UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Loup River Public Power District
Project No. 1256-029-Nebraska

Loup River
Hydroelectric Project
(FERC No. 1256-029)
Study Plan Discussion

Holiday Inn Express
Columbus, Nebraska
April 21, 2009

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VIA TELEPHONE:
MR. RANDY THORSON, NATURAL PARKS
MR. DAVID TURNER, FERC
MR. MARK IVY, FERC
MS. KIM NGUYEN, FERC

(Whereupon, the following proceedings were had, to-wit:)

NEAL SUESS: All right. I'd like to thank everybody for coming today. My name is Neal Suess. I'm the president and CEO of Loup Power District.

We're going to do some quick introductions here and go that way with it. We're here to talk about our study plans for our hydroelectric project relicensing. We also have some people on the phone; is that correct, Lisa?

LISA RICHARDSON: We're going to. I'm not sure if they're there yet.

NEAL SUESS: Okay. We also have a court reporter here, who is going to be recording everything.

So what I'd like to do is go around the room and have everybody introduce themselves and basically say who -- what your name is, who you're with and what's your interest in the Project.

And obviously, my name is Neal Suess. I'm the president and CEO of Loup Power District, and our interest in the Project is getting it relicensed.

So do we want to start on this side, Lisa?

LISA RICHARDSON: That's fine.

NEAL SUESS: So why don't we start over here with Pat.

PAT ENGELBERT: I'm Pat Engelbert with HDR Engineering, and I'll be coordinating the water resources efforts on this relicensing project.

JOHN ENGEL: John Engel with HDR, water resources.

SCOTT STUEWE: Scott Stuewe, HDR, Springfield, Illinois, fisheries biologist.

MATT PILLARD: Hi, I'm Matt Pillard. I'm with HDR out of Omaha. I'm an environmental scientist.

GARY LEWIS: Gary Lewis of HDR, geomorphologist and hydraulic engineer, working on the habitat issues in the river.

GEORGE WALDOW: I'm George Waldow, HDR Minneapolis, senior hydropower relicensing consultant to the team.

NICK JAYJACK: I'm Nick Jayjack with FERC, fisheries biologist out of Washington, D.C.

JIM FREAR: Jim Frear with Loup Power District.

DAN NITZEL: Dan Nitzel with Nebraska Off Highway Vehicle Association.

RON ZIOLA: Ron Ziola with Loup Power District.

MARY BOMBERGER BROWN: Hi, my name is Mary Bomberger Brown. I'm with the Tern and Plover Conservation Partnership.

JOHN SHADLE: John Shadle, Nebraska Public Power District.

JOHN BENDER: John Bender with Nebraska Department of Environmental Quality.

MICHAEL GUTZMER: I'm Mike Gutzmer. I'm with the Lower Loup NRD as well as an environmental consultant.

FRANK ALBRECHT: I'm Frank Albrecht. I'm with the Nebraska Game and Parks Commission --

RANDY THORSON: You're -- this is Randy Thorson, Natural Parks. You're cutting in and out --

NEAL SUESS: Yeah. Randy, I apologize for this. It's going to be a little bit difficult for the folks on the phone just because of the room setup and what we have right now. And so I'm going to -- you know, I'm going to ask you guys to bear with us, but it's going to be pretty difficult for you guys to hear a lot of the things that happen today. And I apologize for that. It's

just the nature of the beast that we have here with the communication setup in Columbus.

So Frank, do you want to go ahead again?

FRANK ALBRECHT: Sure. Frank Albrecht, Nebraska Game and Parks in Lincoln.

RICHARD HOLLAND: Richard Holland, Nebraska Game and Parks Commission, fishery biologist.

JEFF RUNGE: Jeff Runge, US Fish and Wildlife Service.

LISA RICHARDSON: Lisa Richardson, HDR's project manager for the Project.

NEAL SUESS: Stephanie?

STEPHANIE WHITE: Stephanie White, HDR. I am the facilitator today for today's meeting.

NEAL SUESS: And then do we want to go around the outside of the room with everybody?

QUINN DAMGAARD: Quinn Damgaard, HDR, environmental scientist.

JOE MANGIAMELLI: Joe Mangiamelli, City Administrator, Columbus.

DENNIS GRENNAN: Dennis Grennan with HDR Engineering. I'm a regional power and energy manager and client manager for Loup Power.

ZACH NELSON: Zach Nelson, United States Senator Ben Nelson's office.

GAYLE GOERING: I'm Gayle Goering. I'm with Cornhusker Power District.

THERESA PETR: I'm Theresa Petr for Loup Power District, communications coordinator.

NEAL SUESS: And for those on the phone, would you state -- I will start with the folks from FERC.

DAVID TURNER: David Turner from FERC, wildlife biologist.

KIM NGUYEN: Kim Nguyen, I'm project coordinator for FERC.

MARK IVY: Mark Ivy as a recreation planner from FERC.

NEAL SUESS: Okay. And Randy, are you still on the phone?

RANDY THORSON: Yes, I am. Randy Thorson, Natural Parks Service.

NEAL SUESS: Okay. Obviously, as I said, we have a court reporter today. A couple just little logistics things. If you have a cell phone, I would ask that you either turn it off or put it on silent or vibrate so it doesn't ring, so at least we respect the people on the phone. Because that does

create some kind of a problem.

Please speak up so the court reporter can hear you. We do not have microphones in this room, other than the one we have right in front of us. For you guys on the phone, again, I apologize for the logistics, but we will try to do our best to speak up so that you can hear all of us and that we can hear you.

And at this point in time, I'm going to turn it over to Lisa and Stephanie and let you guys do your thing.

STEPHANIE WHITE: Thanks.

KIM NGUYEN: Neal?

NEAL SUESS: Yes.

KIM NGUYEN: I just wanted to make sure it was you.

NEAL SUESS: Yeah.

STEPHANIE WHITE: Okay. As Neal mentioned, we've got a lot going on in this room today. We have a number of visuals in the corners that we'll use throughout the presentations today.

We also have a pretty packed agenda, so I'd like to walk through the agenda and give you a little overview of the goals of each section of our day.

Everyone should have an agenda -- maybe not the folks on the side. Lisa, would you mind just making sure everybody has agendas? Do you have an agenda over on the corner? Okay.

Today's meeting will really be split in half. The morning session will essentially serve as an overview of the study plan document itself. We'll talk a little bit about the time line. We'll talk about the roles and responsibilities of the players in the next 90 days, which is really the time that we'll use to seek consensus on our study plans. So that's what will happen in the morning.

The first thing, just right after we get done, Lisa will come up and talk about the study plan process. She'll talk about this graphic off to my right that you've seen many, many times. And for those of you on the phone, the graphic I'm pointing to is Slide No. 2, Review Study Plan Process and Study Criteria.

At 9:15, we'll go into a very high-level overview of the study plans themselves, and we'll go through all 12 of them quickly, goals, objectives, and a little bit of the outcomes of the activities that we expect in those.

After that, we'll talk about some requests

that came from many of you, whether in full or in part, that did not get included in the study plans. And we'll talk a little bit about why, and we'll have some discussion with all of you on those elements or those components.

Then, at 11:15 -- and again, it's a tough job for me today to keep all of you on track. That's a lot to pack in. But at 11:15, we'll shoot to talk about the baseline, the study baseline and what that means for alternatives in this project.

We'll have a break for lunch. And then in the afternoon, we'll have an open discussion with the group on the goals and the objectives of the study plans that we consider aquatic resources. So those would be Studies 1 through 7 to my right. It would be these studies right here, the first seven we'll talk about this afternoon. We'll only talk about goals and objectives. We'll talk about methodology at another meeting.

So our goal is to try to use your time as wisely as we can, make the best use of your time, and continue to do that throughout the 90 days. Ron, did you have a question?

RON ZIOLA: Just a comment. It's actually one through five and seven.

STEPHANIE WHITE: That's right.

RON ZIOLA: One through five and seven.

STEPHANIE WHITE: Okay. Just a quick overview of the goal of today's meeting, before I bring Lisa back up. And you'll hear this a number of times throughout today. It's right on top of your agenda. It's also on a slide.

But really the goal, again, is for us to provide an overview of the study plan, so that will be this morning. Then we'd like to begin to seek consensus on the goals and the objectives of the proposed studies related to aquatic resources.

A couple other things. We do have a court reporter here today who will take a transcript of the meeting. We will post that on the web after it's been finished and reviewed.

I want you to speak up. I also want you to feel like you can speak freely and have a good active dialogue today. So part of my job will be to repeat things that you've said or to make sure that we have one person talking at any given time.

We have no scheduled breaks, but I would imagine we'll take at least one or two. If you need to get up and take care of some business, please

feel free to do so.

Any questions before we get started?

All right. Lisa, I'd like to ask you to come up. And I think for the morning conversation, when we're walking through slides, if the presenters can be close to the microphone so the folks on the phone can hear it, I'd appreciate that.

LISA RICHARDSON: All right. We're on Slide 2. This slide shows an overview of the relicensing process. As you can see, we're in that first blue box there with the red arrow above it, refining the issues and develop the plans to study them.

Back in January and February, FERC held scoping meetings and received agency and public input. That input was on issues and studies related to relicensing. And that information was what we used to develop the proposed study plan that we issued back in March.

As you can see from the -- from this graphic, the next green box is actually performance of the studies. That doesn't start until this fall. Until then -- between -- in the next two to three months, during that time period, we will be working to refine the studies and working with agencies and

other relicensing participants to identify what is the exact information that's needed for relicensing of the Project.

Go on to Slide 3. As we discussed in our previous agency meetings that we had last summer -- and I believe it was even discussed at the scoping meeting -- FERC and the federal regulations have seven criteria that they use -- requested all agencies used when they make a study request.

Those criteria are shown on this slide and are: The study request should include the goals and objectives of the study; the relevant resource management goals; public interest related to the study and the need for the information; a summary of the background or existing information that's available related to the specific study or subject; and next is to the Project, what does it -- how does the area of interest or study relate specifically to the Project; what is the proposed methodology that could be used to evaluate that issue; and finally, what is the level of effort or cost to perform such a study.

During the scoping process, we received two formal study requests that identified these seven criteria. One was with the Department of

Natural Resources related to ice jam flooding on the Loup River, the bypass reach, that is. The other one was a recreation survey from FERC.

In addition, during scoping, we also had several what we'll call informal requests or information requests that didn't specifically address all seven criteria, but were related to information that may be needed or studies that may be needed for relicensing.

And I have to get closer to the microphone.

When we were developing our study plan, we took a pretty broad view of all of those informal comments that didn't necessarily meet all seven criteria, and we tried to do everything we could to incorporate those into our studies and identify how they related based on each criteria.

Now, there were some study requests or pieces of requests that we didn't include in the study plan, and we'll go into detail later about why we didn't and some of the rationale or relationship to these criteria.

So as we develop the study plan, our end goal was, as Stephanie mentioned, identifying the information that's needed for studying the Project

and the impacts to develop a new license.

This slide shows some key dates that are related to the next several months of the relicensing process. From April to July is when we'll be refining studies and seeking consensus on what needs to be studied and how it should be studied.

During that time -- this is -- this is the first meeting of several that we'll have during that time to talk one on one with agencies or in small or large groups to identify what is needed to be studied and how is the best way to do that to provide the information that is needed for both the environmental assessment that FERC will be preparing at the end of the relicensing, as well as for the biological assessment that will be needed by the Fish and Wildlife Service.

June 25 is a -- is the formal deadline for comments on the proposed study plan, both for public and for the agencies. Like I said, that's the opportunity for formal comment, but we're really hoping that we can get all of your comments and interests and discussion out during these meetings so that we can work to address those and work together to identify what is the best way to resolve

those issues.

At June 25, any requests that are made must follow the FERC criteria so that we have a better understanding or a complete understanding of what is requested and why it's needed and how it relates to the Project. Because from that point on, we'll only have a month to finalize our revised study plan and -- which will be due to FERC July 27.

