE WITNESS: These latter values, the national values, are values that would be associated with producers across the country if they used the current USDA FSA product.

South Dakota is used for comparison because it is a close dairy producing region, close to Colorado, reasonably close to Colorado, where the proposed changes to milk pricing are not what is to be experienced in Colorado. Albeit, more recently, South Dakota is also experiencing growing milk production to satisfy the milk product market. South Dakota is also potentially part of the national region which supplies feedstuffs into Colorado and other high plains livestock producing regions.

Other regions out -- other regions in the Upper Midwest would have comparable statistics and conclusions and with their comparisons with Colorado.

And last, I was asked by Ed Gallagher of DFA to focus my facts -- focus what I'm considering comparing Colorado to, to focus simply on South Dakota. That would

be a reasonable comparison and a good reference for comparison.

What we see in this first figure, Figure 1, in the exhibit, what we see is that Colorado milk production, the variable cost associated with feed were about a dollar to $2 a hundredweight than those using prices from South Dakota. Margins in the Central Midwestern states will be lower again yet.

Further, the trend in feed costs is progressing higher. Colorado is a corn-deficit state. Livestock demand within the state is generally higher than corn production within the state. Prices are higher when compared to neighboring states, and corn is trans-shipped from regions outside of Colorado into Colorado.

There's also a similar situation with respect to forage, specifically alfalfa hay prices. The availability of irrigation water and a semi-arid climate in Colorado allows production of exceptionally high quality feed alfalfa hay relative to regions further east. This hay is in much demand in Colorado and is also regularly shipped to Nebraska, Kansas, Texas, and New Mexico.

Dairy production in Colorado has grown since 2000, and this is because animal productivity, the milk -- the value of milk produced per cow is generally higher than the cost of production, which are primarily feed costs. And the feed costs are -- are reasonably low -- relatively low compared to that value of that achieved milk cow output. But this advantage has been pressured

substantially since 2006.

In 2006 and 2007, that's a time period where the feed grain market transitioned from being solely an animal feed market into a market which also satisfied demand for biofuels, and that biofuel is primarily that of ethanol for gasoline used in gasoline blending.

THE COURT: Now, I want to make sure I heard what you said. So the last part of that sentence, when you start with -- with "transitioned from," if you would.

THE WITNESS: So the feed grain market transitioned from being solely an animal feed market into a market which also satisfies demand for biofuels, primarily that being ethanol for gasoline blending.

THE COURT: Thank you.

THE WITNESS: So in Figure 1 what I'm doing is I'm using the FSA formula for the dairy margin, and instead of using national prices, I'm using the USDA NASS prices for Colorado and for South Dakota, and the Decatur, Illinois, soybean meal price. And the higher corn and hay prices in Colorado demonstrate a higher variable cost feeding margin. We also see the substantial jump in that margin post-2006 when corn prices jumped higher -- moved to a higher level due to that high demand now for corn to produce ethanol.

THE COURT: Now, you are talking now about Figure 2?

THE WITNESS: No, Figure 1. This is --

THE COURT: Still Figure 1.

THE WITNESS: -- putting Figure 1 in a bit of context.

THE COURT: Very good. Thank you.

THE WITNESS: So Figure 2 illustrates the difference between the two variable cost dairy margin series from Figure 1. This is just the difference between Colorado and South Dakota from the first figure. And we see that difference is about 1 to $2 per hundredweight of milk over time. The difference is increasing or periodically stair-steps higher. The average from '07 to '22 is a difference of $1.34 per hundredweight. And, again, the units of this calculation are a hundredweight of milk.

I believe this difference is also conservative. It uses only different corn and alfalfa hay prices for the two regions, and that if you incorporated a different protein feed cost, the difference would likely increase as well.

So digging into some more of the details.

My apologies, that spreadsheet has more tabs than I can manage. I know the figures in the PDF file of the exhibit though.

So Figure 3. Figure 3 illustrates the alfalfa hay prices and the different prices between Colorado and South Dakota.

THE COURT: Could we go off record just a moment?

(An off-the-record discussion took place.)

THE COURT: Let's go back on record.

All right. We're back on record. It's 8:31.

All right. I was having trouble finding my PDF copy of these exhibits, and now I see them. They are just -- they begin on page 8 of the exhibit that we have, and page 9, and now we have gone to page -- right now we're on page 11.

All right. Thank you.

THE WITNESS: Certainly.

THE COURT: You may resume.

THE WITNESS: Thank you.

Figure 4 illustrates corn prices for the two states. And what I believe the two figures shows, neither of these price series is flat over time. The prices are volatile and for the most part increase. And importantly, there's a persistent higher cost in Colorado when compared to, for example, South Dakota. Colorado is generally an animal feed deficit state. Colorado is competitive in cattle feeding and milk production largely because of the higher productivity associated with animal performance in the relatively dry and semi-arid climate in Colorado.

The average from 2007 to 2022 is a difference of $70.50 per ton for alfalfa hay, and the average difference for 2007 to 2022 is a difference of $0.35 per bushel for corn. Also, observed in Figure 3 is the -- is the -- what I spoke of, the increase in the biofuel demand, the resulting change in feed market transition.

Prior to 2006, the demand for corn was primarily livestock feed demand, and demand for corn to be used to

produce ethanol for gasoline blending that emerged in 2007 grew considerably. And that growth rate slowed down in 2010 and has continued to grow modestly. Biofuel demand, that biofuel demand changed to the corn market from a -- what I perceive as a long-run average national corn price between 3 and 3.50. It increased that to a long-run average price between 4.50 and 5.50.

The USDA FSA dairy margin calculations convert feed costs to a measure of variable costs associated with feed. The resulting unit of measurement, again, is dollars per hundredweight of milk produced. That gross margin calculation, that variable cost margin calculation, can be subtracted from a milk price to reveal a contribution to fixed costs.

Similarly, those variable costs and an estimate of fixed costs can be combined and the result subtracted from the milk price to measure industry profitability. That profitability or, in fact, the gross margin may not represent any one or even a handful of specific dairy producers, but this measure is a very reasonable summary of economic conditions in the dairy industry, and it's useful for comparing economic conditions through time and across states.

My communication with dairy industry members and also my reading of extension work, extension publications, regarding fixed costs for dairies is that these costs are reasonably between $6 a hundredweight and $8 a hundredweight of milk. The average variable costs for

production in Colorado in -- the average variable cost for Colorado are $8 -- or not -- excuse me -- $10.29 for that 2007 to '22 time period. And that is as defined by that dairy margin component.

A similar calculation for the whole U.S. would be $9.83 per hundredweight. It's also commonly communicated that dairy fixed costs are somewhere between 60 -- or 40 and 60% of variable costs. Of course, variable costs do not change with production volumes like variable costs do, and both by definition.

Further, producers regularly --

THE COURT: I'm sorry, just read again that sentence in the parentheses, please.

THE WITNESS: Sure. Within the parentheses: Of course variable costs do not change with production costs --

THE COURT: Let's do that again. I think -- I think you mean to start with fixed costs do not change.

THE WITNESS: Yes. Yes, ma'am.

THE COURT: Go ahead and read that again, please.

THE WITNESS: My apologies. I'm notorious for reading what I think is there and not what's actually there.

THE COURT: So do we all.

THE WITNESS: Of course, fixed costs do not change with production volumes like variable costs do, and both by definition.

Further, producers regularly and aggressively

pursue methods to improve efficiency and thereby reduce fixed costs.

So back to the 40 and 60% of variable costs, there being -- there's also some trade-offs between variable and fixed costs. High variable costs and high fixed costs we don't observe. In combination, it's simply not economically sustainable.

Further, it's likely -- but I don't consider it directly here -- fixed costs are things that over time are most impacted by inflation. Inflation will elevate fixed costs, but variable costs I believe are -- are tracked very well by feed costs, feed prices.

So Figure 5 is why people give economists a hard time, because it doesn't look like anything, but Figure 5 presents this measure of industry profitability. The main thing I see when I look at that is a lot of variability. It's highly variable and around zero.

So Figure 5 presents a measure of industry profitability where I'm taking the variable cost associated with that feed margin and adding to it three example fixed cost amounts: $6 per hundredweight, $7 per hundredweight, and $8 per hundredweight. So that combined fixed and variable costs are then subtracted from a national Class III milk price.

In Colorado, when I think of milk prices, it's Class III. That's largely where our products are going. And USDA NASS doesn't have a continuous price series on an alternative grade of milk for specific states, so this is

the -- this is the U.S. price for Class III milk, and that's -- that's what I think of when I think of what Colorado producers are selling into.

We see that milk production profitability, so dairy profitability, is highly variable and over time rather modest. The profitability in this industry is not substantial. The month-to-month variability and profitability is both large and centers only modestly above zero.

Milk production in my mind is an acceptable model or representation of a competitive industry. Monthly profits vary around zero and have persistent periods of good profits. To the topside of zero would be good profit periods. And then also, substantial periods of strong losses.

The month-to-month profitability of the three different fixed costs is simply different by that assumed $1 per hundredweight difference in fixed costs across the -- that triple. And, again, inflation's not considered here. The profit barometer I believe is -- is conservative without that, without considering inflation.

Because the month-to-month profitability doesn't communicate well, it doesn't communicate that we're looking to understand industry economic health and well-being. And so I'll change what's -- what's looked at a little bit.

So an alternative measure that communicates a little better is to accumulate that month-to-month

profitability. That's -- that's just a -- a simple summing of the month-to-month profit on the prior figure. This process measures the accumulation of income or wealth from marketing 100 weight of milk in each example month in this time period.

This measure -- therefore, you can -- you can think of this -- this is selling 100 weight of milk, and if you would like to scale it up to different states or different regions, that is -- that's doable in that context.

Thus, the measure can be scaled up to think about impacts on an industry in a state, and of course that's provided the dairy margin formula is reasonably accurate and as is the assumed fixed cost amounts.

So Figure 6 presents the cumulative profitability for the three assumed fixed costs. And, again, it's taking the milk price and subtracting from that the variable cost and the fixed costs and then accumulating the three example -- the profitability from the three different fixed cost examples.

Dairy profitability within Colorado was -- was strongest in -- so focusing on the green line in the middle, dairy profitability in Colorado was the strongest in 2004, 2006, and 2007. Profitability eroded, likewise, in 2009 to '13, and the profitability has been stable from 2015 to '22, with some growth recovery in 2014.

So in Figure 6, the cumulative wealth with a $7 per hundredweight fixed cost is pretty modest, and for

thinking about it, it's for all purposes flat.

You need to use caution when you are looking at cumulative profits or wealth. The starting point is very important. But this is also, I believe, what is experienced by producers. When producers enter into the industry or when they achieve a substantial size, their operating size -- ultimate operating size, that matters a lot.

Cumulative profitability also illustrates the importance of continuous improved productivity, that ability for animals to produce more milk per animal over time. Improved productivity with a gradual -- will gradually reduce fixed costs faced by dairies.

And it is this improved productivity that results in profitability, but the profitability in the end is not substantial nor does it persist. You have to have improved efficiency, that is -- improved efficiency is and must be pursued continuously.

The $8 per hundredweight fix cost, the red line, reveals issues for high cost producers. High cost producers are simply not economically successful. This $1 increase in fixed costs from 7 to $8 per hundredweight also, I believe, will represent the potential impact of the proposed milk price pricing policy change.

Feed costs are relatively high in Colorado, and improved productivity can offset some of this disadvantage, but a $1 per hundredweight reduction in the manufacturing milk price would have a substantially

negative impact on dairy production in Colorado.

Figure 6 reveals that -- reveals the market barometer moving substantially lower in this cost or price environment. So if you -- again, if you reduce the milk price by $1 per hundredweight, there's a substantial decline in the cumulative profitability.

Again, this implies that Figure 6 reveals the market barometer moving substantially lower in this cost or price environment. This implies that the revenue from milk is not covering variable feed costs and fixed business costs, the fixed costs. Reducing milk price by a dollar would have a substantial negative impact, that's the conclusion I'm drawing from this information.

Similarly, a low fixed cost amount of $6 per hundredweight can result in a business or regional industry accumulating substantial wealth. The swings in the cumulative profitability are similar, but the underlying cost difference is what determines the industry success.

The same statement can be made about the price. That's -- that's important for me. Both the $1 increase or the $1 decrease in cost from a base of $7 per hundredweight reveal very different economic outcomes. The same result would occur with a $1 change in the price of milk that's sold.

So in summary, if the proposed policy changes are adopted, then dairy production in Colorado would most likely decline, and I believe the industry would have to

transition to a composition of rather few and very large extremely efficient operations. Dairy production in total would decrease and the remaining businesses would have to have the absolute lowest fixed costs and the highest productivity. These requirements are typically only met by the few largest businesses in my experience.

So that's focusing on the cost side, the prices of corn, hay relative to milk. The next part is to back out a little bit and talk some more about Colorado.

I believe it's important to recognize that the economic climate associated with Colorado is simply not overwhelmingly advantageous for agriculture, and I believe that especially in the long run. So in the remaining testimony, the intention is to, again, transition to a more general discussion or recognition of the environment that agriculture faces in the West. A portion of this environment is economic related.

Feed that is produced in Colorado relies on irrigation, and surface water irrigation specifically. In contrast, to, for example, states like Nebraska, Texas, and Kansas, ground water pumping from aquifers in Colorado is very limited. We use surface water instead.

Surface water is replenished annually from snowfall and snowpack. Total supplies depend upon snowfall the prior winter. Spring and summer snow melts result in the entire availability of surface water for irrigation. This water developed Colorado agriculture, but the population growth in the West and especially the

front range of Colorado is creating very strong demands on available water supplies.

What agriculture can pay for surface water is much less than what urban and suburban use can pay for water. Agriculture is at a competitive disadvantage for long-run securing of water resources. In the end, water supplies will be reduced for agricultural use.

The result is that feed production in the state will likely never see reduced water costs. And it is irrigated crop agriculture through its production of corn silage and high quality forage that is essential for livestock -- that is essential for livestock feeding and, in particular, milk production.

There's also a general uncertainty about the long-run availability of surface water. Climate change is thought to most likely result in less winter snowfall and less reliable snowfall. Agriculture developed water in Colorado, but agriculture is likely to be the residual claimant on the water that's available.

The value of water -- the value of water to irrigated agriculture in Colorado can be seen in the data -- it can be seen in data available through the USDA. The National Ag Statistic Service collects and reports valuation of land, and they break it out when available into irrigated land, non-irrigated, pasture, and all combined farmland. And you can find this for Colorado.

The most recent year for the survey, 2023, irrigated land is valued in Colorado at $6,000 per acre,

pasture is valued at $880 per acre, and non-irrigated land at $1700 per acre.

THE COURT: The figure on our page 6 is different on the pasture. So read again, if you will, that sentence that begins "for the most recent year 2023."

THE WITNESS: Yes.

Irrigated land is valued at $6,000 per acre, pasture is valued at $980 per acre, non-irrigated land is valued at $1,700 per acre, and all farm land -- this doesn't include building valuations -- is valued at $2,610 per acre.

Most of the farmland in Colorado is non-irrigated or is dry land. Irrigated lands are much sought after and are very highly valued. These valuations -- these specific valuations are not transactions. This is not what land trades for, but rather this is a survey of reported valuations by producers.

The Colorado valuations contrast with farmland values in Wisconsin, which report no separate irrigated and non-irrigated. Land values for crop -- values for crop land are $6,710 per acre, and pasture is $3,150 per acre.

NASS reports the following for, for example, South Dakota -- the irrigated land values are not reported to avoid revealing specific individuals. Pasture is valued at $1,340 an acre, non-irrigated crop land at $4,520 per acre, all farmland is valued at $4,550 per acre.

We see Colorado have low overall valuations, high

valuations for irrigated land and, therefore, a large difference between the two. It is irrigation water that drives how high valuations, and it is irrigated land in Colorado that produces high quality and high volume feeds, and it's also where most dairies operate.

The water availability issue is rather similar to land availability issues and also other important inputs such as labor. The most productive land in Colorado is in the South Platte River Basin. Productivity is due to the proximity to the river and availability of surface irrigation water. This is the region between Fort Collins, Denver, and Greeley, and it extends eastward out to Sterling and Fort Morgan.

These are areas with the most productive farmlands, the most dairies, many cattle feed lots, and also the greatest urban pressures. These are the areas with the most population pressures and most availability of job offerings. Manual labor, construction, farm labor, harvest labor are the hardest to fulfill in this area as compared to areas -- other areas in Colorado and compared to regions in neighboring states.

Farming and livestock production communities in the Northeast Colorado face serious pressures with respect to land availability, water availability, and labor availability. Dairy production and animal feeding in the states that persist in this region will have to have productivity and productivity growth greater than these pressures. These are difficult headwinds for agriculture.

And more than that, these will be persistent pressures I believe for the foreseeable future.

Commercial agriculture in Colorado that's been successful is animal agriculture. Animals are productive in the -- in the semi-arid and high and dry climate. Also successful is irrigated crop agriculture. High quality feed crops are produced, high quality and volume forages are produced, but the environment is simply not just in agriculture's favor. Agriculture developed because of the limited alternatives and lack of human pressures, and successful agriculture is that which is more efficient and efficient relative to these environmental constraints.

In the long run, pressures on water demand, pressures on the demand for land, which is also productive farmland, and the relative opportunities for labor and employment are simply not in favor of agriculture. Improvements in productivity are needed in all animal agriculture in Colorado simply to maintain that important contribution to the economy and specifically to the rural economy. It's difficult for me to see how the Colorado dairy and milk production industry could simply adapt or make other adjustments to absorb the proposed policy change.

MS. HANCOCK: Thank you very much, Dr. Koontz.

Your Honor, at this time we would make Dr. Koontz available for cross-examination.

THE COURT: Let me ask Dr. Koontz. There are two spellings that if he wants me to change, we'll change on

the record copy.

THE WITNESS: Okay.

THE COURT: The first one is on page 1, it's the last line of the first paragraph.

THE WITNESS: Yes, ma'am.

THE COURT: And you read "solid understanding."

THE WITNESS: Yes.

THE COURT: And I would like for us to actually make that change on the record copy.

THE WITNESS: Thank you.

THE COURT: Do you see where I am? I'm on page 1, the last line of the first paragraph, first word says "sold," but he read "solid," and that's what it should be, "solid understanding." So we'll make the word "sold" to be "solid" on the record copy.

And then the last one was Platte. And that is very near the end here. We're on page 6, second line up from the bottom. We're talking about the South Platte River Basin. And it ends in "T." There are two Ts. Do you agree?

THE WITNESS: Yes.

THE COURT: So that instead of reading "Plate" will read "Platt," P-L-A-T-T, "Platt River Basin" (sic). So --

MS. TAYLOR: Your Honor, if we -- I think have one more correction. If we turn to page 8, which is his first chart.

THE WITNESS: Yes.

MS. TAYLOR: The top of that chart in the paper copy says "RMA," but what you showed, and I think is correct, should say "FSA" at the very top.

THE WITNESS: Yes, that is correct. Thank you.

THE COURT: Oh, thank you. So do you see that one? On page 8? So you have made all three changes?

Thank you. Very good.

All right. This is really interesting.

THE WITNESS: Thank you.

THE COURT: Thank you very much. Dense and very informative.

Who would like to begin cross-examination?

CROSS-EXAMINATION

BY MR. ROSENBAUM:

Q. Good morning. I'm Steve Rosenbaum for the International Dairy Foods Association.

Dr. Koontz, I went on your website and looked at your curriculum vitae. I did not see any articles, publications, etcetera, that relate to Federal Milk Marketing Orders.

Have you ever written anything relating to Federal Milk Marketing Orders?

A. No, I have not.

Q. I also looked through the publications, the titles, for the word "milk." I didn't see any publication that used the word "milk" in it.

Have you ever published something that the title of which had the word "milk" in it?

A. I have a couple of working pieces that have working papers that I believe are not in the --
Q. They are not, sorry?
A. Not in what you found in the curriculum vitae.
Q. And what's the topic?
A. I'm interested in -- I had a -- I had a student that had an interest in dairy, and specifically cheese markets, and so she worked for me on some forecasting models for cheese prices.
Q. What's the other one?
A. The other one is looking at -- I -- I teach futures and options, and I was looking at how Class III milk futures prices behave over their trading horizon.
Q. Okay. Anything else?
A. No.
Q. Now, I also looked for the word "dairy" in your list of publications, and I found one from July 2003 called the "Economics of the Red Meat and Dairy Industries (Veterinary Clinics of North America: Food Animal Practice)."

That is something you did, right? Is that right?
A. Yes. I was editor. That was a special issue of that journal. I was editor of that.
Q. And is the -- is that journal geared toward veterinarians?
A. Food animal veterinarians. So it's folks that often have an industry -- interest in industry and what's going on in industry.

Q. Okay. So this was an article that was designed with respect to veterinarians that would have an interest in the industry; is that fair to say?

A. Not necessarily just veterinarians. Veterinarians have an impact a lot on animal industries. So there are quite a few people that are not vets that read those types of works.

Q. Is there any other article -- that's -- let me start that question again.

I only identified that article. Is there any other article you've written that had the word "dairy" in its title?

A. Not that I'm aware of, no.

Q. Okay. So you geared your presentation, arguably your entire presentation, toward the notion of a $1 per hundredweight price decrease and what its impact would be, correct?

A. Yes.

Q. And so I want to explore that number, the dollar.

You attribute $0.50 of that to a change in the Make Allowance, correct?

A. Correct.

Q. Now, your -- I mean -- okay. Are you -- your article -- strike that.

Your testimony is geared toward Colorado, correct?

A. Yes.

Q. Now, are you aware of the fact that there's only one Make Allowance for the entire country? That's how the

system works? For each -- I mean, it is different for the commodity. I mean, cheese has its Make Allowance, and nonfat dry milk has its Make Allowance, etcetera.

But there's only one Make Allowance. Do you know that?

A. I -- I understand the ideas behind Make Allowance, but I do not know the details.

Q. Okay. But I mean you are not here advocating that Colorado should get a special Make Allowance?

A. No. I specifically said that my testimony is not related to the Make Allowance.

Q. Okay. And indeed, you don't know whether USDA has historically taken the position that the Make Allowance relates to the cost of transforming milk into a finished product and is not itself determined at all by what the costs of production are at the farm level. Do you know that?

A. I -- I don't understand your question, sir.

Q. Yeah. Do you know whether the costs of producing milk is part of the calculation that USDA makes in determining what an appropriate Make Allowance should be?

A. I am -- no, I don't know.

Q. Okay. Now, the other 50 -- so just to orient ourselves again. You are talking about the impact of a $1 per hundredweight price decrease, and you -- $0.50 of that you say is the Make Allowance increase, which we have just gone through talking about.

The other you say is $0.50 due to the Wisconsin

model if there is no adjustment. I think that's the term -- that's the description you use on page 2?

A. Yes.

Q. Okay. So I assume you're referring to the model that the University of Wisconsin has undertaken for purposes of providing information that might be used in setting the Class I differential. Is that your understanding?

A. What I -- what I understood and what I was working with was in the end, there would likely be a $1 per hundredweight reduction in prices paid to Colorado dairies, and that was my starting place.

Q. Okay. So let me show you the document that was marked yesterday as Hearing Exhibit 301. It's that massive spreadsheet. And I have turned it for you to the page 4 -- I hope I gave you page 4 -- where -- that's where the information is for the state of Colorado starting on line 217.

And I will represent to you that the testimony is -- and this was from the person who created this, or at least created most of the columns -- that the Column L represents the output of the Wisconsin model if you average the results for the months of May and the month of October. So that, if you will, the result of that model, say for the first county listed, which is Adams County, is $2.50.

Do you see where I am?

A. Sir, I don't know what this is, and I'm not

prepared to testify about it.

Q. Well -- all right. So I think others may be looking at it themselves. I mean, I don't see -- what I see is that for most -- strike that. Let me start again.

There is then in Column M a comparison of the current Class I differential in each county in Colorado versus the output, if you will, of the Wisconsin model, and in virtually every county the Wisconsin model is producing a higher number than the current differential.

So with that as background, do you have an explanation for how that other $0.50 comes about?

A. Sir --

MS. HANCOCK: Your Honor -- hold on one second.

THE COURT: Ms. Hancock?

MS. HANCOCK: Your Honor, this is well outside of this witness's scope of testimony or any of the things that he talked about. He has no knowledge about this document. I think it's perfectly fine to ask him what he knows about based on what his testimony is, but we're going to be here forever if we don't stay on topic.

THE COURT: I -- Ms. Hancock, come back, please.

I did not understand where the two $0.50 per hundredweight came from that he was asked to testify about.

MS. HANCOCK: If that was the question, Your Honor --

THE COURT: That's maybe not Mr. Rosenbaum's question. But -- but I would like him to explain more.

Was he just told, argue what would happen if this changed by $0.50 a hundredweight and this changed by $0.50 hundredweight, and that's what he did? I do not know.

But if -- but if he doesn't know where it came from, I think it -- he might enjoy being shown what this model showed about part of that information. I don't know.

So I'm not ruling on your objection, I'm just saying there is -- we need more, I believe, to know why he is thinking that might happen, and I welcome Mr. Rosenbaum's starting somewhere. So --

MS. HANCOCK: And, Your Honor, if I could just briefly. I think, in his testimony, he has described that he was given some information that said, assume this increase happens, please tell us the impact in your market. And it was an impact based on Make Allowances, not on this differential sheet.

THE COURT: Well, he had two different sources --

MS. HANCOCK: He had --

THE COURT: -- one $0.50 per hundredweight from the Make Allowance, but the other $0.50 per hundredweight was from --

MS. HANCOCK: I think all of that is fair ground if they wanted to explore that line of questioning with the witness to establish how he got the base number. I don't know if he knows anything more than assume it to be true.

THE COURT: Ah.

MS. HANCOCK: But I'm just -- my point is, he doesn't know this document. He doesn't know the basis and the background for how these numbers were derived. I don't even know if he knows all of the other factors that go into the additional considerations. I'm just trying to keep us on topic so that we can make some progress in the hearing.

THE COURT: I appreciate that. We all appreciate that.

Mr. Rosenbaum, you may proceed in any way you wish.

BY MR. ROSENBAUM:

Q. So assume with me that this exhibit which you apparently are declining to look at --

A. Sir, I don't know what it is. I don't know the details. I have not -- not seen it before. I'm not willing to testify about it.

Q. I mean --

A. Where the -- where the Make Allowance came from and the -- and the change in the -- from the Wisconsin model is in my testimony, page 2, second full paragraph.

Q. Okay. The --

A. The $0.50 -- the $1 per hundredweight that I'm working with is with communications with Ed Gallagher of DFA. That is where this issue was brought to my attention. And my understanding is there's an approximately $1 impact on what would be paid to Colorado dairy producers, potentially $1 to $2 per hundredweight of

milk. And that's where I was working with. I don't know where those details come from. I am limiting my discussion to what I think the impact will be on Colorado dairies.

Q. Do you know whether hearing -- you -- just to be clear, this line of questioning was entirely generated by your reference to the, what would happen if the Wisconsin models output was followed with no adjustments. That's why I'm asking these questions.

Do you know whether Exhibit 301 is in fact the output of the Wisconsin model in substantial part?

A. I -- I don't know what it is, sir.

Q. Okay. And if -- if I am accurate, and others can look at it themselves, that this document shows for the Colorado counties that the output of the Wisconsin model is higher than the current Make Allowances for the vast majority of counties, do you have any explanation as to how that reconciles?

A. I -- I'm curious about the Wisconsin model, but I don't know any of the details.

Q. Okay. Okay. So sort of sticking to that same theme. You have a statement that -- on page 3, that the proposed price changes in South Dakota will not be similar to the changes in Colorado. You say that's on page 3. You say, and I quote, "South Dakota is used for comparison" -- this is your testimony, Exhibit 304 -- "South Dakota is used for comparison because it is a close dairy producing region where the proposed changes to milk

pricing are not what will be experienced in Colorado."

Do you see that?

A. Yes.

Q. And I assume that when you talk about the proposed change in milk pricing, you are referring to changes in the Make Allowances and the changes in Class I differentials.

Is that what you are referencing?

A. I was communicating with Ed Gallagher, like the last sentence in that paragraph says. And there's a lot of things you can compare Colorado to, and the focus comparison was to use South Dakota.

Q. I'm not really focused right now on whether South Dakota is a good comparison for certain purposes. I'm trying to focus just specifically on this statement that the proposed changes in milk pricing are not what will be experienced in Colorado. That's -- that's -- on its face says that the proposed changes to milk pricing in South Dakota are not what will be experienced in Colorado, presumably from the proposed changes there. Right? Is that -- is that what that sentence is comparing, specifically?

A. I'm -- I don't understand -- I'm sorry, I don't understand your question.

Q. Okay. So, well, I'll just read the sentence, quote: "South Dakota is used for comparison because it is a close dairy producing region where the proposed changes to milk pricing are not what will be experienced in

Colorado," end quote.

So my questions focus on the part of that sentence that has the words, quote, "where the proposed changes to milk pricing are not what will be experienced in Colorado," end quote.

And my simple question is: In what sense are the proposed changes to milk pricing in South Dakota different than the proposed changes in Colorado?

