Attachment 5

lnitial Study Report Meeting Transcript

March 30, 2016

Susitna-Watana Hydroelectric Project
(FERC No. 14241)

Initial Study Report Meetings
March 30, 2016
Transcripts

Alaska Energy Authority – Board Room
813 West Northern Lights Blvd.
Anchorage, AK 99503

SUSITNA-WATANA HYDRO

Clean, reliable energy for the next 100 years.

SUSITNA-WATANA HYDRO

Agenda and Schedule

Initial Study Report (ISR) Meetings

Economics (Study 15.5), Socioeconomics (Study 15.6),

Air Quality (Study 15.9), Transportation (Study 15.7), Health Impact

Assessment (Study 15.8), Recreation Resources (Study 12.5),

Aesthetics (Study 12.6), and Recreation River Flow (Study 12.7),

Geology and Soils (Study 45), Probable Maximum Flood (Study 16.5),

Site-Specific Seismic Hazard Study (Study 16.6),

Subsistence (Study 14.5), Cultural Resources (Study 13.5),

and Paleontology (Study 13.6)

Alaska Energy Authority - Board Room

813 West Northern Lights Blvd.

Anchorage, Alaska

March 30, 2016

ATTENDEES

Monte Alves (phone), Environmental Resources Management
Julie Anderson, Denali Management Solutions
Marci Balge, Newfields
Michael Bruen (phone), MWH
Bryan Carey, Alaska Energy Authority
Brian Davis, Alaska Department of Fish and Game
Phil DeVita, Harris Miller Miller & Hanson, Inc.
Wayne Dyok, H2O EcoPower
Mark Fink, Alaska Department of Fish and Game
John Gangemi (phone), Environmental Resources Management
Kirby Gilbert, MWH

ATTENDEES CONTINUED

Tom Gillispie, State Historic Preservation Office -Office of History and Archaeology
Nikolas Griffith, DOWL
John Haapala (phone), MWH
Sydney Hamilton, Accu-Type Depositions
Jesse Hankins, Bureau of Land Management
Jonathan King, Northern Economics
Louise King, AECOM
Joe Klein, Alaska Department of Fish & Game
Tracie Krauthoefer, Corvus-Culture
Tim Kramer (phone), AECOM
Heide Lingenfelter (phone), Ahtna, Inc.
Donna Logan, McDowell Group
Becky Long (phone), Susitna River Coalition
Alison MacDougall (phone), Louis Berger
Paul Makowski (phone), Federal Energy Regulatory Commission
Betsy McGregor, Alaska Energy Authority
Alan Mitchnick, Federal Energy Regulatory Commission
Burr Neely, Northern Land Use Research Alaska
Suzanne Novak (phone), Federal Energy Regulatory Commission
Doug Ott, Alaska Energy Authority
Kathryn Peltier, McMillen Jacobs Associates
Tyler Rychener, Louis Berger
Chuck Sensiba, Van Ness Feldman
Dan Smith, Alaska Energy Authority
Corrine Smith, The Nature Conservancy
Karl Swanson (phone), Federal Energy Regulatory Commission
Jay Stallman, Stillwater Sciences
MaryEllen Tuttell, DOWL
Cassie Thomas, National Park Service
Ken Wilcox (phone), Federal Energy Regulatory Commission
Frank Winchell, Federal Energy Regulatory Commission
Whitney Wolff (phone), Talkeetna Community Council
Sarah Yoder, Alaska Department Health & Social Services
Jon Zufelt, HDR

INTRODUCTION

MR. GILBERT: This is Kirby Gilbert with MWH and welcome to the last of the series of five Susitna-Watana ISR meetings. Real quick with just introductions, just some brief slides and then we've got the agenda posted in this room on one of the screens and the other screen has the presentations, which I think goes through the -- goes through the meeting. The agenda is also available online.

We're going to try to stick to the, you know, we're going through the order of the agenda, but we'll probably need some flexibility because sometimes we get ahead or maybe we get a little behind and so the exact times may not be what goes here, but we're going to have some breaks and lunch.

We have 14 studies to cover today, so -- and it's a lot of different presenters and so on, so bear with us for all that as we switch presentations and so on.

It is being recorded, Sydney in the back, and because of that, everybody needs to speak up and if anybody in the back wants to speak, they really need to come to the table so people on the phone can hear and if

people can state their name first, that's what we really need to have happen as we move through both presentations and questions and answer.

First, we'll just go around the room. We've got a small group here today, and have introductions. So if you'll just stated your name and who you're with, and again, kind of loud so they can hear on the phone, would be great and then we'll go around on the phone. Why don't we start over here.

Attendees present introduced themselves and stated affiliation, if any.

Attendees on the phone introduced themselves and stated affiliation, if any.

MR. GILBERT: Okay, so what we'll do is I'll have just a couple introductory slides and then we'll get on with it, as I mentioned, 14 different areas today, social sciences, we'll have a little bit of the engineering and air quality, transportation and cultural resources toward the end.

Again, we'll follow the order of the agenda, but we might move a little faster. So just a couple of slides -- a lot of the people have been

already in some of these meetings and so on, but just to make sure, we'll just go over what we're trying to do.

This is the Initial Study Report meeting under the FERC integrated licensing process. These meetings are part of one step in that process for the Initial Study Report, which involves a major check-in point for the study program on the Susitna-Watana licensing effort.

The meetings are really here to try to discuss all the results, where the study's at, how the study's been going, any variances, changes in the study up to this point and any modifications to the study methods and so on, from here going forward.

It's a chance for everybody to, you know, get an understanding. A lot of material has been posted and discussed. This ISR process has been going on for some time, as a lot of people know, but it's a good chance to try to bring it all together here, and at the end of this process, FERC will make a determination on the study program, again, at this check-in point, as to the remaining parts and there are several modifications to several of the studies. We'll be talking about some of those today. Some of the studies are complete. Some of them are quite a ways along.

The ISR has been prepared in four parts for this project, four phases. Most of you are pretty familiar with them, I think. It was in 2014, the ISR was first released as Part A, B, and C, with results up to then and proposals for completing the study at that time, but that was in 2014.

Several -- in addition to that, several of the studies, all the 58 studies, several had technical memoranda that were posted as supplemental technical information with study results at that time, and then a Part D was filed last November and that was intended to be, because there'd been so many pieces and components, that tended -- the Part D tended to be a roadmap, and hopefully that was helpful to everybody, all the -- for each study, all the filings that comprise the ISR and an update on what steps were needed to complete the study, along with the proposed modifications by AEA.

In addition, it was noted at that time, it's been discussed that one of the corridors for transmission and roads, the Chulitna corridor has been dropped and we've added the Denali East corridor to the study program and you'll hear that today in a lot of the studies that -- as how that affected the studies.

Then there's also, at the same time, at the end of that year, last year, some studies have study implementation reports with a little bit more detail of all the progress through 2014 and 2015, and some of the studies, we have a couple today that are actually study completion report. The whole study's been completed and we'll go over that and it's a chance to ask questions about that.

Next slide. So these are the steps, as approved by FERC, in the ILP process here for where we're at today. We're holding the meetings. This is the last of five meetings. There were three last week, one yesterday on wildlife and botanical resources and very shortly here, April 24th, AEA will file meeting summaries from all five meetings to try to capture the discussion and any modifications that licensing participants have or discussions about that and will also be filing the presentations that are going to be provided today and that -- that are online now.

Then at the end -- before the end of June, June 23rd, is a chance for all licensing participants to file comments about the modifications, the study program, any disagreements with the meeting summary or any of the modifications, any recommendations today.

FERC, in the ILP, has the criteria for proposing any new studies or modifying -- any proposals for modifying studies. We've put that up on the wall here in the room. It's under 18 CFR 5.15, if anybody wants to see that, but that's the -- that's what's required for anybody to propose an outside -- a modification or new study.

Then at the -- after those filings, at the end of June, then all licensing participants and AEA can respond to any comments that came in in June. All this is in the record for FERC to be able to then culminate with a finding in October, October 21st, to make a determination, again, on completing these studies and the modifications and to finalize the study program.

Next slide. So as mentioned, we have this -- have the studies this week. Today, we've got quite a few topics, March 30th. Yesterday, we got through 20 studies, no problem in the day. There was quite a bit of good discussion and I expect some discussion today. So that's the agenda today. This is the last of them on March 30th. Okay, this is the last...

MS. LONG: Kirby, I have a process question.

MR. GILBERT: Okay, go ahead, Becky.

MS. LONG: This is Becky Long, SRC. Two process questions, last year after the ISR meetings, I submitted comments that are still appropriate and I'm just wondering if FERC wants them to be resubmitted, and my second question is, is I have quite a few comments on all the studies. Is it better to submit them all together or does it matter? Thank you.

MR. GILBERT: Well, you know, your comments can come in in the June 23rd, your comprehensive comments. I mean, you have until that time. You can submit comments any time you want and I, you know, I think probably today, it's best -- most constructive just to have discussion and comments about the studies at hand today, if that helps you?

MS. LONG: Right, but I meant like, yeah (affirmative), I had quite a few comments the last ISR meeting -- meeting on one study and I don't want to repeat it today, but -- and I submitted it to FERC. Should I resubmit it? I mean, that was like over a year ago.

MR. GILBERT: Alan, do you want to take a shot at that?

MR. MITCHNICK: Sure. This is Alan Mitchnick with FERC. If it's in the record, you don't have to refile it. You might just want to make sure you reference it in your more recent comments to make sure it doesn't

get lost.

You certainly can refile it as an attachment to any new comments, but I think as long as you make everybody aware that you filed it and it's still relevant, I think that would be sufficient.

MS. LONG: Thank you.

MR. GILBERT: Okay, thanks, Becky. The last item here is just how we're kind of running these meetings. We have presentations. Each of the study leads will be going through their study and a lot of it are slides and information that you've seen, particularly in October 2014, regarding things like study objectives, the original study plan.

We're not going to spend a lot of time on these. These presentations are generally running five to 10 minutes, depending on how extensive the study is, but specifically, we're trying to really highlight modifications and steps to complete the study, modifications to the study plan that AEA's asking. That's one main component here today, but it is -- it's really -- there are some -- a few decision points that were built into certain studies and we'll discuss those a little bit, too. Chuck.

MR. SENSIBA: Yeah (affirmative), Kirby, and I want to go back to

Becky's question -- this is Chuck Sensiba with Van Ness Feldman -- about filing comments. Thinking about it after that last exchange, I think it would be very helpful for AEA that if anyone has comments like Becky referenced that were filed after the meetings in 2014 that you think are still relevant, I would suggest filing those, as Alan said, as an attachment to recent comments, because a lot has happened since that time and so AEA is not going to assume that comments that were filed back in 2014 are still relevant, unless a commenter says so.

So I think for purposes of preparing our response comments, we'd like to have everything on the record after this meeting, so that we know for sure that someone still thinks that the comments that they made back in 2014 are still relevant. Otherwise, we're going to have to be chasing, going back to 2014 and making guestimates as to whether someone's comments that were made before the SIRs and the SCRs are still relevant or not.

MR. GILBERT: Sure.

MR. SENSIBA: I just think it will help the process generally if you do that.

MR. GILBERT: Yeah (affirmative), thanks, Chuck. Yeah (affirmative), I think we can all help each other. So I think that's what it's about, make sure that we have the most current comments because some could be out of date, yeah (affirmative), okay, and this is a chance today, again, for these studies, in particular, to ask questions about the results and modifications and so on. So that's what the purpose of today really is, to try to have a good technical discussion. The study leads are here and so it's a great chance. Hopefully everybody's had a chance to review the materials. They've been online for a good amount of time, the ISR Part D., and the Study Implementation and Study Completion Reports.

REGIONAL ECONOMIC EVALUATION STUDY (Study 15.5)

MR. GILBERT: Okay, unless there's -- are there any other general questions? Then we can start in. We're going to start with Regional Economic Evaluation and then go to the Social Conditions, and Jonathan, are you presenting this one?

MR. KING: I am presenting both of them, yeah (affirmative).

MR. GILBERT: Okay, Jonathan King now will start us off.

MR. KING: Good morning, I'm Jonathan King with Northern

Economics, subcontractor to DOWL. Betsy says my job is to not put everyone back to sleep this morning. So I'm going to be presenting Regional Economic Evaluation and then the socioeconomics.

So let's get started here. This is the Regional Economic Evaluation. We're going to be presenting our study update through the November 2015 ISR documents. So our status right now is that we've obtained information on current power generation and transmission demand in the Railbelt and we're looking at planned generation for each of the Railbelt utilities and working on production cost modeling, which that will all feed into the Regional Economic Evaluation and looking at the effects of cost of power generation.

Another major point in our status is that we're considering the use of IMPLAN instead of the REMI model and we'll talk a little bit more about that when we get to the mod section.

Our overall objectives were to describe the effects of the project on the regional economy resulting from improvements in the reliability of an electric power grid and describe the effects of the project on the stability of prices over time, and then to determine the economic effects of the

project's power over time, and you know, our component right now is largely the data collection and the analysis and we've implemented the methods thus far as described in the study plan with no variances. So there's no variance on record at this time.

So our summary of results right now is that we've documented the current power generation, the transmission and demand in the Railbelt. We either obtained that directly from the utilities or the secondary sources. We also have the data provided for each of the Railbelt utilities, including the service area, installed capacity, and the amount and cost of power sold.

As for the modifications, there's a clarification in our ISR Part D, Section 7 indicated that AEA planned no modifications to the methods for this study. We have to clarify that and say that AEA plans to use the IMPLAN model results instead of the REMI model analysis to complete the study and that's a function of living in very interesting economic times, for those who follow the price of oil, and that'll get -- talk about that more, if needed.

So our step to complete the study is really to develop and apply this IMPLAN model and analyze the changes in the regional economic

conditions resulting from the power-related effects of the project and as we -- as we get a decision on that modification, we'll move forward and discuss the effects of those -- power and be able to complete the study plan. So that's the last slide for 15.5.

MR. GILBERT: Great, that was a very efficient presentation.

MR. KING: Sorry.

MR. GILBERT: It's good.

UNIDENTIFIED SPEAKER: We didn't fall asleep.

MR. GILBERT: No, you kept us going.

MS. MCGREGOR: It was captivating.

MR. KING: Captivating, absolutely.

MR. GILBERT: So questions for -- discussion about the Regional Economic Study for Jonathan?

MS. WOLFF: I've got a question. This is Whitney Wolff. Could you expand a little bit more on the decision to change the model type? You said you'd talk about it more. Were you referencing you'd talk about it during another study or are we going to talk about that now?

MR. KING: I figured that there would be a question or two. So we

-- I can talk a little bit about it. The original...

MS. WOLFF: Great.

MR. KING: The original approach was to use what's called the REMI model, the Regional Economic Model Incorporated model, which is a dynamic model, in other words, it looks at changes in population and economic conditions throughout time and it's a very complex model.

It starts with, you know, all of the populations in the boroughs and the communities that are modeled and we set up, actually, a little model, little sub-model within the larger modeling frame for each of the boroughs and in includes things like tax structure and revenue and all of these things, and so we -- you would -- as you would with the IMPLAN model, you would inject the construction expenditures into the economy, you know, you would watch the build-out period and then you would watch the ongoing effect of the project in both employment and expenditures and reduction in power cost. You would watch that as it flowed through the economy over time.

Well, one of the most critical components of that model is having a really good idea of -- or at least really reasonable assumptions about what

the future looks like. Well, in the space of between 2012 and 2014, or between 2012 and 2016, as we've been working on this project, the price of oil has gone from $110 a barrel, with the expectation for it to be in the $80 to $120 range in the long-term, to the price of oil being $35 a barrel, with the expectation for the long-term price being $50 to $60 in the long-term.

In the long-term, that is an unsustainable situation for the State of Alaska and so the funding sources for the State of Alaska and the tax structure for the State of Alaska will have to radically change in the next decade, unless prices return to the 100-plus level or we double the amount of oil flowing through the pipeline.

It is a difficult position -- well, first, we went out and did all these interviews back in 2012 or 2013 and 2014, asking people what they thought the future would be. There expectations for the future are now radically different than what they were two years ago.

In addition, in order to build the model, you have to have some idea of what the tax structure looks like, which puts AEA, I think, in some unenviable position or the project in some unenviable position of suggesting what the State of Alaska's tax structure, be it sales tax, income

tax, use of the Permanent Fund Dividend, well before the Legislature, the public, and the Governor have come to that discussion themselves, and that seems to be a somewhat untenable position.

So the back-up to that is to use the IMPLAN model, which not a dynamic model. It's a static, one shot picture of the model and you have some idea of what the world looks like and then also, we build a model that looks at the regional -- we do a separate IMPLAN model for what the world looks like when we have the power generation from the project, and so instead of having custom population estimates that come from the REMI model, you end up using the DOWLD population estimates, which are based on demography, and so it's not as complex of a model.

It doesn't provide us quite the same level of detail, particularly on the borough level, and it's non-dynamic, but that being said, it is the standard of practice. It's what the University is currently using to model the tax changes, the effect of different taxes. For those who've been reading the paper recently, ISER, the Institute of Social and Economic Research, they use an IMPLAN model and that's what they're doing to model cutting workers, cutting pay, increasing taxes, that sort of thing.

So you know, is it what we hoped to do at this time? No. The modification actually suggests that it would be done -- REMI could be done later in the process, but our -- the back-up plan is still kind of the standard methodology that is used to model these changes.

MR. GILBERT: Great. That's a good description. Does that help, Whitney?

MS. WOLFF: Yeah (affirmative), it does. I'm just -- so this -- I'm just wondering when the decision was made, because it's not in your technical memorandum here. It's not in Part D, hat I can see. So I'm just wondering when you guys decided that and I'm also just wondering, can you just put, you know, I know you had assumptions in the first model, can you just transfer those over or do you actually have to, you know, are there new assumptions needed or not? Can you feed it the same material and data, I guess is what I'm asking?

MR. KING: Well, I'll answer the second question first. The IMPLAN data -- the IMPLAN model does not require the same level of data as the REMI model. It's a prepackaged model that comes in and we'll -- I'm not the IMPLAN modeler. So you know, they might make some

tweaks for the current situation, but it doesn't require the same level of data as the REMI model.

With the REMI model, you're actually are taking those reasonably foreseeable future actions or reasonably foreseeable assumptions, you give them to REMI and they customize the model for you. It's one of the reasons why we use that model.

As for the decision, when we came to this realization, it was after this ISR filing, after the ISR filing and we were having these discussions in December and even into January about, you know, I mean, up and through August and even in November, we recommended to AEA that we still pursue the REMI approach, because that is the approach that we laid out in our study plan, but once we got into that discussion, we realized that there were some really significant changes that had occurred and it would require some -- also some significant assumptions to go and use that model, regarding the tax structure.

MS. MCGREGOR: I think that was the bottom line. We couldn't come up with any assumptions that would be valid. I mean, it would be presumptuous of us to come up -- we need to see, you know, what the

Governor's going to do, what the Legislature's going to do. So there's too much uncertainty in trying to put assumptions into the model.

MR. KING: I've stopped trying to guess what the Legislature's going to do. It's not a winning bet.

MR. GILBERT: So you're right, Whitney, it was after the Part D, and we want to make sure any of that -- that in those instances, we talk about those today and that's why we're doing it.

MS. MCGREGOR: Right, and I should mention, I don't know if you were present at the end of the meetings last week, Whitney, but we did try to make sure that the modifications that we put in the presentations are current. Those are modifications moving forward. So we recognize that over time, things have changed. We have modifications in the ISR Part C. Some of those have been implemented and those studies completed. So now we're not considering them modifications. We're considering them variances and so on and so forth.

So the presentations are supposed to try to clarify what modifications we're specifically asking FERC to rule on or input from licensing participants.

MR. GILBERT: Yeah (affirmative), as well as the discussion and...

MS. WOLFF: Okay.

MS. MCGREGOR: So we didn't want to sit up here and say we have no proposed modifications when, in fact, we have a significant proposed modification, but it just has occurred since the ISR Part D.

MS. WOLFF: Okay, and I mean, in this case, it -- some of them I've seen, you know, it's not in C, but it's in D, and this one just wasn't in Part D. So I was just curious when you came to the decision.

MR. GILBERT: Yeah (affirmative), it's probably an unusual case compared to the other ones, but...

MS. MCGREGOR: I think it is. I think it's the only circumstance. Usually it's a matter of what we had composed as modifications in ISR Part C. becoming variances. So this is the only one that's a new modification since -- I believe it's the only case for a new modification.

MS. WOLFF: Okay.

MR. GILBERT: Okay, and you had...

MS. WOLFF: And then is this going to have any bearing on the attachment, the original attachment that was -- I mean, are you still going

to use that whole REMI model that was pre and post-project on all the other power projects and are you going to somehow -- I mean, does this uncertainty go beyond just changing models? I mean, how does that apply to even that Norther Economics attachment that came with the study of with or without the project? Does that have any bearing on that or no -- the current situation, that is?

MR. KING: Well, it will have some -- I mean, there is a different in the impacts, you know, in the data that comes out. So it is going to have some impacts on the level and specificity of the data that is produced in the model that comes out. I mean...

MS. WOLFF: Right.

MR. KING: I'm not sure to which document you're referring to, but I kind of answer the question that, yeah (affirmative), I mean, there's a -- you know, we chose REMI originally for a reason and it is -- was our first choice and continues to be our first choice until we realized that it was really an untenable situation, so -- but there is a (indiscernible - speaking simultaneously)...

MS. WOLFF: Right, yeah (affirmative), no, I understand. I

understand what drove you to it. I'm just kind of taking it a step further to see how, what I agree with you is a pretty serious shift in the economy of the state. I'm just wondering how that's going to ripple beyond just the model and your study, whether you're projecting changes to those pre and post-project -- I'm thinking of the...

MR. KING: Right.

MS. WOLFF:...Northern Economics document that has, you know, all the other, you know, generation projects or capital projects in the state. So I'm just wondering if you...

MR. KING: Right.

MS. WOLFF: ...if that changes the actual data.

MR. KING: Yeah (affirmative), that's the reasonably -- I think that's the reasonably foreseeable future actions document that you're talking about. We're not going to redo that document. That document is -- that is necessary for the REMI model. It is not as necessary for the IMPLAN model.

I think we can still have a discussion about what will be going forward in the state, but you know, it's just a very uncertain time right now.

Like, the state's still going to be here in 10 years. So we're not talking about half the population getting up and leaving, so -- but we...

MS. WOLFF: Right.

MR. KING: But we might not -- we might not (indiscernible - speaking simultaneously)...

MS. WOLFF: Right, but as far as the future of capital -- right. As far as the future of capital projects, it is a changed landscape.

MR. KING: Yeah (affirmative).

MS. WOLFF: I'm just wondering if that's now, you know, dated or -- I mean, are you going to modify it or are you just going to leave that as is and move forward, is what it sounds like.

MR. KING: I think we would probably leave that as is for now and that would have to be, you know, if we were to come back to REMI, we would have to evaluate whether or not we redid that effort.

MS. WOLFF: Okay, thanks.

MR. KING: Did I answer your question?

MR. GILBERT: No. Go ahead

MS. SMITH: No. Corrine Smith from The Nature Conservancy.

So maybe just to go a little farther kind of where Whitney was going, so IMPLAN, would that -- does that model include changes that can be anticipated to fisheries and recreations, those components of the economy?

MR. KING: No. Well, it does to the extent that the project would spend in those areas, it would, but if the project and the operation of the project and the operation of the Railbelt utilities afterwards, they wouldn't traditionally spend in those sectors. So you wouldn't have modeling that would occur in those sectors, and I actually think that the idea of the changes in the fisheries and the effect on fisheries, that's more applicable to the RUM discussion, which is the 15.6 discussion, which we're about to do right now. So yeah (affirmative), so that's where we pick that up.

MS. SMITH: And then a separate question, you said there would be less detail at the borough level, so what -- so we're still getting a pretty good snapshot of what's happening at the state level, but what would be different at the borough level with this?

MR. KING: Well, we can still get a snapshot at the borough level because IMPLAN has borough level models and there's borough level components. Where we lose some of the specificity is in changes over

time, you know, in watching the changes over time and it may impact our ability to get down to the community level within the borough. So we're just going to have to see, as that data comes out, what that looks like. It's going to be more like a -- more of a qualitative discussion at the community level than a quantitative discussion;.

MS. SMITH: I do have -- and then one more question, sorry, about (indiscernible - speaking simultaneously)...

MR. GILBERT: Can you guys hear this on the phone?

UNIDENTIFIED SPEAKER: Not really.

MS. WOLFF: No, and I was just going to ask that fishery question could be repeated. I could hear the answer, but we can't hear the question.

MR. GILBERT: I mean, maybe -- just sorry, if you could just step up and -- because they need to hear, too.

MS. SMITH: Yeah (affirmative).

MR. GILBERT: The microphone is (indiscernible - speaking simultaneously)...