The study plan that we submit July 27 will incorporate all of the discussions that we have between now and then and the issues that we get identified and resolved, as well as the methodologies for the studies.

August 26 is the date that FERC will issue their study plan determination. This will identify the specific studies and methodologies that FERC has identified need to be performed for the relicensing of the Project.

And finally, September 15 is the deadline for dispute filing. FERC has a formal dispute resolution process. And for agencies that have mandatory conditioning authority, they can file a dispute. The deadline for that is September 15, and the formal -- full process on that dispute resolution is identified in 18CFR, Section 5.14.

Next, I'll kind of reiterate what Stephanie had identified as the goals for today's meeting. We want to have an open discussion on the study plan where we will present the rationale and overview of what we include in our study plans and why.

We'd like you to participate in the same manner and identify things that you think are needed and why they're needed. As Stephanie said, this morning we'll be going over the entire study plan, and then this afternoon, we'll be looking at consensus on getting -- consensus on the goals and objectives of those aquatic resources study plans.

And like I said earlier, we'd really like to get your feedback now rather than as a formal comment in June because we'll all be a lot better off if we can work one on one and get to those goals now.

And finally, as I said, this is the first of many meetings. We have several meetings already planned. May 5 is a discussion with the state historic preservation officer regarding cultural resources, which is specific to Study No. 11. If there's others who want to participate in that, let us know. We've got that scheduled.

But May 11 is the recreational resources discussion where we'll get into more detail -- like we're doing this afternoon on aquatic resources, we'll get into more detail about the specific studies related to recreation.

KIM NGUYEN: Did you say May 6 was the cultural meeting?

LISA RICHARDSON: May 5.

KIM NGUYEN: Five?

LISA RICHARDSON: Yes, five.

KIM NGUYEN: Okay. And then May the 11th is the rec?

LISA RICHARDSON: Yes. And then we also have May 27 and 28 identified as the next time for meetings to discuss -- any additional discussion related to all 12 of the studies. We anticipate talking about the methodologies related to the aquatic resources studies at that time. If there are additional things related to recreation or cultural resources that need to be discussed, we'll also use those meetings for those topics.

And all of these dates we had sent out earlier in the process, trying to get them on everybody's calendars. I hope everybody has had the opportunity to reserve those out a little bit so

that we can have some meaningful discussions with the key participants in the process.

And then July 1 is another meeting that we had just tentatively on the calendar. That, as you notice, will be after the filing deadline for comments, but it's still an opportunity, if we haven't been able to get all the issues worked out, to continue to have discussions prior to us having to finalize the revised study plan.

And then if we need to have other discussions one or one or in small groups, we'll schedule those the best we can to continue the dialogue.

With that --

KIM NGUYEN: Lisa, what about the meeting with DNR?

LISA RICHARDSON: Detailed discussions of the ice study will probably occur at the May 27 or 28 meeting. The District has other issues that they'll be discussing with the DNR at a meeting later this month. Anything that's related to relicensing that may be discussed will then be discussed at that later May meeting. But the majority of the topic at this April meeting with the DNR is related to nonrelicensing issues.

KIM NGUYEN: Okay.

MARK IVY: Are some of these planned to be conference calls, or are they all planned to be meetings?

LISA RICHARDSON: They will be whatever is most appropriate. The recreation one -- which, I think, Mark, is the one that you're most interested in -- will be a face-to-face meeting. It will be available by conference call. Any meeting that we have will be available for conference call. And people -- if somebody wanted to attend the May 5 meeting with SHPO, that would be fine. We would just like to know who is planning to attend. But all the calls will be made -- all of the meetings and discussions we would make available by conference call. The May 27 and 28 meetings, we really would anticipate that being face-to-face, like today's meeting.

MARK IVY: Okay.

STEPHANIE WHITE: This is Stephanie White. I may go over just some logistics for those of you on the phone. The slides that we are viewing in the room today are all online, and I want to make sure that you've had a chance to download those, or at least are looking at the same materials that

we're talking about today.

The dates that Lisa walked through are on Slide 6, so they should be in front of you as well. Does everybody have a copy of the slides on the phone today?

TELEPHONIC PARTICIPANT: (Three people reply no, one replies yes.)

STEPHANIE WHITE: If you'll all forgive me for a second, I'm going to help them navigate. If you can go to www.loup.com, and tell me when you're there.

KIM NGUYEN: We're there -- I'm there.

STEPHANIE WHITE: There's a button called, Relicensing. It's a blue button on the left-hand side. Have you clicked that?

KIM NGUYEN: I'm there.

STEPHANIE WHITE: Okay. And then there should be a navigation structure on the left, and one of them might say, Public and Agency Resources. Click on that.

KIM NGUYEN: Okay.

STEPHANIE WHITE: And then -- now you'll test my memory. I think in the public meetings, if you click on public meetings --

RANDY THORSON: Yeah, this is Randy. That's where it's found, that's correct.

STEPHANIE WHITE: Great. There should be the resources for today. Have you found that?

KIM NGUYEN: Yes.

STEPHANIE WHITE: Okay. If you pull up that PDF, you will have the slides in front of you.

KIM NGUYEN: The handout?

STEPHANIE WHITE: Yep.

KIM NGUYEN: Great. I've got it. Thanks.

STEPHANIE WHITE: Okay. We're on Slide 7.

KIM NGUYEN: Got it.

STEPHANIE WHITE: Okay. And Slide 6 is -- shows all the dates that Lisa just walked through, so you'll have those in print as well.

Okay. So this morning's -- the big goal for this morning is to review the study plan, to give you a high-level overview, make sure everybody is clear about where we are on the schedule, the process of the relicensing effort.

The purpose of the study plan, the

document that we will discuss today, at least in part, this afternoon and certainly this morning, is to identify studies needed to provide information for evaluation of a new project license relative to NEPA and ESA evaluations.

That's the purpose of the 12 study plans. That's the purpose of the overview you'll get today. So if you can, keep that in mind as you're thinking critically about whether or not the 12 studies, as they are written today, meet this purpose or this criteria.

Now I'm on Slide 8, which is a review of the study plans in list form. And for those of you on the phone, we have this list printed as a board in the room as well. We will refer to this list today, as well as the FERC Study Request Criteria, which probably those of you on the phone know pretty well. But that -- the FERC Study Request Criteria is Slide -- I think it's No. 3 -- it is. So we'll review -- we'll use those as boards in today's discussion.

There are 12 study plans: Sedimentation; Hydrocycling; Water Temperature in the Platte River; Water Temperature in the Loup River Bypass Reach; Flow Depletion and Flow Diversion; Fish Sampling;

and Fish Passage. Those first seven we consider aquatic resources, or study plans that address the aquatic resources.

Eight, nine and ten we are classifying as recreation, land use and esthetics. Those would be Recreation User Survey -- that was a study plan -- the creel survey and the land use inventory. Those we'll discuss in detail at future meetings, but we'll give you an overview today.

Eleven is the Section 106 compliance. Again, that will be discussed in a meeting with the SHPO after today's meeting, but we'll give you an overview this morning. And ice jam flooding on the Loup River, we'll overview that this morning and then talk about that in detail at another meeting.

So I want to go through these in order, and I'll bring Pat Engelbert up, who has led the water resources portion of our study team. And Pat, you can walk through these slides if you'd like. And in you don't mind standing by the microphone -- I know you've got a booming voice, but our friends on the phone need to hear too.

PAT ENGELBERT: As Stephanie mentioned, my name is Pat Engelbert. I'm with HDR. I'm kind of coordinating the water resources efforts

associated with this relicensing project.

What I would like to go through with you all today are the goals and the objectives of the study plans, you know, to meet the needs for this ESA and the NEPA document, and then a brief run-up of the methodologies or the activities that we anticipate having to perform in order to meet the objectives and then to meet our goal.

I guess the purpose of it is just to kind of get people thinking and up to speed, as I'm sure we all have lives and other things going on. It's kind of a warm-up for all of us as we roll into this afternoon's discussion.

Our first study plan deals with sedimentation. And the goal of that study is to determine the effect, if any, that Project operations have on stream morphology and sediment transport as it relates to T&E species in the bypass reach and in the lower Platte River.

The objectives in order to meet that goal are to characterize stream morphology and determine sediment transport parameters in the bypass reach and in the lower Platte River. The next objective is to determine if a relationship can be detected between sediment transport parameters and tern and

plover census data.

The next objective needed to meet that goal is to evaluate whether availability of sandbars is limiting tern and plover populations in the lower Platte River. Next objective is to determine if sediment transport is a limiting factor for pallid sturgeon habitat in the lower Platte River below the Elkhorn River confluence.

And finally, the last objective in order to meet our goal is to determine if Project operations affect sediment transport, and if so, does that influence ice jam flooding in the bypass reach.

So those we felt were the objectives that we needed to meet in order to ultimately reach our goal.

Now, the activities -- oh, we have one more objective -- oh, let me give an overview of what this slide represents. It's -- the objective is listed at the top, and then those activities associated with meeting that objective. So that I won't rephrase that objective up top, but those are the activities that we'll be using in order to meet that objective.

STEPHANIE WHITE: And every once in a

while --

RANDY THORSON: That's on Slide 10, right?

STEPHANIE WHITE: Eleven. Let them know where you are.

PAT ENGELBERT: Eleven, Randy. I'm on No. 11. And I'm No. 9 speaking. That's the number on my tag.

RANDY THORSON: Thank you.

PAT ENGELBERT: So the associated activities in order to meet this objective are to update the sediment budget -- existing sediment budget information utilizing existing data sources; generate collective sediment discharge curves at known USGS gage stations; and to review and utilize current USGS stream morphology literature.

Next associated activity, on Slide 12 now, is to plot and evaluate tern and plover census data against the sediment transport parameters that we are going to be calculating.

Moving on to Slide 13, we will then compare tern and plover census data and available habitat in the lower Platte River to those same parameters in the Missouri River downstream of Gavins Point Dam.

Next activity would be to compare pallid sturgeon habitat characteristics of the Upper Missouri and Yellowstone Rivers to those of the lower Platte River below the confluence of the Elkhorn River.

And finally, we -- on Slide 15 now, for those of you on the phone, we will research a potential link between sediment and frazil ice transport.

Our next study plan deals with hydrocycling, and the goal of that study plan is to determine the effect, if any, Project hydrocycling operations have on habitat used by listed T&E species in the lower Platte River.

Now, the objectives that we're going to try to meet in order to ultimately meet that goal, moving on to Slide 17, are: Characterize the relative degree of variance, both flow and stage, between hydrocycling and alternative conditions.

The next objective is to determine the effect, if any, Project hydrocycling operations have on the potential for nest inundation. The next objective on Slide 17 is to determine the effect, if any, Project hydrocycling operations have on sediment transport parameters.

The last objective on Slide 17 is to determine the effect, if any, that project's hydrocycling operations have on pallid sturgeon and their associated habitat.

Now, the activities that we're going to perform in order to meet those objectives and ultimately meet the goal is to collect flow and stage data and determine the timing, frequency, rate of change, all those characteristics of the sub-daily flow and stage changes as a result of the hydrocycling. Next is to develop and plot hydrographs for current Project operations as well as alternative conditions.

Moving on to Slide 19, we will identify benchmark events for tern and plover nest -- during the tern and plover nesting season. And we've kind of thrown it in as between May 1 to May 21, okay?

The next activity on Slide 19 is to tabulate and characterize flow events that occur after May 21 that would be greater than those benchmark events that we tabulated between, say, May 1 and May 21.

Moving on to Slide 20, we would determine sediment transport parameters for current Project conditions as well as alternative conditions and

relate those back to the sub-daily hydrographs, okay?

Moving on to Slide 21, we will compare Project river stage variations with flow and stage variations of the every-third-day cycling on the Missouri River below Gavins Point to analyze potential effects of hydrocycling on tern and plover nests and pallid sturgeon habitat.