A. I -- I talked with Ed Gallagher about this, and that was my understanding of what was going to happen. But I don't know the details of the Wisconsin model or the changes in Make Allowance.

The context of that paragraph is to explain why South Dakota was picked. It is a milk producing region. It's also a neighboring state that is involved in the region where feed is moved around. Where our feed grains come in, our forages go out, it is a neighboring region that is relevant for a comparison.

And what we see when we move further east is that Colorado is a high cost region. It doesn't matter how you slice it. You can look at other states. But if you move further east from Colorado, you have generally lower forage prices and lower feed grain prices --

Q. But, sir --

A. -- and that results in a higher margin in Colorado. That's where I was going with this discussion.

Q. Sir, I don't want to belabor the point, but the inference of that sentence is that to the extent that

South Dakota is a -- if you will, a competitor of Colorado, that is going to be exacerbated because the proposed change to milk pricing in South Dakota are not what will be experienced in Colorado.

Do you have any basis to conclude that's the case?

A. Like the last sentence in the paragraph says, it's -- comes from my discussions with Ed Gallagher of DFA.

Q. All right. Now, you -- on page 3 later on you talk about dairy production in Colorado has grown because animal productivity was higher than the cost of production, etcetera.

Have you -- I don't -- you do a lot of comparisons between South Dakota and Colorado. I don't see something anywhere where you explicitly say, at least, you know, what the relative productivity is between those two states, that is to say, you know, how many pounds of milk are produced by -- per cow in Colorado versus South Dakota.

Does that appear anywhere in your statement?

A. I don't believe so.

Q. Okay. Now, USDA publishes what they call an annual review for each state, and it can be found -- which can be found at www.nass.usda.gov. And this -- the most recent year, of course, for 2022, reports that in South Dakota milk production in pounds per head was 23,117 pounds. In Colorado, it was 25,922 pounds. Which would suggest that Colorado farmers are able to produce

roughly 10% more milk per cow than -- in Colorado than South Dakota.

Does that comport with your general understanding of those facts?

A. My understanding of the dairy industry in Colorado is that it is an innovative industry, in that their milk production per cow has improved aggressively over the years, and that's the limit of my understanding. I don't work a lot with the dairy industry. I work primarily with the dairy industry in discussing what's going on in feed and forage markets.

So I follow the dairy industry modestly. The statistics that I have got -- all the statistics in my testimony are from USDA NASS Quick Stats, the online database that is the underlying data for the NASS reports, and from FSA with respect to the dairy margin formula, and AMS for the soybean meal prices. That's where that data come from.

Q. And I take it you did not in preparing your statement do a comparison of productivity in Colorado versus South Dakota in terms of pounds produced per cow; is that right?

A. No.

Q. Now, you do talk at some length about production in -- milk production in Colorado, so I would like to have a document marked as an exhibit on that topic.

THE COURT: So shall we just give this the next number? We can. This document you're distributing now we

will call Exhibit 305.

And what is the designation of it before it became 305?

MR. ROSENBAUM: Your Honor, the answer is it doesn't have one at this point.

THE COURT: Does it have a title?

MR. ROSENBAUM: Your Honor, the -- it -- if I gave it a title, it would be called Colorado Milk Production.

THE COURT: That's good, just so I have some handle.

MR. ROSENBAUM: Does the government have enough -- I have some extra -- I'm not sure I gave you enough copies.

(Exhibit Number 305 was marked for identification.)

BY MR. ROSENBAUM:

Q. So you referenced a minute ago Quick Stats, correct --

A. Yes.

Q. -- as one of the sources of your information?

So what I have provided you -- I haven't provided it to you yet.

I have now handed the witness a copy of what's been marked as Hearing Exhibit 305. You might just write 305 on that so when I reference 305, you will know what I'm talking about.

So I, too, went to Quick Stats, and that's where the numbers on the top come from. This is simply a cut

and paste. And the -- the URL is listed. Obviously you are familiar with Quick Stats.

A. Sure.

Q. You can look up many, many different things and get that.

And then the bottom is a year-to-year change. This is a created document by us, also from NASS information, but we created this. It doesn't -- we used the data to create the bar chart. It doesn't -- it's not --

A. I understand.

Q. -- it is not --

A. It doesn't come out of Quick Stats.

Q. You wouldn't find this on Quick Stats itself, but the underlying information is from NASS.

So what -- so -- it's -- starting with the numbers at the top, I mean, the -- if you look at the start date of 2012 in Colorado, and this is milk production total pounds, it was about 3.2 billion pounds in that year, correct?

A. Yes.

Q. And then as of the most recent reported year, 2022, it's grown all the way to 5.3 billion pounds, correct?

A. Yes.

Q. I mean, this -- I mean, Colorado has been a -- start that question again.

I mean, milk production has been a growth industry

for Colorado, correct?

A. It is the -- the growth industry in Colorado agriculture, yes.

Q. I mean, you make -- you know, in your statement, your testimony, Hearing Exhibit 304, you make the statement that -- on page 3, that Colorado's advantage in terms of feed costs relative to milk output has been pressured since 2006, correct?

A. The cost side, the margin side is much tighter post the impact of ethanol on feed grain markets.

Q. Obviously, dairy farmers have to make the decision, does it make sense to increase production, do I bring in more cows, etcetera, etcetera.

It's fair to say that the numbers shown on here in Exhibit 305, and including the bar charts in the bottom, would convey the message that with a couple years' exception, the most recent of which is 13 years ago, that Colorado farmers have chosen to engage in the investments and other efforts to increase their milk production at a pretty healthy rate; isn't that right?

A. The -- the milk production has grown, yes.

Q. And I assume that farmers have chosen to put their dollars into investments to make that happen; is that fair?

A. Recently, no. I'm not aware of dairies -- in my discussions with folks in the industry, I'm not aware here in -- recently, especially in 2023, of dairies expanding. And what I'm aware of, right now, is very severe

profitability pressures.

Q. Well --

A. Now, does milk production go up? Quite possibly. Is there severe profitability issues or pressures in the industry? Those are two different things. Those can be two different things.

Q. I mean, as an example, the war in Ukraine has caused stress to the feed market, right?

A. Yes. As well as drought. Probably drought more important. Except for wheat. Wheat has been impacted a lot by the war in Ukraine, as has the natural gas market.

Q. And am I correct that Colorado has been a favorable location for milk production in the sense that there have been a number of major dairy production facilities built there over the last few years?

A. Over the last 15, 20, yes, for sure. That's the thing -- when I moved to Colorado State University, I'm a livestock economist, and that largely for me means cattle, cattle and beef. And when I looked at the livestock industry, the commodity industry in Colorado, what you saw with respect to cattle feeding was a decline in the number of cattle fed in the region. That was -- that had the potential to have a serious impact on the state economy and the rural economy because it's such a such big value added industry. What has come in and replaced cattle feeding has been dairy production. We have had growth in dairy in regions where cattle feeding has been reduced.

Q. Okay. So I think, for example, Leprino Foods has

major mozzarella plants in Fort Morgan and Greeley; is that correct?

A. Greeley especially, yes.

THE COURT: I'm sorry, Greeley what?

THE WITNESS: In Greeley especially, yes. It's a very large facility in Greeley.

BY MR. ROSENBAUM:

Q. Okay. And there's -- Dairy Farmers of America has a -- it's a butter plant in Colorado, too? Am I right about that?

A. I do not know.

Q. Okay. And then you have got fluid milk processing facilities in Denver; is that right?

A. I -- I -- I'm not familiar with the processing industry, other than you can't not know about Leprino in Greeley. If you drive on that side of town, you have got to drive around that facility. It's enormous.

Q. Okay. And we have talked about -- a bit about Make Allowances. We have talked a little bit about the University of Wisconsin Class I differential model.

Do you know whether farmer costs of production play any role in that model?

A. I -- I'm -- I understand some of the concepts behind the model. I have read a little bit about the model. It's very big and complicated. I'm unfamiliar with a majority of the details of that model.

Q. Including the one I just mentioned? Is that one you are not familiar within?

A. I -- I have not looked at the details of those models.

Q. That's a little bit broad. I'm trying to be very specific.

Do you know whether that model addresses as an input farmer cost of production?

A. I'm not trying to be difficult. I don't know about the model.

MR. ROSENBAUM: Okay. That's all I have. Thank you.

THE COURT: Thank you, Mr. Rosenbaum.

I think -- this is perfect because it's 9:30. I would like you to be back here at -- oh, now it is 9:31 -- be back at 9:41.

We go off record at 9:31 for a ten-minute break.

(Whereupon, a break was taken.)

THE COURT: Let's go back on record.

We're back on record at 9:43.

Mr. Rosenbaum.

MR. ROSENBAUM: Your Honor, Steve Rosenbaum, International Dairy Foods Association.

During my cross-examination I made reference to figures in two official USDA publications, and so I would like to ask that official notice be taken of them. One of them is called the USDA/NASS 2022 State Agriculture Overview for South Dakota, and the other is the USDA/NASS 2022 State Agriculture Overview for Colorado. Those -- they are both available on the USDA/NASS website.

THE COURT: Is there any objection to my taking official notice of those two online resources?

There is none. I do take official notice of the USDA/NASS 2022 State Agricultural Overview for South Dakota, and the same for Colorado.

MR. ROSENBAUM: Thank you, Your Honor.

THE COURT: You're welcome.

Who next would like to cross-examine Dr. Koontz?

CROSS-EXAMINATION

BY MR. MILTNER:

Q. Good morning, Dr. Koontz.

A. Good morning.

Q. My name is Ryan Miltner. I represent Select Milk Producers, a dairy co-op with farms in New Mexico and Texas, as well as the Midwest.

You note in your testimony that Colorado is a relatively high-cost feed cost environment.

I was wondering if you have done any similar analysis for other states in the western part of the country?

A. No, I have not. Not formal. I'm aware of what happens in feed grain markets and forage markets, primarily east of Colorado. I'm not aware of what goes on, for example, in Utah or New Mexico.

Q. Now, you also note in your testimony that a good deal of alfalfa is grown in Colorado and that it is exported to New Mexico.

A. Correct.

Q. Have you done any research or are you aware of any the relative cost of that hay once it's delivered to New Mexico versus what a Colorado farmer might pay?

A. I do not know. What I'm aware of in my experience specifically with that is I do work with some other extension economists, and we deliver programs to ag lenders around the state of Colorado. One of our programs is, in fact, next week in the San Luis Valley of Colorado, and there is quite a bit of alfalfa, high-quality -- very high-quality alfalfa hay that's grown there and shipped to New Mexico. So I have talked with lenders and producers in that region, and I know they ship a considerable of hay to New Mexico.

Q. Would it be logical to conclude that a New Mexico farmer, say in the Clovis Portalis area, would have a higher cost of alfalfa feed than a producer from Colorado, assuming that alfalfa is grown in Colorado?

A. Yeah. They have to pay freight, that's for sure.

Q. Now, in addition to alfalfa hay, the Dairy Margin Coverage Program that you cite includes factors for both corn and soybean meal?

A. Yes.

Q. I think what I have seen is that the corn costs in Colorado are a dollar to 1.50 a bushel higher than a national average.

Does that sound reasonable to you in your experience?

A. Yes.

Q. And would you expect that other states in the West would see similar corn prices?

A. If you are -- yes, if you are railing it in from -- if you are railing corn in from Nebraska, Kansas, if you are railing it to the high plains or the southern plains, yes, you have got to pay that freight.

Q. And you talk specifically about soybean meal. Now, you -- you take that or you compare it to the South Dakota cost. Would you expect that the price relationship for other states in the West, particularly New Mexico, Kansas, that area, would see a similar price relationship for soybean meal?

A. Yes. What I have actually seen for data on that would be, for example, I have seen some records, some dairy records of freighting protein meal to California, and that is -- that's -- you have got to pay freight to get it out of the Midwest.

Q. And so when you look at the three feed price components in that Dairy Margin Coverage Program, the alfalfa, the soybean meal, and the corn, overall, do you have an opinion as to what that overall feed cost would be for Colorado and other states in the West compared to a national average?

A. Yeah. The further you get from Iowa and the Upper Midwest, those costs all increase.

Q. I wonder if in preparing your statement or otherwise you had the opportunity to quantify the Colorado feed cost component of the margin versus the national

average that's used by USDA?

A. I'm sorry. That question again?

Q. Sure. And I'll break it down because that was probably not the most articulate question I have asked.

The Dairy Margin Coverage Program calculates a national feed cost, and they use that to determine the margin calculation. If you were just considering the feed costs for say Colorado or a similar state in the West like New Mexico, you said -- I think you your answer was that the western costs would be higher than the national average, correct?

A. Yes.

Q. When you prepared your statement, did you have an opportunity to look at what the actual number would be for Colorado compared to the number that USDA calculates in determining their margin?

A. Yes. I looked at the Colorado, and then I also looked at the -- what does that margin say when you use the national average price, which is not just Upper Midwest, it is the whole country. I did look at those differences. I didn't compare the differences, but I think I have -- that's the part of my testimony where I say for perspective I believe.

Q. Is that on page 4 toward the middle?

A. Yeah. That's where I'm --

Q. Okay.

A. I believe so.

Q. All right. So I think I'm looking at the av- --

you write, "The average variable costs of production for Colorado are 10.29" --

A. Yes.

Q. -- "per hundredweight"?

A. Yes. Yes. For that time period.

Q. For that period.

A. And then the national is 9.83. Yes.

Q. Okay. So for that, were you referring to an average variable cost of production that's just the feed cost component for those farms; is that right?

A. That's -- that's calculating the margin with Colorado, state, average prices received, monthly, but just corn and alfalfa hay because I can't get a comparable number for a protein meal. I'm using the Decatur protein meal price across the board because I can't get that by state. But I can get -- I can -- I can secure from Quick Stats the alfalfa hay price for Colorado, the alfalfa hay price for South Dakota, for the nation and -- but I haven't done any of the other western states. I have just done -- we -- I picked -- we picked -- in discussions with Ed, I picked looking at Colorado, and then we needed some reasonable reference to compare it to, and what we picked was South Dakota. But I also did the math for the national number.

Q. And the math that you did, was that the formula that's used in the Dairy Margin Coverage feed price component?

A. Yes.

Q. Okay. Now, on the other side of that margin calculation is an all-milk price, which is also a national average.

Did you look at all at Colorado's reported all-milk price in preparing your testimony?

A. No, I did not look at the all-milk price received. I used the national Class III. In -- in my thinking and following milk markets, that's -- that's what I have focused on is that Class III price.

Q. In preparing your testimony, did you look at what the calculated Dairy Margin Coverage margin was for the months in 2023?

A. I did not.

Q. Okay. If the national reported margin using the national averages for June of this year was $3.65, that was the margin of milk income less feed costs on a national average, what do you think that would mean to the average dairy farm in Colorado?

A. Say that again? The -- what margin, $3 and how much?

Q. If you took the all-milk price --

A. Yes.

Q. -- and reduced the feed price calculation as reported by USDA, it said there was $3.65 left over in June.

A. So that would be for covering fixed costs.

Q. Before covering everything except feed --

A. Okay.

Q. -- what do you think that means to an average Colorado farm?

A. They are losing quite a bit of money.

Q. And if the prices received for any state, whether it's Colorado or New Mexico, were lower than the national average and their feed costs were higher than the national average, what do you think that would do to the farms' economics?

A. The farms -- the dairies that persist will be very efficient and the -- their potential to expand will be -- it has to be in the context of maintaining that efficiency.

Q. When you say those "that persist," I think was the words that you used --

A. Yeah.

Q. -- would be very efficient, to me that implies that there will be some farms that do not persist?

A. Correct.

Q. Now, I understand from your previous cross-examination from Mr. Rosenbaum that a lot of the Federal Order assumptions were provided to you by Mr. Gallagher?

A. Yes.

Q. Other than reporting what you believe the effects of those types of impacts would be on Colorado dairies, are you offering any opinion as to whether USDA should or should not adopt any specific proposals in this hearing?

A. No.

Q. Okay.

MR. MILTNER: That's all I have. Thank you very much.

MR. ENGLISH: Good morning, Your Honor.

CROSS-EXAMINATION

BY MR. ENGLISH:

Q. Good morning, sir.

My name is Chip English for the Milk Innovation Group.

So -- so, Dr. Koontz, you have talked about a number of changes in Colorado over the last 20 years.

What has happened with organic dairy in Colorado since Federal Order reform in the late 1990s?

A. My understanding, the consumer demand for organic products has expanded considerably over time. You see it much more prevalent now in the grocery stores, for example, but I haven't done any analysis looking at the exact quantities or in anything along those lines. I do know it is a bigger industry than it used to be. There's quite a few organic dairies that -- that impact the forage market looking for organic feed sources.

Q. So didn't Horizon Organic Dairy get started in Colorado in the late 1990s?

A. I believe so.

Q. And what about organic dairy production, has it not grown significantly in Weld County over the last 20 years?

A. I -- I believe so. I -- you see the dairies, but

I don't know the production number.

Q. But you would -- you know there's a large organic fluid processing operation in Platteville, Colorado, called Aurora Organic Dairy?

A. Yes, I'm aware of Aurora Dairy.

Q. In any of your analysis do you consider any production cost variance with respect for organic dairy in Colorado?

A. I don't have -- I would like to do that, but I don't have access to that information.

Q. So turning away from organic and to your testimony, are you saying that if -- instead of Mr. Gallagher's assumptions that he provided to you, that National Milk Producers Federation proposal is adopted and that is, therefore, the price does not drop, that that will resolve or provide reprieve for dairy farmers in Colorado from all of the challenges you raised?

A. No. It remains a high-cost feed environment. The impact of ethanol and feed grain markets is not going away -- going anywhere. The forage market in Colorado is very strong. So the dairy industry is in this -- has this process where they have to adopt efficiency gaining technology over time just to keep up with those -- those limitations.

Q. And not just the feed, but you mentioned water challenges and other challenges, all those headwinds --

A. And any --

Q. -- you discussed?

A. I'm sorry for speaking --
Q. No. And I'm usually the one who talks over, so -- but --
A. But also the inflation, the -- all the other things that are behind the -- labor supply and inflation and all the off-farm things that are needed to support a dairy.
Q. That those headwinds will all pose significant challenges regardless, correct?
A. They are not going anywhere.
Q. So I understand -- and probably good for your sanity -- that as an economics professor you are not an expert in the Federal Milk Marketing Order system.
But -- but nonetheless, do you understand that the system for regulated prices has minimum prices, correct?
A. Can you offer me some more detail on that?
Q. So do you understand that if -- well, let me back up.
Do you understand that what we're talking about here to the extent we're talking about raising Make Allowances or changing a Class I price differential, is that those prices, to the extent they are regulated by USDA, are minimum prices?
A. Yes. I understand that a little bit. But the main thing that I focused my work on is what I understand is $1.00 per hundredweight -- anywhere between $1.00 -- $0.50, $1.00, or $2 per hundredweight impact on the milk price would be pretty substantial on the dairy industry in

Colorado, and that's -- that's really my starting place is -- is working with that and not the mechanics of how the milk market actually operates.

Q. I understand that. But if Federal Orders don't set the price or a maximum price, but instead set a minimum price, as a professor in economics, isn't the market price going to still be the market price?

A. The devil is in the details on all of those things, especially milk market. I am -- I really don't want to venture out that direction. That's not something I'm comfortable with.

Q. And that's fine. I mean, part of what -- what we're trying to do is understand what you are comfortable with and not, and I'm just trying to understand the parameters. Because we are in a Federal Milk Marketing Orders hearing, right?

A. Yes.

Q. You understand that?

A. Yeah.

Q. Do you understand that in addition to being minimum prices under Federal Orders, that not all milk is actually subject to the Federal Milk Marketing Orders?

A. I'm not trying to be difficult here. I'm not --

Q. I'm not trying to --

A. I don't understand -- I don't understand the details that you are -- you're wanting me to talk about. I'm not comfortable with that.

What I'm comfortable with is I have a strong

understanding -- I've worked with the dairy industry enough to know what -- what margins look like, what -- what the pressures in the industry look like, but I -- I don't understand how the -- the marketing order and how prices are set, minimums, maximums, those types of things. I'm not comfortable with that.

I do understand that individual dairies I deal with, the base price is that Class III, but then there -- the mailbox price usually has something in excess of that, and that depends on what's going on in the fluid market.

Q. And to be clear, sir, I understand that, and I appreciate what you are saying. I'm just trying to gather, for this record, because we're in this interesting -- and to my knowledge, maybe except for Federal Energy Regulatory Commission -- unique proceeding where the Secretary of Agriculture, with the great assistance of the people here in the front row, and in the next rows, and frankly, online, you know, need to have in the record.

And so I'm just -- I'm just trying to clarify -- and I understand. I think, you know, again, going back to my comment a little earlier, you know, you'll probably sleep better for not knowing about Federal Milk Marketing Orders, but I -- as a professor, is it fair to assume that there will be no secondary reactions to a change in the milk price, whether up or down?

A. Certainly not. I mean, if -- changes in price will result in changes in production, changes in behavior,

expansions, contractions. I mean, there are -- nothing ever happens in isolation.

Q. And so similarly, if there's a secondary reaction that lower milk prices, if they happen, result in lower production, then commodity prices will increase, correct?

A. Depending on the scope of the underlying changes. What I'm concerned about is changes that result in lower milk prices in Colorado, impacting the Colorado dairy industry. It's an important contributor to the Colorado agricultural economy and the rural economies in the state. And the secondary effects are always minor compared to primary effects. They certainly occur, and they are offsetting to a degree, but in my experience, much less so.

Q. And nonetheless -- I understand from the discussion with Mr. Rosenbaum, so I'm not going to try to go back there -- but basically, you have relied on assumptions provided to you by Mr. Gallagher as to the idea that milk prices would go down, correct?

A. Yes. Yes. That is -- that is the -- where I'm starting my work is with that idea. I don't know enough about milk markets to have my own estimate or opinion on what's going on there. This was brought to my attention and -- from the context of a change in milk price. And I do know that that -- that that magnitude is -- has potentially a substantial impact on the industry and my state.

MR. ENGLISH: Thank you very much, sir, for your

time.

THE COURT: Before I turn to the Agricultural Marketing Service for their questions, does anyone else wish to cross-examine?

No one. Agricultural Marketing Service may begin.

CROSS-EXAMINATION

BY MS. TAYLOR:

Q. Good morning.

A. Good morning.

Q. Thank you for coming to testify and participate in this wonderful proceeding.

A. You don't have to come up to the podium; is that --

Q. No, we don't. We have to be here every day, and that's a privilege that remains.

A. My apologies, but I noticed, so --

Q. When you arrange how this works logistically, you can put the mic in front of yourself.

A. You can get what you want.

Q. That's one of the perks.

I really don't have many questions. Just a couple things to clarify. As Mr. English said, part of our job is just to make sure we get the facts and the clarifications we need on the record, so sometimes questions might seem kind of elementary, but it's just to make sure that that fact gets explained.

A. Sure.

Q. So as you went through looking at costs in

Colorado, I just want to make sure I'm clear that the variable -- what you used for variable cost was just feed?

A. Correct. It's -- it's that Dairy Margin Coverage Program that is -- that's well available.

Q. Right.

A. Anybody can track down that formula and make use of it. And -- and what I have done is go back through time. It's an idea of converting feed inputs into milk, and if you buy the feed, what's it cost you to do that.

Q. Right.

And you talked about the fixed costs. And you got those numbers. You talked with various dairy industry members. And so I just wondered if you could elaborate on who you talked to and how you kind of pulled those numbers together to make sure they are relevant.

A. I have talked to producers over the years, and I talked to the organizations they deal with a lot. So talking to brokers, talking to bankers, crop insurance folks. I'm curious about my state. I'm curious about understanding industries. And one of the things I do when I talk to producers is I say, "It's not like I'm going to go say this in a USDA testimony."

So, right, that was funny. Come on, now.

Q. I laughed.

A. So I would like to not give names but --

Q. Right --

A. -- and it's over the years --

Q. -- and I'm not asking for names.

A. -- but I have talked to dairies in northeast Colorado, and the ones that come to meetings, the ones that will visit with you, the ones that are on industry commodity group committees, things like that. Just talking to them about how their industry works, where are they buying, where are they sourcing things. Everybody on the dairy side wants to talk about labor, labor, labor, labor, and I really like to get them off of labor because I -- there's nothing I can do about that, and I don't understand that market very much.

And lots of times when you ask them about costs other than feed inputs, they don't know, but they can give you a rough -- you know, if you give them a rough estimate, they will say -- you can get around to -- you know, there are time periods where it may be a $4 per hundredweight fixed cost, but that's very, very skinny and over longer periods of time, it's -- it's higher than that.

So what I have worked with for numbers is what I have heard from producers and also what I have read in extension publications. So I -- I don't understand enough about dairy and milk markets, so I read what I can from Wisconsin, Michigan, Minnesota, about -- about cost of production in that area.

Q. And what kind of costs would fit into the fixed cost category?

A. It's everything that's not feed, the whole nine yards. It's equipment. It's facilities. Opportunity

costs on land. You have to -- you know, if you have an operation that has a dairy and then also a cropping operation, lots of times those costs get commingled, and when you talk to producers, they mix things up. But if you are talking to a dairy that has somebody running the dairy side, somebody running the crop side, then they really understand.

And unlike in the Upper Midwest where lots of cropping operations may subsidize an animal operation, if you separate those enterprises, and they do that a lot in Colorado, then they can tell you what does it cost to grow corn, and then they opportunity-cost the corn correctly from the cropping enterprise.

So you've got to be careful with the -- for example, the tractors and the equipment, is that a cropping enterprise investment or is that really used by the dairy?

So those are -- are where some of the things are -- get very tricky. But the equipment, the fixed costs, the facilities, the milking parlor, all those things, if you can -- if you can tie them to the dairy, that's -- those are costs that have to be covered, as well as labor, and then the management associated with running that operation.

Q. Okay.

A. And more and more things like genetic improvement, and the person in that dairy that's interested in that and researching it and trying to figure it out. And the thing

that has cropped up lately is the beef-on-dairy and in the dairy industry, producing cross-calves that are a significant portion of beef animal, that's become a very big revenue source for -- for that industry.

Q. I was wondering with your kind of vast experience with livestock in dairy in Colorado, if you could talk -- especially, I should mention, in the South Platte River Basin, which is where a lot of the dairies in Colorado exist, are you able to talk a little bit about transportation pressures and changes in that area?

Because we have had talk in the hearing about changes in transportation costs, generally, and one of those -- that's one of the factors, if you will allow me to explain, that is thought of to go into the Class I differentials. And I know you can't speak to the differential section of that, but can you just talk a little bit if you have heard or observed changes in those cost factors in that area?

A. In northeast Colorado, there's definitely more urban pressures. There's more crowding. There's delays in any sort of shipping. And then it's -- it's become -- it's not just as simple as looking at what is -- what is diesel price, what are those prices. There is -- that industry was pretty skinny for a long period of time, and I believe there were some assets that left the freight industry, and now there has to be prices high enough to attract assets back into that freight service industry.

And I have noticed that not just from a dairy

side -- the main thing I'm interested in from a Colorado perspective is the shipping of grain, moving wheat, corn, and forages around, what does that really cost? And it's -- it's hard to find secondary information that well documents that.

I do know that when you talk to people, they will tell you it's a lot bigger than just diesel cost, for example.

MS. TAYLOR: Okay. Thank you. That's it from AMS.

THE COURT: Ms. Hancock?

MS. HANCOCK: Thank you, Your Honor. I have no further questions. At this time we would move to admit Exhibit 304.

THE COURT: Is there any objection to the admission into evidence of Exhibit 304?

There is none. Exhibit 304 is admitted into evidence.

(Exhibit Number 304 was received into evidence.)

THE COURT: Mr. Rosenbaum?

MR. ROSENBAUM: Your Honor?

THE COURT: Do you -- do you want your Exhibit 305 to be ruled upon?

MR. ROSENBAUM: Yes, Your Honor, thank you for reminding me. I would ask that that exhibit be entered into evidence.

THE COURT: Now, I haven't seen it yet, but I

assume we have got an Exhibit 305 over there? That if I admit them into evidence, you have them?

Well, I don't need to have it. I just want to make sure you have it.

USDA REPRESENTATIVE: I have it. I am going to give one to you.

THE COURT: Okay. Thank you.

Is there any objection to the admission into evidence of Exhibit 305?

MR. HILL: I'm going to object, Your Honor.

THE COURT: Mr. Hill?

MR. HILL: I'm going to object because, in part, 305, at the top -- and you haven't seen the document, so this is a little bit problematic -- but it's information that comes directly from the AMS website. So that's perfectly fine and admissible.

The bar graph underneath it, though, is a creation of Dr. Rosenbaum's. There's -- there's no witness here to verify this or to ask questions about whether this graph is correct. And so I think it's inadmissible, and as such I'm going to object to the entirety of the document.

THE COURT: Now, you referred to him as Dr. Rosenbaum.

MR. HILL: A doctor, you know --

THE COURT: Do you have a doctorate, sir? Did you acquire it while here?

MR. ROSENBAUM: This is as close as I have ever gotten.

