Kalamazoo River, Area 2

Meeting

Taken on: July 25, 2017

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UNITED STATES

ENVIRONMENTAL PROTECTION AGENCY

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PUBLIC MEETING

Regarding the Proposed Cleanup Plan For

Area 2 of the Kalamazoo River Site

July 25, 2017

Proceedings held at the Otsego District Library

Beginning at approximately 6:00 p.m.

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Presented by:

DIANE RUSSELL

U.S. EPA Community Involvement Coordinator

JAMES SARIC

U.S. EPA Remedial Project Manager

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Otsego, Michigan
Tuesday, July 25, 2017
At approximately 6:00 p.m.

P R O C E E D I N G S

MS. RUSSELL: Just some housekeeping things as folks are coming in so we can get rolling here.

For one thing, we do not have microphones tonight. So I just want to let everyone know that Jim and I are going to do our best to make sure that we speak loudly. I don't think either one of us have a problem doing that.

But if for some reason you're having a hard time hearing, please just let us know so that we can correct that. We want to make sure everyone has the information that they need tonight.

With that, I just wanted to -- we do have some fact sheets up front in case you didn't get one of those. One of the things that's in the fact sheet is a comment form.

So if you're interested in submitting

comments, there's a couple ways that you can do that for this proposed plan that we're going to be talking about tonight.

You can send in a written comment. And you have to stamp that and send it my way and we'll go ahead and put that into the record.

There is a public comment form also on our website. Our website is on the front in the gray box towards the bottom. So you can just go to our website. There's a comment form.

And you can also do it verbally tonight. We have a court reporter with us tonight, so we can also enter that.

So just a few things before I pass it over to Jim. I just wanted to say, again, the purpose of tonight's meeting is to go over what EPA is proposing for clean-up in a section of the river -- of the Kalamazoo River that we call Area 2.

There's a nice map of where that's located on the front of the fact sheet, just so you'll get a general idea of where that's at.

But Jim is going to go into more detail about what we're proposing for this piece.

And the format for tonight's meeting, we're going to be giving a presentation, and you know, having a space for you to ask your questions.

But then we're going to take a short five minute break. That break is meant to kind of just create a line between the portion of the meeting where, you know, you can ask questions and we can respond.

But the last part of the meeting where we're actually accepting formal comments, the EPA and the representatives will not be responding. So if you have a question during the public comment period, we will not be able to respond.

So make sure if you have any questions as we go through the presentation, there's a nice little spot on the back of your agenda, you can jot those down so you don't forget and make sure you ask us during that time. Because after that five minute break, we won't be able to respond.

Also, we do have a good showing tonight. Again, thank you all for coming and spending your evening with us to get this information. We

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greatly appreciate your interest in this project.
But just to make sure folks have enough time to ask questions during the public comment, we ask that you keep it under five minutes, if you can.
If you would like to make a public comment, and I'll remind you of these instructions again so you don't have to commit them all to memory at this moment, but we have cards up front that we'll have you fill out your information for our court reporter so she can properly record your information so that we get that recorded properly.
So there's cards that look like this. If you're interested in making a verbal comment tonight, grab one of these at some point and I'll be calling these numbers up when it comes time and then you'll step up to make your comment.
Okay. So just another couple reminders before I get into some introductions. If you haven't done so already, if you could, again, we are competing with this issue of not having a mic, if you could silence your cell phones or other media devices.

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And then also if you have a question, just as I'm doing, try to speak very clearly and enunciate so our court reporter can record that clearly.
Okay, so to stick with tonight's agenda, real quickly, just a couple of introductions.
I'll introduce myself. I'm Diane Russell, I'm the EPA Community Involvement Coordinator out of EPA's community office in Flint. And I'll be presiding over tonight's meeting.
So if you have any questions about, you know, the meeting format and such, just find me. Find me out.
I have Jim Saric here who is EPA's Project Manager. And he will be going over a lot of the technical aspects of what we're proposing.
And then also I have a representative from the Michigan Department of Environmental Quality, Dan Peabody, who is right here, who represents the State side of things.
So with that, I'm going to turn it over to Jim so that you can go ahead and learn about Area 2.

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MR. SARIC: Thanks, Diane.
MS. RUSSELL: You're welcome.
MR. SARIC: Can everybody hear me okay in the back? Excellent.
So I'm Jim Saric and I'm going to talk to you today about Area 2 and the Kalamazoo River and our proposed alternative or proposed remedy for that.
Have a seat right up there, Dayle. I want you right there where I can see you.
And tonight, some of the objectives, we're going to talk about the proposed remedy and how we got there.
And then as Diane pointed out, we'll have an informal comment period followed by the formal public hearing. And we'll go through it. It takes me about 35 minutes to go through this presentation.
So I'll try to make sure everybody can understand it. And afterwards, if you have questions as we go through here, we will do that.
And after that, after today's public comment period, we have a sixty-day comment period that's ongoing. And it started, I think,

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on July 1st and it goes to the end of August.
And once we get the comments, we're going to respond to those and respond to the summary. And then we'll finalize -- based on the comments we receive today, we're going to finalize the decision, what's called a Record of Decision, which will happen in the fall.
And this is the same process we followed for Area 1 upstream. And many of the tings you'll see and some of the information we're going to present is very similar to what we've had in the past and hopefully will be for other areas as we move downstream.
So this is the Kalamazoo River site. And Area 2 is what we're talking about right in the backyard that we have here.
And the Kalamazoo site, really it's an eighty-mile stretch of the Kalamazoo River. And it also includes multiple landfills and paper mills on the site. So it's not just about the river. But it covers a lot.
And we have different Operable Units. At EPA we have these designated Operable Units just to make them functional areas that we can

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address.

So we can address the landfills separately from the paper mills separately from the river itself.

But the river is Operable Unit 5, which is Portage Creek and that eighty miles of the Kalamazoo River from Morrow Dam all the way down to Lake Michigan.

Now, the river itself, Operable Unit 5, is then broken down further into seven areas. And each of the areas are divided by a dam.

So in Operable Unit 5, we have Area 1 upstream through Area 7 going downstream. And we're actually doing work in five of the different areas.

And previously a couple years ago we made a decision, a Record of Decision in Area 1. And today we're talking about Area 2, which is this smaller area right there. And Area 2 is between the former Plainwell Dam to the Otsego City Dam.

It's, you know, a two-mile stretch. It's 1.9 miles. It's not very long from a length standpoint, a river mile standpoint. However,

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it's very unique and it's different than some of the other river stretches we have upriver.

So here is Area 2 and here is the former Plainwell Dam, so the water goes right through there. The main channel comes through here and there's the Otsego City Dam. So it's a two-mile stretch.

And a couple things to note that makes this unique is you can see this area where there's a lot of smaller channels or smaller branches of the channel. We call that the anabranch area. You're going to hear about the anabranches. We're going to talk about those.

There's another river, the Gun River, that flows in right here. There's a pond, we call it Pond G.

This island right in the middle, we call that Knife Blade Island. It looks like a knife blade, and we had to find some name to call it.

But this is Area 2. Again, a smaller section. About two miles, about two-and-a-half feet deep, generally. It's deeper in some sections.

But that's what we're going to talk

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about and the remedy and the alternatives all involving what to do with the contamination in Area 2.

Now, we start out with kind of a conceptual site model. What are we dealing with, what is the contamination?

And it's the PCB contamination, the polychlorinated biphenyl, that really came into the river due to the recycling of carbonless copy paper from the 1950s to the 1970s.

And the exposure that you get here is really from fish consumption. You know, it's okay to be out in the river and recreate in the river and move around and recreate up on the floodplains and different areas, but the exposure that you get really is from fish consumption.

There is a do-not-eat-fish advisory that's been established by the Michigan Department of Natural Resources that's been out here for years. So there's signs on the river about that.

And what we've done here in the river and in a lot of areas we have addressed is what's called a Record of Decision. We have addressed a

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lot of the landfills and come up -- you know, come up with solutions and implemented the remedies in the landfills, and the same thing with many of the paper mills.

So the contamination that remains really is from the erosion from the banks and the contamination that's in the stream itself. You know, that's really what you have.

That ongoing uncontrolled erosion of that material going into the banks, that's the most significant source that's left. Because we have addressed a lot of the major sources working from upstream to downstream over the last twenty years or so on the project.

Now, conceptually what you have is a series of dams. And Area 2 is no exception where you had the dams that were there. And over time that water level -- you know, the dams were lowered down to a silt level.

And when that happened, when the water was dammed up, it was kind of impounded and it had PCB material being deposited across this whole area.

And then over time when the dam was

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lowered, now this previous material that was lake bottom or impoundment bottom, as we call it, that material now is part of the floodplain. And it's exposed to the ecological receptors that are there.