Moving on to our next study, that being Water Temperature in the Platte, the goal of that study on Slide 22, now, is to determine if Project operations materially affect water temperature in the pallid sturgeon associated habitat reach of the lower Platte River, okay?

Moving on to Slide 23, the objectives associated with that particular goal is to determine if water temperatures at the Louisville gage are consistent with water temperatures at the Elkhorn River and the Salt Creek River, okay?

And our associated activities or our tasks to meet that objective will be to collect the existing USGS temperature and flow data at each of those three locations, that being on the Elkhorn, on Salt Creek and at the Louisville gage, and then plot the data series, roughly the March through June time

frame, against time to discern any differences in those time series trends.

So we will look at the water temperature over time at each of those gages to see if we can discern any relationships or anomalies associated with that information.

What we'll look at, or the information that we'll gather, is the ambient air temperature at the Mead weather station; Salt Creek, Elkhorn and Platte River water temperature at the gages associated with those locations, okay?

Moving on to the next study, that being Water Temperature in the Loup River and the Bypass Reach -- and it sounds like someone is trying to call in, or there's a phone ringing somewhere. Is everybody still on the phone?

TELEPHONIC PARTICIPANT: Yes.

PAT ENGELBERT: Let me know if we've lost anybody, although you probably can't tell me if we've lost you.

NEAL SUESS: Nice job, Pat.

STEPHANIE WHITE: Let's just take a quick roll call. Kim, are you on the phone?

PAT ENGELBERT: Kim, are you on the phone? Randy, you're on the phone?

RANDY THORSON: Yes.

PAT ENGELBERT: Are David and Mark with Kim?

STEPHANIE WHITE: I believe so.

MARK IVY: I'm on the phone.

PAT ENGELBERT: Mark is on the phone?

MARK IVY: Yeah, I'm on the phone. Kim is on another call.

PAT ENGELBERT: Okay. So we haven't lost her, she's just on another call?

MARK IVY: Yeah. Kim had to go to another conference call briefly. She'll be back.

PAT ENGELBERT: Okay. Thank you.

Getting back to our study plans, the next study plan is Water Temperature in the Loup River Bypass Reach. And our goal associated with that study plan is to determine the effect, if any, that Project operations have on water temperature in the Loup River Bypass Reach.

Our objectives associated with that particular study plan in order to meet that goal is determine the water temperature at the Diversion Weir and in the bypass reach upstream of the Beaver Creek confluence.

Next is to establish a relationship

between water temperature, flow, and air temperature in the bypass reach upstream of the Beaver Creek confluence. The last objective is to determine water temperature at the -- oh, I'm sorry. This is a repeat of that first objective.

The associated activities associated with meeting this particular objective is to coordinate with USGS to get temperature gages installed at their current stage -- stage gages in the bypass reach, okay, and also to establish a temperature sensor at the Diversion Weir because currently there is not one there.

Next, we will collect -- over the course of a year or two, collect flow and temperature data at those gage locations and estimate the following relationships at the Diversion Weir and at the USGS gage in Genoa.

We'll look at water temperature to see if there's a relationship between the Diversion Weir and the gage at Genoa for the water temperature. We'll look at water temperature and flow, see if there's a relationship between those two locations on those parameters. Then we'll look at water temperature and air temperature, see if there's any relationships, and then we'll look at all three,

water temperature, flow, and air temperature to see if we can discern a relationship there.

The next study plan is Flow Depletion and Flow Diversion. On Slide 28, now, our goal there is to determine if Project operations result in a flow depletion on the lower Platte River and to what extent, if any, Project operations affect the flow characteristics in the bypass reach as it relates to those listed T&E species.

The objectives associated with that goal is to determine the net consumptive losses for Project operations and alternative conditions; quantify change in stage in the Loup River bypass for Project operations and compare against alternative hydrographs.

We'll evaluate -- we hope to -- the objective is to evaluate Project influence on historic flow trends in the Loup and Platte Rivers. Next objective on Slide 29 is to determine the project's influence on tern and plover nesting on the Loup River above and below the Diversion Weir.

The last objective on Slide 29 is to determine the relative significance of the Loup River bypass reach to the overall fishery habitat on the Loup River, okay?

The activities associated with meeting those objectives are collect gage and atmospheric data; calculate net consumptive use for the Loup Power Canal system and the Loup bypass reach for current and alternative conditions.

We'll create flow and duration -- flow duration and flood frequency curves based on the USGS gages, and we'll quantify the stage in the Loup River bypass reach at Genoa and at Columbus for current and alternative conditions, okay?

Moving on to Slide 32, we will also evaluate historic flows on the Loup and Platte Rivers based on gage data. We'll collect existing information on tern and plover nesting activities upstream and downstream of the Diversion Weir.

We'll compare populations above the Diversion Weir to populations below the Diversion Weir relative to populations on the lower Platte River. That will give us an idea of what's going on. And we'll analyze existing information on fisheries populations both above and below the Diversion Weir. That's the last activity on Slide 34.

The next study is Fish Sampling, and the

goal there is to cooperate with the Game and Parks -- to cooperate and coordinate with their fish sampling efforts.

The objectives there are to facilitate access to the Project facilities to conduct fish sampling. And the activities are quite simple in that we'll coordinate with the Game and Parks to schedule access to Project facilities for purposes of sampling the fish, and we'll assist with launching and recovery of the Game and Parks boats used to do that fish sampling effort.

Okay. The next study plan is we're going to look at fish passage as it relates to the Diversion Weir, and we'll determine if a reasonable pathway exists for fish movement upstream and downstream of the Diversion Weir, okay? That's our goal.

Looking at the objectives on Slide 38, they are to determine the hydraulic conditions that limit movement -- the movement of fish; develop a hydraulic model to determine the flow split between the Diversion Weir and the Sluice Gates per range of flows; and to evaluate the hydraulic flow, velocity, and stage parameters at the Diversion Weir and at the Sluice Gate Structure.

The activities associated with those objectives are: To review stage and discharge data at the USGS gage stations; and perform a literature review to determine the velocity and depth criteria needed for upstream migration.

We'll also survey river cross sections upstream and downstream of the Diversion Weir to assist with our hydraulic model development; and we'll collect Diversion Weir headwater and tailwater elevations, again, to help with some of the calibration efforts.

We'll review flow duration curves at the Diversion Weir; and calculate the percent of time during the spawning season that the Diversion Weir would act as a barrier to upstream fish movement.

Now, on Slide 42, the next study plan is the Recreation User Survey, and I will turn that over to Lisa Richardson.

LISA RICHARDSON: Thanks, Pat.

The Recreation User Survey, the goal of that survey was to determine the public awareness, usage and demand of the project's existing recreation facilities to determine if potential improvements are needed.

The objectives of that study are to

measure the usage; document the types of recreational use; determine whether facilities meet the current demand; determine the public's perception or awareness of the facilities; determine if Project operations affect recreation; and finally, to develop a recreation management plan. Ultimately, that's the goal. The primary objective is to develop that recreation management plan.

The activities associated with this plan -- oh, I'm sorry, we're on to Slide 43 now. The activities to -- associated with this plan are on-site observations and conduct a Recreation User Survey; trail counts on the existing trails on District facilities; a telephone survey to judge usage or nonusage by area -- by residents in the area; a survey of the NOHVA group to judge the usage of the Headworks Park ATV facilities; analyzing the results -- sorry, analyzing the results of all of those different surveys and data collection activities; and then synthesizing those results with the results from other studies to develop the recreation plan.

Study No. 9 is a Creel Survey, on Slide No. 44. The goal of this survey -- this study is to determine the status of Project fisheries and how

those fisheries are used by anglers and to assess angler perception of those fisheries.

The objectives are to identify the species targeted by anglers; determine their catch rates; identify angler perception, expectation and level of satisfaction related to Project fisheries; and to provide information to contribute to the recreation management plan.

The activities associated with the creel survey is conducting a stratified, random survey using Game and Parks standard methodologies. This would be performed May through September. According to Game and Parks methodology, that would be four weekend days and six weekdays per month. That would include two-hour instantaneous counts of anglers, and then follow-up interviews with a series of folks as well. We would analyze those results and then synthesize them along with the results from the recreation survey.

Study No. 10 is the Land Use Inventory. The goal of this study is to determine the specific land uses of Project lands and adjacent properties to identify any potential conflicts and/or opportunities relating to Project operations, public access, recreation, and environmental resource

protection.

The objectives of the study are to interview -- sorry, to inventory land uses and access points along the Project; identify opportunities to improve access and to enhance public safety; determine conflicts and incompatible uses; identify potential solutions for any conflicts that may be identified; and again, for this information to contribute to the recreation management plan, along with the results from the creel survey and the Recreation User Survey.

The activities associated with this study are to use existing data and area photography to classify land uses; conduct a site visit to confirm that land use classification; document the land use on maps; and then analyze the results and identify any potential conflicts; and then finally, to synthesize these results in with the creel survey and recreation survey as part of the recreation management plan.

Study No. 11 on Slide 48 is a study associated with Section 106 compliance, Section 106 of the National Historic Preservation Act. The goal of that study is to achieve a National Historic Preservation Act Section 106 compliance through a

programmatic, ongoing consultation relationship between the District and the Nebraska State Historic Preservation Officer.

The objectives of this study are to identify the consultation needs to accomplish that relationship; identify and evaluate historic properties and properties of traditional and cultural importance to Native American tribes; to document historic properties and develop management recommendations for those properties; develop a Historic Properties Management Plan; and develop a programmatic agreement associated with the license to implement that Historic Properties Management Plan.

Activities associated with this study include preparing a Phase 1A archaeological overview; conducting Phase 1 archaeological field studies; identifying places of traditional, cultural and religious importance to tribes; evaluating the Project itself as a historic district eligible for the National Register of Historic Places; and identifying contributing elements and developing a documentation package for that historic district.

Now, on to Slide 50, and I'll turn it back over to Pat to talk about the Study No. 12, Ice Jam

Flooding.

PAT ENGELBERT: The goal of the Study Plan 12, Ice Jam Flooding on the Loup River, is to qualitatively determine the effect, if any, that Project operations have on the formation of ice jams or the severity of ice jam flooding in the Loup River bypass reach.

The objectives on Slide 51: Characterize the available information and its relevance to performing a qualitative analysis; determine if a relationship can be found between Project operations and ice jam formation or the severity of ice jam flooding in the Loup River bypass reach.

The activities associated with meeting those objectives are to collect and review the Nebraska Department of Natural Resources ice reports for the Loup River; and collect flow and temperature data -- existing flow and temperature data.

We'll also update the July 1994 United States Army Corps of Engineers report, their tables and graphs relative to the bypass reach; and then we'll plot flows in the Loup Power Canal and the Loup River bypass reach from November to April each year.

Next, I will turn it over to George

Waldow, who will come up and talk about requests not included, and that is on Slide 54.

STEPHANIE WHITE: And I might -- you know, we're way ahead of schedule. In fact, we're so far ahead of schedule that it looks like we haven't even done anything yet, but we have.

So if you'd like to have some discussion, if you have some questions on the information you've just seen, we certainly have time for that today. It's probably not the spot for real detailed, in-depth discussion on the activities of any of those studies, but if you've got some questions or if you're curious, we certainly have time for that kind of conversation today. And I would open it up to the floor if you would like to talk about any of the material you've seen so far.

JEFF RUNGE: Yeah. I've got a question here --

RANDY THORSON: This is Randy.

STEPHANIE WHITE: One second, Randy. Jeff Runge beat you to the point. And I will repeat his question to those of you on the phone.

RANDY THORSON: I didn't see his hand raised.

JEFF RUNGE: I'm sorry, Randy. But

there's a difference between what was identified in the study plan and the revised study plan and what was identified in SD-2. And I'm wondering how those differences will be reconciled?