THE COURT: Further objections?

MS. HANCOCK: Your Honor, we would join in the objection -- this is Nicole Hancock on behalf of National Milk -- for the same reasons that Mr. Hill articulated.

Additionally, Your Honor, you have already taken judicial notice of the website, so I think to the extent there's beneficial value for the information that was covered in the testimony, you have already covered that by taking judicial notice of the website which contains the data that we can actually verify as self-authenticating.

THE COURT: Mr. Rosenbaum?

MR. ROSENBAUM: Well, Your Honor, the websites that I asked you to take judicial notice of are not where the information comes from. I mean, they are both from the NASS quick facts data source, but it's not located in the exact same place if you go on the website.

Your Honor, I'd be happy just to have the -- the figures at the top are a cut-and-paste from the NASS website. There's nothing created. So I -- the bar chart at the bottom I don't think is essential to the point I was making, and I'm happy, if you will, to cross out the bottom part and just leave the top part and have it come in in that manner.

THE COURT: I like that, because I like the -- the URL, that he's got the NASS location, which I think many of the listeners to this program will appreciate. I wasn't real sure how to spell Quick Stats, but it's like you would think. But it is all one word. I did not

realize that was part of NASS. This proves all that. So it's a very -- to me, a very valuable document.

I'm not going to cross out the chart. I'm going to admit it with the caution that beware of the chart, verify it for yourself, it's the product of a quick creation while on the fly in this hearing. There might have been an error. People can find out for themselves. They can prove it to themselves. I think it is useful as an illustration, if it turns out it is accurate.

So I do admit into evidence, over objection, Exhibit 305, and I merely caution people to verify the graph for themselves.

MR. ROSENBAUM: Thank you, Your Honor.

THE COURT: You're welcome.

(Exhibit Number 305 was received into evidence.)

THE COURT: All right. Now, I believe you may step down, Dr. Koontz. Thank you so much. You brought a perspective that is different from what we have had, and I think it's very valuable. And I encourage you to follow milk, it's very interesting.

Let's go off record for just a moment while the next witness comes forward.

(An off-the-record discussion took place.)

THE COURT: We're back on record at 10:22.

First I would like the witness in the witness chair to state and spell his name.

THE WITNESS: Dean Sommer, D-E-A-N, S-O-M-M-E-R.

THE COURT: Have you previously testified in this proceeding?

THE WITNESS: I have not.

THE COURT: I'd like to swear you in.

DEAN SOMMER,

Being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. ROSENBAUM:

Q. Good morning, Mr. Sommer.

A. Good morning.

Q. You have before you Hearing Exhibit 306 and Hearing Exhibit 307.

Do these constitute your written testimony today?

A. They do.

Q. Okay. Before I have you read your testimony, the first sentence of Exhibit 306 says that you are a cheese and food technologist and a member of the senior team at the Center for Dairy Research in Madison, Wisconsin.

So I just would like you to tell us a little bit about the Center for Dairy Research that's not otherwise described in your testimony. So please tell us what that Center does.

A. So the Center of Dairy Research is one of six university-based dairy centers in the United States. What we do is promote the interest of the U.S. dairy industry, promoting the interest of U.S. dairy farmers, as well as U.S. dairy processors through research, in looking at

various dairy-related problems and opportunities, through training. We offer short courses for people that work at dairy processor companies to learn more about making cheese and other types of dairy products. And we also have a number of graduate students that were trained to be future dairy leaders in the United States and around the world.

Q. Okay. And this is associated -- your particular center is associated with what university?

A. We are associated on the campus of the University of Wisconsin, Madison.

Q. Okay. Could you please read us your testimony?

Let's do Hearing Exhibit 306 and then 307.

A. Yes.

My name is Dean Sommer. My current position is a cheese and food technologist and a member of the senior team at the Center for Dairy Research (CDR) in Madison, Wisconsin. I have been at the CDR for 20 years.

In my capacity at CDR I work with cheese manufacturers, large and small, across Wisconsin and across the United States. Prior to that I worked at Alto Dairy for 18 years, starting as the director of technical services, progressing to Vice President of technical services, and lastly as Vice President of operations.

When I started at Alto, it was a cheddar manufacturer and the largest and newest cheese factory in the United States. Alto Dairy was a cooperative with ultimately two large cheese plants in Waupun, Wisconsin,

one cheddar and one mozzarella, as well as a large aged cheddar plant in Black Creek, Wisconsin. At the time I left Alto we manufactured over 200 million pounds of cheese per year, about half of that cheddar. I have an MS degree in UW Madison in food science.

Fat losses in cheddar cheese manufacture.

Today I will be testifying on fat losses in the cheddar cheese manufacturing process. I will not be addressing farm-to-plant losses, but will be discussing fat losses after the arrival of milk at manufacturing plants.

History of fat loss estimation in cheddar cheese manufacturing.

Around a century ago Van Slyke and Price estimated that if cheddar cheese was manufactured and handled to near perfection, fat recovery would be around 93%. This work was done with the open cheese vats of the day.

Dr. David Barbano of Cornell University did a study published in 1984 that tested fat recoveries with the advent of newer and more advanced cheese making vats and equipment, including some cheese factories with new enclosed Double O vertical vats and some with open vats to see if that 93% fat recovery still held true.

Surprisingly, Dr. Barbano found in four good-sized cheddar cheese factories in New York State that the fat recoveries were much lower than expected, coming in at 87.2, 86.3, 85.2, and 82.8%.

Newer vat designs capture more fat in the curd at

the vat.

Today, almost 40 years later, with further improvements in cheese vat designs, commonly called horizontal cheese vats, fat retention potential in cheese vats has improved. In my work at CDR with companies with open vats, I have seen fat losses in whey after cutting in open vats around 9 to 10%.

In my experience at Alto with Double O vats, I saw fat losses of around 7% after cutting. In my experience at Alto with horizontal cheese vats, I saw fat losses of around 6% after cutting. I have heard anecdotal reports of the most modern vats -- of fat losses of less than 5% after cutting.

Please note these figures only represent fat losses in the cheese vat after cutting and are not considering other points of fat loss in the cheddar cheese making system which I will address.

Double O vats and even open vats are still in widespread use in the cheddar industry -- cheddar cheese industry. Sorry.

It should be noted that while many large modern plants have installed the newest and most efficient horizontal vats, Double O vats, and even open vats have not gone away in the cheddar industry. A number of prominent large cheddar manufacturers continue to use Double O vats, and inevitably, when a manufacturer converts from Double O vats to horizontal vats, the Double O vats don't disappear, they merely get refurbished

and then installed in typically a smaller, older cheese factory. And many small artisan cheddar cheese manufacturers continue to use open vats.

The take-home message here is cheddar makers in the U.S. continue to use an assortment of cheese vat styles, while the newest, most modern plants have largely gone to the most efficient horizontal vats, some large factories, and many medium and small factories, continue to use Double O or open cheese vats.

Fat losses in the vat at cutting only tell part of the story of fat losses in cheddar cheese manufacturing.

One concept that must be considered on the topic of fat retention is where fat losses occur during cheddar cheese manufacturing. Most people focus solely on fat losses in whey called sweet whey after cutting the coagulum, and often refer to this as the only source of fat loss during cheddar cheese manufacturing. Taking this approach will significantly underestimate total fat losses in cheddar manufacturing.

While cutting the coagulum is an important point of fat loss, it is far from the only point. Other significant points of fat loss are milk shrinkage from the raw milk silos to the vat (milk residue left in silos and lines; milk filter rotation and flushing; milk clarifier desludging; pasteurizer startup and shut downs. Collectively, this could amount to up to 1% of total milk volume, thus up to 1% of total fat loss).

Fat losses in whey in the vats -- in the vat fails

to account for further fat losses downstream in the cheddar making process in the form of salty whey.

Another significant loss of fat occurs during the salting process of cheddar cheese curds, resulting in salty whey. This step occurs relatively late in the cheese making process. Some of this salty whey occurs immediately on the curd table, or salting belt, after dry salt is applied. More salty whey is generated in 40-pound block forming towers, or in the pressing and initial cold storage of 640-pound blocks of cheese.

This salty whey can comprise up to 5% of the total whey volume generated, with sweet whey (before salt addition) comprising 95% of the total whey volume. Salty way is significantly higher in fat content than sweet whey. In a study by Blaschek, Wendorff, and Rankin at the University of Wisconsin, where they surveyed sweet and salty whey from eight commercial cheddar cheese plants, they found an average fat content of salty whey of 0.6%, approximately three times higher than sweet whey.

Taking into account the volumes of sweet and salty whey as well as the typical fat contents of sweet and salty whey, the calculation reveals that salty whey accounts for approximately an additional 10% of the total fat loss in all generated whey. This occurs late in the cheese making process and is not accounted for in tests for fat losses in whey sampled at the vat.

Cheese fines collected from the whey and not returned to the body of cheese represents a significant

source of fat loss.

A further significant loss of fat in cheddar cheese manufacture is loss of cheese fines. In today's quality and food safety conscious world, adding back cheese fines recovered from the whey back to the bulk of the cheese curd is largely not done anymore due to concerns with coliform and other bacterial contamination risks and associated cheese quality concerns.

In a recent conversation with a large U.S. aged cheddar manufacturer, it was related to me that they lose approximately 0.25 to 0.3% of their curd production to cheese fines which do not go back into finished cheese. This was at a factory using a matting conveyor which minimizes cheese fines. Factories making stirred curd cheddar on curd tables generate significantly more fines due to the design of the whey drainage screens and agitators on curd tables.

Based on my experiences at Alto, and in a recent personal conversation with a large Wisconsin stirred curd cheddar manufacturer, I would estimate that fines losses in these systems are 0.5 to 0.6% of total cheese volume, which is approximately -- approximately double that of cheddar factories with matting belts. Remembering that this curd contains up to 34% fat, this is a significant amount of fat loss.

Other points of fat loss in a cheddar cheese make: There are additional points of fat loss during cheddar cheese manufacture. I visit dozens of cheese plants every

year as part of my duties at CDR. Inevitably, I observe when walking through a plant some cheese curds on the floor. These losses are, to some extent, not preventible given the design of today's automated equipment. These curds are disposed of as inedible and represent further losses of fat.

Plants producing 640-pound blocks of cheddar inevitably have salt whey drippings directly from the 640s when they are stacked in the coolers. This is because these giant blocks are not vacuum sealed and gravity forces some of the free whey in the blocks to leak out and puddle on the cooler floor.

Occasionally vats of cheese have to be disposed of due to contamination with foreign materials due to some unexpected equipment breakage. This also represents a loss of fat.

Finally, a historical benchmarking standard for cheese quality has been that the very best run cheddar plants can achieve a 99% at grading --

And, Your Honor, there's an omission here I would like to add. There's -- something didn't get copied correctly.

It should read achieve 99% USDA Grade A standard at grading. Grade A is the -- is a top grade for cheddar cheese, meaning it's first quality.

So I'd prefer that that would read: That the very best run cheddar plants can achieve 99% USDA Grade A standard at grading.

THE COURT: Thank you. We'll go off record and make that change.

Off the record at 10:36 a.m.

(An off-the-record discussion took place.)

THE COURT: We're back on record. It is 10:37.

We have made that change on the record copy. We're on page 5, and just after the "99%," we have inserted, "USDA Grade A standard," the sentence continues, "at grading."

So start again, if you will, and just read that sentence as we now have it prepared.

THE WITNESS: Finally, a historical benchmarking standard for cheese quality has been that the very best run cheddar plants can achieve 99% USDA Grade A standard at grading, with 1% of their cheese being graded as B grade or under grade and needing to be sold at discount prices.

In my current experiences few cheddar plants meet these standards today and many fall far below that number. A large national reputable cheese conversion and marketing company that manages downgraded cheese for cheese manufacturers recently related to me they estimate around 5% of current cheddar manufactured in the U.S. gets downgraded and discounted.

The latest cheese vat design does not guarantee optimal fat retention in the cheese.

Lastly, it should not be dismissed that the cheese maker skill continue to play an important role in

determining fat retention in cheese, regardless of equipment design. Cheese maker practices such as general make procedures, vat operation step programming, choice of coagulant, method of using the coagulant, coagulant firmness at cutting, cut curd size, gentleness of handling the curd, proper development of curd body and texture, transfer of the curd to tables or belts, and -- and more will affect how much fat is retained in the finished cheese.

The take-home message here is that cheese making is still a cheese maker-driven system. I have seen many instances where a cheese factory had good equipment, but in the hands of inexperienced cheese makers, large fat losses still occurred.

The addition of whey cream to milk for cheddar cheese manufacturing will inevitably result in higher fat losses during cheese manufacture.

Milk fat globules are damaged when they go through the cheese making process. Thus, milk fat globules that escape into whey and subsequently are recovered in whey cream are damaged and are typically smaller in size than milk fat globules in the original milk.

When whey cream is added to milk for cheese making, these smaller damaged fat globules more easily leak out of the curd matrix and into the whey, thus, increasing losses of fat in whey during cheese making.

This problem worsens the more consecutive days that whey cream is added back to milk for cheese making,

as these small fat globules recycle over and over. Typically cheese factories need to break the cycle by periodically shipping out whey cream to remove the damaged fat globules from the system. Cheese factories that utilize whey cream for cheese making will not achieve optimum fat recoveries.

Conclusions: Most fat -- most plants that I visit only consider the fat loss when cutting their coagulum when they talk about fat retention in their factories. Taking this approach will significantly overestimate fat recovery numbers in these operations. My belief is that fat losses other than the fat loss at cutting the coagulum represent from 25 to 50% of the total fat loss during the entire cheese making process.

My best estimate of fat recoveries in cheddar cheese manufacture, taking into account personal experience, as well as recent communications with some well-managed cheddar cheese factories, would be in the range of 91 to 93% in well-run factories with modern horizontal vats, 90 to 92% in well-run factories with vertical Double O style vats, and 88 to 91% fat recovery in factories with traditional open vats.

My esteemed colleague and distinguished scientist, Dr. Mark Johnson, recently wrote me on the topic that actual yield and fat recovery is normally significantly less than predicted yield and fat recovery. And I quote Dr. Johnson: "So fat recovery in a yield equation will always be an overestimation of reality...why they are

called a predictive yield equation."

Then at the bottom of this page I noted two references in this -- in this testimony. One was by Dr. David Barbano about the cheddar cheese yields in four factories in New York. That's the Journal of Dairy Science reference found on the bottom of page 7. And then I also referenced in my testimony the differences between salty whey and sweet whey composition, and that reference by K.J. Blaschek, et al., is that Journal of Dairy Science article noted there.

THE COURT: You have just witnessed the master class in how to testify. I appreciate very much your presentation.

THE WITNESS: Thank you, Your Honor.

MR. ROSENBAUM: If you could proceed to your second testimony.

THE WITNESS: Yes, sir.

So my second testimony is use of whey cream in cheddar cheese manufacture.

Background: Whey cream is the name given to the fat that is lost from the curd during cheese making and is subsequently recovered from the whey by running the whey through a mechanical whey cream separator. In contrast, sweet cream is the fat recovered from separating milk.

Typically both sweet cream and whey cream contain around 40% fat and 60% skim, with some variation. It is important to note that the skim portion of sweet cream is skim milk, which contains caseins and whey proteins, while

the skim portion of whey cream is whey, which contains no caseins.

History of whey cream handling and use:

Historically, whey cream generated in cheddar cheese operations was manufactured into butter. Going back many decades, some cheddar cheese manufacturers had their own small butter operations to churn whey cream into butter right at the cheese factory, as did Alto Dairy back in those years. This practice was largely abandoned in favor of shipping the whey cream to large butter companies that focused solely on butter manufacturing.

I learned well during my Alto tenure that proceeds from the sale of whey cream was an important revenue source for cheddar cheese manufacturers, in our case, adding up to millions of dollars a year.

Within the last two decades in Wisconsin there has been severe consolidation within the butter industry, resulting in much less competition for whey cream supplies. As a result, premiums, also called multipliers, for whey cream fat has dropped precipitously. Formerly, multipliers in the range of 1.20 were common for whey cream fat.

But today in Wisconsin, the multipliers for whey cream fat, according to my cheese plant sources, are flat, at approximately 1.0, and sometimes even below, which compares to typical multipliers for sweet cream of between 1.20 and 1.25.

This decline results in a significant revenue loss

for cheese factories. Because of this loss in revenue, factories are more inclined to attempt to put the whey cream back into milk for cheese making in an attempt to reach higher revenues for the whey cream fat by boosting cheese yield from the fat from added whey cream.

Problems associated with utilizing whey cream in cheese production:

The practice of adding whey cream to cheese milk is fraught with potential problems. Whey cream is a potent source of bacteriophage, viruses that destroy bacterial cheese cultures with the resultant loss of acid-producing capacity. If this happens, the result is slow or dead vats, where the desired acid production is significantly curtailed, resulting in off-grade or undergrade cheese that must be sold at a heavy discount.

If whey cream is to be reused in the cheese making process, the bacteriophage needs to be inactivated by heating the whey cream to 185 Farenheit and holding it at or above this temperature for approximately 30 minutes. This practice solves one problem but can create others, such as flavor defects.

The fat in whey cream is physically damaged due to the processes employed during cheese making. The protective membranes around the fat globules are eroded away leaving the fat vulnerable to Lipase enzymes and development of undesirable rancidity. The fat globules are also shattered and reduced in size. Because of this, they are less likely to be retained in the cheese during

the cheese making process and subsequently leak right back into the whey again, setting up a vicious cycle.

To break this cycle, cheese factories that take the risk to reuse whey cream in cheese manufacturing need to break that -- break the cycle by periodically, at least once a week, not recycling the whey cream into cheese making, but rather shipping it out to butter manufacturers to rid the cheese system of an overabundance of small, damaged fat globules. The recycling of whey cream into cheese manufacture will also reduce the fat retention efficiencies of a cheddar cheese operation, making optimum fat recoveries at coagulum cutting, such as 93 to 94%, unachievable.

Reusing whey cream in cheddar cheese manufacture runs the risk of cheese off-flavor development. As previously mentioned, degradation of the damaged fat due to rancidity can occur. Similarly, damaged fat globules are more prone to oxidative damage. Because of the severe heating of the whey cream, cooked flavor notes can occur. And given the myriad of steps and processes that occur in the handling of milk fat from cheese making through whey handling and whey cream generation and storage, undesirable microbial contamination can occur, which can lead to off-flavored development when used in cheese manufacture.

Due to all of these factors, aged cheese -- aged cheddar cheese manufacturers do not reutilize whey cream in cheese manufacture, due to the significant risks of

off-flavored development as their cheddar cheese age.

In my 18 years at Alto Dairy, we never utilized any whey cream for cheese manufacture, in mild or aged cheddar, due to the risks involved. So even manufacturers of barrel and mild cheddar risk whey taint and other flavor defects in their cheese when utilizing whey cream and cheese production, which is myself and my colleagues at the CDR don't advise this practice.

THE COURT: Would you just read that last clause again? You left out the word "why."

THE WITNESS: Okay.

So even manufacturers of barrel and mild cheddar risk whey taint and other flavor defects in their cheese while utilizing whey cream in cheese production, which is why myself and my colleagues at the CDR don't advise this practice.

In summary, for economic reasons, some cheddar manufacturers are tempted to re-utilize whey cream in cheddar cheese production. However, there are tremendous risks involved from bacteriophage destruction of starter cultures resulting in off-grade cheese to development of off flavors in the cheese, and the reuse of the damaged fat in whey cream for cheese production sets up a vicious cycle of damaged fat simply recycling through the system and leading cheese factories to greatly overestimate the value they are getting from reuse of whey cream. While some cheddar manufacturers are willing to employ reutilizing whey cream in cheddar cheese production and

take these risks, others, especially aged cheddar makers and makers of the highest quality cheddar cheese, are not.

BY MR. ROSENBAUM:

Q. Thank you very much for your testimony. Just a couple of follow-up questions.

Can -- first of all, can whey cream be used to produce Grade AA butter?

A. It cannot. No, it cannot.

Q. And what would be the typical use of whey cream butter?

A. Typical use for whey cream butter is -- is for foodservice applications. They will make -- there's Grade A butter, which is typically made with a blend of sweet and whey cream, and Grade B butter, which is made with just totally whey cream. But typically those uses primarily go to foodservice applications, so there's no retail packaging showing the USDA Grade A symbol on them.

Q. Thank you.

MR. ROSENBAUM: The witness is available for cross-examination.

THE COURT: Let's make one change on the last page of Exhibit 307, top line. You read, "resulting in off grade cheese."

THE WITNESS: Yeah, it should be "in."

THE COURT: So let's change the record copy.

THE WITNESS: Correct. It should be "in."

THE COURT: This is Exhibit 307, very last page, top line. Changing the word "if" to "in."

THE WITNESS: Correct. Thank you, Your Honor. That's correct.

THE COURT: And I ended up with one extra copy of IDFA Exhibit 51, which became Exhibit 307, and I'll allow that to be used wherever.

Who would like to begin cross-examination of Mr. Sommer?

MR. MILTNER: Your Honor, I would note it's ten minutes to 11:00. I don't know how long I'm going to take, but if -- if the court reporter would like a break now, I'm happy to do that, or I can begin.

THE COURT: We like that, and we appreciate your cognizance of our condition.

Let's go off record -- well, first of all, when to come back. So ten minutes would be about 11:05. Come back at 11:05.

We go off record at 10:54.

(An off-the-record discussion took place.)

THE COURT: Let's go back on record.

We're back on record at 11:05.

Mr. Miltner.

MR. MILTNER: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. MILTNER:

Q. Mr. Sommer, my name is Ryan Miltner. I represent Select Milk Producers.

And I wanted to start by asking a little bit about your background and the Cheese -- I'm sorry -- the Center

for Dairy Research.

What type of services do you personally provide through the Center for Dairy Research?

A. I personally, there's a lot of cheese plants and work with their --

THE COURT: Stop just a minute. Would you pull that microphone just a little closer to you?

THE WITNESS: Sure.

THE COURT: Thank you.

THE WITNESS: I personally visit and work with a lot of cheese plants, troubleshooting issues, problems that they are having. I work with a lot of customers of cheese plants, people that buy their -- these cheese plants' cheeses, could be pizza chains and others like that, trying to get the cheese to work as good as it could possibly work.

I work with farmstead cheese makers just starting up, where they're dairy farmers and they're cheese makers, to give them guidance and how to go about that process.

I work with -- or do a lot of teaching and training to people from all over the country and all over the world on cheese making principles and practices, cheese sensory practices.

What else? I mean, that's kind of like the core of it, I would say.

Q. So on the Center's website under cheese, it says that you provide troubleshooting, product development, education and more. It sounds like that pretty well

encompasses what you described.

A. That's what I do, yeah. That's what I do.

So we're -- let me say another thing. So what we're -- our -- you know, my goal, and I talk about this in many of the short courses, is -- is to enlarge the pie for dairy farmers. So our goal is to make -- ultimately make dairy farmers more profitable, which also includes making dairy manufacturers more profitable, by trying to take milk, the base ingredient, and getting the highest value use out of every milk component that we possibly can.

I mean, if you really encapsulate what our goal is, that's our goal, to try and improve the lot of dairy farmers and dairy processors by maximizing dairy product quality, but also finding new, more valuable uses for every component that's in raw milk.

Q. So that would be helping manufacturers increase the value of the products they sell, correct?

A. Correct.

Q. And so -- so by increasing the returns to manufacturers, your hope is that that will increase returns to dairy farmers?

A. That's correct. And certainly, you know, with -- as you well know, in the case of manufacturers, many of them that we deal with are dairy cooperatives, so the farmers are the manufacturers, in essence. They own -- I worked for Alto Dairy. That was a cooperative. All the profits went back -- ultimately went back to the

producers, so...

Q. Now, you did mention your time at Alto Dairy. And on the first page of your first statement, which is Exhibit 306, you stated that when you started at Alto, it was a cheddar manufacturer, and the largest and newest cheese factory in the U.S.

A. Correct.

Q. Okay. So I have taken your fact that you have been at the Center for Dairy Research for 20 years and --

A. Correct.

Q. -- that you were at Alto for 18, I'm guessing you started at Alto Dairy right around 1985?

A. September 1st, 1985.

Q. Okay. Your next sentence says that "Alto Dairy was a cooperative with ultimately two large cheese plants," as well as a large aged cheddar plant.

It says Alto was a cooperative with those plants. I mean, Alto is still a cooperative to my understanding, correct?

A. Alto Dairy no longer exists.

Q. Oh, it does not. Okay. That I was not aware of.

Okay. When did they cease operations?

A. They didn't cease operations. They sold to Saputo. That was approx- -- that was after I left. That was approximately, I'm -- I could be off by a year or two. Approximately 2007 or '8, 2007 or '8, they sold to -- they sold to Saputo and ceased -- ceased as an operating cooperative. But the facilities are still operating.

Q. Okay. Perhaps that's where my confusion comes from because I remember folks referring to Alto plants in the recent years. But they may be referring to the plants now owned by Saputo then, correct?

A. Correct.

Q. On the Center's website they have a short video about an APT horizontal vat.

Are you familiar with that vat's operations?

A. Quite -- I am, yes.

Q. And one of the -- one of the points in that video they -- it talks about how that type of vat can help increase cheese yields?

A. Correct.

Q. And I wondered if -- if you have any -- if you have any data on how that vat compares to perhaps the Double O vats you reference in your testimony?

A. I don't have any data on that vat. That video that you -- that you looked at is of our brand new facility, and it's not 100% operational yet. And we're in the very beginning stages of utilizing and learning about those APT horizontal vats, so we have not progressed to the point of doing in-depth studies yet with those vats on fat retention. We're still working through programming and optimizing its operation.

Q. Now, that -- the vat that you have, the APT vat at the Center, am I correct --

A. We have two.

Q. Okay, two.

And they each take 5,000 pounds of milk?
A. 1500. I'm sorry, 2500. 2500.
Q. So 5,000 --
A. Total.
Q. -- between the two of them?
A. 5,000 total. 2500 each.
Q. And that's the type of vat that on a larger scale would be installed at a new cheese plant?
A. Correct.
Q. Now, further on on your statement, Exhibit 306, you start talking about Van Slyke and Price's research.
A. Uh-huh.
Q. And you make a statement that they estimated if cheddar cheese was manufactured and handled to near perfection, fat recovery would be around 93%?
A. Correct.
Q. I wondered where you got the phrase "handled to near perfection."
A. That's my phrase. But what they were saying was, if you are -- if you did everything -- basically what they said is, if you make cheddar cheese and do everything perfectly, you would achieve 93% fat recovery.
Q. Okay. And then you reference Dr. Barbano's study.
A. Correct.
Q. And you note that that was from 1984.
A. Correct.
Q. And you -- you make some additional observations about his research.

I assume you have reviewed that study, correct?
A. I have read the scientific paper which is referenced in here, yes.
Q. Okay. Did Dr. Barbano offer any comments about why the fat recoveries he observed in those cheddar factories were lower than 93%?
A. He did. He did.
Q. Do you recall what those were?
A. To the best of my recollection, he talked about the milk coming in, the casein-to-fat ratios weren't optimal. Certainly in -- in those studies, I -- it's my recollection, two of the plants had Double O vats; one had started with open vats, and during the study converted to Double O vats; and the fourth one was open vats. So they saw improvements with the Double O vats, as I recall, compared to the open vats.
But, again, to the best of my recollection, he just -- he noted that just some of the curd handling practices and cheese making practices weren't optimal, getting back to the human element again, of how the curd is made and handled that resulted in further losses of fat.
Q. And you speak to some of those issues, I think --
A. I do.
Q. -- later in your statement --
A. I do.
Q. -- that --
A. I do.

THE COURT: Now, if this is going to be a master class in how to provide testimony, you have to wait until Mr. Miltner's voice has died away.

THE WITNESS: Okay.

BY MR. MILTNER:

Q. We have had to do this artificial pause thing for like eight weeks now, it takes a little getting used to.

But you note that there are human factors involved that have a significant impact on fat retention, correct?

A. Correct.

Q. And you also noted that Dr. Barbano referenced the casein-to-fat ratio, which outside of a certain range can also have significant impacts on fat retention and yields, correct?

A. Correct.

Q. So continuing on with your statement, and I'm looking at page 2 now, in the first full paragraph, toward the middle of the page, you state: "In my work at CDR with companies with open vats, I have seen fat losses in whey after cutting in open vats around 9 to 10%."

My question is, is that 9 to 10% an average? Is it the upper end of the fat losses you have observed? Or what does that 9 to 10% represent?

A. I would say an average.

Q. And then so you have observed both lower and higher retentions in open vats, then?

A. Yes.

Q. And you -- your next sentence describes your

experience at Alto with Double O vats, and that those fat losses were around 7%.

Am I correct that those -- all of those experiences would have been in that 1985 to 2003 timeframe?

A. Yes. At Alto.

Q. At Alto, correct.

Okay. Your next sentence: "I have heard anecdotal reports of the most modern vats of fat losses of less than 5% after cutting."

Have you personally observed any -- any fat losses from the most modern vats?