But this channel that existed now is unstable and down in size and it makes the banks collapse and it transfers PCB material downstream. So that's fundamentally the problem we have to deal with.

Now, the next step in the process once we think about conceptually what is happening, we come up with objectives. You know, what are we trying to achieve?

And these remedial objectives are essentially the same that we had for Area 1 and the same we'll probably have for many of the areas moving downstream.

And I'm going to walk through these generally. And I'll talk about the clean-up levels in a second.

But you start out with the objectives. And obviously the first objective is to protect those people who eat the fish around Area 2.

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And over time, we're trying to get from a do-not-eat-fish advisory where we have different fish tissue targets that we establish.

So we're hoping that over time we're going to get to the point where according to the Michigan Fish Advisory Level we can go from do-not-eat to two meals a month for the small mouth bass. That's one target we want to get to.

Another is the cancer risk rate is the 1-in-100,000 risk chance of getting cancer for what we call the high-end sport angler. And I'll talk about this high-end sport angler a little bit more.

But basically this is someone who consumes a one hundred percent bass diet, 125 meals per year. So for that individual we want to get to that target, get those fish tissue levels to drop down there. And I will show you what those actual numbers are in a second.

And then we hope to achieve that in fish by getting the sediment level to this surface weighted average concentration. And I'll touch on that again in a second.

But the general concept is if the

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average concentration across a certain area of the river is this 0.33 milligrams per kilogram number, that the fish tissue will come down over time.

So our goal is if we can get the sediment targets in Area 2, the concentration down there, the fish tissue will come down over time. It takes years for the fish tissue concentrations to come down. That's Remedial Action Objective 1.

The second one is to protect the ecological receptors, such as a mink that may be there, you know, from sediment exposure. And the concentrations associated with RAO 2 are higher than that for RAO 1.

So if you achieve the human health RAO for fish tissue, you'll get that, you'll achieve the same remedial objective for the ecological receptors.

Remedial Action Objective 3 is kind of to protect the terrestrial receptors in the floodplain. You know, the mammals, the birds that may feed in the floodplain. You want to protect them from PCB concentrations in the soil.

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We want to do that.

RAO 4 is very important, particularly for Area 2. We want to kind of minimize the amount of PCB migration that occurs downstream. We don't want to keep having PCBs going downstream. So we want to develop a remedy and have something where we're going to reduce that transport.

And obviously RAO 5 is to protect people that reside in the area from PCB exposure.

And those are the five remedial objectives.

So once you have your objectives, you have your conceptual site model, the next step is developing those preliminary remedial goals or your cleanup goals.

And we have done the human health and ecological risk assessments. We have used the same approaches that we did in Area 1. So the same human health risk assessments, the same ecological risk assessments, the same science that went between it.

We have updated data. So we've collected lots of samples. We've collected some

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2,500 data points in Area 2 alone. So you have updated information. And we put that into there.

And again, just like we've seen in the other areas, that PCBs are the primary risk driver. That drives the clean-up out there.

Yes, there are other constituents that may be out in the river in the sediment. However, typically what happens with the other constituents, the metals or whatever else is out there, is that the river isn't biased for one chemical to another.

They all tend to get deposited in a slower moving section of the river where soft sediment gets deposited, where the river slows down. That's where you find the contamination. It doesn't matter what it is, that's generally where you'll find it.

And typically wherever we find anything else, the remediation footprint, the area we're going to clean up for PCBs is so large, it gathers everything else.

So by going and addressing the PCB risk, we kind of address everything else.

And again, just to drive home the point

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that fish consumption is the primary risk, you know, more so than anything up in the floodplain. It's all about don't eat the fish or getting the fish to a lower level where we can go from there. That's really the risk driver of the site.

As far as clean-up levels and these PRGs, the Preliminary Remediation Goals, so for fish tissue, the number is -- this is the 1-in-a-100,000 chance of getting an excess cancer, and it's 0.042 milligrams per kilogram. That's a pretty low number. That's our fish tissue number.

And we have other numbers. They are based on a hazard index. This is for ecological receptors, you'll see to address RA0-2, this .6 number is higher than the .05.

So if we get the fish tissue down to that .04, we're going to address everything else. And again, that sediment number is .33.

And the relationship here is if we can get the surface weighted average concentration to 0.33, we can get the fish tissue down, and that's the plan.

Now, in soil, up on the soil, we have

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this 11 milligram per kilogram number. That clean-up level in the soil is to address the ecological receptors.

And that number -- if we get the floodplain soil to that, that's protective of the ecological receptors. And that number is lower than that for, let's say, a recreational user. For a recreational user, that number might be 23. So we're protective of those.

And for any residential properties that we come across in any of the numbers, 2.5 is the number for the residential numbers. Only for the residential property. So that's how these numbers fit.

Now what does that mean? So we looked at different fish tissue scenarios. Different receptors.

So we looked at this sport angler, the CT or the central tendency angler, that's an angler that -- that's how they developed the fish advisory number from.

So we looked at that angler and that's where some of the clean-up numbers come from, that .1.

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This is the sport angler that we looked at, this high-end sport angler, eats 125 meals a year, fifty percent on the site, and that number -- that's where that .042 number was developed.

And we did look at the subsistence angler because they get it all the time. What about the subsistence anglers. And that would be somebody that eats 179 meals a year. And the clean-up number on that would be .01.

Now, what you also do when you develop these numbers is you also look at the background number. You really can't clean below your background number. And it's what we see upstream, up above Area 1, up above Morrow Dam.

So there's two numbers. So here's this .04 number for fish and here's this .01 number for the subsistence angler.

And immediately upstream Morrow Lake, the small mouth bass we see is .14, all right? So that's above. That's higher than both the .042 number we're trying to achieve and it's also higher than the subsistence angler.

In fact, further upstream in Ceresco the

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small mouth bass number is .03. So we go back one slide.

And my point is that for our subsistence angler, that number, that .01 is below the background -- any of the backgrounds for upstream.

So it doesn't mean that we're not protecting the subsistence angler. I think it's our assumptions that went into developing that are probably extremely conservative.

And I think that it just goes that -- I believe that this sport angler that is chosen is really more representative of what's out there based on the fish surveys. That's why that .042 number came out from there.

So besides the numbers, let's move on and get into the remedies, the data, what do we do.

So we took twenty-five hundred samples. This is Area 2. There's all kinds of dots out here. And you know, we call these Skittles diagrams because they look like Skittles.

And I don't want to confuse you with the numbers, but here's the thought process.

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If you see the color being gray or white, or you know, the lighter, you know, black and white shades of grays, that means the concentrations are extremely low, okay?

And this is the surface. The top six inches. But if you see colors that are red or orange or yellow, that's higher levels of PCB concentration.

So if you just look at this in the top six inches for all of the samples there, you don't see a lot of oranges and yellows in the top six inches. You do see some of the stuff that's up here, though.

Now, here's another slide. And this takes all of the samples and takes the maximum concentration at any depth regardless of surface or any depth.

And if you look at that now, you'll see -- look at all of the oranges and yellows up here in these anabranches as we call them. We talked about that.

Look at them up there. There are some on Knife Blade Island and some over here. But you see more of it way up here. And why is that?

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Now, what we do is when we look at the historical concentrations, one of the things we look at are old aerial photos of what's there.

And this is -- I want you to keep an eye on this Knife Blade Island just as a reference point. Just to see. But we know we have a lot of contamination. We see this at depth up here. So why is that?

When you look at historic aerial photos, and again, the contamination was deposited from like 1950 to 1970, when you look at that, and here's 1955, we see that Knife Blade Island doesn't exist. It was under water.

And see how the channel goes all the way to the north bank up there in '55. The same thing in 1960, the channel goes all the way up there. Still it's way to the north over here in 1967. The same thing in 1974. It's really not until 1988 when you start seeing that Knife Blade Island.

So the point being that the historic channel, the way the river migrated, was way to the north. And it deposited those PCBs further to the north.

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And over time as that channel -- that braided channel went back and forth, it covered over the contamination, so a lot of it was at depth.

And that's really what -- by looking at some of these historic aerial photographs, it can teach us what happens and why did it happen.

So the next step, and here's a different slide, we looked at this area, we take the river in sections. We break it up into different sections. And they are all lettered.

And we did an analysis called the surface weighted average concentration. The idea is what's the average concentration of the PCBs in this section in A. And the same thing with C.

Because if you're a fish, you're not going to live in one spot. You're going to live in an area. You're going to be exposed to the area in which you swim around.

So we try to break it up into these different surface weighted average concentrations or subareas.

