Speaker 1 (00:00:05):

<silence> Okay, we are back on the record. Uh, Mr. Bratton, you can begin your cross-examination. Thank you,

Speaker 2 (00:00:31):

Ms. Flatt. I've handed you a document that was previously marked as Voight Exhibit number 12, and as you can see, it represents a number of native, uh, plants and typical depth and feet rooting depths. And what I'd like you to do is take a look at that and let me know if you disagree with the depths represented as potential rooting depths for these plants.

Speaker 3 (00:01:02):

Um, at, at this time, I guess I'm gonna, if you might recall, I objected to this correct exhibit, and so I'm gonna renew my objection at this time. There's correct no foundation. We have no basis for it from the person who presented it.

Speaker 1 (00:01:16):

Understood. And I, I did admit the exhibit over the objection previously. It is in the record, but your objection is noted.

Speaker 4 (00:01:26):

I don't know about this specific exhibit document that you're showing me. I am aware that some native species have deep rid systems, but I'd refer back to my previous testimony that no study has ever shown that it takes more than 48 inches to maximize productivity on reclaimed native grasslands.

Speaker 2 (00:01:52):

But you don't dispute that some of these species root at a depth beyond 48 inches.

Speaker 4 (00:02:00):

Correct? I don't dispute that some species do. I can't testify to the exhibit that you're showing me, but I, I am aware that some species do.

Speaker 2 (00:02:44):

I will refer you back to Cyo Creek exhibit number three, which shows the reclaim reclaimed land productivity at the Freedom mine.

Speaker 4 (00:02:54):

Yes.

Speaker 2 (00:03:01):

Are you aware that the total bonded area released at this mine is 5.6%?

Speaker 4 (00:03:10):

I was not aware of that.

Speaker 2 (00:03:16):

So the success rate you're showing here indicates a success rate on a very small amount of the land that has been disturbed and bonded at that mine.

Speaker 4 (00:03:30):

It shows that it relates, um, or it shows the success of the land that was Bond released, but I don't believe it shows anything about the success of the reclaimed land that has been disturbed there.

Speaker 2 (00:03:47):

And the amount of land that was Bond released is a very small percentage of the total land disturbed at that mine.

Speaker 4 (00:03:53):

Based on what you're telling me, yes.

Speaker 2 (00:04:05):

You referred to reference areas with respect to, um, how you achieve Revegetation success. And I believe your testimony was that there were three sites that would be outside the mining area that would be utilized for that purpose. Is that right?

Speaker 5 (00:04:20):

Correct.

Speaker 2 (00:04:21):

And are you aware that the VOS have previously communicated to Coyote Creek that at least one of these areas is one of their lowest producing fields on the ranch?

Speaker 4 (00:04:35):

Um, Mr. Stefan communicated with me that Mr. Voight had concerns about a reference area in Section 12. And what I told Mr. Stefan at that point, and what I shared in the testimony today is that, um, reference areas are always initially submitted as just an initial proposal, and they do go through a very thorough review process before they're accepted by the PSC. Um, there are frequently changes, it's just kind of a working starting point. And if Mr. Voight has concerns, um, they would certainly be considered

Speaker 2 (00:05:16):

By what criteria do you choose what areas you're going to use as reference points?

Speaker 4 (00:05:23):

The species composition, the production, the slope, um, of an area sampled within each eco site. Um, but then beyond that, we want to make sure we represent all of the dominant eco sites. Um, the three dominant eco sites on the Voy land are represented by our reference areas, and that's why those were selected as a starting point.

Speaker 2 (00:05:53):

And so you say you use production as a primary criteria on why would you end up choosing an area that has the lowest production on the ranch?

Speaker 4 (00:06:06):

I have not reviewed the specific production of, to make an assessment to make a statement about how this site actually compares to his entire ranch. But I will say that some eco sites are more productive than others and that the south end of the Voy ranch is, I think, less productive as a whole. And, um, we need to also represent that.

Speaker 2 (00:06:39):

And you just indicated that you hadn't reviewed the production, um, but you also stated that that's one of the criteria you used to determine these reference sites. Did anybody look at the production?

Speaker 4 (00:06:53):

Yes. What I, what I was indicating with that is I didn't do a weighted, um, analysis of all eco sites over all sample sites on Casey's land, comparing it to that one site. I did look at, um, that one eco site to make sure that combined with the other sites as a whole was representative of the variability of Casey's land. Um, so to try to be a little bit more clearer, I can't say that that one site in itself would stand alone and represent Casey's land, but it is a component. And when used with the other sites, that was the intent to represent the variability of, of the Voight land.

Speaker 2 (00:07:38):

And when you say that, you mean that that site along with the other nine sites you chose, represented the variability?

Speaker 4 (00:07:45):

Our consultant did, to be clear. Sure. Our consultant KDK consulting, um, did, he spent a lot of time on the field to select these sites. And, um, described to me as he described it to me, that was his methods.

Speaker 2 (00:08:02):

But the method used was such that the variability was represented by the nine initial sites selected. Right.

Speaker 4 (00:08:11):

That in combination with other sites sampled on the state land that the VOS considered to be part of their management unit. Um, as described in the permit in, um, section 2.4, the sampling methodology, um, looked at the VoIP management unit as a whole because conversations with the Voss, they stress that that's how they viewed their ranch. Um, they have deeded land, they have state owned land, and both lands are integral to their management.

Speaker 2 (00:08:44):

And six of those sites were then, um, taken out of consideration because they would be a part of the mine, right?

Speaker 4 (00:08:57):

Correct.

Speaker 2 (00:08:58):

And was the representative value of the remaining three sites assessed to determine if that was a fair representation of production on the ranch?

Speaker 4 (00:09:07):

Yes. Okay.

Speaker 2 (00:09:10):

And and how was that done?

Speaker 4 (00:09:13):

By conversations with, um, the KDK consulting professional? Um, he was involved in the selection of those reference areas because he spent a lot more time on the ground, um, than I did. He was out sampling throughout the 2012 year. He on the ground was at every single site, so he was better able to make that decision.

Speaker 2 (00:09:39):

Did someone look at specific numbers to make that decision?

Speaker 4 (00:09:41):

Yes.

Speaker 2 (00:09:42):

Are those numbers in the record anywhere?

Speaker 4 (00:09:44):

They are in the permit and all of the sampling results are included in that 2.4 0.7 section. Okay.

Speaker 2 (00:10:18):

I refer you back to exhibit number five, the livestock weight gain study. Can you tell me a little bit more about how this study was conducted

Speaker 4 (00:10:29):

With cooperation from a pro producer, um, a Coto representative and this producer, um, landowner that graze cattle and reclaimed land and nearby, um, undisturbed land that they owned. Um, they had a conversation. They decided that they would like to conduct a study, um, assessing what it reclaimed land, what impact it had on the gains of cattle. So, um, they weighed the calves going on and coming off.