A. You are talking about horizontal vats?

Q. Well, you use the words "most modern vats." I would interpret that as horizontal, but I'm more interested in what --

A. Yes.

Q. -- you are referring to?

A. The answer is yes.

Q. So, yes, you have personally observed those vats?

A. Yes.

Q. And did you observe fat losses of less than 5% after cutting?

A. No.

Q. For those observations were you called into the plant to help look at those vats and those fat losses?

A. No.

Q. Further on in your statement on the same page you

have a heading which reads, "Double O vats and even open vats are still in widespread use in the cheddar cheese industry."

I wondered if you could give us some context around what you mean by "widespread use."

A. So I talked to a very prominent -- recently talked to a very prominent large cheddar cheese manufacturer on the West Coast, and they still are using Double O vats in two of their plants there. In Wisconsin, I could tick off the name of between half a dozen and a dozen plants making cheddar cheese that still use Double O vats, so...

Q. Now, the prominent manufacturer on the West Coast, would you care to share who that is?

A. Boy. I don't know if I -- I feel uncomfortable divulging their name for the same reason before, but...

Q. Well, Hilmar cheese built their plants in the '80s, and at that point a Double O would have been state of the industry, correct?

A. Correct.

Q. And that plant is in California, correct?

A. Correct.

Q. And that is a -- would you categorize that as a large cheddar manufacturer?

A. Yes.

Q. Now, Hilmar has since constructed one plant in Texas, and another is under construction.

Are you aware of that?

A. I am.

Q. If you were advising them, would you advise them to install Double O vats in those plants?
A. I would not.
Q. Would part of the reason for that be that butterfat retention is higher in different style vats?
A. Yes.
Q. Now, you also state that when plants do upgrade their vats, the -- they are not necessarily lacking in a useful life, and those double O's may be repurposed, correct?
A. Correct.
Q. The plants that you see those Double O vats being repurposed in, do they tend to be more of a specialty cheese manufacturer?
A. I would say -- I would not agree with "tend to be." They sometimes are and sometimes are not.
Q. Would you consider them to be small to medium-sized plants?
A. I would. Yes.
Q. And then you state that, "Many small artisan cheddar cheese manufacturers continue to use open vats."
Would that description, "small artisan cheddar cheese manufacturer," would that be -- would you consider that a specialty manufacturer?
A. Yes.
Q. Okay. And then on page 3 you start describing other points of fat loss, and the first is cutting the coagulum. And at the end of that section your sentence

is, "Collectively this could amount to up to 1% of total milk volume, thus up to 1% of total fat loss."

And I'm unclear as to whether your comment there is referring to the cutting or the silos or both?

A. That comment is taking milk once it is already in the silo, up to when it's entering the cheese vat.

Q. So prior to cutting?

A. Prior to cutting.

Q. Okay. Now, you state that it could amount to up to 1% of total milk volume.

Do you have a range of what a plant would experience?

A. I -- I could give you -- my best guesstimate of that range would be between 0.3 and 1.0%.

Q. 1%, as you stated, is the upper end of what plants might realize?

A. Correct.

Q. Okay. Your next topic is about fat losses in whey, and you talk about salty whey. Taking into account those types of losses, I'm trying to figure out what is the actual percentage of fat that's lost in that process. You have a couple of different numbers.

What do you think the total fat loss for that element is?

A. Total as in total fat loss in cheddar cheese manufacture --

Q. No.

A. -- is that what you are asking.

Q. No, I'm sorry. I was imprecise once again.

Further fat losses downstream in the cheddar making process in the form of salty whey, how much do you think that accounts for?

A. I think -- well, as I said in here, I think it accounts for 10% of all fat loss -- approximately 10% of all fat that's lost in whey. But that wouldn't include fat lost as milk shrinkage, which you just questioned me about. It would not include fat losses in curd and fines and things like that.

Of the fat lost in whey, I -- I would guesstimate that 90% is in that, in the whey -- sweet whey after cutting, and 10% of the total fat lost in whey is in the salty whey.

Q. Would you agree that cheese makers using modern vats can achieve less than 0.2% fat loss in their whey?

A. Total whey?

Q. Yes.

A. You mean all whey?

Q. Yes.

A. No. In cheddar?

Q. Yes.

A. No.

Q. What do you think that number would be?

A. I think it would be 0.25 minimum, if you include salty whey in there.

Q. Okay. So that if it is 0.25, then .0025 would be salty whey, one-tenth of the total amount?

A. I don't think your math is correct.
Q. Okay. Your next section talks about cheese fines. You state: "In a recent conversation with a large U.S. aged cheddar manufacturer it was related to me that they lose approximately 0.25 to 0.3% of their curd production to cheese fines, which do not go back into the finished cheese."
I'll ask again. You can decide whether to answer. Care to show who that was that you spoke to?
THE COURT: Hardly anybody does name names.
THE WITNESS: Yeah.
MR. MILTNER: Judge, you are not supposed to help.
THE COURT: You are not required to.
THE WITNESS: Yeah, I'd prefer not to because I just don't want to -- you know, they talk to me on confidential terms, so I would hate to...
BY MR. MILTNER:
Q. That's perfectly fine. I understand.
Is there -- aged cheddar tends to be, in my observation -- and I'm not -- not a cheese maker, let alone a master or anything like that -- crumblier than a fresher cheddar; is that accurate?
A. Yes.
Q. So would an aged cheddar manufacturer expect to have a higher incidence of fines than a fresh cheddar manufacturer?
A. No.
Q. No?

Now, you are aware that aged cheddar is not surveyed by USDA for purposes of Make Allowances, correct?

A. Yes.

Q. Further in that section you stated: "Factories making stirred curd cheddar on curd tables generate significantly more fines due to the design of the whey drainage screens and agitators on curd tables."

For those of us that don't regularly engage in cheddar manufacturing, can you help us understand what a stirred curd cheddar is?

A. Stirred curd cheddar -- stirred curd cheddar is when they don't let the curd fuse together in a solid mass, like they would on a belt system, which is what most aged cheddar makes, so they -- it typically goes to curd tables, sometimes a curd belt. But it's continuously stirred so it looks like little pieces of gravel in terms of the shape. And that's stirred curd.

Q. Is stirred curd cheddar more common in a smaller cheese operation?

A. No.

Q. Is it more common when you are making cheddar that is not commodity cheddar?

A. No.

Q. So a large scale commodity manufacturer, like a Glanbia or like a Hilmar, would they be using a stirred cheddar process?

A. Generally speaking, yes.

Q. Okay. Now, the next element in your -- or part of

your statement I wanted to ask about are curd tables.

Can you help us understand what curd tables are?

A. Curd tables is -- is typically part of the stirred curd process. You have your vat. You make your curd in the vat, and then the curd and the whey is pumped to a table, which has a drain screen in the bottom to ultimately drain the whey away, so -- and there's stirring agitators on it. So that's -- that's what those are.

Q. Is a curd table always used in a stirred curd cheddar process?

A. No, because -- historically, yes, but in today's world, there are stirred curd belts as well.

Q. And so your statement is limited to stirred curd manufacturing utilizing a curd table?

A. Yes.

Q. And you also note that if they are using a belt, their losses through fines are half of those for those plants using a curd table; is that correct?

A. A belt for -- not quite.

Q. Okay.

A. A belt for matting. A belt for matting would have the least fines. A stirred curd table would have the most fines. A belt for stirred curd would be somewhere in between.

Q. Okay. So again, there's a range based on the --

A. Correct.

Q. -- plant design?

A. Correct.

Q. And if you were advising someone to construct a new plant to make commodity cheddar, what would your recommendations be on -- on those pieces of equipment?

A. For commodity cheddar what would I advise?

Q. Yes, sir.

A. I would advise tables.

Q. Why is that?

A. Because they are the most versatile and most controllable and easiest to control moisture. And moisture is -- is super important for yield. So those operations that have tables have the most versatility and the most control over cheese moisture and can most easily hit their moisture targets. And stirred curd tables give you by far the best salt distribution, so you can get the most precise and uniform salt content of your cheese with a table, versus the belt systems which are a real struggle to get uniform salt distribution in the curd.

Q. So if I think about your answers and what you have written in here, it's -- the range of losses to fines is somewhere between 0.25% and 0.6%, and it's a -- it's a range depending on the plants' equipment and operations; would that be accurate?

A. Yes. Yes.

Q. Okay. Now, moving on to page 5. You put an anecdotal statement, I guess, an observation that there's always some curds on the floor. I'm curious if that's ever been something that's been measured or quantified, how much is lost to stuff on the floor?

A. Yes. I would say really well-run plants regularly measure that.

Q. Do you have information on what those measurements would be?

A. Off the top of my head, I don't, no.

Q. Okay. Now, further on that paragraph, really right in the middle of page 5, "Occasionally" -- you state, "Occasionally, vats of cheese have to be disposed of due to contamination with foreign materials due to some unexpected equipment breakage."

A. Uh-huh.

Q. I would ask, I guess more of a philosophical question since you are trying to help dairy farmers make money, is it fair to the dairy farmer to have the yield factor adjusted because of matters completely out of their control?

A. That's not my area of expertise. That's -- that's for USDA to decide. I -- I'm -- I don't know the answer to that question.

Q. And at the end of that section you talk about a large national reputable cheese conversion and marketing company, and their estimate that 5% of current cheddar manufactured in the U.S. gets downgraded and discounted.

So explain to me, if you are willing to, the name, but if not, what is a cheese conversion and marketing company?

A. Well, I don't want to divulge the name, but a cheese conversion and marketing company would be -- I'll

give you some examples of names. So that would be people like Sargento Cheese, or Great Lakes Cheese, or Marathon Cheese, or Master's Gallery Cheese, or Pacific Cheese. They are cheese companies that don't manufacture cheese, but they buy and sell cheese, both bulk, and they convert it to shreds and slices and things like that.

Q. Would that operation be referred to in the industry sometimes as a cut-and-wrap operation?

A. Yeah, although some of them are more than cut-and-wrap. But, yes we often talk about them as cut-and-wrap operations.

Q. Now, do you have any data about the actual price impact of the amount of cheddar that gets downgraded and discounted?

A. I do not.

Q. I imagine that a discount might be something very slight or it could be something more significant; would that be correct?

A. That's correct.

Q. Okay. The next section of your statement is headed "the latest cheese vat design does not guarantee optimal fat retention in the cheese."

And you then continue that: "It should not be dismissed that the cheese maker's skills continue to play an important role in determining fat retention in cheese."

And so ultimately at any plant within the constraints of their equipment it ultimately is the quality of the plants' people and operations that

determines vat recoveries, correct?

A. Could you say that again? I'm --

Q. Sure. It was a long question.

Each plant has certain limitations based upon its equipment and setup about the maximum retention it might achieve, correct?

A. Correct.

Q. But whether they hit that maximum is a function of the people, the training, the operations at the plant, correct?

A. Correct.

Q. And not to belabor the things that you enumerated, but I think it is important to touch on them, the general make procedures will impact butterfat retention, correct?

A. Correct.

Q. How so -- when you say "general make procedures," what does that include?

A. How much time do you have?

Q. I mean apparently we have got a lot.

A. Okay. So -- so you -- let's say you are putting the milk in the vat. So how you add the rennet, how long you stir in the rennet, which is the coagulant, how firm the cutness is, which -- how firm the coagulum is when you cut will affect it. The cut speeds of the knives going around, the agitation, the rate of acid development, which affects the firmness of the curd. The type of pumps you have to pump the curd to your belt or to your tables, because if they are too aggressive, the curd will shatter

and will leak fat and -- and protein and stuff. So there's -- there's a lot of things in there that cheese makers have control over that have to be right to maximize fat retention in cheese yield.

Q. Earlier in this hearing Dr. Nana Farkye testified -- do you know Dr. Farkye at all?

A. I do.

Q. I think he testified to some of those things, and he talked about the gentleness of the cut to prevent some of the -- he compared it to a healing of a wound almost.

Is that what you are referring to when you talk about leakage in the coagulum?

A. That's part of it, yes. I would express it a little differently, but I know what he's talking about. So, yes.

Q. On page 7 you end up with some estimates. And you say that -- I think -- I want to make sure I'm correct as how I'm reading this: "Fat recoveries of 91 to 93% with horizontal vats," correct?

A. Correct.

Q. And then 90 to 92% with vertical Double O vats, correct?

A. Correct.

THE COURT: You know, you are not -- you are missing his phrase, "well-run factories." I -- I think you have to -- if you are going to ask him, I think you have to use his words.

MR. MILTNER: Your Honor, I respect your

intervention a lot, and I'm going to get to that, and I phrased my questions particularly for a reason. And I have asked him to agree to -- to my statement, and he did.

THE COURT: And not what he gave you in his statement. You want him to agree with your statement rather than his own?

MR. MILTNER: There's a reason I phrased it the way I did, yes.

THE COURT: Well, I just don't think that's right.

MR. MILTNER: Very good.

BY MR. MILTNER:

Q. Your next statement says that 88 to 91% fat recovery in factories with traditional open vats, no qualification about how well it's run; is that correct?

A. That's what I stated, yes.

Q. Now, coming back to the point Her Honor mentioned.

On page 6 you state: "I have seen many instances where a cheese factory had good equipment, but in the hands of inexperienced cheese makers, large fat losses still occur."

A. Correct.

Q. And so the ranges you state for butterfat recovery in your conclusion, is the bottom end of that range, does that include operations in the hands of inexperienced cheese makers?

A. No.

Q. Overall, Mr. Sommer, what do you think is the average butterfat retention or butterfat recovery for

cheddar cheese?

A. 91%.

Q. Now, we have met before; do you recall?

A. I don't.

Q. Okay. You testified at a hearing in 2007 on this very issue.

Do you recall that?

A. I know I was here, yeah. I --

Q. I think we were --

A. I don't know where we were.

Q. Okay. I had the opportunity to ask you questions then as well.

And in your written statement you stated that you believed 90% was an appropriate --

A. Back then?

Q. Yes.

A. Okay.

Q. Is that -- so is it your experience and testimony that in the intervening 16 years, or whatnot, the average butterfat recovery has increased by 1%?

A. Yes.

Q. Now, in that same hearing, we had a back-and-forth about cheese fines, and you said the during your time at Alto, 20 years ago, that the cheese waste on the floor -- I'm sorry. I misstated my question.

We were looking at cheese losses on the floor, which I don't think necessarily includes fines, but those losses at Alto at that time were about two-tenths of a

percent.

Do you think that is still the a good number?

A. For the industry?

Q. Yes, sir.

A. It's probably pretty close.

MR. MILTNER: Your Honor, I have a document I would like to mark as our next exhibit, if I could, please.

THE COURT: So the next exhibit number is 308. And we'll go off record. You have documents to distribute?

MR. MILTNER: I do.

THE COURT: All right. Let's go off record for just a moment at 11:47.

(An off-the-record discussion took place.)

THE COURT: Let's go back on record.

MR. MILTNER: Thank you, Your Honor.

THE COURT: We're back on record at 11:48. I have in front of me Exhibit 308, and you have distributed copies.

MR. MILTNER: I have, Your Honor.

(Exhibit Number 308 was marked for identification.)

BY MR. MILTNER:

Q. And Exhibit 308 is an article from Dairy Foods, at the bottom is the URL, and also the time stamp from when I found it at 12:25 in the morning last night.

Mr. Sommer, do you know John Lucey?

A. Yes.
Q. And he is the director of the Center for Dairy Research?
A. Yes.
Q. Have you seen this article before, sir, by chance, published in 2017?
A. I've seen drafts of it. I don't remember if I saw the finished product.
Q. Okay. When you were looking at the drafts, was that because you were asked to provide input on it?
A. I believe I was. Yes.
Q. I'd like to ask you to flip to the second page there, where it talks about cheese yield prediction. And this was an article from 2017, January of 2017, so I imagine you probably saw it in 2016, somewhere in there. So it's six or seven years old.

And is it Mr. Lucey or Dr. Lucey?
A. Dr. Lucey.
Q. And Dr. Lucey writes, in the middle of the page, "Additionally, typical fat recoveries for cheddar average around 92%."

I think you just testified that you thought the number was 91.
A. Uh-huh.
Q. Do you and Dr. Lucey disagree on that point then?
A. Yes.
Q. Do you recall when you reviewed this article whether you looked at that particular number?

A. I don't.
Q. Okay. Further down on that page, Dr. Lucey states that "by utilizing a modern enclosed vat design with horizontal agitation, cheesemakers can achieve less than 0.2% fat in the whey."
I think you testified earlier that you think the number is -- the floor number on that is 0.25%.
A. That was with salty whey.
Q. That was with salty whey.
A. Yeah. He's not talking about that here. He's talking about sweet whey. That's two different things.
Q. Explain how those two things are different, please.
A. He's talking about whey after cutting in the vat. What you asked me before was all whey. So the salty whey comes much later. So what you asked me -- or what I assumed you asked me is if you combine the salty whey with the sweet whey, what would the fat content be, because the salty whey has a lot higher fat content. As like, you know, minimum, in my opinion, .6 probably higher than that, percent fat. You asked me of all the whey generated, what's the base, including salty whey.
He's not talking about that. He's just talking about sweet whey.
Q. Okay.
A. And also, by the way, he's talking about -- a lot of what he's talking about there is mozzarella whey which is reduced fat, because mozzarella is the number one

cheese by volume in the U.S. Cheddar is made with whole milk, and that's going to have a higher whey fat than mozzarella.

Q. Where in this do you see a reference to mozzarella cheese?

A. I don't, but he's just talking in general. He's not -- I don't see a reference to mozzarella, but he's not talking just strictly cheddar.

Q. I mean, in fact, in the whole article, the only reference to any style of cheese I see is cheddar.

Do you see anything different?

A. No.

Q. Okay.

A. But when he talks about 0.2, he's not -- he's not specifically talking cheddar. He's not specifically stating cheddar.

Q. And -- and I'm not an expert, so from a lay perspective or even somebody who has a moderate level of industry knowledge, how would you determine that from what you see on this page?

A. Well, you don't know what cheese varieties he's talking about. You couldn't.

Q. We couldn't, but you know?

A. From experience, I know, yes.

Q. Okay. So you noted early on in your cross-examination that the goal of the Center is to make dairy farmers more profitable.

In fact, your Center is funded by both the

Wisconsin Checkoff and DMI, correct?

A. Correct.

Q. And you are here appearing today on behalf of the Center, correct?

A. Correct.

Q. And you understand that based on at least the analysis from Select Milk Producers' economist, that increasing the factor for butterfat retention would increase producer income over a ten-year period. That's the expectation.

Do you understand that?

A. Could you repeat that again, please?

Q. Sure. Well, let me just ask. Would you expect that if the butterfat retention factor in the Class III formula were increased, that that would increase the Class III price?

A. Yes.

Q. And sometimes when butter and cheese get way out of alignment, that may not be the case, though, but --

A. Yes.

Q. -- in general, it would increase producer income, correct?

A. Yes.

Q. And to be clear, the Checkoff funding received by the Center, that's not -- that's all dairy farmer Checkoff money, correct?

A. Correct.

Q. Is the purpose of your testimony today to

influence the Department to not adopt an increase in butterfat retention?

A. No.

Q. Okay. What is the purpose of your testimony then, today?

A. My purpose is to give them the facts as best I know them to make the best decision possible for the health of the dairy industry.

Q. Did -- have you come here on your own volition today? I mean, did you just decide to come to the hearing and offer testimony on your own?

A. Oh, no. I was asked to come.

Q. Who asked you to come?

A. Some -- some representatives of IDFA.

Q. And you understand IDFA is opposing an increase in the butterfat recoveries?

A. Yes.

Q. Did they say, "We would like to you come and offer this testimony because we think that will help us in our efforts to keep the butterfat recovery level below 93%"?

A. No.

Q. What did they ask for you to do, sir?

A. To come and give the facts as best I understand them.

Q. Thank you.

MR. MILTNER: That's all I have.

THE WITNESS: Okay.

THE COURT: Don't leave.

You may leave. Thank you, Mr. Miltner.

MR. MILTNER: You know what? I was quick on that because I finished one statement. But he has two, doesn't he?

THE COURT: Yes.

MR. MILTNER: It's noon. I'm happy to keep going on the second statement or we can do it after lunch.

THE COURT: What I'd like to do -- you stay right there for just a minute.

I would like to ask Agricultural Marketing Service what witnesses we need to finish today, whether we want to break for lunch now, but -- so that people would know during their lunch break what they might need to prepare for.

MS. TAYLOR: Thank you, Your Honor.

So on my list that we all agreed to yesterday, I think Dr. Sommer is the only one --

THE WITNESS: I'm not a doctor.

MS. TAYLOR: Mr. Sommer. There's been a lot of doctors in front of us.

-- Mr. Sommer is the only one left on the list that must finish today.

I have on my list, next would be Jeff Sims and then Eric Erba. And if there's four minutes somewhere in the day, Sally Keefe. I have not forgotten about her.

THE COURT: Now, at some point I wrote down Jeffrey Sims.

MS. TAYLOR: Yes, that's Jeff Sims. So he would

be next, but I'm not sure if he has to finish today or not. Maybe.

THE COURT: Ms. Hancock?

MS. HANCOCK: And after we did our microphone talk, I then threw in Mr. Zalar in front of Mr. Erba. We don't believe -- and Mr. English prompted this as well -- but we don't believe that Mr. Sims is realistically going to finish today, or maybe even this week. And so we thought it might be more prudent to get Mr. Zalar on first before Mr. -- before Mr. Sims and Dr. Erba, so that he has a chance of getting out of here this week.

THE COURT: Is that spelled Z --

MS. HANCOCK: Z-A-L-A-R.

THE COURT: That sounds good. So -- and it really is time to break. So when we come back, is everyone in agreement that we will continue with this witness until he's finished before we take the next one? Yes?

Thank you, Mr. Miltner.

MR. MILTNER: Thank you.

THE COURT: All right. Please be back and ready to go at 1:00 p.m.

We go off record at 11:59 p.m. -- I mean a.m., 11:59 a.m.

(Whereupon, a luncheon break was taken.)

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THURSDAY, OCTOBER 5, 2023 - - AFTERNOON SESSION

THE COURT: We're back on record at 1:00 p.m.

Do you recall where you were, Mr. Miltner?

MR. MILTNER: I know right where I was. I was between statement 30- -- or Exhibit 306 and 307.

THE COURT: Very good. You may proceed.

BY MR. MILTNER:

Q. Mr. Sommer, did you have a chance to read the testimony that Dr. Farkye presented in this hearing before today?

A. I briefly reviewed it.

Q. Do you recall his comments on the use of whey cream in the cheese vat?

A. I do not.

Q. I believe he raised several of the same comments that you do about some of the negative effects of using whey cream and recycling that in the vat, but since you don't recall, I won't ask specific questions on that.

Now, when you begin discussing the problems associated with utilizing whey cream, you talk about breaking the cycle by not recycling whey cream into the vat.

Can you explain a little bit more about what you mean by that and how a cheese manufacturer would break a cycle?

A. Sure. So as I explained, once you start using whey cream, because there's damaged fat in that -- more fat -- some of that damaged fat is more easily leak --

more easily leaks out and it gets lost back -- right back in the whey again, and then you separate it all in the separator, and your whey cream, and we incorporate the whey cream in the milk for cheese making, and it just separates out again.

And the -- as day after day after day after day goes on of doing that, that amount of damaged fat builds up to ever higher levels, and your fat retention goes down, and your risk of off flavors and everything else negative goes up.

So perhaps every -- at least every week, I think that's what I said in here, rather than reincorporate the whey cream into the milk to make cheese, you just simply ship it off to a butter maker, and then the following day then they start the practice all over again.

Q. And so for a cheese plant that you are describing there that would break that cycle once a week, how long would it take them to go through one cheese making cycle?

In other words, if I'm going to start with a clean vat, and now I have processed, I've made cheese, and I'm going to put whey cream back in the vat, how long from the time that I start with a vat to now I'm ready to do the second vat?

A. I don't know what you are asking. I'm sorry.

Q. Okay. So let's start with the process. I -- I start with -- with raw milk, and I'm going to make cheddar cheese.

A. Okay.

Q. And at the end of that process I have cheese that's now off to be, you know, processed further or aged or whatever is going to happen with it. And I have whey cream, right?

A. At the end of the day, you'll have whey cream.

Q. Okay. You say at the end of the day. Is that literally at the end of the day? My question is how long --

A. Yes.

Q. Okay. Great.

A. Literally at the end of the day. Because you save that -- you save all that whey up, and you run it through a separator, and it takes you the whole day to work through it, and then at the end of the day you have a batch of whey cream.

Q. That's -- that's really what I was getting at. Because I thought, as an attorney, that it takes about a day to run, you know, a -- to run cheese and -- but I wasn't sure, so that's -- that's helpful.

A. Well, every plant is different, their schedules. I mean, some plants run one shift, some plants run two, and some run 24/7. So --

Q. Okay.

A. -- it varies.

Q. Well, let's assume that we have a plant that does once a day. So at the end of the day, it runs one -- what do you call it? One -- one batch of cheese a day?

You are shaking your head?

A. One vat -- are you saying one vat of cheese a day?
Q. Sure. Yes.
A. Every vat is a batch.
Q. Okay.
A. It's a batch system.
Q. Then let's assume we're going to run one vat of cheese.
A. Okay.
Q. And at the end of the day, I have whey cream.
A. Okay.
Q. And tomorrow morning I'm going to do it again. And I have put the whey cream now back into my vat. Okay? So this is day two.
A. Okay.
Q. Do you expect that there would be noticeable degradation of the cheese on day two compared to day one?
A. Possibly.
Q. Would you expect that the cheese at the end of day two would nevertheless be marketable?
A. Yes.
Q. Okay. Thank you.
Would you expect that the cheese at the end of the day three would be marketable?
A. You'd have to define what you say is marketable. Marketable as USDA Grade A, or USDA Grade B, or undergrade?
Q. As a 40-pound cheddar block meeting the specifications of the NDPSR.

A. Of the what? I'm sorry?
Q. The National Dairy Product Sales Report. Is it a reportable 40-pound block?
A. I'm sorry, I'm not familiar with that report. I don't know what their standards are to what they include or don't include in that report.
Q. Okay. Then let's say Grade A.
A. Questionable.
Q. Okay. At the end of the day two?
A. I thought I said day three.
Q. I did. And now I'm saying, at the end of day two would that make Grade A?
A. You are asking a hypothetical question, and that's impossible to say depending on the individual cheese plant and their practices. Maybe, maybe not. It's -- you -- no one could possibly say yes, for sure, or no, for sure.
Q. So let's think about this same hypothetical plant, and let's assume that they have a 90% butterfat retention without using any whey cream.

Now, I understand from a previous report from the Center that they would expect 80% of the fat in the whey cream to be retained on the first pass.

Does that sound reasonable to you?
A. Sounds reasonable.
Q. So if I added that whey cream back and I ran that again, I'm going to have a butterfat retention for -- I'm going to capture 80% of that butterfat in the whey cream I added in, correct?

A. If that number is accurate, yes.
Q. And I'm going to capture 90% of the butterfat in the new milk in the vat, correct?
A. Correct.
Q. And that's at day two. So from -- from the butterfat that went in the vat on day one, I have got 90% of what went through, and then I have got 80% of what was in the whey cream, correct?
A. Correct.
Q. That ends up in cheese, correct?
A. Correct.
Q. Okay. And at the end of the day two, if I want to, if I'm concerned about bacteriophage or other breakdown, I could break the cycle then, couldn't I?
A. You could. You could also have a whole mess of bad cheese from the first day if bacteriophage got in it.
Q. If that happened --
A. Could --
Q. -- you could?
A. The second day, I mean. The first day that you add it back you could.
Q. Right. And a lot of that outcome on day two would be part of the human factor that you described in your first statement, right, how well trained folks are and how clean they keep the plant and other factors?
A. Certainly that's a factor, yes.
Q. On page 3 of Exhibit 307 you state, in the middle of the page, "Due to all of these factors, aged cheddar

cheese manufacturers do not reutilize whey cream in cheese manufacture due to the significant risks of off-flavored development as their cheddar cheeses age."

Again, aged cheese is not part of the fat -- the cheese that's surveyed by USDA for -- for sales prices, is it?

A. I don't know the answer to that.

Q. Okay. Do you know if --

A. Let me -- let me back up. I mean, aged cheese at day one is young cheese. Aged cheese is only aged cheese after you have aged it. So I don't know what USDA's survey -- how they do that but --

Q. Okay.

A. You know what I'm saying?

Q. Yeah. Yeah.

A. If I make an aged cheese at my Black Creek plant where I used to work, on day one, it's not aged cheese, it's mild cheddar.

Q. Right. Okay. I understand that.

Further in that same paragraph you stated, "So even manufacturers of barrel and mild cheddar risk whey taint and other flavor defects in their cheese when utilizing whey cream in cheese production, which is why myself and my colleagues at the CDR don't advise this practice."

In your experience are there some barrel and mild cheddar manufacturers that nevertheless use whey cream in their processes?