STEPHANIE WHITE: Jeff's question is about a difference in the study plan, the revised study plan, and SD-2. And I might have Lisa come up to the podium and answer that question. Did I paraphrase your question appropriately?

JEFF RUNGE: Yes, ma'am.

STEPHANIE WHITE: That's the danger of putting me at the mic. You're at my mercy today.

LISA RICHARDSON: Well, actually, Jeff, we haven't prepared a revised study plan. If you're maybe referring to what we've presented here as revised study plan --

JEFF RUNGE: Yes.

LISA RICHARDSON: Those initial slides were a -- we were paraphrasing what was in the -- in the study plan. Hopefully we didn't change anything. That was not the intent. The presentation just now should have been exactly the same materials that are in the study plan.

JEFF RUNGE: Okay.

LISA RICHARDSON: Now, as you're

aware, SD-2 was issued at the same time as the study plan. So that's -- part of the discussions that will go on between now and July will be how do we reconcile anything that was in SD-2 that wasn't in SD1 that may not have made it into our study plan. So I guess that's part of what these discussions are about, is to reconcile what SD-2 gave us compared to what we had included in the study plan.

STEPHANIE WHITE: It's a good question. And we'll talk a little bit about some of the material in SD-2, Jeff, in the next part of our agenda with the requests not included.

I also should say that the slides that you will see this afternoon will be verbatim. So the material you see on the slides and in your handout are verbatim from the study plan this afternoon, which is, I think, part of the answer to your question.

Randy, you're next. I know that you've been raising your hand for the last three minutes.

RANDY THORSON: It's just a matter of semantics. And I brought this up before on recreation, why the study is called recreational use survey rather than just recreational use, because the survey is actually an element of that study. I

was just curious why it's called survey in the title of that study. Why isn't it just called recreational use?

STEPHANIE WHITE: Lisa's going to come back. I'll tell you, Randy, I will log your question on the easel and we'll discuss it a little bit today, but we'll discuss it more in-depth in the separate meetings for recreation, land use and esthetics. But I'll have Lisa answer your question.

RANDY THORSON: Thank you.

LISA RICHARDSON: And Randy, I guess maybe we just included survey on the end because that was the primary element of the study, was that Recreation User Survey. But it does have a few other elements, like development of that recreation plan.

RANDY THORSON: Right. That's my point is there's other elements, so it isn't just a survey.

LISA RICHARDSON: Yeah. I guess that's just an oversight on our part of leaving that extra word on the title. We could certainly -- we wouldn't have a problem taking it off to be a little more clear.

STEPHANIE WHITE: Any more questions?

Yes.

JOHN BENDER: To follow up with Randy's question there, in the Nebraska Water Quality Standards, we ascribe the recreational beneficial use to our lakes. Lake North is one of them -- in fact, Loup has recreational facilities out there -- but we have water quality criteria that measure the acceptability of that use. So I'm wondering if that's going to be part of this study?

STEPHANIE WHITE: That's a good question. Matt, can you answer that? John Bender has asked a question about the use of existing resources from the USGS as a part of our study plan. Have I paraphrased that appropriately?

JOHN BENDER: No.

STEPHANIE WHITE: That's fine. Let me have it.

JOHN BENDER: We have water quality criteria in our code, specifically E. coli, and now toxic substances like microcystins that impact recreational use of our water bodies. And I wondered if that was going to be part of this study, if it's not, I guess I don't need to come May 11.

STEPHANIE WHITE: And his question is will that be included in the recreational study, and

his side comment was if not, he doesn't need to come. So Matt, if you'd like to answer that?

MATT PILLARD: Sure. John, I guess we need to -- that's something that can be addressed on May 11. If there's a water quality parameter as part of the recreation study that needs to be included, then we need to discuss what that objective would do. And obviously, it would be to make sure that the lake is meeting the water quality standards for the recreational use benefits that it is providing.

So I guess in short, that's what would need to be reviewed, you know, as part of that recreation study, if it's not in there now. I guess I -- I'd have to -- we can go back and look and see what that says, but that's kind of the point of the May 11 meeting is to kind of get into more detail of the what and the how of the recreation study.

JOHN BENDER: I'm just trying to figure out whether I need to come back up here on May 11.

LISA RICHARDSON: And John, water quality wasn't included in the recreation study. It was not identified as an issue to be studied under the recreation piece. If it's a concern to anybody,

to you and your agency or others, then it may be something that we should consider to add. But it was not originally part of the recreation study.

JOHN BENDER: Our existing data showed that Lake North is fine. I just didn't know if that was going to be part of the write-up on the final --

RANDY THORSON: I can't hear what people are saying. Can you just repeat the question?

JOHN BENDER: I didn't know if the final EIS was going to discuss that aspect. All of our data right now shows that Lake North is just fine so --

STEPHANIE WHITE: So John has said that all of his data shows that Lake North is fine, but his question really was about does our study plan -- or do we intend to use their data in the study plan. And the answer in the room is no, but if that's important, we need to discuss that at the recreational meeting on the 11th.

MATT PILLARD: Again, this is Matt Pillard. There may need to be a little distinction. FERC, in their EIS, will evaluate the water quality, and data will be used for that evaluation as part of

their NEPA analysis. Our recreation study is not focusing on water quality of that lake.

Is that fair to say? Lisa, does that --

LISA RICHARDSON: I would say so. Do you want me to repeat it?

RANDY THORSON: We can't hear on the phone.

LISA RICHARDSON: Yeah, Randy, I'm going to repeat that for you. The -- Matt made the distinction between what the recreation study is identifying versus what might be included in the EA that's prepared as part of the relicensing.

Water quality, obviously, will be evaluated in the EA, but it's not necessarily a study associated with this recreation piece. But the information related to water quality and recreation would be identified as part of the license application information, as well as in FERC's EA.

Nick, is that an accurate statement?

NICK JAYJACK: This is Nick. I think so. I guess I don't understand the original question, but let me just say a few things.

We'll look at it in the EA or the EIS, whatever, what would be the designated uses of the

river. And I'm understanding recreation is one of the designated uses that the state has identified for the Loup and the Platte Rivers.

What we would do in our EA is look at the -- or EIS -- is to look to see what information is available that will tell us whether that designated use is being met or not. If it's being met, then it's a very simple write-up in our document. If it's not, then it might be a little bit more of an extensive analysis.

But what I'm not understanding is does the state think it has information that it needs to make a call as to whether or not that designated use is met? And if not, is there something that needs to be in that recreation plan to address that?

STEPHANIE WHITE: If I may just pause for folks on the phone? So Nick has just given a little overview on FERC's process and has asked the question if the state thinks that they have the information needed to make that designation; is that right?

NICK JAYJACK: For the most part, yes.

STEPHANIE WHITE: For the most part. I got a sort of nod. Okay.

JOHN BENDER: And that somewhat answers my question. I guess the basis for my question is if there's no water quality issues to be discussed May 11, then I can free up that day for other activities.

STEPHANIE WHITE: And the basis of John's question is if there's no water quality to be discussed on the 11th, then he would free up his schedule. Randy, do you want to participate or contribute to this discussion?

RANDY THORSON: I didn't follow exactly what's being talked about.

STEPHANIE WHITE: It's primarily about water quality and the -- with regards to recreation, specifically Study Plan No. 8.

RANDY THORSON: Right.

GEORGE WALDOW: This is George Waldow, Randy. I want to try to wrap this up because I think we're all talking around the same subject.

But the way I would view it is the recreation opportunities are dependent on a certain water quality criteria, and we know that the DEQ monitors things like E. coli and toxic algae.

And the way I would characterize this is

in order -- in order for different types of recreation to occur, whether it's fishing or swimming, et cetera, you need a threshold quality of water. And as long as the Project satisfies those defined state thresholds, there should be no problem with continuing or even expanding on the recreational usages.

Is that --

RANDY THORSON: I follow that much, yeah.

GEORGE WALDOW: Okay. John is nodding his head, so I think we --

NEAL SUESS: George, this is Neal. And John, this is a question for you, and generally I talk loud for everybody to hear.

So there's nothing that we're not meeting now, is that what you're saying?

JOHN BENDER: That's correct.

NEAL SUESS: Okay. So in other words, everything that you guys are measuring now -- I mean, I know there are times we don't meet -- I mean, there are a lot of lakes around that don't issue statements about where we're at that point in time. But you're measuring everything that you want to measure now, that's not something new out there

that we don't know about?

JOHN BENDER: That's correct.

RANDY THORSON: (Inaudible.)

COURT REPORTER: I'm not getting that.

STEPHANIE WHITE: Would you mind repeating that, please?

RANDY THORSON: I didn't hear all of what Neal was saying exactly, but -- George, I heard you. But is it a question of whether water quality is going to be discussed on May 11?

STEPHANIE WHITE: Neal's question was whether or not John had the data he needed to make an assessment of the facilities, and the answer was yes.

Are there other questions from the group? There's one back in the corner, John Shadle.

JOHN SHADLE: This is John Shadle, Nebraska Public Power District. It's more on terms, and it's in the hydrocycling section, the flow depletion, flow diversion. When we talk about alternative conditions, what are we contemplating there?

STEPHANIE WHITE: Okay. So let me paraphrase, and I have this great tool in front of

me. I can read what you just said. His question was about the hydrocycling section and whether the alternatives would be contemplated -- it's about the hydrocycling section of the flow depletion, flow diversion, and when we talk about alternative conditions, what are we talking about there, is the question.

GEORGE WALDOW: To be determined.

STEPHANIE WHITE: Okay. And George's answer is to be determined.

JOHN SHADLE: Thank you.

STEPHANIE WHITE: Other questions from the group?

MARK IVY: This is Mark.

STEPHANIE WHITE: Go ahead, Mark.

MARK IVY: The recreation water quality, before we leave that entirely -- unfortunately, I cannot hear most of what's said in the room. But I just want to make the point that the main interests or concerns we have between recreation and water quality are more contact issues, swimming in the water, and I'm sure there's some kind of policy for letting people know if the water quality goes down so swimming is not appropriate and then also with consumption of fish.

STEPHANIE WHITE: Yes. Everyone in the room is shaking their heads, yes. They're nodding.

RON ZIOLA: There's a weekly analysis --

STEPHANIE WHITE: There's a weekly analysis --

RON ZIOLA: -- posted by the DEQ --

STEPHANIE WHITE: -- posted by the DEQ --

RON ZIOLA: -- and then we respond if there is a contact issue.

STEPHANIE WHITE: -- and then the District responds if there is a contact issue.

MARK IVY: All right.

STEPHANIE WHITE: Other questions? One to the right, yes, sir.

RICK HOLLAND: Rick Holland, Nebraska Game and Parks Commission. On the study plan for sedimentation, one of the objectives talks about determine if sediment transport is a limiting factor for pallid sturgeon habitat in the lower Platte River below the Elkhorn River.

Recently, University of Nebraska has collected pallid sturgeon above the Elkhorn, and I

wondered if that was going to have an effect on this particular objective to expand into an area above the Elkhorn River?

STEPHANIE WHITE: The question is about sedimentation. And Pat Engelbert, I might have you come up and rephrase the question and answer it generally. Again, we'll get into that in more detail this afternoon.

PAT ENGELBERT: Rick asked the question of -- or brought up the point that recently, a pallid sturgeon was caught upstream of the Elkhorn River confluence, approximately 10 miles.

Rick, I guess we focused on the lower Elkhorn. That was kind of the standard definition that was in the Platte River program documents. But you do bring up an interesting point. It's probably something that we would need to discuss, either in this afternoon's session or at the May 27, 28 meetings. That happened after we turned the study plans in, so -- but very good point. Very good point.

STEPHANIE WHITE: Other questions? Okay. I think we might move into the next item on our agenda today, which is to talk about requests

not included in the proposed study plan. And we've divided these into two categories. I am on Slide 54, for those of you on the phone. And we've removed the microphone in an attempt to pass it around a little bit and make things more clear for you, but please speak up if you can't hear.