Speaker 2 (00:11:01):

Were the same calves grazed on the reclaimed land as were graved on the undisturbed land?

Speaker 4 (00:11:07):

No.

Speaker 2 (00:11:10):

Were the same amount of cattle grazed on the reclaimed land as on the undisturbed land?

Speaker 4 (00:11:14):

No. And that's why it's an average is calculated the, um, pounds per day. Um, it was tracked and divided by the number of calves. They were part of both a commercial and registered herd, um, operation though. And that attention was paid to that detail, um, to make sure that there wasn't some weight but of genetics that genetics didn't factor in to the results scene.

Speaker 2 (00:11:42):

Can you explain that a little bit more?

Speaker 4 (00:11:44):

Um, because a producer that is raising a registered herd that, um, is paying a lot of attention to genetics, one of the things they're already tracking is this average daily gain, which is what's reflected on the chart. And their breeding, their genetic program is focused on maximizing average daily gain. So we, they wanted to make sure that the livestock used on both situations. It couldn't be said that the genetics and then related to that, the average daily gain just by just driven by genetics, would've caused the difference in the outcome.

Speaker 2 (00:12:27):

So your understanding of the cattle's genetics is based on the average daily gains the producer monitored in these cattle over over time?

Speaker 4 (00:12:39):

My understanding is based on notes in the documentation of this study that documented the, um, background of the genetic background or makeup of each herd, whether they were, um, red Angus or, or what they were, if they were a, um, red Angus cross with Hereford, that sort of thing.

Speaker 2 (00:12:59):

And so you had a, an identical match of specific species or crosses based on genetics for each herd?

Speaker 4 (00:13:07):

I can't speak to that because I wasn't involved in it, but based on the perusal of the records that I was given, it appeared that they were comparable herds.

Speaker 2 (00:13:18):

With what degree of uncertainty?

Speaker 4 (00:13:22):

I didn't run any statistics on it, but they, based on, um, an overview, I would say I'm, I'm very confident and that's backed up with the comments that I received from, um, the employee that conducted the

survey. He said the private landowner, um, or the cooperator who owned the cattle was very happy with the gains that he saw on reclaimed land, and they decided not to do a follow-up study because there weren't any more concerns after the, these results.

Speaker 2 (00:13:53):
What was the size of the pasture used for the reclaimed land?

Speaker 4 (00:13:57):
I'm not sure

Speaker 2 (00:13:58):
What was the size of the pasture used for the undisturbed land.

Speaker 4 (00:14:01):
I'm also not sure of that. But these pastures were large enough to support a herd rotated through an entire season may through October.

Speaker 2 (00:14:09):
Were they identical in size?

Speaker 4 (00:14:11):
I doubt that.

Speaker 2 (00:14:17):
When was the study done?

Speaker 4 (00:14:20):
Um, I don't see a date on this, but from memory it was the early two thousands.

Speaker 2 (00:14:26):
How many cow calf pairs were, uh, involved in this study?

Speaker 4 (00:14:30):
There again, I do not know. I wasn't the person involved in this study. I'm only basing this on the notes and off the top of my head, I don't remember.

Speaker 2 (00:14:42):
How did the reclaimed land compare to the undisturbed land prior to mining?

Speaker 4 (00:14:54):
I can't speak to that 'cause I didn't see any data on that.

Speaker 2 (00:15:10):

So there was no assessment done as to whether the pasture that was undisturbed was better or worse than the other pasture prior to having been mined.

Speaker 4 (00:15:19):

There was no vegetation assessment done to compare the two. It was based on a landowner, um, being interested in this topic. Uh, the research was done and the, the topic he was interested in was not so much species composition, but the effects that it would have on his bottom line to use reclaim land and the results satisfied his concerns.

Speaker 2 (00:15:48):

Have you ever been participated in a peer reviewed study?

Speaker 4 (00:15:51):

Yes.

Speaker 2 (00:15:52):

Would this study pass peer review?

Speaker 4 (00:15:55):

No, it wasn't done for publication. It was done for the purpose to address a landowner's concern. And it was the study design included his, his, um, comments, I guess, and his, his concerns drove the setup of it.

Speaker 2 (00:16:28):

There was discussion of the testimony of Steven Merrill and the soil survey that he had suggested. And you indicated that NRCS had already completed such a survey, is that right?

Speaker 4 (00:16:41):

Yes.

Speaker 2 (00:16:41):

Are you referring to the survey conducted by Perry Sullivan at the Falkirk mine?

Speaker 4 (00:16:46):

Yes.

Speaker 2 (00:16:47):

And the purpose of that survey was simply to create, uh, soil categories for the farmers there so that they could participate in federal egg programs? Right.

Speaker 4 (00:16:59):

I wouldn't put it as simply because along with the soil classification program, he made new soil series and to describe those soils, and there is a lot of backup information to that becomes part of the description, including expected productivity slope class use, manage, um, the, the sole genesis, if you

will, in this case, because it's reclaimed on the activities that led up to its creation. If a person were to go on to the NRCS web soil survey, there's a lot of information that was put together for these new Soil series descriptions.

Speaker 2 (00:17:38):

And that's based on the new soil types as we'd call them, that were created by the mixing of the soils at the Faki mine.

Speaker 4 (00:17:50):

Correct.

Speaker 2 (00:17:52):

Are the soils at the fall Kirk mine identical to the soil types at the Coyote Creek Mine?

Speaker 4 (00:17:59):

No.

Speaker 2 (00:18:00):

Will the soils at the Coyote Creek mine be mixed in this exact same way as they were at the fall? Kirk Mine

Speaker 4 (00:18:06):

Methods will be similar. There will be a drag line operation, there will be a truck shovel operation, there will be re spread operations and all of the work will be done under the same regulations and standards.

Speaker 2 (00:18:21):

But you're gonna have different soil types there. Right.

Speaker 4 (00:18:24):

I can't predict how the NRCS would map them, but the physical characteristics and the pre mine soil series are different between Falkirk and Coyote Creek mine.

Speaker 2 (00:18:34):

And so when you mix those together, it's going to be different than what was mixed together at Falkirk.

Speaker 4 (00:18:40):

I would anticipate that. I can't speak for sure about any of that though.

Speaker 2 (00:18:48):

And the productivity, are you, well, let me ask first, are you familiar with the study that was done by Perry Sullivan?

Speaker 5 (00:18:58):

Yes.

Speaker 2 (00:18:58):

Okay. And the productivity index that he used in that study was based on the, essentially the same productivity index used for all of the original soil surveys?

Speaker 4 (00:19:11):

Yes. Same system, if that's what you're asking.

Speaker 2 (00:19:14):

Right. And so the aspects of soil quality looked at were the same as those looked at when the original web soil surveys were done or soil surveys were done?