MS. SMITH: Sorry, my name's Corrine. So I was just asking about where the fisheries and recreation effects show up and Jonathan said that

will be in 15.6, and then I asked about the borough level, because he mentioned there would be less detail, and then my last question was, you're going to have pre-project/post-project, what about the construction phase, since that's taking quite a few years, will you also have a snapshot of what's happening during construction?

MR. KING: Yeah (affirmative).

MS. SMITH: Because there will be a lot more jobs at that point, I would assume.

MR. KING: There will be and you -- it is possible to run individual IMPLAN models if you know when the expenses are taking place over time. So you could build individual snapshots and scale those, have some understanding of the differential construction effects over time. So that is possible to do, and I'll talk with the team about that.

MS. SMITH: Thanks.

MR. GILBERT: Thank you.

MS. MCGREGOR: Yeah (affirmative), that is significant, because I know in other forecasts, it's about -- isn't it about 12,000 jobs over the period of construction?

MR. GILBERT: Okay.

MS. LONG: This is Becky Long from SRC.

MR. GILBERT: Sure.

MS. LONG: I have some comments. Should I go ahead?

MR. GILBERT: Go ahead, Becky.

MS. LONG: My comments pertain to the cost of Susitna power relating to the operating and construction costs, which effects the electrical price stability, et cetera. The data from this report, even before the October ISR meeting, was based on -- was used by AEA dam proponents in various AEA board meetings and others, which the media reported.

It is very disconcerting because the Northern Economics report hadn't gone through the current process to see if it was accurate. One of my comments is the cost of Susitna power is being calculated without any clear path to financing. This can result in low estimates.

The State is -- our bond rating has been downgraded because of the economic situation and most of my -- the rest of my comments have come from AEA's Engineering Feasibility Report that came out in the end of 2014 and beginning of 2015. The -- if this project goes forward, additional

(indiscernible - interference with speaker-phone) is needed, but this is not included in the cost estimates.

This cost could be between 75 million to $150 million. Without an additional storage, the project might have to be downsized, putting out only 120 to 150 megawatts.

If there is two transportation -- two (indiscernible - interference with speaker-phone) transmission corridor option is picked, one of the lines will probably be constructed by helicopter. This is pretty costly. This needs to be included and I don't think it has.

Also not included, this came out in the Engineering Feasibility Report, that the Alaska Railroad Talkeetna bridge may have to be replaced to provide sufficient clearances for shipping and the transformers, turbine parts and other large items.

The cost assumed centralized dispatch, which, of course, we would like, but it is unknown if this will happen. We're trying hard to make it happen, but you know how the Legislature is. It takes -- they move at a glacial pace and also the utilities do, too. (Indiscernible - interference with speaker-phone) not included the cost for possible future fish passage.

For the -- in the Engineering Feasibility Report, for the purposes of financial analysis, they should allow for a contingency of between 20 to 30%. I do not believe that this has happened. In the cost reckoning, there is no payments included to Native corporations for use of land in the operating costs, and finally, there is no cost consideration for dam decommissioning. This should be taken into consideration. The cost of removal of the Elwha River Dam was $26.9 million, but the total cost of the river restoration was $324.7 million. Thank you.

MR. GILBERT: Okay, thanks. That's great. Are there other questions for Jonathan on the Regional Economics Study? He's got a little bit more of a, you know, related topic here in the next section, Social Conditions Report.

MS. WOLFF: Kirby, I've got a quick question. This is Whitney.

MR. GILBERT: Okay.

MS. WOLFF: I know at the last meeting in October 2014, we had, on the transcript, asked about something similar to what Becky was talking about, about the State's independent system operator goals and some IPP stuff. I didn't see that that's been added at all. I don't know if that's -- if

there's a plan to incorporate any of the changes on the horizon for that. I know we discussed it in 2014, and I didn't see any additional references to that.

MR. GILBERT: Wayne, do you have any thoughts or...

MR. DYOK: I don't remember the -- Whitney, this is Wayne Dyok. Could you go into a little bit more, you know, detail in terms of the last meeting, because it's not clear to me what...

MS. WOLFF: Sure. We -- sure, there in fall, in 2014, there were hearings going on in Juneau regarding trying to get, you know, an independent system operator and transmission line ownership changes taking place and we had asked whether that was being incorporated in the study, which it wasn't at the time. So I just didn't know whether those additions have been added. I didn't see them anywhere. So I'd like you guys if I've overlooked it somewhere?

MR. DYOK: Well, I'm not sure that it's really relevant to the FERC study plans. I'll just add that the modeling that was done to date that Becky referred to in the Engineering and Feasibility Report did look at economic dispatch -- would assume -- that assumes that there is some level

of independent system operation as part of the, you know, the process.

MS. WOLFF: Right, yeah (affirmative), okay.

MR. DYOK: And that's described in the...

MS. WOLFF: So we have to go into the study itself. We're not seeing that in any of the reasonable foreseeable future documents because now we know that's kind of static. So I just didn't -- I didn't know where, other than the large Northern Economic study, where we might see more foreseeable future changes on the state level, but thank you, Wayne.

MR. DYOK: Okay.

MR. GILBERT: Okay, all right.

SOCIAL CONDITIONS AND PUBLIC GOODS (Study 15.6)

MR. GILBERT: Let's go onto the Social Conditions and Public Goods Study.

MR. KING: Time for 15.6 -- all right, so I will -- we're going to -- we're pulling up 15.6 here, and this is Social Conditions and Public Goods and Services, which is Study 15.6, and I'll be updating us through our ISR Part D. for the November 2015 documents.

So our current status with this is that we completed our primary data

collection tasks back in 2013. The recreation data that we incorporated through the mail survey that was administered by the McDowell Group has been incorporated into the Random Utility Model, and we're continuing along with updates to the RUM and also we, and I'll mention this later, that we've updated our socioeconomic data as well.

The objectives, I won't spend a ton of time on our objectives, but just to review, this is really our description of the socioeconomic conditions within the study area, including evaluating the effects of onsite manpower requirements, total worker payroll and material purchases, the impact of immigration of people on government -- and government facilities and on local infrastructure.

We've covered existing housing, residents, businesses that might be displaced by the project, access road and transmission corridors, and describe, based on other studies, what bio-physical attributes of the Susitna River system may change as a result of the project, and this includes commercial opportunities relating to fishing, logging, agricultural, mining, recreation activities, and that's really, I think hits the heart of Corrine's question earlier.

Our study components for the data collection and the analysis included demographic characteristics of the study area, the economy, looking at specific economic sectors again, housing, local infrastructure and public services, local government finances, ecosystem services and quality of life.

We did have a variance in the past on this and that was the addition that goes along with the variance that was in the Transportation Resources Study of adding Seward, Point MacKenzie, Whittier, Wasilla, and Houston were listed to the -- added to the list of potentially affected communities in the study area and so those were all added to the tables in the demographic section and the social conditions.

To this point, we have no other variances that have occurred. So our summary of results, and we've talked about this in the last ISR meeting, is that we have, you know, updated the baseline socioeconmic information and so it's been -- we completed our primary data collection in 2013.

It's, you know, it's been a year. So we added a new year's worth of data to the tables in the report. So that has been updated in there. We're keeping, you know, we're keeping up with that as new data becomes

available and it's released, then we put that in so that we have the most updated data in there.

Within the Random Utility Model, we submitted a detailed methodology and also we processed the mail survey data, and that's been done. For the proposed modifications, as in 15.5 and for the same reasons as 15.5, we do have a clarification that the ISR Part D. Section 7 indicated that AEA planned no modifications to the methods for the study.

Both the RUM modeling and the Quality of Life survey require information from studies which have yet to be completed and addition -- and also require some input on policy decisions reflecting -- regarding the level of access and as such, we propose to move these elements farther down into the licensing process, because we just simply can't move forward with the RUM modeling until we have additional information regarding, you know, fisheries and an idea of what the world looks like.

That data is still useful, though, for describing the current conditions of what the world looks like and the relative importance of some of those resources.

We have proposed, as we just talked about, using IMPLAN to

complete Study 15.5, instead of using REMI. That means that we will have to use the IMPLAN results in 15.6, instead of the REMI results, and that does affect the level of specificity that we can get to within the 15.6 Study.

So our steps to be completed will be to incorporate the IMPLAN results with regard to the regional economic impact of the project employment and expenditures in construction phases, looking at changes in annual government revenues and expenditures, looking at the socioeconomic effects of changes in transportation patterns.

We are working to -- with the RUM data collection. We have enough data there and we've done enough of that. We're working on repackaging that so it's in a much more digestible form for people, so that they can see the relative level of recreation within the categories that we collected recreation data for through the mail survey, that they can see how much recreation is occurring inside of the study area at specific locations versus across the broader range of all of the substitute sites that people have across Southcentral and into the Interior.

So we're going to be working on taking that data and packaging it so

it provides a really nice kind of baseline summary, because that snapshot that AEA funded is a different level snapshot than we've had before. So it'll be good to have that out there.

We're also looking at potential changes in property uses to be described and then the socioeconomic effects of changes in transportation patterns. The potential changes in quality of life, we would be deferring those surveys until a later time and actually, this bullet should be struck. It should have come out yesterday, is that that changes to quality of life, that steps to be completed, that is a modification that we're proposing to move that later on, until we have a better understanding of what the project looks like and what the world looks like. So that is the end of that study presentation.

MR. GILBERT: Okay, thank you, Jonathan.

MS. THOMAS: I have a question.

MR. GILBERT: Sure, Cassie.

MS. THOMAS: I'll come forward, approach the bench. This is Cassie Thomas from the Park Service, and Jonathan, I just have a quick question for you and this is probably in there, but I can't remember what

the answer is, when you're looking at -- you mentioned trying to quantify the amount of recreation within the project area...

MR. KING: Right.

MS. THOMAS: ...and comparing it to outside, is that just a head counting or are you assigning a recreational experience value? In other words, you know, from a recreational planning point of view, we don't usually just count heads. We see what people are doing, what kinds of experiences they're having. It's kind of like quality of life, where you're...

MR. KING: Yeah (affirmative).

MS. THOMAS: ...doing a value judgement and trying to look, you know, you mentioned displacement, you know, people who are doing a wilderness trip probably don't want to be displaced to the Russian River in early July, so...

MR. KING: Right.

MS. THOMAS: Is that part of this study?

MR. KING: Yeah (affirmative), if you -- Cassie, if you look back at the survey that we did, the mail survey, it doesn't -- it wasn't just simply, "Did you go here?" It was, "What did you catch, what type of fishing you

were doing," that sort of thing.

So you wouldn't move a trout angler to the Russian River, you know, as the sockeye pulse is moving in, right?

MS. THOMAS: Right.

MR. KING: I mean, that's not a transferrable experience. So what that RUM model has gone and done is, is it has that data of what the catch rates are, what people are doing in those locations, what the facilities are that they're doing, the travel time that people are willing to take, all of those items, and so when you've got to the RUM modeling, you know, you wouldn't -- if you were to have a new sight or have a, you know, a site that was lost, that lost utility wouldn't be displaced to a completely different, necessarily to a completely different type of experience, right?

I mean, you're not going to -- we're not going to take halibut anglers and put them up in -- put them up on Montana Creek, you know, in late April, early May, you know, as the smelt are going out. I mean, that's -- they're not transferrable experiences. So the RUM model has that capability and that's why we collect a lot of that data.

The other part of the RUM model is to be able to quantify the utility

associated with losses or changes in recreation and so you'll be able to see that, as well, across those experiences.

MS. THOMAS: So when we have some idea of how the project went -- would be used in the future, what the public access is, and you know, operations, you know, what would be the experience on the reservoir and so on, those inputs could be used to sort of try to answer the question of, "What kind of deal is the public getting? Who's a winner? Who's a loser in types of experiences?"

MR. KING: Exactly. That's exactly the purpose of the RUM model. So for example, let's say that a project eliminated fishing on the Russian River, right?

MS. THOMAS: Bad idea.

MR. KING: Just -- no, right, we have an idea of how many people go to the Russian River. We know what types of fish they're fishing for. We know the experience that they're looking for and we know what that relative level of effort is and utility is that's going there, relative to all of these other sites, you know, in Southcentral, and you know, the mail survey that McDowell did was very successful and we are able to see, you

know, very small individual creeks that aren't even pictured in the ADF&G Statewide Harvest Survey because their sample size is so small. They roll them all up into other creeks. So the ability is there to see that and to address exactly the nature that you're talking about.

MR. THOMAS: Great, thanks.

MR. KING: Yeah (affirmative).

MR. GILBERT: Good discussion. Other questions for Jonathan?

MS. LONG: Hi, this is Becky Long, SRC again. Jonathan, could you just clarify, explain to me, I'm kind of dumb on this stuff, a little bit about the Quality of Life Survey and why they're being moved to later on, because you have a better understanding of what the world looks like?

MR. KING: Yeah (affirmative), this is -- it's a really good question because this is also, and like I said, I'm not the IMPLAN modeler. I do stuff in the RUM arena. I'm also not the Quality of survey -- life -- guy within our group, but until we had a better picture of what the project would look like and what the impacts were, we wanted to delay those Quality of Life Surveys because we really needed to have some understanding of what the impacts were before we could go out and really

do those surveys and make them effective, and so it just doesn't seem that we've gotten to that point.

MS. LONG: Great, I get that, but I mean, we're being told continuously that we've got to wait until like the Draft License Application, like for some of these specifics of what the project's going to look like and the impacts and stuff, that's the impact assessment, you know, after all these surveys. So I'm just questioning when that's -- when you're going to get that information and when it's going to get done in this whole ILP study plan process?

MR. KING: I think our -- the modification that we're asking for and the question would move it after the IL -- is that after...

MS. MCGREGOR: It moves it to the license application.

MR. KING: Yeah (affirmative).

MS. MCGREGOR: So it's just a timing issue. I mean, there's a lot of work that occurs between the USRs and the license application, but that's kind of where we do the impact assessment. That's when we take the results of all of these various studies and what they've found and you integrate them and then that's when you write your -- I mean, you assess

the impacts and that's where you present it, is in your license application.

MS. THOMAS: But a question about that, Betsy, because for some of the studies, at least I know for the recreation and aesthetic studies, that was a study objective. So the studies, I don't think could be deemed complete by FERC until that's been done. It wasn't just collect data for the impact assessment. It was actually perform the impact assessment.

MS. MCGREGOR: It's study-specific. So you'd have to look at what the objectives are within a study to see, and if -- and there are very few cases where we have been -- and these studies, or some of them, where we've proposed to put that in the license application.

MS. THOMAS: Okay, so...

MS. MCGREGOR: So if the objectives in the Aesthetics Study say that we will do the impact assessment within that study, then that's where it is. Some of them, it's just harder because it's an iterative process.

MS. THOMAS: I understand, but...

MS. MCGREGOR: So you can't just put it in the USR.

MS. THOMAS: I understand, but does that mean -- I mean it seems to me, if there's even one study out of 58 where you're required to actually

do the impact assessment in the study, that means you're going to have to come up with, you know, construction and operations details before the DLA for that study, even if you don't need to do it for the other 57, we need it for that one study.

MS. MCGREGOR: I think to a certain extent, I think you need to look at the resources and the impacts. There are some resources that won't be driving operations as much as others or the optimal operations, I should say. There's a different sensitivity to different resources to different project operations.

MS. THOMAS: I guess I'm sort of asking the question: "Do we know that for any of the studies where you actually are required to do an impact assessment in order to consider the study complete, do we know that none of those studies are sensitive to alternative operations and construction?"

MS. MCGREGOR: I wouldn't say that resource areas aren't sensitive to project operations, but it's -- I think it's the amount that they're sensitive to project operations. If we know -- okay, so for the updated study report, to help clarify, for all the riverine modeling, we plan on

having baseline conditions and one operating scenario.

So that kind of puts the bounds on it. So we may, in our USR for aesthetics, for example, that may be what we took -- we've talked about qualitatively the impacts associated with that, those two scenarios, but from a baseline to, I don't know if it'll be intermediate load following, it probably would. We'd want something more along the lines of what would likely happen for an operational scenario, but we are also -- we've already identified we're doing maximum load following, so that -- because it's a boundary. That would be, you know, the two bounds.

We know for some, it would be run of river because FERC asked for it, but we're not going to have all of those various scenarios in the USR, but we will have a baseline. We will have an operating one, that all of -- everybody considers through all studies.

MS. THOMAS: Thanks.

MS. MCGREGOR: So -- but then it's, you know, it's iterative after that.

MS. THOMAS: Sure.

MS. MCGREGOR: Until you get to what's more optimal, when you

consider all the resource areas and...

MS. THOMAS: Trade-offs.

MS. MCGREGOR: ...and that's what will be in the licensing.

MS. THOMAS: Yeah (affirmative), okay, thanks.

MS. LONG: This is Becky. This is Becky Long again. So again, I'm not real familiar with all the components of this project. So there needs to be some sort of baseline of -- I mean, it's really hard to talk about quality of life, but I'm speaking for a lot of my members. I mean, there's quality of life components of our members and SRC that go beyond just I live here because of recreation.

I mean, people live here. They spend time here, more than just beyond recreation. There's a lot of other things. So I want to make sure this gets captured and even if we don't have an idea of the dam impact or the dam operations and done in a risk assessment, I want to make sure it gets captured in the baseline that there are people who are here for various -- I -- well, anyway, I just think it's an important baseline component.

MS. MCGREGOR: I mean, Jonathan can speak to the -- this baseline, but my understanding is all of these studies are going to give you

baseline. I mean, that's what we're trying to report out, but we have some -- because of the amount of uncertainty that's going on right now socially in our -- and economically, I mean, I think that's part of the concern. You don't want to be doing these surveys and then they're going to be outdated because as we get closer to license application, things may be -- it may be a very different picture.

MR. KING: My recollection from the study plan is that the Quality of Life Survey was not -- was an impact-associated survey. So I mean, Cassie mentioned that, you know, some of our study plans are -- have some impact orientation and we're one of those groups where some impacts got written into our study plan and I seem to remember that the Quality of Life was associated with impacts and less so with the baseline, but I would have to go back and review that particular component of that study plan.

MR. GILBERT: Okay, sure.

UNIDENTIFIED SPEAKER: (Indiscernible - speaking simultaneously)...

MS. WOLFF: Can I -- this is Whitney. Can I follow up on that,

please?

MR. GILBERT: Whitney...

UNIDENTIFIED SPEAKER: If it's a follow-up, let her go.

MR. GILBERT: Okay, go ahead, Whitney, and then we have another question here. Go ahead.

MS. WOLFF: Okay, if you want to take that one first, that's fine. I can wait.

MR. GILBERT: No, you can go. You've got it, if it's a follow-up, especially, go ahead.

MS. WOLFF: Okay. I'm just, you know, rereading the objectives of the study and I guess I still feel like bio-physical attributes of the river system, you know, this was -- the goal of the study was to describe these -- what bio-physical attributes of the Susitna River system may change as a result of the project and those effects on commercial opportunities, which you just reiterated again.

I just -- if we don't even do the survey and have a chance to analyze the methodology, how are we going to guarantee that we can achieve that objective? I understand that we're in uncertain times, but if we don't do

something, how will we know by the time we're at the licensing application, how will we know that we don't need to modify how we're doing it?

MR. GILBERT: What -- Jonathan, you are doing -- you're describing bio-physical attributes, right?

MR. KING: Yes, I mean very much through -- so through the RUM study, yeah (affirmative).

MS. WOLFF: Yeah (affirmative), I mean I see that you've, you know, you've documented this preliminary list of specific attributes of the river corridor and of the watershed and some non-use value, I mean, a lot of the quality of life, I think what Becky's trying to say, could have non-use value and I mean, I just see that information just from the pre-app document and from secondary sources, but it does seem like some of the work could be done, at least for the licensing participants to assess how appropriate it's going. I mean, that's the point of this juncture in the process, right?

So I am a little concerned about that, as well, and one more point I had made just in my notes of reading this is, I am a little concerned that

most of the, even with the REMI, it seemed like that you could only get secondary sources of only incorporated communities. Obviously, you're looking at their budgets and such.

So I had a question for Jonathan whether -- how he plans to identify socioeconomic effects and changes on unincorporated communities and...

MR. KING: Well, we would have...

MS. WOLFF: If he could answer that?

MR. KING: Yeah (affirmative), this is Jonathan. I mean, we would have -- you would have population data and those sorts of data for the unincorporated locations because the Census Bureau collects that data. With respect to finances and government finances, you can only have those impacts where a government entity traditionally exists and so an unincorporated community is traditionally either within an organized borough or within the unorganized borough with the State of Alaska, and so the fiscal impacts would accrue to the borough or unorganized borough in which that community resided.

You know, so for example, if you're looking at Nikiski, they are an unincorporated community. Their fiscal impacts are driven through -- it

would be expressed by the Kenai Peninsula Borough, because that is their organizational level of government.

MS. WOLFF: Okay, and lastly, can you just remind me why Houston was added as a modification?

MR. KING: Because of the transportation impacts at that time, correct, MaryEllen?

UNIDENTIFIED SPEAKER: Yeah (affirmative), because it's on the road.

MR. KING: Because it's on the road system.

MS. WOLFF: Okay, well, I would like to just put on the record again, I know I've stated this in October 2014, that I'm still very concerned that Willow's not added to that. If the reason for adding Houston is that there'll be increased traffic through that community on the Parks Highway, it's almost identical to the Willow community and I'm just -- last year or two, you know, a year-and-a-half ago I was again concerned that it's not added and I'd just like to reiterate my question of why it's not.

UNIDENTIFIED SPEAKER: (Indiscernible - too far from microphone).

UNIDENTIFIED SPEAKER: Yeah (affirmative), but I think it's the rail, Houston.

UNIDENTIFIED SPEAKER: The rail.

MR. KING: Yeah (affirmative), Houston is where the rail comes -- the new rail spur comes through.

MR. GILBERT: So products, goods, construction goods are on that route, whereas they're not predicted to be on the route through Willow. That has...

MR. KING: Yeah (affirmative), I don't -- yeah (affirmative), I need to go back, yeah (affirmative).

MR. GILBERT: To the extent -- certainly not to the extent.

MR. KING: Yeah (affirmative), not to the extent, so...

MS. LONG: Yeah (affirmative), you can look at the transcripts from October 2014. This is Becky Long again. Mike, Whitney and I were talking about this. I mean, Willow is a jumping-off point for people in the Bush, for in the summer, for people going up and down the river. I mean, it's crazy that you would have Houston and not have Willow of Deshka Landing, and the train, the new rail for -- yeah (affirmative), well,

whatever, the regular train goes right through it.

UNIDENTIFIED SPEAKER: It's a good question.

UNIDENTIFIED SPEAKER: Yeah (affirmative), I don't have a...

MS. LONG: No, it's disappointing that it hasn't modified to include it.

MR. GILBERT: No, it's (indiscernible - speaking simultaneously). It's a good point.

MR. KING: Right.

MR. GILBERT: Comment noted and it's good you brought it back up again.

MR. KING: Yeah (affirmative).

MR. GILBERT: Because it's a refreshed comment and so we'll take that into consideration.

MS. MCGREGOR: And...

UNIDENTIFIED SPEAKER: (Indiscernible - speaking simultaneously)...

MS. MCGREGOR: ...people have to propose these as modifications.

UNIDENTIFIED SPEAKER: Yes.

MS. MCGREGOR: You have to file this with FERC as a proposed modification.

MR. GILBERT: Yeah (affirmative).

MS. MCGREGOR: So there's, you know, a mechanism on the record.

MR. GILBERT: So put it in your comments, since that's your suggested modification.

MS. LONG: Well, these are our comments right now, too. I suppose that would clarify. Let's make it as a -- we propose a modification that you put Willow on. Is that okay?

MS. MCGREGOR: Not process-wise. So if you have a proposed modification or a new study plan, you need to file that with FERC and look at the regulations.

MR. GILBERT: 515, 18 CFR 515.

MS. MCGREGOR: Kirby had them in the -- in his presentation. If you're in the room, they're up on the wall here.

MS. LONG: Okay, I have those. I have those, but I thought these

meetings, we could propose modifications and it would be adequate enough. I mean, I will put it in my comments, but what are these comments in the meetings for if (indiscernible - speaking simultaneously)...

MR. GILBERT: Well, it's to discuss it.

MS. LONG: ...on the process.

MS. MCGREGOR: It's to discuss it. It's so we're available to talk to you, answer questions. We're listening to you. I mean, we'll take these into account and consider them, but the meeting summary is only going to sum up what's occurring here and there were a few items that FERC told us it was okay if we follow up on before the April, our April 24th filing, you know, we'll capture that in our meeting summary, but our meeting summary doesn't constitute us approving of a proposed modification and because there's criteria in the regulations, I don't think that's enough for it just to be captured in the meeting summary.

