RED DEVIL MINE REMEDIATION PROPOSED PLAN
PUBLIC MEETING

Tuesday, October 20, 2020
Virtual Community Meeting

ATTENDEES:

Lesli Ellis-Wouters, Communications Director, BLM
Joy Huntington, Facilitator, Uqaqti Consulting
Bonnie Million, Anchorage Field Station Manager, BLM
Matt Varner, Presenter
Mike McCrum, Presenter
Nicole Hayes
Maureen Clark
Bill Richards
Anne Marie Palmieri
Catherine Billor
T.R. Barrett
Court Reporter, Betty Caudle, Metro Court Reporting
PROCEEDINGS

(On record 1:04 p.m.)

THE REPORTER: On record, 1:04 p.m.

LESLI ELLIS-WOUTERS: I’m just going to give it a few minutes and see if we have any more people joining on. Hello, and welcome to the Red Devil meeting. I’m just going to give it a few more minutes. We have people attending right now, so I’m just going to give it a few more minutes to see if anybody else is going to join us. Thank you for taking the time out today. Okay, welcome. I’m just going to give it a few minutes to see if we’ve got other people joining in. Probably give it about three or four minutes and then we’ll go ahead and kick it off. All right, it looks like we’re getting a few more people in there. I just want to make sure we give everybody the opportunity to join on, so I’m just going to give it another minute or two. All right. Let’s see. We’ve got four people joining us right now. And I’ll just go ahead and get it started, and people can join as we move along.

My name is Lesli Ellis-Wouters, communications director for the Bureau of Land Management in Alaska. And I want to welcome you to the community meeting on the Red Devil Mine Remediation Proposed Plan. I want to thank you again for
taking the time to participate in this discussion. It is important for us to provide this information to you in such a way that it does not compromise your health in these difficult times, but also allows us to move forward on this important process to your community.

Today we are using the Zoom webinar platform, which I hope you find to be an interactive experience. You will be able to ask questions verbally by raising your hand, the hand icon at the bottom of your screen. And if I could ask everybody right now if you could go ahead and raise your hands so we make sure that it works? Perfect, Catherine, Ann Marie, T. Barrett, perfect. And, Bill, if you could raise your hand? It’s the icon at the bottom of the screen. Perfect, thank you. And I don’t see that we have anybody joining by phone, but if you do join by phone, star and nine will raise your hand and then star six will unmute you. If you do have questions today, feel free to raise your hand and then we will allow you to talk or you can ask questions by entering them into the Q & A box which is at the bottom of your screen. So feel free to ask questions at any time. We will also be taking pauses during the presentations for you ask them verbally. And with that, I’m going to turn things over to our facilitator today, Joy, who will provide an overview of today’s meeting. Take it away, Joy.
MEETING OVERVIEW (FACILITATORS)

JOY HUNTINGTON: Thank you, Lesli. And welcome to everyone that is presenting -- or sorry, participating in our meeting today. And we appreciate you joining us online for everyone’s safety. And we are hoping to make this as interactive as possible. And that’s really part of my role today as the facilitator is to make sure that people that are logged in through their computers and people that are calling in via their phonelines have multiple opportunities for asking questions, and of course for providing testimony at the end.

So I live here in Fairbanks, and I own a consulting business called Uqaqti Consulting. And I’ve been doing communications with Kismal (ph) communities and rural villages for 18 years now. And I also lived in a few rural villages for 15 years growing up. I am Koyukon Athabaskan, and very proud to be from the villages of Manley Hot Springs, Stevens Village, Tanana, and Rampart in the interior on the Yukon River. So a very warm welcome. And I know it’s colder temperatures out there, so glad that we’re all online today.

And a few notes on our agenda. As you can see, the screen shows that we’re going to have a welcome, and we’re also going to have two presentations for you today from two of our BLM key subject-matter experts on this project. And so looking forward
to their presentations. And then we will have questions throughout the meeting. I will stop numerous times for that. And then, of course, testimony at the end. But right now, I wanted to turn it over for a welcome from Bonnie Million, who is the field manager for BLM’s Anchorage Field Office. So, Bonnie, if you would please turn your camera on?

ANCHORAGE FIELD OFFICE MANAGER WELCOME

BONNIE MILLION: Thanks. Thank you so much, Joy. So good afternoon, everyone. I wanted to start by thanking you all for joining us today in this virtual setting. If you’re anything like me, I would love nothing more than to be able to be having these meetings face to face to see you all again, to share in this process, and have these conversations in person, but we are in a little bit of a different time this year. And it is out of the sincerest respect for all Alaska communities and our Alaska families that we are conducting these meetings virtually in a sign of support for the health and safety of the public.

It is through this virtual setting that we are able to provide a couple of more opportunities for folks to gain information, and for us to receive your feedback to keep this important remediation project moving forward.

For those of you who might know, might not know, this
project has been moving forward ever since 2010 when the initial remedial investigation work started. The BLM held community meetings in 2010 and 2011 on the initial workplan. And then we came back out again in 2012 and in 2014 to report out on some of the preliminary results for both the investigation and the initial fish tissue study. And it was really -- it was great to have those communications and that interaction with communities.

One of the main feedback points that we got in 2014 resulted in the BLM doing some temporary stream work along Red Devil Creek to prevent the tailings from continuing to migrate down into the Kuskokwim River. And so getting that feedback throughout the process of this project has been really, really important.

Then between 2014 and 2018, the project team moved into the feasibility study stage. We came back out to communities in 2017 and 2018 where we provided an opportunity to summarize some of the investigation findings and the feasibility study findings, because we knew that this is a pretty complicated project. There’s a lot of data associated with it. There’s a lot of detail, and it can be pretty complicated. And so we came out. The intent of those meetings in 2017 and 2018 is to present some of the preliminary findings to try to talk through and set the stage for some of the communities for this stage that we’re in now, which is the public comment process.
And then in 2019, we did do a little bit of an extended modeling, a metanalysis for some of the groundwater and repository designs.

So that’s where we’re at now. We were originally planning to have some of these public meetings back in March, and I think we all know what happened then, so we’re into the virtual stage now. Again, thank you all so much for taking the time. This is a brave new world with virtual meetings, and I greatly, greatly appreciate everybody’s participation. And with that, I will pass it back to Joy.

JOY HUNTINGTON: Thank you so much, Bonnie. And as some of you can probably see, we are recording the meeting. We do have a transcriptionist who is going to provide a transcript of the meeting. Not only does that help to share the information with people who may not have participated today, but also, we really need to make sure that we capture the testimony that we receive from you as clearly as possible. And so when we open up for public comment at the end of the meeting, we will ask for you to say and spell your name and also share the community that you’re participating from. So just a heads up on the recording.