Speaker 4 (00:19:30):

I don't have specific knowledge, but my background information on a soil survey is that all the methods would be the same. So I would think so.

Speaker 2 (00:19:40):

And were you present for Mr. Merrill's testimony?

Speaker 4 (00:19:44):

Yes.

Speaker 2 (00:19:45):

And do you recall that in his testimony some of the soil survey criteria he was suggesting should be looked at were biological in nature?

Speaker 4 (00:19:56):

Yes.

Speaker 2 (00:19:57):

And is it your understanding that the original web or the original soil surveys did not look at biological characteristics of soil?

Speaker 4 (00:20:06):

I don't believe they would have

Speaker 2 (00:20:08):

Nor would the Sullivan study,

Speaker 4 (00:20:10):

No. But to create a soil profile, which is what I testified to, is what the soil survey did, the noting and testing for the biological component is a separate suggestion. So they're two separate ideas that Dr. Merrill proposed.

Speaker 2 (00:20:29):

And so you understand that Dr. Merrill's proposition was not simply that one do a soil survey, uh, as Sullivan did at alberg?

Speaker 4 (00:20:37):

Correct. I was just explaining that that one component is being addressed by the NRCS currently.

Speaker 2 (00:21:02):

Did that, is it your understanding that the Sullivan study involved looking at anything other than the re spread depth or the slope to create their classifications

Speaker 4 (00:21:12):

Based on the, I would probably describe it as a story that was put in, put on the NRCS website. Um, there was a summary of the project and the reasons why they did it. And so I'm only basing my testimony on reading that document on the internet,

Speaker 2 (00:21:29):

And I would object to that testimony.

Speaker 1 (00:21:35):

Object to what are you objecting to?

Speaker 2 (00:21:38):

Well, I

Speaker 1 (00:21:38):

Previously, I was asking previous testimony

Speaker 2 (00:21:40):

That I was asking about her understanding of the Sullivan study, which I understood she was familiar with. And what she's testifying to now is hearsay that she read on the internet about the study.

Speaker 1 (00:21:52):

I'll overrule it. It's essentially, it's already, I mean, banana, I'm not gonna strike it

Speaker 4 (00:22:03):

Possibly. To clarify, when I said I was familiar with the study, I have reviewed the results that the NRCS published.

Speaker 2 (00:22:24):

Can I have you take a look at Coyote Creek exhibit number four. And you stated in your testimony that Coyote Creek would restore the productivity of the native grassland on Mr. Voight's property to as good or better production as prior to mining, right?

Speaker 4 (00:22:50):

Yes.

Speaker 2 (00:22:52):

Can I have you turn to page Roman numeral two dash D dash 10 of exhibit four?

Speaker 5 (00:23:03):

Okay.

Speaker 3 (00:23:12):

Was that B or

Speaker 2 (00:23:13):

DD the, are you familiar with the standard in these guidelines that the native plant species comprise at least 65% of the total composition by cover or weight?

Speaker 4 (00:23:36):

Yes.

Speaker 2 (00:23:38):

And so when you say that you intend to restore the productivity on Mr. Voight's land, are you saying that you're going to comply with this guideline that at least 65% will be native grasses on his land?

Speaker 4 (00:23:55):

You're asking me about productivity. You're saying productivity, but you're not asking me about productivity. You're asking me about the native species component.

Speaker 2 (00:24:06):

If Mr. Voight has 5% tame grasses on his land right now, is Coyote Creek going to restore his land such that it has only 5% tame grasses?

Speaker 4 (00:24:20):

I can't testify as to what will happen 20 years from now in the field. I can testify to the methods we're going to use and the standards that we need to meet the methods that we are going to use. As I expressed in our, my testimony is to minimize at every step of the way the amount of introduced species that will be there, both through our seed selection and through the management of the newly reclaimed land. Um, the standards, I can say that we can both read the sheet of paper and say that the standards allow up to 65%, but I can't testify as what to what will actually happen. I can just say that we will be minimizing with every method that we have minimizing the introduced species present.

Speaker 2 (00:25:13):

So pound for pound, do you believe that a field that has 5% tame grasses is more or less productive than a field with 35% tame grasses?

Speaker 4 (00:25:28):

I think that there's no way I can answer that because some native grasses are very much less productive than introduced species. Some native are more, um, I would need more information to answer that question.

Speaker 2 (00:25:46):

Is that information contained in the mining permit anywhere?

Speaker 4 (00:25:49):

No. I, I would need a more specific question to answer that adequately.

Speaker 2 (00:26:03):

Are you familiar with the amount of tame grass that exists on Mr. Voy land right now?

Speaker 4 (00:26:10):

Yes.

Speaker 2 (00:26:13):

And are you aware that it is much less than 35%?

Speaker 4 (00:26:19):

Yes.

Speaker 2 (00:26:19):

And are you familiar with the kinds of native grasses that exist on Mr. Voight's land right now?

Speaker 4 (00:26:25):

Yes.

Speaker 2 (00:26:26):

And if the composition of the grasses and plants on Mr. Voight's land changes such that there's a significant increase in the tame grasses, do you believe his fields are going to be as productive as they are now?

Speaker 4 (00:26:40):

I actually believe they would be more productive because with my inform knowledge, um, after reviewing the sampling results shown in here, um, there are many warm season grasses that are an important part of native grassland, however, they're low producing species. So I feel I can state with

quite a bit of certainty that the production would not be an issue even if there was a large amount introduced.

Speaker 2 (00:27:34):

You also indicated that there's a lack of evidence that subsoil thicker than four feet has an impact on yields. Is that right?

Speaker 4 (00:27:42):

There's a lack of evidence that total soil depth, which is topsoil plus subsoil greater than 48 inches, hasn't been shown by research to have an impact on productivity.

Speaker 2 (00:27:54):

And what research are you referring to?

Speaker 4 (00:27:55):

The, the paper that is published in the American Society of Mining and Recla Reclamation Literature Review that I did as cited in my testimony.

Speaker 2 (00:28:20):

And so the studies that were conducted that you reviewed, were these conducted on reclaimed mine lands?

Speaker 4 (00:28:27):

They, yes, they included, um, the wedge plot study that Dr. Merrill was involved with at Zap, um, Stanton. They included a lot of information that was used to basically write the laws for our state and other states. Um, they also included follow-up research that was done on the same plots after 20 years and, uh, 20 plus years by several authors on several plots. And they still didn't see any result change in results, except that they actually found that less soil than originally, um, than the original studies showed as necessary. The followup studies shows showed that less soil thickness was required to maximize production.

Speaker 2 (00:29:15):

And you're referring to the 2003 studies conducted by Marilyn and others.

Speaker 4 (00:29:19):

Those are one of the studies I'm referring to.