MS. WOLFF: I think -- this is Whitney, just what I stated, very often during discussions or work group meetings like, for instance, the addition of Houston and Wasilla, those can be modified without formal

study modification requests, based on, you know, the demand of the study being more effective with the inclusion of those additions. So we have seen -- this was a modification that didn't necessarily require the full study modification documentation and so it is disappointing that Willow wasn't included in that, but we do intend -- I know at least councils, local councils, both Willow and Talkeetna do intend to request that.

MR. GILBERT: Okay. That's fine, good. Corrine, you have a comment and you've been waiting for -- a question?

MS. SMITH: Or I just had a clarification, Jonathan, so I think you said that you're going to hold off on the Quality of Life Survey and you explained why, and so if you hold off on that, you can't complete the RUM model and so we won't see a completed RUM model with the USR? It'll be -- that'll be later or you'll redo it?

MR. KING: The Quality of Life Survey and the RUM model are not connected in that way.

MS. SMITH: The Quality of Life Survey doesn't go into the RUM model?

MR. KING: Does not feed into the RUM model, because the RUM

model looks at...

MS. SMITH: Okay.

MR. KING: The RUM model looks at recreation and is based upon differences in recreation attributes, and you know, recreation site attributes and travel costs, and that's not associated with the Quality of Life Survey. So they're not connected.

MS. SMITH: So the Quality of Life Survey stands on its own?

MR. KING: It does, yeah (affirmative).

MS. SMITH: It doesn't go into any of these. It just tells us, "Here's what people say they're quality of life -- how it's going to change," and so the RUM model, though, did you say that that's going to be put off until the licensing process?

MR. KING: Yes.

MS. SMITH: And so we won't have a completed RUM model with the USR. We won't see that until the license application.

MR. KING: Yes. What we won't have is we won't have any scenario analysis. So the RUM model itself is complete and it's functional and it's (indiscernible - speaking simultaneously)...

MR. GILBERT: So it's built and you can describe it?

MR. KING: It's built and we can describe it. We can describe the inputs that went into it. We can describe recreation within the area in comparison to recreation across a whole bunch of, you know, different sites and people can look at that data and say, "Okay, well, here's the, you know, the relative importance of these sites or the relative frequency of usage at these sites," but the actual modeling of say, you know, the fish study says that fish populations here are going to be affected. Okay, well, how does that convert into a change in site selection by anglers? We won't have that until the licensing, until the LPA, license...

UNIDENTIFIED SPEAKER: PLP.

MR. KING: PLP.

UNIDENTIFIED SPEAKER: Or DLA.

MR. GILBERT: DLA.

MS. SMITH: Okay, all right, so we'll understand the model. We just won't have -- we'll have baseline results, but nothing else.

MR. KING: You'll have baseline results, right.

MS. SMITH: Okay, thank you.

MR. KING: So I'm afraid it took longer than 10 minutes for each of my studies, but thank you for the comments.

MR. GILBERT: It was very good. It was very good discussion.

MS. MCGREGOR: And we'll make sure in our meeting summary that we describe this fully, the modifications that we've proposed, so that there's something in writing that's a basis for people to comment on.

MR. GILBERT: Right, yeah (affirmative), and any input.

MS. SMITH: I have a question related to that. So modifications, I don't know how many modifications are in other studies and, I mean, these are understandable, these economic modifications because of our current state. Since they didn't show up in Part D, how do we know what the changes were in other studies? If we weren't at these meetings, they're going to come out in the meeting summary or are you doing another Part E that says, "Here's the modifications since we published the ISR"?

MS. MCGREGOR: So in our meeting summary, we'll -- to back up for one thing, there's very -- I don't want to say there's not -- and I'm thinking this is the only one, but I'd have to verify that, where we actually proposed a modification since the ISR D. went out.

For the most part, what has occurred, are things that showed up as variances -- as modifications in the ISR Part D. became variances. The variance has been implemented. The modification is moving forward. So it's just more of a timing (indiscernible) implementation.

We tried to clarify that in these presentations. So the presentations will be filed as part of the meeting summary. So right there in the meeting summary, we'll refer you to the proposed modifications that are presented there, but they're all more fully discussed in, except for this case, so we'll make sure. We'll look. They're all more fully discussed in other documents that have been filed with FERC, either in the ISR Part C., if they were proposed a while ago, or within the study implementation, our study -- or the Study Implementation Report. So there's a place that you can go where they're more fully described. This particular instance, we had -- we don't have that in any further description.

MS. SMITH: This is unique, okay.

MS. MCGREGOR: So we will make sure...

MS. SMITH: Because I mean, otherwise (indiscernible - speaking simultaneously)...

MS. MCGREGOR: ...we capture it in the meeting summary so it's very clear and you have a basis of something to comment on and Jonathan will provide the rationale and...

MR. GILBERT: Yeah (affirmative), the meeting summary should be reviewed. It's very iterative in the ILP process. So that's -- the comments in June, it's June 23rd, are about the meeting summary and everything to that date, so...

MS. WOLFF: So just one last process question, this is Whitney, I just want to make sure I'm totally understanding this...

(Interference with speaker-phone)

MS. WOLFF: Can you hear me?

UNIDENTIFIED SPEAKER: Yes.

MR. GILBERT: Yes, go ahead.

MS. WOLFF: Okay. For communities that are being assessed for economic and/or social effects, they won't know any results of any impact assessment until the licensing application?

MS. MCGREGOR: The draft license application, so AEA puts out a draft license application and I apologize, I don't remember all the timing of

the FERC license process at this point in time, but then there's a comment period in there. I mean, people can...

MR. GILBERT: Ninety days.

MS. MCGREGOR: ...comment on the draft license application. It's out there for 90 days, and then we put out a final license application. Jonathan would like to speak to what you just asked more specifically, though.

MR. KING: I'd like to -- yeah (affirmative), I think I'd like to clarify that. For 15.5, which is the regional economic portion, we will have a discussion of impacts in there. That's something that's accomplishable with the IMPLAN. Will it be the same level as it was with the REMI model? No, but we will have that discussion in there. The results from 15.5...

MS. WOLFF: Okay, and when -- when will that discussion be available?

MS. MCGREGOR: In the Updated Study Report.

MR. GILBERT: USR.

MR. KING: Yeah (affirmative), in the USR.

MS. WOLFF: Okay, in the UR, okay, okay.

MR. KING: So within 15.6, those social components, and you have to remember that the vast majority of 15.6 is these socioeconomic components that are not associated with the RUM model and not associated with the Quality of Life, right, is that we will update 15.6 with the impacts as they come out of 15.5.

So we will look at the data that comes out of 15.5 and the other studies as they are available and we will write the socioeconomic impact in 15.6 as documented in, you know, as proposed in the study plan. I mean, so those impacts in those communities, yes, they will be able to see those impacts.

Will they be able to see the RUM model in this current -- under what's proposed? No, they wouldn't be able to see the impacts from the RUM model, but they could see the, you know, they could look up their creek and see how many people were counted as fishing on that creek and so on and so forth.

So I thin it's very clear -- we need to be very clear that the idea that nobody will be able to see any impacts, that's not correct. The social

impacts, yes, we expect to have those there. The RUM model and the quality of life impacts, we do not expect to have those there and that's -- there's a distinction there.

MS. WOLFF: Okay, thank you.

MR. GILBERT: Okay, thank you, Jonathan, good discussion.

AIR QUALITY STUDY (Study 15.9)

MR. GILBERT: And if we can now, I think we'll go onto the Air Quality Study, MaryEllen.

MS. TUTTELL: Okay, Phil, are you on the phone?

MR. DEVITA: Yes. Can you hear me?

MS. TUTTELL: Yes.

MR. GILBERT: Absolutely.

MR. DEVITA: Excellent.

MS. TUTTELL: So Phil DeVita from HMM&H will present those. Go ahead, Phil.

MR. DEVITA: Okay, I didn't know if the slides are coming up or...

MR. GILBERT: They are, and you can just tell Dan to toggle when you're ready for your next slide.

MR. DEVITA: Great, great, thank you. Good morning everybody. So yeah (affirmative), here's the -- basically a summary of the Air Quality Study results that we prepared and next slide is fine.

So the study of the -- the status of the -- here we go, the objectives, here we go bouncing around, yeah (affirmative), the study objectives are basically broken down into nine components. I know we went over a lot of these in the ISR meeting, but basically, the -- we assess the current conditions of the area against federal and national air quality standards, review and summarize existing air monitoring data from the Alaska DEC and EPA, along with the National Parks Service.

We also determine the attainment status for the project area, based on EPA designation of the area and we -- one of the objectives was to quantify short-term and long-term construction and operation emissions, and you know, if we had detailed design criteria, we would analyze ground-level impacts and evaluate indirect mobile source emissions from any additional traffic generated.

We would compare the project emissions to the without-project alternative and that's basically assuming the 2.8 million megawatt hours of

electricity produced from the project would be produced by the Railbelt and not the project, and then we would also do the opposite, which would be evaluate potential emission reductions from the Railbelt fossil-fuel utility, assuming the project would be operating. So that basically assumes the project would be generating the 2.8 million megawatt hours and basically displaces the generation from fossil-fuel plants, and then we also would develop information for potential mitigation measures to reduce emissions during construction, where we would focus on construction equipment and earth-moving activities, including, I believe it's dust control methodology from Alaska DOT.

So next slide. So basically here, the components of the study were broken down into five parts, separate parts to meet the project objectives. The first part is to document the existing conditions. The second part would be to estimate the project emissions, third, summarize the baseline fuel emissions from the existing Railbelt facilities and analyze and compare those emissions to with and without the project, and like we said before, identify best management practices to mitigate air -- construction and air quality impacts and a lot of these initial estimates were prepared in

the ISR Part A section.

Next slide. So variances, yeah (affirmative), we did have a variance from our initial study or outlay and they were identified basically to address the available information in order to meet the objectives of the study.

For this variance that we had to address, you know, it dealt mostly with quantifying the project emissions based on the latest data that would be available from the construction activities and from operations of the facility.

So originally, we were hoping to do a quantitative analysis, which would basically define what the emissions would be from construction equipment activities and along with, you know, aircraft and rail, and you know, indirect source from more vehicles accessing the site, if we had, you know, a schedule of that data, more precise data, in the -- originally in the 2013 ISR, it was deferred because we were trying to see if additional information would be available and then we did review the Engineering and Feasibility Study in the SCR, which had a lot of information in there, but the current level of information in there was not sufficient for a

quantitative analysis and did not allow us to, you know, estimate actual emissions from project equipment.

So therefore, you know, in order to, you know, assess those emissions, we did a qualitative assessment of the project related emissions, which we included in the SCR report.

Next slide. So here, we have the ISR, and just quickly, I know we went through this already, summary of results, you know, we looked at existing meteorological and air quality information and summarize the conditions of the area using nearby weather stations and air quality monitoring locations.

We assess the attainment designation of the area based on EPA designations. We evaluated qualitatively project emissions for typical construction activities. We assessed the Railbelt fuel generation emissions and those were summarized based on Alaska DEC emissions database for the seven Railbelt utilities.

We also looked at electric generation emissions and compared to with and without the project to determine the net increases in emissions without the project and the project displacement of emissions if the project

went online, and then we also looked at -- identified our preliminary best management practices based on a review of EPA's mitigation practices for construction activity, including engines and earth-moving activities.

Next slide. This is basically a summary of the results since the ISR that's part of the Study Completion Report where we reviewed and summarized the on-site meteorological data collected by AEA at the dam site and the two other nearby locations, AEA's locations at that Watana Dam, the Indian River, and the Oshetna River, meteorological locations.

While we were doing that, we also updated the climate and meteorological tables in the ISR to reflect more recent 2014 meteorological data. Similarly, we did the same thing with the Indian air quality tables to reflect the most recent three years' of data available by the Alaska DEC and the National Park Service.

We also reviewed and incorporated the AEA Engineering Feasibility Report into the qualitative discussion of project emissions where we address construction emissions, fugitive dust emissions, transportation and operation emissions in an qualitative manner, since the level of detail wasn't there in those reports to quantitatively assess those assessments,

those emissions.

Then we also reviewed and summarized the most recent dust control research collected by the DOT and the public facilities, along with the University of Alaska Fairbanks Transportation Center and incorporated those results into the best management practice, is where we summarized five additional best management practices from the original ISR. We've incorporated those latest research.

Next slide. As proposed modifications, there was -- for the study, there's none, as we stated, beyond the variances we noted earlier. Next slide. The current status of the report is that the data collection and the analysis, the reporting for the study was successful and was completed and the Study Completion Report was issued and filed with the agency, and that's where we are. So any questions?

MR. GILBERT: Thanks, Phil.

MR. DEVITA: Yeah (affirmative).

MR. GILBERT: Questions for Phil, Air Quality Study?

MS. LONG: Are you taking questions now?

MR. GILBERT: Sure, for air quality, anything for Phil.

MS. LONG: Somebody in the room do a question?

MS. NOVAK: Yeah (affirmative), I have a question. Suzanne Novak from FERC.

MR. GILBERT: Okay, sure, Suzanne.

MS. NOVAK: I noticed that you plan to do a quantitative analysis on O&M activities and I didn't see anything about construction activities. I'm assuming that's planned, as well, at a later date. When would that be done?

MS. TUTTELL: I think at this time it's proposed as part of the license application.

MR. GILBERT: Yeah (affirmative), part of the license application. I think, you know, this study has a similar theme...

MS. NOVAK: Okay.

MR. GILBERT: ...to the other ones. It's identifying impact mechanisms, some impact analysis in a general sense and as the licensing proposal is shaped, it will have more detail for impact analysis in the DLA.

MS. NOVAK: Okay, and that's for construction and O&M, both?

MR. GILBERT: Sure, like all the resource areas, it will have to go

through that.

MS. NOVAK: Okay. Okay, and that's the final license application phase or would it be the draft?

MR. GILBERT: Well, a draft -- the DLA draft license application.

MS. NOVAK: Okay.

MR. GILBERT: And then comments formulate and then the final proposal of the final.

MS. NOVAK: Okay. All right.

UNIDENTIFIED SPEAKER: Was that Whitney?

UNIDENTIFIED SPEAKER: No, Suzanne Novak.

MS. NOVAK: Thank you.

UNIDENTIFIED SPEAKER: Sorry. Thank you.

MR. GILBERT: Other comments or questions for air quality?

MS. LONG: Yes, this is Becky Long again. I did file a modification request officially with FERC after the October ISR meeting. So I won't go into it. You know, I did under the -- I'm doing it under the fact that you can do modifications if environmental conditions have changed in a material way and I hope that FERC would also interpret that

as the environmental condition in the high latitude areas, the project area, they are changing in a material way because of climate change. So I will -- I have made and will continue to make a modification request for 5.2 Project Emissions, would be a quantification of greenhouse gas emissions from reservoir inundation, permafrost melting from project development, along with climate change, and also cement production emissions, and I, you know, since I have to do it officially and not through any discussion, I -- that's all I have to say. Thank you.

MR. GILBERT: Okay, that's -- thank you. That's helpful. Any other questions for Phil and the Air Quality Study Completion Report?

(No audible response)

TRANSPORTATION RESOURCES STUDY (Study 15.7)

MR. GILBERT: If it's okay, because MaryEllen's here on point for one more study, perhaps we can move to the Transportation Study? It's closely linked to the air quality in some senses, so if that's okay with everybody, and then we'll do the break? Is that okay, and then it will help MaryEllen manage the rest of her day.

MS. TUTTELL: I appreciate it.

MR. GILBERT: Go ahead. So now we're going to do 15.7 Transportation Study update.

MS. TUTTELL: So this is MaryEllen at DOWL and I'm going to go quickly through the things that were already discussed at previous meetings and focus more on kind of what's changed since the last meeting.

So let's see, so basically, the status is we completed obtaining existing information, doing forecasts using existing information for various transportation modes. The one thing that was not completed was the individual interviews and additional information gathering on river and trail transportation uses in the area.

So again, the objectives of the study are looking at the current situation with transportation, as well as looking at a potential for impacts on the transportation systems with-the-project/without-the-project in the future.

So the components were collecting and reviewing transportation data, putting together an asset inventory, documenting, again, the existing conditions of the facilities and use levels and then forecasting future conditions.

Variances, as talked about before, we did add Seward and Whittier to the study area. They weren't originally identified in the study plan, but because those ports, particularly Whittier, are expected to be used, we added those in.

We did limit the information on bridges to those bridges that seemed to have some type of condition that would require modifications for the project. Again, the river travel data still remains to be collected. Forecasts for highways were documented from existing traffic levels and historic growth rates.

Aviation forecasts, we're using published aviation forecast data, and for right now, the potential effects on river use were evaluated qualitatively.

So I'm not going to go back through the inventory. That's been in the report since the beginning and again, the existing conditions have not changed since our last meeting.

We did add in, since the last meeting, the proposed project facilities, including the gravel access roads, the road improvements on the Denali Highway, if one of the Denali corridors were to be used, intersection

issues, traffic related to project-related vehicles, the aviation, the airstrip that's proposed to be -- and helicopter pad proposed, the new rail facilities proposed if Gold Creek or Cantwell are to be used and talked about some of the other kind of non-traditional transportation resources that may be used for specific large pieces of equipment.

We did look at the effect qualitatively, in terms of the increased traffic for the different potential access routs. Again, the issue in Whittier with increased traffic congestion coming out of there if that port is to be used, the potential for increased air traffic at some of the airports in the Mat-Su Borough and the change in traffic on the Denali Highway if the Denali corridors were to be used, and again, that is probably the largest increase in truck traffic percentage-wise and things, is within that area, but again, it's -- the expected level of transportation on that highway is still within the highway design capacity.

Aviation, again, it would increase passenger and cargo operations, but it seems like the regional aviation system, other -- there is some congestion in the Mat-Su area, but the operations expected for this would not be expected to really have any substantive impact on any of those

operations.

We did look at the rail capacity and there's a low likelihood of conflict between the rail capacity needed to support construction of this project, and again, a lot of these effects are heavier during construction because of the amount of transportation needed to get materials to the construction site.

The Whittier port, it would be significant increase in operations in that location. It does look like the capacity is available because right now, there's a pretty low use of the area and there are other ports that can supplement it if the need arises.

Again, we did a qualitative look at changes on the river and the potential for activities in the area to affect river transportation, both during construction and during operations, but that's the one area that we still need some additional data collection to look more closely at river transportation changes.

So the proposed modifications, originally, we were going to do a new traffic demand model or use a different traffic demand model, but given the low levels of traffic and the low levels of growth in traffic on the

highways, it was determined that using the historic growth rates and projecting it out was probably just as accurate as using -- trying to model it. We did use existing aviation forecasts and again, the river forecasts were qualitative and need to be updated with more information with interviews.

Again, the effects were qualitatively evaluated based on what we could obtain, in terms of projected transportation for both construction and operations from the Engineering Feasibility Report.

So what's left is really to do the interviews with knowledgeable individuals in the area to gather more information on both current and future river and trail use to more adequately evaluate potential effects on those uses. So that's pretty much it.

MR. GILBERT: Okay, thanks.

MS. THOMAS: I have a question, if I may?

MR. GILBERT: Sure, go ahead.

MS. THOMAS: And again, it's Cassie Thomas. MaryEllen, when you do the interviews with the river and trail users and presumably, these are -- a lot of the subjects would be the remote residents who use the river

to get up, and you know, to get...

MS. TUTTELL: Right, non-recreation transportation.

MS. THOMAS: Exactly. Are you -- would you also look at their use of the Alaska Railroad? Is there a potential -- you said that you didn't think the railroad use by the project would impact like, you know, the tourist trains and things like that, but could it impact people who would use the whistle stop?

MR. TUTTELL: Yeah (affirmative), we don't see any -- we didn't see any impact on that. We did discuss the use of the railroad by people who use it to access remote cabins and things in that area. So that was addressed.

MS. THOMAS: Okay.

MS. TUTTELL: Because we did talk to the Railroad about that.

MS. THOMAS: Okay, so that's not going to be part of the river and trail interviews?

MS. TUTTELL: No.

MS. THOMAS: Okay, thanks.

MR. GILBERT: Okay, thank you. Other questions for MaryEllen

on the progress report to date, transportation?

MS. WOLFF: I've got a question. This is Whitney Wolff.

MR. GILBERT: Sure, go ahead.

MS. WOLFF: I'm wondering if the interviews with the knowledgeable individuals to gather current and future river transportation use has been developed, and what timeline ahead is laid out for that phase?

MS. TUTTELL: It would be done prior to the USR. I'm not sure what the timeframe is at this point. The study instrument has not been developed yet. We've been looking at the ones that have been used for the other study areas to make sure that we're not duplicating information and -- but yeah (affirmative), the study thing has not been approved yet.

MR. GILBERT: Yeah (affirmative), it hasn't been completed yet and there's no definitive timeline like the other future work.

MS. WOLFF: Okay, and then my next question has to do with 5.5.1 with the airport. Hearing your presentation, you were saying it shouldn't have an impact, but in 5.5.1, you discussed that you think there may be effects to regional airports, such as Talkeetna Airport, and I just wonder if there's definitive data to where we could find that -- the data that you're

basing those -- the congestion concepts on?

MS. TUTTELL: Yeah (affirmative), again, it's qualitative, because we don't have the data at this point to know where people will be transported from, in terms of both construction employees and employees during operations, but we assume that there could be, you know, gathering points at some of the smaller airports and communities around the area, but without knowing where those people are going to be -- where the locations will be where people will gather to be transported to the sites, it's just a qualitative assessment at this point.

MS. WOLFF: Okay, and that leads me to my next question is, is this a holding pattern we're in, where we're going from quantitative to qualitative and eventually, we will get the originally agreed upon quantified information or are we not ever going to go to the quantifying realm and we're going to stay qualitative? Do you intend to go beyond qualitative or is this where you're stopping?

MS. TUTTELL: I think the modification we're requesting to the study plan is to do qualitative for this, for the USR, and then the quantitative data would be part of the licensing application.

MS. WOLFF: Okay. Okay, and then I wanted to get back to the impacts that you found on the rail for the Talkeetna area, about bridge expansion. You referenced in the study Talkeetna River bridge. You referenced Billion Slough bridge and the banks of the Susitna rail proximity, and I'm wondering the extent of that and whether that's been economically quantified?

MS. TUTTELL: We have not economically quantified it. For the transportation study, what we're looking at are the potential impacts on existing transportation systems and the transportation systems in the future, and so it was more of a look at the condition of the existing system and whether changes would have to occur to it to be used for the proposed use for the construction and operations.

MS. WOLFF: Right. Yeah (affirmative), I heard that.

MS. TUTTELL: So we worked with the Railroad...

MS. WOLFF: That you have wider loads, yeah (affirmative), I understand that. I'm just wondering to what extent you detailed what you -- what the project would require.

MS. TUTTELL: Yeah (affirmative). No, we did not go into a

detailed engineering study of what would be required. We based it on some of the information from the Railroad and some of the information in the Engineering Feasibility Report.

MS. WOLFF: Okay, and then just one final on the Su River transport, 5.5.5, you know, there's reference in the study that the project operations could change river flows and ice (indiscernible - interference with speaker-phone) location. So once again, I just want to get the timing on this. These changes to river transportation, you're saying we will see that in the USR?

MS. TUTTELL: Correct, that is -- the proposal is that the river use interviews and assessment of impacts on river travel would occur prior to publishing the USR.

MS. WOLFF: Okay, and just for the record again, I stated this last year, that the barge activity on the Susitna River by Willow is a non-recreation -- some of it's recreational, but there's a good deal of that that's non-recreational, similar to the question asked of the Railroad of people using river barging as a means of access to get to their remote property. So I, once again, would urge the studies to incorporate that in this part of the

study that we had hoped it was done and it's not. Thanks.

MR. GILBERT: Okay. Okay, thank you, Whitney. Are there any other questions for MaryEllen on transportation?

(No audible response)

MR. GILBERT: Okay, then great. Then I think it's probably a good time for us to take a short break. So we'll put the phone on mute and I think if we can start up at 25 after, is that okay with everybody, 25 after the hour? It's about a 15-minute break and we'll start back up again promptly. Thanks.

10:10:49

(Off record)

(On record)

10:26:36

HEALTH IMPACT ASSESSMENT STUDY (Study 15.8)

MR. GILBERT: Okay, so we're back and now we're going to start in on the Health Impact Assessment, and so Sarah Yoder's here and I'm not sure, do we have...

MS. YODER: Marci Balge's on the phone.

MR. GILBERT: Marci, are you there?

MS. BALGE: (No audible response).

UNIDENTIFIED SPEAKER: (Indiscernible - too far from microphone).

MR. GILBERT: Okay, and real quick, before we do that, Betsy wants to say something here. Go ahead.

MS. MCGREGOR: Yeah (affirmative), I just wanted to clarify back to the discussion with Whitney and Becky with respect to proposed modifications. So we're documenting your -- what you're saying in these meetings and we will go back and think about it.