And again, we are going to stop throughout the
presentations. It is a high level of information, so we wanted to make sure that you have ample opportunities to ask questions along the way. And with that, I’m excited to be working with BLM on this project. I’ve been working with BLM facilitating meetings for about two and a half years now on different projects and so excited to join this project team as your facilitator for today’s meeting. And this is the first of four meetings. And so if you do know of anyone that was unable to participate, please look at the website and check the other times, because we’ll be doing this same presentation again three more times after today.

So with that, I know we have a lot of information to get through. I would like to invite Matt Varner to start sharing his screen. And while Matt is pulling up his presentation, I’ll just share with you that Matt is the Fisheries and Riparian Resource Lead for the Aquatic Habitat Management Program for BLM, and he is based in Anchorage and has been working on this project for quite some time. And he’ll be giving the first of two presentations.

Again, I’ll stop three times for questions throughout his presentation. And again, if you can just utilize the raise hand button, we will call on you when we’re asking for questions. Also the Q & A box down at the bottom of your screen is another great way to ask questions throughout Matt’s presentation. And if you ask a question and it doesn’t get
answered immediately, it’s because I’m probably going to read it so everyone can hear the question and the answer, because they might be -- other people might be wondering the same thing as you. So we’re going to have Matt answer those when we stop. So if you don’t see an answer right away, don’t worry, we’re going to read it out loud. And thank you. With that, I will hand it over to Matt.

MERCURY CONCENTRATIONS IN THE ENVIRONMENT, MATT VARNER

MATT VARNER: All right. Good afternoon everybody. Again, my name is Matt Varner. I’m a fisheries biologist with the Bureau of Land Management. I led a multi-year study examining the concentrations of mercury and other metals in fish species within the Middle Kuskokwim from Aniak to McGrath during the period of 2010 to about 2014. Over the next half hour or so, I’m going to talk about what we did and some of the key findings from the study.

During this presentation, I’m going to talk about (indiscernible) of the project as they relate to (indiscernible). Thank you everybody on just (indiscernible) jumping onto slide 3 right now. (Indiscernible) primary (indiscernible) body containing mercury and is common in Western Alaska. This slide shows the number of known cinnabar
deposits in Western Alaska. Some are mined and some are unmined. The Yukon watershed is shown here in tan and the Kuskokwim watershed (indiscernible) is a very high (indiscernible) and in part why we refer to this (indiscernible) given all the known (indiscernible) it’s pretty clear why 99 percent of (indiscernible).

LESLI ELLIS-WOUTERS: So, Matt, this is Lesli. You are kind of freezing up there. I apologize for that. We may want to go to Mike instead. And, Matt, maybe you log out and log back in, because you are -- you’re not coming in. You’re freezing up.

MATT VARNER: (Indiscernible.)

LESLI ELLIS-WOUTERS: Yeah, I think we may need to -- let’s move along with Mike. I know that you weren’t prepared to go first, Mike, but let’s start with your presentation and then we can come back to Matt maybe if he can fix his
connectivity while you’re presenting.

MIKE McCRUM: Okay. I believe I have my presentation up. Can you hear me?

LESLI ELLIS-WOUTERS: We can hear you. I’m just stopping Matt’s presentation so that you can go ahead. Okay. All right, Mike, you are on.

MIKE McCRUM: Okay. Well what we had attempted to do was to have Matt present on the fish tissue study that he and his team completed between 2010 and 2014. And the reason that we wanted to do that was because some of the data that they collected fed into some of the work that we did as part of the RIFS on the river. So I’ll try and pick up those threads during my presentation so we can connect those dots. And then if we get Matt back online, he’ll be able to provide some of the more detailed information that really was very valuable to
us in our risk assessment of the sediment in the river.

So today I want to talk about the Red Devil project. We have just completed a document called a proposed plan, which is a major step in the circula process that we’re using for this project. And in that plan, we summarized, in very fundamental terms, the results of the investigation, and the results of the feasibility study that we did where we looked at different cleanup alternatives. And I want to summarize each of those for you today very briefly, and then I want to talk about a preferred cleanup alternative that we developed based upon that work that we did before. And this will be the first time that we’ve talked about it. And I want to emphasize, as has been done earlier, that this is the kind of official public participation step in the circula process. This is your chance to provide us with feedback on a preferred cleanup alternative. And it’s important that if you have concerns or you have questions or you have opinions that you express those. We have a court reporter with us today. We’ll be developing a transcript, and we’ll be formally responding to all the comments that we receive. So just to kind of reiterate this is your chance to actively participate in this process, and we hope that you do. So having said that.

I’m going to start with the work that we did as part of the investigation. And I’m just going to take a few slides here and condense about four- or five-years’ worth of work into
half a dozen slides. We talked about a lot of this in previous meetings, and so hopefully people are fairly familiar with what we did and what we found.

This slide here, it capsulates really the key issues or the key points that came out of that investigation, beginning with the contaminants of concern. Our sampling covered lots and lots of different kinds of chemical compounds. And through that work, we identified three metals, mercury and arsenic and antimony, as the primary contaminants of concern. And any cleanup action we do will be focused on those three metals.

Not surprisingly, those three metals really come from the ore deposit that was mined here. They represent the three minerals, cinnabar for mercury, arsenopyrite and realgar for arsenic, and stibnite for antimony. Those were the minerals that were mined in the processed here, and it’s the remnants of that process that are really our main focus for this project. Because they processed the ore onsite, they did that by heating the material and extracting the mercury, and then they pushed the remnants, what we call tailings, out onto the ground. They still had high concentrations of these three metals. The heating that they did through the process changed the chemistry of those things, and that’s what lead to the mobility, if you will, of those metals. And through that mobility, they’ve affected the soil and the sediment of the Red Devil Creek. They’ve affected the groundwater down in the lower part of the
watershed near the creek. And they’ve had an effect on the Kuskokwim River sediment by that material migrating offsite.

We took the results of the investigation and we did a risk assessment where we looked at various scenarios, and we evaluated the potential risk to humans and animals through different kinds of exposure. And we found that there were high levels of risk on the mine side itself. And the significance of that finding is that is the main reason why we need to take action. It’s that elevated risk to both animals and humans that we estimated.

