BEFORE THE BOARD OF ENVIRONMENTAL REVIEW

OF THE STATE OF MONTANA

BOARD MEETING)

March 20, 2015)

TRANSCRIPT OF PROCEEDINGS

Heard at Room 111 of the Metcalf Building

1520 East Sixth Avenue

Helena, Montana

March 20, 2015

9:00 a.m.

BEFORE CHAIRMAN ROBIN SHROPSHIRE,

BOARD MEMBERS LARRY MIRES,

MARIETTA CANTY, JOSEPH RUSSELL,

CHRIS TWEETEN, HEIDI KAISER;

and JOAN MILES (by telephone)

PREPARED BY: LAURIE CRUTCHER, RPR

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WHEREUPON, the following proceedings were had and testimony taken, to-wit:

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(Ms. Miles not present)

CHAIRMAN SHROPSHIRE: We'll go ahead and get started. We're waiting for Joan to call in, but I suggest we go ahead and proceed. So it is 9:00 a.m, and I'll call this regular meeting of the Board of Environmental Review to order.

So the first thing on the agenda is review and approval of the minutes from the last meeting. Any comments or questions from the Board?

MR. MIRES: I would move to adopt.

MS. KAISER: I'll second.

CHAIRMAN SHROPSHIRE: It's been moved and seconded. Any further discussion?

(No response)

CHAIRMAN SHROPSHIRE: Hearing none, all those in favor, signify by saying aye.

(Response)

MR. NORTH: Madam Chair, there is one additional administrative item that I wanted to bring up, just as a matter of notice, and that is that Senate Resolution No. 5, which is a Senate resolution to confirm the four Board members that were appointed last year -- Ms. Canty, Ms. Miles, Ms. Shropshire, and Chris Tweeten -- has been introduced, and is it's up for hearing on April 8th in Senate Natural Resources at 3:00. So I just wanted to make sure that all those members were aware of that fact.

CHAIRMAN SHROPSHIRE: If any of us are expected to be there, you'll let us know in advance?

MR. NORTH: Tom, do you want to address that?

MR. LIVERS: Madam Chair, members of the Board, for the record, I'm Tom Livers, Director of DEQ. Yes. We are going to try to get a sense of -- as I think some of you that have been on the board for awhile --

(Ms. Miles present)

MR. LIVERS: As some of you who have been on the Board for awhile recognize, sometimes it makes sense to be there, sometimes it doesn't. We'll try to get a read on that, and give you folks plenty of heads-ups whether it would be more appropriate to be there or not. It is also the same bill that has my confirmation in it as well.

So we'll be following it, and we'll let you know.

CHAIRMAN SHROPSHIRE: Great. Thanks. I guess, just for the record, all the Board members are present. Joan is participating by phone.

MS. MILES: Thanks, Robin. I am on.

CHAIRMAN SHROPSHIRE: We've gone through the approval of the minutes and the administrative items, and now we're on to the briefing items. We'll start with the contested cases, but when we get to the other briefing items, B(1) and (2), we're going to reverse the order of those, just so everybody is aware. So No. B(2) will go in advance of B(1), which I think will be a shorter item. Ben, can you update us, please, on the contested cases.

MR. REED: Certainly, Madam Chair. Under Bay Materials, that schedule will be vacated. Both parties have filed motions for summary judgment, so I'll be issuing an order scheduling a hearing on that motion for summary judgment.

In Somont Oil, somehow a first prehearing order was issued twice, both initially and then again on March 6th. That prehearing order will be extended to June 2nd for the parties to re-resolve their proposed dates.

In the matter of the violations alleged against the Highlander Bar and Grill, I haven't received a proposed schedule from the parties, but I expect to, and I'll be following up on that.

Moving on to non-enforcement cases, YELP monitoring continues. That matter has been stayed.

In the matter of Phillips 66's appeal of the arsenic limits, the parties have stipulated that the discharge complained of will be stopped until the permit can be modified or renewed. The appeal itself has been stayed to the end of 2017.

In the matter of Columbia Falls' appeal of DEQ's modification, the parties have still not filed a proposed schedule, so we're waiting on that.

In contested cases not assigned to a Hearings Examiner, we're still waiting. I have not seen the modified permit for WECO.

And then as the Board is probably aware, Madam Chair, with regard to MEIC, both parties have requested that the hearing be reset, the hearing on summary judgment be reset until the Board's May 29th meeting. The reason for this is that the parties did not receive adequate notice of the hearing that would be today, and that's my fault. Are there any --

CHAIRMAN SHROPSHIRE: We just wanted to drag that out to make it as painful for you as possible.

MR. REED: You can't make me uncomfortable with silence, Madam Chair. I thrive on that.

CHAIRMAN SHROPSHIRE: Thanks, Ben. Any questions from the Board?

MR. TWEETEN: I have one. Ben, does the closure, the permanent closure of the Columbia Falls plant have any effect on the pending case?

MR. REED: I couldn't answer that offhand.

MR. TWEETEN: It was just announced I think last week that they were going to permanently close the plant, and I was just curious as to whether you anticipate any changes in --

MR. RUSSELL: Robin, just to address that. It has been inoperable for a long time. They've just decided that it will never operate again. I think I brought this up at the last meeting about the pending EPA action, and how this is all going to work in, and I thought maybe John had addressed that, but I guess this is going to continue to be a separate item. They have a discharge that runs through there.

MR. TWEETEN: Okay. Thanks.

CHAIRMAN SHROPSHIRE: Just out of curiosity, for the contested case hearing, in terms of processes that are in place to make sure that people are notified on time, is there something that we can do to prevent that from happening again?

MR. REED: Madam Chair, there is not. I would like to be able to assure the Board that it won't happen again, but in theory, it shouldn't have happened this time. It comes down to human error, and an email that should have been sent to my paralegal notifying the parties remained unexplicably in my drafts box. So that's sort of the long and short of it.

CHAIRMAN SHROPSHIRE: All right. So moving on to other briefing items, Item B(2) we're going to proceed with first.

MR. MATHIEUS: Madam Chair, members of the Board, for the record, my name is George

Mathieus, Administrator of the Planning Division. Good morning. Thanks for this small adjustment. Yes, my item is very brief.

If you remember, back in July the Board adopted numeric nutrient criteria that we had been working on for many, many years, and at the same time the Department adopted our variance process. We received approval of those processes on February 26th of this year, so we thought it would be appropriate to let the Board know that, and I just have a couple highlights I thought were worth sharing.

In their letter, EPA concluded that the approved water quality criteria are scientifically defensible, well supported by the record, and consistent with Clean Water Act requirements. Additionally, general variances are reasonable and consistent with the Federal Clean Water Act and approved. Individual variance provisions are consistent with EPA requirements and approved.

The new critical low flow use for establishing permit limits, which was a seasonal 14Q5, including the allowance that the entire 14Q5 flow be used for dilution calculations, has been approved. The 20 year time frame for variances is appropriate given the state of technology relative to the new standards, and was also approved, with the full understanding that minimum treatment levels under the general variances will be revisited triannually starting in the summer of 2017.

So that's really all I have. That's not much to say for a 30 some page approval letter, but I thought it would save your time. Thank you.

CHAIRMAN SHROPSHIRE: Any questions from the Board?

MR. RUSSELL: Just reading through it a couple times, because I'm kind of slow on the uptake, but I commend the staff. You did a great job, and it clearly shows in the letter from the EPA.

CHAIRMAN SHROPSHIRE: Thanks, Joe. All right. And then on to B(1).

MR. URBAN: Madam Chair, members of the Board, for the record, my name is Eric Urban. We bring you today a briefing item to provide some background on the science and what we know today about electrical conductivity and sodium adsorption ratios, specifically in Otter Creek, tributary to the Tongue River.

This gets very detailed, very technical, and it is a very challenging subject, and as that, I brought with me today Amy Steinmetz, our interim supervisor for the Standards Program, and Erik Makus, a professional hydrologist, one of our modelers, to get into the details to provide you all of the information needed to really ask questions to the Department and provide that clarification for you. So with that, I think I'll turn it over to them, and I'll be available for questions at the end.

(Ms. Miles present)

CHAIRMAN SHROPSHIRE: Are we going to have a power point?

MR. URBAN: Momentarily.

CHAIRMAN SHROPSHIRE: Who just joined on the phone?

MS. MILES: It is Joan, and that might happen again going in and out of service. I'll give my name again if I can't do that.

CHAIRMAN SHROPSHIRE: No problem. Thanks.

MS. STEINMETZ: Good morning, Madam Chair, members of the Board. My name is Amy Steinmetz. I work in the Water Quality Standards

Section of the Water Quality Planning Bureau of the Department.

In 2002, the Department had calculated and the Board adopted numeric water quality criteria for electrical conductivity, EC, and sodium adsorption ratio, SAR, for the Tongue River, the Powder River, the little Powder River, the Rosebud Creek, and all of their tributaries.

Otter Creek is a tributary to the Tongue River, and when current or existing water quality for EC and SAR were compared to the criteria, it was determined that Otter Creek is water quality limited. When a water body is water quality limited, it is required that we conduct TMDL, recalculated TMDL. TMDL stands for total maximum daily load. It is a calculation of the load of a pollutant that a water body can receive and still meet water quality standards.

On Otter Creek, the TMDL priority was elevated because the Department had information that a mine was going to apply for a surface water discharge permit, and that will often elevate the priority of the TMDL. So in this situation, that was the case. The Department looked at the data.

Part of the process of the TMDL is to

determine potential sources of a pollutant, and we found that on Otter Creek, the only potential sources were natural and irrigated agriculture, and it was really unlikely that the agriculture could contribute to such an extent that we saw that the existing water quality exceeded the criteria. So it looked like it might be natural. We needed to determine what the situation actually was, but it looked like a standards issue rather than a TMDL issue, and that's why we're here today.