And we looked at it. And we know we've got fish that are contaminated. We've taken

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samples of fish and we know they are contaminated in the river.

But when we looked at these SWACs, the surface weighted average concentrations, in Area A and C, which is the main channel, we see that A is .08 and C is .22. You combine them both at .13.

The point being in the main channel, the surface weighted average concentrations are lower than .33. They are lower than our clean-up efforts. But yet the fish are contaminated.

So we looked at it and thought why would that be? But if you look at the surface weighted average concentrations in these areas up here, you start seeing 3.9, 5.8, 7.4, 12.3. You've got higher concentrations in the anabranches.

So potentially the reason why the fish are getting contaminated is because it's -- they're not getting it from the main channel, they're either getting it from swimming up into the anabranches, or erosion from those upstream anabranch areas is dumping PCBs into the river. And potentially it could be one of those things.

So we looked at it and we said all

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right. You've got this section here. Here's the main channel, that black line. And here's the anabranches.

And one of the thoughts is what if you take the dam out and you lower the water level and all of a sudden the fish can't get into the anabranches. Is that a solution?

So here's a normal -- you know, about a two-year flood environment, here's kind of normal flow, you know, a little less than that, what it might look like.

You take the dam out, the Otsego Dam out, and sure enough, a lot of these anabranches are dry under normal flow conditions. You still have water coming in from the Gun River.

But here's the main channel you see there, and a lot of it is dry.

So we're like, hey, taking out the dam helps solve that problem to some degree. But the issue is, if you just take out the dam, this river is going to want to migrate everywhere. It's going to want to move all around here because historically it wanted to move so it will continue to move.

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So taking out the dam alone is not going to solve the problem because that river is going to migrate, erode the PCBs and dump them back into the river.

So we worked with, you know, Georgia-Pacific, the consultants. We worked with the Michigan Department of Environmental Quality, the Michigan DNR, the U.S. Fish and Wildlife Service, NOAA, trying to develop various options to realign the river, make a stable river channel that would not -- you know, that we could kind of control that would look natural and fit into everything along with removing the dam.

And we came up with the design that we call channel option three. We looked at a few options.

So the idea is, you take the dam out and you form this new channel here with a couple meanders. And it's wider than the other channel. And also it has -- these are ripples or areas that would slow down the velocity. They would be almost like little speed bumps in the river, if you will, and they would slow down the velocity of the river coming down through there.

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And then along the banks, the banks would look much more natural. And if you get an idea to go downstream to where we're doing the time critical removal action, you'll see a lot of the trees along the sides, that's the idea.

It's not going to be a riffraff channel, but it's going to have some rock in it because you have to control the river, but it's going to be a combination of the natural channel design with some of the rock in there. But it's going to be a wider, more stable channel.

And you're not going to be able -- you won't have a situation where you're going to have the fish getting access to all of the anabranch areas that you do.

And along the sides of the bank, you're going to get -- we're going to have these different types of bank treatments that are there and it will be sloped and we'll remove -- as we relocate the channel, we'll remove different material.

And the idea is that you're trying to create kind of a clean buffer. So here's the channel bank, like a ten-foot clean buffer

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between the bank and the river. That's part of what you're trying to establish. So that's kind of the idea.

So once we had this idea of, all right, we're going to remove the channel -- or the dam, relocate the channel in this central channel design, then it became what do we do with the other materials up in the floodplain? What do we do with everything at Knife Blade Island, the anabranches, this green area here?

These are areas where we have the -- you know, basically the concentration is greater than eleven parts per million. And we have to do something with these areas to make sure we're protective of all of the ecological receptors. We can cap it or excavate it.

But the bottom line is once we take the dam out and we go and realign this channel, and heck, the cost to do that is around -- approximately thirty million dollars just to take the dam out and do that, now we're left with developing alternatives for the remaining part of it.

And that's what we're going to get at

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tonight.

So we looked at eight different options. Eight different alternatives in this situation.

And we're required, you know, to look at no action. We do nothing. But that's not what we want to do. We want to do something. So we're not going to talk further about the no-action alternative.

We looked at the monitored natural recovery. That's what MNR is. That's where you basically take the dam out and let it go from there. And neither one of those are really protective options.

Then we go to a series of capping options. And I've got some great slides that I'm going to show you that visually will -- I can walk through and explain it easier than just reading from here.

But we looked at a series of capping options, excavation options, a combination of capping and excavation, and then full excavation.

And then we looked at this last one which was basically take the dam out and dig everything out up to 0.33.

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And that's, you know, spending three-hundred-and-twenty-five million dollars, take ten years to do it, rip everything up out there.

And that creates -- although there is no guarantee that the fish tissue will still get there, that would be the most aggressive clean-up. But again, there is no guarantee that the fish tissue would get there and there will be a lot of environmental harm by doing that.

So I really want to focus on options three through seven, the capping, the capping and excavation, and the full excavation option as being the ones that we kind of go through.

Now, all of these include the following things. They all include removal of the dam, right? Realigning that channel that we talked about. And at Gun River we have to do some excavation where Gun River comes in.

All of these options, three through seven, take about five years to implement the remedy of construction. So they are all similar.

When we go in, we did our sampling, we did our investigation, we found some areas

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greater than 50 parts per million. We want to get those out of there.

So when we're going out there, we're going to look to find these hot spots greater than 50 and we'll get those out of there and remove them and ship them off site.

And as far as long-term monitoring, the success to any of our programs is that none of us are going away. The EPA is not going away, the State is not going away, none of the companies are going to away.

It's going to take 32 years, probably, approximately, for the fish tissue to get to some of these targets that we talked about.

So part of that is a real robust long-term monitoring program of fish tissues, sediment and surface water sampling. And all of this is going to help out there.

And then for some properties, we're going to have to have controls on them to make sure they don't become residential in some areas.

Now, the EPA, we take these alternatives, we took all of these eight alternatives and we evaluate them against what

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we call our nine selection criteria and our threshold criteria.

It's protection of human health and the environment, obviously. Compliance with applicable or relevant and appropriate requirements.

So these are -- did the remedy comply with the laws or applicable regulations or guidelines that are out there.

And that's the threshold for all of the alternatives, they have to kind of pass the threshold criteria to then be able to say let's evaluate them for -- are they amenable, are they effective in the long-term, are they permanent, are they short-term.

We do have a preference for treatment, but I can tell you that none of the alternatives here are treating the material. Primarily what you have in the river is you have reworked PCB material over time. Reworked sediment. You don't have source material.

And so given the concentrations, none of it really, you know, allows itself or generates itself to be able to be treatable.

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So none of the remedies really talk about treatment, but they're going to be effective. And we'll talk about that.

And then cost effectiveness is very important.

The last two criteria, State and community acceptance, you know, that's why we're here. We're going to take the public comment and we're going to consider the alternatives and then we're going to make a decision based on the input.

And we have been involved in this and will be continued to be involved with a lot of this over time.

Now, don't read this, you know.

MS. RUSSELL: This is also on page five, I believe, of the fact sheet. So you can have up-close views of this.

MR. SARIC: Right. And my point was that in your fact sheet, you have a copy. And as I go through some of these, there's some figures, and you might want to refer to that. It's easier to go through it from there.

And likewise, if you go on the website,

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you can see the proposed plans, and you can see these charts. Because we do the same thing. Besides the alternatives, we compared them against the nine criteria.

And the only point I want to make about this is that for alternatives three through seven, they all comply. They all are effective in one way or the other. They all take about the same timeframe to implement, and they take about the same timeframe to get the fish tissue together.

The differences are really that the more material you excavate, the more difficult it is to implement, and the costs are different.

So we'll go through the alternatives. And the best way I think to look at these is by seeing these pictures. And I think it's the easiest way for me to explain it.

So alternatives one and two, we talked about no action and monitored natural recovery. And you know, we're not talking about those.

So alternative three. Alternative three is basically you remove the dam, we put in the bank treatments with the new channel, and then

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you cap everything.

You cap the anabranches, you cap Gun River, you cap Pond G, you cap the ecological. It's all capping. And so it's a 43.8 million dollar alternative, of which 30 million of it is take the dam out and basically a new channel design. But it's an all capping alternative.

That's what alternative three is if you do that. It's protective. You know, it can be done. You're capping all the area that's there.

Alternative four is very similar to alternative three. The only difference is, you notice this yellow line along the river? And the yellow line is that ten foot bar.

So in alternative three, you're capping everything but you're only using the bank treatment. You're not -- you don't have a buffer. A clean buffer.

Here in alternative four, you have either a five part per million or ten part per million average concentration. Kind of a clean buffer along either side.