We're going to talk about requests not included as they relate to full requests, and then elements of requests, so study elements not included. And George Waldow from HDR will review that. George?

GEORGE WALDOW: Thank you, Stephanie.

I'm going to start with the full study requests that were not included in the study plan. And the first one was an evaluation of transmission lines and whooping crane impacts, in other words, cranes flying into power lines.

And this study was not included because there was no direct nexus to the Project. And let me explain that. In Scoping Document 2, the FERC confirmed that the licensed Project No. 1256 does not include any primary transmission lines. In addition, those overhead transmission and distribution lines that are located within the Project boundary would still remain in service, even

without an operating project.

And therefore, they are considered independent of the commission's action, the action being the relicensing, and that was consistent with what the District explained during the meetings we held.

STEPHANIE WHITE: So George, if I might just jump in, George will talk about these requests not included as they relate specifically to the FERC -- the seven criteria at FERC. They're here on the board in the room; they're also on Slide 3, for those of you who are calling in on the phone today. So the Criteria No. 5 project nexus is related to the first bullet on your slide.

GEORGE WALDOW: Thank you. Next slide. And we're going to have time to discuss questions here at the end of this.

The next study was a water quality study for non-point pollutants and PCBs in the Project canals. This requested study was not included, again, because there was no nexus between inflow of non-point source pollutants and the Project or its operation.

In Study Document -- in Study Document 2, the FERC explained that inputs of pollutants, such

as atrazine, nutrients and bacteria to the Project waters from off-site sources are unrelated to the Project and its operation. In other words, there's nothing that the District can do about what happens outside its boundaries. But there's a little bit more detail to this.

The only PCBs reported to occur within the Project boundary have been found in fish tissues that were collected from the Tailrace Canal downstream of Columbus Powerhouse. And that canal is accessible to fish coming from the upstream, from the Platte River, which is known to contain PCBs. Therefore, there is no complete nexus to the Project for this -- this PCB occurrence. In other words, the fish could bring it in with them.

That being said, the FERC determined that a potential does exist for potential dredging operations in the settling basin to mobilize PCB-laden sediments, should they exist within that basin.

Specifically, the potential exists for least terns to ingest those PCBs when feeding on small fish which are discharged onto the North Sand Management Area during dredging operations. We know that the fish do consume these -- I mean, excuse me,

the terns do consume these small fish while they're nesting and occupying the sand management area.

Therefore, FERC has added in SD-2 the effect of dredging operations on PCB transport and the associated effect on the least tern. This issue, however, needs further discussion to determine appropriate methods for study or evaluation, and that's something that will occur.

Okay. Next slide.

STEPHANIE WHITE: We're on Slide 56, for those of you on the phone.

GEORGE WALDOW: Now we're going to be looking at what we call study elements that were not included. And this simply means that we're doing the study -- in this case it's sedimentation, which was Study 1.0 -- but a portion of what was requested was not included in our study plan.

In this case, it was a request to study sandbar sizes in the lower Platte River and compare them to predictions made by Williams and Wolman, and in another publication by Parker and Wilcock.

We reviewed these documents, and the requested study element was not included because there is no nexus -- again, no nexus to the Project. And in fact, there was nothing to compare.

Neither of these cited references mentions prediction of sandbar sizes. The Williams and Wolman document is fairly lengthy. It's a compendium published by the USGS of measured effects downstream of selected dams on alluvial rivers, and primarily in the western United States.

It talks about channel widths, it talks about channel degradation below dams, but it really doesn't relate to this project because we don't have a dam, per se, and there's nothing in there about referencing sizes of sandbars.

Parker and Wilcock's is a short study that compares and contrasts two methods of feeding sediment into laboratory testing flumes. One is called the sediment feed, and the other is recirculating sediment.

And again, these are laboratory flumes with straight vertical sides and a -- some sort of a bed material in the bottom. And there's no reference to sandbar sizing or prediction of sandbar sizes, so that was not included.

The next slide, please, is hydrocycling -- I'm sorry, that's -- hydrocycling was Study 2. And what was requested there was a detailed study of sandbar quality and quantity to include the numbers,

sizes and heights of sandbars in the lower Platte River.

This requested study was not included because the proposed methodology, we felt, was inconsistent with generally accepted practice in the field. And by that, I mean that the -- the ability to go out and sample, literally measure, thousands of sandbars and monitor their changes would be a huge, daunting task. And the field is constantly changing, so by the time you counted them, there would be a different number, et cetera.

It is estimated that such a study would require a minimum of five years to collect and analyze a meaningful data sample in the lower Platte River. And even then, it would be extremely problematic to differentiate sub-daily Project flow effects of hydrocycling versus the natural flow effects in the river and all the externalities that enter into this 80-plus mile reach, where you've got tributary flows and sand mining and all sorts of other things going on.

And as described in Study 2, an alternative method was proposed which will utilize the hydrologic data from -- basically from USGS gaging stations along the river, and then as we

described under our sedimentation approach, regime-based analysis techniques to determine the effects of hydrocycling for each of the various subreaches in the lower Platte River. And by this -- by the term subreach, we mean that segment of the river which can be related to a specific USGS gaging station.

The next element under the hydrocycling study was a requested study of pallid sturgeon similar to a study by Auer -- and that's A-U-E-R -- of lake sturgeon in Michigan. And we found that this requested study element was not included because the proposed methodology is, again, inconsistent with generally accepted practice in the field.

And I need to explain that because by this, we mean that many of the basic methods and the elements in the Auer study, although very well-conceived in that particular case, simply do not apply to the -- to the location of our Project, nor to the characteristics of the lower Platte River.

The key -- the key specific differences that make this -- this project and the Auer study so different -- I've got about five of them here, just

to give you an example -- No. 1, the rocky, narrow Sturgeon River in Michigan versus the wide, braided river in the lower Platte.

No. 2, the Michigan study involved a barrier dam on the upstream extent of the reach that had total flow control of the water coming into the river by the utility, versus no barrier dam in -- with respect to the Loup Project, and a project that has only minimum flow control down in the reach where the pallid sturgeons occur. And that's because there are other inflows from tributaries, including the Central Platte and the Elkhorn River, Salt Creek.

The third major difference, the Auer study involved approximately a 2-mile long reach immediately below a powerhouse that included some defined -- two basic defined rapids where the lake sturgeon were known to spawn. The Platte River below the Loup Project, the district's project, is roughly an 80-mile reach with all sorts of extra -- external influences taking place within that area.

No. 4, the presence of the two defined spawning sites immediately below the powerhouse for lake sturgeon versus unknown spawning locations a significant distance downstream of the Project,

again, with numerous external influences in the lower Platte River.

And lastly, the relative ease they were able to monitor, locate and capture the lake sturgeon to be weighed and measured and evaluated for their spawning situation versus in the Platte River, we have rarely located and rarely captured pallid sturgeon in a much longer, wider, difficult situation. And we just -- we couldn't see how you could capture the sturgeon and make the same kind of evaluations that were done in the Auer study.

Okay. Next slide, this is Flow Depletion and Flow Diversion. And an element that was requested was develop flow and settlement -- sediment modeling -- I'm going to start this again. Develop flow and sediment transport model for the Loup River bypass reach.

This requested study element was not included because the proposed methodology is inconsistent with generally accepted practice in the field. It happens that existing sediment transport modeling techniques are simply not robust enough in the current state of the art to be useful in assessing Project impacts on sandbars.

So again, we go back to the -- what was proposed in Sediment Study 1, which is to establish regime based analytical methods using effective discharge and total sediment discharge as the primary parameters, and employ those to analyze sediment issues within the bypass reach.

The second element under the flow depletion and flow diversion is the study of future flow depletions on the Loup River above or upstream of the Diversion Weir. A specific study of flow depletions on the Loup River above the Diversion Weir is not proposed; however, consideration of the overlapping effects of documented and reasonably foreseeable upstream depletions will be included in the cumulative effects analysis.

That is to say, if there's a project that has -- or projects that have a defined context, they're documented, there may have been funding applications or permits, to give them some definition and a time line, they will be included to the extent of overlapping effects.

Study 10, Land Use Inventory. There was a request to do interviews with landowners regarding future development of their land outside the Project

boundary. And we looked at this, and interviews with landowners regarding future land use were not included because it would be speculative and not reasonably foreseeable. Future land use information from approved land use plans will be reviewed and considered as part of the proposed land use study. But to go out and ask a farmer that's going to say, you know, some day I might subdivide this land, is not considered anything other than speculative at this point.

Next slide. Under Study 12, which was the Ice Jam Flooding on the Loup River that Pat Engelbert just discussed, there was a request to include with the ice jam study the development of a predictive model.

And this -- the requested study element was not included because the Corps of Engineers' studies that were done back in the 1990s did not identify any nexus between Project operations and ice jam formation or the result in flooding from ice jams.

And we believe that the -- the proposed study, which is basically seeking the nexus, is the appropriate thing to do at this point in time. If, in fact, the nexus can be determined, it needs to be

decided whether a predictive model is possible or appropriate. And that could be considered as something of a mitigation or an enhancement to be determined in the future. At this point in time, there's no basis to build a predictive model.

So we've got -- we've got time to have a discussion on these, and I want to make sure everybody understands what we're saying, and then we welcome your questions and concerns. Let's have a little dialogue here.

STEPHANIE WHITE: I expect this to be a lively discussion and relatively interactive. I might beg your pardon and take a ten-minute break. I'd like to move the AV equipment up front so we can pass the microphone around to the speakers so the people on the phone can hear a little bit better. So if that's okay with you, I'd like to break.

I would also like to ask those of you sitting around the edges of the room, if you intend to participate in the discussion today, I would like it if you could move to the inside table so that we can facilitate your use of the microphone.

I'm also going to move -- I'm going to eliminate as many cords from the middle as I possibly can, so Jeff, I will give you an extension

cord and you can run it to the back wall, if that's okay.

So if I can beg your pardon, let's take a ten-minute break. Those of you on the phone, if you can come back a little bit early, I'm going to test your ability to hear the discussion in a couple locations. So if you can jump on just a little bit before 10 o'clock Central, that would be great.

(Short break taken - 9:53 a.m.)

(Meeting resumed - 10:07 a.m.)

STEPHANIE WHITE: I want to add a couple of ground rules as we learn on the fly how best to have these discussions both remotely and in person.

The first is when I hand you the microphone, I'd like you to repeat your name both for the folks on the phone and for the court reporter.

The second is for those of you participating on the phone today, there are a couple of things I noticed. One, we can hear click-clack every once in a while of keyboard typing, and also I think we may have been put on hold or on mute a little bit earlier. So if you can be mindful of

that noise, that would be great today.

One more thing I forgot to tell you this morning, and that's Theresa Petr is here today from the District. She introduced herself this morning, but she's taking some photographs of our activities today.

Also, our court reporter has just placed a recorder on the end of the table -- it's right next to you, Ron -- so no whispering. Again, all this information and material will be included in the transcript that will be posted online.

So I would like to get started, and this section of our morning is really to discuss the requests and the request elements that were not included in our study plan. I will share the microphone with George. So George, if you want to walk into the center of the room -- and again, we'll work to pass the microphone so -- and we'll see if I trip on a cord today.

The first question I'll take from the room, go ahead Mary. And just give me a second, I'm going to walk over to you.

MARY BOMBERGER BROWN: Okay. My name is Mary Brown, and I'm concerned about -- or I'd like you to tell us a bit more about the detailed

study of sandbar quantity and quality, why you chose not to include that. We think that the study could be done and be done fairly easily. We actually did do it this past summer, and so I have some -- I have some concerns about that being eliminated or not being considered.

STEPHANIE WHITE: Okay. George?

GEORGE WALDOW: I think what I'd like to do is ask Pat Engelbert to offer an explanation. Can you do that, Pat, on the methodology that was selected?