So this is an outline of what we'll be talking about. What are EC and SAR, and how can they affect irrigated agriculture. We'll talk about the Tongue River watershed, uses of the water, and how the criteria and why the criteria were calculated in the first place, specifically focusing on the tributary EC criterion. We'll talk about the differences that Otter Creek sees in those factors for that calculation.

You'll see the modeling that was done for EC and SAR on Otter Creek; we'll look at some existing data; we'll talk about what site specific criteria are; and then we'll talk about what we're doing to move forward in this process.

Let's talk about EC and SAR. EC, electrical conductivity, is the ability of water to conduct an electric current. It depends on the amount of ions that are present in the water. The more ions, the higher the conductivity. It is also temperature dependent, so the temperature of the water affects the ability of the water to conduct electricity. So in assessments when we're comparing water quality, we need to have a way to compare apples to apples.

We have specific conductivity. Specific conductivity is the ability of water to conduct electricity at 25 degrees Celsius. The definition of EC in the Montana water quality standard rules matches the definition of SC. So when we're talking EC today, we're really talking about SC.

Conductivity, you'll hear this word, see this word. Conductants, specific conductants, electrical conductivity, EC, same thing. For our purposes today, the same thing as SC, and the same thing as salinity or salts. So you're going to hear all of these words. They mean the same thing.

Sodium adsorption ratio is the ratio of sodium to calcium and magnesium. And the equation for SAR is on the bottom. We're not going to talk about that, but I do want to point out that SAR is unitless. So you'll see for conductivity, we have units of microsiemens per centimeter. SAR won't have units because it is a ratio.

EC affects irrigation at high levels because the ions hold the water in the soil. That water is less available to plants. Another way to look at that is you would have to add more water that's higher in conductivity than water low in conductivity to have the same amount of water available to the plant. And EC -- Plants are also, they have different salinity thresholds, so different plants can tolerate different levels of salinity.

Sodium adsorption ratio also effects the ability of plants to get water, but it has to do with soil, it has to do soil structure. Sodium disperses soil particles, spreads them out, loses the soil structure. The soil collapses, a hard crust is formed, and water can't penetrate into the soil.

So that's EC and SAR. Now we'll narrow in on where we're talking about, the Tongue River watershed. Cattle ranching began in the Tongue

River in late 1870s. Cattle have to eat even when they're not grazing, when food isn't available, so naturally irrigated agriculture began soon after cattle ranching.

The Tongue River watershed overlies the Powder River structural basin, which is a coal rich geologic formation, and coal, oil, and natural gas extraction began in the late 1800's. Coal bed methane extraction began in the early 1990s, and boomed in Wyoming in the late 1990s and early 2000's.

The way the coal bed methane extraction works is that deep wells are drilled down into the coal formation, and water is pumped out of the coal formation. So it's pumped out of the aquifer that the coal is in, and when it does that, when that water is pumped out, it reduces hydrostatic pressure, it reduces the water pressure, which allows methane gas to be released from the coal seams. That methane gas then travels up the well, is captured at the surface, and methane gas is one of the two products from coal bed methane extraction.

The other is water, a lot of water. This water has to go somewhere. It can be reinjected into the ground; it can be discharged to pits or ponds, like you see in the picture here; or it can be discharged to surface water. And the problem with that is that water from the coal seams is high in EC and SAR.

We'll talk a little bit about the two charts that are here, conductivity on the left, and sodium adsorption ratio on the right. Both of them compare water from three different sources. The blue bars are surface water, and the red is ground water. On the very left on both of these charts we're looking at Tongue River water. This is from Tongue River below Brandenburg Bridge near Ashland. Ashland is where Otter Creek enters the Tongue River. So these samples are from right below Otter Creek, and turning into the Tongue River.

The Otter Creek water, this is from somewhere in the middle roughly Otter Creek, talking downstream, upstream, somewhere in the middle of Otter Creek; and then the red bar is the Knoblock formation, the coal aquifer. These are all averages.

So if we're looking at conductivity, the Tongue River water EC is lower than the water in the coal aquifer; but Otter Creek naturally has higher EC than the coal formation. But when we're looking at sodium adsorption ratio, both of them, Otter Creek and Tongue River, are significantly lower in SAR than the water in the coal seam.

So naturally irrigators were concerned. They're using this water, they have an existing use, and it is sensitive to EC and SAR. If you want to put more EC and SAR in the water, that causes concern. DEQ recognized the need to develop water quality standards that would protect the uses. And we are going to talk just a little bit about water quality standards, just one side.

The term "water quality standard" is often used or mostly used synonymously with numeric water quality criterion, but a water quality criteria, the numbers are just a piece of water quality standards. Water quality standards consist of three pieces.

Beneficial uses. These are the designated use of a water. They're designated in Montana rule. We have five that have some different subcategories, but drinking water, aquatic life, recreation, agriculture, and industry. These are five beneficial uses that are assigned in different capacities to all of the water bodies, surface water bodies in Montana.

Then we have numeric and narrative criteria which protect those uses. For example, human health criteria. Numeric human health criteria are designed to protect drinking water; fills up aquatic life criteria. Then the third piece of water quality standard is nondegradation. This is a policy that is intended to protect high quality water and existing uses.

So these are water quality standards that the Department recognized that we need to do something with our water quality standards to protect the existing use, considering that this new use was coming into the area. So I'm not going to talk about the calculation of criteria on the Tongue River, but I want to go into a little bit of detail about some of the factors that were considered in arriving at our tributary EC criterion.

Three factors. First, how long between leaching event, and by that mean we mean leaching, how much water, or is there enough water placed on a field to flush salt out of the soil. This rinses the soil, pushes the salt down lower in the soil profile, maybe to groundwater, but either way to a level that's below the root zone. The plants are no longer competing with the ions, with the salts, for water. So that's the first factor.

The second factor considered was how much salt accumulates in the soil between these leaching events; and three, how much salt can accumulate in the soil and still support the use, not decrease the yield. So those were the factors that were considered, and we'll come back to those in just a minute.

MS. CANTY: So Amy, so with the leaching event, do you mean -- is that the time between irrigations, or precipitation events, or both?

MS. STEINMETZ: Madam Chair, Ms. Canty, thank you for the question, and that's a very good question. It can be either. So you might add water to a field, you might irrigate, but not have enough water to leach the salts, and leaching can happen by precipitation -- so rain, snow, rain on snow, or irrigation, either one. Thank you for the question.

We arrived at criteria, EC criteria, considering those three factors. The EC criterion was 500 microsiemens per centimeter. That is the criteria that applies to all of the tributaries, and all of those waters that we talked about.

For SAR we had two numbers. They still applied to the entire universe that we're talking about, this region, but we have two numbers. One corresponds to the irrigation season -- that's SAR three -- and then we have non-irrigation SAR of five. These numbers were adopted by the Board in 2002, with the understanding that we have a statute in Montana law that requires or states that it is not necessary to treat waste to a pure condition, the natural condition of the receiving water.

So we said when these numbers are -- for consideration in a permit, if the natural condition of the stream is higher than these numbers, this natural condition will be reflected in the effluent limits in the permit, instead of these numbers that you see up here.

I don't know if you can see the color differences there, but this was our world in 2002. We're looking at the Rosebud Creek watershed in blue, the Tongue River in pink, and then Powder River in green. We were protecting this entire area. Tens of thousands of coal bed methane wells had been drilled already in Wyoming -- tens of thousands of wells -- that produce a lot of water from these coal seams, and it was estimated that Montana was going to see 20,000 to 30,000 coal bed methane wells.

So anticipating this huge increase, we derived criteria that were protective of this entire system, and there is a lot of variety in the system. There is variable geology, variable soil, variable water quality, but we were being protective of the more sensitive of the conditions.

And this is what we're looking at today. So we knew, going into the rulemaking process, that we were going to have some tributaries that were going to be, the natural condition was going to be higher than the criteria. We had addressed this for permits, but we really didn't consider or address how we were going to implement these criteria, in assessments, in TMDL's.

So here we are today, Otter Creek. We have a lot of information on Otter Creek. Before we go into the data, I want to go back to those three factors that we talked about, and how Otter Creek has some considerations, has some situations that are a little bit different than the considerations that were used in those three factors when we were looking at how we were going to derive this criterion for EC.

So just addressing each one of these, the period between leaching events, we estimated eight to ten years between leaching events. For most of Otter Creek, yes, that's probably accurate, but Otter Creek has a lot of variability within the system. So there are some areas that might be a little bit off.

The third bullet there, the amount of salt that can accumulate without significant crop loss, two things here. One was the type of crop, and the type of crop that we were designing criteria to protect for the tributaries was alfalfa. That's appropriate for Otter Creek. In Otter Creek, the most sensitive crop is alfalfa. As far as crop yield goes, we were trying to protect high yields of these crops, but on Otter Creek, 100 percent crop yield is really unlikely, if it ever happens. Usually you get a reduced crop yield just because of the natural conditions that are there. Sometimes zero.

But then the second factor -- a couple

of things went into this, that Otter Creek also has differences between the factors that were considered for the original criteria. First of all, how often does water from Otter Creek get applied to the fields? It was estimated in the criteria that water from the tributaries was spread out over the fields every year.

On parts of Otter Creek, this is true. On other parts it might be three to five years before you see water from Otter Creek being applied to the fields. Most of the time it is precipitation -- sheet flow, snow melt, rain on snow -- that's coming off of the hills, entering side channels, being captured, and spread out over a field, captured passively with spreader dikes.