So you have this -- in addition to the bank treatment, you've got this extra buffer of

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clean material adjacent to the river. Just in case you get erosion, for kind of an extra level of protectiveness that may happen.

And that's what we have there in alternative four. And that's why there is two cost differences.

Because one of them is if the buffer is ten parts per million, it's 44.4. If it's 45 million, that means the buffer is 5 milligrams per kilogram. So given the different buffer concentration, you've got different costs.

Now, alternative five, and this is the one we prefer, so you can pay attention here, is that in this one you take the dam out. You've got the channel rerouted. You have the ten foot buffer, just like we talked about.

And in this one you cap the anabranches, which are these areas here, you cap those, but you excavate. These little yellow areas, the ecological areas, it's about five acres of property, you excavate all of these yellow areas so that the ecological receptors are all protected.

So now we're protecting 99 to 100

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percent of the ecological receptors, you get them out of the system, we're going to do the excavation in the Gun River, we're going to cap this Pond G, we're going to remove some of the higher concentration stuff at depth at Knife Blade Island. And that's alternative five.

So that's kind of a combination of excavation and capping. But by taking and -- you know, realigning the river, in this situation, alternative five, you're going to cap the anabranches but excavate the ecological hot spots. That's the one way to look at it.

In alternative six, it flip flops. In alternative six, you remove the dam, the same thing, you have that channel with the buffer, but in alternative six you excavate all of the anabranches, rather than cap them, you excavate the anabranches but you cap those ecological areas. So you flip flop in doing that.

So in this situation, you're making the stable channel, but you're going to now go through and excavate the anabranches but cap the ecological areas, and your cost goes up about twenty million dollars to do that, from there,

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just to give you an idea.

And alternative seven that we looked at, in this situation you go and you take the dam out, you have the new channel design, and now you're going to excavate the anabranches and excavate the ecological hot spots, excavate Pond G.

If you factor in all of these remediation areas, now your remedy goes up to like seventy-five million dollars, which is another eight million beyond that.

So that's where these fall along the various alternatives that we looked at. And really, you know, we looked at them all and we looked at the various criteria. Again, I believe this is in your fact sheet.

MS. RUSSELL: Page seven.

MR. SARIC: Page seven. Thank you, Diane.

And you know, a lot of the alternatives, other than one and two, you know, they protect the health and human environment. They comply with the ARARs. They are long-term protective, they are short-term protective.

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But you know, our preferred alternative is alternative five. And kind of the reason for that -- again, alternative five is, to go through it one more time, is to take out the dam. In alternative five, you have the buffer along the river, the five part per million buffer, so it's the lower concentration buffer, and you're excavating Gun River, you're excavating these ecological hot spots, but you're going to cap the anabranches from there.

And you know, in looking at the different alternatives, we believe alternative five is protective, it's complies with all of the requirements, it's extremely effective and permanent, it's cost effective, and really when you look at this, you're creating a new stable channel.

By removing the dam, you're creating a new stable channel that is really going to limit fish access into the anabranches, which is what we want to do.

You're going to cap the anabranches. So you're still going to get connectivity between the floodplain area and the channel, when you get

floods, you're still going to do it, but now by capping the anabranches you're going to be in a situation where you're not going to have PCBs getting into the river.

So by having that stable channel design and taking the dam out, you change the dynamic, you stabilize this section of river. We've got the situation where the ecological receptors are now all protected and we've got a situation where the fish won't have access to the anabranches and we won't have PCBs migrating downstream from these areas. That's what this remedy provides.

And some of the details, right, dam removal, and with that channel option three, the bank, the buffer of five milligrams per kilogram.

We're going to excavate all those hotspots, we're going to excavate those floodplain soil areas to really address the ecological receptors, capping those northeast anabranches, and the Gun River excavation.

As I touched on the long-term monitoring, it's going to be 32 years or more. That's how long it takes fish tissue to recover. That's part of it. We're going to do that.

The total amount excavated is about 29,200 cubic yards. But when we get out in the field, we'll know if that's more or less.

The total amount capped is about 28 acres in the anabranches. And the construction, it's about a five-year time period to do the construction and the cost is 46.4 million dollars for that alternative.

To give you some idea on the fish tissue projection, how we look at this and what it means, how we came up with the 32 years, you can see it.

So this is the small mouth bass projection. So our concentrations are right about here, which is .15. If you look at Morrow Lake, here's the concentration in the fish and small mouth bass in Morrow Lake right now.

This is the concentration in Ceresco, further upstream. And then here's the two meals per month number. So we hope we can get those down. And then over time, we're going to monitor to get to those different targets and the bottom line being that .042 number that may take about 32 years.

But that's really the process that we went through, the chronologic sequence for having the contamination, what are we going to do, what's our conceptual site model and objectives and coming up with alternatives.

And alternative A-5 we believe is the best remedy and preferred remedy and one we hope to implement. And we welcome comment.

Diane?

MS. RUSSELL: Thank you, Jim.

I'll just check in real quick. Are you guys holding up all right? I know it's a lot of information to take in.

We want to remind everyone that now is a great time to ask some questions about this and what the EPA is proposing for this area of the river. So Jim is happy to answer any questions.

Make sure that you speak clearly so our court reporter can capture your question, okay?

[redacted]

QUESTION 1: I have two questions.

My name is [redacted], K-o-r-n-h-e-i-s-e-r.

The first question is, the five-year

construction, does that mean this stretch will be closed for five years?

MR. SARIC: I can't answer that question yet because we haven't gotten to that design.

I would say that it wouldn't be closed for all five years but I can't be for sure. I can't guarantee.

Because what happens is we get into the design and we talk to the contractors that are actually going to build it and then do we need to close it for five years.

I mean technically Area 3 is still closed and there are still a lot of people going down that river. So I don't know for sure. I can't answer for sure if it's going to be five years or so. But we're going to try to work with everybody on it.

QUESTION 2: The other question was, you said for alternative four, there were two cost figures because you weren't sure if the bank buffer was going to be brought down to a target of five parts per million or ten.

MR. SARIC: Correct.

SPEAKER: And then alternative five,

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there's the same two figures. But you were saying it's going to -- the target will be five, not --

MR. SARIC: Yeah, in our proposed alternative we proposed the five to go with that. So that's in our proposed plan when you take that alternative five, we have the buffer being -- the lower number being five parts per million.

MS. RUSSELL: We had a question here, go ahead.

QUESTION 3: My name is Robert Rowley.

Is there any idea how long before that five year construction period starts? Is there any guess as to how long it would be?

MR. SARIC: I will look in my crystal ball. I can tell you typically it's about -- I'm guessing it will be a couple of years.

You know, we come up with a Record of Decision in the fall and then maybe, you know, we get an agreement and take about a two-year period to get the design, it's two to three years of design, and then we actually get in the field implementing everything.

So from the time we have a Record of

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Decision, if it's a two to three year window until we start, that's typical.

SPEAKER: So we're looking at eight years before it's completed.

MR. SARIC: Yes. Hopefully sooner but I think that's kind of a usual timeframe.

QUESTION 4: Another question I have.

I'm on the Otsego City Planning Commission. There's a lot of interest in the riverfront these days when you have a river walk in the city.

And it looks like in this version, number five, you're talking about building up the banks of the river to keep it in a certain area.

What sort of construction would be used? What I'm getting to, is it something where a path going along the river would be possible and a reasonable thing to do as part of this project?

Will it cost a lot of extra to do it or is it something that wouldn't be advised to do at all?

MR. SARIC: No, I think actually a path is doable. And I will give you a couple of examples.

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So in Portage Creek, when we did our time-critical removal work in Portage Creek, when you're doing the remediation, digging up the river, as part of it you need haul roads or roads that end up being patched alongside the road.

So I'm sure we can work with the city about what do you want to that look like at the end. And the Department of Natural Resources owned some of that property too, so we talked with them, what do you want?

So I think that between what we did at Portage Creek, or if you take a look at Area 3 down below the M-89 bridge, you'll see we have the haul roads adjacent to the area and those may be a natural path that can be used for some of that.

So you know, I can't speak with certainty over what we're going to do there. But we certainly -- like we've done in other areas, I'm sure we're going to work with you.

We work with cities all the time, the trustees, to say, okay, what is your vision for what you want here, we'll try to make it work.

MS. RUSSELL: We had a question back

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here.

QUESTION 5: Out of that 29,000 cubic yards, how much of that is characterized as hostile waste?

MR. SARIC: Good question. I would say it's less than five percent of that number. I can't remember from the cost estimate off the top of my head. It could be one percent. But it's somewhere in that range.

SPEAKER: So the rest of that material is some type of --

(The court reporter advises that she is unable to hear the speaker.)