Speaker 2 (00:29:21):

Okay. You are not saying that the, um, depth of the top soil doesn't, the depth of the top soil does have an impact on productivity though, right?

Speaker 4 (00:29:58):

Yes. Okay. That's why it's required by law to salvage all topsoil and handle it separately, which is what we will do since we'll comply with law.

Speaker 2 (00:30:17):

And so when you say that you're going to restore the productivity on the Voight land, is it your testimony that you're going to do that specifically because you're going to comply with the rules and regulations of the PSC?

Speaker 4 (00:30:37):

Can you restate, I'm not sure I understand what your question is or explain a little more.

Speaker 2 (00:30:44):

Do you believe that by complying with the rules and regulations of the PSC, you will necessarily restore the productivity of the Voight land?

Speaker 4 (00:30:54):

Absolutely. Because the productivity standard, and if you're only talking about productivity, that's what I'm replying to the productivity standard, is that the reclaim land has to be as or more productive.

Speaker 5 (00:31:06):

Okay.

Speaker 1 (00:31:31):

That's all I have right now.

Speaker 5 (00:31:32):

Okay.

Speaker 1 (00:31:33):

Ms. Jeff Coco?

Speaker 5 (00:31:36):

Actually, I am gonna ask permission for Jim Dech to ask a question or two.

Speaker 1 (00:31:40):

Okay, go ahead.

Speaker 6 (00:31:44):

Uh, I think, I think just one, unless there's follow up. Uh, earlier you discussed the alfalfa, uh, production on, on, on Casey's, uh, hay lands, both uplands and, and some of the, uh, the, the, the lowlands along, uh, coyote Creek. Uh, I guess there's been a lot of discussion about that hay land along Coyote Creek, that what's on the labial, uh, soils. And that, uh, how much of that, uh, of, of Casey's hay land on the, on the Louisville soils near Cayo Creek, how much of that will actually be disturbed by your proposed operations as depicted in, uh, in, in a CT <laugh>, NA cc 1302?

Speaker 4 (00:32:31):

None of it will, our Hall road will cross a hay yard near one field, but none of his hay land will actually be disturbed.

Speaker 6 (00:32:41):

Okay. That's all all I had on that

Speaker 1 (00:32:45):

Commissioner Chrisman.

Speaker 7 (00:32:56):

Thank you, your Honor. And Ms. Lav, this one doesn't really fit in with most of the rest of 'em, but I'm just gonna get it out of the way. The first day I'm, I believe you're here, right?

Speaker 4 (00:33:05):

Yes.

Speaker 7 (00:33:06):

There was reference made to some of the producers who farm some of the reclaimed land. Um, I don't know if they were mentioned by name, so I'm not going to mention since I think I know who they were talking about. But how do you respond to that, that you have one or more producers who are not thinking that, that the production is very good?

Speaker 4 (00:33:30):

I can't testify at all to Falkirk because I don't have any experience with the Falkirk situation. I believe I'm familiar with the situation. Um, the one landowner that was named by Mr. Voight, um, I wasn't involved with managing the reclaim lands at that point. Um, I could provide hearsay type testimony, um, repeating what others told me. Would that be acceptable? I, I didn't, I wasn't personally involved with it myself. Um, I could speak, I suppose I could speak from my experience when I was the one prior to that person being on reclaimed land.

Speaker 7 (00:34:14):

Whatever you think makes a good response. And specifically are, are, are the, the person or persons referenced farming land that has bond been bonded out or are they farming land that is in the process of, of proving itself and, and, and maybe just wouldn't even be expected to produce fully yet?

Speaker 4 (00:34:37):

That would actually, you're leading to what I think what would actually have been my point is the producer that Mr. Voight mentioned in his testimony was on new reclamation. Um, to my knowledge, every year that he was farming, he received some first year reclamation. Um, in other words, the first year after the soul was re spread, he was farming the soil. And as mentioned in earlier testimony to today, we wouldn't expect production to be maximized on reclaim crop land on the first year. Um, that's part of the reason why there is a 10 year liability period that the mine is required to manage and collect data before applying to bond release. I don't know of anyone that operates on land that has been managed for its full 10 years, um, that has problems with production. I don't personally know of any issues or complaints on that mature land.

Speaker 7 (00:35:42):

Okay. What's the difference between an ecosite and the reference point?

Speaker 4 (00:35:50):

An ecosite is used to describe, um, a range, an area of rangeland. It has a given, um, soil texture, in other words, physical properties, um, landscape position and characteristics. Al also in the ecosite description, which was some of the information ex, um, submitted as part of the exhibit, one of the reasons why that stack was so large is because I included the ecosite descriptions because I felt they were pertinent because we've been discussing it so much. Um, in that eco site description, it also includes what you would expect for species composition of that eco site, a climax condition, how it would change with management, uh, the species makeup of the site, um, how you can change between the different, um, the different stages of succession or with management of that site. There's a lot of really good information there.

Speaker 5 (00:36:54):

Okay.

Speaker 4 (00:36:55):

So a reference area then. Um, the, the sampling of undisturbed range land is broken up to represent, um, or weighted to represent those variable eco sites that are out there. And similarly, the reference area also needs to represent the different dominant eco sites, um, to make sure that the reference areas are representing what, for example, Mr. Voight would have. We have to make sure that we represent his three dominant eco sites.

Speaker 7 (00:37:33):

Okay. And you started with nine reference points. Six of them have been kind of ruled out 'cause they're gonna be in the mine site, so they're gonna get disturbed leaving three, is that correct?

Speaker 4 (00:37:44):

Yes.

Speaker 7 (00:37:45):

But those aren't set in stone and that's something that still needs to be worked out with the commission?

Speaker 4 (00:37:52):

Correct.

Speaker 7 (00:37:53):

And Mr. Voight can participate in, in helping make sure that, that he would agree that, that that's a, a fair, a fair representation of his property as a whole?

Speaker 4 (00:38:07):

Absolutely.

Speaker 7 (00:38:08):

Can you get more reference, more reference sites than the three?

Speaker 4 (00:38:12):

Yes.

Speaker 7 (00:38:12):

If, I mean, how, how do you negotiate if he feels that the three that, that you're feeling are accurate and, and he feels it's a little off? Can you do a couple more or?

Speaker 4 (00:38:22):

Yes. I would say that we could, um, each reference site we have to make sure is managed in a way that it won't change negatively, the species composition of that site. And so we want several, um, options to choose from for sites in case there are issues with some, so we have sites on Casey's land. We have sites that are also on neighboring land. Um, management is somewhat similar between the Voight land and the neighboring, um, unru land. It would be up to the commission and, and possibly Casey would have input if sites on the Unru land would be, if he felt that they would be adequate for use. Um, but yeah, we, we could select more. Um, at a certain point, kind of as Dave Bickell testified more at a certain point we've, we have what is necessary, but if, if Mr. Voight had concerns, yeah, we'd take that into consideration and we could choose more.