The other estimation that was used for this factor was initial soil salinity. The initial soil salinity that was estimated in the original calculation was 250 microsiemens per centimeter initial salinity for the soil.

But on Otter Creek, that's really low. You would probably hardly ever see initial soil salinity of 250 microsiemens per centimeter. Maybe 500 to 1,000 or even higher. So Otter Creek is different.

Coming back to this slide, how did we get here. We did our assessments. The system is quality water limited. The TMDL is necessary, elevated and priority, because -- a mine. And we're looking at the system, and it looks like most of the EC and SAR are natural. We want to determine just how much of it is natural and how much of it is from human caused sources, so the Department decided to do some water quality modeling.

At this point I'm going to turn it over to Erik Makus, and he's going to talk about the modeling that he's done for EC and SAR on Otter Creek.

MR. MAKUS: Madam Chair, members of the Board, for the record, my name is Erik Makus. I'm a hydrologist in the Water Quality Planning Bureau. I was just going to mention that the slides are numbered, in case everybody hasn't noticed that, so if anybody has any questions later, you can go back by the number.

Today I am here to explain why we have determined that existing water quality data can be used to determine the EC and SAR standards in Otter Creek, and to do that, I'm going to talk about, and kind of focus on two different things. I'm going to go through a quick review of the summary, summary of these existing data. Over the last 40 years, USGS, DEQ, and other agencies have collected a tremendous amount of data in Otter Creek, more than possibly any other trib in the area. And then second I'm going to look at the modeling that I've done and explain some of it to us, and look at some of the results.

I just wanted to point out on the map here. This is the Otter Creek watershed, and a lot of the data, pretty much all of the data we're going to look at today is going to be at the mouth near Ashland, so anytime we're looking at some data, it's probably at that point -- there's going to be a little bit that I'll point out that's up here, but that's where we're looking at.

The first thing I wanted to do is look at an average discharge hydrograph of Otter Creek. So this is about 30 some years of data collected over the last 40 years, and we can see a couple of things right off the bat. Otter Creek, first off, it has got kind of two peaks throughout the year. So it has got a peak that usually happens in February or March, and that's typically a snow event, or rain on snow event, where there is a sudden increase in temperature, and there's some snow on the ground, and they get a rain event; and the ground is frozen, so it all floods into the creek.

Then there's usually a smaller -- although not every year it's smaller. Some years it's bigger -- but there is a smaller peak in May/June, and that corresponds to the precipitation increase in May and June.

The second thing that's fairly unique about Otter Creek is you can see the flashiness or spikiness on this average hydrograph over 40 years. So it is pretty hard to characterize. From one year to the next, it is really difficult to tell when it is going to peak or when it's going to flow the high flows. It changes every year. And you can see that -- we would think a 40 year average might be a smooth line, but it is definitely not.

So the USGS has a gauge at the mouth near Ashland, and they've been collecting data there. That's the data that we looked at in the last slide. They've been collecting it there since the 1970s with some gaps. So we have a gap here in the USGS data from about 1996 to 2003 where the gauge was shut off. That's one limitation of what we're looking at, so we actually ended up starting the modeling after 2003. We were originally going to start it a little earlier because we do have climate data that goes back this far.

Next I'm going to talk about just all of the data as far as EC and SAR data that we have out there, and we have a lot. The blue here is going to be at the mouth at Ashland, so these are just grab samples. These are when someone went out and just took a sample, analyzed it, either in a lab or in the creek, just a single event sample. And we can see we have -- there's about three points here, I believe, over the last 40 years. It starts in the 1970s through whenever I took this screen capture.

And I've got the current standard for the tribs in the region on here. It is 500 microsiemens per centimeter. And what I think this shows us is that it is very rare that Otter Creek gets down to 500. In fact, it has only happened about three or five times in the last 40 years that's been captured by the data. Much more likely that it is sitting around 2,500 or 3,000.

CHAIRMAN SHROPSHIRE: Eric, in the 2003 to recent time frame, there seems to be less data collected upstream. Is that the data that was collected was maybe a different time of year? Why do you see so much in the earlier years high values upstream, and then it decreases later on?

MR. MAKUS: Madam Chair, I'm not sure if I know the answer. I've got an idea. I think that in the 1970s, there was some pretty high interest in -- I don't know if it was coal mines -- I think it was some coal mine development in the watershed, and so they are definitely -- Actually you can't tell, but there is more data in blue down here as well in the 1970s. So it looks like they were definitely sampling a lot more back then, and since then it has dropped off quite a bit. Since the USGS has a gauge at the mouth where the blue dots are, they just naturally sample there a lot more. So that is my theory.

CHAIRMAN SHROPSHIRE: So it is not necessarily that it's decreasing, it is just less data?

MR. MAKUS: Yes, less data overall, I think. Just looking at it, I think that's true.

Definitely at the upstream site, it is less data, and I think that's just because there was more interest in the 1970s.

CHAIRMAN SHROPSHIRE: Great. Thanks.

MR. MAKUS: So we've got more data, so these are all the grab samples, but then there has been some other data collection. So in the 1980s, the EPA had somebody go out to the creek every morning, and take a sample, and look at it for five years, a five-year period. And again, we can see that the data never gets down to 500 in that five-year period, not once.

Then in 2004, the EPA funded the USGS to put in a salinity meter at the gauge, so they were collecting automatic samples every 15 minutes. And these are just daily averages here. You'll see that they pull their gauges in the winter. They don't want them to get destroyed by ice. So starting when the USGS does this, we don't have data from about November through mid-March or so. But again, we've got five years of spring, summer, fall data. At no point does it hit 500. And then starting in 2013, the DEQ is now funding that gauge for salinity, and again, we don't get down to 500.

So big picture, there's just a lot of data. There is a lot of grab samples, there has been a lot of interest in the creek over the last 40 years, and we've got a good foot to stand on here.

Now we're looking at sodium adsorption ratio, and more or less when they took a sample for salinity, they took a sample for SAR, so we've got not quite as many points, but more or less the same time frame. And we can see kind of the same thing with the grab samples. The growing season standard -- because remember, for SAR, we have two standards currently for the regional tributaries. The growing season standard of three; again, it is very rarely met. There is a couple points here, but not hardly ever. The non-growing season standard of five is met infrequently, but you do see the values dip below that from time to time.

So then the same thing. Now we're looking at just all the USGS -- when that gauge is running, it also takes SAR, so we've got from 2004 to 2008, and 2013 on. We do have 2014. I just took this screen capture before last year. And again, the same thing. We don't see it ever get down to the growing season standard. The non-growing season standard, it does hit infrequently.

So that is a summary of the existing data that is out there. Now I'm going to get into what we did for modeling. The model that we used was called LSPC, and it was used by the EPA and their consultant in the mid-2000s to do a model of the entire Tongue River watershed, so we kind of stuck with continuity and used that for the Otter Creek model.

LSPC is a hydrologic model, it's a water quality model, and I just put this graphic up here to kind of show the general water balance. This is what LSPC looks at. It looks at climate inputs of temperature and precipitation, wind. The water, once it hits the ground, it can infiltrate, it can return to the creek by either groundwater, or subsurface flow, or surface runoff. So it is a complete water balance. That is what we've done.

So as far as climate data goes, we needed climate stations in the area that would have good records, good long records with complete data sets, so for that, we had to go to a couple different points. Originally we had just used Brandenburg, Sonnet, and Leiter for our inputs.

Those had precipitation and temperature.

Throughout the process, we had some stakeholder feedback, and there was a weather station right in the middle of the watershed that had some temperature data, and had some other data as well, it had some precip that NOAA had not passed its quality control process. But throughout some previous presentations, we had some feedback, and we went ahead and decided to go back, and put this in for the temperature data. So now we do have a climate station right in the middle of the watershed that we've used temperature, wind speed, and relative humidity for.

And finally the data that we could not get from most of these NOAA sites, there is an airport in Sheridan for solar radiation, potential evapotranspiration, so we got that from there.

So here is a quick and dirty summary of the modeling results. We've got some color coding here in the key. You can see that we were -- what our internal ranking or internal rating. We considered it between good and fair for all these metrics.

The one, the model was fair at

reproducing low flows. That was probably the one point that was the most challenging. So when the creek got down to very, very low flows -- and we're talking down around .5 CFS down to .1 CFS, so barely a trickle -- the model didn't do as well at reproducing that. And this, if we look at the big picture, and we think of the total volume that's coming out during those times, it's a very, very tiny fraction of the water that is coming out of Otter Creek, so I think somewhere around one percent of the total volume in that time frame. And it was mostly during -- there was a drought in 2004, and that was a challenge with the model. So it mostly happened there.

CHAIRMAN SHROPSHIRE: How deep is the water table there?

MR. MAKUS: Madam Chair, it varies quite a bit. As Otter Creek comes through the watershed, the coal seam, there is different seams, and they can get to the surface. As you get further down, they get to the surface. So along most of the creek, it is pretty shallow.

CHAIRMAN SHROPSHIRE: So there is some contribution from groundwater to the base flow?

MR. MAKUS: Definitely. Yes. It is

actually a very significant contribution is ground water. It is really not a snow melt runoff kind of watershed, so yes.

So I'm showing us a flow duration curve here, and just to reiterate, kind of the small portion of the point at which the model and the observed data kind of fall apart or separate. It is about .8 to .9 percent of the data, so 80 to 90 percent of the data is very close, tracks very close. It's just when we get these flows that are down around .1 to .5 CFS.

But other than that, we felt really good with the model. That was really the only metric that wasn't what we would consider good. So overall water balance, we were very happy with. This is very close. High flows that matched very, very well, and some of the other metrics that we use, R-Squared and Nash-Sutcliff were very high.