So I just want to provide you with a little bit more detail on what we found so you can get a better picture of where the contamination is, because that will be the focus of the action that we are intending to take. You may have seen this (indiscernible) before. This is an aerial photo of the mine site. You can see the river off to the right. And Red Devil Creek runs right through the middle of it. This black line kind of outlines the flatter area within the valley of Red Devil Creek. And on either outside that line, the slopes are quite steep. The significance of that steep topography is it contained the tailings and most of the effects of the mine and the process to this relatively small, about 20-acre area, right around Red Devil Creek. As you can see from the red dots, we collected soil samples at a large number of locations, both at the surface and in the subsurface. You can see that we got
concentrations from each of those samples. In this case, the
type of the purple dot correlates with the concentration that
we found in the samples. So if the dot is big, the
concentrations were high. If the dot is small, such as right
here, the concentrations are relatively low. And if you see a
yellow dot, that means that the concentrations were essentially
below detection.

So what this tells us is that the concentrations of those
three contaminants of concern, the mercury and the arsenic and
the antimony, were highest in the places where the tailings
were piled up. Right here where they were processed in this
building. Right here where they were the processing in the
early days of the mine was happening. And then to a lesser
extent but also noticeable, further down the creek where we
don’t have large piles of tailings, but through the actions of
the miners who were managing those tailings piles as well as
the creek intended to move the material down the creek and out
onto the barge landing, which we now call the Red Devil Creek
delta, and out into the river.

In addition to looking at soil, we also did a lot of
sampling within Red Devil Creek itself, both the water and the
sediment. This figure really just speaks to the water
concentrations. At these locations, you can see along here --
and again, the size of the circle correlates with the
concentration. The trend that you can see here is that if you
go upstream of the mine, there were detectable concentrations, but they were relatively low. And as you move downstream and the stream comes into contact with the tailings, the concentrations jump pretty high, and they stay relatively high until you get to the mouth of the creek and into the river. So this pretty clearly indicates that the creek is being affected by the presence of those tailings.

This is a little bit different look at the mine site. It’s a very, very busy figure. You don’t need to pay attention to everything that’s here. I just want to draw your attention to the fact that the river is on the right. Red Devil Creek runs right through the middle. If you’re familiar with contour lines, these shaded back lines are the topography, and they show steep slopes both to the north and the south. Anybody who has been out there has seen that. These contour lines indicate the direction of groundwater flow. And I don’t really want to get into that. I really want to focus primarily on the groundwater concentrations. Again, the size of the circle is proportional to the concentration in the groundwater at that location. So what we can see is near the creek, monitoring wells that we constructed and sampled had by far the highest concentrations of those contaminants of concern. And the very highest concentrations were right in the tailings piles themselves.

I do want to point out that these wells in this area are
up slope of the mine. And we didn’t really find any tailings up there, but we do have, in some locations, very high concentrations. Those reflect the influence of natural ore in the bedrock that increases those concentrations in the groundwater naturally. So we have a little bit of a complicated situation here in that we have tailings down (indiscernible) of the watershed that are affecting the groundwater at that location, but we have quite variable background, natural background concentrations due to the presence of the ore.

JOY HUNTINGTON: Mike, if I can jump in really quick? And if you want to go back to the last slide, just to see if there’s any questions from our attendees at this time. Thank you, Mike. I do not see any questions in the Q & A box. And again, you can just type them in. It’s down at the bottom of your screen. And to raise your hand, I think everybody already used the raise hand function just to test it, so I know it should be working. And if there’s no questions now, we will stop again in a few minutes. I’m checking to see if any questions are maybe just being typed in the Q & A box. Sometimes it takes a few minutes for them to get in there. But I don’t see any, Mike, and I don’t see any hands raised either,
so I will hand it back to you to continue with the presentation. Thank you.

MIKE McCrum: Okay, thank you, Joy. While we’re stopped, I understand that there are some people who are unable to participate via the Zoom platform, and so they’re probably not able to see the slides that we’re presenting, but hopefully they’re following along with hard copy that we mailed out. This slide here, I believe, is slide five. I will try and remember, as I move through, to periodically mention the slide number to help people follow as we’re going through the presentation.

JOY Huntington: And, Mike, a quick update on that. Everyone that’s participating today in our meeting is actually online, and so they should be able to see the screen. If any of you can’t see the screen and aren’t seeing -- and you do have a hard copy that you’re following, please let us know in the Q & A box. But my impression, Mike, is that everyone is online, and so we may not need to read the slide numbers. We were ready to do that just in case we had folks calling in from
their telephones, but I don't see anybody calling in today.

MIKE McCrum: Thanks, Joy.

JOY Huntington: Yep.

MIKE McCrum: Okay. As I mentioned before, we did a risk assessment based upon the results that we compiled from the investigation. In the risk assessment, we look at exposure scenarios. What would happen if someone were to live onsite and drill wells and drink the groundwater? What would happen if someone were hunting and moved across the site, you know, in a relatively short period of time? Perhaps they took a drink from Red Devil Creek. I think we also looked at what would happen if they were to open a mine there again and people were working there all day, but not living there. All three of those scenarios involve different levels of exposure and different ways in which they're exposed. And in the risk assessment, we looked at all those scenarios, and then we sort
of did a cumulative estimate of the risk to those people from all of those different scenarios. We looked at the toxicity of these contaminants. And we also looked at cancer risk for those same contaminants as part of the risk assessment.

What we found for the site itself is that people, or animals really, exposed to the contaminants that we have on the site and the concentrations that we measured, you’ll clearly have levels of risk, both toxic risk and cancer risk. Most of the risk was due to the presence of the arsenic. The mercury does contribute, but the arsenic, which is a little bit more mobile after it’s been processed, therefore is quite prevalent, really led to the greatest level of risk both for potential cancer and for toxicity.

Later on in the project, we did a second risk assessment looking at the sediment in the river. And the concentrations in the river are highest right at the mouth of the creek and then they diminish as you go downstream. And that pattern pretty clearly indicates that the source of the material that we were monitoring was coming from the mine via the creek. What we found through that second risk assessment was something a little bit different. Both the EPA and the DEC has standards that you use to compare your risk assessment results to, both for cancer risk and toxicity. And for both of those things, we met the EPA standard, but we were slightly above the DEC standard for both the toxicity and the cancer risk. So that’s
a little bit different situation. It’s a little bit more gray. And that’s reflected in some of the feasibility study work that we did.