Speaker 7 (00:39:32):

Are you doing other reference points for the, as I recall, there's primarily two operators, correct. In Coyote Creek, are you doing other reference points to, uh, compare that land reclamation to, or are these the three for the whole mine site?

Speaker 4 (00:39:50):

There are other sites, um, because when the sites, the reference area sites were selected, um, we made sure that they represented the dominant eco sites on every single surface owner, including the surface owners that don't have a lot of surface area. Um, there are several smaller, um, surface owners as well, although there are primarily two. And the reference areas, um, don't have to be unique for each landowner, um, as long as the vegetation demonstrated through sampling is comparable, um, on the two that we can show that they would be rep representative.

Speaker 5 (00:40:37):

Okay.

Speaker 7 (00:40:51):

Um, Mark Anderson recommended, uh, required 95% native grasses. Refresh me on the discussion that we had, uh, whichever day it was about Kentucky bluegrass counting as a native, if it was there in some, uh, proportion or not, and, and how that all works. And then also, did you testify earlier that you do not seed any, any, um, tame grasses like Kentucky Blue or do is this one that you do introduce some

Speaker 4 (00:41:31):

Kentucky Blue grass is not seeded. We don't seed any introduced species, but it is starting to be recognized by the community of, of researchers and people that manage reclaimed, or excuse me, not reclaimed, but native grasslands that can, Kentucky Bluegrass can be found throughout this region on undisturbed, um, native tracks. And it's referred to by some scientists as becoming naturalized. In other words, it's so ubiquitous that even a healthy, desirable functioning plant community often has a small component of Kentucky Bluegrass present. I believe that type of thinking is what led to it being, um, added to the standards to allow a certain percentage of Kentucky Bluegrass. And the PSC staff would be better, um, equipped to speak to that. But, um, because of this naturalization of native or of of Kentucky bluegrass, it's, that is why, um, if the reference area has it, and that represents the pre mine condition of the native grassland, that a similar amount would be allowed post mine and considered naturalized or native.

Speaker 7 (00:42:53):

But you're not gonna seed any

Speaker 4 (00:42:55):

No, no. That's one of the species we're going to be managing to try to minimize and control.

Speaker 7 (00:43:05):

And in Coyote Creek Exhibit six, like the third and fourth pages in, are, are these diagrams with the yellow? Yes, the, um, the, the first sampling here shows 3% Kentucky Bluegrass. The second one shows 60 52, 60 2% Kentucky Bluegrass. So in that case, but you say, am I understanding correctly that you will see none, but if everything else met all the standards and there were some percentage of Kentucky Bluegrass that did come back on its own up to 35%, you could get approval, you would meet PSC standards, but you could not exceed 35%, even though it starts out with way more than that.

Speaker 4 (00:44:05):

Generally speaking, I would say yes, but I need to throw in a few caveats to that. The 35% ref, um, would include all non-native, um, or all species that aren't native grasses, including native Forbes. So it could be native Forbes shrubs, um, anything that volunteers that may or may not be desirable that isn't a native grass. But yes, if there was Kentucky Bluegrass and it was evaluated that it also, um, the other criteria that seems like keeps getting overlooked is in the standards it says that the introduced species can't have a negative impact on the, um, use of the land. And so if the commission felt that Kentucky bluegrass at such high of a percentage didn't hurt the native grassland, technically it would be allowed. But that is something that would have to be weighed and considered, and I would guess that it wouldn't be something that would be viewed positively.

Speaker 7 (00:45:12):

So when you evaluate, when you did these points or Mr. K Koff did, and, and when we evaluate your, your reclamation years down the road, how many samplings do we take on a section of land and how big are the sample sizes?

Speaker 4 (00:45:37):

You're talking for the bond release applications

Speaker 7 (00:45:40):

As well as the pre mine tests?

Speaker 4 (00:45:44):

Each one of these sheets represents one of the sample sites that was taken prior to mining. I believe there's 33 total, although a person would have to count to make sure

Speaker 7 (00:45:55):

On 8,100 acres.

Speaker 4 (00:45:57):

Yes.

Speaker 7 (00:45:57):

Okay.

Speaker 4 (00:45:58):

And those were selected by Mr. Koff after extensive time on the ground, um, to represent what was, uh, present prior to mining his background, his experiences that he'd been a consultant, um, or he'd been hired by the NRCS to use this same methodology in their assessments and using the NRCS methodology as the standard of being adequate or not. Um, I, I would testify that he's very, uh, well-trained and, and technically savvy on this method to describe a site. Um, on the reclaim side of things, um, we haven't, for Cyo Creek mine, we haven't designed our sampling method for reclaimed lands, but I can testify to what was done at Kato there, I believe on a pasture. Um, and pastures I think are typically maybe a quarter to a half section in size. And on those for production, um, I believe 15 to 20 frames are clipped. And that's a quarter meter frame, and that's where the samples are weighed. And, um, that's part of the data collected. And then there's also what we call cover data that assesses, um, the basal cover. And that information is used to, um, assess the seasonality and diversity. Typically production or cover could be used, um, but cover is often what is done. And there, I believe, um, oftentimes there's a couple hundred sample points for taken for that.

Speaker 7 (00:47:41):

Okay. And now I'm going back to these same two. It just intrigued me that there's so much different in so far as Kentucky that was discussed so heavily the other day. So if this were two different parcels of, of reclaimed land that you're looking at getting bond release on, and so one of them is at 62% and one is at 3%, um, on average you're under 35%, would that be okay? You could bond both of those out or would one be bonded out and one be rejected

Speaker 4 (00:48:19):

If they were in the same pasture and they were different samples within that pasture. Um, and one sample happened to be on a patch of 62% Kentucky, but overall the whole pasture averaged, um, fine. That yes, it could be bond released, but the same could be said for pre mine land. I could go out onto some of the pre mine land at Co creek mine and find a hundred, almost a hundred percent pure stand of smooth Broome. That doesn't mean the average of that landowner is a hundred percent smooth Broome. That's one sample point. Um, within that site.

Speaker 7 (00:48:58):
Yeah, I was talking about different pastures.

Speaker 4 (00:49:00):
Okay. If there're two different tracks, no, each track has to stand alone.

Speaker 7 (00:49:05):
Okay.

Speaker 4 (00:49:06):
On bond release,

Speaker 7 (00:49:25):
The, did you say you see nine different native species?

Speaker 4 (00:49:30):
Yes.

Speaker 7 (00:49:30):
Or that's your intention to

Speaker 4 (00:49:32):
Yes.

Speaker 7 (00:49:33):
And are those mostly, I would assume that that's some of these that are found in, in these lists other than the Kentucky Bluegrass?