If we agree with the proposed modification or we choose to adopt it, we'll capture that in the meeting summary, as well. So I just wanted to clarify that and it's really in your best interest to file the why, if you will, with FERC, and why you're requesting proposed modifications. So I just wanted to clarify that.

MR. MITCHNICK: Yeah (affirmative), and this is Alan Mitchnick with FERC. I concur totally with those comments. You know, if agreement isn't reached, then we certainly would want a real clear

discussion of the reasons for the modifications so that we could do the best job we could evaluating those proposed modifications. So that's why we would like -- we like to see and the regs require that documentation be provided to the Commission.

You know, if something's agreed to at this meeting and it's documented, well, that's sort of a different thing, but you know, the written documentation is important so everybody can clearly see the rationale.

MR. GILBERT: Okay, could you guys hear that on the phone okay?

UNIDENTIFIED SPEAKER: Yes, we can.

UNIDENTIFIED SPEAKER: Uh-huh (affirmative).

MR. GILBERT: Okay, good. All right.

MS. BALGE: This is Marci Balge (indiscernible - interference with speaker-phone) can I go ahead?

MR. GILBERT: Sure. So Sarah, you'll do this...

MS. BALGE: Gary (indiscernible - interference with speaker-phone) also is here with NewFields. I'm assuming someone there is going to drive the slides.

MS. YODER: Yes, Marci, it's Sarah. I'm here.

MR. GILBERT: Sarah's here to do that, Marci.

MS. BALGE: Okay, perfect, okay, let's go.

MS. YODER: Well, you know, I can't get it to advance.

MR. GILBERT: Let's see, sorry.

UNIDENTIFIED SPEAKER: There we go, frozen.

MS. BALGE: Okay, (indiscernible - interference with speaker-phone) the status then is currently is that we completed the ISR Part D overview, the Initial Study Report in 2014 and Study Implementation Report, while all of the other reports were being developed in November of 2015.

Again, this is all documented. We've developed project-specific criterial for potentially affected communities. We coordinated our engagement programs to meet -- information needed for the HIA, identified potential project-related health concerns.

We initiated the analysis of available household level health data. We did some community health facilities and service field activities and conducted a data gap review (indiscernible - interference with speaker-phone).

Again, this is (indiscernible - interference with speaker-phone) with our objectives that haven't changed, with potentially affected communities, identifying issues and concerns about how community health might be affected, continuing to collect baseline health data during that period of time, identifying data gaps in coordination with other studies.

As you know, as everyone knows, we've talked about this at each of these meetings, we have many, many interdependencies with other studies. So while we were completing -- preparing the report at the end of last year, we still did not have access to the interdependence study reports that were necessary for potentially filling gaps identified. So there are still gaps out there that rely, as you've heard earlier today, on transportation, air, et cetera, et cetera, again, continue to evaluate baseline data as part of the objectives and prepare an HIA baseline data report document.

Go ahead, Sarah. Components, again identifying issues of concerns. These are all in line with what are objectives were, collecting the baseline data, identifying gaps, and evaluating those gaps against the project description to the extent that we had data available for the project description to again, determine potential impact pathways.

Go ahead, Sarah. Variances, there were no variances with our study plan. Go ahead. Summary of the results of the ISR, we documented baseline data that we've collected thus far. As available, we reviewed data from other study areas and again, identified potentially affected communities by potential risk.

Go ahead. Since June 2014, we already had this schedule with ADF&G. We collaborated with their team and community facilities and service observations and key informant interviews, along with (indiscernible - interference with speaker-phone) with the Fish and Game survey efforts.

We completed, again, an update to the data gap review and reviewed the interdependence study ISRs and looked at the Engineering Feasibility Study and identified sources of more current data and compiled that into the baseline data.

Go ahead. Data gaps, again, as I mentioned earlier, there are quite a few studies that we are dependent upon for information and data and for analysis of potential impact pathways. They're all listed here, and those were not available at the same time as we were completing our SIR at the

end of last year. So those are still studies that when complete would need to be reviewed and integrated into potential impact pathways for -- and also the baseline data situation on the health side.

Go ahead, Sarah. This is just a whole list of additional data gaps that we have related to the project description itself. Go ahead, Sarah, and results in the (indiscernible - interference with speaker-phone), in terms of data sources, these are all listed. We utilized updated versions of these data and as we discussed previously, the health data is on a rolling update basis, depending on the data source.

So in order to reflect the most current baseline health statistics in our report, we continually look at what's out there, in terms of epidemiology bulletins, labor and workforce development, et cetera. Trauma registry data, that's updated on a regular basis. Vital statistic data is updated, along with tribal health data.

Go ahead, Sarah. Modifications, the analysis in the Updated Study Report will not serve as a final HIA for the project. However, we will identify and evaluate or describe potential impact mechanisms and potential effects, but it will not be a final -- the final HIA for the project.

We will update the baseline health data to the most current available in order to provide input into that final HIA when -- whenever that's going to be completed.

Go ahead, Sarah. Steps to complete the study are all listed here. There are quite a few steps that still need to be conducted, reviewing, again, interdependent study results as they are available, continue to follow up with key informant interviews.

As we've discussed previously, the key informant interviews and the focus groups, as needed (indiscernible - interference with speaker-phone) the Fish and Game survey, then the TLK interviews. So those results all have to be completed first so that we can identify where gaps are where we still need to visit communities, either again or visit new communities, found any new areas that may be identified as potentially affected. That would still need to be done, continue to fill the baseline data gap, identify impact mechanisms and then we will also then, as we've discussed previously, integrate all of the key informant interviews, the community-based data that we've collected, according to the data release protocol through the Department of Health and Social Services, and again,

aggregate geographically according to health effects categories and by potential impact mechanisms.

Okay, Sarah, and then it's the list (indiscernible - interference with speaker-phone) the agency participants and I think that's the last slide. Is that correct?

MS. YODER: Yeah (affirmative).

MR. GILBERT: Yeah (affirmative), that's it.

MS. BALGE: Yeah (affirmative).

MR. GILBERT: Thanks, Marci.

MS. BALGE: Any questions of anyone then (indiscernible - interference with speaker-phone)?

MR. GILBERT: Questions, comments about...

MS. WOLFF: I've got a question. This is Whitney Wolff.

MR. GILBERT: Go ahead.

MS. WOLFF: I just want to make sure I understand correctly. I do understand that the HIA has to be up-to-date and that's why the USR will only be a template and that the final, again, we'll only see during the licensing application, but the USR will not describe any impacts, no

ranking, no weighting, it'll just be some kind of high-level overview, is that correct?

MS. BALGE: It'll be an identification of potential impact mechanisms, and you know, with our experience throughout the state thus far, some of them are fairly well-known and you can effectively identify those mechanisms. Sarah, you may want to add to that. We would not be ranking or rating at that point, but we would definitely identify those mechanisms based on what we've seen both in Alaska and worldwide and using the results of the interdependent studies, as well.

MS. WOLFF: I see. So even though you're saying, you know, some of those mechanisms are fairly obvious, you can't -- you can't report on any of those until the USR, until you get the results from these interdependent studies?

MS. BALGE: Yes. Yes, that is correct. That is correct.

MS. WOLFF: Okay, okay, and so just one more thing to follow up in your ISR Part C, it said you'd be identifying those mechanisms that in 2016, let's see, information not available in 2014 or '15, but will be available in 2016 as the study program is informing AEA on its licensing

proposal.

So will this be occurring in 2016 or is this phase three work being postponed?

MS. BALGE: Betsy, I guess that's a question for you.

MS. MCGREGOR: Sorry, I'm just trying to write something down. At the time that we proposed scheduled in the ISR Part C back in June of 2014, we were in a different fiscal situation and we had a different budget and so we were just trying to talk about what we were going to do in the next year's study.

I think we've kind of made it clear at this point in time, we have not put proposed schedules in for the next steps to...

MS. WOLFF: Right.

MS. MCGREGOR: ...complete the study and what we're finding with -- if you see some of these changes and like happened this morning, it's kind of a sequential thing. We need certain pieces of information of other studies to be done first and because we're not sure how we're moving forward, at this point in time, we're just trying to use the funds that we have remaining that have been appropriated a couple of years ago, to go

through fiscal year 17...

MS. WOLFF: Right.

MS. MCGREGOR: So until we get to a study plan determination and the State can reevaluate where they want to go with the project, we can't really -- we can't provide schedules. So that said...

MS. WOLFF: I understand. I'm just to coordinate our DNC here and like everything else on this, I'm just trying to kind of incorporate the Part D into Part C. I'm just confirming that.

MS. MCGREGOR: So since -- any schedules that we put in Part C, if they occurred, that would be evident and it would be evident in the ISR Part D. So for steps to complete the study, if you'll notice, there -- they don't have dates, unless it was a given it was in people's current scope of work.

MS. WOLFF: No, I just -- I -- but I see the same goal, to identify these impact mechanisms and that's fine. I just didn't know -- I didn't see any reference to that here under any modifications, other than this broad modification about this high level -- and I'm trying to nail down what that really means, so...

MS. MCGREGOR: So I'm not sure if I answered your question. We won't be doing that work in 2016.

MS. WOLFF: Yeah (affirmative). No, you answered it. I'm just trying to get a scope of what this high level would look like with what's left remaining to complete the study.

MS. MCGREGOR: Okay.

MR. GILBERT: Okay, so does that help you? They addressed a little bit of that, Whitney. Does that help you understand the impact mechanisms?

MS. WOLFF: It does, yes, just my last question, I know the REMI model was listed as something not done here. So can we assume that now that the new model will what this study will utilize? I forget what it's called now.

MS. BALGE: We would -- yeah (affirmative), we would use whatever is documented in our interdependent studies that is available at the time that we complete the USR.

MS. WOLFF: Okay, thanks.

MR. GILBERT: Any other questions for Marci or Sarah?

(No audible response)

MR. GILBERT: Okay.

MS. YODER: Thanks, Marci.

MR. GILBERT: Great, thanks a lot, Marci.

MS. BALGE: Okay, thank you. Thanks, bye.

MR. GILBERT: Great presentation, bye.

RECREATION RESOURCES STUDY (Study 12.5)

MR. GILBERT: So now we're going to switch gears, if everybody's ready, to actually go to recreation and that Tim Kramer, are you on? Donna's here, coming up to the table.

MR. KRAMER: Yeah (affirmative), I'm on. I'm here.

MR. GILBERT: Okay, great.

MS. LOGAN: Hey, Tim.

MR. KRAMER: Hey, Donna.

MR. GILBERT: So this is...

MR. KRAMER: Can you drive for me?

MR. GILBERT: ...Study 12.5.

MS. LOGAN: Yeah (affirmative), sure, I can do that. So do you

want me to go? Do we have to have a signal?

MR. KRAMER: Okay, I'll let you know.

MS. LOGAN: Okay.

MR. KRAMER: Sure, all right, well, hi, everyone. My name is Tim Kramer. I'm with AE Com. I'm the lead for the Recreation Study and joining me is Donna Logan with McDowell Group. She's the lead for the recreational use and demand portion of the Recreation Study. I'll start by giving a quick overview of the project so far.

Donna, can you go to the next slide? The main document that's been released since the October 2014 ISR meeting was the 2014 Study Implementation Report. The status of the various items are in it. Right now, the -- we first started off, we had the recreational, regional recreational analysis. This is complete. Nothing's happened since the ISR or the previous meeting. So nothing's changed there.

Trails, this is also complete now. Since the last meeting, we've added a little bit of mapping in the Butte Lake region and we've added a classification system for classified trails next to the project. The recreational use areas, this is still ongoing. We have -- there's -- we still

have to do some work for the NRRS in the ROS framework, applying that to the -- using the recreation data that we've collected in the state.

The recreational supply and demand in use, that's -- we've updated the ADF&G harvest data, but Donna will give some more information on this here in a bit and so, but this section is now complete.

Recreational facilities, we've mapped recreational facilities. There's going to be a little bit more information that needs to be collected for facilities to then be incorporated into the carrying capacity assessment. So that will need to be done in the future.

Then there's the survey effort, which is collecting visitor, telephone, mail survey data that's been completed. Donna will talk more about this. The same with the next bullet point, which is analyzing recreational use survey data. That is now complete and Donna will talk about that in a bit.

Donna, next slide. The objectives, these are the same objectives from the study plan, identifying recreational resources and facilities and commercial and non-commercial in the project area, identifying types and levels of current recreational use, looking and evaluating potential impacts for the project construction and developing data to inform the future

recreation management plan.

Next slide. Study components, I basically went through these in the status slide before, but the regional recreation analysis, trails, trail mapping, recreational use areas, inventory of facilities and dispersed recreation sites, and then the collection of recreational use data. So this is (indiscernible - interference with speaker-phone) nothing's changed there.

Next slide. Variances, so these are the same that were presented at the October 2014 meeting. Some of them were modifications and variances. They've all been combined now into variances. The main one is the Denali East Road option and transmission corridor. That change required us to add some additional buffers around the new corridor and identify the map and identify the trails in that area.

There's the State-issued Tier I, Tier II subsistence permits. They've been included into the analysis of hunting and trapping efforts for the recreational use and demand. Adjustment of the intercept survey and observational tally locations and the regional household mail survey was split into two parts to be more effective.

Next slide. As I said before, regional recreation analysis, this is

complete and it's -- no new information and analysis has occurred on this point. For trails, this is where most of the work has occurred since October 2014. This is -- this includes the mapping of the Lake Butte area, of the trails in the Lake Butte area for the Denali East option and these were -- these trails -- these new trails were mapped at a scale to 1:24,000. We've taken all the trail information that we've collected and created a trail -- or not created. We used the U.S. Forest Service trail classification system to classify winter and summer trails at the project nexus.

We have also created a subclassification system for the U.S. Forest Service Class 1 trails based on trail braiding information that we collected during our mapping effort and this is also represented in the latest report.

Next slide, please. This is just an example of the trail information that we collected. As you can see, it's fairly detailed and it meets the 1:24,000 requirement. This is just a sample of it. The full data's in the report.

Next slide, please. Recreational use areas, nothing has occurred since the October 2014 meeting on this point, on this section. Recreational supply, demand, and use, we've added -- we've updated the ADF&G

wildlife harvest data from -- to include from 2004 to 2013, and the same for the sport fishing survey database, we've updated it from 2004 to 2013, and that was the most up-to-date information that we have available when we published the study implementation report.

Next slide, please. Recreational facilities, this is the same information you saw in the October 2014 meeting. We've mapped and inventoried public recreation facilities throughout the study area. We mapped and inventoried dispersed recreation -- along the Denali Highway and we reviewed published information and we've done an assessment of signage, fees, conditions, and capacities. There's still a bit to do on this and then that will all feed into the carrying capacity assessment, which will come in the future.

Next slide, please. This is just an image showing the mapping of the recreational facilities. Next slide. This is where we go to Donna. Donna, it's all you.

MS. LOGAN: All right, thank you very much. There's a few people here that I haven't met before. So I just want to -- I work for a company called McDowell Group and we were hired to do the recreation demand

assessment portion of this work, and so some of this information has been presented before. So I'll go through it pretty quickly, but then we get to get to the results, which is really fun to share today, because we've been very anxious to get them out.

So we, you now, we looked at existing data that was out there, looking at different types of surveys that have been done in the area, trying to see if there was information that we could glean from those, gathering information from BLM, the State.

We also, there's a professor up in Fairbanks who's done quite a bit work in this field, as well, and we looked at his work. That's the Alaska Resident Statistics Program, and then the Alaska Visitor Statistics Program, which is work that McDowell Group does, and that, the last one, the Alaska, the AVSP, Alaska Visitor Statistics Program, was very important to the modeling work that we had to do for our section.

We also conducted new surveys as part of this. So we had an incidental observational survey that was just given to contractors when they were in the field. It didn't get used that much, honestly. People were busy, but we did get a few responses from it.

We also had a very large effort, as you know, to do a recreation intercept survey. We fielded for a full year. We completed over 1,000 in-person interviews, which is, you know, we're pretty -- we're pretty pleased with that because we -- it's a large area and we had to travel great distances to find people and so on and so forth. So it was quite an effort.

We also provided an opportunity for people to complete the survey online by leaving cards on their windshields, but most people, we were able to do it in-person.

We also did a large mail survey. We decided to break it up into two phases, 1) to allow some adjustment to the survey design, if needed, if we felt like there was a problem the first time, and also, for recall purposes, for seasonal recall purposes for people who are recreating and being able to time it so that it would be closer to the season that we were going to be asking some questions around.

We were very pleased to get over, you know, 27% response rate. We used the Dillman Method heavily, you know, the incentives and lots of postcards and things like that. That's typical, and then in the end, we weighted the sample. We weighted the sample based on our review of the

age of people that we were intercepting, income, and there was one other factor, location, residency.

So because not everybody provides their age, for instance, there are certain elements of the survey that won't get into the weighted survey results. So that's why you have a difference between the 3,982 total completed and the 3,555. You can't weight something that you don't know what to weight.

So we also conducted a non-bias telephone survey and that was to see if we were -- were we getting some bias in response, and we did find that there was some bias. One of the things of particular concern, we knew this going into it, is that we were working with voter registration lists for our mail survey list and so what about people who aren't registered to vote, and so the telephone survey showed us that bias, that people -- typically people who are not registered to vote don't recreate, outdoor recreate at the same level. So we made that adjustment when we did our modeling. So it was very helpful in that.

In the end, it doesn't make a really big difference because most people are registered to vote and so the numbers are -- don't really change

the results that much, but it was enough and we were able to make an adjustment for that.

So then we analyzed -- I shouldn't use this word, it's not very professional, but we analyzed gobs of data, just gobs and gobs and gobs of data, unbelievable amount of data and we looked at it and sliced it and diced it, my gosh, every -- yeah (affirmative), amazing. It was really, really fun. It was challenging, but really fun, but we looked at the intercept survey, analyzed the mail survey and looked at the bias, and then we also had an observational tally that we conducted, so that the tally was as our surveyors were going through, they can't survey everybody and we don't want them to survey everybody. There has to be some randomness to this, but we wanted to make sure that we were capturing what the activity was going on as we were going around, so giving us some sense of that, and we did some analysis of that as well.

It's not statistically valid. It's just another opportunity to document observed recreation and we had close to 3,000 tallies that we collected throughout the year. So it was quite ambitious. That tally data has been mapped. AE Com provided us some assistance in that. So some of that

information is mapped. So you can just see where the observed hunting activity was and so on and so forth.

So then we also -- as we're required to do this demand assessment and looking at users, number of users and total user days, and we also had to project that out 50 years. So we put this all into a big pot, built this model, make adjustments for things like non-voters, make adjustments for all kinds of factors that go into it, and it's tricky because we have to use our data from our mail survey, which is data that we're getting on residents and their activities, and then the intercept is the combination of non-resident and resident users.

So we had very good data from the mail survey for the resident portion and we had to work with the intercept portion for the non-residents. So when we go -- and then throw that together. So it was complicated, obviously, but when we went through with our demand projections, we needed to do it, split it out resident and non-resident, because of the way the methodologies were and then add them together in the end.

So drum roll, this is the number that we ended up with when we

were looking at the total number of annual users that were in the study area. We had a low, medium, and high estimate. If we just look at the midpoint, and it was just a straight midpoint, we have about 120,000 regional residents, regional being everywhere basically from Fairbanks down to -- over to Glennallen and over to -- and Anchorage and north, everything in Mat-Su, and then we had some other people that lived outside of that regional area.

Those are not people we caught in the mail survey. Those are people that we were able to identify in the intercept survey. So we were catching people from, you know, Southwest Alaska or whatever, and we're able to include them and factor them into the use, and then the non-Alaska residents, and so 260,000 non-Alaska residents.

That may seem really high, but remember, we've got the railroad and we have a lot of non -- visitors who ride the railroad through the study area. So that makes up a significant portion of -- there's about 145,000 non-residents that ride the railroad in the area, through the area. So you get that all combined and you're close to, you know, 390,000-ish users of the area in the year.

Then when we apply user days, and user days are anything from, you know, doing a five-minute walk or something like that, right up to a full day, of course, we see that we have -- we were able to account for 2.8 million user days in the area. The non-residents made up 37 -- sorry, 36% of that count, and if I go back -- I'm going to flip back on you here. The non-residents make up, I think it's 67% of the total users, but they make up 36% of the user days, and that makes sense when you understand the visitor market here and how that works.

We then projected this out 50 years and what we -- the -- probably the most significant variable in that is projected population growth. We know that recreation trends are going to change. They are -- they change all the time. We don't have a crystal ball. There could be all -- I mean, we didn't see pack rafts, you know, 10 years ago, right, I mean, but now, well, not everyone has one, but -- or fat tire bikes, you know, that's very, very popular here. It's becoming more and more popular and so that wasn't something that was available. People didn't ride bikes in the winter through the woods, did they? I mean, well, there were a few. There were a few, so and for -- so we did that projection then.

Then we also, if you had a chance to look through our report, we -- because we had gobs and gobs of data, and we had a really healthy response samples, we were able to provide some profiles of both the consumptive and the non-consumptive uses and these are the profiles that we developed where we, in our profiles -- I don't think our next slide -- yeah (affirmative), so each profile included these types of -- this type of -- these types of data.

In some cases, if we didn't have enough sample, we couldn't report it complete for all activities, but some of the larger activities, we were able to do that. So there's lots of information to dig through and I'm sure it raises a lot of questions, but also a lot of interest, as well. Then turning it back to Tim, at this point, unless...

MR. KRAMER: Sure.

MS. LOGAN: Do you want to take questions at the end?

MR. GILBERT: Go ahead and finish it, yeah (affirmative), and then we'll go back on this, yeah (affirmative).

MS. LOGAN: Okay.

MR. GILBERT: Go ahead, Tim.

MR. LOGAN: Okay, hey there, so the next slide is a decision point to the extension of the study are to the Lower Susitna based -- there's no new information on this slide. It's the same that we've discussed at the last meeting, but a quick summary of it is based on the coordination with other studies, the executive interviews that we've done with users of the Lower River, we determined that there's not a need to extend the study area to the Lower River for Study 12.5.

This is based on just the use -- like the project use level that or the -- the existing use of current users in the Lower River that would be effected and also from the other studies, the input they provided and Louis discussed this extensively at the last meeting, so I won't linger on too much here.

Next slide, and then for the future, there's no proposed modifications. So the -- we were planning on implementing the study as stated in the study plan and with the variances we (indiscernible - interference with speaker-phone) previously.

Next slide. I talked about this before, but I'll just summarize it again here, steps to complete the study. We have the recreational use area. We

have -- we're going to apply the NRRS/ROS framework to describe recreational opportunity areas and then we're also going to finalize the recreational facility and carrying capacity assessment, finalize the inventory for developed and dispersed recreation sites and then just apply that toward the complete -- the final carrying capacity assessment, so and that's it. That's what we need to do. Next slide, and that's it. That's the end.

MR. GILBERT: Okay, great, thank you, Tim and Donna, a great presentation.

MS. THOMAS: So I have some questions.

MR. GILBERT: Sure, Cassie has some...

MS. MCGREGOR: I expected that.

MR. GILBERT: Cassie has some questions.

MS. MCGREGOR: I hope I can answer them.

MS. THOMAS: This is Cassie Thomas and I don't want to hog the floor here, but one really quick question that's probably for Tim, hi, Tim, which is that the tech memo you guys filed on trails last fall has conflicting information in it about the completion status of trail classification.

On page one of that tech memo, it says that you weren't finished classifying on page 18 and in the Study Plan Implementation Report, it says that you are done. So I'm just wondering which is it?

MR. KRAMER: Sorry, that probably slipped through our technical edit. Yeah (affirmative), we are complete with the trail classifications. We applied the U.S. Forest Service trail classification to all trails that we found with the project (indiscernible - interference with speaker-phone) and then, as I said before, we developed this kind of sub-classification based on trail braiding for the Class 1s, which will mostly be the hunting trails that are pretty extensively used kind of throughout the study area. So to answer your question, we are complete with the trail classification.

MS. THOMAS: Yeah (affirmative), I had a feeling that was probably so, so probably just the first page was from 2014 or something.

MR. KRAMER: Sorry about that.

MS. THOMAS: No problem. I thought I had an old version of the tech memo for a while. Another thing is, and you know I'm going to say this, is the whole extension of the study to the Lower River, I've been attending the other meetings, including a lot of the ones or all of the ones

last week, and I know that, you know, there's still uncertainty about fluvial geomorphology of the Lower River.

For instance, we're apparently still going to be looking at potential effects on Cook Inlet beluga whale habitat in the Lower River from changes to the morphology of the area to see if the habitat will change, too, so you know, and I've also heard, you know, we're not quite sure what's going to happen at the tributary fans or deltas and that is still being looked at and the modeling, riparian and floodplain vegetation, same deal. We're, you know, we're still modeling a lot of these potential changes.