SPEAKER: I was asking if the 29,000 cubic yards of material that will be excavated under this plan, how much of that would be greater than 50 parts per million PCBs which would make it characterized as hostile waste and it would go to some type of Subtitle C landfill instead of a local municipal landfill.

MS. RUSSELL: In the red right here.

QUESTION 6: Can you explain in a little bit more detail what goes into capping?

MR. SARIC: Yeah. So in some of the

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capping areas, when they're going to do a cap like for the anabranch, it might be a situation where you're going to remove certain materials, hotspot material, and then you're going to regrade the area.

You might put like a plastic liner on it and then put clean topsoil over it so you have a layer that has a demarkation from one area to the other.

In the pond like that Pond G, they actually can put a layer of sand over it, you know, or something like that, six inches or a foot cap, you know, a sand cap that could go over that.

The details of that, we haven't finalized all of those. Once you get the decision and we do that in our design phase, we get into the details of what those caps are.

But in some areas you dig down a foot, you remove some materials, you put like a liner over it and then put the topsoil on. That situation is probably more grading it to make sure it's graded properly and sloped properly. And then you're going to put, you know, clean

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topsoil over that.

MS. RUSSELL: We had a question up front here.

QUESTION 7: So when is the actual Otsego City Dam going to come out? Is that starting next year?

MR. SARIC: Well, that would be once we get a remedy, you know, and then we get a design, then it would be -- I think the question would be somewhere in that five-year construction period.

Will it happen early or later, I don't know. And it's kind of the sequencing as we go through this thing. There's benefits sometimes if you're working further upstream, do you really -- that whole two mile stretch, the dam only influences that lower, let's say, mile or mile-and-a-quarter, okay?

So taking it out, it may not impact anything upstream. So you may not have to take the dam out right away.

However, when you get towards the downstream areas, sometimes you weigh the benefit. Do you lower the water level so you can work in dry material or not. And you have to

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balance that out.

So once again, you get into the design, you can do that. It's just like we have it down in Area 3, we wrestled some of those issues on sequencing and what makes the most sense.

MS. RUSSELL: A question over here?

QUESTION 8: Yes. When you explained capping, I guess I'm confused, we still have the watershed, we still have the water flow. It goes in the ground, it flows, and what have we done by just leveling it off?

MR. SARIC: Well, if you're going to cap some of those anabranch areas, all you're doing is you're stabilizing that where you're not allowing for a flood situation.

So when you have the channel, a new channel, but those anabranches are there and you've capped them, now you're in a situation where if the river floods, which it does, you're not going to erode those areas and have PCB material going in the river.

The idea is to prevent that from happening. And then you're preventing exposure to some of the ecological areas.

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SPEAKER: So the water is still --

MR. SARIC: The water is still going to come over there. So you're still going to get that connection.

In normal flow, it's going to be in that main channel more. But when you get higher events, yeah, it's going to spill over the banks.

You want that connectivity with the floodplain somewhat, and that's what we're going to have. Because the energy in that river is going to want to flow and expand out. So we're not going to control that.

MS. RUSSELL: We had another question right here.

QUESTION 9: That was like my question, is this designed for a ten or a hundred year flood event? What are you thinking about in terms of stability for the long term?

MR. SARIC: It can handle it all. We have modeled it for what it would be like, you know, in a hundred-year-flood event, you'd flood that whole area.

So you can engineer this thing where the banks are going to be stable. And even if you

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have any bank erosion, by having that ten foot buffer, it allows you to say, hey, we're going to be out there doing annual inspections. If all of a sudden we have a bank erosion, we can fix that. But yeah, they will be able to handle those hundred year floods.

MS. RUSSELL: We had a question here and then here.

QUESTION 10: My question is, we have a Superfund site in both Plainwell and Otsego from the former A-1 Disposal. Is there any consideration on getting money from them?

MR. SARIC: I'm sorry?

SPEAKER: There's two sites that were contaminated from the former A-1 Disposal. One in Plainwell, which was a Superfund site. And there's another one in Otsego, out by Bittersweet.

MR. SARIC: Right.

SPEAKER: Has there been any testing or consideration for the chemicals that may or may not be leaching into the Kalamazoo River or settled along the banks of the river from those sites?

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MR. SARIC: We haven't, you know, done specific work -- we do work on the sites, but nothing that specifically relates to that. And some of them are further away from the river. So I don't know all of the details about the sampling events that have gone on on both those sites.

But they are not -- so far to date, as far as we know, they are not connected to the river or impacting the river from that.

And when we sample the river, we sample it for other constituents as well, but again, PCBs are the driver for what we have done.

SPEAKER: Well, I know there was a lot of chlorinated solvents in there.

And I had a discussion with someone at the DEQ not too long ago regarding the Otsego site where there are still chemicals because that site has not been capped and they are leaching down through groundwater into the Kalamazoo River.

MR. SARIC: Well again, we haven't seen that. But we can take a look at it certainly. And we are working on those sites as well. We do

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coordinate with them. But we haven't seen an impact from that.

MS. RUSSELL: And again, just to stress what you said, we do sample for other constituents or other chemicals besides PCB.

So if there was a connection in our sampling, that might indicate itself, but so far that's not anything that we have seen to drive any clean up, right?

MR. SARIC: Yeah, I mean we've sampled groundwater areas, sampled throughout the sediment.

And again, the river -- when it comes to sediment and such in the river, the river isn't biased to one chemical. Typically it's stuff that -- any contaminant that gets deposited, it's in a softer setting, quieter environment, that's where you'll find it.

QUESTION 11: Yeah, you alluded to this. By the way, I'm Steve Hamilton if you're still taking names.

You kind of alluded to this idea of a model. Hydrology is very complicated, especially with a lot of groundwater coming in on the south

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side and so on.

Have you or will you build a flood inhibition model to make sure you don't end up leaving the floodplain high and dry or a stagnant swamp or something like that?

MR. SARIC: We have one. We have a hydraulic model that looks at it. And that was part of it, modeling the different flow conditions.

And I'm sure as we get into the design, we'll tweak that more and try to make it more accurate.

And we do that because it's more about what is going to happen in a high flow condition. And we try to truth test it, if you will, to make sure it's there.

We have a lot of the same stream experts that are working on downstream and up above. We have a lot of lessons learned, and we'll apply those here too.

But it's certainly not an easy 'oh, we're just going to go do this.' It's not simple.

MS. RUSSELL: Right here.

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QUESTION 12: I just had a question.
Where you guys were working down river, you're monitoring a lot of air quality, has the PCB proposed a big condition as far as removal of air quality in the area?
MR. SARIC: You know, we're not seeing like a big dust plume of PCBs in the air quality that's monitored.
I think a lot of it is just monitoring that and more, you know, kind of air turbidity. We do the same thing with the water monitoring, we test the water turbidity up and down the stream.
But we're not seeing any significant release of PCBs in the air.
MS. RUSSELL: Dayle?
QUESTION 13: Dayle Harrison, Kalamazoo River Protection Association.
I didn't see a slide or details on the concentration of PCBs which would be going west from the end of the Knife Blade. Between the Knife Blade and the dam.
When you talk about the surface --
MR. SARIC: Let me go back to the

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diagram on here. So to the west this way?
SPEAKER: Exactly, going downstream from that point.
MR. SARIC: So we don't have -- the concentrations in here, there are some concentrations higher along here.
And the one thing, do you see this nice little line? The reality is that to produce that line, you're going to -- your actual remediation footprint is larger.
MR. HARRISON: My question, though, is you talked about the surface level of contamination.
The question I have is how the PCBs have been laying in the sediment over the years, that for example, right near the mouth of the dam itself and going upstream maybe a hundred yards, where is the concentrations at five or six feet?
MR. SARIC: Some of them -- some samples show them, you know, being at five or six foot. Then it's back, it's down, it's like not there. There is kind of a bright line somebody said.
But in some areas you've got it being 20 parts per million, some ten, some five, you

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know, in different sections.
And the biggest thing is even though -- my point is that even though you're going to -- and I think I might have another figure.
But even though -- let me go through this. I think I have one other slide to show you. This one.
So even though you have this nice little line here that you're going to -- you know, you're going to impact a much larger area when you actually build that channel.
So you're going to excavate a larger footprint because you can slope that bank. So you're going to remove more material.
MR. HARRISON: What I'm concerned about is once you remove the dam down to the river, you are going to have a lot of energy moving down through there, you're going to need to push that sediment downstream. And it's going to dig out kind of a deep channel, I think.
MR. SARIC: Potentially, yes.
MR. HARRISON: I think it's fair to say that. So you have this huge volume of material upstream from the dam, from there up to the west