PAT ENGELBERT: Yeah. Mary, there were a couple things, I guess, that we took into consideration relative to the quality and quantity. And I think it had a little bit more to do with the actual monitoring and the time frame associated with when we needed to gather this data.

As George had mentioned earlier, you know, to go out every year and to sample the sandbars and then try to differentiate not only our project's impacts, but other water management decisions that are made upstream, to differentiate those we felt was a daunting task, at best. At minimum, we were guessing probably roughly a five-year period to get a sample size that would allow us to do that.

You know, the Platte River Program has been monitoring that for years, and they just rolled out a five-year plan to look at the geomorphic attributes in the Central Platte River.

So what we focused on was, you know, what we felt was maybe a better approach, to look at how Project operations would alter or affect a couple of sediment transport indicators, which we could then use as our baseline to compare different Project operations on those indicators, that being the total sediment that's transported, as well as the effective discharge.

And for those in the room, the effective discharge is that discharge which provides the -- the morphology of the channel, you know, on average over the course of a season, over the course of the year. And in utilizing that methodology, we felt we could analyze the data quicker. It's based on both flow, as well as changes in cross-sectional areas which help us define what that total sediment transport is and that effective discharge is.

So I guess that -- you know, Mary, that was our approach. And Gary, if you would like to add anything or if you felt I've covered it, I would welcome your opinion on that.

GARY LEWIS: Yes. Mary, Gary Lewis. I'm with HDR in Denver.

I have a lot of years in my background on morphology of the Platte River. I've been involved in all of the issues from the mouth, clear up to the state line over the last 25 or 30 years.

I was involved in developing the work plan for the Platte River recovery. I was asked to lead a group of scientists to evaluate options for assessing this issue on the -- in the area of concern for the recovery project.

I worked with the Platte River office in Denver, and for the cooperative agreement folks, prepared and submitted the work plan to assess those issues. As all -- everyone here knows, that's a multimillion dollar program. Not included in it is this kind of an inventory of sandbars. So it is a difficult technical subject to address.

I have read your 2008 survey of the tern and plover -- in fact, I have it with me today. I read it on the airplane today. So I'm interested in that sort of thing. I had proposed to Pat and the Project team here at HDR that we take a look at that possibility.

I'm not sure I understand what you did.

You mentioned a few minutes ago that you said you had done this last summer. The question, as a geomorphologist and as a fluvial hydraulic person, is we would need to be able to, as Pat said, distinguish or differentiate effects that might be observed over a period of time related to the Project, and effects that are natural or that are related to everything else that goes on in the river, including tributary inflows, and so on.

So to design and implement a true scientific investigation of that subject that really does resolve effects of flow and Project impacts on sandbars, one of the things that concerned me is that there's a presumption that river stage and sandbar height and quantity and quality, that there's a singular relationship to them, and that doesn't exist.

It's a subject that really needs to be explained better to those who are observers of the river from a physical process understanding, that what we see today isn't the result of the flow today, and it's not necessarily the result of the flow last week. It's the result of a long-term process of the river shaping.

So the assumption that you can develop a

relationship between either flow or stage, depth of the water and sandbars, it just doesn't -- it ignores, I think, the understanding of the physical process.

And that's part of why, in the -- at least in the Nebraska recovery project, the Platte River recovery, they really abandoned practically every approach except the effective discharge approach to try to distinguish changes or impacts of projects on the overall regime of the river, are we destabilizing the -- the morphology of the river through some action. And that's about the best technology that I understand exists. So that's part of the reason that it was proposed the way it was.

Sorry about that long answer, but I hope that helps.

MARY BOMBERGER BROWN: Well, this is Mary Brown again. Perhaps it's more of a discussion of ultimate processes and proximate processes. And you're talking more about the ultimate processes. And maybe in terms of the T&E species, we're thinking more in terms of the proximate processes, what is habitat, what is available to them during the time of the year that the animals are actually here.

So maybe we're talking -- maybe you're -- I'm thinking in more of a proximate sense and you're thinking in more of an ultimate sense, and perhaps we need to talk about that further because we do think that it is something that needs to be done and needs to be thought of more clearly, and we would very much like to see that sort of data included in the study plan and in -- in the relicensing procedure.

STEPHANIE WHITE: And I wonder if a more detailed discussion of this topic belongs in our afternoon discussion of the study plan and sedimentation, but I'd take cues from either of you, if you'd like to wait or talk some more.

PAT ENGELBERT: And I guess, Mary, the -- kind of our thoughts on that is as we're developing these studies and actually performing these studies, the goal of the study being trying to determine the project's effects on those processes.

And so from our perspective, this type of methodology provides us the best avenue to collect that information to see how this particular project would affect sediment transport and sediment transport parameters, as opposed to looking at it from a long-term scale, which we may not be able to

differentiate the project's effects from that type of data gathering exercise.

STEPHANIE WHITE: Mary, I'll let you respond to that, if you would like, otherwise I'll take a question from Jeff.

MARY BOMBERGER BROWN: That's fine.

STEPHANIE WHITE: Jeff Runge.

JEFF RUNGE: I guess I'll save a lot of my details -- study specific details for later on this afternoon. But I guess my question here to FERC is, are these studies intended to be all-inclusive within those two years, or this can be a baseline for future monitoring under a FERC article?

STEPHANIE WHITE: Nick, since you're in the room, I'll let you answer, or you can defer to the phone, if you'd like.

NICK JAYJACK: This is Nick Jayjack from FERC.

I think I understand your question as one being is this a one-time deal as far as data gathering goes, or is there an opportunity to do monitoring during the license term to expand on the information gained at prelicensing.

I think the answer -- it depends.

Generally, what we're trying to do in these two years, or so, is gather all the information that we -- gather as much information as we can now. And really, the only reason we might go post license if we were to monitor, let's say, an enhancement measure that gets put in the license and see how effective it is. We generally don't continue the -- just data gathering for purposes of understanding what's going on beyond the NEPA document stage.

The whole purpose of gathering the information now is for us to be able to write our NEPA document, so there's really no point in going further unless, of course, as I mentioned before, if it's -- the purpose is for effectiveness monitoring of a license measure.

Does that answer the question that you were getting at?

JEFF RUNGE: Yes.

STEPHANIE WHITE: Thank you. I'll take another question. You've got another one? Go ahead.

JEFF RUNGE: Yes. Jeff Runge again.

Things that were identified here at the meeting is the effects of sediment may not be immediate, may not be recognized within the first

two years of the study. But through additional monitoring in those affected areas, wherever we define those areas, we may be able to see longer-term effects that would be important information for the next relicensing period.

And so we -- we feel that this monitoring may be important to look at these long-term effects. Try to get as -- as much information as we can for the -- the NEPA process, but also look long term too.

STEPHANIE WHITE: Okay. Yes, Mary.

MARY BOMBERGER BROWN: Hi, this is Mary Brown again.

This is a question for Nick. This is just a curiosity as much as anything. Kingsley Dam, on their relicensing, I believe they have -- every five years, they have an environmental review that's necessary, and a large part of that is based on the terns and plovers. How was that arrived at, and is the Kingsley Dam situation a great deal different than the Loup situation, or am I not understanding all of the details with that environmental review process at Kingsley?

STEPHANIE WHITE: If you'd like to answer that, you may, or otherwise I think John

might know some information.

NICK JAYJACK: Let me answer it real quick.

STEPHANIE WHITE: Okay. We'll come back to you, John.

NICK JAYJACK: This is Nick Jayjack.

I'm not at all familiar with the Kingsley Dam case, and I can only speculate as to what we did there at this point. It just -- it's case specific. It may have been that the measure there was required by a biological opinion. It could have been required by a mandatory condition, such as under Section 401. I just don't know.

But those are cases that I could think of as to situations where we might go and do just general data gathering during the license term as a -- pretty much if it's mandatory.

JOHN SHADLE: This is John Shadle.

I'm not going to speak on behalf of Central, but I'm wondering, Mary, if it isn't the land -- they've got a land management plan that comes up for review every five years, and I'm wondering if that's what you're thinking about. It's not just a general, look at everything, license review kind of a process. I'm wondering if that's

maybe what you're thinking about.

MARY BOMBERGER BROWN: It may be, I don't know. I just know that terns and plovers need to be looked at periodically.

JOHN SHADLE: Sure.

STEPHANIE WHITE: Other questions from the group?

Okay. If there aren't any, we may move to talk about the study baseline. We can talk, but we can ask more questions about what was included and what wasn't included this afternoon when we get into more in-depth discussions of the goals and the objectives of the aquatic resources study plans.

Matt, if you'd like to talk about the baseline.

MATT PILLARD: Do you just want to hand me that?

STEPHANIE WHITE: I can. I'd be glad to do that.

MATT PILLARD: Hi. Matt Pillard again with HDR.

And I just wanted to touch on the topic of the baseline for the Project and as that relates to information that would be used to develop the information for the NEPA analysis as well as for the

biological assessment. I'll just state here -- and Scoping Document No. 2, I'll just state the statement FERC had made relative to the baseline, and that --

STEPHANIE WHITE: And we're on Slide 58.

MATT PILLARD: Slide 58 is the slide that we're on. The environmental baseline on relicensing is the environment as it exists at the time of relicensing, not pre-project conditions. Nonetheless, this does not prevent the Fish and Wildlife Service from using a different baseline for its analysis.

And if you could click to Slide 59 -- or did you leave me the clicker? You can handle that. I'll just mess it up.

The alternatives also identified by FERC in Scoping Document 2 were these, and that is the proposed action; staff's modification of the proposed action, and those are the yet to be determined operational scenarios that would be reviewed as part of the Project; as well as the no action. And these are all the alternatives that would be compared back to the baseline to supply that information to be used for NEPA analysis, as

well as for the development of the biological assessment.

Further, FERC also identified these following alternatives that would not be considered from -- for a detailed analysis in Scoping Document 2. Those are the federal government takeover; nonpower license; and Project decommissioning.

So that kind of frames how FERC is viewing the baseline for this project, and that's how the information will be used to compare back and forth in the information to be used for NEPA, as well as in the biological assessment.

STEPHANIE WHITE: Okay. So this -- we have some time set aside to discuss this today.

RON ZIOLA: Is there a -- could you give like a definition of -- excuse me, Ron Ziola from Loup Power District.

Could you define proposed action, staff modification and no action, or is -- is that not possible?

MATT PILLARD: Sure. At this time, the proposed action is how the system operates today. Staff's modification of the proposed action, those would be those potential various changes of

operational scenarios, which might mean how they operate the turbines during various times of the year to balance how the levels of the hydropeaking work, how they determine how much water comes in at the diversion at various times of the year, you know, how an operational scenario would let maybe more water go down the bypass at certain times of the year for whatever reason. These are all scenarios that would be reviewed to compare back to that baseline to see what changes and effects those might have.

Does that help? Nick?

NICK JAYJACK: This is Nick Jayjack from FERC.

That's somewhat correct. No action is the existing condition as they exist today. So that's -- that's how the licensee operates. That's -- the measures that are in the license, that defines the no action or the existing condition, that's our baseline.

The proposed action is in the license application, what the applicant proposes to do with the Project as far as operations, what measures they proposed, et cetera. That is weighed against the existing conditions, or the no action alternative,

to determine what the effects -- either beneficial or adverse effects there would be.

Staff's modification of the proposed action basically is everything else that comes in that staff decides to recommend to the commission to be included in the license. That could be modifications of proposed operations, modifications of proposed environmental measures, and/or additional environmental measures that staff identifies as needing to be recommended to be implemented during the term.

It can also include mandatory conditions submitted by the agencies. And again, all of that is weighed against the no action alternative, or the existing operations and existing environmental measures.

STEPHANIE WHITE: Other question or comments? Yes, George.

GEORGE WALDOW: This is George Waldow from HDR. I'd like, Nick, to maybe expand it.