A. Yes.
Q. Okay. Is it more common in the manufacturing of what we would call commodity cheddar cheese, rather than specialty cheeses or as you note aged cheeses?
A. Yes.
Q. And in your conclusion, on page 4, I think you pretty well summarize that: "Some cheddar manufacturers are willing to employ reutilizing whey cream in cheddar cheese production."
Correct?
A. Correct.
Q. Do you have any estimate as to the prevalence of that practice for larger manufacturers of commodity cheddar?
A. Could you ask me -- I heard the gist of it, but the first part of that question before.
Q. Yeah. So for a large scale commodity cheddar manufacturer, is this practice common?
A. The answer is -- I guess the answer is I don't really know for sure. I don't know how common it is. I know it happens. I don't know if it's common, because people are pretty proprietary about those type of practices, and they often don't tell us.
Q. I asked you a similar question in 2007, and here's what you said. I asked: "Do you have any idea as to whether it's a very common practice?"
Your answer was: "I really don't because that's kind of one of those proprietary things that you don't --

especially since it is not a necessarily advisable practice, people don't like to openly talk about that, so I don't know."

Is that the same today?

A. Still the same.

Q. Okay. So with respect to whey cream, I think both you and Dr. Farkye agree that there are some problems that can arise from the practice, correct?

A. Correct.

Q. And -- but nevertheless, manufacturers -- some commodity cheddar manufacturers utilize it, correct?

A. Correct.

Q. And -- but we don't know to what extent, correct?

A. I don't know, correct.

Q. You don't know. Very good.

But that if they do, they would expect to capture on the first pass 80% of the butterfat in the whey cream if they chose to employ that process?

A. I don't have personal data to back that up, but it seems like a reasonable number to me.

MR. MILTNER: At this point, I don't think I have any further questions. Thank you very much, Mr. Sommer.

THE WITNESS: You're very welcome.

THE COURT: I can't remember whether we made the correction on page 4 of Exhibit 307. I think we did before lunch.

MS. TAYLOR: We did.

THE COURT: We did. Okay. Good.

All right. Next cross-examiner, please.

CROSS-EXAMINATION

BY MR. ENGLISH:

Q. Good afternoon. Chip English for the Milk Innovation Group.

Hello, sir.

A. Hello.

Q. So in his examination, Mr. Miltner suggested, at least what I heard, that your testimony will harm dairy farmers.

Do you have a response?

A. Yeah, I do. That's certainly -- certainly not my intent, and from a larger philosophical standpoint, my aim is to help dairy farmers. And here's why I say that.

Because we are largely funded by dairy farmers, I'm very, very cognizant of their welfare, and I came from a dairy farm, so -- and from a cooperative, so I understand to some extent, you know, their struggles.

But I have been in this industry for 38 years, both on the cheese plant side, 18, and now 20 at the Center for Dairy Research. One of the things, one really big lessons I have learned is, for this industry to thrive, farmers have to be profitable and healthy, economically healthy, and dairy plants do, too.

The worth of a dairy plant without a milk supply is not much. The value of milk on the farm without a processor to process it is not much. The more dairy plant competition we have, the higher prices dairy farmers are

going to get for their milk.

So my hope is to only give the USDA folks accurate information to plug into their various formula for Class III prices and Make Allowances and such to make an overall healthy dairy industry for the entire United States, both processors and farmers equally.

And I know darn well that if the dairy plants can't be profitable and go out of business, long-term that's bad for dairy farmers.

Secondly, I will say, particularly from the from the Center for Dairy Research standpoint and my standpoint, I am -- we're more about adding total value to the milk supply, so dairy farmers are economically more helpful. Finding new and more higher value uses for cheese, developing new cheese varieties and recipes to bring higher values in the marketplace, to assist processors and buyers of cheese, to make products that are highly desired by the consumers so that they can get maximum value for that, all in the effort to make both dairy farmers and dairy processors profitable.

Ultimately, USDA's job is -- to me, is a bit like the Biblical Solomon tale of dividing the baby up. Right? I don't want to get personally involved with that, and I -- that's a tough job for them, and I understand that.

My job at the Center for this hearing's purposes is to give USDA what I consider the most accurate information I can so that they can so-called divide the baby up as well as they possibly can, knowing that's an

impossible task.

Q. Thank you.

Mr. Miltner also asked you a series of questions going back to -- and I'm not sure whether it was the 2006 or 2007 version of the hearing where he and you had a conversation like this, and you testified about a 90% butterfat recovery.

Do you remember that?

A. Yes, I do, sir.

Q. And then in the article that is Exhibit 308 that Dr. Lucey is the author of, he references that recovery of 92%.

A. Correct.

Q. Why do you say 91%?

A. My belief is when Dr. Lucey authored that article, he was for the most part only considering the new larger plants. And that 92% is in the same range that I gave for those plants. I don't believe for a second that he was considering older, smaller plants, open vats, even some of the older Double O vats, and some of those situations.

So I agree with that number if you are saying, you know, some of the more modern plants, and certainly the larger plants and newer plants out West, and I think that's what he was thinking of when he -- when he stated that number. I don't believe he was looking at, you know, smaller and older plants and older vats and things like that.

Q. So, for instance, consistent with that, the last

phrase -- there was a comma, and the last phrase in that paragraph --

A. Yeah, he says -- he says, "but different recoveries can occur industrially due to the actual processing conditions used for cheesemaking," which is what I'm saying as well.

Q. And then -- and then finally, Mr. Miltner said, as far as he could tell -- and maybe he was looking at one page and not another -- that this was limited to cheddar cheese, at least that's what I understood.

But can you look at page 3, the line up from the first paragraph. And do you see a reference to a cheese other than cheddar cheese?

A. Yeah. Dr. Lucey is talking about feta cheese. He says "like feta" on the seventh line, third -- second word from the end, "like feta."

Q. So that -- that corresponds with your view that that the article may or may not have been about just cheddar cheese. In fact, it clearly included feta cheese, and in your view, probably mozzarella as well, correct?

A. Correct.

MR. ENGLISH: Thank you very much. I have no further questions.

CROSS-EXAMINATION

BY MR. MILTNER:

Q. First of all, I do stand corrected. I did not see feta there. I looked quickly, and a couple of times, but I did not see it. I apologize for my error there.

Mr. Sommer, in -- along the lines of Mr. English's question about 92% recoveries and your response, I'll ask a simpler question about what leads you to believe that Mr. -- Dr. Lucey was only considering current vats? Because I don't see that information in there and --

A. No, it's not -- I'm sorry.

Q. No, go ahead. I was pretty well done.

A. Sorry.

No, I don't see that either. But just knowing what he sees and how he -- you know, how he thinks, he -- he's pretty much -- that's what his exposure is, to -- to a lot of the newer plants with -- with newer vats and newer equipment.

My exposure is to the breadth of the industry. I worked from the smallest of the small farmstead cheese makers to some of the largest cheese plants, so I see a wider range of plants than he typically would deal with. He typically doesn't deal nearly as much as I would, for example, in some of the small and medium-sized plants.

Q. And so would it be that those small and medium-sized plants tend to have lower butterfat recoveries?

A. Yes.

Q. Is that because they tend to be the ones that are still using Double O vats?

A. Yes. And open vats.

MR. MILTNER: Thank you.

THE COURT: Dr. Cryan.

CROSS-EXAMINATION

BY DR. CRYAN:

Q. Hello, Dr. Sommer.

A. It's not doctor. It's just Mr.

Q. Oh, I apologize. I apologize.

I am Roger Cryan with the American Farm Bureau Federation. It's good to see you. I have seen your work over the years, and I understand you are a good and well-respected scientist.

The numbers you have presented are essentially well-informed estimates about yields and so forth, based on relatively limited observations over a relatively long time. They are not comprehensive data across the industry; is that correct?

A. I believe that's accurate, yes.

Q. So do you think it would be wise before implementing -- you know, applying yields to regulations, to obtain a wider and more complete set of data for processors regarding costs and yields?

A. That would be ideal, yes.

DR. CRYAN: Very good. Thank you very much.

I'm done. Thank you.

THE COURT: Does anyone else have questions before I turn to the Agricultural Marketing Service for their questions?

I see no one. The Agricultural Marketing Service may proceed.

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CROSS-EXAMINATION

BY MS. TAYLOR:

Q. Good afternoon.

A. Good afternoon.

Q. Thanks for joining us today to testify.

A. You're welcome.

Q. Let's see. A few questions.

In your -- I'm going to start with Exhibit 306. I wrote at the top, I think you answered this to someone else's question, but I want to make sure I wrote it down right. But overall you think butterfat recovery in cheese, in cheddar cheese, currently is around 91%.

Did I write that down correctly?

A. That's what I -- yeah, that's what I believe. If you took the whole industry and put it in a hopper and shook it up and figured out what it was, I -- that would be my best guesstimate, 91%.

Q. Got you.

And --

A. Can I say one other thing to that, that didn't come out before?

Q. Uh-huh.

A. It kind of did, but -- so the good news is, for fat retention, a lot of the newer, bigger plants, especially out West, have newer equipment with much better fat retention potential.

The downside of that, though, is many of those newer plants, and I -- I don't want to mention names,

have, in general, quite limited experience of their employees, so their practices aren't up to speed of what they ultimately hopefully will be. So they -- even though that they have really great brand new equipment, they don't achieve the fat retention and the cheese quality that would be ideal.

So that -- that -- that's -- I have seen that in the context of that's a drag on the fat retention story, meaning a lowering effect on the fat retention story.

We have just had some experiences at the -- I have had some experiences at the CDR just seeing some of those operations and some of the struggles that they go through. But -- they will get better, but right now there's a bit of a drag on that system.

Q. On that point, what seems to be -- what's the learning curve like time-wise?

A. Time-wise?

Q. Uh-huh.

A. Couple years.

Q. Okay. You talked about the Van Slyke formula, and that has a 93% fat recovery assumption in it.

Do you know if that assumption factored in only the loss from cutting the curds or it's all of the losses that you talked about --

A. All --

Q. -- in your exhibit?

A. All of the losses. Doing a total mass balance of fat coming in, the milk, raw milk into a factory, and fat

leaving the factory in the cheese.

Q. Okay.

A. So all of it.

Q. I want to turn to the page 3 and 4 where you talk about salty whey and sweet whey, and you mention salty whey is significantly higher in fat than sweet whey.

Can you explain why that is?

A. I believe the reason is that when you add salt, it kind of reopens the pores of the cheese structure. I mean, if you looked at a piece of cheese under a super powerful microscope, it would look like a sponge, and the fat is -- is just trapped in the -- if you think of a sponge, the holes in a sponge -- the trap is -- the fat is simply just trapped in there, as is the moisture. So when you add salt, it affects the proteins, and I think they open up, and then they leak out fat because it kind of opens up the structure.

Q. Okay. And you talked about how the sweet whey can go back in the cheese making process if they choose to do that.

Am I right about that?

A. I don't think so.

Q. You talked about whey -- oh, whey cream going back in the cheese making process. Excuse me there.

A. Yeah. Whey cream can, yes.

Q. What happens to the salty whey?

A. Typically, they -- a typical cheddar plant will segregate the salty whey, run that through a whey cream

separator, separate from the sweet cream -- I'm sorry -- separate from the unsalty whey separator, and now they will have whey cream with salt in it. But usually they just combine that whey cream with the whey cream they get from the sweet whey.

So generally the whey creams, both streams, the -- from the sweet whey and from the salty whey, although they are generated separately, they are ultimately typically combined.

Q. And go back into the cheese if the cheese maker chooses?

A. Correct.

Q. Okay. You mentioned the sentence in here says -- talked about both sweet and salty whey. And I think you said of all the whey losses, 90% is sweet whey and 10% is salty whey.

Am I correct there?

A. Correct. And that -- that -- that came from that last reference that I had there that -- that was done some years ago at the University of Wisconsin on survey of salty and sweet whey composition from various cheese plants in Wisconsin. That's where I -- that's where those data came from.

Q. And would -- do you know or would that article have what is the typical fat percentage of sweet and salty whey?

A. That, I know exactly what the article said. The article said 0.2% fat in the sweet whey and 0.6% fat in

the salty whey.

Having said that, my personal belief is I think they were underestimating both but...

Q. Okay.

A. But that's what that -- you asked me what the article said. That's what it says --

Q. Okay.

A. -- 0.2 and 0.6.

Q. Okay. And the last sentence here says, "This occurs late" -- you are talking about the salty whey -- "in the cheese making process and is not accounted for in the test for fat losses in whey sampled at the vat."

I was just wondering if you could explain there what you are talking about with the tests.

A. Yeah. So what -- what -- what a typical cheese plant would do is -- so you are making -- just envision for a minute, if you have been in a cheese plant, you are making cheese, and you have your milk in the vat, and you add your coagulant and starter and all that stuff, and you cut it, cook it, and now you have curd and whey. So normally it's at that point where a cheese factory would take a sample of the sweet whey and analyze it for fat loss. Okay?

But then as part of that overall process, now you have got your curds and whey, now you're going to send it to either a belt or a -- or a table, curd table, or a matting belt, and drain off most of that sweet whey. And then ultimately then after you have pretty much dried

curd, you are going to salt the curd. So that's pretty late in the process, just before putting it into a 40-pound block tower or something. And it's at that point when you salt the whey that the salty whey comes out.

So when you are sampling for fat loss in the vat after cutting and cooking the curd, you are not catching any of that fat that's lost later in the process after you salt the curd. That's what I was trying to point out, probably not as eloquently as I should have.

Q. And that's just typical of how cheese operators work?

A. That's right. That's how they all operate, yeah.

Q. Okay.

A. And the other thing -- let me say this, too. Whatever you are sampling, whether you're sampling sweet whey or salty whey, it's a moving target. We have an article in our -- in our quarterly publication on that, but as whey coming out of the cheese, the whey composition changes.

Let me back up. So you cut the curd in the vat, right? The fat that's lost is lost very fairly quickly. But then as the curd continues to go through the system, you still lose more whey liquid, mostly water whey, but less of the fat. So if you take the -- what I'm trying to tell you is, I -- let's say I'm making cheese, and I cut the curd, I cook the curd, and now I have my curds and whey. If I take a sample then, I'm going to get a fat content here.

If I wait, pump it to a table and let more whey come out but less fat is coming out and analyze for fat as a percentage, my fat's going to go down.

So I think it would be easy for you in the room to think, you know, it's accurate -- it's easy and accurate to get a -- a fat test on your whey, but it's not -- it's not quite that simple, unfortunately.

Q. Okay. Thank you for that detail.

You talk about, on page 5, fat loss through fines. And you have a specific example for 640s. I'm curious if there's a difference between 640s and 40s and 500s.

A. There is. So 40 is a hermetically-sealed block. So once you seal it, vacuum seal it, nothing can escape.

A 640 is -- is not a vacuum-sealed block. It's got a plastic liner, but it's -- it's got seams that are not sealed. So even after you put a 640 in a cooler, it will continue to drip whey, and you will lose more fat, and whey, and a little bit of protein, and water and lactose.

Is that what -- I'm sorry, is that what you were asking?

Q. It was.

And 500s?

A. 500-pound barrels? I have never made 500-pound barrels. I have seen it done. But I'm pretty sure that those go in a sealed -- I'm almost positive -- they go in a bag and nothing can escape. So in that sense, a barrel would be more similar to a 40-pound block. A 640 is a

different animal.

Q. Okay. When you are talking about adding whey cream back into the cheese making process, from what I gather from your testimony, you deal with plants all over the United States, not just in the Wisconsin area?

A. Correct.

Q. So I was wondering if the prevalence of doing that is in any particular area of the country or you don't see that at all?

A. I do see that. My -- my understanding, and what I have seen, is it's more prevalent -- adding whey cream back into the milk to make -- to try and incorporate it back in the cheese tends to be more prevalent in the western part of the country than in the Upper Midwest.

And historically the reason was there was more outlets for whey cream in the Upper Midwest, meaning more butter makers that would pay a reasonable price value for the whey cream in the Upper Midwest compared to out West. So my understanding is there was a lot of cheese plants in the western part of the country that really didn't have very good economic outlets for the whey cream, so they are like, well, we got to do something, right? So we're going to have -- we're just going to have to take the risks and put it back in the cheese. And I totally understand that. I don't particularly like it, but I totally understand where they are coming from.

So, yeah, it's a long answer of saying, are there regional differences? I have seen regional differences,

more prevalent out West, less prevalent in the Upper Midwest.

Q. Okay.

A. The other part of that is, too, I would say, the Upper Midwest, I believe, has a higher proportion of aged cheddar plants, whereas the West -- let's exclude maybe Tillamook for now -- but the West, the Southwest, more of that tends to be mild and commodity cheddar and barrel cheddar. And the risks there are not nearly as great of adding whey cream back as they are if you are going to do it to aged cheddar. So I think that's part of that factor, too.

Q. Okay. Are any of the other -- I know we talked about the difference between 40s, 640s, 500s when it comes to cheese fines. But are there any other differences that you would see in the fat loss recovery between the different sizes of commodity cheddar that is made?

A. Ask me that first part again, because I'm not sure I agreed with how you stated it. But go ahead.

Q. We talked about when it came to losing cheese fines --

A. Okay.

Q. -- and you explained how 640s have this issue, but you don't find that in 40s and 500s because of the way they are packaged.

A. No, that's not correct. If I said that -- I hope I didn't say that. I didn't mean to say --

Q. That's how I -- well, that's good -- we'll clarify

this.

A. Yes.

Q. I think I was asking, because you have an example of 640s -- let me turn to the page. On page 5, you are talking about losses in -- maybe I'm incorrect. This is on whey, not on cheese fines.

A. Correct. That's whey. Whey is -- you are right.

Q. I apologize. So --

A. Cheese fines is more about -- I'm sorry. Cheese fines is more about the belts system -- the matting belt system versus the stirred belt system versus the open table system.

Q. Okay. So we have differences in the whey lost, and the different sizes of commodity cheddar that's made.

Are there any other differences in the sizes that cheddars are made that would impact that recovery?

A. None that come to mind.

Q. Okay. And my last question, at the end of your statement you talk about kind of different ranges of fat recovery based on how well the factories run and also based on the type of cheese making equipment they have.

And, you know, I remember back to the '06 and '07 hearings when we had this discussion all those many years ago. We kind of used the same terms, modern, newer plants. Well, it's 15 years later.

So my question is, when we think about cheese making equipment, what is the average lifespan out there, if I want to exclude, say, some of the smaller plants that

might get that refurbished vats, maybe they are -- and they produce more of a specialty cheese.

But when I'm just thinking about the commodity cheddar, which is what Federal Orders focus on, how old is that -- you know, the lifespan of that equipment, so that when we think about modern versus old, we kind of know the years we're talking about?

A. That's a good question. That's an interesting question. I can give you my opinion on that.

Q. Uh-huh.

A. I'd say I'm thinking more of things like vats and stuff like that, vats and tables. I would say somewhere in the neighborhood of 25 years. And sometimes they go longer.

And it depends, too, because, you know, like when I was -- when we were at Alto, we're running those vats and tables 24/7/365, right? And some of those smaller plants are only running one or two shifts, so that makes a big difference.

But if you are talking about a large -- I think you were talking about the big, large, 24-hour-a-day plants, I would say in that neighborhood of 25 years. And sometimes they refurbish them, and they can get more. But in my book, a good rule of thumb would be 25 years.

Q. So when you talk about these modern horizontal vats in a well-run factory achieving 90 to 92%, that is with technology that is somewhere less than 25 years old?

A. Yes. Having said that, even -- we -- you know, it

would be not totally accurate to lump all horizontal vats in as just horizontal vats, because even the horizontal vats have gone through a series of technical upgrades and improvements over the years. Like the Tetra Pak has come out with their Yieldmaster which is supposed to get the very best yield, and that's like a third generation horizontal vat, if you know what I'm saying. So even within the horizontal vats, there are differences in their fat retention abilities.

MS. TAYLOR: That's it for AMS. Thank you for your time today.

THE WITNESS: You're very welcome.

THE COURT: Mr. Rosenbaum?

MR. ROSENBAUM: Your Honor, I would move Hearing Exhibits 306 and 307 into evidence.

THE COURT: Is there any objection to the admission into evidence of Exhibit 306?

There is none. Exhibit 306 is admitted into evidence.

(Exhibit Number 306 was received into evidence.)

THE COURT: Is there any objection to the admission into evidence of Exhibit 307? 307?

There is none. Exhibit 307 is admitted into evidence.

(Exhibit Number 307 was received into evidence.)

THE COURT: Mr. Miltner?

MR. MILTNER: Your Honor, I would move the admission of Exhibit 308.

THE COURT: Is there any objection to the admission into evidence of Exhibit 308?

MR. HILL: I have an objection, Your Honor.

THE COURT: I knew you would, Mr. Hill.

MR. HILL: So I guess I do have a couple of questions maybe for Mr. Sommer before I object, if I'm going to object.

I think you stated that you knew about this article that is identified as 308? You were aware of it?

THE WITNESS: I was.

MR. HILL: And I want to say that you might have hinted that you were asked to contribute to this article; is that true?

THE WITNESS: I -- my recollection is I was asked to review it and make any comments or suggestions for improvements. Not to -- not to add to it, not to write it, but to see if I saw anything that was way off kilter, so to speak.

MR. HILL: All right.

I won't object then, Your Honor.

THE COURT: Are there any other objections to the admission into evidence of Exhibit 308?

There are none.

Now, I wondered what I was going to do when you objected, because we don't have John Lucey, Dr. Lucey, here to cross-examine.

MR. HILL: Right. There are some questions, Your Honor, that I have, obviously. And it seems like from what we have heard, he disputes a lot of this information, and it does seem to me that he's -- it's being used for the truth of what's asserted in it, and he's not here. But I am not exactly sure his contribution to this and how much he saw. So I -- I'm not sure how far I want to go with that objection -- with objecting.

THE COURT: Well, I know it's a fairly recent article, but 2017, he could have a different opinion now.

MR. HILL: I understand.

THE COURT: I don't love it for the truth of the matter asserted, but I will admit it, because I think it was very useful, the juxtaposition about what it says and what this witness says, because to me, these differences are so tiny, the percentages. You know, the difference between, let's say 91% and 92%, or the like, and yet, I understand that it makes a big difference.

MR. MILTNER: It does, Your Honor.

And I would add for our record, that Dr. Lucey is the director of the Center for Dairy Research, the entity on whose behalf Mr. Sommer is testifying today. And so I -- with all of the, I guess I would hope that this is admitted for the weight to which the Secretary chooses to accord it with no other restrictions.

THE COURT: Excellently said.

MR. MILTNER: Thank you.

THE COURT: Exhibit 308 is admitted into evidence.

(Exhibit Number 308 was received into evidence.)

THE COURT: All right. Thank you so much. I enjoyed your testimony so much.

THE WITNESS: You're very welcome, Your Honor.

THE COURT: That would be a good hobby, but I'm -- not for me.

Ms. Hancock.

MS. HANCOCK: I was moving on, Your Honor.

THE COURT: Okay. Thank you so much. You may step down.

And, Ms. Hancock.

MS. HANCOCK: Your Honor, our next witness would be Stephen Zalar.

THE COURT: Is there a document to distribute?

MS. HANCOCK: Yes. Exhibit NMPF-49.

THE COURT: All right. And that will be marked Exhibit 309.

(Exhibit Number 309 was marked for identification.)

THE COURT: And we'll go off record while the documents are circulated.

Off record at 1:49.

(An off-the-record discussion took place.)

THE COURT: Let's go back on record.

We're back on record at 1:50.

I'd like the witness to identify himself by stating and spelling his name.

THE WITNESS: My name is Stephen F. Zalar. That's S-T-E-P-H-E-N, middle initial is F, my last name is Z-A-L-A-R.

THE COURT: Do you ever tell people "sounds like 'dollar'"?

THE WITNESS: Your Honor, it's funny that you say that. I always tell people take the D off a dollar and put a Z on it. But I have been called a lot of other things.

THE COURT: Have you testified in this proceeding?

THE WITNESS: I have not yet, Your Honor.

THE COURT: I'd like to swear you in.

STEPHEN F. ZALAR,

Being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. HANCOCK:

Q. Good afternoon, Mr. Zalar.

Would you provide your business address for the record, please?

A. Yeah. I work at 1035 Medina Road, Suite 300, Medina, Ohio, 44256.

Q. And did you prepare Exhibit NMPF-49, which has been marked as Exhibit 309 for this hearing?

A. I did.

Q. Okay. Would you proceed with your testimony, just being mindful of reading at a moderated pace for our court reporter?

A. I will.

My name is Stephen F. Zalar, and I'm currently employed by and represent Dairy Farmers of America. I hold an associate degree in dairy science, a bachelor of science degree in food science, and master of science degree in agricultural economics, all from The Ohio State University. My graduate thesis work involved the study and publication of economic and institutional factors relevant to defining Mideast Federal Order marketing areas, which would become an instrumental reference for Federal Milk Order reform as directed by the 1996 Farm Bill.

My work experience within the dairy industry encompasses work from the ground to the grocery store, so to speak. I have spent my entire career working within the dairy industry in various capacities with employers, such as the Kroger companies, dairy manufacturing, logistics and optimization consulting work for the dairy producers of New Mexico, Dannon Yogurt, and Borden, Incorporated. I also spent several years as a herdsman on dairy farm operations.

I currently serve as a senior logistics analyst and fleet manager for Dairy Farmers of America (DFA). I have worked 20 years in milk logistics at DFA. I thank you for this opportunity to testify today.

I have been asked to discuss milk hauling costs in the Mideast area and how they have changed over the last two decades. For anyone involved in the dairy industry,

it is no secret that milk hauling costs have increased significantly, especially since the implementation of Federal Order reform in 2000. For example, taken from the Mideast area from 2006 to 2023, overall costs for a three-mile -- I'm sorry -- 300-mile roundtrip load of milk on an Ohio based 6,200-gallon tractor-trailer increased 70%. And I will show you that on Table 1 here.

Can we see that?

Yes. There we go. Very good.

And with respect to large eight-axle Michigan-based 12,000-gallon tractor-trailers, moving milk on a 300-mile roundtrip run, costs have risen 69%.

And I'll refer that there to Table 2. Do we have Table 2 up?

We do. Okay. Very good.

Okay. Some may ask what costs have increased over the 17 years, i.e., have some costs increased faster than others? Also, what reasons might there be that hauling costs have not increased uniformly, or what has caused costs to change differently?

Two basic considerations are miles travelled and the demographics of producer farm milk routes. Milk shed production volumes can greatly impact miles travelled during the process of collecting milk on the milk truck, commonly called milk assembly. Milk haulers will structure routes with the intent of obtaining a full load of milk.

It is simple economics driving their decision,

i.e., more volume helps to spread fixed costs while not impacting variable costs as much. Miles travelled to assemble a fixed volume of milk is summarized best with a calculated statistic called the miles-per-hundredweight ratio.

Milk sheds with low milk volumes that are thin, i.e., that require more stops and more miles travelled to assemble a full load, would have a higher miles-per-hundredweight ratio. Milk haulers operating these routes will typically charge a per-load flat rate instead of a per-hundredweight rate to cover added costs of milk assembly. Milk haulers operating these routes within DFA Mideast will also typically charge a sizeable stop charge per producer, which is exactly what it sounds like, i.e., a charge levied upon the farm for each time the truck stops to pick up milk. The stop charge has ranged anywhere from 50 to $200. This would be used instead of a per-hundredweight rate to cover added costs of milk assembly.

In contrast, milk sheds that are high volume or that are flush, requiring fewer stops to assemble a full load, will have lower miles-per-hundredweight ratio. Haulers operating these routes can maximize or optimize full load efficiencies via reduced miles and time. In general, large farms that require haulers to make just one stop to fill a truck can create efficiencies in milk hauling costs savings for the producers.

Milk haulers realize when operating in a thin or

declining milk volume milk shed that an eventual demise of their milk hauling enterprise is possible or even likely.

Increasing producer farm hauling rates may help to cover growing operating costs caused by lower milk volume loads and greater distances traveled. Unfortunately, higher hauling rates contribute to uncertain farm profit margins on farms, which may accelerate the farm exit from the dairy industry.

Here are some actual operational examples of haulers who are currently faced with operating in a thin and declining milk shed.

Okay. So example number 1, the bullet point there, a Kentucky-based hauler in the spring of 2023 was required to travel almost 200 miles to assemble just 33,000 pounds of milk from six farm stops. This did not include miles to final delivery plant.

A Western Pennsylvania based hauler in the summer of 2022 was required to travel over 200 miles to assemble just 27,000 pounds of milk from ten farm stops. This did not include miles to final delivery point.

Third example, a Southeastern Ohio-based hauler in the summer of 2022 was required to travel over 180 miles to assemble just 32,000 pounds of milk from five farms stops. This did not include miles to the final plant delivery.

And some sub-bullet points in this last example. The milk hauler wanted to retire from hauling and no longer had a desire to haul milk. To continue hauling

milk, the hauler being in a strong negotiating position, charged each farm 200 per stop to pick up the milk regardless of the amount of milk picked up. Within the first few months of the rate increase, two of the farms were forced to exist the dairy business.

Milk hauling enterprises are dynamic in terms of stability and alignment with farm numbers and concentrations. The Mideast area has seen decreases in hauler numbers consistent with decreases in dairy farm numbers. For example, in July of 2006, DFA contracted with 194 milk haulers, but today there are just 88 contract milk haulers being used. And during that same period, DFA's milk production in the Mideast area went up from 565 million pounds per month to 601 million pounds per month, even as dairy farm numbers fell -- fell by over 70%.