Now we're looking at a graphic of the simulated data and the observed data superimposed on each other. We already saw -- So there is a couple of data sets on here, but we already saw these purple dots. That was the data that we were looking at in the previous graph. And these green cyclical patterns are the USGS data from 2004 to

2008. So we've already looked at that, it's just got the blue simulation superimposed on it.

And in general, again, where there is overlapping data, they match up fairly well. We're getting good peaks and dips. We're seeing the overall range in variability. I mentioned that low flow data in 2004. That's some of these real high peaks in SC in the model simulation, because when we have very low flows, we're going to see high SC values. So again, these are just one or two days at a time, so in the overall balance, they made a very small portion of that, but that's what some of this is here.

So if we look at the averages, the means, the mean value for our simulation was about 2,850 microsiemens per centimeter over the model period, which was 2003 to 2010. That falls right in between the mean of the two observed data sets that we've got up here, so the mean of the observed grab samples was about 3,000, and the mean of the USGS daily values, the green, was about 2,700. So our model does fall, as far as mean goes, right in between those.

Now, if we look at SAR -- This is the same data. We are just looking at SAR now -- very similar. It does a good job of kind of the range in variability through here again. We've got a few peaks in that drought of 2004, but again, if we look at the means, the mean for the simulation was 5.9, and the mean for the observed data was six. So very close. Even closer than that.

So at this point, we felt good that we had a model that reasonably reproduced existing conditions. It wasn't perfect, but did a good job as far as the metrics we were looking at, overall water balance, and we were happy with it. We thought that we could move forward with some scenarios.

So the scenario we wanted to look at for the modeling was run a historical scenario, and there is a lot of different definitions of historical or natural. So in this case what we're talking about is we just wanted to remove all of the human influence that we could think of.

In this watershed, there is a couple of things. There's a lot of stock ponds and check dams along the main steam of the creek and in the tribs, and those are used for both cattle watering, and also for irrigation. So we removed all those stock ponds and check dams that were in the model.

There is an urban footprint in the watershed. It is a pretty tiny percentage. It's only about .5 percent of the entire watershed, and most of that -- the land use that we use calls roads urban. So this is a graphic here, a table that shows the totals. For urban, we have 2,150 acres. Most of that is roads. There's only about 20 acres of actual urban areas, and that's the town of Ashland itself.

So we removed those from the watershed; we removed the irrigated land, which was also a very tiny fraction of the total watershed, .4 percent. And there was no industrial point sources to consider, so we didn't have to do anything with that.

So basically kind of a representation of what we did. Urban and irrigated lands were reduced to zero in the watershed. Acreage was redistributed to the different land uses that we would consider natural. So forest, shrub land, pasture, and wetlands. And then there was still mass balance on acreage, so the total acreage didn't change, we just reduced the urban and irrigated lands to zero, removed those stock ponds, and reran the model.

And when we did that, here are the results. So the red line on here, which is behind the blue, is the one we just looked at a couple slides ago. That's the existing model run that we did. The blue is now the historical simulation. And you can see that there is very little difference. They're almost the same.

There is a few -- You can see that in general the existing tends to peak a little lower, dip a little lower, and peak a little higher than the historical; and that's really a dilution factor. So there was more water in the creek historically. So when you got a big snow event, and the water quality gets very high now -- back then there was just a little more water in the watershed, so it diluted that extreme event a little bit, and that's why we don't see the dips and the peaks in the historical.

CHAIRMAN SHROPSHIRE: Erik, sorry to interrupt. I'm not sure exactly what you're modeling. Can you go back to the one before that? So the scenario that you're showing us now, how did you -- what did you change?

MR. MAKUS: Madam Chair, so this is

going to be the historical scenario. So the one that we've just looked at the several slides before was just existing conditions. We just tried to set up a model reproducing the existing conditions, and we call that a baseline.

Then here what we did is we wanted to say what was Otter Creek looking like before human influence, 150 years ago, before there was irrigation, before we had the town of Ashland, those kind of things. So to do that, we did kind of the checklist here. We've took out stock ponds and check dams that have been created; we took out the irrigation and their urban foot print, and then we reran it and compared those two, so now we've got an existing run, and we've got a historical, or no -- whatever you want to call it -- no human, natural.

CHAIRMAN SHROPSHIRE: All right. Thanks.

MR. MAKUS: So again, that's what we're looking at here, so the blue versus the red is those two. And take home from here is there is very little difference. And I'll show the same for SAR now. This is again the same. And again, very similar. We see the peaks and the dips in the existing, and there is more or less no difference besides that.

And this is just looking at the same data but in a different way. So what I've done here is on the left we've got SC salinity. I've just plotted a box and whisker plot of the various creeks and rivers in that area, and then compared that to the two modeled events which are in green.

So here we've got the Tongue River at the Wyoming border, the Tongue River at Miles City. You can see that their mean value, median value, is very low, and their min and max are pretty tight, pretty low.

Then we look at Otter Creek observed, and then the two Otter Creek simulation runs. So this is the existing run, and this is the historical run.

And I just wanted to show this I guess to show there is a lot of variability in the watershed as far as going from the Tongue River to Otter Creek, and I think Amy hit on that a couple slides ago. But then also the main reason was just to show that this is the difference. I mean looking at these two, this is the difference between the existing data and the historical data.

So if we look at this, I think it says there's really no difference. I mean we've had 100 plus years of irrigation and farming, and it really hasn't changed the watershed at all. And the same with SAR. This is just on the right, and very similar results.

When we look at the stats here, some of the numbers that were just in that graph, but basically there was about a one percent or less change between the existing and historical simulations in all cases. And again, for 100 years of agriculture, we think that means there is no practical difference at all. It is lost in the weeds.

So just to summarize what I've talked about, I really just wanted to kind of go back to the point I made at the beginning, which is that we did make this model, and we looked at the historical and the existing data, and we determined that it is really the same. There hasn't been much change in the watershed because of irrigation practices. And so therefore we've got this amazing amount of data, more data than almost any creek I've definitely worked on in the last few years as far as EC and SAR data, and we've determined we can use that data to set a site specific standard, and do a good job of it.

So with that, I'm going to pass it back to Amy.

CHAIRMAN SHROPSHIRE: I have a couple questions, though. First great job, both you and Amy. Those were really nice presentations.

The question I have -- and I didn't write down the slide number. Sorry. But can you go back a couple of slides? What I'm interested in is you said that there were no point sources. Have you looked at a scenario where you treated the mining as a point source?

MR. MAKUS: Madam Chair, we haven't looked at that yet, and I don't know if we will. That's probably a question for Eric. But this model is a surface water model, so without knowing -- we could easily add something if we knew what it was, but without knowing what it's going to be and what its influence will be, that would be difficult. And we haven't used it.

Amy did mention that we originally had set this model up as a TMDL model when we first started it several years ago, and then it kind of got converted into looking at standards. So of course, it is a tool that we have, and in the future if we decide to use it for another scenario, that could definitely was done if the data was available.

CHAIRMAN SHROPSHIRE: If you could go back a couple to where there is a map of the watershed. Great. Are there mines along Otter Creek?

MR. MAKUS: Madam Chair, there are currently no mines in the watershed.

CHAIRMAN SHROPSHIRE: Historically?

MR. MAKUS: Historically there have been some very, very small private. I've heard that there has been maybe one or two places where a family just dug some coal, because a coal seam is very shallow, in some places actually outcrops. So I've heard that there has been a couple acres here and there where a family may have dug coal for themselves, but as far as I know, there has been no commercial mining in the watershed.

CHAIRMAN SHROPSHIRE: In that yellow box -- it is not a box at all. It is a shape with the hatches just below Ashland. What is that?

MR. MAKUS: Madam Chair, that's just a left over. I pulled this probably like a year ago. That's the proposed mine site of Arch Coal, so that was just in there, and I didn't take it out.

CHAIRMAN SHROPSHIRE: And then the other thing I was curious about is just the change in flows between Ashland and Otter in terms of the -- how much does it gain along the way?

MR. MAKUS: Madam Chair, it varies quite a bit. It does gain -- I'm going to say it probably doubles between Otter and Ashland. It is going to depend a lot on the time of year. In the base flow time of the year I bet it is pretty close to the same. In runoff season, spring season, it's probably double or more.

CHAIRMAN SHROPSHIRE: Great. Thank you.

MS. CANTY: I have a question for you, too. So if Otter Creek has a lot more salinity than the Tongue River, are you just attributing that then to the natural geology of the surface soils, just the difference in those two areas?

MR. MAKUS: Madam Chair, Board Member Canty. So we see that in many of the tribs in this region, is they're much, much higher. And the Tongue River is a snow melt, is a snow fed river, so it comes out of the Big Horns, and a significant portion of its hydrograph is due to snow which is very clean.

Most of these, like Otter Creek, most of its hydrograph is going to be due to base flow conditions, ground water; and the geology out there, as Amy mentioned, it's in the Powder River coal seam, so it is really high in salts and SAR.

MS. CANTY: Thank you.

MS. STEINMETZ: Eric's presentation did a really good job of summarizing the data that we have and displaying it, so I'm not going to spend very much time on existing data. But this slide just summarizes what you've just seen with all of that data. We have got so much data for Otter Creek. It is almost unheard of. There is a lot of data.

And the next four slides are graphs that show each of these bullets by Julian day, so Julian day is just assigning one to January 1st, assigning numbers consecutively through the rest of the year. So on the left side of the graph we've got January all the way through December. I'm sorry I didn't label my line down here, but the red line is the criterion, EC criterion.