My understanding is that staff's modification can actually be something that came into the -- into the game from an agency, and then is adapted by the staff or accepted by the staff as a -- it doesn't mean it was created in Washington.

NICK JAYJACK: This is Nick Jayjack.

That's true. It could be both. It could be something that staff identifies based on the record of information. Most of the time, though, it's -- the staff's modification includes measures that were recommended by state and federal agencies and nongovernmental organizations and the public in the Project area.

RANDY THORSON: Randy Thorson --

STEPHANIE WHITE: Yeah, just a second, Randy. I'll be right there, and then, Neal, we'll let you go. Okay. Randy, you're up.

RANDY THORSON: (Inaudible - microphone feedback.)

STEPHANIE WHITE: Hold on, wait. I've got to think about this.

Okay, Randy.

RANDY THORSON: Can you hear me?

STEPHANIE WHITE: Yes.

RANDY THORSON: Okay. Can you hear me?

STEPHANIE WHITE: I can hear you, Randy.

RANDY THORSON: I can't hear much on this end.

Just another question, does staff modification include the PM&Es that come out of the process?

STEPHANIE WHITE: And is that question directed at anybody in particular?

RANDY THORSON: For Nick, probably.

STEPHANIE WHITE: I'm doing somersaults on the floor here, Randy.

NICK JAYJACK: This is Nick Jayjack.

The question was does staff's modification of the proposed action include the PM&E measures -- otherwise known as protection, mitigation and enhancement measures -- identified during the licensing process.

And the answer is yes, to the extent staff recommends them or to the extent that they are mandatory conditions, either under the Federal Power Act or the Clean Water Act, or other, as they may be.

STEPHANIE WHITE: Randy, were you able to hear that?

RANDY THORSON: Yes.

STEPHANIE WHITE: Okay. Any other questions from the phone?

DAVID TURNER: This is David Turner.

I just want to add one little point. (Inaudible - microphone feedback.)

STEPHANIE WHITE: Would you mind repeating that, please?

DAVID TURNER: Just to add on to what Nick said, the environmental analysis that the commission would conduct, it would look at all recommended measures. It may not be adopted by the commission, but the environmental analysis would consider all the various PM&E measures.

STEPHANIE WHITE: Other comments or questions in the room? Neal, you're up.

NEAL SUESS: This is Neal Suess with Loup Power District.

I just want to remind everybody that our -- I guess our proposed action is the same as the no action. Our proposal is to continue to operate exactly like we operate now, and I just want everybody to know that.

So those two, when we look at the alternatives carried forward, are really one in the same because we do not plan on changing operations as they exist today.

STEPHANIE WHITE: Other comments or questions about the proposed baseline and

alternatives?

KIM NGUYEN: Yes. This is Kim Nguyen, I'm sorry.

STEPHANIE WHITE: Hold on one second, Kim.

KIM NGUYEN: (Inaudible - microphone feedback.) Project operation wise, aren't you proposing environmental measures or PM&Es also?

STEPHANIE WHITE: Did everybody hear Kim? No? Kim, would you repeat that, please?

KIM NGUYEN: Sure. When Neal was talking about their proposal being the same as the no action, is he just referring to the operations aspect of the -- of their proposal, meaning no changes to the proposed operations? But that doesn't include any of the PM&E measures that Loup is proposing; is that right?

STEPHANIE WHITE: Yes, he's nodding his head.

NEAL SUESS: Yeah. Again, this is Neal Suess from Loup Power District again.

You're right, Kim. That's -- that's right. We're not planning any changes to the current operations as far as the PM&E changes that have been proposed already. We are including those

in our action.

KIM NGUYEN: Okay. But the proposed action -- your proposed action as far as SD-2 includes all of those mitigations, enhancements and -- those PM&E measures.

STEPHANIE WHITE: Kim, will you repeat that, please?

KIM NGUYEN: Yes. It's not just to include the operation changes, your proposed action in SB-2 includes any changes in Project operation as well as environmental enhancement measures?

NEAL SUESS: Yeah, I'm going to have to -- Kim, I'm going to have to ask for some clarification there. Because I don't -- what operational changes or PM&E measures were proposed in SD-2, I don't know that we've even agreed to any of those yet.

NICK JAYJACK: I think Kim is just clarifying that the proposed action includes your operations as well as environmental -- speaking generally, just to explain that. (Stated without use of the microphone.)

I think -- this is Nick Jayjack.

I think what Kim is saying is that generally speaking, we recognize the proposed

actions as including both operations, which would be your developmental side of things, as well as the environmental measures that are proposed, which would be the nondevelopment.

But I think -- we understand what you're saying. You're not proposing any -- at this time, you're not proposing any change to the developmental side of things, that is, the operations. You have made proposed environmental measures, as I understand it from the scoping documents, so --

GEORGE WALDOW: This is George Waldow from HDR. Just a point of clarification here.

What the District has done to date is proposed no changes from their existing operation. But -- but to make it absolutely correct, the term proposed action means what goes in with the license application, not what went in with our initial filing documents. So there's a time lag from where we are today, and something may be identified between now and the time the application for license is submitted. So that is the point where the -- the NEPA analysis gets done, after that application.

STEPHANIE WHITE: Other -- okay, Neal.

NEAL SUESS: Yeah, this is Neal

Suess.

I guess, yeah, that's -- I mean, my understanding it, right now, we have not proposed any changes on the environmental side. You know, I guess it depend upon the results of the study and what comes out.

But in our initial application, we proposed to let everything stay exactly as it is. If something would come from the studies that determined that we need to make a change at that point in time, we'll look at those and recommend those in our final -- in our application -- in our actual application that gets filed before the -- before the FERC.

STEPHANIE WHITE: I've just moved the location of the phone. I'd like to make sure that everybody can hear. Did you all hear Neal's response?

TELEPHONIC PARTICIPANTS: (All reply yes.)

STEPHANIE WHITE: Any other questions or comments from the room?

RANDY THORSON: This is Randy again.

STEPHANIE WHITE: Okay. Hold on, Randy.

Go ahead.

RANDY THORSON: I just -- and I've raised this before at meetings, and I can't remember the answer. Maybe it isn't paramount to our discussion today, but maybe I'd ask FERC and the Project team about any settlement agreement. I've experienced those in other hydro relicensings. I forget the answer -- I think, George, maybe you gave an answer, or someone from FERC did.

STEPHANIE WHITE: Randy, will you repeat your question, please?

RANDY THORSON: I was just wondering, I had brought this up in other meetings in terms of a settlement agreement. Is there any interest in a settlement agreement, or does FERC or the Project team feel that's not paramount to this project relicensing?

NEAL SUESS: I suppose I shouldn't joke around. But yeah, we're happy to settle right now for the way we're operating. So if everybody is willing to settle on that, we can sign the document right now and go away. You guys aren't laughing. That's not very fun.

LISA RICHARDSON: Randy, I think that the potential for settlement agreement is always

there, it's a matter of what might be -- what might we be settling at this point. I don't think we've gotten to that point yet. But if there is something that is of interest that moves everybody forward, then certainly we will be looking at that.

RANDY THORSON: Yes, I can appreciate that answer. I think you're right, it would -- if you'd work at that as the process moves forward.

STEPHANIE WHITE: Okay. Other comment, questions? Any discussion from the group on the phone? We're about 20 minutes ahead of schedule, which is a good thing -- actually, we're about an hour and 20 minutes ahead of schedule.

What I'd like to do is start the discussion of this afternoon. So I would like to begin to talk in depth about the goals and the objectives of each study.

Lisa, I might enlist your participation.

LISA RICHARDSON: Stephanie, I guess I'm wondering, we just completed the discussion of the study requests not included. And I wonder if there's any additional discussion needed on that, in particular, in relation to FERC's information on SD-2 related to PCBs and what types of information is going to be needed for that analysis.

We did not propose a study for that, but if there's additional information that may be needed, we need to talk about what could be done or what might need to be done. Is there additional discussion that needs to happen related to that because of what was in Scoping Document 2?

Okay.

STEPHANIE WHITE: One second, we have a question from the floor.

NICK JAYJACK: This is Nick Jayjack from FERC. On a previous -- a couple slides previous, the information up there showed those studies that were recommended but not adopted as part of the proposed study plan.

And one of them was some fishery sampling -- I think it was Study No. 6, perhaps, that was recommended be done, perhaps, by the state, I think it was, on the canal. And I'm wondering what the response is -- especially with regard to the seven criteria listed on the easel there -- for not adopting that study request?

STEPHANIE WHITE: Are you referring to something you saw on a slide this morning that you have in front of you?

NICK JAYJACK: It was the slide that

listed those studies that were not adopted. What it was was a lack of -- there was no mention made of that particular study request, which I think is No. 6.

STEPHANIE WHITE: I understand. Okay. Lisa, do you want to address that question?

LISA RICHARDSON: Sure.

STEPHANIE WHITE: Okay.

LISA RICHARDSON: I think that Nick's question was in relation to Study No. 6, which is Fish Sampling. And the district's position on that particular study was that the Game and Parks Commission has asked previously, more than just during the relicensing, to do some fish sampling in the canal. And the District has always been amenable to that question and to help facilitate that request at any time when the Game and Parks was able and wanted to do that sampling.

That request to do sampling in the canal came up again as part of the relicensing, those early meetings that we had, and the District is still willing to facilitate that whenever Game and Parks desires to do it.

The question, I think, is, is that information that might be obtained from fish

sampling, is it needed for the relicensing effort? And at this point, we had determined that we weren't sure that it was needed.

There is some historical fish sampling information that's available. Does it provide everything that's needed for the license application and the evaluation and the NEPA document? If additional fish sampling is needed as part of relicensing, then I think we might need to discuss what should be done or could be done.

But based on the previous request, the District is certainly willing to facilitate fish sampling at any time, it's just a matter of is that needed now, and then who would potentially do that sampling.

NICK JAYJACK: This is Nick Jayjack. Thanks for your answer.

I guess all I would say is that it wasn't real clear to me, in reading the discussion and the proposed study plan, as to why the information wasn't needed.

In other words, I guess what I was looking for is some statement that either one, the existing information that we have, either in the PAD or somewhere on the commission's record, is suitable to

address all of the issues identified in the SD-2; or two, that there really is no issue related to, let's say, fish abundance data on the canal that has been identified in the SD-2. And so that was your reasoning for dismissing the study requests. So anyway --

FRANK ALBRECHT: Frank Albrecht, Game and Parks.

Maybe a little clarification, Nick. At first, I thought you were talking about on the elements that were not included, the one that was referring to the study of the pallid sturgeon similar to the Auer study of lake sturgeon.

But then as you supplemented your information, then you started talking about the actual No. 6, the fish sampling study. And it is in there, so I guess I'm asking for clarification on what you mean when you said something to the effect of there isn't a need for it, and so on.

We are still -- I guess our understanding is we had moved forward. We still need to talk some details on who would do the actual sampling and so on, but it's still in there and intact, and we're still very much on track with that. So could you clarify that?

NICK JAYJACK: This is Nick Jayjack from FERC.

The way I'm reading proposed Study No. 6 is that the information would be gathered if an agreement with the state could be reached, or if -- I'm not exactly sure what the wording was. But it seemed a little wishy-washy to me, that there wasn't -- I didn't feel there was certainty that the information would be obtained.

With that said, we -- we look to our license applicants to be ultimately responsible for obtaining the information, so we're looking for a definitive statement to that extent. If the applicant is saying that they will be obtaining -- that they're proposing a study, we're going to look to them to be responsible for doing that, so we want some certainty in there that they are going to do that and they'll be responsible for it.

Again, the way I read it is, Well, we're going to do this study if we can reach some kind of agreement with the state to help actually do the work. And we need that loose end to be tied if they are indeed proposing -- the applicant is indeed proposing to do that study.