The conundrum should be clear, fewer farms are producing more milk, and there are fewer milk haulers available to haul the milk to customers. A corollary to this is that with fewer haulers in the Mideast area, dairy producers have fewer options for finding a milk hauler.

Like any business enterprise, milk haulers are faced with variable cost inputs. Regionality of input costs such as labor and fuel are perhaps the most obvious examples of regionality variable costs encountered within the transportation sector. With respect to labor, wages tend to be higher in the more populous metropolitan areas located near the eastern and western coast of the U.S.

There are, however, exceptions to this general rule. According to the U.S. Department of Labor Statistics, Lincoln, Nebraska was the top paying metropolitan area for heavy tractor-trailer truck drivers, paying an average of $35.10 per hour (refer to Table 3).

So I'm going to put up Table 3, and I hope you can all see that.

Uh-huh. Very good.

Okay. So the heavily dairy region spanning from LaCrosse, Wisconsin and Ayahuasca, Wisconsin, on into Minnesota, ranked fourth, paying an average wage rate of $30.72 per hour.

Rural regions where milk haulers operate are often located somewhat near large metropolitan areas. This means there is competition for milk haulers from employers in other industries, such as manufacturing, construction, and other types of transportation occupations.

In May of 2022, Department of Labor Statistics reported a nationwide average of $21.81 per hour for production workers, $25.52 per hour for heavy tractor-trailer drivers, and $28.32 per hour for construction workers, which is referred to in Table 4, which I believe I just put up on the screen if everyone can see that.

I believe so. Okay.

Over the 17-year period covered in Tables 1 and 2, regardless of the variability, the cost of labor for milk hauling is one of the largest percentage increases in

comparison to any other cost input a milk hauler has faced. Indirectly, cost of labor also impacts the cost to maintain and to repair milk hauling equipment, which tends to influence increases to maintenance input costs.

Again, referring to Table 1 and 2, I'll just kind of glaze over those real quick again. You can see how that maintenance cost has kind of risen as well in those areas because we know that a big part of maintenance repair involves labor. I'm sure if you have ever had brake work done on your car, you know what that's all about.

So in addition to actual labor wages paid by region and by occupation, milk haulers, like other commercial-for-hire transporters, must abide by the hours of service -- use the acronym HOS -- administered by the Federal Motor Carrier Safety Administration, also known by the acronym of FMCSA.

The standard HOS rules require a maximum of 11 hours of work for a commercial truck driver, which includes milk haulers. In thin milk shed regions where haulers have higher miles per hundredweight ratios, the HOS becomes a challenge to meet, hence a relief driver may be required to complete the milk run.

As expected, the use of an extra driver during milk assembly and milk delivery adds to a hauler's labor costs. Because of the adoption of electronic driver logs, milk hauling operational costs have increased as hauler companies have had to recruit, train, and retain drivers

willing to understand and to accept the use of these types of technologies. Furthermore, in addition to the wage difference shown in Tables 3 and 4, milk hauling companies increasingly compete with other non-agricultural transporters who offer drivers more appealing work, which could be called no-touch freight or behind-the-wheel-only work.

Hauling milk from farm to plant involves working on weekends, holidays, and off hours. Milk haulers are also expected to work in all weather conditions and to tolerate substandard infrastructure on farms or at receiving plants.

Diesel fuel, another primary variable input cost in milk transportation, is variable through impacts of seasonality, social economic influences, political climate, and weather-related events. Since 2010, haulers must also consider the added cost associated with Diesel Exhaust Fluid, known as D-E-E -- D-E-F, you will hear people say "DEF" -- fuel additive compliance to satisfy the Environmental Protection Agency, also known as the EPA, exhaust emission standards. Furthermore, according to the U.S. Department of Energy Information Administration, also known as EIA, on-highway diesel fuel prices have wide regionality differences.

And I'm going to show you Table 5 shows us some of the regionality there of fuel prices. And so the Petroleum Administration for Defense Districts, also known as PADD, P-A-D-D, defines eight regions for reporting

purposes. I'm going to show you that PADD map here momentarily.

Okay. Is that up? Yes, we see that.

Okay. However, neighboring states often reflect noticeable differences in fuel prices due to differences in state excise taxes along with other state taxes levied on a gallon of fuel. And we're going to refer to Chart 1.

Okay. Very good. We see Chart 1 there.

Given the various state taxes applied to the final cost of a gallon of diesel fuel, states bordering each other can have vastly different prices. For example, California is at the top in terms of both overall fuel price and the proportion of state taxes and fees paid. Okay. Meanwhile, the neighboring state of Oregon ranks 15th. And a similar scenario can be observed with some neighboring states in the Mideast, for example, Pennsylvania and New York.

Cost of tires is another variable cost input that has experienced huge increases in cost for milk haulers. Based on in-house DFA Mideast hauler reporting, trailer tire prices increased from $300 per tire in 2006 to $475 per tire in 2023. Furthermore, many of the milk haulers reported discontinuation of the use of cheaper recap tires for virgin, or factory, tires due to longer life expectancy and improved safety. Tire prices can vary in price and quality, along with the type of usage, e.g., weight load, local versus highway travel. An example of a higher price tire would be a large super-single tire,

which can cost around $900 each.

The cost of procuring equipment, such as a truck and a tanker, varies among milk haulers. However, much of the variation is primarily a result of the type of equipment being sought in terms of new versus used, size of tanker, the unit configuration, added components, and/or features and accessories. The 2010 EPA exhaust emissions standards have also influenced hauler purchases of new equipment versus used equipment, hence, driving up the cost to operate a milk hauling company.

It should be noted that equipment availability has been compromised over the past three to four years because of supply chain disruptions brought on by the COVID-19 pandemic. For example, as fleet manager for DFA, I requested and received a quote from a vendor to purchase a new 2023 cab and chassis tractor unit in April of '22. The vendor bid initially came back at $193,322, but was revised twice within the 30-day bid acceptance window to arrive at a final bid quote of $201,811, an increase of almost $8,500.

The vendor stated reasons for change involved manufacturer to dealer notices related to the escalating material costs and labor shortages. In addition to multiple quote adjustments, the actual elapsed time from placing the order to delivery took seven months to complete due to factory production scheduling backlog. I was informed during the COVID-19 pandemic that if I were to order a tanker trailer, it would have been 12 to 18

months until delivery.

It's also important to note that another reason for the recent escalation in equipment replacement costs involve the milk hauler trend of purchasing larger volume tankers and tractors with more horsepower. In the Mideast, we have recently seen Ohio milk haulers replace 6,200-gallon tankers with 8,000-gallon tankers to assemble greater volumes of milk.

Although such larger volume loads require special, and costly, load permitting, haulers feel compelled to move this direction due to lack of labor resources and rising equipment costs associated with running numerous small volume tanker trucks. The ever growing usage of larger size tankers and trucks capable of pulling larger loads has played a role in the rising cost of license and tax inputs.

And let me real quickly reference you back to Table 1. You look at license and tax. And Table 2 is more critical because of the eight-axle heavier trucks needing extra permitting, so -- okay.

Because of the larger loads, tires have had to change to bear the added weight, and with specialty or larger weight load tires comes higher costs, as mentioned earlier. You will also note in Table 2 where the costs for license and tax have risen -- and I already referenced that to you -- 191% from 2006 to 2023. This is due in part to increased weight limit scrutiny and new legislation by individual states that allow larger load

sizes with the requirement of special permits. As such, more of the these large eight-axle trailers capable of hauling 108,000 pounds of milk loads are leaving Michigan. Historically, eight-axle trailers were confined to Michigan because neighboring states like Indiana and Ohio prohibited operation of such a large load size.

Other variable cost inputs include interest rates on loans, insurance premiums and costs associated with management and overhead. With respect to interest rates, borrowed money for capital expenses bears an interest cost which can be highly variable among milk hauler enterprises, depending on the type of loan or line of credit being sought. This -- this is because so much emphasis is placed on an individual or business enterprise's credit score.

Based on in-house DFA hauler proprietary survey data, interests on equipment loans paid by milk haulers have ranged from zero to 12%.

Insurance premiums vary largely because of differences in milk hauler demographics. The most critical factor involves a milk hauler's history of accidents and related claims along with safety violations. Other considerations would be type and age of the equipment in garage and terminal facilities. These types of activities by a hauler are compiled in the Federal Motor Carrier Safety Administration's Compliance Safety Accountability, also known as their CSA score. Other factors that affect a hauler's insurance premium include

coverage amounts and scope of coverage.

In recent years, many of the smaller sole proprietary milk hauler enterprises operating in the Mideast area have conceded that they could not afford the cost of large insurance liability umbrellas. Most companies require 2 million of liability coverage, but there's a growing trend towards 5 million in liability coverage. Numerous industries are following the trend of higher liability coverage due to high profile trucking accidents.

And finally, a variation in insurance premiums paid between milk haulers involves whether their business resides in a state that has no-fault vehicle insurance. In short, no-fault insurance escalates insurance premiums considerably over those states that do not have this requirement.

Michigan is a no-fault vehicle insurance state, but it is also one of the top ten milk producing states in the U.S.

Perhaps the most variable of cost inputs among milk haulers involves management and overhead expenses. Factors include operational standards or acceptance thresholds, but decided on by the operators themselves. This would include physical facilities such as a dedicated terminal or simply a place to park equipment.

Other variability factors that influence costs involve indirect costs such as administrative and service functions. Milk haulers conducting their own in-house

accounting, human resources management, safety and equipment servicing will face a separate set of costs than a hauler opting to hire out those professional services.

Milk haulers also face opportunity costs with respect to operating milk hauling enterprise, and these opportunities costs to remain in the milk hauling business appear to be increasing. Other sectors of transportation industry offer work environments more conducive to driver employee recruitment and retention, as well as to owners and family members of milk hauling enterprise. Finally, these would be an improved work-life balance, better wages, or healthcare retirement. Some haulers have had to rely on part-time drivers who are often sourced within the hauler's family or may even be recruited from the labor pool at a nearby farm.

The likelihood of startup milk hauling businesses is low. It is a capital-intensive business with multiple challenges to manage. Milk hauling business owners are aging, and many of the milk hauling businesses are family businesses, often many generations old. However, there does not appear to be much desire for the next generation to take over the milk, family milk hauling business. This may be because of the required expenses and continued time commitment, added or sole responsibility for management, capital investments with risk, added stress and overall uncertainty in operating in invariably what becomes a 24/7 work environment. Again, the opportunity costs or return on investment with other businesses are being considered.

In closing, much of what has been covered in this testimony explains why some milk marketing cooperatives have already transitioned into hauling milk themselves. However, in many cases this transition was done somewhat reluctantly. For the most part, cooperatives have entered the milk hauling business to assure that the cooperative owner member's milk would be hauled and marketed. In several instances, the cooperative entering the hauling business was initiated due to an urgent need with little advanced warning of a disruption to the milk hauling logistics in a territory. This would be the result when a milk hauler walks away or ceases to haul milk any longer.

Hence, in many areas of the U.S., milk hauling has become an increasingly fragile business enterprise with continued dynamics and uncertainty for the future. In the past, milk hauling was taken for granted without any concern for its future viability, but it has grown to an area of great concern within the milk marketing channel as the dynamic dairy industry continues to change and evolve.

MS. HANCOCK: Your Honor -- thank you, Mr. Zalar, for that.

We would make him available for cross-examination, although it might be time for a break.

THE COURT: That was dynamically read. Thank you.

THE WITNESS: Thank you, Your Honor.

THE COURT: And you have got so much information in here, so we will need a little bit of a break. So let's take ten minutes. Please be back and ready to go at

2:30.

We go off record at 2:19.

(Whereupon, a break was taken.)

THE COURT: Let's go back on record.

We're back on record at 2:32.

Cross-examination.

MR. ENGLISH: Chip English for the Milk Innovation Group.

Thank you, Mr. Wilson, I'll take any introduction I can get.

CROSS-EXAMINATION

BY MR. ENGLISH:

Q. So good afternoon, Mr. Zalar.

A. Good afternoon.

Q. My name is Chip English, and I represent the Milk Innovation Group, which is a group of ten proprietary milk processors, some of whom operate in the Mideast.

So I want to start by asking, were you here yesterday for the testimony of Dr. Nicholson?

A. I was not. I did catch a little online. I had to go back to the office and get some administrative work done.

Q. I can't imagine.

Okay. So you're part of the testimony in support of what's called National Milk Producers Federation Proposal 19, correct?

A. Okay. Yes.

Q. Well, you say "okay." I am wondering, do you know

what Proposal 19 is for National Milk Producers Federation?

A. Not specifically. My role here was to present on the cost of trucking logistics and fleet. So that's -- that's my world. That's what I know.

Q. Okay. So do you know whether there is already testimony in the record from a model that has hauling costs in it?

A. Not real familiar with it. I have not been involved in anything like that. As I say, my role here was to present on cost of fleet and logistics.

Q. Okay. So are you here to advocate for United States Department of Agriculture to raise the Class I differential to take into account the cost of hauling?

A. I would say I'm not. I was here to present this information to the court.

Q. All right. When you prepared this testimony, did you discuss with anybody at either DFA or National Milk your use of data for 2023 as opposed to 2021?

A. No. I chose the datasets myself. Like I say in my testimony, I have been doing this for, it's hard to believe, 20 years now.

Q. So you wouldn't know whether National Milk Producers Federation has taken the position that it's -- it was going to use 2021 data, would you?

A. I had no knowledge or interaction for anyone saying anything to that I had to use 2021 data. Again, I used 2023 and some historic data. It was my choice.

Q. Do you know how your information is going to be used in the record?

A. I really don't, other than how I presented it. And how the Final Decision makers will use it, I have no idea. I wouldn't want to speculate.

Q. And so I'm really not going to try to belabor the point. I'm just trying to understand here, so --

A. I'm sorry, sir, you spoke real fast.

Q. I apologize. I got called out by the witness as opposed to the court reporter.

THE COURT: An astute observation.

THE WITNESS: Thank you, Your Honor.

BY MR. ENGLISH:

Q. Thank you for the correction, sir.

So I take it you do not know what the United States Dairy Simulator Program is, do you?

A. No, I don't.

Q. And you wouldn't know whether that system, that -- that simulator, takes into consideration hauling costs, correct?

A. I wouldn't know that other than what you have just told me.

Q. Okay. Were you involved in 2022 in providing data to the University of Wisconsin with respect to 2021 hauling costs?

A. No, sir.

Q. Is it true that Dairy Farmers of America charges customers in the Mideast for fuel surcharges?

A. Slow down again a little bit. Say that again.
Q. Okay. So you're involved with the logistics program for DFA, correct?
A. Yes, I'm in the logistics department. Yes, that's correct.
Q. And do you know whether Dairy Farmers of America charges fluid milk processors a fuel surcharge in the Mideast order for hauling?
A. Okay. Now I better understand your question.
I am not on the marketing side of that equation, so I don't know how and if and when they charge any type of fuel surcharge to the customer.
Q. Does anybody ever ask you for information as to that information so they can make those charges to customers?
A. You said "that information." What information?
Q. The information about hauling costs?
A. About hauling costs?
Q. Yes.
A. No. No, not really. You know, I have a direct supervisor. If that information is shared and distributed, I'm unaware of it.
Q. So turning to Table 5 and then a comment on the bottom of page 6.
If you can turn to page 6.
A. Okay.
Q. And so are the eight regions for the Petroleum Administration for Defense Districts, Map 1, the same

districts as are on Table 5 for the U.S. Department Energy Administration?

A. Okay. Yes. Other than the map, Table 5 splits out California, I noticed that when we put it together. Yeah, so -- but they are related, and the premise there was to show the differences over a period of time of how -- how the regionality of fuel is among the PADD regions. So it was a very nice dataset that was provided to us by the U.S. Department of Energy.

Q. Okay. So I understand about California being separated out. But, for instance, the Midwest, would it be your understanding that PADD 2, under Map 1, Midwest, would correspond to the same region under Table 5 for the Midwest?

A. That's the way I understand it from the government.

Q. Let me check with one person.

MR. ENGLISH: I have no further questions, and I thank you for your time.

THE WITNESS: Thank you, sir.

THE COURT: Are there other questions for Mr. Zalar before I turn to the Agricultural Marketing Service for their questions?

There are none. I would invite the Agricultural Marketing Service to ask.

CROSS-EXAMINATION

BY MS. TAYLOR:

Q. Good afternoon.

A. Good afternoon.
Q. Thank you for taking the time today to testify.
A. Thank you for having me. It's an honor.
Q. I'm glad you still feel that way.

Just a couple of questions. On the tables that you have on page 2, Table 1 and Table 2, the next page 3 kind of is the footnote for where all that information came from.

A. Yes.
Q. And in a number of places you talk about a survey that was done. I'm wondering if you can just talk a little bit about that survey, who --
A. So, yes.
Q. -- all the -- kind of the details to explain how that was conducted.
A. Yes. We -- we constantly survey our contract haulers when they, you know, call in and they are asking about certain things. And we have a great relationship with our contract haulers. The survey information that they provide us in terms of cost inputs is strictly proprietary, confidential, and a lot of times haulers will say, hey, I'd love to share my information with you to run through your costing model that, you know, I use in logistics. But you are not going to share that with my competing neighbor, are you?

And absolutely not. That's -- we have a client relationship with that person.

And so it's -- it's a great synergistic

relationship. But I can't share it with you, I'm sorry.

Q. Oh, no. And I'm certainly not asking for proprietary information. What I'm more looking at it, is this information you get on a constant basis, do you do it via just -- you know, we have our own programs within -- where we are in AMS, where people call up other people and they kind of get proprietary information as well, and then they summarize it and publish that information.

Is that how it's done or did you actually send out a survey to your haulers?

A. No. It's kind of done on a constant basis. You know, haulers will call in, and I guess it's an honor, they'll lean on us and say, I can't figure out, you know, some of my cash flow or what have you. And I don't mean I'm an accountant, let me make that clear. And so I'll say, well, let me take a look at some of your cost inputs.

And, you know, with -- with my 20 years of experience, although I learn something new every day, sometimes I can help them and pick up on some things as a consultant at no charge. But really, at the end of the day, it's going to help benefit us because I work for our owner members in our co-op, so I want to make sure that the hauler is, you know, operationally healthy. I don't get involved in the operation, let me make that clear, but I'm certainly willing to -- to maybe provide some guidance.

Q. Okay.

A. Does that help you out?

Q. It does.

And so the costs that you have listed on here, I guess I take away from that, this isn't a survey that you did just for the purposes of putting together this information?

A. Absolutely not.

Q. Okay. And then -- so then my second guess would be, the cost represented in 2006 is not the same universe of haulers that is represented in 2023, it's just --

A. It's --

Q. -- whatever haulers you all use during those two years?

A. Exactly. And, again, I've been here 20 years. You know, it's funny, when I put this together, I didn't realize how old I was getting.

Q. I feel similar.

On the bottom of page 3 into 4 you list a couple of examples, kind of like feedback I think you got from your haulers.

And I take it these are just conversations that you have had with those haulers that you are in contact with? That's how you know this information?

A. The examples of the thin market?

Q. Yes.

A. No. And this kind of leads, dovetails into your last question. We have member milk that we need to market. It's our responsibility to market their milk. And when we get into thin milk shed regions, the co-op

member owner, they own us, that's the reason I'm here is because of the producers who I speak -- you know, I have to answer to. You know, they are saying, help me out.

Years ago, 20, 30 years ago, it was a very dairy neighborhood, and it's not anymore. And so we try to get involved for the producer to make sure that there's orderly marketing of their milk.

The worst case scenario is it goes down the drain, and that's an absolute waste.

Q. And so for these examples, though, I'm just curious kind of where they came from. And I'm just trying to get these things clear for the record about where some of your information came from.

A. Well, I couldn't give you any names of haulers.

Q. I'm not asking for that. What I'm -- just generally, in conversations you've had with haulers or conversations you've had with your farmers and they relay that information?

A. Part of it is really the analytical work that I did that someone in membership would come to me or my supervisor and say, hey, take a look at this.

Q. Okay. Thank you.

A. Uh-huh.

Q. Later on you talk about in July 20- -- excuse me -- July 2006, DFA contracted with 194 milk haulers, but today there's just 88.

Is that DFA wide?

A. I'm sorry, what page were you on?

Q. I'm on 4.
A. Page 4? Thank you.
Q. The first full paragraph.
A. No, that's Mideast.
Q. And I think my final question is, then, in the Mideast, you all still just use contract haulers.
Does DFA own any of its own trucks to do that?
A. In the Mideast, it's all contract haulers at this time. We don't but...
MS. TAYLOR: That's it from AMS. Thank you so much.
THE WITNESS: Okay. Yeah. Nothing about work life or -- or what it is?
MS. TAYLOR: I don't know what work/life balance is anymore.
THE WITNESS: Let me share an example of work/life. This is -- this is something I received -- yeah, it was pre-COVID. I remember I got a phone call from a contract hauler, not that I talk to them on a daily basis. And I can't remember what he asked me, and I said, hey -- and I won't mention any names here -- I said, how are you doing?
He goes, well, not real good. I trained a really nice kid -- and he said "kid," we're getting older, so we -- the term kid sticks out -- had him for about 30 days, and man, I couldn't be happier. And we ran into a problem that the hours were too long, and he would go home, and his wife, she was not really happy about it.

And he -- he -- the hauler told me -- he kept telling me about it, and he said, I tried to work around that. And as it turned out, he quit. And I'll tell you, here's how he quit.

So I guess he went to a dairy, and he got held up -- not that I blame the dairy -- and he didn't get home that night until late. But the problem here was, that was the night that his little daughter had a dance recital, and apparently his wife said, you don't dare miss that.

And so I guess, according what the hauler told me, the next day he walked in and says, I quit. It's -- you know, my family is important to me, sorry.

And that's -- you know, that's a fact of life with I hope everybody. You know, faith and family is an important thing.

MS. TAYLOR: And I think your statement talks about the long hours and the difficulty of trying to find new people to fill those hauler spots.

THE WITNESS: Absolutely.

MS. TAYLOR: Thank you very much.

THE WITNESS: Thank you.

REDIRECT EXAMINATION

BY MS. HANCOCK:

Q. Thank you very much, Mr. Zalar.

I just want to make one thing clear. You have on the front -- on the first page you talked about the information that you have shared with respect to even the Mideast area.

But you have experience and knowledge about DFA's experiences with hauling costs throughout the country; is that fair?

A. Yeah, I talked to some of my other colleagues, you know, around the country within the DFA land, and so their experiences are very similar to what I presented here today. It's a repeating theme. Yeah. Unfortunately.

Q. Thank you so much.

MS. HANCOCK: Your Honor, at this time we would move for admission of Exhibit 309.

THE COURT: Is there any objection?

There is none. Exhibit 309, which is also known as Exhibit NMPF-49, is admitted into evidence.

(Exhibit Number 309 was received into evidence.)

MS. HANCOCK: Thank you so much for your time, Mr. Zalar.

THE WITNESS: Thank you.

Thank you, Your Honor.

THE COURT: Thank you so much.

MS. HANCOCK: Your Honor, we have Jeff Sims as our next witness. He has a number of exhibits. I'm wondering if we can just go off the record, mark those, and then we'll just make it really streamlined when we go back on.

THE COURT: Yes. Now, let me ask you, we know he'll be a long witness, true?

MS. HANCOCK: He's going to be a long one. That's what they tell me.

THE COURT: So is there anyone else that should go on before he begins?

MS. HANCOCK: If we don't start, I will never get him off the stand.

THE COURT: All right. Let's take ten minutes. I know we just had ten, but let's take ten. So please be back and ready to go at 3:01.

We go off record at 2:51.

(Whereupon, a break was taken.)

THE COURT: Let's go back on record.

We're back on record at 3:02.

Ms. Hancock, I see a large stack of documents.

MS. HANCOCK: Yes, Your Honor.

THE COURT: So can we begin with -- well, I should begin with having the witness identify himself and so forth.

Would you state and spell your name, please?

THE WITNESS: Jeffrey Sims, J-E-F-F-R-E-Y, S-I-M-S.

THE COURT: One M only?

THE WITNESS: One M only.

THE COURT: Have you previously testified in this proceeding?

THE WITNESS: I have not.

THE COURT: I would like to swear you in.

JEFFREY SIMS,

Being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. HANCOCK:

Q. Good afternoon, Mr. Sims.

Would you provide your business address for the record, please?

A. Yes. Lone Star Milk Producers, Incorporated, 813 8th Street, Suite 300, Wichita Falls, Texas, 76301.

MS. HANCOCK: And, Your Honor, we have exhibits that we'll mark from 310, starting with Exhibit NMPF-37, all the way through 319 at NMPF-37I. And so I can walk through those.

THE COURT: Would you again, just one at a time, read into the record both their numbers as we're marking them both.

MS. HANCOCK: Yes.

So NMPF-37 is going to be Exhibit 310.

(Exhibit Number 310 was marked for identification.)

MS. HANCOCK: NMPF-37A will be 311.

(Exhibit Number 311 was marked for identification.)

MS. HANCOCK: NMPF-37B will be Exhibit 312.

(Exhibit Number 312 was marked for identification.)

MS. HANCOCK: NMPF-37C is going to be Exhibit 313.

(Exhibit Number 313 was marked for identification.)

MS. HANCOCK: NMPF-37D, like David, will be

Exhibit 314.

(Exhibit Number 314 was marked for identification.)

MS. HANCOCK: NMPF-37E will be Exhibit 315.

(Exhibit Number 315 was marked for identification.)

MS. HANCOCK: NMPF-37F will be Exhibit 316.

(Exhibit Number 316 was marked for identification.)

MS. HANCOCK: NMPF-37G will be Exhibit 317.

(Exhibit Number 317 was marked for identification.)

MS. HANCOCK: NMPF-37H will be Exhibit 318, and that is where we will primarily spend our time with Mr. Sims this afternoon.

(Exhibit Number 318 was marked for identification.)

MS. HANCOCK: And NMPF-37I is going to be Exhibit 319.

(Exhibit Number 319 was marked for identification.)

THE COURT: Mr. Sims, you are our fourth witness today, and we have left you only a couple of hours today. I presume you will be back tomorrow?

THE WITNESS: I think that's everybody's presumption.

THE COURT: Very fine.

THE WITNESS: Your Honor, we seem to have a

technical problem.

THE COURT: Let's go off record for just a minute at 3:06 p.m.

(An off-the-record discussion took place.)

THE COURT: Let's go back on record.

We're back on record at 3:07 p.m.

Ms. Hancock.

MS. HANCOCK: Thank you, Your Honor.

BY MS. HANCOCK:

Q. Mr. Sims, would you proceed with providing us with your testimony.

You are going to walk through the PowerPoint presentation, in part, that's in Exhibit 318; is that right?

A. That's correct.

MS. HANCOCK: And just for your Honor's information and the rest of the audience, Mr. Sims has two segments in National Milk's proposal. The first one is going to be kind of the general overview of the process. The second part, he'll be back up later on for his regional testimony. So all of that is included in this -- in these exhibits, but you will see that a portion of his PowerPoint we will save for a later time.

BY MS. HANCOCK:

Q. And with that, Mr. Sims, would you proceed?

A. Yes.

THE COURT: So, again, just so everybody has the right exhibit, this one is NMPF-37H, Exhibit 318.

You may proceed.

THE WITNESS: Yeah. Do you want me to introduce myself?

BY MS. HANCOCK:

Q. Sure.

A. Okay. Or my history?

Q. Yeah.

A. Okay. My name is Jeffrey Sims, Jeff Sims. I currently am corporate secretary and chief market analysis officer with Lone Star Milk Producers, Incorporated, headquartered in Wichita Falls, Texas, as you heard a moment ago. I am a member of the three-person senior management team at Lone Star Milk Producers, along with the general manager and the Chief Financial Officer.

My responsibilities at Lone Star include, I manage our -- all our Federal Order pricing and pooling, all Federal Order issues. I manage our economics and price forecasting, member communications. I maintain our -- what we refer to as our milk budget, which is our forecast of supplies and demands out into the future, whether we are going to need milk, whether we have got milk to sell, etcetera.

I am -- I analyze all our potential milk sales for whether or not they are a good deal or not. I'm a member of the National Milk Producers Board of Directors, its economic policy committee, and the Federal Order task force.

My history, I grew up on a farm in West Central

Alabama, beef cattle and hay, principally. I went to Auburn University, where I received a Bachelor's and Master's degrees in agricultural economics, with my Master's thesis work in dairy production economics and dairy marketing.

Just out of graduate school, I joined the Market Administrator's office, the Federal Milk Order office in Atlanta, Georgia, as an agricultural economist.

About five years later I was promoted to the position that's now known in the MA system as an Associate Market Administrator. About two-and-a-half years after that, I was promoted and transferred to the Louisville, Kentucky Market Administrator's office in the position of Assistant Market Administrator, where I had functions as -- in every area of Federal Order administration.