And this one is specific conductivity,

the daily data, so not the grab samples, but the daily data from that USGS gauge. And you can see looking at this data, there is a little bit of fluctuation by season, time of year; but for the most part it is pretty consistently between 2,500, 3,000 in that area -- Erik mentioned that -- and all of the data is well above the criterion.

The next one just shows the grab samples, also conductivity, specific conductivity. Erik already pointed this out. There were only four samples in the period of record that are below the criterion. The rest of it is all in that 2,500, 3,000 and higher range.

The next two show SAR, five to seven. Very little of the data, real data, is below the non-irrigation season -- and again, I apologize for not labeling these -- but the red line is the non-irrigation SAR criterion, and the green line is the irrigation season SAR criterion. The daily data never goes below the SAR irrigation season criterion, and infrequently goes below the non-irrigation season criterion.

Then the next one is the grab samples, and shows pretty much the same thing, five to seven SAR; and then again, just like Eric pointed out, very few data points in the period of record go below the irrigation season criterion.

So looking at all of the data that you have seen, looking at it in different ways, it hardly ever, existing data hardly ever go below the criteria, so I don't think it is a stretch to say that the criteria that are currently applied to Otter Creek for EC and SAR are not appropriate for Otter Creek.

We're going to talk a little bit about site specific criteria. In a perfect world, we would have enough data on all of our streams to calculate site specific criteria based on the natural condition of a stream. It would appropriately reflect what is in each water body, geology, chemistry. It would reflect all of that, and it would protect all of the existing uses and designated uses on those particular water bodies.

And site specific criteria are authorized in federal rule, federal regulation. CFR 131.11(b) states that the states may adopt criteria modified to reflect site specific conditions. Site specific criteria, like all water quality criteria, have to be based on sound scientific rationale. That's also in federal regulation. And like all of our water quality standards site, specific criteria go through the official rulemaking process. You are the official body that adopts our criteria, it goes through you, it goes through the public participation process, and it is subject to EPA review and approval. Natural condition is an appropriate approach for calculating these criteria.

And a lot of states use them in a lot of situations. Where it is appropriate to base the criteria and site specific criteria, states do that, and EPA approved them. And we see Montana in here. You've recently seen these. Montana's, Florida, are based on the natural condition. They're are a couple different situations and methods for developing and calculating site specific criteria, but those based on natural, it's used.

Natural conditions, site specific criteria based on natural conditions, are inherently protective of designated uses. And I want to make sure this point is understood before we go too much further. If a use of water -- water needs to be treated for a use -- that needs to be reflected in the designated use. For example, drinking water. We don't have any waters in Montana that have drinking water naturally -- it has to be either disinfected or conventional treatment -- and that is reflected in the water quality standards.

If it doesn't need to be treated for use, then that use couldn't exist as it does today if it couldn't exist naturally. I hope that that makes sense, but I'm going to clarify a little bit with an example on Otter Creek.

Otter Creek is a C-3 stream, and the uses designated for C-3 streams are listed here. So for Otter Creek, recreation could be an existing use; aquatic life exists under the current condition, which Erik Makus's modeling has shown, that the same condition is natural; and irrigated agriculture exists, although in a modified form -- not like you'd usually think of irrigation. Nobody is pulling water out of Otter Creek and sprinkling it over a field. It's opportunistic. But agriculture does exist, irrigated agriculture exists, and what we're trying to do will protect irrigation in its current form. It will also protect aquatic life.

Then moving on. If there are questions

about that, about how site specific criteria based on natural are protective of uses, please let me know because it is really important to understand.

But moving on. If we're going to develop site specific criteria based on natural, we need to develop some different pieces. One of them is a natural conditions report. So this would basically summarize Erik's modeling. It would show how we determined the natural condition of the stream, how we determined whether or not human sources contribute significantly to EC and SAR in Otter Creek, and it would report that, it would document all of that.

Another piece is the rule itself. Now, we have run some scenarios by stakeholders, and in the interests of keeping those discussions open and just sharing with you our intended path forward, we're not presenting any draft rules today. We're just talking about the pieces that we foresee going into the rule.

So the next time we come back to you, hopefully we'll be requesting initiation of rulemaking, and then you'll see a rule, and the pieces that that rule hopefully will have, it will have a description of the uses that are protected by these site specific criteria, and it will also have a statement, that second bullet, that clarifies this will be protective of downstream uses. And so what we're doing, it's still going to be protective of downstream uses because we're talking about the natural condition of the stream. We're keeping that status quo. We're not requiring that natural get better, we're keeping it the same, so it's protective of what's downstream.

And then the third piece is the site specific water quality criteria for EC and SAR on Otter Creek, and numeric water quality criteria have three pieces: magnitude, duration, and frequency. Magnitude is the number. That's just the number. When we're talking about developing this number based on the natural condition, we're looking at a range of values. We're not going to pick maximum, we're not going to pick minimum, we're going to look at someplace within that range. It will be a percentile of that data.

Duration is the averaging period. What does that look like? That looks like a yearly average, a monthly average. It will be a maximum. And it represents the amount of time that an organism can be exposed to a pollutant without harm. That's duration.

And then frequency is how often the organism can be exposed to pollution above the magnitude without harm.

So those are the three pieces, and frequency in this case, when we're looking at choosing something that's in that natural range, frequency is going to have to be reflective of the percentile that's above the magnitude that we select, between the magnitude and the top of our natural data set.

And what it will eventually look like in the rule, typically you see one and three years. This criterion can be exceeded no more than once in a three year period. So we need to figure out a way to translate 20 percent or 15 percent of a data set into -- it can exceed so many times in so many years.

(Ms. Miles present)

MS. MILES: This is Joan again getting back on the line.

MS. STEINMETZ: Then the last piece that we'll have before we come back to request initiation of rulemaking is an implementation procedure, and this is really important because we only have one other example of site specific criteria based on natural, and that's Mike Suplee's nutrient criteria that you've recently seen.

Because it's different, because it's a different method for developing criteria, we need to be very clear about how those criteria are supposed to be implemented, how we'll implement those criteria and assessment; how the criteria will be implemented in a nondegradation review, nonsignificance determination; and finally, how will the Department use the criteria for permitting decisions. So these things will all be outlined in the implementation procedure.

So we talked about EC and SAR, what they are, how they can affect agriculture; we talked about the Tongue River watershed, water uses, how and why criteria were developed, especially how for the tributaries; and we've talked about how Otter Creek is a little different from that general criterion calculation. We've looked at data, we've looked at the model, we looked at existing data, we talked about site specific criteria in general, and we talked about how we plan to move forward.

I'm going to conclude with that, and we thank you for your time, and we're available to take questions.

MS. KAISER: I just have a comment, Robin. I just want to say thank you. Both yours and Erik's presentations were excellent, and the clarification and definitions, that was great. So I appreciate the challenge you guys have ahead of you.

MR. RUSSELL: I don't know where to start. This clearly dumps into the Tongue, and it is not a lot of volume of water because it is not impacting the Tongue, it doesn't appear. Just looking on Google Earth, it's all opportunistic irrigation. There is quite a bit of irrigation. There's quite a bit of irrigated, probably alfalfa, along the Otter Creek.

MS. STEINMETZ: I'm going to show a couple pictures that demonstrate how that irrigation --

MR. RUSSELL: It is not flood irrigation, right?

MS. STEINMETZ: No, it is not. So it's spreader dikes. I think lower on Otter Creek --

There are actually check dams in Otter Creek itself, and then that water is spread out over the fields lower down; but upper Otter Creek, and on the side channels, it is actually pretty ingenious how these systems have been developed.

MR. RUSSELL: While you're doing that, are you taking samples in some of those areas that have been damned up along Otter Creek? I know like the Tongue River Reservoir, we had a lot of data on what was going on in that reservoir. Do we know what's going on in those dammed up areas of Otter Creek?

MS. STEINMETZ: I have not seen that information.

MR. RUSSELL: The only other observation, I mean there has got to be almost no difference between ground water and surface water, almost none, I would guess, with the level of salinity that you're seeing.

MR. MAKUS: Yes. Otter Creek is primarily groundwater driven. There is very little difference between at least return flows from agriculture and ground water. Yes, definitely.

MS. STEINMETZ: So you can see Otter

Creek, the Otter Creek channel is down in this area here. And it is a little bit difficult to see in this slide, but the bank has been built up a little bit right along the creek so that water coming off of the hills is captured. They don't want the water to go into Otter Creek, they want it to stay on their fields.

I liked this slide on my computer because it showed the color differences. But you can still kind of see, even with the shadow, that there is this berm built up here that keeps the water on the field rather than going into the creek. The creek is in the background here. I think that this one -- I think this one was a tributary to Otter Creek.

MR. RUSSELL: Is that a common practice along Otter Creek?

MS. STEINMETZ: Yes.

MR. RUSSELL: That's probably why they can grow so much.

MS. STEINMETZ: Exactly, and when I said that the irrigation practice itself has been modified to fit the conditions of Otter Creek, this is what that looks like. Here is Otter Creek, and you can see that it's built up so that water stays on the field rather than going into the creek. Same thing here. Here. I mean there are miles and miles of these berms that were built to contain the water. It is impressive.

And then like I said, lower down -- and I haven't been there, but Erik and Eric have both been there, and they have built some check dams in Otter Creek itself, and that spreads the water from Otter Creek out on the fields.

MR. RUSSELL: Are irrigators actually looking at the sodicity? Are they looking at the salinity before they irrigate or --

MS. STEINMETZ: Not on Otter Creek, no. What's there controls how the water goes out on the fields. There's no active opening of channels or taking the water. It is all just when it happens, it happens.

MR. RUSSELL: I so much appreciated what was going on along the Powder River, because they could destroy their crops if they didn't watch the salinities. So it is amazing what goes on out in eastern Montana from someone who lives in the northwest.