So it just seems to me that those kinds of biophysical changes could also affect recreation, just you know, basic access even, if we have tributary deltas that are -- that become sort of perched, if, you know, one of the things we heard last week is that we're not sure what fish passage up the tributaries might be like after the project and it's not just whether salmon can jump, it's whether there's enough depth of water in what might be an accumulating delta at the mouth of a creek going into the river that doesn't get flushed out as well, and you know, maintains its connectivity.

So anyway, you know, all of these uncertainties that are part of the

USR work for those other studies, it seems to me that those do have the potential to affect recreation and we do know there aren't a whole lot of people in the Lower River recreating, but there's other parts of the study area where there aren't very many people going there either.

That kind of issue is addressed, as you guys have already well explained, in the recreational opportunity spectrum analysis for a project. ROS classifications include areas where very few people go there, but they may have -- they may be of high value for the people who do go there. So you know, not falling into the trap of equating quantity and quality when it comes to recreational opportunities and experiences.

So you know, just to let you know, and I don't think this will come as a surprise, that we will be asking to modify this study, just because of the uncertainty and the potential for those biophysical changes in the Lower River. The reports that you guys have filed focus on flows. I think that's been what was said in the Study Implementation Report, that since there wouldn't be a change in flow in the Lower River, we don't need to study effects on recreation, but to me, flow is not the only thing that changes recreation, aesthetic conditions and access conditions and the

presence or absence of watchable wildlife like Cook Inlet beluga whale, that and obviously, fish and moose, if you have a change in the moose habitat. If we go from a lot of (indiscernible) and shrubs to more of a forest cover, we probably have fewer moose than where you're getting a lot of willow and so on. So anyway, that's -- you're going to be seeing this in writing, but I just wanted to sort of give you a head's up that I'm being a skeptic and I'm not convinced. So thanks.

MR. GILBERT: Go ahead.

MS. MCGREGOR: I appreciate that comment, Cassie. I just want to clarify that we don't have uncertainty with respect to the geomorphology and the riparian. We have -- that is a decision point. That wasn't a tech memo. That we don't think we're going to have measurable effect below river mile 29.9. So I just wanted to clarify that.

MS. THOMAS: But you -- yeah (affirmative), but you are going to be looking at habitat changes for Cook Inlet beluga whale, so...

MS. MCGREGOR: We're, actually, the nexus with the beluga whale is more related to their -- the prey PCEs. So the eulachon, we will be doing an analysis there, but that's more of a weather perimeter analysis

and we're trying to find the lower extent of their spawning, because we've established the upper extent and it repeats the 1980's, but we're trying to look at the lower extent, because that's where you have more beluga whale use.

MS. THOMAS: Right.

MS. MCGREGOR: We haven't, at least from the cameras and the observations we did in 2013, we haven't documented beluga whales up past around river mile six, so somewhere around the upper end of Big Island, but based on the sediment load, the -- and the flow attenuation, I mean, it's a significant flow attenuation.

By the time you get down below the Yentna, we're saying we have insignificant effects. So decided in that same decision tech memo, September 2014, for the geomorphology study and because of the temperature, so there's two of those tech memos, that we're not moving forward with modeling the delta for beluga whales.

MS. THOMAS: Right.

MS. MCGREGOR: So I just wanted to clarify.

MS. THOMAS: But for recreation and aesthetics, right now we're

stopping at the bridge just below Talkeetna. So there's a whole chunk of river with users accessing it, Deshka Landing and places like that, that right now, from a rec and aesthetics point of view, we're not looking at at all.

MS. MCGREGOR: Okay.

MS. THOMAS: So that's -- that kind of region there is my concern, so thanks.

MS. MCGREGOR: Okay, thank you.

MR. GILBERT: Thanks, that was real clear. That was good. So other questions for Donna and the completion of that survey and work and Tim?

MS. LONG: Yeah (affirmative), this is...

MS. WOLFF: I've got a question.

MS. LONG: Go ahead.

MS. WOLFF: No, you go ahead, Becky.

MS. LONG: Well, I just was going to add on to what Cassie said. I agree with what she says about extending it beyond the bridge, but also something important to consider is, you know, the impact on, you know,

one user group may be displaced by project impacts and another user group might take their place and that's a consideration. That's all I had.

MR. GILBERT: Okay, thanks.

MS. WOLFF: Okay, I've got a question. It's Whitney Wolff. I had a question for Tim on the classification system that they used and I could certainly go look it up on the Forest Service, but I had a question and I noticed there's no Level 5trails that I could see identified and I wondered if you could just talk about that, and I'll just start there. I have a couple more questions, but I'll take that answer first.

MR. KRAMER: Sure, Level 5 classified trails are the most developed trails you can have and these are more like -- I mean, they're mainly considered like an extremely wide paved trail that has -- that you can engage on -- any activity on it.

They're -- we just didn't find any trails that hit that classification level within the study area. We found several Class 4s, but we didn't find Class 5s, just because it is primarily a rural district that has, you know, that's focused on the less developed recreational use, which is kind of those ATV trails, which are Class 1. Even though they're really wide big

trails, they're not maintained by a particular agency. So they're considered Class 1. So the Class 5, you have to meet many -- a lot of criteria to hit Class 5 and none of them just -- none of them reached that level. Did that answer your question?

MS. WOLFF: Yeah (affirmative), that's what I was just wondering whether it did actually have to be paved, because I see you've got, you know, Upper Troublesome and Kesugi and Ermine all at Level 3s, and interestingly enough, you have the Talkeetna Lake Trail as a Class 4 above the State Park. So I just was curious what would qualify as a Class 5.

MR. KRAMER: Yeah (affirmative), it -- there's a lot of attributes that factor into it and often times, a trail can meet one of the attributes, but it won't actually meet the other parts of the -- the other attributes that are required to push it to a certain class. We tried to classify trails based on the primary use type, like if it's -- when you go to the trail, if it -- you look at it and the majority of the attributes fell within a certain class, that's what we tried to classify it as.

MS. WOLFF: Okay.

MR. KRAMER: It's not a perfect system, but that's sort of the

rationale that we used.

MS. WOLFF: Okay, and then I just was curious, I see State Park as listed as -- in 5.2.2, it's listed as 3 and then back referenced in 5.3.2, it just says Denali Park Trail, summer trails are all Class 2. So I just wasn't sure about the discrepancy there, but it's not a big deal. I was just trying to -- it's interesting to me how you guys classified it, and then again, you know, I've mentioned this last fall, there are some errors in some of the Talkeetna area trail descriptions that I'll just be putting in my comments.

I know you got some of your information, secondary sources, because I see it cited, but there are some corrections that just need to be made to some of those descriptions.

MR. KRAMER: Okay, yeah (affirmative), if you could submit those and we'll look into them and try to fix everything that you indicate.

MS. WOLFF: Okay, that would be great. The last thing I had a question about, I was glad to see -- hear Donna's study say that they looked at alternatives to registered voters. That was definitely a concern of ours. We -- I know during our prior discussions, we had looked at other ideas like utility use and such would better model recreational cabin owners,

versus where they were registered to vote. So I appreciate you guys looked at some of that and what else, I'll probably, of course, reiterate my concern with the boundary of the study area.

My particular concern was the decision-making, decision point process that it seems that, and we've discussed this before, you know, you guys interviewed the people at Deshka and Susitna Landing and asked if people were leaving there to enter the study area, which is quite different from utilizing the river right where they are at those sites and you also based that determination on rec-based flows being, you know, the primary decision point of why people are using those sites or why they wouldn't -- not use those sites.

So I think it is a real loss on (indiscernible - interference with speaker-phone) the baseline use of the Willow area, as I've said before, and I will be noting that in my comments, but I have read all of the interconnected studies and I understand your documentation being behind your decision. I just don't agree with it, but -- and I'm most concerned with lateral change, bank structure and other access points for those rec sites there. So I'll just put that on the record. Otherwise, thanks for all the data.

It's interesting to see that many people recreating in the study area.

MR. GILBERT: Great.

MS. LONG: Yeah (affirmative), this is Becky Long again. I didn't quite understand, you were talking about the bias and people who don't register. I didn't quite understand what you were getting at. Some bias, you were working with voter registration lists, phone survey, people who didn't register don't necessarily recreate outdoors. I probably heard that wrong. Could you go into that a little bit?

MS. LOGAN: So we've had -- we had extensive discussions about what the sample universe would be for the mail survey and what would be something that we could, first of all, you know, know something about, and that's really helpful when we're doing a survey.

When I say something about knowing, you know, where people live and where people vote, which kind of suggests that's their primary area of interest and so and so forth, but we knew going into that, and also voter registration lists are -- that's a pretty typical, standard list that you would use for a mail survey, but we knew when you chose -- choose a list like that, you're going to -- what about the people who don't -- who aren't

registered to vote?

So they won't have an opportunity to participate in the survey. So because they didn't have an opportunity to participate in the survey, we had to adjust the results or recognize the "bias" that does not include the non-voter.

Also, because it is a mail survey, mail surveys, which are different than telephone surveys, telephone surveys, you call people randomly and you conduct an interview with them and hopefully, once you get them on the call, you keep them on the call and it keeps the sample random or as random as you practically can get.

With a mail survey, however, you mail it out and you try and entice as many people to complete the survey as possible, but there's always going to be bias in a mail survey of who's going to respond to a survey and who's not going to respond to the survey.

So we were very aware of that going into it, but with a mail survey, the reason why we did the mail survey is that with a mail survey, you can gather a significant amount of data and more information than you could by stopping a hunter coming off the trail with his caribou strapped to his

back and he's really tired and all that kind of stuff.

So we knew that the mail survey would be really, really important. So we had to assess, recognizing that there is some bias, what that bias was, and how do we adjust for it when we present our results and how do we adjust for that in our modeling?

So that, when I used the word bias, it's about the bias of people who choose to respond to a survey or not choose to respond to a survey and making that adjustment. Then the -- when we did a non-response biased telephone survey -- so we did a random survey by telephone, because that can be statistically significant to do a telephone survey, and in that telephone survey, we're selecting households randomly, which would include a non-voter household or a voter household.

We were capturing that information, whether people were registered to vote or not and so we looked at the results based on people who voted and -- or not voted, but people who are registered and people who weren't registered, and that what we noted is that people who are not registered to vote are, I would say in some cases, significantly less likely to recreate outdoors, and we captured information and it's presented in the report

where you can see the difference between a registered voter and a non-registered voter and their activities outdoors.

There's all kinds of reasons for that, I can surmise, you know. You know, they're recent arrivals. They don't know where to recreate. They might be -- come from an urban environment and don't have the skills to recreate in our wilderness and they could be lower income people and don't have, you know, monies to spend to recreate. It's expensive to recreate in this state. So there's a number of factors that would explain that.

So we are aware of that. We adjusted that in our model when we looked at our projection, coming up with our number of users and user days, and it didn't in the end, because there aren't a lot of people who aren't registered to vote, frankly, so it didn't really shift results that significantly, but we made sure to include -- to address it. Does that answer your question, Becky?

MS. LONG: Yes, thank you so much. I appreciate your explanation.

MS. LOGAN: Okay.

MS. THOMAS: Donna, I've got a question about the cell phone part of the telephone follow-up, and I think it's great that you guys included cell phones because we...

MS. LOGAN: You have to.

MS. THOMAS: ...know demographically, very different populations.

MS. LOGAN: Yeah (affirmative).

MS. THOMAS: How do you get cell phone numbers, given that lots of people have an out of state area code?

MS. LOGAN: So what we know from -- okay, so we have -- we purchase cell phone numbers. That's how it works, and there are companies that are constantly testing cell phone numbers. In fact, many of you may have -- do you ever receive a call from a -- and you look on the caller ID and it's SSI, or whatever, and you're going, "Who are they," and they're not even there and they hang up. I mean, have you experienced that? Well, those are companies that are testing to make sure that the number's working, that it's valid.

So we purchase numbers, gobs and gobs of numbers, thousands of

numbers, and then we -- and we ask them to do a random selection before they give them to us and then we do a random selection of that, as well, and many of the cell phones -- so when we purchase a cell phone list, because there is portability, we are missing those people who are living in Alaska, who have a cell phone number that's registered in LA, for instance. We are missing those people.

MS. LOGAN: And you are potentially getting 907s who have moved to Florida.

MS. LOGAN: And unfortunately, we're calling people at midnight in New York and they're going, "What the heck," you know. Yeah (affirmative), so absolutely. So it works both ways, believe me, yes, but it's a real dilemma in the survey world right now.

The cell factor is so critical. So I'm going to tell you, for people who are in this -- who are looking at surveys, the first question you ask, did they include cell phones in the sample and at what percent, because it's becoming more and more people are switching to cell phones and not even having a landline anymore, and we're aware of that.

So we worked really hard to get cell phones and people are -- what I

like about cell phones, I'll say this from a survey world again, is that men answer their cell phones. They don't necessarily answer their phones at home. They get their wives to answer the phone at home. So when you saw males, you saw telephone survey and results in the back, they were usually quite skewed toward women, because women are the ones who answer the phone in the homes. I don't know what that's all about, but...

UNIDENTIFIED SPEAKER: I thought they just knew more.

MS. LOGAN: They like to share their opinion, but with a cell phone, we find younger people, in which -- which is great, because when you're doing a survey and you're just surveying people in a household, they have to be home. A lot of people aren't -- younger people aren't home as much.

So we actually -- the cell phone factor is a good thing for surveying in that way, but it does add a complicating factor, yeah (affirmative).

MS. THOMAS: Thank you.

MS. LONG: You could do an article on NPR about this situation, this dilemma.

MS. LOGAN: Yeah (affirmative), it is a dilemma and you know the

other -- let me just -- we've got enough time, right? You are not -- many of you probably receive phone calls on surveys and you can hear the automated kind of -- you're not allowed by law to use automated for a cell phone survey.

So in many ways, the survey industry is reverting back to non-computer generated phone calls because they're not allowed to do a survey...

MS. THOMAS: And you don't want two methods, a different method for landlines.

MS. LOGAN: Yeah (affirmative), yeah (affirmative), so and you have to put the sample together to get the randomness, all together, and you have to assure that you're not -- you can call someone's cell phone and their landline, right, and that would skew the results, so anyway, Becky, that was more than you probably wanted to know.

MS. LONG: I thought it was very interesting.

MR. GILBERT: All right, anything else for Donna or Tim?

MS. WOLFF: I've got one more question for Tim. It's Whitney.

MR. GILBERT: Okay.

MS. WOLFF: Again, I'm just, as with all these effect-based studies, I'm just wondering here, we're not getting any initial assessments on effects here. I'm just wondering, again, we're not going to see this until the licensing draft?

MR. KRAMER: So just let me make sure I understand your question, do you want to know when we're going to finalize the rest of the recreation studies?

MS. WOLFF: No, I'm wondering when you're going to finalize that particular component or at least give some sort of interim view on that component of that objective.

MR. KRAMER: Again, I'm sorry, which component, again, sorry?

MS. WOLFF: I'm looking for project effected changes on these recreational uses.

MR. KRAMER: It would be the Updated Study Report, that's when we would look to produce our report on those results.

MS. WOLFF: Okay, in the USR?

MR. KRAMER: In the USR, yes.

MS. WOLFF: Okay. Thank you.

MR. GILBERT: Okay.

MS. LOGAN: Can I add one more from...

MR. GILBERT: Sure, Donna has one more thing to add.

MS. LOGAN: I just wanted to note, I noticed an error in our Powerpoint and if I could -- and it's -- it was my fault. So I will claim it. We, on slide 14, we had 10-year increments to 2044. It should be 2064. I'm sorry about that. Yeah (affirmative), no, that was just-- I don't know what happened there, mind blitz.

MR. GILBERT: For both of those or just...

MS. LOGAN: Both of those, yeah (affirmative), they're 50-year projections. Sorry about that.

UNIDENTIFIED SPEAKER: What slide is that?

MS. LOGAN: That's slide 14, and if you want us to change it and resubmit just with that corrected, I don't -- whatever you guys want us to do, but I just realized that when I was walking through going, "That's not right," so -- and that's my fault.

MR. GILBERT: Thanks. Okay. Well, that's great. So we're moving ahead pretty well here and Tim, do you think we can move ahead

with aesthetics? Is Louise available?

MR. KRAMER: I texted her. I'm not sure. She hasn't replied. So I was just going to check to see if she's on the line, and it doesn't sound like she is. So if you want, I can hang up and try to call her, try to chase her down, if you'd give me a second or we can wait until after lunch?

MR. GANGEMI: Tim and Kirby, this is John. I'm actually on the line if we'd be able to shift presentations?

MR. GILBERT: Yes, absolutely, I was thinking that might be a good way to go ahead and take advantage of this time, because we're not probably quite ready for lunch. We could take one more.

RIVER RECREATION FLOW AND ACCESS STUDY (Study 12.7)

MR. GILBERT: So let's go ahead and do river recreation.

MR. SMITH: 12.7?

MR. GILBERT: Yeah (affirmative), 12.7. Thanks, John.

MR. GANGEMI: Is that...

MR. GILBERT: We'll get it uploaded here.

MR. SMITH: All right, we are ready to go with Study 12.7.

MR. GILBERT: So John, just -- we'll go through the presentation,

John Gangemi, and Dan will move the slides. You just tell him when.

MR. GANGEMI: Sure. Thank you very much. Can everybody hear me okay? I'm on a cell phone.

MR. GILBERT: Yes.

UNIDENTIFIED SPEAKER: Yeah (affirmative), you sound great.

MR. GANGEMI: Great, and I can see on the go-to meeting, the start of the slides. So I'll just do a quick introduction. My name's John Gangemi. I work with Environmental Resources Management. I've been working quite closely with Tim's team and my aspects are doing river recreation flow and winter recreation along the river corridor. It would be the ice-dependent recreation.

So the first slide -- we've already seen the title slide there. Going to the second slide, we've got the current status of Study 12.7. As you can see on the slide there, we've completed Initial Study Reports A, B, and C, and the Study Implementation Report was submitted in November of 2015.

We've completed the internet survey piece and that actually was closed on December 31, 2014. So that's done. We've also completed executive interviews and we may do some future interviews if we

determine it's necessary, and then the focus group discussions are still pending. We have not scheduled those yet.

Next slide, please. We had four primary study objectives for the River Recreation Flow Study. Those are listed on there. I'll just briefly go through those that are highlighted in bold. (Indiscernible - interference with speaker-phone) documenting river recreation use and experience for each of the river recreation sections, describing potential effects of altered flows on the river and river recreation activities, understanding ice preferences for folks on the river corridor, and then describing new boating and other flow-dependent recreation opportunities that could be created by the project.

Next slide, please. We broke the study area for the river into three different study reaches, and starting at the top -- and we had Reach 1, which was from the Denali Highway down to Fog Creek, approximately 114 miles. From there, we had Reach 2, down to Portage Creek, which was approximately 28 miles. This also includes the Devils Canyon section, and then from Portage Creek down to the Parks Highway bridge, which was 66 miles, that was Reach 3.

Next slide, please. The basic components of the River Recreation Study were the internet river recreation survey. That was posted online at the address you can see there and as I mentioned, that closed December 31, 2014. You can see in the SIR tables, the list of people that was distributed to.

Another component was doing a river ice-dependent winter recreation and then the third component presents gathering information through focus group discussions.

Next slide, please. We have one variance at this point in time that will be taken care of at a future date and that would be completing the focus group.

Next slide, please. Now we have a series of slides that focus on each individual reach and it is data analysis. All this information was included in both the ISR and the SIR. So rather than going through each one of these, I'm assuming most folks, I should say in today's meeting, have reviewed this material. I'll just describe what each table is, rather than drilling down on the data that appear in Reach 1, and then we'll skip through the remainder of them to Reach 2 and Reach 3, because they are

just repetitive of each other.

So in this, we did a table and that was basically the demographic information about people that were recreating in Reach 1, and broke it down in the items that are in the column to the left.

Next slide, please. This slide shows how people access the river, where they access it, in the bar chart on the left, and then on the right, how they were accessing, in terms of what type of equipment, motorized or human transportation through the river, non-motorized.

Next slide, please. Then similarly, for Reach 1, we have where did you take out on the river, is supplied on the left, and then the right, how did you get out from the river? Did someone come and pick you up in a plane or did you have an ATV? Did you motorize, back up to put in, those types of things. So you can see right there, the Reach 1 access, the very top of the left bar chart, shows that you took out at the Denali Highway. You might have put in there, as well, but if you had two-way transportation on the river, you took out there, as well.

Okay, next slide, please. Then we also asked the question in the online survey, opinions about additional river access, and you can see the

bar chart there based on Reach 1, 2, and 3, what they thought of access to the river and changes to access.

Next slide, please. We also asked what the primary purposes were of the activities on the river and you can see the range of responses right there. We grouped them by motorized versus non-motorized craft and also had a category for aircraft.

Next slide, please. This graph shows the recreation activities that occurred on the Susitna River in Reach 1. Our survey had people -- gave people the ability to report on historic trips. It went back in time. So our earliest trip that we had reported was back in 1977 for this reach.

We're using the Gold Creek Gage, because that was the gage that was identified in the online survey as the preferred gage to use and you can see a lot more responses as you get closer to the actual online survey period in 2013 and 2014.

Next slide, please. This is using that same Gold Creek Gage plotting out the activity that occurred in 2013 and 2014, and the data points are distributed by what type of transport you were using on the river, whether it be an air trip, a motorized trip on the water, or a non-

motorized trip on the water.

Next slide, please. This slide depicts the ice attendance recreation activities that were occurring in the winter on Reach 1. It's a pie chart of responses that individuals gave for the activities that they would do out in the river corridor and we found most commonly that folks are doing more than one activity and weren't reporting on a single activity when they're out there. For example, they might be going out and being on a snow machine, but then they'd park the snow machine and snowshoe and do something else while they were there.

Next slide, please. The next series of slides, and we'll kind of race through these, they just do the exact same thing we just did for Reach 1, but report the data for Reach 2, and one thing I will note, there are a number of folks that reported using more than just Reach 1. They would go to from Reach 1 to Reach 2 to Reach 3. Our survey was designed to be able to capture that information, so we'd be able to see people that were actually floating through.

Okay, we could advance all the way, I believe it's to slide 30, where we get to the very end of this. Yeah (affirmative), let's -- yes, that's -- yeah

(affirmative), 31 will be perfect. So we took our data, this will be a new slide for folks, and we did bar charts, bar -- whisker plot with their box for activities on the river, plotting the range of flows that occurred for all the trips that were in Reach 3, and that's at the top of your graph there.

So this is the lower reach from Portage Creek down to the Parks Highway, and we reported the non-motorized trips, the 78 trips, what the range of flows were for people to be on the river. You can see the diagram for the legend down to the right of what the different symbols mean in this box and whisker plot, and then for motorized, you'd see that there were 60 trips and you can see the range of flows there, with a full range, the mean, the median, and the quartile range. We did the same for Reach 2, and then we do that for Reach 1, and again, we're using the Gold Creek Gage to do this analysis.

Next slide, please. So the summary for our -- this Study 12.7, river recreation internet survey data is collected through 2014, and that analysis has been included in the Study Implementation Report.

Next slide, please. I was listening to the discussion earlier when Tim was having questions asked, likewise, with the Study 12.7, we do not

see a need to extend the study into the Lower Susitna River area.

Next slide, please. We do not have any modifications planned to this study. So we're meeting the study's objectives. Next slide, please. So the steps to complete, I mentioned that the focus groups will get scheduled at a future date. We also have one of the study objectives that needs to be met and that's describing the new boating or other flow-dependent recreation opportunities and that will be done at a later date.

Next slide, please. So I'll open the floor up to comments, questions. I'm happy to respond.

MR. GILBERT: Thanks, John. All right, questions? Okay, we've got one here.

MR. HANKINS: Yeah (affirmative), this is Jesse Hankins here. I'm just curious, you know, if I read your draft correctly data from 52 individuals, is that, you know, is that enough to be representative of the -- to the river use? I mean, is 52 an adequate number to represent that use?

MR. GANGEMI: We, actually, for our internet study, we have 207 complete survey responses that we've used for our data analysis.

MR. HANKINS: Okay.

MR. GILBERT: Does that answer your question?

MR. HANKINS: Well, I was just curious, you know, the previous presentation showed a great use of recreational, maybe not tied directly to river use, but a lot of recreational users out there and I thought it represented 42 and 10 for a total of 52 responses for this survey, but maybe I didn't read that correctly in your graph, which would seem like a small sample number.

MR. GANGEMI: Yeah (affirmative), we raced through a number of slides there, the complete number of survey responses would be 207, but then those are divided (indiscernible - interference with speaker-phone) between the river reaches. So you would have had some folks that used Reach 1 only and they're part of that 207. So in all of our reporting, we tried to show you what N we're using for our data analysis so you can see that and in some you may see an N that, in the case (indiscernible - interference with speaker-phone) show the bar chart, it's actually one of the numbers is 60 for non-motorized and I can't remember exactly, because I don't have it in front of me. So we try to show the partitioning of what reach they're on.