In 1996 I left the Market Administrator's office and began working with -- as a consultant with marketing agencies in common, mostly over-order pricing agencies, but then there was a stint with a full broad pricing and pooling agency in the Southeast. I have also worked with marketing agencies in common in other areas, but my -- most of my history has been in the Southeast and Southwest.

In 2017, I went to work full-time for Lone Star Milk Producers in the position that I'm in today.

MS. HANCOCK: And, Your Honor, with that, we would ask to have Mr. Sims qualified as an expert agricultural economics as well as Federal Milk Marketing Order market

administration.

THE COURT: Does anyone wish to voir dire the witness with regard to his qualifications before I determine whether there's any objection to his being accepted as an expert witness?

No one does.

Does anyone object to my accepting Mr. Sims as an expert as designated by his counsel? Not his counsel, by counsel.

There is no objection.

I do accept you, Mr. Sims, as an expert in agricultural economics and as an expert in Federal Milk Marketing Orders marketing --

MS. HANCOCK: Administration.

THE COURT: -- administration.

MS. HANCOCK: Thank you.

THE COURT: Thank you.

THE WITNESS: Good afternoon. This testimony is presented in -- on behalf of National Milk Producers Federation in support and explanation of Proposal Number 19, which is the update of Federal Order Class I differentials.

As we start, I think it wouldn't be a bad idea for us to pause and kind of think about what Class I differentials are and what they do and why we have them, what purpose do they serve.

First -- and this is my list. I don't think you are going to find it in any book or any Federal Order

publication, but it is my list:

Number one, they compensate dairy farmers for the additional cost of producing Grade A milk versus Grade B milk;

They encourage milk to be delivered to Class I plants, the principal objective of the Agricultural Marketing Agreement Act;

They compensate dairy farmers for the substantial cost for holding reserves of milk for the Class I marketplace;

They establish a price gradient to encourage milk to flow from reserve supply areas to areas of milk need;

They provide financial incentives to pool milk for manufacturing uses when it's needed for Class I use;

They compensate dairy farmers for the considerable cost of balancing the large variation in daily, weekly, monthly, and seasonal Class I demand;

They align the class prices with the price demand elasticities of the dairy products between the various classes;

And they provide sufficient price alignment between the classes to minimize class price inversions.

Why are we here? The need to update Class I differentials. Class I differentials in most of the contiguous 48 states were last updated in Federal Order reform installed in January of 2000. Differentials were modestly updated in the -- what we commonly refer to as the Southeastern orders, Order Numbers 5, 6, and 7, in

2008, but have remained unchanged since then.

Data used to establish the 2000 Order Reform differentials was around from -- data from around 1998, so that data is now 25 years old, basically hauling data 25 years old. In the intermediate -- in the intervening quarter of a century, milk hauling rates have increased two-and-a-half fold, fuel prices have increased three- to fourfold, hauling equipment costs, trucks and trailers, have at least doubled.

The increases in the cost of hauling milk have significantly reduced the effectiveness of Class I differentials and threatened the supply of milk to Class I, one of the major principles of Federal Orders.

Just a quick graph here. This is the Cass Linehaul Index. Cass Systems is a proprietary company that does freight -- freight billing and invoicing. They see a lot of invoices for hauling. They are a kind of -- I think that the best common analogy or -- is the -- is -- what is it? Automated -- ADP, Automated Data Processing, who occasionally you will see in the news who reports employment. They handle a lot of -- of employee payrolls, and they have a good handle on what employment is doing, up or down. Cass is a lot the same way.

What we can see here is a history from 20- -- from 2005 of basically almost unfettered increases in base haul rates. These are base haul rates, not including fuel surcharges.

We all have experienced the increases in fuel

costs. This is a history of the U.S. average diesel fuel price as announced by the Energy Information Act -- or excuse me -- Energy Information Agency.

THE COURT: Every now and then, just to acquaint people who may be tuning in online and just joined us --

THE WITNESS: Yes.

THE COURT: -- every now and then tell us your exhibit number and what page you are on.

THE WITNESS: Certainly. This is Exhibit Number 318, and it is labeled Exhibit NMPF-37H.

And so let's talk a little bit about balancing milk supplies to Class I. This is not an easy endeavor, and one thing that -- one of the things that Class I differentials provides systems for.

There is a -- a need to balance supplies to Class I processing. And these costs are real. These balancing activities are very real, and they exhibit substantial cost.

There's Class I seasonality. It remains an issue in supplying Class I markets, and remains an issue in balancing individual Class I plants. Daily, weekly, and monthly variations in Class I demand creates additional balancing requirements.

I'm going to pause and slow down just a little to describe this graph and what it's trying to say.

I have selected the California Order for -- for display at this point in the presentation, largely because the fairly short time that the Order 51 has been in place,

so that we can kind of see the -- what we're trying to describe here. Later on in the -- at the end of the PowerPoint, the other ten orders are displayed and with a substantially longer timeframe.

So the blue line, whose graph or whose scale is on the left, is the daily average delivery -- or the daily average Class I producer milk by month for the period of when the Order 51 started, November of 2019 or 2018, basically through the end of calendar year 2022.

Each month I just took the pounds of producer milk on the Order 51 pool, divided it by the number of days in the month, and that became the daily average Class I producer milk.

And then for each calendar year I compared that and found which one of those 12 months in each calendar year represented the high month of Class I daily average producer milk.

Then I compared each other month to that high month, and so -- and then displayed the difference between the high month and every other month. So there's one month that has zero difference between the high month and the high month because the high month minus the high month is zero. Each other month within a 12-month period represents an amount of reserve that had to be held that year each month against the high month's Class I use.

So the bars at the bottom, if you will notice, are mirror images, if you will, of the line graph on the top, where you have dips in the yellow -- excuse me -- the blue

line, you will have peaks in the bars. And so the bars represent the amount of reserve each month that had to be held for that year's peak Class I use.

In the California order, it looks like it's somewhat common for somewhere around October or November to be the high month. In many of the other orders it is often October, sometimes January.

But I will point something out, too. On the right-hand side, the scale for the bars is on the right-hand side, and it is twice the scale of the bars of the blue line. And so just like the picture on the front of a box of cereal, this is -- the bars are enlarged to show texture.

The need for reserve milk supplies. Reserve milk supplies are necessary to make sure we have sufficient quantity of pure and wholesome milk and ensure a sufficient quantity of milk to be available for Class I.

The surges in demand of Class I come almost -- you know, the milk that serves those surges has to come from somewhere. We sometimes believe that the kind of milk appears at processing plants by magic or magnetism, but in truth, they must be pooled to those plants by dollars.

Parking milk in manufacturing while awaiting Class I demand is costly. Reserve processing capacity has to be maintained for those -- to hold those supplies of milk, those reserve supplies, until somebody needs them.

And those peak needs of reserve or the peak months of reserve mirror those months when Class I sales tank.

It's very common in -- in certainly the world I live in, and many other worlds, I believe, June and July are very bad months for Class I sales. When schools are out, Class I sales go down, and that creates a need to balance those supplies for when that school milk demand comes back, usually sometime around late August, early September.

There is -- you know, some people think that, you know, there's really no need anymore to balance Class I plants, that they all have lots and lots of silo space, you can put milk in there on Friday, and it will be, you know -- and when the plants are down on Saturday and Sunday, and everything's good.

That's not true. Most of the plants we deal with, their silo capacity may be a day's processing capacity or maybe just a little more. Even if you could -- even if they did have substantial silo capacity to hold two or three days, the health regulations won't let you do that.

Here's another problem, and it's a developing and has been developing and continuing to develop problem. Class I plants tend to be located near the people, population centers in cities. Increasingly, dairy farmers and milk -- and dairy farms are located distant from those cities. Cows and people really don't mix very well. Not -- there's not a lot of people who live in a subdivision who want a dairy farm in their backyard. And so the farms have moved farther from the cities, and the distance between those farms and the Class I plants that

still exist in the cities is getting longer. This is -- this is a trend that's occurring pretty much everywhere.

They -- dairy farmers are beginning to question, why are we doing this? Why are we hauling milk from our farms all this way to serve these Class I plants in cities when the money's not there? The difference in price doesn't pay to get us there. They are just questioning whether that's a sustainable system. Daily surges in the ebbs in Class I demand are unpredictable, and they can occur at the last minute.

We have had in many circumstances where you send a truck toward a -- a Class I plant or toward a city where the Class I plants are. That Class I plant calls and says, hey, don't bring that load. Well, it's already on the road. So you contact the driver, and you tell him to turn around and go back. Well, he gets back up the road an hour and a half, and the call comes back and says, oops, we didn't really need to cut that load, turn around and come back.

So if you think about it, that truck has gone over a part of that road three times. Now, I'm not blaming the plant, sometimes this isn't their fault. Plants, Class I plants, deal with retailers or wholesalers sometimes who don't communicate with the plant effectively. They will get orders that they weren't expecting.

And we got to remember that Class I sales are, you know, a retail item. Class I is retail, and you are -- the demand for Class I on any one day is driven by

consumer behavior. This back and forth just isn't always in the -- in the control of the Class I plant, but this back and forth costs money.

Federal Orders are tasked with what I think is a straightforward, but not easy to effectuate, objective. That's to make sure -- they are to insure -- the use of the word insure with an "I" -- a sufficient quantity of pure and wholesome milk and be in the public interest. But we tend to shorten that and say, an adequate supply of milk for Class I demand.

Orders fulfill this mission, or at least try to, in a straightforward and logical way. The only way that the Secretary of Agriculture can know there's enough milk is if there's too much. Just like when you go on a road trip in your car, you are going to make sure you got enough gas, and you are going to make sure you got more than enough gas. That's how the Secretary ensures that there's enough milk, you have to know that there's too much, which means there's always a reserve against what we think the Class I might be.

In supplying Class I, the last hundred pounds is just as important as the first hundred pounds. If somebody goes short, then the market is short.

We need to incentivize the deliveries of Class I milk. Sometimes people seem to think that the seasonal demands in Class I just aren't there or that there's -- you know, those are no longer a problem. But the seasonal surges in Class I demand that's -- sometimes there isn't

enough milk to go around.

I think you will find that some of the following witnesses will probably testify that they have to ration milk, particularly when schools start back up in August and September. And plant operators need milk when they need it, not the next day, not the next week. Just ask a plant manager, a load that arrives a day late is just as good as not coming as far as they are concerned.

Class I differentials recognize the many challenges of supplying Class I by incentivizing the delivery of milk to Class I, and they do it with money. We can preach all we like about how we ought to supply Class I, but you have to provide the proper incentives to bring that milk to Class I, and the way we do that is with Class I differentials.

Dairy farmers, as I mentioned, are simply tired of hauling milk hundreds of miles for inferior returns because we are all -- you know, I got to admit, I'm getting long in the tooth, and I have been told my whole career that Class I comes first. You serve your Class I customers first, Class I comes first, serve the Class I customer first, whatever you got to do, serve your Class I customer.

I'm here to tell you that there's a generation of dairy farmers that don't accept that. They are asking hard economic questions about why are we moving milk hundreds of miles and taking a return for that that is less than we could get at a local market. And you know

what? I'm having a hard time answering that question anymore. I really am.

And it's -- this is an imperative. We've got to straighten this out or the threat to Class I is going to be real.

I'm going to go off the slides here and interject something. We often talk about or use the phrase "threaten the supply to Class I." And -- and maybe we don't pause often enough and think about what that really is.

In the practical sense, there are two threats to -- to supply to Class I. The first is, if the economic environment isn't conducive to milk production, the farms are going to go away. The first threat to Class I is actually a threat to all classes, that the farms aren't going to be there. We have got to have -- you know, the one thing that you got to have to have dairy is a dairy farm. They don't have another way to do it. So there's the first and -- and, of course, saddest threat to Class I, or supplying milk to Class I.

The other threat to Class I is the economic incentives aren't there and we take the milk someplace else. If the returns are better at a cheese plant, we don't bring it to Class I, there's the second threat. I I'm going to even go further off script.

The decision to deliver milk to Plant A is almost always the decision not to deliver it to Plant B. We daily make decisions about where our milk needs to go.

Sometimes you -- it's -- the decisions are made somewhat for you because you have contractual relationships, but long-term, if Plant A doesn't pay its way, you are going to opt to go to Plant B. That's just the way it is.

And we have a generation of dairy farmers who are saying, why are we going hundreds of miles to Class I plants when we probably could do better keeping our milk at home? This is an imperative.

Now, I want to pause a minute and talk about something that we hear semi-regularly. This is a topic which ebbs and flows in the milk business, and I think it's on the rise. But we need to talk a little bit about why over-order prices are not a substitute or an adequate replacement for Federal Milk Order prices. And I have lived over-order prices in the vast majority of my career, and I speak from experience on every one of these.

There are people around who champion the idea that over-order prices are a desirable and workable alternative to adequate basic levels of Federal Order prices. In add- -- and I -- and it's not just Class I. I said Class I here, but the truth is, all order prices. And I have only one word in response: Bunk.

In my career, I witnessed kind of two camps of people that will espouse this philosophy. The first are people who just don't understand the milk business. They don't understand how order prices work, why we have them or -- excuse me -- over-order prices, their function, their benefits, and mostly their limitations. These are

people who don't understand how over-order prices are not an effective substitute.

Then there are a group of people who espouse replacing Federal Order price regulation, or substantially reducing price regulation, and substituting that with over-order prices, and those are a camp of people who know all too well the limitations of over-order prices.

We'll come back to that in a little bit because -- but I want to go through a few reasons why over-order prices -- they have their place, they are an important part of the price structure, but they are not a substitute for adequate Federal milk order prices.

The first, and this is the -- and actually, you could almost stop with this one. I have a colleague in the milk business who always kids me, I like to use the word "ephemeral" when I refer to over-order prices, and we can be a little less highfalutin with our term. We're just going to say, they're here today, gone tomorrow.

Over-order prices do not have the durability of federally-regulated prices. They can be swept away with little or no notice, and once gone, believe me, they are difficult to re-establish. I don't know what the word for next to impossible is, but it gets close. It is hard work to re-establish over-order prices once they are gone, and they can be gone at the drop of a hat.

Sometime -- you know, and the reasons they crumble are any number of reasons. And they have actually nothing to do with the supply and demand for milk in a particular

area. They can be destroyed from supply/demand imbalances in a long way away. Over-order prices are highly susceptible to what's happening in other markets. They respond to what happens in other markets. There can be a problem in another market, and that wave of problem sweeps over big chunks of geography.

As I mentioned, over-order prices are not easily moved, with the exception that they are very easily moved down. They quickly, I have said, market participants can get rid of over-order prices or reduce them substantially with about three phone calls. You can change them across a broad area with the threat of cheaper milk.

They are hard to move. There's contracts between the seller -- we have heard issues at this hearing about the contracts that exist between Class I processors and their customers, and the fluid milk customers, and those contracts usually have some sort of fixed differential. One witness I believe referred to them as tolling fees, and that's an apt description. You take the Federal Order price, and you add -- and you convert it to a gallon price or half gallon price, and you add a fixed differential, and that's what the customer pays. The price moves up and down with the Federal Order prices.

And that fixed differential, that tolling fee if you want to call it that, is usually fixed for the life of the contract. And it's hard to -- to get a customer -- and obviously when you are -- as a Class I processor, when you are trying to figure out your bid for business, one of

the elements in that fixed tolling fee, if you will, is a level of over-order price. If the plant's paying a premium, some people call them, they are going to figure that in to what they have to -- how they have to price out that gallon or half gallon of milk.

And -- and you want to -- you have to be receptive to your customer's issues, and you don't want to raise the price on them in mid-contract, because they cannot pass on that over -- increased over-order price. They recognize changes in Federal Order prices, but they don't have any real mechanism in their contracts, with their retail or wholesale buyers, to adjust for those contracts in the middle of the contract.

And when you are involved in over-order prices, you find out soon that some processors are always in the middle of their contract. They don't all run, you know, January to December. They -- they are all over the place, so somebody is always in the middle of their contract. So that makes it difficult to move them up because of the relationship between Class I processors and the packaged milk retail customers.

And here's another biggie. And this is one that if we hear it once a week, we hear it more than that: Over-order prices simply do not carry the confidence from processors that Federal Order prices do. This is the deal.

The buyers of bulk milk in their package fluid milk customers, they simply rely on the certainty of the

pricing under Federal Orders. As we mentioned, those contracts move up and down with the Federal Order prices, and we have heard over and over and over as sellers of raw milk to Class I processors, that if it's on that Federal Order price announcement, we can pass it on to our packaged milk customers. These fluid milk product contracts recognize movement in the Federal Order prices, but they don't recognize movement in over-order prices.

Honestly, buyers of milk, processors of milk, simply don't have the confidence in over-order prices that they -- that they have in Federal Order prices.

One of the things about orders is, you know your competitor plant down the road, that other -- that next fluid milk processor is paying the Federal Order price at least. The orders require payment. They audit. You know, those Class I processors know that the people down the road who are poddling milk or manufacturing the same product are subject to those minimum prices, and they trust them.

That's not always true when it comes to over-order prices. They sometimes simply don't have the faith in over-order prices that they do in Federal Order prices. There is always somebody out there who wonders whether their competitor is getting a better deal.

We provide audits, we do all this work, and at the end the day, wondering whether your competitor is getting the same price as you is a whole lot different than knowing your competitor is getting a the same price as

you. When it comes to the Federal Order prices, they know. When it comes to over-order prices, sometimes they wonder.

Over-order prices tend to be quite flat over large pieces of geography. The industry basically adopts the Federal Order Class I price surface as the Class I -- as the price surface. It's very difficult for over-order prices to institute a slope which adds to or subtracts from the Federal Order Class I price structure or the Class I price slope.

It's hard enough to convince a customer that, you know, they need to pay an over-order price. It's really hard to convince them they need to pay a higher price than the plant up the hill from them. Think about it, if they don't trust them to start with, they are certainly not going to trust them when you tell them that their price is going to be different than somebody else's.

Over-order prices are not useful, particularly, to change the slope or change the price relationship geographically between plants.

And today, the size of these fluid product plants, these Class I processing plants, they are -- they are fewer and bigger, and that means each plant has a bigger footprint. That means each plant interacts in competition with more plants. The bigger the circle, the more circles you touch.

And the growth of national and regional, multi-regional retailers has only made that worse because

if you have grocery stores and -- all across the country, or you have, you know, you know what the over-order prices are all over the country. And so it's very easy for them to say, well, they are charging X over here; why are you charging me Y? They want stable prices, and they want over-order prices that are similar over large pieces of geography.

So back to our question earlier, and the two camps of folks who champion over-order prices as replacements for Federal Order prices. First, again, the people that don't understand. They don't get it. They don't understand those limitations. They don't understand those problems with over-order prices. They don't -- they don't understand where over-order prices fit in the system. I'm going to chalk that up to inexperience, or maybe, you know, as economists we always tend to believe that supply and demand will work things out. It doesn't.

The reason we have Federal Orders, the reason we have Federal Milk Marketing Orders, the reason they exist is that we have seen over and over that milk markets don't transmit milk values equitably when price regulation is absent. It's just that simple. They don't do -- they -- milk markets don't function that well.

The other camp, those are who understand the limitations of over-order prices all too well. These are parties who are counting on the eventual failure or demise of over-order prices. As more pricing emphasis is put on unregulated prices versus regulated prices, the more these

parties benefit when the unregulated prices crumble. So you have people who are saying, parties who say, hey, we need to let the market work better. We need to lower the over-order prices and leave more headroom for the market prices to work over net. And they will even say, the over-order prices will compensate. Well, maybe they will, maybe they won't. But I think, I believe, they are actually counting on them failing.

I'm going to put this in a term I think we all can understand. This is the foxes asking the Secretary of Agriculture to put them in charge of the hen house. I'm going to say it again. These are foxes asking the Secretary of Agriculture to put them in charge of the hen house.

The role of Class I differentials in the occurrence of price inversions are limiting, minimizing the occurrence of Class I -- of price -- Class I price inversions.

Now, before I go any further, my definition of a price inversion, is one of -- when one of the Class II, III, our IV prices exceed the Class I price at a location. I know another witness defined it as when the blend price exceeds the Class I price. And that's fine. But my definition is when either Class II or III or IV, or maybe more than one of them, at any location, or some location, exceeds the Class I price.

THE COURT: Because that's such a key issue, I want you to identify the exhibit number and the page

number on which you have written that.

THE WITNESS: Yes. Just a second, Your Honor.

My exhibit -- or the National Milk exhibit -- and I got to be honest, I don't -- I was otherwise worried about tech issues. So what's -- what's NMPF-37A? 311. The data for these slides comes from NMPF -- or marked 311, in NMPF-37A.

So --

THE COURT: All right. But I was just looking just in the one we're in --

THE WITNESS: Yep.

THE COURT: -- Exhibit 318 --

THE WITNESS: Yes.

THE COURT: -- is also NMPF-37H. And on page 24 you say it very clearly.

THE WITNESS: Oh, yes. I guess I skipped -- I got ahead of myself.

Again, this is my definition of Class I price inversion and why inversions are a problem. And I probably am being repetitive. I think we have heard this before at this hearing, but they tend to cause unequal returns to producers serving the same marketing areas. When you have this -- the price inversions, that increase the -- it creates the incentive to depool. Producers don't get paid or don't necessarily get paid the same for serving the same markets.

There's non-uniform prices to handlers. Some handlers get to depool and actually do, indeed, get a

benefit from that. Not every handler does. I readily admit, pool distributing plants don't get to take advantage of this. It creates distrust in the marketing and pricing system, and that's just about as bad as it gets.

And then of course, it puts class prices out of line with their relative price demand elasticities.

So the incidences of Class I price inversions. I did something that I guess, you know, probably needed done. I counted. I went back and figured out how often they occur, which class price they occur on, and their frequency. And it actually is very startling and very telling.

I ran all the way back to 2000, whatever the class -- the Federal Order mover was, whether it's the new form of -- the recent form of computation of the mover or the old higher-of. I didn't try to make any value judgment as to which one to use. I just used the one that the Federal Orders announced.

And I ran three scenarios, and you will see -- again, this is from 37A, whatever, again, that was. I have since forgotten what my counsel told me that number was.

THE COURT: That's Exhibit 311.

THE WITNESS: Oh, there you go. 311. Great. It's a 20-some-odd page long series of numbers. And it's a spreadsheet that basically counts. Okay? Counts the number of inversions.

And so -- and I did it by class, how many -- and under three, in essence, Class I differential scenarios.

The first is with the minimum differential at $1.60. That's where we are today. And then running it at the minimum differential that National Milk Producers is proposing in our Proposal 19, which is $2.20 per hundredweight. And then I also ran it at zero.

And let's pause here a second and talk about what a zero differential means.

If you are sitting -- if there's a place in this country where there is an effective zero differential, the Class I mover is the Class I price. If you don't have anything to add to the mover, the mover becomes the Class I price.

So I compared those three items, those three scenarios, those three environments, and said, okay, what happens to Class I price inversions? If you look over those 282 months from January 2000 through June of 2023, a Class II price inversion at the $1.60 zone occurs about 5% of the time. At the $2.20 proposed minimum differential zone, they occur about 2% of the time. In any zone that has a zero differential, again, where the mover is the Class I price, with regard to the Class II price, they occur a little more than half the time.

For Class III -- and part of this is the obviously the fixed differential on Class II of $0.70 above the Class IV skim. So that's why you have something more in terms of frequency on Class II.

For Class III, same question. How many times did it occur at the $1.60, at the $2.20, and at a hypothetical zero, and a hypothetical $2.20 I guess we should say. About 6% of the time there's a Class III inversion at the current $1.60 differential, minimum differential zone; about 3% of the time at -- to the proposed $2.20 zone; and a little over a third of the time at a zero zone, if you have a zone with a zero differential. It's a little less than Class IV, which makes sense, because over time, Class IV tends to be a little behind Class III, so the incidence of inversions are a little less. About 3% of the time in the one current $1.60; 2% of the time in a $2.20; 29% of the time in a zero differential zone.

Now, let's just look a second at another set of statistics, and these, again, are all from that same -- did you say 311? Great. 311.

Exhibit 311. Let's just look at the zero. If we have a slice of the country that has a zero differential, a zero Class I differential, again, the Class I price is the mover each month. 35% of the time there would have been a class price inversion, in other words, one of the three II, III, or IV class prices would have exceeded the Class I price. 35% of the time one of them would have exceeded. 24% of the time, two of the classes -- class prices would have been higher than the Class I price; 12% of the time, all three Class II, Class III, and Class IV would be higher than the Class I price at a zero differential; and 28% of the months there would be no

class price inversion.

So if you look at that, in total, 72% of the time at a zero differential there would be some form of class price inversion, so one or more of the Class II, III, or IV prices would have exceeded the Class I price at a zero -- zero differential zone. I think that's significant.

THE COURT: So for someone who is reading the transcript, you are now on page 27 of Exhibit 318.

THE WITNESS: Yes, ma'am. And you -- you asked me to do that, and you know what I haven't done? What you just reminded me I was supposed to do.

THE COURT: I'm hesitant to stop you. You are like a rolling snowball.

THE WITNESS: No, ma'am. I'm from Alabama, snowball analogies don't work on me.

THE COURT: I need you to stop. We need to let our court reporter stretch. This has been very intense.

THE WITNESS: Yes, ma'am.

THE COURT: Let's take ten minutes. Please be back and ready to go at 3- -- no, 4:0- -- let's come back at 4:05 p.m.

We go off record at 3:53.

(Whereupon, a break was taken.)

THE COURT: Let's go back on record.

We're back on record at 4:07.

THE WITNESS: In the interest of time I'm going to skip the next four slides and move on to page 33 of 64.

This next series of slides, quite frankly, ought to scare the socks off most of us, because it scares the socks off of me.

I call this the most insidious form of a negative producer price differential. Dairy farmers haul their milk hundreds of miles to Class I plants, and they net less than the Class III price or the Class IV price.

These are based on Exhibit NMPF-37D, which is what number? Anybody got a clue? 314.

This is a straightforward analysis. I simply look at the cost of hauling from a hypothetical farm in Hereford, Texas, which is considered the -- kind of the epicenter, the center of milk production in the Texas Panhandle, to a hypothetical Class III or Class IV located in Amarillo, about 45, 48 miles from Hereford. So we have a hypothetical farm, hypothetical plant in Amarillo. And then the order that farm can move to a Class I pool distributing plant either in Dallas or Houston.

Let's see what the economics are that face that plant -- or that dairy farmer. This is June 2023, the first one. The blend -- or the Class III price at -- oh, by the way, when they sell their milk to the Class III or Class IV price in Amarillo, that's all they get. They are not part of the pool. They don't -- they don't want to -- you know, they are not qualified. They don't get a pool draw. They take the Class III price or the Class IV price. We are walking away from the pool.

So that farm is about 48 miles from Hereford to

Amarillo. Over, in June, that would have been about a $0.41 haul. So at a 14.91 Class III price, that farmer nets $14.50 for the sale to the Class III plant -- or at the hypothetical Class III plant in Amarillo.

If that farm ships its milk to Dallas, it's a little over 400 miles, in June, that would have been a little over $4 hundredweight haul. They get the statistical uniform price in Dallas. It was 17.25 in June. And so they walk away with 13.04. They give up, they lose $1.46 per hundredweight versus the Class III price. Not the blend price, the Class III price at Amarillo.

If they go all the way to Houston, it's 635 miles. That's well over a $6 per hundredweight haul rate. They get 17.85, which is just $0.60 more than the Dallas price, and their statistical uniform price, they net $11.28. That's $3.22 less than the Class III price. That's why I call this an insidious form of negative producer price differential.

Now, June of 2023 was a very high Class IV price month relative to Class III. You go through the same series of computations, only you just compare to the Class IV price at Amarillo.

On Class IV, hauling their milk to Dallas, they net $4.81 less than the Class IV price, the net delivered Class IV price at Amarillo, or they lose 6.47. They give up $6.57 a hundredweight by hauling milk to a Class I plant 635 miles away.

Now, agreed, noted, June was a bit of an anomaly price month.

So let's look at what those prices look like from June -- excuse me -- January of 2018 through June 2023, the simple average of the Class III, Class IV, statistical uniform prices at Dallas and Houston.

THE COURT: Let me just interrupt just a minute for page 35.

THE WITNESS: Yes, Your Honor. This is 36. I'm on 36 of 64 now.

THE COURT: Go back to 35 for just a second.

THE WITNESS: Yes, ma'am.

THE COURT: So the trip to Amarillo pays the Class IV price.

THE WITNESS: Yes.

THE COURT: So the net is on a Class IV return rather than Class III?

THE WITNESS: Correct. And -- and -- and page 35, this is selling their milk at the Class IV price. Page 34 would have been selling it at the Class III price.

THE COURT: So just read me, before you get to that $17.85, which is the net, should it say producer net Class IV return?

THE WITNESS: Your Honor, you are absolutely right. It should.

THE COURT: Okay.

THE WITNESS: On -- on 35, it absolutely should say "Class IV" next to that 17.85. Yes, ma'am, you are

absolutely right.

THE COURT: All right. I'm going to make that correction on my copy. I would like the record copy to show that. We're in Exhibit 318. We have turned to page 35. It's a small thing.

THE WITNESS: But an important small thing.