So just to summarize real quick. We did an investigation. We found high concentrations near the tailings and the media such as water and soil that are affected by the tailings. We used those results to develop objectives for the cleanup. And those four objectives are listed here. We want to be able to prevent direct and indirect contact to that contaminated (indiscernible). We want to eliminate the impacts of those tailings on the creek and on the groundwater. And then we understand that no matter action we take, we’re going to have to do some monitoring to verify that whatever action we take is effective.

As I mentioned, we did a feasibility study where we looked at cleanup alternatives that are based upon the results of the investigation. This is a very succinct summary of the four alternatives that we developed and evaluated through that feasibility study.

The first one, SW1, is a no action alternative that you have to do just for the process to assess the baseline condition.

The second one is a fairly simple approach in which we would encircle the site, that’s about 190 acres, with a 12-foot high fence. It would address some of the risk, particularly
risk associated with direct contact with the tailings themselves, but there are other ways that the risk is not mitigated. So we evaluated this alternative, but it’s not as effective as we think it would need to be.

Alternatives three and four are similar in that both of them really focus on excavating those tailings and the contaminated sediment and the contaminated soil associated with them from that area right around Red Devil Creek. Where they differ is what we do with those tailings. One involves keeping them onsite and controlling them and keeping them away from water. The other involves transporting that material to a permitted hazardous waste disposal facility, probably in eastern Oregon.

An estimate I provided on the right side, the estimated cost for each of these alternatives. And I think the level of effort required for each is reflected in the pricing that you see.

So to summarize those alternatives again in a little bit more graphic form, there’s no need to talk about the baseline. Alternative two involving a fence would essentially encircle all of the colored areas here including this blue area that is the area that we would monitor depending up on what alternative we select. And as I mentioned before, that encompasses something on the order of about 190 acres. Under alternatives three and four, we would excavate somewhere between 205,000 and
215,000 cubic yards of material. Most of the material that would get excavated is in this yellow area here, and at least three small areas along the edge of the river. If it’s yellow, it’s all on shore. If it’s light green, like these two, then it’s very shallow sediment right on the edge of the river. All of this material would be excavated and either consolidated in a repository at this location or taken offsite. In addition, there’s a small monofil here that contains tailings and the remnants of the process building. And that monofil from both alternatives three and four would be demolished. The tailings would be consolidated with the rest of the tailings. The building materials and the process equipment would be hauled offsite for disposal.

JOY HUNTINGTON: Mike, can we stop for questions after this slide?

MIKE McCRUM: Sure. And that would be now.
JOY HUNTINGTON: Okay. I do not see any in the Q & A box. And let me just see if there’s any hands raised. Any questions on the slides that have been presented so far? We will have two more opportunities for asking questions on Mike’s slides. And I see that Matt is ready to go as well after this, and he’s going to talk a little bit more specifically about levels of mercury in the environment, and so there may be some questions related to that when Matt presents. And still not seeing any hands raised or any questions, so carry on, Mike. Thank you.

MIKE McCRUM: This is a follow-up to that other slide. It’s a little bit more, I don’t know, focused look, if you will, on the composed location for the repository that is part of alternative three. You can see that it’s on the edge of the Red Devil Creek watershed. It sits at an elevation that’s about 300 feet above the river. Excuse me. Part of the reason for this location is, as I mentioned before, the contaminants of greatest concern are metals. The potential for environmental harm from metallic contaminants is greatest in an aquatic environment. So it’s important that we get that material out of the location where it is now, right at about the Red Devil Creek valley bottom, and in place where they won’t come into contact with water as leach, which is what
happens when water comes into contact with that kind of stuff, it picks up those metals. And because it’s in the water, it has the potential to travel to other places and affect other media. So that’s the reason why the proposed repository is at this location. You can see an estimated quantity of 205,000 cubic yards here. That reflects a range, but somewhere in that neighborhood.

So I want to spend the next few slides talking about that repository. It was the subject of an awful lot of discussion through the course of the feasibility study, a lot of data collection in the location of the proposed location. It’s a pretty detailed analysis. This is a cross-sectional view of what the repository would look like. It’s actually pretty simple. It would sit on the rock, on the bedrock, so we would have to clear away the vegetation. We would place about five feet, a minimum of five feet, of locally derived loess, which is very silty soil, on the top of the bedrock as a way of preparing the surface. Then we would consolidate that 200,000 plus cubic yards of tailings and soil and sediment on top of that loess. We would place a cap over the top of it consisting of a material that’s referred to as a geomembrane. And I’ll get into the details of that just a little bit later. And then over that, we would place more soil, and then we would plant it. And the reason that we do that is because it would provide additional stability. It protects the geomembrane from the
elements. And it also actually contributes to helping to prevent rain and snowmelt from getting -- you know, coming into contact with the tailings just through the respiration of the grasses and the other stuff that we plant. So that’s the general idea behind the repository.

On the next two slides, we’re going to look at some details here where the repository comes into contact with the ground, and then a more general cross-sectional view where we’re going to talk about some of the analysis that we did of this facility.

So this is a cross-sectional view of the repository, but it’s kind of a close-up of that edge. We have the tailings and the soil and sediment on top of the soil and the bedrock here. We have that extra layer of silty soil here. We have this geomembrane here. And it’s a heavy, heavy plastic material. It comes in very long rolls. You lay it out, and we seal the seams, and it prevents a watertight cover over the top of this. And this is the main defense against water that is in this cap. Over that, we would add additional soil, and then we would plant it. The edge of this thing would be a slope that’s no steeper than three-to-one, as it’s shown here, to maintain the stability of this thing. Over time, we don’t want the side slopes to get too steep. We would put ditches in around the outer edge, particularly on the uphill side, so that if there’s any surface water that ponds, we can direct it away from this
thing and, again, try and keep it dry.

The geomembrane itself, we would dig a trench around the very outer edge of the respiratory, as shown here. And we would place it in that trench and then backfill above it to key it in place, to hold it in place so that it doesn’t move around, and it doesn’t tear.

This is a more general cross-sectional view of that repository. Again, we have the bedrock, the soil, the tailings in the soil, and the sediment with more dirt, and then a soil grass cover with this geomembrane liner right in here.

We used models to evaluate the potential for rain and snowmelt to come into contact with this material, which has high concentrations of the contaminants in it. And then whatever comes into contact with it is going to take on some of those metals. And it has the potential to continue to migrate or flow down through the bottom of this thing and into the bedrock. As you can see, the proposed approach here, the proposed design, includes a cap, but it doesn’t include a bottom liner. That was the reason why we did the modeling to demonstrate that this design, without a bottom liner, would be effective in protecting the water table, the groundwater, from being contaminated by any material that flows through this, any water that flows through it.