MR. GANGEMI: Okay, thank you.

MR. GILBERT: Thanks.

MS. THOMAS: I have a couple of questions.

MR. GILBERT: Okay, sure, you bet.

MS. THOMAS: This is Cassie again. Hi, John. One is a question on the histogram that you have showing responses for the three different reaches of -- by people who boated those reaches as to whether they thought access was sufficient, whether they wanted more or whether they were opposed, and I'm wondering if it's possible to put any confidence intervals, in other words, was there a statistical difference between people on those different reaches feeling different ways about that question?

MR. GANGEMI: That's a good question. I haven't thought about putting confidence intervals on the responses based on which reach they were in. I'd have to give that some thought.

MS. THOMAS: Yeah (affirmative), and not just with maybe...

MR. GANGEMI: (Indiscernible - speaking simultaneously)...

MS. THOMAS: Maybe not just stratifying by which reach, but is there actually a difference -- a significant difference between people who

wanted more access and people who didn't or is it just noise, based on a pretty small N. So that's one question and then another question is the box and whisker depiction of the relationship between activities and flows, I'm wondering if it's possible whether what we're seeing is actually just the range of flows that exist during the ice-free period when it's warm enough to be out doing anything, rather than a preference, this is just, you know, what's there from June through September or some other period like that, and I'm wondering if you have an opinion about what we're actually seeing there?

MR. GANGEMI: Well, it was recorded previously the flows that we've seen people use, and then (indiscernible - interference with speaker-phone) flow preference. The flows that we observed people using appear quite broad on the river and that may be more of a reflection of the channel shape and its ability to display similar patterns on the river across a very broad range of flows that don't change the recreation opportunities significantly, but -- and that would probably vary by reach, but I would say that we're just seeing a broad use of -- or a wide range of flows used by recreaters out there, as opposed to other studies where we would see a very

narrow flow preference range. That's not evident here.

MS. THOMAS: Yeah (affirmative), I agree, John, and I think, you know, just sort of a gut feeling would be the one place that would not be true might be for white water boaters going through Devils Canyon, where they're looking at a range of flows that's, you know, safe, but I'm not sure if we really have the data to know that. What do you think?

MR. GILBERT: Did you hear that, John?

MR. GANGEMI: I didn't hear a question. I heard more of a statement.

MR. GILBERT: Okay, yeah (affirmative), she was just asking...

MR. GANGEMI: Is there a question about...

MR. GILBERT: Yeah (affirmative), I think she was asking about, you know, the Devils Canyon reach, that maybe that would be more specific to a flow preference.

MR. GANGEMI: Well, I would say that focus groups would help to carry out that information if it's in depth, so we'd be able to get -- drill down and see if there is an actual flow preference there.

MS. THOMAS: Okay, thanks, John.

MR. GILBERT: Thanks. Any other questions for John and the River Recreation Study?

MS. WOLFF: I've got a question. This is Whitney Wolff. I -- going back to the -- one of the things Cassie was asking about with the internet surveys on the reaches with the responses regarding access and I'm just wondering, you know, most of these have a pretty high current access that's sufficient and then -- but then they still answer in favor of improvement to access to the river. So can we assume that -- could they only pick one of those or I'm assuming they could only pick one of those, but could you just explain that a little bit, because...

MR. GANGEMI: Certainly, Whitney, yeah (affirmative), that question...

MS. WOLFF: There's not an insufficient column. So I'm just curious if those people who found it insufficient were seeing them in favor of improvements? So go ahead.

MR. GANGEMI: Yeah (affirmative), just of the top of my head and I haven't pulled up the online survey in quite some time, that question was choose one of the following.

MS. WOLFF: Okay, that's what I thought. I mean, I remember when we went over all of those during the RSP time, but just because they don't necessarily add up, you know, to -- if one -- current access being sufficient doesn't then count as in favor of improvements. So I just want curious how that was given.

MR. GANGEMI: I wrote that question down, Whitney, and I will make sure -- I'll research that just to confirm for you.

MS. WOLFF: That'd be great, thanks, and then just one more question and I really should know this, I could go back to the RSP, but we don't have any determinations in here on commercial recreating, is that correct?

MR. GANGEMI: In terms of the number of outfitters? I'm not sure what your question is.

MS. WOLFF: Yeah (affirmative), I mean there's no determination in...

MR. GANGEMI: (Indiscernible - speaking simultaneously)...

MS. WOLFF: ...most of these graphs of whether this is commercial or non-commercial.

MR. GANGEMI: No, but we do ask the question, and it's in my very bar chart, was it a commercial trip you were on or were you out on a non-commercial trip, and so you'll see in the bottom of that very first table, it shows (indiscernible - speaking simultaneously)...

MS. WOLFF: Is this on page 16? Wait, no, let me get back there.

MR. GANGEMI: I just -- my slides here, I don't have the ISR open, but if you pull up one of those tables there in Reach 1...

UNIDENTIFIED SPEAKER: Which slide, John?

MR. GANGEMI: That's the (indiscernible - interference with speaker-phone) one, the -- I think it was slide five or six. So it's seven, slide seven.

MS. WOLFF: Okay. Yeah (affirmative), use of a commercial outfitter or rental, yes or no.

MR. GANGEMI: Yes. So that's what we asked there. So we did ask that question up front.

MS. WOLFF: Right, but I mean, we don't see preferences of what that commercial outfitter uses as a target flow preference, for instance. We just see the actual user?

MR. GANGEMI: Yes, you just see the actual user. Although, we did use executive interviews with commercial outfitters, as well.

MS. WOLFF: And do we have documentation on that? I'm just curious.

MR. GANGEMI: Yes, we do of the executive interviews.

MS. WOLFF: Okay.

MR. GANGEMI: They're not captured as well in the internet survey, unless the commercial outfitter has filled that out. They wouldn't necessarily know they were filling it out as a commercial outfitter and what (indiscernible - interference with speaker-phone) for and that's why we added the executive interviews, so we'd be able to capture that information through discussions with them of what their flow preferences are.

MS. WOLFF: Okay, so that's all it...

MR. GANGEMI: (Indiscernible - speaking simultaneously).

MS. WOLFF: And is that in Part C or where are those interviews? Sorry, sometimes I'm weak on my navigating here. I've got several computers open, but it's hard to keep it all straight.

MR. GANGEMI: Betsy, can you help me out which section that's in? That should be in our Part A, I believe.

MS. WOLFF: Okay, back in the beginning, yeah (affirmative).

MR. GANGEMI: I don't have the whole thing -- I apologize, I'm traveling right now, so I don't have the entire (indiscernible - interference with speaker-phone) and...

MS. WOLFF: That's okay. That's okay. I can go back and look at that. I'm just trying to make sure for my constituents and my fellow community members that it's hard to place where our economic user groups are fitting in. They certainly don't appear to be represented well in some of the economic studies and so can at least get some effects from this flow study, if they're targeted through the executive interviews.

MR. GANGEMI: Yeah (affirmative), we made sure we targeted them in the executive interviews, both motorized and non-motorized, and we have those interviews literally verbatim listed in there and what we wrote down for notes.

MS. WOLFF: Okay, good. Now, I know that, you know, this was a part river -- river travel was, of course, not at all done at an acceptable

level in the transportation study and I know you, too -- do you -- are you coordinating out (indiscernible - interference with speaker-phone) or yeah (affirmative)?

MR. GANGEMI: When the USR is -- we'll be integrating our results.

MS. WOLFF: Okay, all right, thanks.

MR. GILBERT: Thanks, Whitney. Any other questions for John?

MR. WILCOX: Ken Wilcox here with FERC, and I'm curious when the focus groups take place, will the transportation team or at least some representative be participating in that?

MR. GANGEMI: Betsy, do you want to field that?

MS. MCGREGOR: Yes. Unfortunately, the transportation people aren't here. I think there's a lit bit of a difference. The transportation people are looking at the use of the river for purposes of transportation and not recreation, where John's work is looking at use of -- use based on recreation. So I don't know if they'll be there, but that's a good suggestion, at least to have some coordination, but they are looking at different uses of the river.

MR. WILCOX: Okay, but I think the (indiscernible - interference with speaker-phone) was to try to cover both those bases at the focus group meeting.

MS. MCGREGOR: I know that the transportation folks are supposed to have focus group meetings as well. So I'd have to go back. I'm not sure if we explicitly stated that they would occur at the same time. I would imagine that's likely because we don't want people who are participating in the process to get burnout either.

MR. WILCOX: Sure.

MR. GANGEMI: Yeah (affirmative), Ken, we could actually, you know, if we can't (indiscernible - interference with speaker-phone) the meetings overlap, the focus groups, we could make sure we read questions in that are provided to us from the transportation group so we cover some of those topic areas, but I like Betsy's suggestion where we integrate that and then we don't have two separate focus groups.

MR. WILCOX: Yeah (affirmative), it seems like it would be, you know, good information for everybody. All right, thanks.

MS. MCGREGOR: Thank you.

MR. GILBERT: Yeah (affirmative), good points. Anything else for John and River Recreation?

(No audible response)

AESTHETIC RESOURCES STUDY (Study 12.6)

MR. GILBERT: Okay, well, it's about noon. So I mean, we -- Louise is on the line and we could go through aesthetics, but is everybody -- would they rather do the lunch break now and kind of stay on...

UNIDENTIFIED SPEAKER: I'd rather get through aesthetics, but

MR. GILBERT: Okay, we have a vote for aesthetics. Anybody -- because Louise is on...

MR. SENSIBA: Is this a random sample that you're taking for (indiscernible - speaking simultaneously)...

UNIDENTIFIED SPEAKER: (Indiscernible - speaking simultaneously)...

MR. GILBERT: But now I'm assuming, Louise, you are on. Are you?

MS. KING: I am here, yeah (affirmative). I'm assuming you can hear me.

MR. GILBERT: Okay. Yes, no problem. Let's do it. Let's charge ahead. So we're going to Aesthetics 12.6.

MR. SMITH: All right, we are ready to go, just give me the go-ahead and I'll advance the slides for you.

MS. KING: Okay, well, I guess hello, everyone. My name's Louise King. I'm with AE Com, formerly URS, and I'm here to present on Study 12.6 Aesthetic Resources. Next slide. Tim, are you at the controls?

MR. GILBERT: We have Dan Smith here doing it for you, Louise.

MS. KING: Okay, thanks, Dan.

MR. SMITH: Yeah (affirmative).

MS. KING: Well, the status of the documents, once again, much like John's presentation, I'm not going to go through a lot of what you've already seen in the Initial SR presentation, but just to give you a quick update on where we're at, we've completed viewshed models. We have classified lands based on predominant character types into 31 discrete groupings.

We've completed a baseline field assessment, which included 135 analysis locations across four seasons, where we collected baseline data,

baseline photography and implemented soundscape monitoring.

So next slide. Now the objectives of the study are both to inventory and document the baseline aesthetic characteristics within the study area and then to evaluate potential effects to aesthetic resources that could result from construction and operation of the project.

Next slide. So we have two primary components of the Aesthetics Study. One focuses on visual resources and one focuses on soundscape. Next slide. We have implemented the methods as described in the study plan with no variances.

Next slide. So the summary of results, again, this should all look familiar to everyone in the room who has participated in the project to date. This slide just shows the viewshed model maps that were completed for the four primary components of the study area, the Denali Corridor, Gold Creek, the Reservoir, and Downriver from Dam.

Next slide. This is a map of the analysis locations broken down by seasons. We continued (indiscernible - interference with speaker-phone) throughout the study area (indiscernible - interference with speaker-phone) project components were located.

Next slide. The summary of the results, this map shows the different planning areas that exist within the study area. So it includes state and federal lands. Next slide, and this shows results are -- results of existing (indiscernible - interference with speaker-phone) reviews. So this slide demonstrates (indiscernible - interference with speaker-phone) inventories completed by the BLM within the framing area.

Next slide. At each of the analysis locations, we collected (indiscernible - interference with speaker-phone) of data, baseline visual characteristics. So that included classifications of (indiscernible - interference with speaker-phone) scenic integrity and descriptions of character attributes, and also classify each of these locations based on the predominant viewer groups. So this is just a slide, again, you've seen this before that shows the summary data that was collected at each of the analysis locations, and again, when we collected our baseline photography, we collected a series of still-frame images that were then sewn together to form a larger panoramic that indicated the primary (indiscernible - interference with speaker-phone) and this was part of the primary human field of view.

Next slide. This map shows the locations of the soundscape monitoring locations, both the long-term and short-term, excuse me, just the long-term locations. In most cases, these locations were coincident with the analysis location that were used to assess baseline visual characteristics. In some cases, they were different if they were either inaccessible when the monitoring locations were installed of if, for some reason, the soundscape monitoring device could not be installed at the location that we collected the visual data.

Next slide. This is an image of the soundscape monitoring equipment and how it appears when it's installed onsite and is a summary about the collected soundscape data, using both long-term and short-term monitors. Long-term monitors collected data for a minimum of 24 hours and up to a single week. Short-term monitors collected data for about a 15 to 20-minute period for each and as we provided for the visual piece of the study, this table below just gives you an idea of what the summary data looks like for each of the monitoring locations where we collected data.

So we have a description of the location and purpose of the monitoring location and coordinates, elevation, the date that it was

deployed for the analysis period. The disturbance classification, this corresponds to the Park Service's classification of natural sound disturbance. So that classification ranges from very high, where sounds may be interrupted by motorized noise for up to 50% of an hour, to very low, where natural sounds predominate and motorized noise may be audible for approximately 5% of an hour.

Yeah (affirmative), so we included a description of how we accessed the site, the temperature, humidity, barometric pressure and wind speed.

Next slide. So again, I'm assuming that many of you have had a chance to look at the soundscape tech memo, but just to give you a summary of the data that was collected and the overall results of the study, we collected data that recorded both the geophony and biophony. So geophony refers to the physical sounds. So if you think of the sound that a river makes, the sound that rain makes, and a typical biophony, and that is sound produced by natural bios. Bird songs is a really great example of that.

Mechanize sound, again, that refers to any sound that's produced by a car or a low-flying aircraft, helicopter, that sort of thing. Sound pressure

levels and audible mechanized events. So overall, within this study area, as you would expect, the overall landscape was dominated by natural sounds, so wind, rain, running water, birdsong, that sort of thing.

The sound disturbances really varied based on location, as you would expect. There was a greater number of disturbances in sites located within proximity to the Denali Highway in July, for example, versus some of the more remote locations, Vee Canyon, for example, where we may have fewer than 10 natural sound disturbances per day, most of those were of flying aircraft and the median sound levels generally were consistent with wilderness ambient day and night sound levels.

Next slide. This is a decision point, a summary of our decision point regarding assessment of the downriver study area, which is not a new slide. Many of you've seen this. We, again, our methods were to use the question and answer approach to determine whether or not we should extend the study downriver. We also engaged in an interdisciplinary coordination to make this decision.

Next slide, and based on the results of both the OS-1a and the OS-1b models, we determined that we, post-project, the changes to the Lower

River would be within the natural range of variability and as such, then the Aesthetics Resource Study downstream of Talkeetna was not warranted at this time.

Next slide. There are no modifications to the study plan. However, as you understand, the study area has changed from that described in the RSP, primarily with the removal of the Chulitna Corridor and the addition of the Denali East Option. So we did revise the viewshed model for this new option and it examines the existing analysis locations and their suitability to assess potential changes in character attributes (indiscernible - interference with speaker-phone) character attributes based on this new location and we determined that some were certainly suitable for us to use in that analysis and that we would be exploring the addition of new analysis locations east of the new Denali East Option.

Next slide. The steps to complete the Aesthetics Study 12.6, we will continue with the refined viewshed models as additional project data is available. We will collect the additional baseline data needed based on the addition of the Denali East Option, complete our focus groups, produce photosimulations of project components and model project sound levels.

Next slide.

MR. GILBERT: Great, thanks, Louise.

MS. KING: Yeah (affirmative), thank you.

MR. GILBERT: That was a great overview. So with that, questions for Louise? You made some great progress.

MS. KING: Yeah (affirmative), you guys must be hungry.

MS. WOLFF: I've got a quick question. This is Whitney.

MR. GILBERT: Okay.

MS. WOLFF: I just have a quick process question here. I'm trying to remember the spaghetti diagrams here between you and some of the goods and services and earlier today during that discussion, we had just talked about customer satisfaction and that type of thing. I can't remember how this study then coordinates on aesthetics of rec resources.

MS. KING: I think I'm not understanding your question (indiscernible - interference with speaker-phone) clarification on the interdisciplinary coordination between aesthetics and recreation?

MS. WOLFF: There you go, well -- much more articulated than that.

MS. KING: Okay. Well, that's my job. Yeah (affirmative), we have been coordinating closely throughout the study implementation and so a lot of the baseline data that we've collected will go into understanding recreation settings and potential changes in the recreation setting and that's a lot of what Tim was referring to in some of the upcoming work he described, in terms of the ROS Study, the Recreation Opportunity Spectrum analysis, and that sort of thing. We'll be looking at changes in recreation setting, recreation access, and certainly the perspective of the viewer is taken into consideration with that, as is the landscape character attributes that inform the description of recreation setting.

MS. LOGAN: Can I...

MR. GILBERT: Yeah (affirmative), sure, Donna.

MS. LOGAN: And Louise, let me just add, too, that in the intercept survey and in the mail survey, we did capture people's experiences around noise and disturbances and those kinds of things, but noise, in particular.

MS. KING: Yeah (affirmative), and there were certainly questions, as you say, Donna, in the surveys that asked participants -- asked participants to reflect on any, you know, potential sort of discordant

features in the landscape that they may recall within the study area, in the existing landscape attributes that aren't consistent with a natural landscape character, so that will -- it will also be part of how we kind of meld our understanding of aesthetics and recreation setting.

MS. WOLFF: Okay, and then again, the digestion of all that would be in the USR?

MS. KING: Yes.

MS. WOLFF: Okay, thanks, Louise.

MS. KING: Thank you.

MR. GILBERT: Okay, anything else?

MS. THOMAS: So just, Kirby, if I could just say...

MR. GILBERT: Sure, yeah (affirmative).

MS. THOMAS: I want to thank AEA and its consultants for all three of the rec-ish studies, including this one, which, you know, I don't think I've seen another hydro project where we've had such an in-depth baseline assessment of aesthetics, sound and visual, so -- and I think it's really well done and so I just want to thank everyone for their support of actually, you know, funding and fielding this -- these -- this work and if

nothing else, we have a baseline idea of soundscape pre-drone for the project area, which could actually be important in the future. So thanks, Louise.

MS. KING: Yeah (affirmative).

MR. GILBERT: Yeah (affirmative), great job, absolutely, on all three. Okay, well, if there's nothing else, we're going to take a break for lunch and I think we should probably do a full hour. So we'll start back at 1:15. Does that sound okay to everybody?

UNIDENTIFIED SPEAKER: Yeah (affirmative).

MR. GILBERT: A quarter after the hour is when we'll start back and we'll start back with the geology and soils, and some of the engineering seismic studies. We'll start -- we'll pick back up, now that we've finished recreation and aesthetics. Okay, so we'll drop the line. You guys will have to call back in at 1:15, okay, thanks.

12:10:37

(Off record)

(On record)

1:14:30

MR. GILBERT: If we can, everybody is here in the room, I guess except Betsy.

UNIDENTIFIED SPEAKER: (Indiscernible - too far from microphone).

MR. GILBERT: Yeah (affirmative), yeah (affirmative), we're going to first just do a check-in with anybody new that didn't introduce themselves this morning, and I know we have just a few here. Maybe you guys want to just say -- well, go ahead.

MS. KRAUTHOEFER: Tracie Krauthoefer, Corvus-Culture.

MR. DAVIS: I was here this morning. Brian Davis, Subsistence Division.

MR. GILBERT: Okay, that's right, Brian, thanks.

MR. KLEIN: Joe Klein, Alaska Department of Fish and Game.

MR. CAREY: Bryan Carey, Alaska Energy Authority.

MR. GILBERT: Okay, great. How about those of you on the phone that are new? We've got a court reporter here and it'll just help us to know who all we have. Go ahead.

MR. STALLMAN: Jay Stallman, Stillwater Sciences.

MR. GILBERT: How about Mike Bruen, do we have you yet?

MR. BRUEN: (Indiscernible - interference with speaker-phone).

MR. CAREY: Okay, so Mike's on now?

MR. GILBERT: Is he on?

UNIDENTIFIED SPEAKER: Yeah (affirmative).

MR. GILBERT: Okay, all right, great.

GEOLOGY AND SOILS CHARACTERIZATION STUDY (Study 4.5)

MR. CAREY: Okay, Mike, can you see the screen?

MR. BRUEN: Yes, I can.

MR. GILBERT: Okay, we're starting with Geology and Soils.

MR. BRUEN: All right, so as you all know, we've been preparing documents throughout the process, including back in June and also in November, on the ISR reporting and also the Study Implementation Report. The status is, we've conducted a series of site investigations out at the dam site with some more regional studies to complement that to a lesser degree, more related to the seismic, which is -- a lot of that is covered under 16.6, which will be discussed later and we briefly touch

upon it here.

It involves the characterization, geologic characterization of the dam site area, in particular, related to both the geology and soils and also with respect to supporting the engineering feasibility effort.

Go onto the next one, Bryan. So the other pieces of the objectives have included also, besides the dam site area, looking at the proposed construction areas that would support the effort during construction, looking also at the reservoir area, the impoundment area, that we have, and of course, the main corridors and the alternatives relative to that (indiscernible - interference with speaker-phone) of course is the impacts of the project on -- relative to potential effects related to construction, operation, and maintenance.

Key to the more regional studies has been the mineral resources and mineral potential of the project area, so having a feeling of what might lie within the impoundment area, in particular, and also where other facilities could be or the corridors, and as I mentioned earlier, supporting the design effort relative to the feasibility development of the project.

Go ahead. A number of reports have been put out. These are listed

here and are -- have been completed and this gives you a listing of that. Go ahead. I think we skipped one maybe, Bryan. Yeah (affirmative), variances. So the key variance that really we've had is that relative access and transmission line corridors, the Chulitna one has been dropped, and most of you have heard about already, and we've added another elemental offshoot, the Denali East Corridor Option, as well, and that's most significant since the original filing.

Go ahead. So with respect to the work we've done, of course, you know, way back when we got started, there's a lot of existing information to go through and (indiscernible - interference with speaker-phone) information that was available from the 1980s studies, in particular, that we were able to tap into and use for this development and just augment to those studies.

It started out with basically developing a work plan that included a multi-phased geotechnical exploration that would look at the dam site, as well as the adjacent quarry, potential quarry locations for aggregate for the dam site and this involved 15 borings and almost 5,000 feet of drilling and that's all been logged and the cores have been cataloged relative to that,

better understand that, as well as any testing down in the holes themselves, and taking samples from the continuous information we've collected and getting lab tests on it to characterize the properties of the material and the geology of the soils resource.

With respect to the dam site, you know, generally we have pretty rock. It's fractured. It's sheared. It's altered, typical for an igneous environment and with blocky, very blocky-type material, conducive to recent (indiscernible - interference with speaker-phone) foundation conditions for the project and one of the things that we did look at was in the '80s, at that time, based on the mapping that was done, they identified what they called geologic features, which were shear or potential fracture zones that might have been greater than five feet and we relooked at those and investigated those between drilling and the mapping onsite to better understand what those might be and how they might affect the quality of the foundation conditions for the project site, affecting that more so than the geology and soils from a resource standpoint.

In addition to that, there had been postulated some possible faulting that could have been there from -- based on information collected from

(indiscernible - interference with speaker-phone) data, very high level stuff back in the mid-70s to some (indiscernible - interference with speaker-phone) features that might exist based on the 1980s program. So that was another piece of the augmentation of actually looking at those a little bit more closely.

Based on what we found is that where they've been postulated as something running down the river or close to the river, the east-west segment of the Susitna River, there was no evidence to support any sort of possible east-west fault beneath the river, which would be covered by the alluvium. We investigated that with drilling and testing within the drill holes.

In addition, we did a surface fault rupture evaluation and the findings of that is the potential of a surface fault rupture within the foundation area of the dam site is considered extremely low.

Next. From a groundwater perspective, you really looked at the north and south side of the river a little bit differently. The north side, just generally the groundwater table is relatively deep, whereas on the south side, it's a little bit more difficult to discern because of the frozen ground

that exists within that, which would freeze the -- anything within rock, as are as pathways for groundwater.

What we do know from the instrumentation we've done is that permafrost can extend to, you know, 200 or a little over 200 feet on the south side of the river, particularly in the north-facing slopes and that the fractures within the rock could be filled with ice, which would impact potentially slope stability or actual foundation cutoffs that we would do in dam construction, all which can be handled pretty easily, depending on how the construction is approached and because, in particular, the permafrost at this site is very close to freezing.