CHAIRMAN SHROPSHIRE: I have a couple of questions still, but anybody else from the Board?

Just I guess to help me understand a little bit better, you had some ground water data in your presentation, Erik. Did you have --

MR. MAKUS: There was --

CHAIRMAN SHROPSHIRE: I was thinking you had a slide that had some ground water quality data.

MR. MAKUS: I don't think -- Amy had one at the beginning, so it might have been Amy's. I don't think I had any.

CHAIRMAN SHROPSHIRE: Oh, that's the one. And so that's the formation that's in the watershed.

MS. STEINMETZ: The coal seam, yes.

CHAIRMAN SHROPSHIRE: And so it would be helpful for me to see a map with the depth of the coal seam, and if it is in proximity to Otter Creek, and how that varies from, say, the Tongue. It seems that that is a definite contributor, but I think I would understand it better if I could see --

MR. RUSSELL: Like in person?

CHAIRMAN SHROPSHIRE: In person on a field trip.

MR. RUSSELL: It is interesting. There

is multiple coal seams. There'll be a road cut, and you'll see the coal seams in the road cut; and then you'll be in the river bottom, and you won't see anything, but you know they're under there. But it is absolutely amazing. The road cut will have coal seams in it.

CHAIRMAN SHROPSHIRE: And then the other is that it would seem like a lot of the data was at the mouth. And how those concentrations vary along Otter Creek, do you have that data, so it shows the variance?

MR. MAKUS: Madam Chair, we don't -- So I had that one graph -- I won't go back to it -- but the USGS has a gauge at the mouth, and so most of their sampling is at the mouth. So that's why we've got most of our data at the mouth. Then that one figure that had EC and SAR, where there was some red dots and some blue dots, that was all kind of of near -- not the head waters, but near where two major streams come together and kind of form the upper Otter Creek.

So that data looks, that limited data definitely looked to me like the water quality improved as you went towards the mouth, the red data was definitely a little higher, especially in the 1970s.

CHAIRMAN SHROPSHIRE: That's what I was thinking. I mean it looked like the concentrations were decreasing with time a little bit, like marginally, but I couldn't quite tell.

MR. MAKUS: The 1970s, a couple of things I can think of, and there might be people here who have better knowledge of it historically. One is that the 1970s were a pretty wet time out there. If you look at just hydrographs, probably six out of the eight wettest years that we've seen were all in the mid 1970s, so that might have something to do with it.

The other thing is it there is a lot of springs in that watershed, and the springs typically have very, very poor water quality. And I think the streams -- We've got a general idea where the springs are. They tend to be concentrated more at the upper end of the watershed, higher up. So I think that some of that really low water quality upstream might be due to just more of an influence of those springs and less of an influence of ground water or just runoff, would be my guess.

But besides those two points, we just

have limited grab samples here and there along the creek, and it is hard, with that amount of data, it's hard to pull a trend out and say, oh, it definitely is improving or decreasing water quality as we get downstream.

MR. RUSSELL: So I'm just trying to orient myself. There isn't a lot of flow from Wyoming into Otter Creek, is there?

MR. MAKUS: No. Madam Chair, Board Member Russell, Otter Creek is entirely in Montana. So it is about a mile north of the border, the very head water, so there is no interactions with Wyoming.

CHAIRMAN SHROPSHIRE: And the difference in CFS between Otter Creek and the Tongue?

MR. MAKUS: So that, I did have a graph. I threw some slides at the end, but it is not in there. It varies throughout the year, so typically we saw that hydrograph for Otter Creek, and it is going to peak in the March/April kind of time frame; and that's usually when the Tongue is flowing fairly low because the snow melt hasn't occurred yet, and when it does, the reservoir needs to fill up.

So like in the summer, maybe

July/August, Otter Creek is less than one percent of the total flow of the Tongue. It would represent less than one percent. Maybe March/April, it might be around 8 to 10 percent, something like that. So there is about a month there where it is 8 or 10 percent of the entire flow in the Tongue.

And the Tongue in April is mostly made up of just all of the little tribs coming in because there is not any snow melt coming out of the mountains. So that's kind of what you will expect is it's going to be the highest then.

CHAIRMAN SHROPSHIRE: Anybody else?

(No response)

CHAIRMAN SHROPSHIRE: Thanks very much. Nice job. I neglected to ask for public comment. We typically do this at the end of the meeting, but I think it makes sense for this to incorporate the public comment for this briefing item now. So if anybody in the audience would like to address the Board, we welcome your comments.

MR. HAYES: Good morning, Madam Chair, and members of the Board. My name is Art Hayes, Jr., and I'm the president of the Tongue River Water Users Association, and live on kind of the sister stream of Otter Creek. I live on Hanging Woman Creek, very much similar, very similar type irrigation, so I think I can answer any questions you have about that type of irrigation. I'm very familiar with Otter Creek. It's just over the hill from my house.

In 2003 or 2002 when we initiated the standards, mainly we were looking at the Tongue protection, Otter Creek. It was set at 500, and that was to protect agriculture on the very high flows.

A few things I'd like to point out in this, is most of the grass we saw were at the mouth of Otter Creek, not upstream where the irrigation is taking place. Most of the irrigation on Otter Creek comes out of the side creeks. That water is captured in very -- dikes will vary anywhere from three to five feet high. They capture a great amount of water, and there's great leaching fraction to it. And it's very fresh water because it's always snow melt or rain water. There is no conventional irrigation on Otter Creek.

But let's go back and look at the standards. Are these standards that we adopted, and data that we adopted, are they working? The answer is well, no. Year after year, the Tongue River Water Users Association and T&Y Irrigation have to had to put this ad -- will you pass those around, please -- ad in the Miles City paper in the beginning of irrigation season in April to say, "Please use your own discretion on when you turn your pumps on." The reason is our standards are to be running over 1,000 EC at Miles City.

There is a few years that we have not had to run that ad, and the reason is we've had some very high water years. Last year was an exceptionally high water year. We went into -- If you can remember, we went into the fall last year or a year ago last fall with a lot of rain. We had a lot of water in the system. Tongue River was running very, very high, all through the winter.

But where the standards have worked is in the tributaries, and the reason they have worked in the tributaries is we have no discharges into the tribs. We do not have the 45 SAR water in the tribs. If you put 45 SAR water out of that Knoblock coal main -- which will be required if a discharge permit is entered into with Arch Coal --

that is going to shoot the SAR and EC of that Otter Creek out of sight.

I guess in a nutshell is you can't use that ground water in that coal seam, or from some of the overlying sandstone aquifers that are overlying that coal. That water is very highly toxic to plant life, aquatic life, and everything else. It is good for two reasons: You can use it for stock, and you can use it for domestic water if you don't drink a lot of it.

What has happened in the Tongue since the standards have been initiated is we have had trouble meeting the standards in the early spring. We are playing a game of Russian Roulette. Will we get snow melt from Wyoming to dilute that bad water? And some years we have just barely made it. Some years people have put off irrigation until that snow melt comes.

And I guess to get back to Otter Creek, I'm going to pass out another sheet. This was taken from the 2014 Montana Bureau of Mines and Geology monitoring wells on Otter Creek, and you can see that -- I'll pass this around -- that Otter Creek is very susceptible. You can see the flows of the groundwater coming up into Otter

Creek as precipitation amounts -- and the closest monitoring station they have is at Poker Jim Butte, which is on the divide between Tongue River and Otter Creek.

And I guess my question or thing here is what's going to happen if you increase those flows of Otter Creek with a discharge permit? That ground water is going to go way up. It is going to put that extremely bad water into the root zones of those plants and in those fields.

And as we observed in several places, I have a good friend, Donnie Bailey, who lives over on the Rosebud Creek. Peabody was storing some water in some ponds. Eventually that water came out and destroyed some of his hay fields on a tributary of the Rosebud called Lynch Coulee. He settled for a nice settlement out of Peabody Coal, but those fields are still destroyed.

And that gets me to putting this water in these ponds, which Arch is planning to do. That high SAR water is either going to do two things: It's going to infiltrate through the ground if it's put in over the winter, and it's going to end up into the alluvial valley of Otter Creek; or those ponds, as we have seen with the coal bed methane where they put it in that soil will disperse, and they will seal up and become evaporation ponds.

Dr. Jim Bauder ran an experiment on my place. We had one lined pond and one unlined pond. We ran some high SAR water from the stock well into it, had wells drilled in the bottom of the unlined pond. Those wells never did show water. It sealed that soil up instantly, and that became an evaporation pond just like the lined pond.

You can also see in John Wheaton's testimony in Montana versus Wyoming. John Wheaton is a hydrologist for the Montana Bureau of Mines and Geology. He had an experiment down by Arvada where they built a pond to see how much infiltration they had, and it sealed that pond and became an evaporation pond.

After our standards were proposed and implemented, Wyoming challenged those standards in court. That court case is still ongoing. And if we try to change the standards now, what is it going to do to that court case in Wyoming? We're still waiting on EPA to come up with some data -- we were hoping to get it out shortly -- to back

Montana standards. And hopefully we can get that done, and then the Tongue River Water Users Association would like to come back to this Board and instigate standards that are protective for the whole river.

We have seen tremendous amounts of changes in irrigation practice in the Tongue River Valley since 2002. Thousands of acres have gone under sprinkler. That leaching fraction that was built into the standards is gone. And that change in irrigation, water is becoming very precious, and people are trying to use amounts that they are allowed to get the most beneficial use out of it, and that is through a sprinkler.

So I guess that kind of wraps up what I have to say. If you have any questions about how the irrigation system on Otter Creek works or any other questions, I'll be happy to try and answer them. Thank you.