So as part of this effort, we used two different models. The first one was an EPA model called Help, and it simulates
waterflow through the repository itself. And it estimates on an annual basis how much water would pond at the bottom. We estimated based upon data that we collected from monitoring wells as well as the data we collected through some leaching samplings, some leaching analysis. We estimated that the concentration of the three metals in that leaching, once it had flowed all the way through this at the bottom, would essentially have concentration of antimony, arsenic and mercury about equivalent to these three. These are (indiscernible) reference these are quite high, quite high concentrations.

(Pause.)

JOY HUNTINGTON: Mike, you still there?

MIKE McCRUM: I’m still here. Pardon the delay. I’m going to have to learn how to cough without coughing into my mic.

JOY HUNTINGTON: Okay. I just want to make sure we didn’t
lose you, too. Sorry.

MIKE McCrum: No, I’m here. I’m here. So we used a second model to simulate flow of that leaching through the bedrock in an unsaturated condition beginning with these very high concentrations in the water. This table kind of summarizes the results. Again, these are the initial concentrations in that water that’s ponding at the base of the repository. These are standards that are developed by the DEC, against which we need to compare our concentrations. What the modeling showed us is that by the time that liquid had penetrated to these depths below the bottom of the repository, the concentrations were quite low, approaching zero. So what this tells us is that by the time that water made it partway through the soil above the bedrock at the base of this repository, those concentrations had diminished to well below these standards. So, Joy, do we need to stop for questions?

Joy Huntington: Yes, we do. Thank you. And again, I do not see any in the Q & A box. And if anyone would like to ask a question that’s participating, please raise your hand and we
will open your line to ask your question verbally. And I do not see any hands raised or any questions in the Q & A box. Really quick, just to check in on last questions, we will stop again at the very end of Mike’s presentation, which is just in about three more slides, and ask a final time for questions for Mike. And then we’ll turn it over to Matt to give his presentation. And you will have a few opportunities then as well before we transition over to the public testimony. And once we do transition to public testimony, we will stop answering questions live. We want to just focus on the testimony at that point. And so definitely any questions for Mike, you’ll have another opportunity here in a few more slides. And then during Matt’s presentation as well. So I don’t see any questions at this time, so I’ll hand it back to you, Mike. Thank you.

MIKE McCrum: Okay. I’m just going to go back through this really quick, because it’s a very key component of the process that we went through to select the preferred alternative. And it’s a little hard to follow, so just to reverse myself here a little bit. Just one second, please. I’m a little bit ahead of myself.

So we used two different models. We simulated waterflow
through the pile. We used data from the investigation to estimate the concentration of that water at the base of the pile. We used a second model to simulate flow from the bottom of the pile through this dirt layer and through the bedrock to the water table, with this being the initial concentration and condition. The result of that analysis was that the concentrations do diminish. And they actually diminish to a level approaching zero, certainly within these DEC based limits, at depths that are really quite shallow. We will design the repository to try and maintain a physical separation of at least 10 feet between the bottom of the repository and water table. And so what this modeling showed us is that those concentrations diminish at depths that are significantly less than 10 feet.

The other thing that I want to emphasize here is that we modeled this for 50 years. The first two years of the modeling period were during construction where there was no cap. So the majority of the water that made its way from rainfall and snowmelt get into that tailings pile was from the construction period before the cap was constructed. Then the way we modeled it, at the end of the second year, the cap automatically appears. And then we modeled it for another 48 years. And these depths reflect the concentrations of these contaminants after a 50-year modeling period.

So it’s based upon that analysis that we believe that the
preferred cleanup alternative really should be removal of this monofil, removal of all this contaminated material here, as well as these three locations here, and consolidated in an onsite repository with a very, very low permeability cap at an elevation that’s well above the creek and well above the river to prevent it from coming into contact with water. Part of that alternative would involve monitoring of the groundwater in this general area here. Right now we have upwards of 60 monitoring wells in this area. We wouldn’t monitor all of those, but we would certainly monitor a significant percentage of them. And the data that’s derived from that monitoring would be key to evaluating whether or not the cap and repository is effective.

Part of that monitoring program would also include visual monitoring of the repository itself. We want to make sure that the cap remains in good condition, because that’s what protects that material from water. And we would do that on an annual basis.

In addition, we would monitor sediment in the river. We still have elevated concentrations due to the presence of tailings in the river here. We performed an action in 2014 that we think was effective in preventing additional material from flowing into the river. And we’re beginning to see trends that indicate that just the natural conditions that exist in the river with a pretty heavy current are causing those
concentrations to diminish over time. And we would expect that
to occur, but we would conduct annual monitoring to demonstrate
that that’s the case.

Just to tie this back into the cleanup objectives that we
developed based upon the risk assessment, we believe that by
excavating this material, we would prevent the direct and
indirect human contact of the tailings. We would eliminate the
impacts to groundwater from the tailings themselves, but not
necessarily from the influence of the natural ore in the
bedrock aquifer up in this part of the watershed. We would
eliminate the impacts to Red Devil Creek. And we would
eliminate potential risk to humans, both direct and indirect,
from coming into high contact with high concentration areas
here. We believe, as I’ve just kind of described, that the
repository will be effective in protecting groundwater quality
in this area. And then over time, we believe that the
monitoring in the river will show that those concentrations
will diminish on their own.

So that’s a very quick summary of what we’ve done, what
we’ve evaluated, and what we think is the best way to clean up
this site. As I mentioned at the beginning of the talk, we’re
presenting this specifically for the purpose of requesting
input on that preferred alternative. This is your opportunity
to formally comment. And we will review your comments and
respond to them formally. So you have my contact information
here. You can also contact Bonnie Million. And I would
welcome that, you know, questions. If you have any questions,
we’ll maintain a public comment period through the middle of
December to give you time to think about what we presented, ask
questions if you need to, and provide comment.

JOY HUNTINGTON: Thank you, Mike, for sharing the
information. And I think on that note as well, if people would
like to provide verbal testimony at one of our meetings now
that you’ve seen the presentation and, you know, you can always
to that at a follow-up meeting as well. I believe we have a
hand raised, so we do have a question from Ann Marie. And I’m
not seeing any in the Q & A box at this time. But, Ann Marie,
we have opened your line and you’re unmuted, so you can
definitely ask your question now. Thank you.

ANN MARIE PALMIEN: Hi. This is Ann Marie Palmien with
the Alaska Department of Environmental Conservation. And,
Mike, I just wanted to let you know that I’m on the line. And
I don’t know if you want to let people know about kind of the
coordination that BLM did with EPA and DEC just so that they
know that there were other agencies involved with BLM, you know, in regards to the investigation and the modeling, as well as the development of your cleanup alternatives.