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end of the Knife Blade.
MR. SARIC: Right. Okay, I understand.
MR. HARRISON: I mean it has to be like 50,000 or more cubic yards between the point in the dam and that triangle. Are you going to excavate that?
MR. SARIC: Yeah, so it's the same situation downstream in Area 3.
Now, the difference is that most of it in the stream in Area 2 here, it's clean. The actual sediment is clean. It's not -- that's why we have the 0.33 SWAC on the main channel.
So what happens is that you end up making the channel, making it narrow there.
So part of the question becomes this clean material, it's more sand, it's not contaminated with PCBs, what do we do with that?
You can take some of that material and excavate it and use it for relocating the channel because it's clean. Or some of it may go downstream, much like we have done in the other areas where we allow some of it to go downstream.
But it's not high concentrated PCB material that would go downstream. That's not

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the case.
SPEAKER: My question then is what -- on the core sample between the point I'm talking about, Knife Blade Point moving downstream, how much did we have in the core sample in that zone inside of the flow back from the edge?
MR. SARIC: A lot. I think that would be my short answer for you.
SPEAKER: I'm sure you have it. I just wanted to know how much or what the levels show at five feet or four feet or six feet.
MR. SARIC: I think that -- so again, if you'll look. So here's the line of the channel. You see an awful lot from Knife Blade going down, you see inside, you see a lot of the white and gray. Which a lot of that is all less than one part per million.
But along the banks you see higher -- outside in the floodplain you see some higher stuff. And this is where we're going to excavate for some of the ecological receptors.
And when we go to re-slope the bank on that side, you're going to dig that out of there anyhow and it's going to be removed.

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But in the channel itself, you can see all of the dots.
SPEAKER: So are those composites six foot cores?
MR. SARIC: No. They are 12, 12 to 24, 24 to 36, 36 to 48 for every one of those points. Every one represents the individual samples.
But what this represents is what is the highest maximum concentration in any of those samples. That's what that represents.
MS. RUSSELL: Any other questions?
QUESTION 14: Yes, you're making the river a channel. And you're putting a ten foot buffer on each side to control the width. What is the buffer made of?
MR. SARIC: The buffer is going to be kind of a natural sand -- so you're going to have a banked treatment there, all right?
That's going to be -- it could be rock, it could be -- in some cases we take these -- like if you go downstream, you can see it. We take the roots of some of these great big giant trees and we line the bank and stick the tree into the ground itself.

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And so it's a combination of sand material that's there that we use from other parts on the site that will be part of the ten foot buffer.
SPEAKER: So that shouldn't erode?
MR. SARIC: No. I mean the whole idea is -- the theory is if you take the channel and you have the proper width and depth dimensions, right, so it's got -- and you have the proper curvature, and then you apply some of the -- you know, we've done the modeling.
In some areas you're going to have to put rock, in some areas you can use a combination of rock and woody debris. In some areas you can use the natural, woody debris. And you can make it stable where it's not going to erode.
Now, can I sit here and guarantee we will never have an issue with erosion? No.
But by having that ten-foot buffer, we've never seen 10 foot erosion like per year or in a couple years anywhere along here.
It is different downstream, but here we haven't seen big rapid erosion along the banks like we have downstream.

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So more than likely by having that ten foot buffer, we know that within two seasons we've only eroded two foot, and that more than likely we'll be able to get out there and fix the problem sooner than that.
MS. RUSSELL: And they are monitoring pieces to that. So we don't put it in and walk away. There's monitoring.
MR. SARIC: Yes, that's part of the 32 year monitoring that's going to go on.
SPEAKER: And there are funds for this remediation of erosion?
MR. SARIC: Yeah, there will be funds. It's all part of the -- you know, we will likely try to negotiate an agreement with the companies to implement the remedy. And part of the cost is the long-term monitoring.
QUESTION 15: What are you doing with the soil, what you're excavating?
MR. SARIC: Well, some of the stuff that's clean, the clean soil, may be used. Again, it may be used to develop a bank. In some areas we're going to re-direct the river to the right or left, north or south.

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So some clean material may be used to make a bank. The contaminated material will be shipped off-site.

SPEAKER: To where?

MR. SARIC: To a commercial landfill. I think there's two or three that we've been using for some of the other projects. They are near Marshall and other locations.

MS. RUSSELL: Is there another question back here? Okay, Dayle?

QUESTION 16: You just hit the point of how there's not as much erosion and transfer of PCBs downstream on this side as there is --

(The court reporter indicates that she is unable hear the speaker.)

SPEAKER: Let me start over.

We know that at the Otsego impoundment and also at the Trowbridge impoundment that there are loaded banks of PCBs along the river's edge. And they are constantly eroding. You talk about -- there's so much of that going on.

MR. SARIC: Not as much bank erosion going on.

SPEAKER: So to go around about to my

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question, which is, since that is where the exposure routes are, downstream in the Otsego impoundment, you've got wind erosion, flood erosion, the banks are collapsing, why spend the time and energy now when you've got this time critical emergency situation at the Trowbridge impoundment?

And if there is going to be a time at Trowbridge, which I think you should prioritize that, then there wouldn't be much harm in holding off on the implementation of this remedy for a few years until we settle the Trowbridge issue.

MR. SARIC: Well, I think that the way we've done things, Dayle, is we're -- you know, we've got this remedial process where we're moving downstream to different areas.

We're coming up with decisions and trying to make those decisions and get things moving forward. It's a slower process than the removal process which is we have gone in, we've seen higher levels and targeted that.

We haven't made a decision regarding a removal action on Trowbridge. We're working on the removal action in Otsego right now.

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So to say, does it make sense to slow one down to do another? You know, I can't answer that. I think I'm here to tell you that here's the remedy, we want to move forward.

I don't want to slow any project down. You're always telling me that, try to go faster. So I'm trying to go faster.

SPEAKER: Let me give you my response because at the Otsego impoundment, which is about a fifth of the size of the Trowbridge impoundment, you guys decided it was in the best interests to reduce exposure to have a removal action.

I think the Trowbridge bank is so high and loaded with PCB that it's even more time critical and we need to establish that and move quickly in that area. That's the stuff that's moving downstream and creating the unclean fish consumption advisory.

So I think you know the remedy here is to do the removal action in Trowbridge maybe concurrently with what's going on here. We need to get that impoundment in Trowbridge under control because that's where the PCBs are moving

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downstream. It's kind of a no-brainer. No offense.

MR. SARIC: Point well taken.

SPEAKER: I know there are political issues involved with that. But we need to look at that really, really close.

MR. SARIC: Okay. Thanks, Dayle.

MS. RUSSELL: If I could just reiterate too, all through this project we have done things, you know, side-by-side.

So that longer, more systematic remedial process has gone on alongside any kind of time critical or emergency work that we have to do.

And we're going to continue to work that way going forward. We can do both at the same time if found to be needed.

Are there any other questions?

Did you want to --

QUESTION 17: Yeah, do you mind if I take a video of it? Can you explain to me again, you talked earlier about the goal --

SPEAKER: We can't hear you.

SPEAKER: You talked earlier about the goal to reduce the concentrations in the fish

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tissue. And I didn't catch the details on that. I was wondering if you could just tell me, outline that portion of it, the goal to reduce and who would be safe to eat.

MR. SARIC: So the goal, right now you have a do-not-fish advisory. And our goal with the fish tissue is to reduce it over time to target levels.

So the first would be to get to the Michigan Department of Environmental Quality's standard of the two-meals-a-month level -- to get to that level.

And then from there, the next level, kind of the bottom, below that would be -- and that's for small mouth bass.

And then from there we get to the 100,000 cancer risk number, which is that .042 milligrams per kilogram for the small mouth angler to get to that level.

And we think we're going to get there by having the surface weighted average concentration in the sediment being that 0.33.

If we can get each of those areas in the river to that, then the fish tissue hopefully

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will go down over time.

SPEAKER: Perfect, thank you.

MS. RUSSELL: Okay. Before we get started, I just want to remind folks, again, when we take the break, we're going to be going into the public comment portion of the meeting after we come back from break.

And if you have a question at that point, we really won't be able to respond. But I just want to remind everyone, you know, now is the time. And just any other questions that we wanted to get out.

SPEAKER: I would like to address two items.

MS. RUSSELL: Not now. We're going to take a break first, and then we'll get into that piece, absolutely. So now is the time for questions. I think we had another question. I'm not going to forget, I promise.

QUESTION 18: I'm wondering what the logic is of taking the dam down further down-gradient and then moving up. Because it seems like there is going to be a sediment release that bypasses the one you removed by

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going that way.

Wouldn't it make sense to go upstream to downstream? Why are we doing it this way?

MR. SARIC: Well, I think that, you know, in general we are trying to do our work upstream to downstream as much as we can.