It's just barely frozen and all within one degree centigrade of freezing. So -- and as I mentioned, you know, abutment stability comes into play relative to that and so we did some preliminary studies and evaluation of that.

In addition to that is, one looks at the dam site area, as well as the reservoir area, there are some shallow debris flows that are, you know, exist in various areas and it's certainly a function of thawing permafrost.

Next. When you look at the reservoir area, as well as, you know,

just upstream of the dam site, you have some fairly thick deposits of overburden on the slopes covering the igneous and metamorphic rock that exists through the -- up and down the reservoir.

As I mentioned, the frozen ground and permafrost exists. We see a number of the periglacial features, the identification of that with the shallow mass movement, but there's no indication of any large significant landslide potential that could occur that might impact the reservoir. It's just going to be more a function of, as the reservoir comes up, it's going to thaw the soils that are frozen and they're going to ooze and be these shallow platting features in the -- along the reservoir rim.

With respect to mineral resources, there are a few mining claims and prospects in the area, but there are no active mining within the reservoir or even adjacent, right adjacent to that. Next. Go ahead.

MR. CAREY: It's been moved.

MR. BRUEN: (Indiscernible - interference with speaker-phone). So the other pieces of information relative to mineral resources, the potential of aggregate that might be available, you know, one of the key areas of aggregate that's available is actually within the river itself

(indiscernible - interference with speaker-phone) course sandy, gravely, (indiscernible - interference with speaker-phone) boulderly, alluvium that exists would be covered by any impoundment.

We do know that in the reservoir area, as you put a reservoir in, you're going to end up raising the adjacent groundwater table within the adjacent abutments or shoulders of the reservoir. So that would be a direct result of that impoundment.

As we noted, with the reservoir rim, the thawing of the permafrost will result in some of these shallow mass movements of debris flows, et cetera, that you currently see throughout the area in the river valley right now.

Next. We'll talk more about seismic later, but the key things to walk away with this general seismic environment within the Susitna and the Susitna-Watana dam site area is that the block within which the project area sits within is very stable.

There is a lack of any crustal quaternary faults within the area. Grant it, you have the Denali way north, Castle Mountain way south, but within that zone between those two features that are quite some distance

from the site, there's generally a lack of anything of quaternary age that has been identified.

Within the dam site, we note that there is some preferred orientation of the fractures that we see that represents -- and is subject to northwest/southeast oriented compressive strength environment that we see because the on-going subduction of the Pacific Plate, as well as the North American Plate, and what we see now is that the current environment is not conducive to reactivation of any features, whether they be fractures, or what have you, based on that contemporary stress regime.

In addition to looking at the seismic hazard piece and just to get a better handle on the background of seismicity in the area, a network was installed and monitored from 2012 through 2014, and over that period, about 2,500 micro-seismic events were -- occurred. The largest being for the intraslab at a depth of greater than 30 kilometers, something of a maximum of a magnitude 4.6 and relative to crustal features, the magnitude being 3.8.

Next. For the moment, I'll defer discussion of the triggered seismicity, reservoir triggered seismicity, which will talk more about under

16.6, but it was also -- a preliminary study was done relative to that element, as well.

With respect to the engineering side of things, the information collected from the geologic characterization and the laboratory testing was used to come up with design criteria that would be useful in the engineering analysis that was done for feasibility and for selection of dam type, location, et cetera.

Some of the elements that come out of that after collecting that information identifying the criteria is to -- is to look at the -- is developing, look at the foundation evaluation and what should be considered in the development of the feasibility design, as well as the aggregate sources that would be needed for the concrete and RCC mixes that would be used in construction.

Next. These are a series of the outcomes of the reports and technical memorandums that were developed, both on the geologic characterization, the seismic evaluation, and the Engineering Feasibility Study for the project. Next. Go ahead.

MR. CAREY: It's on the modifications.

MR. BRUEN: Okay. So proposed modifications, there are no modifications to the study plan methods and needed to complete the study plan. What remains to still (indiscernible - interference with speaker-phone) to evaluate it, of course, is getting into the access corridors, transmission corridors, and looking at the various elements of that, and that would include from the mineral resources and geologic characterization of the geology and soils along those corridors and construction areas. Next slide.

MR. CAREY: It's on steps.

MR. BRUEN: So the steps to complete the study, the outstanding items really -- are really just finishing up the mineral resources, checking the catalog of any new claims and prospects that might be listed in the future and whether they may be active or not (indiscernible - interference with speaker-phone) some of them are active, and then additional investigations, particularly along the corridors of the reservoir area and the construction material sources there.

Next, and you know, just the participants that we've engaged with throughout this whole process.

MR. CAREY: Do we have questions?

MR. GILBERT: Thanks, Mike.

MR. BRUEN: Questions. You're welcome.

MR. GILBERT: We're opening it up for questions. I hear some other noise on the phone maybe -- okay, sure, Joe.

MR. KLEIN: Yeah (affirmative), I just got a question. So you mentioned that on the left side, there was permafrost to 200 feet. I'm just wondering, is that continuous or discontinuous and what might be the effects of a full reservoir on that permafrost? Would there be any subsidence or anything?

MR. BRUEN: Okay, well, with respect to that, yes. So we have detected it based on using temperature acquisition instrumentation that we installed in bore holes on the left side, as well as the right side, and based on that, we determined that from a temperature standpoint that it does show temperatures down to about 220 feet in at least one or two locations where the potential for frozen ground conditions occur.

With respect to that, most of that is in rock, solid bedrock. So what that means is, in the overburden frozen, you'll get some oozing, potentially

at the low slope angles that we have up there on top where there is that overburden, which is not very thick, but once you get into the rock, which will be stripped away under the dam anyway, when you get into the rock, the only thing that can come into play is, could there be within the very tight or very thin opening, you're talking about millimeters, quarter of an inch, what have you , where you might have some ice forming that is very close to zero degrees.

What we anticipate is -- and expect is that with the filling of the reservoir, the abutment will thaw and that will no longer be -- there will no longer be ice-filled joints in the foundation beneath the dam on that left side, high up on the abutment. So those cracks -- fractures will ultimately be filled in with the grout curtain that's installed beneath the dam, filling those cracks with cement grout with no subsidence.

MR. GILBERT: Okay, thanks.

MR. BRUEN: You're welcome.

MS. LONG: I have a question.

MR. GILBERT: Sure.

MS. LONG: This is Becky Long. I'm having a computer

malfunction. Do you have a special report on the permafrost in the area?

MR. BRUEN: Not a separate report, there are paragraphs within several of the listed reports that talk about the ground temperature and groundwater conditions and the abutments at the dam site, as well as within the reservoir. That's probably in (indiscernible - speaking simultaneously)...

MS. LONG: Just in those sites?

MR. BRUEN: Pardon me.

MS. LONG: Just in those sites?

MR. BRUEN: Well, the instrumentation that we used, which is used to extrapolate to some extent in the reservoir, is based on the installments (indiscernible - interference with speaker-phone) in the general area or the footprint of the proposed dam site, the whole size of the river.

From that, we were able to gather pretty good information. As you go away from that, it's more a surficial geomorphic evaluation of the near surface conditions based on what we've seen. It's really the overburden soils that would be that, you know, thawing of permafrost or ice ridge sediments, the soils, that occurs.

MS. LONG: Do you think -- this is Becky again. Do you think that away -- getting away from the dam site, I know that several other reports, the DOT report and I forget the -- the glacial report talk about discontinuous permafrost through the project area...

MR. BRUEN: Right, right.

MS. LONG: Do you think...

MR. BRUEN: It...

MS. LONG: But -- well, anyway, do you think that this is a near surface permafrost?

MR. BRUEN: Yes. Yes, I -- we do. It's only locally we may get to some depths, as we mentioned, in the rock of 200 feet, but within the rock, permafrost doesn't have a significant effect. The more that you see is really a function of (indiscernible - interference with speaker-phone) and soils that lie on top of the bedrock in some places.

MS. LONG: Thank you very much.

MR. BRUEN: You're welcome.

MR. GILBERT: Other questions for Mike and Geology and Soils Study?

MS. WOLFF: I've got a quick question. It's Whitney Wolff.

MR. GILBERT: Okay.

MS. WOLFF: This is just regarding, you had mentioned mass movement and most of that on the north-facing slopes, you're attributing to melting permafrost. I'm just curious what you attribute the -- there's sort of an area east of the dam site, closer to the wide area near Watana where there's a south-facing slough -- sloughage area, I'm just wondering what you attribute that to.

MR. BRUEN: No, you -- you find that at the dam site that based on our instrumentation that it's really -- we noticed that this permafrost there based on temperature reading to some depth, which you don't really notice it, except possibly way low on the north side, down by the river, which is shielded because of the steepness of the valley. So you might (indiscernible - speaking simultaneously)...

MS. WOLFF: Sure.

MR. BRUEN: There are some spotty kind of permafrost there, very small pieces, if you will. As you go to the reservoir, though, you do see it on both sides, indications of the near surface based on geomorphology and

the soils and some of these thin mud flows, debris flow kind of thing. You do see it, as you mentioned, in the Watana Creek area where more of that has happened on both east-facing or west-facing, which would probably be more southeast-facing, southwest-facing slopes, where you'll see that. You'll see that they may be, because of the bluffs that have been created because of glacial sediment, where you're seeing a little bit larger flows that have occurred in those areas, but it is all a function of ice rich soils melting.

MS. WOLFF: Okay, thank you.

MR. BRUEN: You're welcome.

MR. GILBERT: Anything else? Okay, thanks, Mike. You'll be back up in a little bit after we do the PMF study.

MR. BRUEN: Will do.

PROBABLE MAXIMUM FLOOD (PMF) STUDY (Study 16.5)

MR. GILBERT: Okay, John Haapala, are you online?

MR. HAAPALA: Yes, I'm on the line.

MR. GILBERT: Okay. Good, well, we're going to get your slides loaded here and it looks like Doug Ott's going to move them forward for

you.

MR. OTT: Okay, John, take it away.

MR. HAAPALA: All right, so this is Study 16.5, Probable Maximum Flood Study. Next slide. So the status of the Probable Maximum Flood Study is that it is complete. The final report for the PMF and PMP study was dated May 2014. At the October 2014 ISR meetings, we did report on our results and nothing has changed since then. All the results and all the conditions are still exactly the same. So I'm going to go through this presentation rather briefly because essentially, it's the same as was presented in October 2014.

Next slide. So the ultimate objective of the study is to ensure the flood safety of the dam. The probable maximum flood is the highest standard of flood safety for dams that is used anywhere in the world.

Next slide. The components, a couple of ones I would highlight here is that there was a Board of Consultants Review for these studies and on the Board of Consultants was an independent expert in meteorology and also an independent expert in hydrology.

One of the important things that I always say in these studies is the

flood hydrology model calibration and verification, so we did a lot of work on that and we do call this the probable maximum flood study, but it also incorporates development of the site-specific probable maximum precipitation, which was a large part of the study.

Next slide. So for variances, what is normally done for the calibration and verification is that two floods are selected for calibration and one is selected for verification. However, as we got into the study and we're looking at the data and analyzing the historic floods, we found that there were two distinctly different types of floods that occur on the Susitna.

One is a springtime flood that results primarily from snowmelt and the other type is a summertime flood that results primarily from rainfall. So since we had identified two distinctly different types of floods, we actually doubled the number of calibration and verification floods. We did three on each of those two different types of floods.

Next slide. Our review of previous PMF Study Reports, one of the things that really stood out to us was the importance of snowmelt on floods, how snowmelt can really be the dominant condition in the major

floods on the Susitna. So we paid a lot of attention to that, and one of the standard conditions that is specified in FERC guidelines is that we have to develop 100-year snowpack to be included with the seasonal probable maximum precipitation and that's -- that actually was a critical condition for the inflow design flood.

Next slide. So getting into results, the model we selected to use for the flood hydrology study was the Hydrologic Engineering Center Flood Hydrograph Package. This is a US Army Corps of Engineers model, and the reason that we selected that model to use was that -- well, it's one of the two models that are specified or are recommended in the guidelines by FERC, but also the HEC-1 model uses the energy budget snowmelt method, which is really the best method in the available models to use for snowmelt.

Under coincident conditions for the PMF, there are alternative pieces to be investigated to determine what the critical PMF condition is. One is the 100-year snowpack plus the seasonal PMP. The second one is probable maximum snowpack, which is even greater, much greater than the 100-year snowpack, plus the 100-year rainfall, and then the third

condition was unique to this study, which was the probable maximum snowpack plus maximum temperatures, which would occur with no rain, that is, there would be no clouds and therefore, the temperatures could get higher than would occur in a cloudy, rainy day. So this was actually based on an occurrence at a field visit that was performed and so it was requested by the Board of Consultants and we did it.

All right, next slide. So a summary of results for the probable maximum precipitation, the critical storm termed out to be an August 1967 storm that occurred generally in the Fairbanks area. The actual final results on the probable maximum precipitation were in 24 hours, 4.4 inches, 7.19 inches in 72 hours, and 10 inches for 216 hours, which is nine days, and that was, you know, the maximum duration of precipitation that we simulated.

All right, next slide. So these are the results. The peak inflow was 310,00 cfs. The peak outflow was 282,000 cfs, you know, and this would be at the dam. We did prepare a Final Draft Report, which was in May 2014. It's quite detailed. It's 390 pages and it includes both the PMP and PMF. So the critical condition did turn out to be the 100-year snowpack

plus the probable maximum precipitation.

All right, next slide. So this is a graphic of the results where the blue line is reservoir inflow at the dam. The red line is reservoir outflow and the green line is reservoir elevation and the outflow line has some different shapes to it that relates to when the gates are sort of holding back water.

At first, there's a flat line there in the red line for a little ways and that's when the reservoir is trying to provide flood control downstream, but then when the flood is just too big, the reservoir gates have to open and so we see a rising outflow and the curved top is basically when the gates are fully open and providing the maximum outflow capability.

All right, next slide. So AEA plans no modifications of the methods of this study, as the study is now complete. Next slide. It looks like a repeat. PMF study is complete. So right now, we'll open it to questions.

MR. GILBERT: Thanks, John.

MS. LONG: Yes, this is Becky Long from SRC. I just wonder, I've lived through two floods. In October of 1986, there was, what we all thought was a 100-year flood and they had to evacuate Talkeetna. That

was in the fall and part of the reason why those areas were flooding, I wasn't in Talkeetna, I was in the Talkeetna River Watershed, but because we had already had freezing weather and so the ground could not soak up any more rain and it had been raining all summer and then it just kept going on in the fall, and then the end of September in 2012, due to the rain, there was a big flood and they had to evacuate Talkeetna. I just wonder how that fits into how you see things.

MR. HAAPALA: Yes, you know, I did talk about a few cases briefly here, but there were actually quite a few more cases that we investigated. You know, we did, not only the critical flood -- turned out to occurring in the first part of June, when there was the 100-year snowpack, and you know, virtually the maximum PMP, but also we looked at floods for every month or actually, every half month, you know, ranging from April through October.

We looked at all of those and there are varying conditions. There's varying precipitation. There's varying snowpack. The reason that the August or July/August floods were not the most critical is basically there's no snowpack except in the glaciers and so snowmelt was really a critical

part of, you know, perhaps even the dominant part, at least in volume, that snowmelt is the dominant part and when we're in September and October, the snowpacks are just much less or perhaps only even on the glacier -- so they did not turn out to be critical.

MS. LONG: Well, I guess it was critical enough to evacuate the town.

MR. HAAPALA: Well, that's true. You know, I'm not -- I'm not saying that floods don't occur during those times. We're looking for the probable maximum floods, you know, the greatest flood that could occur. You know, we're talking about, you know, a peak inflow of 310,000 cfs. Whereas, the maximum flow that has been recorded at USGS gage in Gold Creek is around 90,000. So we're, you know, the flood we're simulating here is more than three times greater than the maximum of occurrence.

MR. GILBERT: Does that help, Becky, put it into perspective?

MS. LONG: Yes, it does. Thank you very much, and I have just a follow-up question, which is more a process question, is the Board of Consultants work done in this process?

MR. HAAPALA: I'll turn that over to Bryan Carey.

MR. CAREY: Yeah (affirmative), this is Bryan here. Normally, the Board of Consultants, the licensee meets with after the license application, but in this case, to -- we decided to start meeting with them before the license application to get their thoughts down early, and so meeting with the Board of Consultants would continue all the way through, at license application and following license application, you know, for -- so the dam can be designed safely, be it flooding or seismic or otherwise. So it is not over with the Board of Consultants.

MS. LONG: Thanks, Bryan.

MR. GILBERT: Other questions? Sure, Joe Klein has a question.

MR. KLEIN: Joe Klein, Fish and Game, so I'm just curious, it didn't sound like it, but were any modifications needed to the project, the spillways or anything or the freeboard?

MR. HAAPALA: Well, the purpose of doing the probable maximum flood inflow was to correctly design the spillways so that they do have enough capacity. So that design of the spillway to be capable of safely passing the PMF study was -- was really a result, you know, the result of the study and not a modification of the study.

MR. GILBERT: So yes, it was done for that purpose, as a matter of fact.

UNIDENTIFIED SPEAKER: (Indiscernible - too far from microphone).

MR. GILBERT: Good. Anybody else have anything for John and the PMF Study?

MS. WOLFF: I've got a question. This is Whitney Wolff, Talkeetna. I'm just curious in the ISR Part C. some of this data, like you said, was put together for designing the spillway and storage and levels and such. Are we at 2,050 as a reservoir level? Would it take some of the flood control storage or just reading here in the study that with an inclusion of what sounds like (indiscernible - interference with speaker-phone) standard at 3.5-foot high parapet wall on top of the dam crest, but can you increase that storage level more or could you just explain how that works, please?

MR. HAAPALA: Yes, the maximum normal pool of the reservoir is at 2,050. That would be the maximum level without floods occurring. So the maximum level during the PMF is 2,064.5. So that would be the

highest spillwater level that we would ever expect to occur in the reservoir.

On top of that, we account for some wave action, wind waves, and when we say there is a 3.5-foot parapet wall, that would only be to resist overwash by wind waves. There would be -- there's no storage against that at all or no static water level storage against that.

So there is the normal storage of the reservoir. On top of that, there is flood storage and on top of that, there's still some freeboard to account for wind waves.

MR. GILBERT: Does that answer it, Whitney?

MS. WOLFF: (Indiscernible - interference with speaker-phone).

MR. GILBERT: Okay. Well, good, thank you, John, great presentation.

SITE-SPECIFIC SEISMIC HAZARD STUDY (Section 16.6)

MR. GILBERT: I think we can now go onto the Site-Specific Hazard Study. Back to you, Mike Bruen.

MR. BRUEN: Okay, excuse me.

MR. GILBERT: Bryan's back at the keyboard to help toggle him along.

MR. BRUEN: Okay. So the Specific-Seismic Hazard Study was carried for the project under 16.6. The study has been completed. Interim status, the documents that have been produced included the ISR Report in June 2014, and the Study Completion Report in November of 2015.

Next. The objectives of the study revolved around evaluating the crustal seismic sources that would be found within the area of the project site. This study was carried out using lineament analysis, identifying what these lineament areas might be and then field checking them and evaluating them to determine any degree of activity (indiscernible - interference with speaker-phone) faulting or maximum magnitudes that seismic (indiscernible - interference with speaker-phone) found faulting were they erosional items that are a function of the glacial landscape and erosion process used (indiscernible - interference with speaker-phone) current or the recent time, since the glacier's moved back from the area.

Using this information, we looked at the spacial and geometric relationships of these faults and seismic source zones and how they were related to the site, the current structure (indiscernible - interference with speaker-phone) that we see based on the seismic activity in the area around

the project.

In addition, we installed a long-term seismic monitoring network, a number of instruments, to record what the background seismicity was occurring of both those earthquakes that occur in the crust and the underlying interplate zone due to the (indiscernible - interference with speaker-phone) plates, and from -- all this information is collected.

This was used to evaluate the seismic hazards at the site and looking at earthquake ground motions that could occur, as well as the seismic criteria that needed to be used in the evaluation and the development of any dam structure and the associated structures for the project, as with...

MR. CAREY: Excuse me, Mike. Mike, are you moving past objectives into one of the other slides?

MR. BRUEN: No.

MR. CAREY: Okay.

MR. BRUEN: Okay, and in addition to those objectives, the other piece was to look at bringing on the Board of Consultants, as was done with the PMF, as an independent technical review and to provide guidance on the development of the site-specific studies for the seismic hazards for

the project to be considered.

Next. So the components that we used, you know, we had the various methods. We reviewed the existing data that had been a seismic hazard evaluation that was completed in the '80s. That information was reviewed and also incorporated into the evaluation for the seismic hazards, looking at the seismic hazards that were reported in the ISR, coming up with a preliminary seismic hazard assessment, and then, you know, as mentioned, the data that was collected for the Earthquake Monitoring System gives that background seismic activity.

In addition, a preliminary reservoir triggered seismicity, assuming the (indiscernible - interference with speaker-phone) provide, was another method to evaluate seismic hazards for the project.

Next. There were no real variances to the project, other than you know, some access issues, but this was a phased study, so it was accommodated because of the multi-year and phasing of the work. So we were able to work around that and complete that work.

Next. In looking at the data and the summary of the results, you know, we used the information that was collected and studied in the '80s.

We also used information collected on earthquake activity since the '80s study and updating those, based on the current state of the practice for seismic hazard evaluations and included, you know, collecting the various seismic cataloging of the events that occurred in the area and seismic -- as well as understanding how the effects (indiscernible - interference with speaker-phone) occurred elsewhere around the world.

In looking at the crustal seismic elements of this, this involved using LiDAR and IFSAR imagery to identify the lineaments or lineament groups that were suspect relative to potentially having -- of being results of seismic activity and from this, one of the keys that had been identified in the '80s was looking at the Talkeetna fault, a northeast/northwest fault that was (indiscernible - interference with speaker-phone) fault that was identified at that time that crosses the reservoir at Watana Creek about 10 miles upstream and to further look at that and look at the evidence of that in that -- and below, reviewing the trenching information in the path, recent geophysical survey that has been done in the area by others.

Next. As we were looking at the potential fault studies, we also did that at the dam site. This has been mentioned earlier, and this was to

primarily look at so-called geologic features, which we felt had been -- had less continuity and were not as wide or as extensive as had been previously depicted.

You know, we know that shears and fractures occur in the rock, particularly in an igneous environment and -- but there's no evidence that any of these would support surface displacement or had in the past or that we anticipate in the future, based on the evidence or lack thereof, of evidence, as we've seen over the last 12,000 to 15,000 years, since the glaciation of the area.

In looking at the seismic monitoring, we know that there are earthquakes occurring in both the crust and the downgoing slab. The largest being 4.6, which was at a depth of 38 miles, 62 kilometers, and at a distance of almost 25 miles from the dam site, and that was southeast of the dam site, so nothing close by to that magnitude and that was the largest found in the project area, which we looked at for a 100 miles in radius.

Next. The -- what we do know from the information collected is the seismic events were a function of three sources to occur. One is the crust, which goes down to about 30 kilometers and then there's a subduction

zone interface between that and the downgoing slab and the actual downgoing slab of the Pacific Plate going under the North American Plate. So those are the three sources.

In the deterministic evaluation, we found that the depth (indiscernible - interference with speaker-phone) slab produces the largest potential ground acceleration at the dam site and would dictate the seismic criteria for the dam evaluations.

When we looked at the crustal work from the lineament analysis, the groundtruthing we did, there was a lack of evidence of late quaternary faulting, anything within the last 12,000 to 15,000 years within at least 25 miles of the Watana dam site.

Based on the evaluation and the information collected in our analysis, the deterministic seismic hazard evaluation would come up with at peak ground acceleration at the site of .81g. Whereas, in looking at a probabilistic seismic hazard evaluation, the maximum magnitude would be a magnitude 8, and that would produce a peak ground acceleration of .66g at 5,000 years.

So using the -- this information in developing the seismic design

criteria, which was used in the dam stability evaluations and the development of the feasibility design, this incorporated our understanding of the intraslab rupture in developing the MCE, the Maximum Critical Earthquake, based on each of these seismic sources, and then in addition, looking at the operating basis earthquake, as well, so we could develop each of these that would all be plugged into the dam stability evaluation for the project.

Next. In addition, reservoir triggered seismicity is really a function of, as you put the impoundment into the large deep reservoir, what would that do to the seismic activity that we've seen already based on the monitoring we've done, what have been seen historically elsewhere around the world, and based on that evaluation, you know, we anticipate there's going to be some seismic activity that might be triggered by the filling of the reservoir and below the (indiscernible - interference with speaker-phone) on the crust.

What we're looking at is a magnitude on the order of 6.3 to 6.5, which is lower than the seismic design criteria used in the dam analysis, because the MCE that we came up with will generate a far greater

earthquake ground motion than was -- than we expect from the reservoir triggered seismicity events.