MIKE McCRUM: Yeah, thanks for that, Ann Marie, that’s a great point. Actually, you did quite a nice job of summarizing that, but just to reiterate the point that Ann Marie just made. As I think everybody knows, we’ve been doing this project for a long time, about 10 years. We have been working in pretty close coordination with the DEC and the EPA through most of this project. And in recent years, very close coordination with the DEC, and Ann Marie has been the DEC project manager for Red Devil since the beginning of the (indiscernible). It’s been a very good process, a lot of good interchange between the agencies. You know, we’ve gotten a lot of good ideas from both the EPA and the DEC on how to do things. They’ve made sure that whatever work we do, whatever analysis we do, we’re being held to a very high standard. And I think that’s one reason why we can present this (indiscernible) today with about as much confidence as we can have, based on predicted work, that the alternative we have is going to be protective of the environment. So, yeah, thanks for that. I really appreciate it.
JOY HUNTINGTON: Thank you, Ann Marie, for providing that input as well. And I’m still not seeing any other hands raised or questions from the Q & A box. And so maybe at this time, we can transition over to Matt’s presentation. And then again, we will begin our public testimony. So I think we’re just pulling up Matt’s presentation now. And we will stop a few times for questions as well during his slide presentation. I know he kind of already got started once, so we’re going to try again here. And I’ll hand it over to you now, Matt. Thank you.

MERCURY CONCENTRATIONS IN THE ENVIRONMENT

MATT VARNER: All right. Hopefully round two goes a little better here. I apologize for that. Can we just sound check? Can folks hear me okay?

JOY HUNTINGTON: Sounds great to me, Matt.
MATT VARNER: All right, thank you, Joy.

LESLI ELLIS-WOUTERS: You’re coming through clear.

Thanks.

MATT VARNER: All right, great. So just again, my name is Matt Varner. I’m a fisheries biologist with the BLM. And I was the lead for a fish tissue project that went from 2010 to about 2014. And it was very focused on looking at mercury and other metals in fish species within the Middle Kuskokwim. And so over the next half hour or so, I’m going to talk about what we did and really some of the key findings as it relates to the presentation that Mike just provided.

Specifically during the presentation, I’m going to cover a little bit about mercury and the environment, why we focused on mercury for this multi-year fish tissue study, and the results of the project as it relates to, of course, the remediation of Red Devil Mine.

Cinnabar is the primary ore body containing mercury, and it’s fairly common in Western Alaska. This slide shows the
number of known cinnabar deposits in Western Alaska. The Yukon watershed is shown in tan, and the Kuskokwim watershed here is shown in a light orange color. And I’ve circled an area that has quite a few known instances of cinnabar in the geology there. Some of those deposits are mined and some are unmined. However, that high concentration is why we refer to this area as the mercury belt of Alaska.

So the mercury belt concept, in and of itself, provides a useful visualization of mercury deposits, both mined and unmined. And that really hits these first two bullets, natural geology and land use. In respect to permafrost, I think most folks maybe don’t realize that permafrost contains a substantial amount of mercury as well. And as that permafrost melts, of course mercury is then released into the environment. And studies have confirmed that in Alaska already.

The last bullet speaks to atmospheric deposition. And that’s really the way mercury gets into the atmosphere from manufacturing emissions, coal-fired power plant emissions in Asia, wildfires, etcetera, and how that is carried from the source and then deposited elsewhere in the globe, including Alaska. So these are four potential mercury sources that we need to think about when we do a study like this.

This slide illustrates how mercury, and more importantly, methylmercury moves and accumulates in the aquatic food web, especially at the highest levels for top predictor species like
Northern Pike. We focused in particular on methylmercury because it’s the most toxic form of mercury to humans. And it’s created naturally through interactions of mercury in the water and sediments and bacteria. And a very commonly found bacteria, it occurs in swampy areas, slews, and wetlands. Methylmercury, once it’s formed, it’s easily taken up by the lowest levels in the aquatic food chain, like algae. And then aquatic insects consume that material and are eaten by higher-level predators like Fjord fish, species like Sculpin, for example. And that begins the accumulation of mercury up the food web. And those concentrations continue to increase. And I think most folks are fairly familiar that the highest levels that we see are at the top of the food web. And for fish, that means long-lived predatory species like Pike and Burbot, or Lush fish, in the Kuskokwim. And those are also important subsistence foods in the region.

The goal of this study was to build on work that had already been completed by Fish and Wildlife Service in the Lower Kuskokwim, as well as the Lower Yukon, and some of the limited sampling that was done by USGS. And those studies noted that mercury concentrations were elevated in fish sampled downstream of mined areas within the region. But we wanted to expand that. We wanted to take a broader look and look at regional concentrations. And so unlike other contaminant studies completed in Alaska, we focused on multiple levels of
the food web from insects up to top predators. And we integrated fish tracking to better understand seasonal habitat use of fish and their proximity to potential mercury sources within a 270-mile section of the Kuskokwim. And so this is a good spot to stop for questions.

JOY HUNTINGTON: Yeah, thank you, Matt. And I do not see any questions. I was looking in the Q & A box. Yeah, we did see that someone was jumping on a different call, but I appreciated that message. And I do not see any hands raised from any of our folks that are still here. Again, we'll be stopping in about seven more slides, and then stopping again after that for questions. So everyone must be following along just fine, Matt, and I will hand it back to you. Thank you.

MATT VARNER: All right, very good. The results of this study indicated that aquatic life, in particular insects and fish within Red Devil Creek, had much higher mercury levels than most other creeks in the region, except possibly Cinnabar Creek in the headwaters of the Holitna. However, when we sampled Pike throughout the region, we found some of the lowest
concentrations of mercury in the section of the Kuskokwim near Red Devil Mine. And we were able to discern a pattern using radiotelemetry tracking. And I’ll get into that as we move through the presentation.

Burbot had lower concentrations of mercury than Pike. But unlike Pike as well, it was difficult to find a pattern to explain those low levels, but varying levels of mercury. So over the next 13 slides, I’m going to cover this in more detail, and in particular what we found to say that led to these key conclusions.

This slide illustrates the study area. And it was essentially from the community of Aniak up to McGrath, and it included many tributaries, both small and large, being sampled from 2010 to 2014. And you can see Red Devil Mine is basically in the center of the study area along the Kuskokwim.