But as we did our investigation work, the reality is in this section, in the main channel in Area 2, we didn't see a lot of contamination in the main channel.

And then as we were doing our investigation work in Area 3 downstream, in the main channel by the M-89 bridge, we didn't see a lot of contamination there either.

However, when we went downstream of that M-89 bridge, we started seeing high levels of contamination in the stream and we had a lot of bank erosion. We, you know, documented a lot of bank erosion, you know, going on.

So that combination of the higher concentrations in the stream, the high amount of bank erosion, it made sense to kind of say, hey, let's do a time critical removal and address that.

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And part of addressing it time critical also happened to go around removing that dam.

Because also that dam there in Area 3 was in really poor condition. That was beyond its engineering life. That was collapsing and we were really concerned about that.

All of those factors together, that's why we jumped ahead to do that. But we're still going to follow up.

MS. RUSSELL: We get that question a lot. Why jump ahead. And we still do that systematic upstream to downstream.

But if at any time we feel like we need to jump ahead, we have the mechanisms to do that.

So like Jim explained, we found a reason to jump ahead, but that doesn't mean that we're not going to look at it again in the upstream to downstream fashion.

We're just taking care of the critical stuff that we have to step out of line for.

MR. SARIC: And one last thing to get your point, we don't look at it in a vacuum. We don't say, okay, if we just do this, that's great.

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We look at it like if you take the dam out, what is it going to impact downstream or what might it impact upstream.

So we look at that and we model those velocities going through there. So we look at all of that.

MS. RUSSELL: We had one up front here.

QUESTION 19: I just want to clarify. The Otsego Dam, is that the one by Bittersweet?

MR. SARIC: Is that the one downstream?

MS. RUSSELL: The Otsego Township Dam, the time critical one we're working on right now?

SPEAKER: Yes, is that by Bittersweet?

MS. RUSSELL: Yes.

MR. SARIC: Yes.

SPEAKER: Okay. So the Trowbridge Dam, that's not scheduled to be --

MR. SARIC: That's further downstream in Area 4.

SPEAKER: That's not Area 3?

MR. SARIC: That's Area 4. The Trowbridge Dam is in Area 4. And believe me, it is confusing. There are lots of parts, I get it.

And that's owned by the Department of

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Natural Resources. And that's the next area. We're working on that. We have the data collected on that.

MS. RUSSELL: Yes?

QUESTION 20: Could you please clarify exactly where these dams are that you're talking about?

MR. SARIC: Sure.

SPEAKER: Do you have a map?

MR. SARIC: I have a figure. So here's this -- so here's the Otsego City Dam.

SPEAKER: Where is that located?

MR. SARIC: Really, it's right behind us.

SPEAKER: On your map?

MR. SARIC: There's also a map.

MS. RUSSELL: All of the dams are outlined on this as well.

MR. SARIC: So it is literally right behind us in that direction. That's the city dam. And further downstream is the township dam, which is gone. We have a water control structure that's there now, that exists.

Yes?

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SPEAKER: I don't know where that Otsego Township dam is at. Can you describe the area?

MR. SARIC: It is -- let's see --

SPEAKER: I thought that was the Trowbridge Dam.

MR. SARIC: No, Trowbridge is down further.

SPEAKER: I'm sorry.

MR. SARIC: We'll get it.

MS. RUSSELL: Yes?

QUESTION 21: Is the Superfund paying for all of this? Who pays for all of this, our forefathers that were responsible for all of this?

MR. SARIC: So Georgia-Pacific has been involved in a lot of the sampling. They've been paying for a lot of the sampling that's going on, doing the remedial investigation, the feasibility studies. We have an agreement with them. They have been doing a lot of work that's there.

And then once we select a remedy, for like, for example, upstream in Area 1, we had a Record of Decision and then we had an order that was issued.

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And so that work is going to be conducted by Georgia-Pacific and International Paper upstream.

And then in the time critical removal action, the work in Area 3 right now, down below, that work is being conducted by Georgia-Pacific. It's funded by Georgia-Pacific, International Paper and Warehouse.

SPEAKER: Menasha is not involved in any of that?

MR. SARIC: No.

SPEAKER: So does that mean they are going to cover all of that?

MR. SARIC: Well, you know, I think we try to negotiate agreements with the responsible parties to conduct the work. Once we select a remedy, we try to negotiate an agreement or use our enforcement mechanisms to get them to cover the cost of the clean up.

MS. RUSSELL: Yes, Dayle?

QUESTION 22: The design issue, it's all about the money. And a lot of people here probably don't know about the federal lawsuit that Georgia-Pacific has brought to find out how

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they're going to distribute the cost of the clean-up, who is going to take what, how much of the percentage is going to be.

That's getting in the way of getting this concluded, the money, because this thing is hanging it up, if you will.

Any update on that you want to share with us?

MR. SARIC: Regarding the lawsuit, there was a trial, I think like sixteen months ago, and there has been no decision from the Judge at this point. So you know, I don't know where we are on that.

SPEAKER: Is the lack of that decision, is that stalling the process of moving forward?

MR. SARIC: No, I wouldn't say it's stalling. I think we continue to do our investigation work and try to -- it has complicated our negotiations to implement a remedy, but I wouldn't say that it has stalled them.

MS. RUSSELL: Did you have another question?

QUESTION 23: Will this be the -- the

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old paper mill site, I think it was Rock Tenn, that's vacant now, is that land -- I don't know who owns it or anything, but is that being considered in them paying part of the price of the clean up?

MR. SARIC: Well, right now we haven't involved them yet. And it's not related to this directly. We haven't put a link to that.

SPEAKER: Is that because --

MR. SARIC: It's the physical location.

SPEAKER: I don't know who owns it anymore.

SPEAKER: It's owned by the City of Otsego now. Or the County.

MR. SARIC: Right.

SPEAKER: So because there's nobody there, they're not responsible?

SPEAKER: But remember the PCBs came from the recycling of the carbon paper. The people in Menasha weren't doing that, but in Kalamazoo they were.

MS. RUSSELL: We had a question back there.

QUESTION 24: A few years ago, wasn't

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there around a fifty million dollar settlement reached in Kalamazoo, and how much of that money is still available? Has it been growing, I would think, in some type of fund? Is that available for this project?

MR. SARIC: Yeah, so I think it was in 2009. You know, it could be 2011. My calendar could be off a little bit.

So Millennium Holdings, one of the larger responsible parties, filed for bankruptcy. And as part of the federal government settlement with that, we received -- our claim was like two billion dollars.

And we received fifty million dollars in a fund for river clean-up and then fifty million dollars to put in a trust to kind of address the Allied Landfill site.

So for the river, I think we still have, you know, we still have like fifty to fifty-three million, I don't know the exact number, for that.

We used some of the funds we got for some of the removal actions. Like in Portage Creek. We spent sixteen million dollars on the Portage Creek removal that we did.

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But we still have -- I believe it's fifty-two or fifty-three million dollars. So that's kind of still there for that.

SPEAKER: Will any of that be available for this type of project?

MR. SARIC: It might be. It might be. I think it's -- we're trying to use it, you know, to continue to do work and what we have to. Whether it be removals or working with the various responsible parties to get them to, you know, help with the work. We're trying to keep the project moving as best we can.

MS. RUSSELL: I think we had a couple more questions. Before I get to those two questions, I just want to remind everyone that we are under public comment period. And that comment period is going to last until August 30th.

So if you have information about this site that you want us to know or if there's comments that you want to make about what we're proposing for clean-up in this part of the river, this is the time for us to get the feedback that we need from the community to make the best

decisions that we can.

And you can submit that on-line. Again, there are forms that are included here, you can mail that in. Or again tonight as we close up these questions, this question portion, just pick up a card at the registration table and we can take your comments tonight at the public comment portion.

So with that reminder, you had a question here? And then one there.

QUESTION 25: Would you allude just a little bit on the recycling of PCBs? This contamination happened because of recycled PCBs. I have a different concept of recycling.

MR. SARIC: It was recycling the carbonless copy paper. I'm certainly not an expert in paper.

But during the process of doing that, the effluent or the discharge, if you will, you know, the material that came out of that process, one of the byproducts was the PCBs, is the best way to put it.

SPEAKER: So in making new paper --

MR. SARIC: During the process of making

new paper, that was one of the discharges.

SPEAKER: The leftovers?

MR. SARIC: Yes. Think of it that way.

SPEAKER: Thank you.

MS. RUSSELL: We had a question here.

QUESTION 26: So then going along with his comment, and this gentleman's here about it coming from Kalamazoo, does that mean that the Otsego paper mills have not contributed to the pollution of the river?