Speaker 4 (00:49:42):
Yes. The dominant species of our seed mix is similar to those found on, um, the Voight Ranch premin with the exceptions being that we don't seed needle and thread or porcupine grass, which are two species that are often prevalent on the Voight ranch. And that's because both of those species have sharp seeds that can puncture, um, an injur livestock and, and make livestock avoid grazing them and cause issues. So those weren't ones that we selected as being desirable for the post mind use of grazing.

Speaker 7 (00:50:21):
And the reason for nine is to get a diverse mix so that, uh, there's as, uh, good of production as possible in different seasons and different conditions.

Speaker 4 (00:50:35):
Correct. We are trying to, the goal is to have high production, um, also high diversity and, um, to have not just, um, a cool season species component because one of the concerns I think, um, with introduced species is that because they do most of their active growing during the early in the year when it's cool

they lose their nutrient value later in the year, we target our seed mix to make sure that, um, when you hear seasonality standard, that's what that is referring to. That there has to be species that do their active growing early in the season and late in the season. And that's what helps protect the quality of the forage that standard.

Speaker 7 (00:51:28):

And did I understand right a couple days ago that of those nine, we require four of them to be 5% or more of the

Speaker 4 (00:51:40):

By production

Speaker 7 (00:51:41):

Total mix?

Speaker 4 (00:51:42):

Correct.

Speaker 7 (00:51:45):

As I page through some of these, I've only gone through about five or six of them, but I only see a couple that would meet that. And I wasn't looking at Kentucky Blue. I don't know if I, I was counting that, but So is that one of the things that when people talk about is good or better, that potentially the bad is that there would be more native species of significant amounts?

Speaker 4 (00:52:12):

Correct. That is one of the, um, one of the issues or one of the things that, that measurement would be stating

Speaker 7 (00:52:25):

To be patient here. Uh, Mr. Stefan pushed a lot of questions off on you. So <laugh> <laugh> I discussed last week with Mr. Anderson, the concept of, um, averaging the soil suitable for plant growth as opposed to having some areas where there's more and some areas where there's less. And so conceivably, if this plants wanted to really go down, there'd be some places where they could do, do you do your best to keep this as even as possible when you reclaim it? Or do, do you attempt to diversify that as well?

Speaker 4 (00:53:09):

By our re spread depths are really dictated by regulation or by law. Um, we take samples of the spoil and whatever that quality dictates is we re spread. So if it requires, um, deep re spread, that's what we have to put back. And we're projecting that most of the areas on the Voight Ranch will require the full 48 inches.

Speaker 7 (00:53:41):

And did you say that the average now is less in the areas you've sampled?

Speaker 4 (00:53:47):

Correct. The average now is 32 inches.

Speaker 7 (00:53:50):

And, and where do you get the, the soil to make up for that?

Speaker 4 (00:53:55):

We have, in addition to the soil survey, which profiles and maps the soil in the top five feet, um, because we identified that there would be a shortage of soil. In other words, most areas are going to require 48 inches based on law, but the voy, um, surface only has an average of 32 inches. We have to make up the difference somehow. And so we are doing what is called a deep lift survey. Um, borings are taken or augers used to take soil material going down to 120 inches or 10 feet to identify other material that meets subsoil, um, criteria. So it's also, uh, suitable for plant growth.

Speaker 7 (00:54:54):

I think it was Mr. Anderson talked about noxious weeds, and you have this land in a state of disturbance for a number of years, and I, I understand how you can be spraying during that time, spraying your topsoil piles and things like that, but then when you start reclaiming it before the, the grass really thickens. Um, and during the, the subsequent years waiting for bond removal bond release, um, how do you control the, the noxious weeds?

Speaker 4 (00:55:30):

Spraying is the primary method. Um, I believe he also told a story about pulling out weeds by hand, and I know that's been done at Cato as well. Um, it's something that the employees of the mine are definitely going to be watching. Uh, it's also something that the Public Service Commission, the reclamation staff when they come out for their inspections, also is watching and monitoring for, and they also make sure that we're addressing the control of those noxious weeds. When we seed or re-seed our native grasslands, when we seed them, um, we often include a covered crop, and that's to help make sure that there aren't a lot of bear areas that are easy, um, or susceptible to colonization by noxious weeds.

Speaker 5 (00:56:28):

Um,

Speaker 7 (00:56:36):

Mr. Merrill's testimony, he talked about a whole bunch of recommendations that he had for reclamation, um, topographic reconnaissance for one or two years tests to check for compaction resurvey, three to four years after soil is laid down, um, four foot boy borings to exam, compaction to examine compaction, check for salinity and acidity. And I don't mean to, uh, completely speak for, I'm rephrasing as, as well as I could take notes. My point here is you heard that as well. Do you, he went on to say that following his recommendations would bring the reclamation program up to the standards of modern agriculture. Do you have differences of opinion with his ideas on, on these strategies or, uh, do you agree or what are your thoughts on those?

Speaker 4 (00:57:42):

I believe, and this again, I'm gonna paraphrase or or restate my understanding of Dr. Merrill's testimony. Um, one asked the purpose of all of these tests that he recommended. Um, it was because he thought then that the land could be managed. Um, you could identify different management practices that could then maybe be used. In other words, we do all these tests, then what do we do with it? And, um, some of, I believe the two management practices he mentioned that I, that I remembered were deep tilling and planting deep rooted crops to help with compaction. And also the perennial deep rooted crops would also assist, and this is coming from myself in the organic MA matter. Um, they would improve the soil structure and the infiltration and overall soil health and mines owned by North American Coal are already using those practices. So I would agree with his recommendations in that sense that what, what should we be doing on reclaim land if there's problems, um, if there's areas that are identified as areas that might have issues with compaction, um, let's try deep tilling or possibly plant a perennial on crop land. This would be because native grassland already has perennial deep rooted species planted on there crop land. Um, then possibly let's look at using, um, deep-rooted either an annual cover crop mix or a perennial hay land mix for a few years to restore the soil. Um, is there any further information you're wondering on that?

Speaker 7 (00:59:44):

Well, so to sum it up, my understanding was that he just came up with these ideas in, I think he said October at a conference that he attended. But you're saying that several of the practices that, that he was recommending are already being incorporated.

Speaker 4 (01:00:06):

Correct. They are being incorporated at current operations and Coyote Creek mine intends to use them as well as management tools.

Speaker 7 (01:00:16):

And so do you agree with him that if the problems are detected at the three to four year stage, management can be changed to improve soil health?

Speaker 4 (01:00:24):

Absolutely.

Speaker 7 (01:00:45):

On the first day we were told that once the topsoil and subsoil is replaced, there's really nothing more that can be done if there's problems. So are you, and would you say that Mr. Merrill are contradicting that?