Our initial focus was on tributary streams. We sample nine small streams, all of them wadable. Most of those streams had limited fish presence. Our target for sampling was about 24 fish each time we sampled, and we seldom were able to capture that many fish within the lower extent of these streams. So fairly limited fish distribution, but fish were generally present. The most common fish that we found was Slimy Sculpin, which is a small fish, generally less than a few inches in length. It’s shown here in image of a Sculpin in this slide. And these fish, in particular, don’t move very
far, 30 square feet in their lifetime is fairly common. Many of the small streams that we sampled were assumed to be fishless at the start of the statement. Like I said, we found fish in about every stream that we sampled, including Red Devil Creek. But again, they were fairly limited. And generally what we found were -- we only found fish within the first few hundred feet of their connection to the mainstem Kuskokwim.

This map shows a location of eight of those small streams and how they’re positioned in relation to Red Devil Creek, both downstream and upstream on the main Kuskokwim. One stream, and it will show on the next slide, was located in the headwaters of the Holitna. And that’s shown here. And the reason why we selected this stream for sampling is because it had been sampled in the past. And this stream is called Cinnabar Creek, so certainly it was something that was of interest to us. And fish that had been sampled there had elevated concentrations of mercury. And so our interest was understanding what those concentrations were, how they correlated with Red Devil Creek, as well as other streams in the region. Cinnabar Creek, like Red Devil Creek, once had a mercury mining operation on it in the past. It was quite a bit smaller, but substantial amounts of mercury were mined from that site, and some evidence of that mining operation does still remain there.

These are the results from tributary sampling. And what you see here in these graphs is that the upper charge, it shows
results for Slimy Sculpin. And that’s total mercury in parts per million in whole body samples. And you can see that samples from Red Devil Creek in 2010 and 2011, fairly small numbers, and you can see the numbers of Slimy Sculpin are in parentheses here, fairly small numbers. Remember, our target was 24 fish, so you can see that we were not able to get that many fish within any of these streams. But the fish that we did sample, we saw elevated levels in Red Devil Creek as well as Cinnabar Creek, but some degree of total mercury was noted in every fish that we collected within the tributaries that we sampled.

The same holds true for aquatic insects. We saw some degree of mercury. Total mercury within those samples, but elevated levels in Red Devil Creek as well as Cinnabar Creek.

Looking at concentrations of total mercury in parts per million for Dolly Varden and Arctic Grayling, it’s a similar pattern. And these are lower concentrations than the previous slide, but you’ll see that we did see elevated concentrations in Red Devil Creek as well as Cinnabar Creek. Arctic Grayling concentrations, these are quite a bit lower. And you can see on the Y access, those concentrations are quite a bit lower. And so the limited number of fish that we did find in Red Devil Creek had fairly low concentrations and were very similar to other streams in the area. This is a good place to, I think, pause again for questions.
JOY HUNTINGTON: Yeah, thanks, Matt. And again, I do not see any questions in the Q & A box. And there are no hands raised at this time. So I’ll pause here for just a minute or two and see if someone was typing in the Q & A box. That’s happened before that it just takes a minute to get the question typed and to press send. But I am not seeing any hands raised. And I think some of our participants are with state agencies and maybe don’t have any pressing questions at this time. So with that, I will just close this round of questions. And we will have questions one more time, and then we’ll open up for public testimony. So I’ll hand it back over to you, Matt. Thank you.

MATT VARNER: Okay. And these results really weren’t surprising. I mean we certainly expected the aquatic environment and the species that resided in Red Devil Creek to show elevated concentrations of mercury, much like Cinnabar Creek, we had that expectation. And it wasn’t surprising to see all of the samples across the tributary showing some degree of total mercury within their tissue given the geology of the
region. But one of the key questions that we were interested in answering was how does Red Devil Creek influence that larger aquatic environment of the Kuskokwim. And to explore that question further, we sampled predatory fish, Pike and Burbot. And at the same time as we sampled their tissue, we implanted radio tags. And so tracking fish seasonally over the course of time, we were able to better understand their seasonal movements in proximity to Red Devil Creek and try to get a better understanding of the influence of Red Devil Creek in the larger system.

From 2011 until 2013, we tagged hundreds of fish. Burbot and Pike tags last about two years, and the Grayling tags that we put out lasted about one year. But we did tag hundreds of fish. And it was a very exciting project in the sense that it had never been done before. The fact that we were able to take small tissue samples, and at the same time implant radio tags in fish and track them seasonally and correlate the concentrations that we saw in individual fish with where they were residing seasonally was exciting and cutting edge in many ways.

For the analysis of the telemetry project, we divided the study area based on large tributary junctions, or just simply by large tributaries like the Holitna, for example. Again, we were most interested in the residency of Pike and Burbot within the Kuskokwim between the George and the Holitna, since Red
Devil Mine was in that section. And certainly if we saw fish that had high concentrations and they resided in that section of the river, that would give some credence to the influence of Red Devil Mine. That is actually not what we found. For Pike in particular, we found the highest concentrations from fish sampled in the George River, the Holitna, and the Takotna Rivers. Despite sampling all of these areas with the same methods, we found catch rates were much higher in the Holitna where habitats were more ideal for Pike compared to the other stretches of the Kuskokwim. And here you can see the number of samples, number of Pike that we captured within each of these particular sections. And you can see 109 fish were sampled in the Holitna versus only five fish on the Kuskokwim from the George River to Sleetmute, and then one from Sleetmute to the confluence of the Holitna. So fairly limited habitat, limited numbers of Pike. But the real interesting part was these elevated concentrations that we saw within these key watersheds, and that’s why these bars are highlighted in yellow here. It was significant. And what we found was that 90 percent of the Pike stayed within these watersheds where they were initially captured. And what that meant was that the tissue concentrations of mercury that we found correlated particularly with these watersheds and not with Red Devil Mine or other sections of the Kuskokwim. And Pike are known to be fairly migratory in some regions of their range and in other
places not so migratory. And what we found was that Pike, in
the Middle Kuskokwim in particular, don’t stray very far.
Where you find them in the summer is generally where you’re
also finding them in the winter. So in general, we found very
few Pike within the mainstem Kuskokwim. And really that wasn’t
a surprise. The habitats there are pretty limited for a
species of fish that’s a visual predator for slow-moving,
clear-water habitats like slews or slack water areas. And
those are certainly much more common in the George River, the
Takotna, and particularly the Holitna River, compared to the
mainstem Kuskokwim.