MR. SARIC: I can't answer that question for all of the 'who has contributed'.

I think that, you know, we're really focusing more on, you know, cleaning up the sources and addressing it from there. But we do try to look into it.

MS. RUSSELL: It is typically from historical waste. I don't know if you're alluding to anything current, but it is historical waste practices that we're addressing here.

MR. SARIC: Yeah, historically in Kalamazoo we had a series of landfills. We had a series of paper mills that all discharged some

of that material from the 1950s to the 1970s into the river. It all flowed downstream from there.

MS. RUSSELL: Yes?

QUESTION 27: My name is [redacted].

To clarify the answer to the gentleman's question about the recycling, my understanding is that PCBs were added to the encapsulated chemicals in the NCR paper.

And that was to prevent the chemicals from drying out because PCBs are oily substances. So when you press on the paper, it breaks those microbubbles and then mixed the chemicals and then you get the ink. So that was the source of the PCBs, as I understand it.

MR. SARIC: Right. So in the process of recycling that material, that paper, you then -- a byproduct of being discharged from that was the PCBs, that's correct.

SPEAKER: Does that help clarify your understanding, sir?

SPEAKER: When you say recycle the paper, the manufacturers aren't recycling it. The manufacturer sells it and the customer uses it. How does the customer recycle it?

MR. SARIC: It's not the customer. It's a byproduct. They take the used paper --

SPEAKER: From the manufacturer, it's a byproduct. I can follow that. Thank you.

QUESTION 28: I actually have another question as well.

MS. RUSSELL: Sure.

SPEAKER: One of of comments Jim made in passing is maybe indicating some areas that should not be residential in this remediation.

Are there some that you're aware of now that should not be residential?

MR. SARIC: There's only I think two parcels that are owned by residents, but they don't -- they are not quote-unquote residential.

So I would say there is no true residential land use in this area or within our study boundary.

SPEAKER: Okay. Because I asked -- I'm the Otsego Township Planning Chair.

And I asked because I wonder if we should perhaps put in our master plan an area that we for sure don't allow residential development.

MR. SARIC: I think we'll have some discussions about that. Some of these land use kind of things for the property that you guys do own in there. Some of it is within that one hundred year floodplain. I think realistically building homes in some of those areas is a difficult thing to do. Not a good idea.

MS. RUSSELL: Okay. Any final questions before we kind of take a quick break and then we'll come back to the public comment portion?

Any other questions before we break for that? Okay. We're going to take a quick five minute break. It is 25 after now, we're going to restart at 7:30.

(Break from 7:25 to 7:37 p.m.)

MS. RUSSELL: We are going to go ahead and get started with the public comment portion.

There's a few special instructions for this portion.

So again, this is the public comment portion of the meeting. This is a chance for folks who just wanted to submit their comments verbally, we have an option to have a court reporter do that for us.

So it's like if you're here already, you can put that into the record and then be done. One and done.

If you are interested in making a comment after this meeting, you certainly can.

Again, you can send that in through the mail. Click the link on our website. And you have until August 30th. It would be great to see a comment from you. That happens to be my birthday, so I hope to see something from you.

I have just a few comments. I have only a few cards taken. What I'm going to ask, if you can -- I understand if you need special accommodations, but if you are able to, if you could come up so our court reporter can hear you.

Maybe even come up a little closer if you can't stand, it's understandable, but maybe have a seat close by so she can capture that fully for this evening.

So did you have a question about the cards here?

SPEAKER: There weren't any cards over there. Are there more cards to be passed out?

MS. RUSSELL: Sorry.

SPEAKER: Oh, those cards. I thought they were little three by fives.

MS. RUSSELL: Dayle, we have been through enough of these. You should know how it all goes.

SPEAKER: These are brand new.

MS. RUSSELL: Don't worry, I will not forget you.

First, I'm going to -- we're going to go ahead and get started.

Klaus, you wanted to go ahead. And just go ahead and do this here. And please keep it brief so we can get on with the rest of our evening. So go ahead.

MR. GLOBIG: My name is [redacted], [redacted]. And I live in Kalamazoo. And I have studied the PCB issue for 20 years.

I am introducing into the public records two items. The first one is a lecture about PCBs which I presented at the Western Michigan College of Engineering. The second item is an open letter to the residents of Kalamazoo.

And the lecture is available on the internet. If you mention my name and PCBs, you

will find it.

Now, in the interest of public free speech, I have a few copies left for you. Not many, but if you are interested, I think it will be illuminating.

So here are some copies, you can pick them up at your convenience. Thank you.

MS. RUSSELL: Thank you, Claus. And then I have a card. Who has card number one? Does anybody have card one?

SPEAKER: They left.

MS. RUSSELL: Now I'm calling card two.

MS. [redacted]: My name is [redacted].

And I just wanted to make sure that as you're doing the redevelopment, if you could please include some recreation access outlets or sites. And maybe that has to be, you know, planned with the communities or whatever.

But instead of putting up the banks and then not having access to the river, it would be nice if we could have that coordinated in advance.

MS. RUSSELL: Okay. Thank you very much.

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Dayle, I think you had card three. Your number is up. Would you mind stepping forward and handing me your card.

MR. HARRISON: Would I mind? Of course not.

MS. RUSSELL: Thank you.

MR. HARRISON: I'm Dayle Harrison. I'm the president of the group called the Kalamazoo River Protection Association.

For you history buffs, this is our 40th anniversary this year. We're trying to get the river cleaned up and restored and have clean fish to eat, holding the polluters and the companies responsible for the cost of the clean up. Trying to get EPA to get more invigorated. It has been quite an interesting four decades.

As far as the proposed plan, I do have some concerns about the selected remedy that the EPA has selected. I think those areas that you call -- I call them gray shaded, you call them anabranches.

I would like to see you come in when it's time -- and I don't think you should be doing it until you do further work downstream.

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But when it's time to go in and use some of the natural resource damages funds, the Fish and Wildlife might be able to help you with that, to restore those areas. Excavate them and then restore them. I think that would be a good step forward.

But I really want to talk about the impact that this site has on downstream areas.

By devoting time and energy and money from the companies to clean up this site that we're talking about tonight above the City of Otsego, we're really sacrificing the benefits we would gain from cleaning up the PCBs along the banks of the Trowbridge area and then moving down to the City of Allegan, and then once that's done, move back up here and finish the job here above the City of Otsego.

It's unbelievable, the bank of sediments, you can see them. If you canoe the river, many of you have, from Otsego down to the township dam downstream to the Trowbridge, you see the banks literally saturated with PCB waste from the paper companies.

We need to get that isolated and removed

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like you're doing at the Trowbridge. That should be the top priority and then at a later date think about coming forward after you do the City of Allegan impoundment and Lake Allegan and then come back up here and do something up here.

We'll be submitting more written documents regarding this proposal in more detail.

I like the plan. I'm still concerned about that area from the Knife Blade downstream. It seems like at the Otsego impoundment you had a wall that you sort of shuffled around and excavated one side in the design process, and then we clean up that side, you went back over and rerouted the river to one side and then you cleaned up the other side.

That would reduce a lot of the soil sediment, the so-called clean sediment from moving downstream and creating problems in our floodplain and wildlife habitats.

I would like to see some of the data that we haven't seen that goes below the four feet depth of the core samples.

I know at the Trowbridge impoundment there are areas where we have three or four feet

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of clean sediment that's covering up the contaminated sediment.

That's been documented by the U.S. Fish and Wildlife Service and the U.S. Geological survey folks.

So thanks for the opportunity to say a few words. Hope you can get moving on it. Thanks for the work that you do do.

MS. RUSSELL: Thank you.

MR. SARIC: That was your only two?

MS. RUSSELL: Yes. If you hadn't had a chance but wanted to, the opportunity is yours.

Otherwise, certainly you can submit any comments you have to us on-line or in the mail.

And we look forward to continuing to work with all of you as we move forward with this clean-up.

So pending any other comments, last chance, again, thank you for spending your evening with us and we look forward to hearing from you in the future. Have a safe drive home.

(Meeting adjourned at 7:46 p.m.)

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C E R T I F I C A T E

STATE OF MICHIGAN
COUNTY OF CALHOUN

I, Marilyn J. Hubbard, Certified Shorthand Reporter and Notary Public in and for the State of Michigan, do hereby certify that the foregoing transcript of the public hearing on July 25, 2017, is true and accurate to the best of my ability.

IN WITNESS WHEREOF, I have hereunto set my hand this 2nd day of August, 2017.

Marilyn J. Hubbard

SUBSCRIBED AND SWORN TO me before this 2nd day of August, 2017.

Marilyn J. Hubbard
My commission expires:7-25-18

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