CHAIRMAN SHROPSHIRE: Any questions for Mr. Hayes?

(No response)

CHAIRMAN SHROPSHIRE: I know you traveled a long way to get here, so thanks for coming. I appreciate your time.

MR. RUSSELL: Robin, I guess it brings up a question in the Tongue River Basin. I know you folks, DEQ has been looking at it, if it has any impact associated with any mining operation, whether it be coal bed methane, methane extraction.

CHAIRMAN SHROPSHIRE: Can I interrupt you? Can you hold that thought until we finish public comment?

MR. RUSSELL: Yes.

CHAIRMAN SHROPSHIRE: Any other public comment?

MS. MARQUIS: Good morning, members of the Board. My name is Vicki Marquis. I'm an attorney with the Crowley Fleck Firm, and we represent Arch Coal.

Arch Coal did submit a permit application and a discharge permit for a coal mine along Otter Creek, which as Amy discussed, did trigger some looking into doing a TMDL for Otter Creek. We support DEQ's efforts. I think you've heard a lot of agreement here that the standards that are in place right now for the tributaries aren't really working. We need a standard that can be used and that can be enforced. You don't have that right now.

You've seen the data -- there is a lot of data -- and most of it shows that most of the samples already exceed the standards right now, and that's without any point source discharges along Otter Creek.

Also as you heard earlier, the rule was originally designed with coal bed methane discharges considered, and I'd just like to point out that a coal mine and a coal bed methane operation are significantly different from each other. Amy had a nice slide that showed the coal bed methane well, and that they have to pump out the water to get the methane. We don't have to pump out the water to get to the coal. In fact, our coal mine is designed to be zero discharge. So there is a significant difference. We are not the industry that the rule was targeted at preventing discharges from.

Also when the rule was set for the tributaries, if you read the rationale for the original rule, DEQ did a rationale on the rule in 2011. It's a document, I'm sure DEQ has it, and you could get a copy if you wanted. But in there, they discussed how they came up with that limit of

EC of 500, and SAR of three and five; and those numbers were really based on the optimal water necessary to grow alfalfa. They weren't based on the existing water quality of the streams.

And also in that document you'll see that the rules were designed, acknowledging that there is a statute that says that a discharge does not have to be treated to a condition purer than the natural condition of the receiving water body. That's important, and it is evidence that the rules were designed sort of forecasting that you'd be here today drafting site specific rules based on the natural condition of the receiving water bodies.

Also I think DEQ did a good job of pointing out that Otter Creek is different from some of the other tributaries and a lot of other rivers in the watersheds that are impacted by the rule. The irrigation on Otter Creek is different. It is a passive irrigation. The water that runs through Otter Creek doesn't support irrigation in its current form. You can't really take that water and put it on the field without doing damage.

There are irrigation concerns on the

Tongue River. It is important to keep in mind that these standards won't change the standards on the Tongue River. Also these standards don't change the standards and the regulations in place for flow. The flow is regulated by your nondegradation requirements, and so those won't be impacted by drafting site specific EC and SAR standards for Otter Creek.

So in conclusion, the rules were originally promulgated anticipating use of the no purer than natural statute. We have a lot of data back to the 1970s. You have the science. DEQ has done a great job of assembling the data and modeling the conditions. They're committed to designing a rule that protects existing uses, and maintaining downstream water quality standards. Those are all requirements of the Clean Water Act.

And also it is important to note that we're not the only place that has to deal with salinity issues. There is a quite a project on the Colorado River that also deals with salinity issues. They've come up with a way. They've made good progress. The a total salinity load in the Colorado River has decreased over time. And they use a flow weighted concentration to come up with benchmarks.

The benchmarks are designed specifically for specific segments within the watershed, acknowledging the natural condition of those specific segments. They recognize that there is a certain level of water that is clean, that is a fresh water discharge that is actually good for the system, and they allow discharges that have a relatively minimal salt load to a system.

So I say that only to illustrate that there is a way to do this moving forward, to acknowledge the natural condition, to come up with a rule that is usable and enforceable. Right now you don't have that, so it is important for everybody to come up with a rule that can be used and enforced.

If you have any questions, I'm happy to answer them. Thank you for your time and your efforts on this.

CHAIRMAN SHROPSHIRE: I have a couple questions. I should probably know this. So with the Otter Creek mine, I'm envisioning that the area that's going to be mined will have to be dewatered in order to access the coal. Do you know how deep the coal seams are, how much you would have to dewater it?

MS. MARQUIS: Madam Chair, members of the Board. I'm not a mining engineer, nor am I a hydrologist, but I can tell you that the mine plan is designed to be zero discharge. It is my understanding that they can mine the coal without dewatering the coal; and from an economic perspective, it just makes sense to not spend a lot of money pumping water out of the ground if you don't have to. If you can somehow strip mine and dig the holes in a manner that you don't have to discharge the water, that makes good sense. And the mine plan is designed to be zero discharge. Most of the water that will be accumulated in the ponds will come from storm water runoff. Does that answer your question?

CHAIRMAN SHROPSHIRE: Partly. So the zero discharge means no discharge to Otter Creek, but the water would be contained in ponds?

MS. MARQUIS: That's my understanding, yes.

CHAIRMAN SHROPSHIRE: Any other questions?

MS. CANTY: I have a question. Do we have any data from the tributaries coming into

Otter Creek? Because if I'm understanding the irrigation right, the berms along Otter Creek are designed to catch the cleaner water coming from the tributaries, leaving it on the fields before it gets to Otter Creek; is that correct?

MR. MAKUS: That is correct, Madam Chair.

MS. CANTY: Do we have any data on those tributaries?

MR. URBAN: Madam Chair, Ms. Canty. There is some information available, and that is where when we propose rules to the Board, that is the piece that we will try and address in our language. And you can think about it -- If you step back, we proposed rules generally for very large watersheds without that site site specific. Ideally the perfect scenario is lots of data on every stretch of water. But we will propose language that addresses that concern.

MR. RUSSELL: I go back to my thought that I think establishing numeric standards is a good idea, because there is potential going forward of other activities, as long as there is coal here -- coal bed methane, coal bed natural gas extraction, coal. It would be good that we have a standard, but clearly -- just look at your data. We could start rulemaking and establish a standard that makes sense. We've done it in the past.

It is funny, it is like ironic that taking all that fresh water and not letting it go into Otter Creek is probably keeping Otter Creek fairly high salinity. So it seems like the -- not to start to get darts thrown at me, but it seems like irrigators are causing as much of a problem now as anything in Otter Creek.

CHAIRMAN SHROPSHIRE: Is that a question?

MR. RUSSELL: If you want to take it as a question, Eric.

MR. URBAN: Absolutely. Madam Chair, Mr. Russell. That's our modeling effort in a nutshell. And when we looked at that, we removed those check dams. To put some scale to that, we would look at this watershed, there is 450,000 acres of land, of which I believe 1,800 acres is irrigated agriculture. So its relative impact is small.

CHAIRMAN SHROPSHIRE: When you took away the dams, it didn't really change your results much?

MR. MAKUS: Madam Chair, not water quality wise, no.

MR. RUSSELL: Were you taking away the dams so all of other water, snow melt, and the tributaries was flowing in there? Because you also have the damming of Otter Creek itself. You can see that in several segments of Otter Creek.

MR. MAKUS: Madam Chair, Board Member Russell. So take a step back. The model is only as detailed as we have information for. So if you look in that watershed -- you saw some of those pictures that Amy had -- it looks like every field has check dams, and some dikes, and everything. So we had to take an approach of kind of globbing a sub-basin together and just saying okay, it looks like there is about this much ponded area, or this many check dams in here, and we looked at a couple stream segments and said okay, there's a check dam about every this far, and we had to take averages.

And so when we back those out, most of those are going to be -- well, actually all of the check dams are either going to be on the main stem of Otter, or on the major tributaries, so Three

Mile, Ten Mile, Home Creek. Anything that's on an ephemeral stream that goes into somebody's field, we just didn't capture that necessarily in the model, and that's just because it really would be impossible to go into that level of detail for that when we're talking about watershed space.

So when we backed those out, they were just on the streams such as Home Creek or something, and it did show that there was very little change to the water quality when we did that, but we don't have the level of detail to scrutinize a field per se, so these fields up high.

MR. RUSSELL: I think if you did have that level of detail with the amount of what appears to be fairly irrigated cropland around there in that alluvium, clearly that water doesn't have enough salinity to destroy crops, because it is pretty green along here.

MR. MAKUS: Yes. So I think if we're looking at a big picture -- I guess the answer is probably I'm not positive. But if we look at the big picture, a lot of that clean water, like Mr. Hayes said, comes with snow melt, or comes with a really big precipitation event that may only happen once a year or twice a year.

So volume wise that may be somewhat significant, that clean water that's not getting to the creek; but we looked at it more in the model as like, okay, over the course of a year, this might happen once or twice, maybe once is more common; and for those two days, it does change the salinity levels in Otter Creek, that Otter Creek would have been lower EC in the historical; but then the other 360 days of the year it kind of balanced out pretty fast. So I think there is a little impact, but it is pretty quick and pretty instantaneous, and then that may sit until the next year when the snow melt.

CHAIRMAN SHROPSHIRE: Is your model capable of predicting -- if you were to increase the flow and maintain the same concentration -- what flows it would take to impact downstream users, or increase the concentration, keep the same flow, those sorts of scenarios? What are the parameters that you can't exceed on a -- basically a load basis to not impact downstream users? Can you do that predictive modeling?