This graphic shows the relationship of the Holitna River,
the George River, and the Takotna. The Takotna River drains in
at McGrath, significantly at quite a distance from Red Devil
Mine. The Holitna comes in above Sleetmute. And the George
comes well downriver of Red Devil Creek. And so these three
watersheds were the watershed where we had the highest average
mercury concentrations in the study and were the locations
where those Pike did not stray from those particular drainages.

Data from this project were very similar to results from a
Fish and Wildlife Service study on the Lower Kuskokwim and
Lower Yukon, which is shown on the right side of this graph.
The Fish and Wildlife Service found higher concentrations in
large Pike within the Lower Kuskokwim and the Lower Yukon
compared to smaller Pike, which makes complete sense since
older, larger Pike wouldn’t actually have elevated levels compared to younger, smaller Pike given the accumulation of mercury over time in those large predatory fish.

The overall values for the Lower Kuskokwim matches with our data for the Middle Kuskokwim, but certainly was lower than what we found for the George, Holitna, and Takotna.

To wrap up, through this multi-year study, what we found was that there’s elevated levels of mercury in fish and aquatic insects on streams that had a history of mercury mining, such as Red Devil Creek. That really wasn’t a surprise. But we didn’t see similar concentrations in the fish community near the mine site on the Kuskokwim. And again, this is likely due to the habitats of the Kuskokwim compared to rivers like the Holitna for species like Pike, but it also could be related to the very small size of Red Devil Creek compared to the Kuskokwim. Quite a bit of dilution that could occur there.

Based on the tissue samples and telemetry data, it appears that underlying geology of these large tributaries within the Middle Kuskokwim, coupled with year-round habitat for species like Pike, have more of an influence on fish tissue concentrations of mercury.

The report summarizing the results that I’ve touched on today, plus significantly more details, can be found using the weblink here at the bottom of this slide. The link below the report link will take you to the Alaska Department of Health
and Human Services page specific to fish consumption in Alaska, including for regions including the Kuskokwim. And I think that’s very important. Commonly, we get questions about human health and fish consumption, so I want to make sure folks have access to the resources there.

Lastly, my contact information is shown here, as well as the contact information for Dr. Angela Matz, who works for Fish and Wildlife Service and is an environmental toxicologist. She assisted in the development of this study design as well as the analysis, and she’s a great resource for questions related to mercury in the aquatic environment as well. And that’s it, Joy.

JOY HUNTINGTON: Thank you very much, Matt. And just checking back in with our participants, I do not see any hands raised at this time. And there are no open questions in the Q & A box. So, Matt, you must have done a really great job of explaining everything, and same with Mike. So didn’t spur any questions. I feel that, you know, if people had questions, they would be, you know, raising their hands. And I’m going to basically just assume that there’s no questions at this time. And if we can move over to the actual public testimony. We only have a few people participating at this time, so we can --
we just are shutting down the presentation there. And please
raise your hand if you would like to get your mic turned on and
provide testimony at this time.

PUBLIC COMMENTS

JOY HUNTINGTON: And I’m just seeing if we have any hands
raised, and we do not have any hands raised. I want to give
people a few minutes here. They might be just organizing their
thoughts before making a statement. A few quick reminders. We
will be asking everyone to say their first and last names, and
spell them for the record, and also to give the community that
you’re calling from and/or the agency, if you prefer to use
your agency. And we will give it some time here. We don’t
want to pressure anybody, but if you do have any statements you
would like to make officially on the record, please do so
either now verbally or, as Mike mentioned, you can also send
your testimony in. There was a link provided at the end of his
presentation. And I believe we are going to be posting the
presentations on the project website as well as sharing one of
the videos of the recording of our meeting, probably our next
meeting, and a transcript will be provided as well. So there
will be a few ways to access the presentation in the future.
And it sounds like the comments will be open until -- the
comment period will be open until the middle of December, so we have some time. And I hope that the information has been helpful today, and that you have felt that you had many opportunities to ask questions and to provide testimony as well. And I’m going to turn my microphone and my video off for a minute, and then we will come back here in a little bit and decide if we want to leave the line open or if we want to conclude the meeting. Oh, I see Lesli jumping on, too.

LESLI ELLIS-WOUTERS: Yeah, I know. And we do have -- there is another opportunity if people do want to gather their thoughts. Thursday at 6:00 p.m., we’re going to be doing another meeting with another opportunity, so that’s a chance if you don’t want to speak today. Otherwise, we will have copies of the presentation posted to our website. We were just making them accessible today so that people with readers would be able to follow along. And with that, unless there’s any objections, I think we can go ahead and close this meeting out today. And I look forward to conducting the next one Thursday at 6:00 o’clock.
JOY HUNTINGTON: Lesli, before we go, I just wanted to make a quick comment. If anyone that is participating today is curious about how outreach was done for these meetings, and also how we kind of tried to make them as interactive as possible, I wanted to just hit on the fact that we did send out hard copies of the presentation. You probably heard us referring to that a little bit earlier. But just in case people in the communities close to the project area were not able to utilize the Zoom from their computers, we did send out hard copies directly to the communities and so they could follow along and call in and, you know, ask questions. And that will be my goal as we do have hopefully people calling in that we’re, you know, giving them lots of opportunities to ask questions while we have Mike and Matt on the line, and to provide testimony as well. So that’s just a side note. If you’re wondering how we did outreach and how we’re connecting with people that might not be able to get online, so those are just a few side notes on that.

LESLI ELLIS-WOUTERS: And I just was informed that the presentations are available on the project page.
JOY HUNTINGTON: Awesome.

LESLI ELLIS-WOUTERS: So with that, I’m guessing we can go ahead and close this meeting up today.

JOY HUNTINGTON: Yeah. Thank you to everyone that joined us and giving us a chance to run though the slides with you and share the information. And again, I hope that it was informative and helpful, and look forward to you participating maybe in future meetings and/or reaching out to Matt or Mike if you have anything specific for them in the future.

LESLI ELLIS-WOUTERS: And I hope everybody stays healthy. And we will continue to be in touch. Thank you. Thank you all for joining.
JOY HUNTINGTON: Thank you. Bye.

THE REPORTER: Off record, 2:20 p.m.

(The meeting adjourned at 2:20 p.m.)
I, Gloria Schein, certify that the foregoing pages numbered 2 through 53 are a true, accurate and completed transcript of the proceedings in the Bureau of Land Management Red Devil Mine Cleanup Public Meeting, transcribed by me from a copy of the electronic sound recording to the best of my knowledge and ability.

Date   Gloria Schein, Transcriptionist