Next. There are a number of reports and technical memoranda that have been developed based on the seismic hazard evaluation, which involves characterization, both of the crustal and the intraslab events, as well as the various data documents on the seismic network, the annual seismic network and this is just a continuation of that -- of those reports.

So the project, the study has been completed at this time and the Study Completion Report was filed and AEA has not planned any more modifications to the methods as, you know, the study is complete.

MR. GILBERT: Great.

MR. BRUEN: And with that, I would ask if there were any questions.

MR. GILBERT: Questions for Mike?

MS. LONG: Yes, this is Becky Long again. I know I should know the answer to this from the last two presentations, but so there is a Talkeetna fault that crosses the reservoir at Watana Creek or there isn't?

MR. BRUEN: There is one, but it does not show any recent activity

over the last 12,000 to 15,000 years. It's considered -- it is drawn as one line and in fact, it's been drawn by a number of authors in the past to indicate it, which, you know, shows a little bit of difference in the location where it crosses, but based on looking at that both in the '80s, when it was trenched and looked at in more detail, as well as the additional studies that were done at this time, using the LiDAR imagery to evaluate those features, it looks like it's more of a segmented, series of segments of features that are quite old and we don't see any evidence of any potential movement in the last 12,000 to 15,000 years.

MR. CAREY: And Becky, this is Bryan...

MS. LONG: Okay...

MR. CAREY: And I'm just mentioning the fact that the Talkeetna fault where it's put down as being possible is not at the exact dam site. It's upstream of it.

MS. LONG: Correct, by Watana Creek or...

MR. CAREY: Yes.

MS. LONG: ...which is upstream, right?

MR. CAREY: Right.

MS. LONG: (Indiscernible - interference with speaker-phone) okay, yeah (affirmative), right, exactly. So I'm just a lay person who's read a little bit about earthquakes and I know that the earthquake science is not exact. It's hard to predict. So basically, as a lay person, you're saying that the design of the dam would be to withstand a magnitude 8 earthquake?

MR. BRUEN: Yes, with the -- so the -- based on the probable -- probable seismic hazard assessment, correct.

MS. LONG: So what was the one that was -- the Denali one in 1992 or whatever that one that shook us all up, what was that?

MR. BRUEN: That was a 7.8 magnitude in 2002.

MS. LONG: Okay, 2002, there you go. I'm losing track of my time.

MR. BRUEN: Yeah (affirmative), which is, you know, a considerably further distance away from the project site.

MS. LONG: Thank you.

MR. BRUEN: You're welcome.

MR. GILBERT: Anybody else, questions on seismic study?

(No audible response)

MR. GILBERT: Okay, thanks, Mike, good presentation, appreciate

it.

MR. BRUEN: You're welcome.

SUBSISTENCE RESOURCES (Study 14.5)

MR. GILBERT: And John, we're going to go ahead and shift gears now, if everybody's ready, why don't we go ahead and do subsistence?

MS. KRAUTHOEFER: So my name is Tracie Krauthoefer and I am the program lead for the Subsistence Resources study. Okay, so the status of the study so far, we have filed the ISR, the Initial Study Report, Parts A, B, and C with FERC, as well as the 2014 Study Implementation Report, and the filing dates are up there on the slide.

Status, we have completed community baseline household harvest surveys in all of the communities identified in the study plan, meaning household harvest surveys. We've completed traditional knowledge interviews in a number of the communities identified for the traditional and local knowledge workshops.

We've completed the compilation of existing subsistence data and we are currently planning the traditional knowledge workshops still remaining and the subsistence mapping interviews.

The study had six main objectives, which are listed here on the slide, but in general, we wanted to identify communities that use areas that are within the project area for subsistence harvest, communities that use project area lands to access other lands or waters for subsistence harvest, communities that use resources that migrate through the project area, but are harvested in other areas.

We wanted to document traditional and local knowledge of the communities within the watershed and who use the watershed, but are located outside of it. We wanted to evaluate project development plans to identify likely sources of potential impacts on subsistence uses and then to gather and provide the necessary information needed to prepare the ANILCA 810 evaluations.

To fulfill these six objectives, we had five main study components, the compilation of existing data, the household harvest surveys, also known as community baseline harvest assessments, the household harvest surveys in state-designated nonsubsistence areas. Typically, Fish and Game does not do household harvest surveys in nonsubsistence areas, so this was unique for the project, the traditional and local knowledge

interviews and the long-term subsistence mapping interviews.

We have one variance. In response to concern expressed by the Chickaloon Village Traditional Council, AEA added the Knik Tribal Council, Knit Tribe, a federally recognized tribe with ties to the Susitna River watershed, to the traditional and local knowledge interviews component.

Summary of results, we have completed the review and compilation of existing data for all of the 37 identified study communities. We have completed household harvest surveys in 22 study communities. These include Talkeetna, Trapper Creek, Chase, Cantwell, Susitna and Alexander Creek, Skwentna, Kenny Lake, Gakona, McCarthy, and Chitina, also Tyonek, Copperville, Glennallen, Gulkana, Lake Louise, Mendeltna, Nabesna, Nelchina, Paxson, Tazlina, Tolsona, and Tonsina.

Fish and Game, the Division of Subsistence, has published the results of all of the household harvest surveys in their technical paper series. Those technical papers are TP 385, 394, 404, and 405, and those can be downloaded from the Fish and Game website.

We have completed 28 traditional and local knowledge workshops

in seven communities. Those were Cantwell, Chitina, Copper Center, Eklutna, Gakona, Gulkana, and Tyonek.

We have shared the pertinent data from those workshops with the Cultural Resources Study and the Health Impact Assessment Study for follow-up and we presented a study overview and household harvest survey results to the Cook Inlet Regional Working Group in July of 2014.

The variance that I discussed before is also the only proposed modification that we had and this is simply because this has not yet been implemented. AEA, again, in response to concern expressed by Chickaloon Village Traditional Council has added Knik Tribe to the traditional and local knowledge interview component.

Steps to complete the study, we need to complete the traditional and local knowledge workshops still remaining for Chickaloon Village Traditional Council and Knik Tribal Council. We need to complete the subsistence mapping interviews and for those, we would be conducting interviews in selected study communities to document the last 10 years of subsistence use.

The study plan identified tentatively eight communities for those

interviews and that was Cantwell, Chase, Healy, Talkeetna, Lake Louise, McKinley Park, Trapper Creek, and Petersville, but we will be refining that list based on our existing data compilation, the results of the household harvest surveys, consultation with communities and agencies, and whatnot, moving forward. That's it.

MR. GILBERT: Thanks.

MS. KRAUTHOEFER: You're welcome.

MR. GILBERT: Great update. Questions or comments on the Subsistence Study status?

MS. KRAUTHOEFER: And I actually -- I meant to introduce Brian Davis. So previously, you guys have seen Damon Holand (sp) representing Fish and Game Subsistence Division. Brian Davis has taken on his role, yeah (affirmative).

MR. GILBERT: Questions?

MR. DAVIS: If I can speak?

MR. GILBERT: Sure.

MR. DAVIS: The Division would like to propose to consider a couple modifications to the survey plan, the addition of two additional

baseline surveys in two communities that have been discussed in project planning in the past, but have slipped through the cracks.

Chickaloon is a community that has demonstrated use of the watershed area. I just looked on the Fish and Game website and you'll be able to see a large number of Chickaloon residents who are using the project area to harvest moose, primarily, and the last baseline survey done in Chickaloon was in 1984. So it's -- it needs an update.

The other community that we propose, you know, additional baseline survey for is the community called Susitna North, which is a census designated place, which extends on the east side of the Parks Highway from Willow Creek to the Talkeetna Access Road, and in the -- this is -- this community that is also called Parks Highway and it's also been called -- what's the other name? In planning documents, it's been referred to as -- well, it's near Sunshine, yeah (affirmative), for example, but the Parks Highway is the community name that's been use in past documentation. Susitna North is, again, the census designated place.

It's in the project area, right adjacent to Talkeetna. When Talkeetna was added to the project in 2012, Susitna North may have been understood

to be part of that expanded study area, but it was not. Only Talkeetna proper was included in that study. So we're proposing adding Susitna North to that.

People who live in Sunshine, for example, also have demonstrated use of the project area and the baseline survey from that -- from Susitna North dates to 1984.

MS. KRAUTHOEFER: All right.

MR. GILBERT: Thanks.

MS. KRAUTHOEFER: Thank you.

MR. GILBERT: Yeah (affirmative), sure.

MR. HANKINS: Jesse Hankins here. Just curious, the previous slide limited use to the past 10 years and I'm curious why it's limited to the past 10 years. Did I read that correctly?

MS. KRAUTHOEFER: Yeah (affirmative), you did read that correctly. That is just so the -- the harvest surveys that we do have a mapping component, but they only track the previous year's worth of mapping. So the 10-year surveys are meant to get a longer-term picture of use in the area.

That's just been the standard methodology for other similar-type projects like from Alaska LNG and the Alaska Pipeline Project and those projects, we've gone with a 10-year period. That's the reason for that.

MR. HANKINS: Okay, thanks.

MR. GILBERT: Other questions, anything on the phone?

(No audible response)

MR. GILBERT: Okay, going, going, gone. Okay, thanks, Tracie. So maybe we should take a little break here and then we'll do the cultural resources. Is that okay? We're on a roll, I know, but we -- we can do just a 10-minute break. How about that, and start back up at 2:30. Thanks.

2:22:38

(Off record)

(On record)

2:32:27

CULTURAL RESOURCES STUDY (Study 13.5)

MR. GILBERT: Okay, we're going to start up again to not keep anybody waiting. We've got two studies to go over now in the remainder of the day. We have Cultural Resources and Paleontological Resources.

So Burr Neely from Northern Land Use is going to give us presentations on both of those and then we'll have questions and comments. So this is Study 13.5.

MR. NEELY: Great. Thank you, Kirby. I would just start off by saying thanks for not falling asleep on me this afternoon for the last couple presentations here.

You all have probably heard from Justin Hayes in the past. He was the study lead for Northern Land Use. He's no longer with us. He decided to go back and work on his Ph.D., so you get to deal with me today, so a new face, but same material.

So 13.5 Cultural Resources, the study status here in the ISR documents are standard for, as with the other studies, for us. We have completed the paleoenvironmental study. We did complete an inventory of approximately 30 sites on CIRWG lands, submitted year-end reports, permit stipulations to the BLM for federal lands and the Alaska Office of History and Archaeology, OHA, for state lands, and lastly, assembled the Ahtna ethnogeographic and linguistic information to help us inform future inventory and evaluation efforts on historic properties, and as a part of

that, completed the Ahtna ethnographic report.

The objectives, again, no change from previous presentations, all centered around the identification and evaluation of historic properties within the area of potential effect. Then moving toward determining project related effects and developing information necessary, ultimately for HPMP.

Many components to this, again, nothing has changed here from previous presentation, previous survey, developed a very robust location model to help inform a survey strategy to ensure we're targeting high probability areas.

Again, that's the strategy and phasing of field investigations, mapping activities, ethnogeographic-related work. We'll touch on synthesis and analysis. There was an unanticipated discovery protocol developed early on in the project, and then the archaeological internship and additional workforce component. I'm happy to report that we were able to hire one person from, Alaska Native, from -- actually, from Interior Alaska, one of the elders, Larry Jonathan (sp) from Tanacross. He's one of the last speakers, actually, of that dialect of the upper Tanacross region, so

a success on that in 2014.

So variances, to date, and this is, again, stood true in the past presentations, that there has not been sufficient information yet collected on traditional cultural properties to incorporate those into the project geodatabase, in terms of being able to have that as a layer and a point of interpretation within the geodatabase, and then the Dena'ina ethnogeographic component of the Study Plan has not been initiated. It will be completed in a future year of the study.

For a summary of results on the ethnogeography, the data collection for the Ahtna component, again, completed primarily through the work of Bill Simian and Jim Carey, was completed. The language and place/name database and atlas has been update and very greatly, rewardingly integrated also into the GIS. All the place names are now within the site location model and are used as a weighted variable within that model for the identification of cultural resources, and then there was a final report, again, on the Ahtna components of the ethnogeography that has been prepared.

On the archaeology side, you know, the investigation at the end of

2013 had resulted in recordation or re-recording, called inventorying for this project, of previously known sites, 167 at the end of 2013, and 85, which were previously unknown, and then 2014 allowed for the inventory of 30 sites on the CIRWG lands that were available to survey.

The study team, again, completed the paleoenvironmental study, with an emphasis of that study is to create just another layer of cultural context. When we get into the evaluation of sites, it becomes very important in understanding site significance, and then the number of newly recorded sites is being compiled. I would say to date, we've done work on, you know, the federal lands, CIRWG land, state land, and we're in the process now of compiling all of those numbers to arrive at some bigger picture items. That's in process.

Modifications, this first bullet is standard to everyone with the Denali East Corridor addition. I think that this just leads to a modification here in the second bullet, particular to cultural resources that really deals, not so much with the modification of method, but timing. The Initial Study Plan had laid out that you would complete your inventory of sites and then you'd move to your evaluation.

This is stating that some sites may be inventoried and evaluated at the same time, so that you would be -- we'd be working concurrently and for many reasons, timing, logistics will probably prove to be more efficient in future years, as opposed to doing one inventory and then evaluation, so a minor modification.

Steps to complete the study for cultural are the ongoing inventory evaluation of archaeology and built environment cultural resources within the APE, both direct and indirect, but primarily direct that may be affected by the project.

To date, the inventory, I think is complete, in terms of finding preexisting sites, but there is still work to do on identifying new sites and then evaluating sites, and then the assembly of the ethnographic and linguistic information relative particularly to traditional cultural properties still remains, as does the Dena'ina side of the ethnographic component, and that's pretty quick. Here we are at questions.

MR. GILBERT: Okay, great.

MR. GILLISPIE: I just wanted to offer a comment, and this is more of a personal comment than SHPO comment, I...

MR. GILBERT: Just introduce yourself so the...

MR. GILLISPIE: I'm sorry.

MR. GILBERT: I'm sorry, I didn't do it.

MR. GILLISPIE: I'm sorry. I'm Tom Gillispie. I'm representing OHA and SHPO today, eyes and ears today. I've been a field archaeologist in Alaska for 30 years. I was involved with the original studies on the Susitna-Watana in the '80s (indiscernible - too far from microphone) NLUR's had done an exemplary job, in my personal opinion, and made a...

UNIDENTIFIED SPEAKER: Thank you.

MR. GILLISPIE: ...a major advance in the use of their site predictive model and incorporating (indiscernible - too far from microphone) data.

MR. GILBERT: You know, I don't know if you guys are -- is anybody on the phone? You might have to step up a little closer.

MR. WINCHELL: Yeah (affirmative), this is Frank from FERC. Yeah (affirmative), if he could -- yeah (affirmative), a little bit more clear.

MR. GILBERT: Okay, welcome, Frank, yeah (affirmative).

MR. GILLISPIE: Well, I had just been saying that personally, this

is more or less a personal comment, I had been a field archaeologist in the state for many, many years and have worked on the original project and I was just -- wanted to comment that I thought NLUR's work had been exemplary.

Their site predictive model is a whole order of magnitude advanced over what we were doing in the '80s, and the ethnographic and place name components have been advanced. I'm -- I would encourage NLUR and AEA, if possible, to move some of this information into the published literature. It certainly deserves it.

I'll probably offer some written comments, but they'll be routed through Judy Bittner, SHPO, so that we're clear that our office has approved what I have to say. Well, thank you.

MR. NEELY: Thank you and I would say that's not without the obvious support of AEA and everyone in the room. So the credit's shared, but thank you.

MS. MCGREGOR: This is AEA. I appreciate that feedback. I think we have some phenomenal contractors working for us across the board.

MR. GILLISPIE: And I wanted to make one more comment. I happened to know some of the people who were involved in the paleoenvironmental work and have heard a little bit about it and it sounds like that also will be a quantum increase in what we know about the region and that component's extremely important in that area because without it, the study of the deep past is basically contextless, and it's the kind of stuff that contributes directly to determination of the eligibility process. So it was money very well spent.

MS. MCGREGOR: So as a follow-up, I've had previous conversations with Tom and we will make the paleoenvironment report available and we'll capture that in the meeting summary, as well as the ethnogeography study.

MR. GILLISPIE: Yeah (affirmative), and if there is an opportunity to bring that work forward into the refereed research literature, I think that would be an important dissemination of information.

MR. GILBERT: So Frank, were you able to hear that?

MR. WINCHELL: Yeah (affirmative), I sure did, thanks.

MR. GILBERT: Okay, thank you. Other questions, comments on

cultural resources? Any questions, Frank?

MR. WINCHELL: No, other than just the paleo study, that's been completed, but that hasn't been filed yet, right? Do you have any plans on when you might file some of the completed study?

MS. MCGREGOR: Yes, Frank, that was what I was alluding to. So the meeting summary we file on April 24th, I believe, right, April 24th?

MR. GILBERT: Yeah (affirmative).

MS. MCGREGOR: So we'll also, at that time, with our meeting summary, file the Paleoenvironment Report and the Ahtna Ethnogeography Report. They've been completed. They just haven't been filed.

MR. WINCHELL: Okay.

MR. GILBERT: Okay. Great.

PALEONTOLOGICAL RESOURCES STUDY (Study 13.6)

MR. NEELY: This is the advantage of the last time slot of the day. Perfect, you're right.

MR. GILBERT: Paleontological Resources Study, 13.6.

MR. NEELY: We'll again clarify that archaeologists don't do

dinosaur bones, but I will report on paleontological resources as it is a somewhat related study. Really, the work here is primarily done by Pac Rim Geologic Consulting, Tom Buntsen (sp), who many people know, and others that contributed to this. I'm, again, here to report.

So in terms of the status, the following tasks were completed and the major news on this report, that really nothing has changed since this status update from 2013, conducted the literature review, prepared a map of the known fossil finds.

There were four plant fossils found by the archaeologists and we don't do fossils, so we hand them over, but those were documented sites, and also entered into the HRS, which -- the Alaska Heritage Resource Survey, which serves to capture the location and descriptive information, not only of archaeology sites, but of paleontological sites, but no additional work has been conducted on this study since 2013.

Again, to determine the location of any significant paleontological resources is the primary objective. The components went through essentially a desktop review, identification of potential areas, determination of field survey and monitoring needs and field survey, as

necessary.

The variances are schedule related here and again, the standard no changes since the last presentation. In terms of summary of results, you can see that there was a grouping of fossil-bearing rocks identified through the literature review listed there. They tend to group in two locations, which are indicated on this map. You can see where the black dots line up near the -- near north of the impoundment area and then another smattering there to the northwest.

So most fossil locales occur within two distinct northeast-striking belts. Twelve fossil localities occur within the transportation corridors, three within the inundation zone, just to give you a sense of the distribution of those resources.

I think probably most importantly here is that none of the known fossil finds in the study area where of critical scientific importance. They're out there, but this is not known as the fossil hotbed. We're not in Dinosaur National Monument, as an example, and again, the four fossil finds there have been reported, the map showing the distribution with the black dots have been known published fossil locations.

The modification here, again, is the Denali East Corridor Option and then steps to complete would really be to identify potential impacts, determine the geologic units that may be impacted by the project, determine if field work or other methods are necessary to do further identification or monitoring of know paleontological resources at those locations, and that's again, determine the need for field survey and complete it, as needed, as determined or not, and that's paleontology.

MR. GILBERT: All right, any comments for Burr on the paleontology?

MS. WOLFF: I've got a quick question. This is Whitney Wolff up here in Talkeetna, just again, I'm kind of focused, it seems like today, I'm trying to figure out the methodology here for identifying the impacts, but do you -- what do you -- or do you just overlay the reservoir topo lines and -- I mean, do you have a methodology for how you assess impacts to these sites or is there some kind of process to that?

MR. NEELY: Tom would be the best person to answer that, but in general terms, yes, those known locations are compared to activity areas associated with the project and then there's essentially a risk assessment

that's done to see if those activities pose a real risk, ground disturbing activities, direct or indirect impact to those resources and then they're kind of evaluated on a case-by-case basis, depending on the location of project activities.

MS. WOLFF: Okay. So is that -- is that -- that lies ahead for you?

MR. NEELY: Correct.

MS. WOLFF: Thanks.

MR. GILBERT: Anything else?

MR. WINCHELL: Yeah (affirmative), this is Frank from FERC, yeah (affirmative), real fast, if I'm hearing this right, most of the paleontological sites are not of critical scientific importance. So you know, speaking of impacts, if they were inundated or disturbed, would there be no mitigation for those kinds of sites? I mean, yeah (affirmative), I don't really know that much about the paleontological assessment of these sites for, you know, significance on paleontological sites. So on those kinds of sites, would they be kind of equivalent to be not eligible for the National Register, as far as archaeological sites?

MR. NEELY: That would be an -- a good analogy. You don't do a

National Register eligibility nomination on them, but yes, you would have someone like Tom say this is significant or not and if it's not significant, it doesn't become a management concern, in terms of dealing with impacts.

MR. WINCHELL: Okay.

MS. WOLFF: So this is Whitney, can I just follow up on that? So just as far as importance to let's say like a regional Native group, do you have some kind of -- I guess I'm trying to find out if you have kind of a matrix of some kind where you assess that type of, you know, rate them somehow by importance and then that would dictate how you, you know, proceed with whatever mitigation you might do?

MR. SENSIBA: This is Chuck. I can take a stab at answering the question. That's -- that's a very good summary, Whitney, of what you see a lot of times in Historic Properties Management Plans, that when you have a proposed ground disturbing activity, if there is a site that is part of the area of potential effect in that -- where that ground disturbing activity will take place, sometimes there are options in the HPMP of what to do about it and that could be anything from avoiding the site altogether, so that you're not impacting where that site is, all the way to, in some cases, taking

photographs, in other cases, excavating the site. There's kind of a grab-bag of different options of what to do if avoidance is not an option.

MS. MCGREGOR: And part of it's up to the land owner, too.

MR. SENSIBA: Yeah (affirmative), and Betsy just mentioned there is a landowner component, too, which of course is very prevalent here at this project.

MS. MACDOUGALL: This is Alison MacDougall. I'm with the Louis Berger workgroup. I work with Frank. I have a question about paleontology, as well, so I guess what I'm trying to figure out is sort of tagging onto what Frank said, you know, for (indiscernible - interference with speaker-phone) properties, we have criteria to determine significance, whether or not they're important, and if they are insignificant, then you go on with management measures.

So we don't have criteria like that for paleontological resources, correct? So who and how do they determine whether or not they are significant and whether or not -- I guess I'm just trying to better understand how that works.

MR. SENSIBA: Well, I would say that Whitney's comment was

about historic properties, cultural resources and that's where the HPMP would apply, and I think that there's...

MS. MACDOUGALL: Right.

MR. SENSIBA: ...a lot of head nodding around the room here that that's not the same type, and we've already talked about it today, that's not the same standard that would apply to if there are fossils present and paleontological resources that have no interaction at all with cultural, and I -- there are some standards that do apply and it's been a while since I've looked at them, but they, I think, are put out by BLM.

We talk about this in the study plan and that's a resource that I would recommend that we all go back to and look at, in terms of...

MS. MACDOUGALL: Okay.

MR. SENSIBA: ...how sensitive the area is, based on some of the similar types of modeling and geologic work that's known about the site and Burr, maybe you know a little bit more about that.

MR. NEELEY: Yeah (affirmative), well, it gets down to the -- who the consultant is and their knowledge, because a lot of it's comparative to other regions and the frequency of paleontological sites, high frequency,

which we don't see in the project area here, would tend to lead credence to more significance and again, something to look back to is the study plan. There are criteria out there that BLM does deal with this regularly on federal lands and I would imagine that there are criteria we could look into and determine what that is.

MS. WOLFF: Okay, so BLM makes the final determination?

MR. NEELY: On -- it's a land owner-driven -- I was only referencing that BLM, generally as an agency has published more guidance on the consideration of paleontological resources. The land owner status is ultimately where a lot of the decision rests with paleontology.

MS. WOLFF: Okay, thank you.

MR. GILBERT: Anything else for paleo?

(No audible response)

NEXT STEPS AND ADJOURN

MR. GILBERT: Okay, I think we're finished in our day here. Thanks for everybody participating and great presentations, really good. Just to recap, we'll be filing the notes on April 24th, as Betsy mentioned, the meeting summaries and they'll include the Powerpoints, and then June

23rd is the deadline for filing any comments by any licensing participants about the, you know, the meeting summaries or anything that's been presented up-to-date, and then after that, there'll be another set of dates, August 22nd will be another milestone for filing again, comments on those comments, and then finally, in October, hopefully, FERC will be able to make the study plan determination.

So is there any other last-minute, last questions from anybody else, comments?

(No audible response)

MR. GILBERT: Okay. Thanks, everybody.

2:56:46

(Off record)

SESSION RECESSED