MR. MAKUS: Sure. Madam Chair, we've actually looked at something like that. We haven't used this model. This model would probably be a little complex for that. It takes awhile to run it. But we have looked at just some simple spreadsheet analysis, where if we took the Otter Creek flow and quality, and increased one or the other by 10 percent or 20 percent, what impact would that have on Tongue River at Brandenburg, Tongue River at Miles City. We've looked at some of those. Nothing official yet. We've just kind of got that in the back of our pocket. But that is something you can do for sure.

And then there was a question just a second ago that I just wanted to throw in. We do have some data on some of the tribs -- I don't know who asked it -- so Home Creek is an example. It is one of the creeks that comes in down near the mouth of Otter Creek, and the USGS has maybe 40 or 50 data points in there. The data falls off very fast once we leave Otter Creek, but we do have one or two tribs where there is some data. And that data, I don't have it here, but it does show that the salinity in Home Creek are pretty high, as high or higher than Otter Creek.

CHAIRMAN SHROPSHIRE: Thank you. Any other public comment?

Why don't we take a 15 minute break and we'll start back at the top of the hour.

(Recess taken)

(Ms. Miles not present)

CHAIRMAN SHROPSHIRE: Go ahead and get started. I think we're still gathering. Joan, are you on the line?

(No response)

CHAIRMAN SHROPSHIRE: Ben, you had something that you wanted to comment on first.

MR. REED: Yes, Madam Chair. Under Roman II(A)(2)(c) in the matter of Columbia Falls Aluminum Company's appeal of DEQ's modification of their MPDES, I would like to correct the record. I did get a stipulated scheduling order from the parties, and I believe I indicated that I hadn't. So that was all.

CHAIRMAN SHROPSHIRE: Thank you. I think we're on to Item III, Action Items. The first item there is repeal, amendment, or adoption of final rules. We have a proposed adoption of amendments related to Ambient Air Quality Program standards.

MR. NORTH: Madam Chair, Eric Merchant will make the presentation.

MR. MERCHANT: Madam Chair, members of the Board, again for the record, my name is Eric Merchant, and I'm with Department's Air Resources Management Bureau, and I'm here today representing the Department in requesting that the Board adopt proposed amendments to existing air quality rules related to quality assurance practices for the monitoring of ambient air quality in Montana.

Really essentially what this rulemaking does is it establishes a single set of quality assurance requirements applicable to all ambient air monitoring conducted within the state of Montana, and that would be whether or not the State of Montana is doing that monitoring or some other entity for a regulatory purpose.

The rulemaking was initiated before the Board on December 5th, 2014. Over the course of several years, the Department has worked very closely with affected industrial stakeholders and other stakeholders in the development of these rule amendments. In fact during the public comment period for the rulemaking initiated before you in December, the Department received comments from one of those primary stakeholder groups.

The comments received and the

Department's responses are included in your packet for reference. Really as a result of those comments, there were two substantive changes that we're proposing for adoption to the rules that were initiated. The first is the removal of a proposed incorporation by reference of a guidance manual titled "EPA Ambient Monitoring Guidelines for Prevention of Significant Deterioration."

We're proposing that this be struck from the rule from incorporation by reference. This document was really intended to serve only as guidance, as it stated, for major sources, major sources of air pollution performing monitoring in the state, and was not meant to be mandatory. A good example of that is there would be many requirements or guidance situations in this document that wouldn't apply to a specific project.

So the rule now, rather than mandating compliance with a guidance document, it just requires that major sources consider the guidance in their development of quality assurance plans for their monitoring purposes.

Then secondly, the initially proposed rules require Department approval of quality assurance plans for monitoring projects for other entities, but did not provide a deadline for the Department to act on those submittals. The rule proposed for adoption adds a 60 day deadline for the Department action on these quality assurance plans. We believe that provides for some regulatory certainty for the entities that might be coming into the scenario. Then again, we just believe that's appropriate, and so we have added that deadline into the rule.

Effectively again what we're trying to do here is simply establish a single set of quality assurance rules that apply to everyone across the state standards, national standards, that are applicable here. And I guess for that purpose, the Department requests that the Board adopt the proposed rules as amended. Thank you, Madam Chair. If there are questions.

CHAIRMAN SHROPSHIRE: With the response to comments as well? As amended and with the response to comments?

MR. MERCHANT: Madam Chair, yes.

CHAIRMAN SHROPSHIRE: Any questions?

(No response)

CHAIRMAN SHROPSHIRE: Is there a fee

associated with your review of those plans?

MR. MERCHANT: Not specifically. Some of these plans might come in with a permit application, for example, but not specifically tied to this action.

CHAIRMAN SHROPSHIRE: I was just curious with the 60 day time period. What is your average turn around on review of a plan?

MR. MERCHANT: Madam Chair, members of the Board, I'm not sure that we have an average. In fact it is interesting, because recently we've had several of these plans come in to us for projects that are planned in the state, and some of them are highly complex, and we need to look at these issues very closely. I anticipate that there might be other projects that are relatively simple. We believe that providing a 60 day period would provide us with adequate time even for a relatively complex project.

And I should also mention that really the idea here is that we work with these stakeholders. In an ideal scenario we would be talking with them, consulting with them over a period of time in advance of any proposal. So a lot of the information that we would want to consider would already be understood between the Department and the entity. That's the ideal here, but putting that deadline on it is really just providing some certainty to the affected stakeholder.

CHAIRMAN SHROPSHIRE: Any public comment? There were a few comments from the public, so I just want to make sure there is nobody here that wants to speak to this and the Board's response to comments.

(No response)

CHAIRMAN SHROPSHIRE: And I don't think there is anybody on the phone. Joan, are you back?

(No response)

CHAIRMAN SHROPSHIRE: Thanks, Eric. With that, I would entertain a motion to amend and repeal the rules as proposed and the attached draft notice of amendment, and adopt the House Bill 521 and 311 analysis and the response to comments.

MR. RUSSELL: I'll make that motion.

CHAIRMAN SHROPSHIRE: It's been moved by Joe.

MS. CANTY: Second.

CHAIRMAN SHROPSHIRE: It's been seconded by Marietta. Any further discussion?

(No response)

CHAIRMAN SHROPSHIRE: All those in favor, signify by saying aye.

(Response)

CHAIRMAN SHROPSHIRE: Opposed.

(No response)

CHAIRMAN SHROPSHIRE: Motion carries unanimously.

The next thing is final action on contested cases. In the Matter of Violations of the Public Water Supply Laws by Trailer Terrace Mobile Park. Ben, can you update us on that.

MR. REED: Not specifically. I believe that what seems to have happened is that the parties who had initially been entangled in these violations have now gotten themselves out. The violations still exist, they're simply not going to be as against those parties. So Joyce has the order of dismissal prepared for your signature.

CHAIRMAN SHROPSHIRE: Any questions?

(No response)

CHAIRMAN SHROPSHIRE: I do have in front of me an order of dismissal for Case No. BER

2012-11-PWS. I'll entertain a motion to authorize the Board Chair to sign.

MR. MIRES: So moved.

CHAIRMAN SHROPSHIRE: It's been moved by Larry.

MS. KAISER: Second.

CHAIRMAN SHROPSHIRE: Second by Heidi. Any further discussion?

(No response)

CHAIRMAN SHROPSHIRE: All those in favor, signify by saying aye.

(Response)

CHAIRMAN SHROPSHIRE: Motion carries unanimously.

The last item on the agenda is general public comment. Is there anyone in the audience or on the phone that would like to address the Board?

(No response)

CHAIRMAN SHROPSHIRE: John, I know you had some comments or a comment.

MR. NORTH: Yes, Madam Chair. We have three members of the Board who have been serving in a hold-over capacity since the first of the year: Mr. Russell, Mr. Mires, and Ms. Kaiser.

They may all be back next meeting because there might not be additional appointments before that time; some may be back because they're reappointed, some may not. So it is a strange situation. But given the fact that that's the situation we're in, on behalf of the Department, we want to thank all those Board members for their service on the Board.

MR. RUSSELL: So you know something I don't?

MR. NORTH: All I know is what I just said.

CHAIRMAN SHROPSHIRE: It's an under statement in terms of thanking those Board members. I'm optimistic that you guys will probably be around for the next meeting based on how busy things are. Hope to see you again. If not, it has been fun.

MS. CANTY: In that same light, there is four of us who are up for confirmation, so --

CHAIRMAN SHROPSHIRE: We could not be back as well.

MS. CANTY: Is that right? So we could all not be back?

MR. NORTH: Yes.

MS. CANTY: I wanted to point that out.

MR. NORTH: Madam Chair, Ms. Canty, the Department is remaining optimistic on that point.

CHAIRMAN SHROPSHIRE: Then our next meeting --

MR. NORTH: May 29th.

CHAIRMAN SHROPSHIRE: That will be an in-person meeting?

MR. NORTH: Yes. We will be having the oral argument in that coal case, and I don't know whether there will be EC and SAR standards on Otter Creek on the agenda or not at this point, but I anticipate that it will be an in-person meeting.

CHAIRMAN SHROPSHIRE: With that, we're adjourned. Thanks, everybody.

(The proceedings were concluded at 11:13 a.m.)

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C E R T I F I C A T E

STATE OF MONTANA)
: SS.
COUNTY OF LEWIS & CLARK)

I, LAURIE CRUTCHER, RPR, Court Reporter, Notary Public in and for the County of Lewis & Clark, State of Montana, do hereby certify:

That the proceedings were taken before me at the time and place herein named; that the proceedings were reported by me in shorthand and transcribed using computer-aided transcription, and that the foregoing - 90 - pages contain a true record of the proceedings to the best of my ability.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal this day of , 2015.

LAURIE CRUTCHER, RPR
Court Reporter - Notary Public
My commission expires
March 12, 2016.