Speaker 4 (01:01:03):

I believe that that really lays the groundwork for revegetation success, but there's a lot of follow up, um, management that can be d done, I, the biological component is important and those management tools can be used to, um, as part of that biological toolkit.

Speaker 7 (01:01:39):

I think, your Honor, I've gone through all my questions.

Speaker 8 (01:01:41):

Okay.

Speaker 7 (01:01:42):

Commissioner Fedor,

Speaker 8 (01:01:45):

I'll start up right with that then on the biological, um, components, because there was a lot of talk about that and, um, and viewing soil as a system. Can you tell me how, um, is that different from how you are viewing it and managing it today?

Speaker 4 (01:02:04):

I view soil a little bit of the theory, um, regarding reclamation a little bit. The theory of if you build it, they will come, if you put the soil resources back, the biological component if managed correctly, we'll come back as well by managed correctly. I mean, if we seed the native species shown in our seed mix, um, if we put back those components of the ecosystem, the biological part of the soil will follow as well. Um, at professional meetings for on reclamation, I've, some research has been done on the soil microbes, um, the living portion of the soil, and they show that that increases with time. Um, there hasn't been a long history of that research, so I can't put specifics to that, but I haven't seen a study yet that hasn't said that they increase. The trend increases with time as the reclamation matures.

Speaker 8 (01:03:12):

How else do you change the biological components other than through re revegetation and the practices you're already doing?

Speaker 4 (01:03:20):

Um, the species seeded matter, the management of the species, um, since we're talking about reclaimed native grasslands, primarily since that's the resource that Casey has the most of, uh, the, one of the key managements of that resource will be proper grazing of that resource because that will affect, um, the species composition, how the species changes over time, the amount of organic matter, uh, that is left, that will be incorporated into the soil. Um, the slope of the reclaim land is important because soil or water infiltration, um, we won't have extremely steep slopes present. That'll lead to infiltration and water also will help with the freeze thrust cycle to help break up, um, if there are compaction issues and also help with the, um, growth and rooting of those plants. And all this leads to a stable functioning ecosystem eventually.

Speaker 8 (01:04:23):

And I asked those experts, um, a lot about how you measure that. So I wanna ask you two, what is the best measurement of soul health?

Speaker 4 (01:04:35):

My opinion is productivity really does a good job of that because, um, and, and along with the other standards, when we're dealing with native grassland of seasonality and diversity, because you might have one year all conditions being great that you can get productivity on an unhealthy soil if you get

enough moisture and all the conditions are just right, but you won't have a productive, healthy, um, stand of reclaim native grassland with poor soil health.

Speaker 8 (01:05:14):

Are there other ways you're aware of through your meetings and interaction with other soil professionals that you could use to measure other than productivity?

Speaker 4 (01:05:24):

Some of the suggestions that Dr. Merrill made, um, they could be done. Um, I didn't hear in any of his testimony anything that changed my mind though, as far as, um, productivity and the other standards missing the boat on not adequately measuring the success of the reclamation.

Speaker 8 (01:05:52):

My recollection was his, he ultimately said that productivity was kind of the gold standard for measuring the soil health ultimately. Um, but I'd have to revisit the record for that, uh, to be sure. Um, uh, let's see here. Talking about, um, Mr. Anderson's testimony, he, he talked a lot about the soil depth and you've kind of covered that, so I understand your thoughts on that. But, uh, he talked also about diversity. You and Commissioner Crispin talked a bit about the diversity, but, um, help me summarize. Uh, I'm hearing you say that this, the diversity might be improved over what it is today. Is that correct?

Speaker 4 (01:06:48):

The, it depends on your interpretation or how you measure diversity. There are different ways, um, when you look at the sampling results and count the total number of species present. I don't know that, I don't, I honestly can't say if we will or we won't. If if you just do, there's 14 present pre mine, will there be 14 present post mine? Because in addition to the 12 species that we are seeding, a majority of our land will also be reclaimed using direct re spread methods. So there will be, um, this seed bank that I mentioned before of these seeds in the soil that will come back. And we've seen on reclaimed mine lands before, under direct re spread conditions, um, a lot of those native species come back. So I'm not sure if the same number will be there or not. What the diversity standard ensures and the seasonality and standard ensures that we have right now is that, um, not only will there be a fairly large number of species present, but you can't have one or two species that make up most of the composition. You have to have, um, four present in a significant amount. So the diversity

Speaker 8 (01:08:05):

Might be less on some areas where there was say 14 different, um, grasses and it might be less than that, but the mix of the cool warm might be stronger and it might produce better health overall. Is that what I'm

Speaker 4 (01:08:21):

Hearing? We're talking a lot of mites, <laugh>, but based on what I've seen on other reclaim lands, I would say the composition of the number of species that are present a significant amount will likely increase. Um, to use a specific example, if we flip through the sampling results, a, a lot of those sites only have two or three species present. Um, probably on average there's only three species present that are present with 5% composition or four. The minimum standard on reclaim land, um, is four. So right there, that tells you that that measurement of diversity we have to improve upon. Um, I honestly can't

speculate as to the total number. Um, that may go up, it may go down. That's something I've never measured or tracked myself.

Speaker 8 (01:09:13):

Okay. Agreeing that we're talking mights, what's your commitment on diversity?

Speaker 4 (01:09:17):

My commitment is to follow all of the standards and all the requirements by law.

Speaker 8 (01:09:29):

And then in your testimony, you um, talked, uh, uh, kind of towards the end of your, um, discussion with Mr. Biela about a quantity and a quality measurement. Can you restate what it was you said? 'cause it, I didn't have chance to get the success.

Speaker 4 (01:09:48):

Yeah, I was trying to, because the revegetation success standards are pretty complicated. Um, they're hard to just sit down and explain, but my basic, um, layman version of what they're trying to assure is that the production and cover component of the standards, the intent is um, or they assure that the productivity will be reestablished and the seasonality and diversity would address, um, the qua or the quality of the forage.

Speaker 8 (01:10:24):

Okay. That's

Speaker 4 (01:10:26):

All for me. Thank you

Speaker 9 (01:10:27):

Commissioner

Speaker 1 (01:10:28):

Lk.

Speaker 9 (01:10:29):

Thank, thank you your Honor. Thank you, sir, for your testimony. It's, uh, we spent a lot of time in hearings talking about power lines and those kind of things, which are important, but I, I like the good natural resource discussion. The, uh, it's, it's good education for everyone and updates and all that. I just have a couple general questions. How do you classify difference between native grassland and in rangeland? I noticed that in the Indian head mine exhibit, we break it down crop land, native grassland, and in hay land and Kato, we have it broken down, cropland range land, hay land. I have in my mind what the difference is. I'm just curious what, what you think they would be.

Speaker 4 (01:11:06):

We actually use the terms interchangeably.

Speaker 9 (01:11:09):

Okay.