THE COURT: We're merely changing the Roman numeral "III" to the Roman numeral "IV."

THE WITNESS: And I wouldn't be a bit surprised if we see that error again in a couple of pages.

THE COURT: Okay.

THE WITNESS: Okay.

So on to 36. Again, these are the average prices, average Class III price in -- for the period of January 2018 through June of 2023.

You'll notice the hauling costs are a little bit less. The mileages haven't changed, but the hauling costs are a little less. Hauling costs in 2023 were higher than they were over the average of this, however many years that is, four and a half to five and a half.

In this case, the hauling cost from Hereford to Amarillo is $0.39 a hundredweight, the average Class III price for that period of time was 17.73, so the producer's net Class III delivered to a plant in Amarillo, revenue is 17.34.

If he hauls his milk to -- or her milk -- to Dallas, again, that haul rate is a little bit less. I used the average haul rates across those periods. The

statistical uniform price average during that period was 18.03 at Dallas, for a net return of 14.71, $2.63 less than the Class III price delivered to Amarillo.

Same story for Houston. Again, the haul rate was a little lighter than it was previous -- or for this period versus June only. Net return 13.45, they yield $3.89 less than the Class III price hauling their milk to Class I in Houston.

And, Your Honor, we will go ahead and acknowledge that on that same line, that this one should read net Class "IV" return at Amarillo. Same story.

Well, the title's wrong, too. Okay. Let's -- and the title it should read Class IV, and in the producer net Class IV return at Amarillo -- I did get the SUP right, I think. So --

THE COURT: Okay.

THE WITNESS: Co-ops worry about blends.

THE COURT: So only -- okay. We're -- we're on page 37 --

THE WITNESS: Yes, ma'am.

THE COURT: -- of Exhibit 318, and we merely need to change Roman numeral "III" to Roman numeral "IV" in two places.

THE WITNESS: Yes, ma'am.

THE COURT: Okay. And, Mr. Hill, you will make sure that's done?

Thank you. You may resume.

THE WITNESS: Same story. This is Class IV. The

net return after hauling for Class IV, Class IV, at Amarillo, 16.68, 14.71 at Dallas. When you haul the milk down there, you take $1.97 less from the Class IV price, and you receive less than the Class IV price net in your check. It's $3.23 less than the Class IV price if you go all the way to Houston.

If you want a picture of a threat to Class I, this is it. So when we talk about threats to supply -- the supply of Class I, here it is.

Kind of a quick message. The issue of updating Federal Order Class I differentials is economically, as a matter of economics, no different than updating Federal Order Make Allowances. The results of continued insufficient Class I differentials will have the same impact on dairy farmers' deliveries to milk to Class I as continued insufficient Make Allowances will have on hard product manufacturing plants. This is an economic fact. This is what's going to happen. Again, if you want a picture of a threat to Class I supply, here it is.

Economically Make Allowances -- Make Allowances are -- reflect the cost of conversion of a raw product -- and a raw product of -- to -- its raw -- the cost of conversion, product utility conversion. Class I differentials are another kind of utility, time and place utility. They compensate dairy farmers for getting a raw milk -- getting a raw product in the wrong place to a raw product in the right place.

Updating Make Allowances and updating Class I

differentials are two sides of the same coin. Updating either one, but not both, will reek havoc on dairy product markets and threatens the adequate supply of milk.

Now, just a quick -- we have heard some parts of this already, but we're going to -- we're going to introduce a topic that you will here more about later. This is our Class I differential project, or the process we followed, the National Project.

We have heard this phrase, Class I differentials, or developing them, is part art, part science. We heard from Dr. Nicholson yesterday on the science part. The, you know, taking measurements, routing milk, how much does it cost to move it, what's it worth when it gets there.

And as you heard from him, then, then there's another step after that, and that's the art. The boots on the ground knowledge, the market, you know, this is why this milk moves this way, this is why this milk can't move that way, applying that information and developing a standard traditional Class I price surface.

In National Milk we had a -- we had a -- we coined a name for these groups. We broke into four regional groups. We called them colored pencil crews. It's a bit of nostalgia. When I drew all the maps I have drawn in my career, a piece of paper with blank counties, and grab a stack of colored pencils and start drawing. So nostalgia, we called them the colored pencil crews, although I probably was the only one that used a colored pencil.

So our four regional committees. We -- we --

nobody knows how to -- how milk moves everywhere in the country. So we divided up the work in order that we could utilize the brainpower and knowledge of the folks whose boots are on the ground in the various parts of the country.

And, Your Honor, we're on 44 of 64.

And so we had four regions. The Northeast, Mideast, Middle Atlantic group, kind of Orders 1 and 33, plus each one of these had some unregulated. Some of these kind of broke up in a little bit different way. This -- but this is how we started. They kind of morphed in and out a little.

Upper Midwest, Central Order, roughly Orders 30 and 32. The Southeast/Southwest committee, which I chaired, that's Orders 5, 6, 7, and 126. Each one of these had a chair, and several people -- many people -- I think several doesn't cover it. It's many people worked on these -- this project. The West, Orders 5 -- 51, 124, and 131.

And then each area had some unregulated territory to work on also.

The way the structure worked, we got the USDSS model. That was the skeleton. And then we started hanging the meat on the bones based on our knowledge of anatomy.

And so that created the Class I price surface we recommend in Proposal 19. It went through many iterations. There was a lot -- again, I was probably the

only one that used a colored pencil and the eraser, but it went through a lot of those. It was a great lot of discussion over the -- I'm going to say this. There weren't a lot of big differences between the -- the regions where we had to kind of align the prices.

And the reason we avoided some of that in the process, price alignment between the regions, early on, I believe sometime between the second and third run of the model, we had a physical meeting, about a dozen of us, and sat down and -- and worked through an initial recommendation of prices at what we called anchor cities.

If you will note, most of these cities kind of -- and we're on 43 of 64 --

THE COURT: Actually, we should point out, in case people get confused, you have got all the page numbers.

THE WITNESS: Yes, ma'am.

THE COURT: We just left page 41 and page 44, who are front and back.

THE WITNESS: Oh, my word.

THE COURT: And now we have --

THE WITNESS: It should --

THE COURT: -- 42 and 43.

THE WITNESS: We've got a -- I have got a typographical error there somewhere. I know what I did.

THE COURT: It doesn't matter. We got it all.

THE WITNESS: Yes, I think I may have moved a slide at some point after I numbered them.

And you are asking me to count past 40, we --

we -- I can -- I know my age, and it's beyond 40.

THE COURT: I accepted you as an expert witness.

THE WITNESS: Yes, ma'am. There we go.

So anyway, we basically had a structure, we called them anchor cities, that kind of fell across the borders or along the borders of these five regions. That gave each region something of a -- of a jump-off spot to -- to develop their prices without -- without all four regions just kind of starting out on their own.

So we came to some agreement about some tentative -- what I would call tentative prices. They -- some of them stuck through the whole thing, but some of them moved a little bit. But these anchor cities were important to kind of define where the -- where the lines were and how the regions matched up.

And that -- I'm going to stop right there with 4:29 left to go. See, I told you I could make it.

Stop the clock.

MS. HANCOCK: Thank you, Mr. Sims. Appreciate your effort in putting all this together and taking us through it.

Your Honor, at this time we'd make him available for cross-examination.

MR. ENGLISH: Your Honor, my name is Chip English. I'm representing the Milk Innovation Group. And I am reminded that the Milk Innovation Group includes nine proprietary operators and one cooperative.

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CROSS-EXAMINATION

BY MR. ENGLISH:

Q. Good afternoon, Mr. Sims.

A. Good afternoon, Mr. English.

Q. So I think at first I need to clarify something, because I thought I heard your counsel at the beginning of your testimony say that you were covering some materials and that you would come back to talk about other materials.

A. Yes, sir.

Q. And so I wanted to make sure I understood, as I started this discussion, that I understood what it was you did cover or intended to cover and what -- this is about NMPF-37 -- what in NMPF-37 is left to be covered?

A. We will pick up at a later date with Part 3, which begins on page 24 of 51. So this -- we're basically going to stop before we get to the Southeast/Southwest regional price recommendation.

Q. And --

A. That will be handled by me a little bit later.

Q. Okay. So it might not come as a surprise that when I prepared for your examination, I prepared for the entire thing at once. So I may have to figure out my way.

But so that means you have basically covered Parts 1 and 2 through page 24?

A. Yes, sir. Or a little bit on 24.

Q. Okay. So I will, thus -- just a second. I didn't bring everything up.

I will leave it to your counsel and USDA to talk about how that happens with four minutes and 29 seconds, but I am not concerned about that today.

What exhibits -- I think -- can we just go through the exhibits and make sure that I understand -- I think you perhaps covered a number of them, but I'm not sure if you have all of them.

So obviously we talked about 310. I know you talked about --

A. I'm at a disadvantage. We were having an AV issue when these were numbered. So if somebody could help me with those again, that would be helpful. Or I use the plural "we." It was I.

Q. Do you have the NMPF -- because I can refer to them by the NMPF documents.

THE COURT: So we know now -- we know we went into Exhibit 311.

THE WITNESS: Yes.

MR. ENGLISH: Okay.

THE COURT: And we know we went into another one momentarily.

MR. ENGLISH: Well, do you have the NMPF documents in front of you?

THE WITNESS: So the answer is no.

THE COURT: We talked about -- when we were on page 34 of Exhibit 318, you said the basis for this is in Exhibit 314.

THE WITNESS: Yeah. It -- would it help -- yeah.

Can we turn that screen back on? Great.

Why don't we just go through these right quick. You can look at -- for most of these I think -- I tried to put the source -- my source exhibit. Obviously doesn't have the number 300 whatever.

So this one is --

MR. ENGLISH: Well, your counsel has handed them to you, so maybe --

THE WITNESS: Okay. Cool. We can do that.

MR. ENGLISH: Okay. So --

THE WITNESS: She got them out of order, but that's okay. Okay.

BY MR. ENGLISH:

Q. All right. So I don't think you actually discussed Exhibit 312, which is NMPF-37B, but it looks to have been included in the PowerPoint, and you skipped through it; is that correct?

A. Let me get there, please. 312?

Q. 312, which is 37B.

A. Yes. We -- we did -- we'll discuss that one at another time if you like. But it is in the PowerPoint and in the Appendix at the end, I believe.

Q. All right. And then 313. Have you discussed 313?

A. We did not discuss 313. It's discussed in the --

Q. Part 3?

A. No, I believe it's discussed in Part 1 of 310.

Q. Okay.

A. Mr. English, 312 is cited in --

Q. We have already covered 312.
A. Oh, okay. I'm sorry.
Q. And you have already said 313 was covered.
A. Yeah, it's cited in 310.
Q. Okay. What about 314?
A. It is cited in --
Q. I know they are all cited in 310.
A. Yes.
Q. Okay. But the question is, are they in Parts 1 or 2, or Part 3? That's what I'm really getting at.
A. I believe they -- let me just look at these right quick. I believe everything through 316 is actually cited in Part 1.
Q. Okay. So it's 316 that's not in --
A. 317, I believe, is cited in Part 3 of the 310.
Q. All right. So thank you. All right.
So you were here yesterday, correct?
A. I was.
Q. When Dr. Vitaliano testified that Dr. Nicholson and Dr. Stephenson did three iterations --
A. Yes.
Q. -- of the model. You heard that testimony, correct?
A. I did.
Q. And then Dr. Nicholson was very clear that after they did their runs, National Milk Producer Federation's adjustments were done independently by National Milk without his oversight or input, correct?

A. Correct.
Q. And you didn't ever share those with them, correct?
A. With?
Q. The adjustments, with Dr. Nicholson or Dr. Stephenson, correct?
A. Not that I recall.
Q. And so given the fact that the iterations are --
A. Let me correct that. We may have. But I --
Q. Did you hear Dr. Nicholson testify yesterday that he hadn't seen them before?
A. Well, then if he hadn't seen them, then we must not have.
Q. So given that you had already had access to the model and already three iterations, how come additional adjustments were necessary?
A. There's -- you know, as Dr. Nicholson testified, very clearly I thought, there are certain -- a model is, by definition, just like the little ones you put together when you are -- you know, when you are -- a battleship or a car, it's a simplification of reality. It has to be. You cannot model in everything that occurs in milk markets. They use big data and that -- there are certain things that the model doesn't know.
Let me give you an example. There's a pool distributing plant located in Southern Indiana. Right around that plant is a nice little pocket of milk. And if the -- you know, the model probably recognizes that that

milk exists, but -- and probably knowing how those models work, it probably would like to take that milk and move it south and pull milk from the heavier supply areas down into Holland. It's Holland, Indiana, kind of in the southwest corner of Indiana.

Well, what the model doesn't know is that those are small farms, they are members of a particular religious sect, and that milk just isn't practical to move. It supplies that plant nicely, but it just isn't available to move anywhere else. You -- it is -- they are very small, extremely expensive to pick up on a single route, to make a tanker load. The model doesn't understand that.

That's the kind of information that the people that worked on this understand and know and that the model would never know.

Q. So I don't want to go down that track today, because if I do, we won't get any progress. But we'll get back to Holland, Indiana another time.

Were you here -- but -- but on page 3 of Exhibit 310, you acknowledge that the original model runs included the same $1.60 base Class I differential that we have in place today, correct?

A. Yes.

Q. And were you here yesterday when Mr. Miltner asked questions of Dr. Nicholson about Ada County, Idaho, or is it Ada County, Ada County, Idaho?

A. I was.

Q. Okay. And that $1.60 was the result for the October run and $1.70 for the May run, correct?
A. Yes.
Q. In other words, the model results indicated there was no reason to have any price associated with those areas to attract milk for fluid use, correct?
A. I don't know that that's what the model means or not.
Q. Did he not say that if you create another hundred pounds of milk, if you put another hundred pounds of milk, no one would want it at that location?
A. Yeah. But I don't believe that's a proper interpretation to say that the milk there has no value.
Q. I'm not saying it has no value, but it doesn't have any additional value for the purpose of Class I, correct?
A. Again, I'm not sure I would agree with that. But the model did generate -- would have generated zero cents absent the 1.60?
Q. Yes.
A. One of the months, the model number, the initial run would have been zero, and then the other month would have been 10.
Q. Correct.
A. Absent the 1.70.
Q. So the marginal value of another hundred pounds of milk at that location would be zero in October and $0.10 in May, correct?

A. I believe that may be the interpretation.
Q. In other words, the model results indicated that there was no reason to have a higher price associated with those areas to attract milk for fluid use, correct?
A. Oh, I don't believe that at all, that there's still a cost associated with delivering to Class I that must be recognized in the Class I price. Plus, there are other objectives of the Class I price which necessitates its inclusion. To say that the Class I milk there is worth nothing more than Class III I think is an improper application of the reality of the milk business. We have to have additional money on the Class I price to make it worth anybody's while. Otherwise, you never -- you would always opt to go to the easy places. Class III and Class IV are generally easier to serve than Class I, so without some additional money you are not going to do it.
Q. But nonetheless, the point of the model is to generate the marginal -- evidence of the marginal value for milk at a location, and that, along with I think a county in Montana, was the lowest value, correct?
A. I don't recall the county in Montana, I do remember Ada County being the low county, Ada County, Idaho.
Q. So what I'm struggling with --
A. I think -- I'm sorry.
Q. Go ahead.
A. I think it's both. I don't recall there being one in Montana, but if there is, there is.

Q. Okay.
A. But today there's 150 counties with $1.60. And this -- this model returned either one or two counties with those low numbers. I think that is telling in itself.
Q. So what I'm struggling with a little bit is that you know, yesterday Dr. Vitaliano said that National Milk Producers Federation added $0.60 across --
THE COURT: I'm sorry, you have got to be close to the mic. I know it is impossible to handle that big exhibit and be close to the mic, but you need to.
MR. ENGLISH: Thank you. Which one do you want to choose, the spreadsheet or the mic?
THE COURT: Thank you. That will help.
MR. ENGLISH: All right.
BY MR. ENGLISH:
Q. I -- and if I need to show you the spreadsheets to do this, I will, but if you will accept my representation for the moment. I was not thinking in the 25 minutes I had tonight to do that, but if we need to, I'm perfectly happy to show you. But --
A. Well, let's try and see what happens.
Q. Okay. This is Exhibit 301.
So you agree the base price today is $1.60, correct?
A. First off, I prefer a designation other than base price.
Q. Okay.

A. The minimum -- the point where the minimum Class I price over -- today, over I believe it's 150 counties or thereabouts, is $1.60, yes.

Q. And that minimum price, National Milk proposes to raise across the board to $2.20, correct?

A. Yes.

Q. Okay. Which is $0.60 higher than 1.60, correct?

A. 2.20 minus 1.60 is 60.

Q. So if I represent to you that the Ada County value proposed by National Milk is actually $2.55, which is $0.95 more than $1.60, can you explain how that happened?

A. I cannot. Those Class I differentials were -- were developed by the Western Regional Group. I have no specific knowledge -- I have no in-specific knowledge about how milk moves, how it's delivered, what the demands are in that corner of the world. Those questions are going to need to be answered by the folks that developed those differentials. And, again, this was a -- this was a project that was divvied up amongst the regions.

Q. Was the adjustment from $1.60 for the minimum price to $2.20 made uniformly before National Milk Producers Federation made these county specific adjustments?

A. Would you ask that question again? I think I missed something.

Q. All right. Was the -- you made a decision to increase the minimum from $1.60 to 2.20, correct?

A. The minimum is 2.20.

Q. Okay. Was that minimum at 2.20 adjusted uniformly in your work before National Milk Producers Federation made the county specific adjustments?

A. Not necessarily. I believe I can speak -- I can speak for the Southeast/Southwest regional committee. The model run that we used as our skeleton was based on the $1.60.

Q. Why was it not based upon 2.20?

A. The 2.20 was determined by that regional committee, but that was necessary -- I believe you will hear this answer -- that that was necessary for certain price alignment.

Q. But I thought you just said that it was raised from $1.60 to 2.20. I'm hearing you now say it wasn't necessarily raised to 2.20, it was left to --

A. No, no, no, no. No. 2.20 is the minimum number, I agree. So all what I'm saying is that that 2.20 came about by price alignment work and the colored pencil work in that area. It just happens to work very well for several other things. It -- but the 2.20 was the result of that work. The rest -- for say the Southeast/ Southwest, we were working off a model that started at a buck 60.

Q. I'm sorry, that makes no sense to me. I mean, you -- I think you just -- at least in my mind you said just the opposite.

Did you start at 2.20 in the Southeast or did you work off $1.60 in the Southeast?

A. We worked -- the Southeast and Southwest, we worked off $1.60.

Q. So that means it wasn't done uniformly, correct?

A. Well, there's -- I -- obviously it's not uniform because we have different Class I differential recommendations.

Q. But whether you call it a base or a minimum, shouldn't the minimum be the same?

A. Same as what?

Q. Okay. You have testified on -- that National Milk, and Dr. Vitaliano said, that you added $0.60 across the board to raise the minimum price from $1.60 to 2.20.

A. I think Mr. -- that the -- the "across the board," I would not -- that's not a phrase I would have used.

Q. Is it true today, in the current system established by Federal Order reform, that there is a minimum of $1.60 that was then added on to the price surface?

A. I believe that may be true.

Q. Okay. Is it true that that is not the case in National Milk Producers' results?

A. Some of the regions used the $1.60. The $0.60 that went from $1.60 to 2.20 was added as a result of the regional work.

Q. So on page 6 of Exhibit 310, the bottom -- I realize you didn't read this today -- but the last paragraph: "National Milk Producer Federation's Proposal Number 19 proposes Class I differentials starting at $2.20

per hundredweight with differential increases radiating from there."

Is that your testimony that that's what happened?

A. I probably would state it a little bit differently. The -- the -- that does suggest something that may not necessarily be exactly the way the chronology worked.

But, in essence, if you -- you could make a case that they radiate out of there. Certainly every place out of there is greater than 2.20, so they radiate with increases from there. So if you just simply say instead of starting at a minimum of 2.20, then it's a factual statement.

Q. But I think you are saying that in the Southeast and Southwest you started at a minimum of $1.60; is that correct?

A. Obviously not. We don't come anywhere near $1.60 in the Southeast/Southwest.

Q. No. I said you started with.

A. The model run we used had a $1.60 at the low spot.

Q. I'm sorry.

A. That's a very big difference than started at.

Q. Okay. Did you, to the model run, add $0.60 to get to 2.20 before you did any of your other modifications in the Southeast?

A. No.

Q. Did -- so yesterday in testimony, Dr. Vitaliano said --

A. Who? Excuse me?
Q. Dr. Vitaliano.
A. Okay.
Q. -- said in Exhibit 299, since 2000, those costs have risen far more than the limited increase in the base, which is where I got it, base Class I differential, from $1.60 to $2.20 as embedded in the NMPF proposal.
Is his statement incorrect?
A. Would you please read that to me? And I -- I wonder the context.
Q. The Class I differential base price now represents a modest nod to production costs at the producer level. Since 2000, those costs have risen far more than the limited increase in the base Class I differential from $1.60 per hundredweight to $2.20 per hundredweight, as embedded in the NMPF proposal.
A. I think "embedded" is a perfectly legitimate word. It's included in our proposal.
Q. If $1.60 is, as I think you agree, the minimum or, as testimony yesterday said, a base was $1.60, to which we then add the price surface, does the proposal today by National Milk start at 2.20 and add a price surface?
A. Since every spot is 2.20 or greater, then the answer is obviously yes. If 2.20 is the minimum, then every place outside of that is more than that.
Q. But you said that for the Southeast and the Southwest, you used the model run, which was $1.60.
Did you then add $0.60 to that before you did any

of the red pencilling?

A. No.

Q. How is that a uniform national price surface? Isn't that what it is today? The base is a uniform price. But you are telling me now that's not what you did.

A. Whoa, whoa, whoa. I didn't say that at all. I did not say that at all. Our proposal, the lowest -- the least per hundredweight differential is 2.20. Every place increases out of that. Therefore, we have a price surface which starts at 2.20 and emanates from there.

Q. But it emanates at different rates in different parts of the country regardless of Class I milk availability doesn't it, sir?

A. Please restate that.

Q. You are playing semantics, sir. You are talking about -- since the minimum is 2.20, you are claiming that therefore you must have somehow started there.

But the reality is, you have just said that for the Southeast and Southwest you started at $1.60, and you didn't really add -- you said you didn't add $0.60, right?

A. I said that the model run that we keyed off of had $1.60 as the minimum number.

Q. So to the extent somebody somewhere in some part of the country may have adopted a higher base rate or minimum, in your words, from $1.60 to 2.20, since you have testified about that, although not extensively today, can we go into all of what went into the increase from $1.60 to 2.20?

A. Yes.
Q. Okay. Thank you.
A. I mean, let me say it this way. The -- we are of the opinion that the -- well, we under- -- okay. Let me start this way.

We understand how the $1.60 was derived in the order reform decision. You have to search hard between the proposed rule and the final rule to get the elements of the $1.60. And we started an analysis of how do we mirror, for lack of a better term, the recipe which -- which drove the $1.60. So we began researching how much -- what's the Grade A/Grade B cost differential, for example. You will hear about that with great specificity with from another witness.

We also said, okay, what is the cost of balancing? And to be honest, that one's a hard number to come up with because every plant's different. Every region is different. Balancing a plant in Lafayette, Louisiana is probably a lot different than balancing one somewhere else.

So -- and then I think the third one is -- the third element is necessary to attract a supply or something like -- I think one of the decisions says maybe even uses the "give up." Well, we -- that's not a particularly easy number to come to either.

So basically we started looking and said, how is it that Class I differentials work, and what is it that they are supposed to do, and what is the objective?

And I think we get to a pretty easy answer, actually, that the way you incentivize milk to move to Class I is -- and it's not easy, but easy to explain -- if you want to move milk to Class I or if the order program wants to incentivize milk to move to Class I, the best way to do that is make sure the Class I price is the highest of all the classes.

And so the research we did on the Grade A/Grade B suggests a -- something around the $2 cost for conversion from Grade A to -- or Grade B to Grade A. And our tests on price inversions support a 2.20. You just -- at $2.20 you get rid of almost all price inversions, other than the very worst anomaly months. So the 2.20 minimum differential provides a -- over a big chunk of the months, the vast majority of them, a preponderance of the months, the -- a Class I price in all places, which most months, many months, the vast majority of months, will exceed the other class prices. If you want to attract milk to Class I, make it the highest price.

I think we're confusing on the $1.60 the recipe with the cake. We get hung up on 40 plus 60 plus 60 equal $1.60. And the real question we need to be asking is not necessarily whether how much flour, how much butter, and how much sugar you have, it's does the $1.60 work in its composite nature. Rather than trying to find a recipe, we go straight to the cake.

All right? Okay. But --

Q. Okay. Okay. I think let's -- at some point,

let's get to the specific questions.

A. The specific statement you asked, how we got to the 2.20, and I'm trying to explain that.

Q. And -- and -- but in your testimony, on Exhibit 310, you included the Grade A, and you included the price inversions --

THE COURT: The price what?

MR. ENGLISH: Price inversions issue. This is on page 5 of Exhibit 310.

BY MR. ENGLISH:

Q. So since you are now talking about the cake versus the recipe, I did not see anywhere in 310, and for that matter in any other -- the other 15 or 16 testimonies that we have coming, evidence other than general conversation that you actually added today, which I'm not complaining about, but I see that in 318, about balancing, as you yourself said, the cost of balancing.

Is National Milk intending to present a cost of balancing number for USDA, or are you thinking the cake is enough?

A. We believe that the 2.20 stands on its own, that it meets the objective of a Class I differential. The objective -- the -- again, if you want to incentivize milk to go to Class I, the best way to do that is make it the highest price class. And it's preventing -- I guess it's simple math, but if it's the highest price class, you have prevented a Class I price inversion.

So whether you look at it as -- as preventing or

limiting class price inversions or establishing a price necessary -- that creates the highest price, you get to the same answer. So I think we want to look at the objective.

The objective is to get milk to Class I. The way to do that is make sure the Class I price is the superior price, the vast, vast majority of the time, and the 2.20 does that.

THE COURT: I hate to interrupt, but I must stop you. Will you be available for the remainder of cross-examination on what you have testified to today, tomorrow morning?

THE WITNESS: Yes, ma'am.

THE COURT: Okay. Let's do that.

Let's talk about what else is tomorrow. Now, tomorrow we have a little bit of a modified time table. We start at 8:00, and then -- is tomorrow the day we go to lunch early?

MS. TAYLOR: No, we're modifying that plan, too, Your Honor.

THE COURT: Oh, okay. Well, let's talk about the plan.

MS. TAYLOR: Yes. We will start at 8:00 a.m. tomorrow. I do expect one dairy farmer to be present to testify. If they are here at 8:00, I would maybe suggest we get them on at 8:00 first, so we can be sure that they get their time.

And then Mr. Sims can come back on to cross -- be

cross-examined.

If we finish Mr. Sims -- I said "if" -- we will -- next on my list I think is Mr. Erba; is that correct?

THE WITNESS: I think Mr. Erba -- Dr. Erba is --

MS. TAYLOR: Dr. Erba.

THE WITNESS: -- is next on the list. I don't -- I don't -- we have obviously had some shuffling of the -- but I believe that's the plan at the moment. How's that?

MS. TAYLOR: That will be the plan.

And I don't think we have the plan beyond that, because we will break for lunch at noon.

We will then start at 1:00 with our virtual dairy farmer testimony. We have six farmers signed up to testify. I would ask that if -- if any of the counsels here have statements for their producers that are submitted and you are bringing copies, we can get those during the lunch hour so we can get that sorted out and make our 1:00 time a little more efficient. I will read the names in a second when I pull those up.

The other thing I wanted to request for tomorrow is that we kind of set our agenda for Monday maybe before we break for lunch, so that's kind of -- I would like to do that a little bit in advance tomorrow. I just wanted to give everybody a heads-up about that.

THE COURT: And then does our day end at 3:00 p.m.?

MS. TAYLOR: Yes, ma'am. Our day ends at 3:00 p.m.

THE COURT: And the names of the dairy farmers appearing remotely?

MS. TAYLOR: I have the list. I'm not sure this will be the order that they go in, but the list is: Dave Daniels from Wisconsin; Lauren Perkins from West Virginia; Johnny Painter from Pennsylvania; Marty Hallock from Wisconsin; George te Velde, I'm sure I pronounced that wrong, my apologies, from California; and Mark McAfee, also from California.

THE COURT: Excellent. It will be a good day. All right.

Is there anything else before we conclude for today?

I see no one suggesting that -- so we go off record at 5:01 p.m. See you tomorrow morning at 8:00.

(Whereupon, the proceedings concluded.)

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STATE OF CALIFORNIA)
) ss
COUNTY OF FRESNO)

I, MYRA A. PISH, Certified Shorthand Reporter, do hereby certify that the foregoing pages comprise a full, true and correct transcript of my shorthand notes, and a full, true and correct statement of the proceedings held at the time and place heretofore stated.

DATED: December 3, 2023

FRESNO, CALIFORNIA

MYRA A. PISH, RPR CSR
Certificate No. 11613

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