Speaker 4 (01:11:09):

Range land is a more common term, but all, all of the standards refer to native grassland.

Speaker 9 (01:11:15):

That's what I thought, but I wanted to clarify that up. So, okay. So that, that's pretty clean. And just to maybe just to summarize some points that I thought I heard you hear in other questions is that, um, there's a commitment that you're gonna replace 48 inches of what I would consider good fertile soil. Even though in some of those areas now there's only 36 inches.

Speaker 4 (01:11:38):

We aren't committing to 48 inches everywhere. But we will com we are committing to replace what the soil quality dictates we're projecting based on our sampling prior to mining that it will likely be 48 inches in many areas. In most areas.

Speaker 9 (01:11:52):

Sure. And as you get to a hillside, it's gonna be less than it would be in the bottom. So you'll contour all that out, put it right back the same way it was the, do you have a, just a, a gut feeling of why there seems to be so much concern that, that you're not going to do that in this permit? That and where you've done it in the past?

Speaker 4 (01:12:12):

I would be speculating as to Mr. Voight's personal feelings. Um, what I have seen though is that,

Speaker 9 (01:12:21):

I mean is there something different about the land profile here or something that, that we're missing?

Speaker 4 (01:12:26):

I think one of the unique things is that in many other perimeter areas, there's a lot of crop land present. And that's not so much of a LA long-term re or a ma a result of long-term management strategies. And just the management is different. Um, this permit, there's a small number of owners that take great pride and rightly so in their land. And they worked very hard to develop this resource that they have right now.

Speaker 9 (01:13:00):

And maybe the high percentage of range land native grassland may be different in this than in other areas.

Speaker 4 (01:13:06):

I think that's the primary reason.

Speaker 9 (01:13:08):

Okay. And then just the last, uh, point you said, I guess two last points. You made a comment that, uh, you'll be removing some of the plant mix, which perhaps isn't good for grazing right now. Uh, did I understand that correct?

Speaker 4 (01:13:23):

There's two species that we aren't going to reseed. Some will likely occur because the directory spread, but we aren't going to seed it on purpose.

Speaker 9 (01:13:32):

Okay. So you should be improving the quality of, of, uh, food mix, if you will, for the cattle by this.

Speaker 4 (01:13:37):

That's the intention.

Speaker 9 (01:13:38):

Sure. And then earlier in the, the hearings, um, there was some questioning about the current mix of vegetation doesn't even meet the reclaimed standards, something to that effect. Do you recall that line of discussion questioning?

Speaker 4 (01:13:54):

Yes.

Speaker 9 (01:13:54):

Could you walk me through that again?

Speaker 4 (01:13:56):

Um, of the nine sites that were sampled on the Voight deeded land, only three meet the current reclamation standards. And the main reason was, uh, like we had discussed that often these sites, there might be a large number total species present, but many contribute just a very small percentage of the total composition.

Speaker 9 (01:14:17):

So do you have any reason to, to have concern that if you follow everything the way you plan to do it, that you won't exceed the, you won't meet and or exceed the, the requirements that you're, that you're saying you're going to do?

Speaker 4 (01:14:28):

I'm a hundred percent confident that we will be able to do that.

Speaker 9 (01:14:32):

Okay. Thank

Speaker 1 (01:14:33):

You. Mr. Biala?

Speaker 2 (01:14:39):
No, your Honor.

Speaker 1 (01:14:39):
Okay. Mr. Broughton?

Speaker 2 (01:14:41):
Nothing, your Honor.

Speaker 1 (01:14:42):
Okay. Ms. Jeff Sacco,

Speaker 8 (01:14:44):
We have nothing. Thank you.

Speaker 1 (01:14:45):
Okay. Commissioner Chrisman? I

Speaker 7 (01:14:47):
Do, I miss one On the nine native species that you received, are they the same nine all over or in one place? You see these nine and somewhere else it's a different nine.

Speaker 4 (01:14:59):
No, they're the same nine everywhere.

Speaker 7 (01:15:01):
And are they equal proportions or are they four or five of 'em that you're trying to exceed to seed heavier? 'cause those are the ones that you're looking to get that 5% or more ratio.

Speaker 4 (01:15:16):
Our, our seed mix, the percentages are based somewhat. Um, they are based on the desired outcome and what we wanna see present. But if you were to just look at strictly on the percentage of what we're seeding, um, you wouldn't be able to probably ascertain what that goal is. It's because some species are very hard to reestablish. Um, and the success rate of how much you seed versus how much you get was taken into consideration. And, um, that was based on input I received from the sources I cited in my testimony. I, I went out and I got requested information from the local NRCS office. Um, I talked to a person that's oftentimes cited in our state as being the expert, um, at the a RS station, um, plant material center, uh, on revegetation or, or restoring native grasslands. So I also considered his input on what the species should be and the, the composition of that mix as well.

Speaker 7 (01:16:23):
Well, are there four or maybe five or six of them that you primarily want to emphasize that are the ones you're shooting to get the 5% or more on? Or would, uh, if you had a perfect catch, would they each be 11%?

Speaker 4 (01:16:38):

I would say that that's gonna vary by sight because some are more adapted to the wet low areas. Some, um, do better on the hilltops. Um, it depend, will depend somewhat on soil texture as well. So we seed these and then to a certain extent, mother nature will dictate which species will be able to outcompete the others. Um, with that said, we still have to meet the diversity requirements, so the same four won't and shouldn't be dominant on every single reclaim site, but the same. But we would need four everywhere that were present, 5% by production

Speaker 7 (01:17:21):

And the specific nine, they're part of the mine plan. That's part of the record,

Speaker 4 (01:17:26):

Correct? That's part of the permit. Section four, two. Two.

Speaker 7 (01:17:29):

Okay. No other questions? Thank you,

Speaker 9 (01:17:31):

Your Honor. Commissioner Fedor?

Speaker 4 (01:17:32):

No questions.

Speaker 9 (01:17:33):

Commissioner lk. Just one, your Honor, I believe I have an answer that I think in my mind is correct, but I wanna see what your thoughts are. Where would you classify a field of alfalfa? Is that, would that be a crop land? Would that be range land, or would that be hay land?

Speaker 4 (01:17:47):

That is hay land.

Speaker 9 (01:17:48):

No question about it.

Speaker 4 (01:17:49):

Yes.

Speaker 9 (01:17:50):

Okay. Thank you. Thanks,

Speaker 1 (01:17:52):

Mr. Beal. Anything further?

Speaker 3 (01:17:53):
No, your Honor.

Speaker 1 (01:17:54):
Okay. Thank you. You can step down.

Speaker 3 (01:17:58):
I, that concludes our case, your Honor.

Speaker 1 (01:17:59):
Okay. I think we'll break for about 10 minutes before um, advisory staff presents its case.