FRANK ALBRECHT: I guess I would need

to see how that wording -- which document is -- so that's a little bit inconsistent with what the slides kind of indicate, then, Nick, is what I gather from what you said. Which document is that that you're referring to where it wasn't really pinning it down, it was a little bit loose? Is that the study document --

STEPHANIE WHITE: Six.

RON ZIOLA: 6-2, the first sentence of the last paragraph in Section 3.

FRANK ALBRECHT: In the PAD, or --

RON ZIOLA: I'll throw this out. Ron Ziola with Loup Power District.

Actually, in Study 6, Paragraph 3, second paragraph, this might be what he's alluding to: Although Game and Parks is not certain as to its ability to perform a fish sampling study in association with the project's relicensing effort, the data collected through the creel survey would parallel the data collected during a fish sampling.

So that would have been -- is that kind of the sentence you were looking at, that you felt made it look wishy-washy?

NICK JAYJACK: This is Nick Jayjack --

DAVID TURNER: This is David Turner. I'm also looking at Slide 36. And I think maybe what Nick might be implying is that some of the verbiage on that slide, as well as what's on the study plan, suggests that you would facilitate the state doing the study, but wouldn't necessarily conduct it if the state wasn't going to do it. (Stated without use of the microphone.)

STEPHANIE WHITE: Okay. One second. I was the only one that caught that. I'm going to move to Slide 36, and I'm going to ask you to repeat it. Hold on one second, please.

Okay. If you would repeat your question or comment, this would be good. Thanks.

DAVID TURNER: This is David Turner with FERC.

And I may or may not be actually translating what Nick was saying correctly, but Slide 6 -- or Slide 36 seems to suggest that you would facilitate the state conducting the study, but that it implies without direct -- it implies that you wouldn't do it if the state was not going to actually conduct the effort.

And what Nick was saying is that if the study is indeed needed, we're going to look to a

license applicant to conduct the study and gather the data. And he's free to work -- you're free to work with the state to do that, but if the state falls through in not gathering that data for whatever reason, our hook is in you, and we're going to look to you to make sure that that data is gathered.

STEPHANIE WHITE: I'm going to let Neal Suess answer that, and then, George, we'll come to you.

NEAL SUESS: I think what David is saying is right. The state had come to us -- or the Game and Parks Commission had come to us and had indicated that they wanted to do a fish sampling study, which we were happy to facilitate with, but we did not believe that doing a fish study for ourselves was necessary, especially given the fact that we were doing the creel survey. So there wasn't a need to do both studies.

But we were -- what we basically were indicating with Study 6 is that we would be happy to facilitate the state doing it. In the interim, the state basically came to us and said, Wait a minute, we don't have the manpower or the necessity to do the fish sampling now, which we said, Well, that's

fine. I mean, again, we'll let the creel survey do its part as far as our study goes.

But as far as fish sampling goes, we were not proposing at this time to do anything on our own. It would just be if the state wants to do something with that, we would let them and we would facilitate and help them out in any way, shape or form. But if the state is not willing to do that, we are not proposing that we would do a fish sampling study at this point in time.

LISA RICHARDSON: And I guess to add to what Neal is saying, the question, I guess, from the applicant is what is the information that's needed? Is it the information that's in the creel survey? Is it a fish sampling? Can we do one or the other of those studies? Is the information from both studies needed?

They parallel each other in the data that's gathered. And then if you also think of the creel survey with respect to the recreation survey, you know, if you did sampling and recreation survey, does that get you all the information you need without doing a lot of additional study?

We want to make sure that we're getting the information that we need in the most efficient

manner and not duplicating or doing things that aren't necessarily needed.

STEPHANIE WHITE: George?

GEORGE WALDOW: George Waldow, HDR.

My -- my understanding -- and maybe Frank will be able to correct me if I'm wrong -- but that Game and Parks routinely goes out and does fish sampling around the state and has sampled previously in Lake North, and I'm not sure about the canal.

But I believe that the District was approached, as Neal said, by Game and Parks about doing this -- this -- we'll call it a fish sampling update -- prior to the initiation of the relicensing activity. And so there's this confusion. Is this effort something that was routinely going to be done anyway by the state with the cooperation of the District because of access issues to the canal, especially, or was it a specifically requested study that came about because of the relicensing activity?

My understanding, it is the former. And the idea was -- when it was proposed to Loup was that the state wanted to bring their boat, their protocol and their people to do it, but they wanted some assistance, some support from the District.

And so that -- when the initial meetings

were held last summer to discuss issues, fisheries was one, and there was some discussion about including fish sampling as a reasonable part of relicensing, not because I think there was a perceived problem with the fishery, it's simply that the data was old and probably in need of updating.

So with that summary, I guess I'd ask if that's the perception you have at Game and Parks?

FRANK ALBRECHT: Okay. That question -- yeah, we were looking at some of Jeff Schuckman's -- the fisheries biologist from the Norfolk office, he was unable to attend. And yeah, there is some old information. It's been 35 to 40 years since some of that fishery has been sampled on the canal.

Budget cuts continue to be an issue at our office, like many others. And I was just asking Rick about what their -- it did come down to some funding and assistance on that. I know you had some temporaries that were not funded, some seasonal help that -- we've had to make some cutbacks and so on.

So it does go back to the intent of yeah, we would like to -- I think Jeff wanted to lead that effort, but there was going to be some assistance needed. And to what extent, I think I would need to

touch base with him again, George, to find that out.

Rick, do you want to supplement that?

RICK HOLLAND: This is Rick Holland.

Part of your statement that this was something that had occurred before the relicensing issues came up, I think it might be better looked at as relicensing gives us an opportunity to focus on one of many resources in these districts that we haven't just simply had the prioritization for in the past.

We have to sample a lot of different areas, a lot of different places with a very minimal crew. And so relicensing has allowed us to focus on issues that we've always been concerned with in terms of fish diverted from the river into a canal system and then the consequences of those fish.

There's a three-prong attack here when you talk about recreational use, the creel survey, and then the fish inventory. They measure different components of the whole picture. Any one only gives you a part of that picture.

And so without knowing what fish are present, what their status, quality, quantity is doesn't really tell you what impact, potentially, that the creel will be having on that in terms of

fish mortality or fish use, and what component of the recreation the creel represents if you don't do the recreational survey.

So they're all three components of a bigger picture. And they may be parallel in a sense, but they're not -- they don't replace each other. In other words, you can't get all the information from any one or two of them.

STEPHANIE WHITE: More discussion on No. 6?

NICK JAYJACK: Nick Jayjack from FERC. I guess this question is directed toward the state, who manage the fish and wildlife.

What I'm not getting an understanding of is -- with regard to fish sampling is whether -- it sounds like you all periodically do fish sampling on the Platte River as well as the Loup River. And I think I asked this question at the scoping meeting back in January, and I'm still not quite sure I got the answer.

But is there -- is there fisheries information with regard to abundance, the quality and quantity that you mentioned for the Loup bypass region on the Platte River? And the reason I ask the question is I did not see a study request from

you all for that information. You limited the scope of your request, as I understand it, to just the canal.

FRANK ALBRECHT: I would have to take a look at our letter again. I think I referenced our past letter and also a joint one that was developed along with the Fish and Wildlife Service. And I'd have to take a minute to look at that, but I thought we addressed the bypass reach as well, if that's what your question was.

You thought that we just emphasized the canal and not the bypass reach? Well, we certainly have some concerns with the bypass reach as far as the -- the potential fish kills and so on and the thermal stress. But as far as the fish sampling, I thought we had included that. But if you'd give me a -- I want to go back and look at that, if that's all right, Nick.

But that is a good catch also early on, that -- in that 6-2, on that language there for clarifying that. So we still do want -- we are very interested -- and I think we got that -- that point across. But that was a good catch.

JEFF RUNGE: And I believe that -- that point that you -- oh, this is Jeff Runge.

I believe that point to -- about the bypass reach will be addressed in Study Section 5, Flow Depletion and Flow Diversion.

RICK HOLLAND: This is Rick Holland from the commission again.

And Nick, to answer a little bit of your question, we don't periodically sample in the Loup River or the Middle Loup River or the -- Lake Babcock probably has more frequent samplings than any of the river systems at all.

Historically, we've done a little bit of sampling associated with a Bureau of Reclamation project where we sampled along the Middle Loup River, and I believe a couple stations in the Loup River below -- well, in the Loup River. I would have to check back and see what that was. That was done back in, I believe, '96 and '97 or '95 and '96.

We have only sampled one canal system recently, and that was the Sargent Canal. We haven't done the Loup Canal here for what, 30, 40 years. And so there's no -- there's no periodic plan or sampling regime that touches these populations. Simply, we don't have the manpower and the -- it's not -- hasn't historically been on the priority list, not because of interest, but simply

because we have to draw the line somewhere with capabilities.

NEAL SUESS: This is Neal Suess with Loup Power District.

And to answer -- to get back to Jeff's question, Test 7 under Study 5, the flow depletion and flow diversion, talks about looking at existing information on the fish populations both above and below the Diversion Weir, so that would both be above the Platte -- above the Loup River -- above the diversion in the Loup River and below and in the bypass reach.

Study 6 went more towards the Game and Parks wanting to sample fish in the canal itself. And the discussion there was where could the -- the Game and Parks get into the canal, where could they do certain activities, and where could we help them get into those various areas where they wanted to do the fish sampling at that point in time. That fish sampling, that I recall, was never meant to entail both above and below in the Loup river. That was entailed in some of the other study plans.

NICK JAYJACK: Nick Jayjack from FERC.

Just to comment, I did notice that Task 7

in Study 5. But one thing I want to say about that is that it says that existing information will be used to define species diversity or richness. And what will be looked at is significant differences in species diversity or richness upstream of the dam and downstream as well.

And my only comment at this point is that that just looks at one component. It's pretty much presence/absence. But especially on a project such as this where you basically have a riverine environment upstream and a riverine environment downstream of the dam, I wouldn't suspect there would be large differences in species diversity or richness because you're dealing with a flowing water situation in both.

What I would be looking at would be abundance information, how many channel catfish are there per mile downstream of the dam, how many are per mile upstream of the dam in order to distinguish what potential Project effects might be.

There were a number of issues that we identified in SD-2 related to this. And I'll give you an example, one of them is what are the effects of water temperature -- I'm sorry, what are the effects of Project operations on water temperature

in the bypass reach, and how, in turn, does that affect species abundance or the fish species down there?

So one way we might analyze that is look at abundances in the bypass reach and compare them to a relatively unaffected reach upstream of diversion down and compare them to abundance information there.

And so it gets back to my previous question, both a little while ago here at this meeting and at the scoping meeting back in January. Is there existing information with regard to catfish abundance, number of catfish per mile in the bypass reach or upstream of the dam, flathead catfish and the various other sport fishes of interest? And if not, is there a proposal to gather that type of information?

JEFF RUNGE: Jeff Runge again.

And Nick, to answer your original question, yes, we are interested in those indices, and that is a part of that Task 7 in study plan five. And so in our future comments here, I'm not sure when we're going to address that, but we will provide recommendations.

And it's not just in regards to existing

conditions, but project how these changes may -- may affect those -- whatever indices that you use based on changes in Project operations as well.

RICK HOLLAND: Rick Holland again from the commission.

We did sample using hoop nets and electrofishing in the Loup and Middle Loup River. I can't remember the exact location. It's been too many years, and other projects have gone in and out of my mind. But we can -- we'll look at that data and see. We won't have absolute numbers. We would do it on a relative -- relative scale, indexing the populations at those particular sites.

But they were sampled multiple times throughout the year with particular emphasis -- we did another study on some stockings we had of catfish above in the Middle -- in the Middle Loup where we looked at the various diversion dams above and below those and found that some of those diversion dams had a very significant impact on the number of catfish that were present.

There seems to be -- and I'd have to look at the data -- there seems to be a -- a suggestion that the Genoa diversion does not act as a permanent barrier. It's a seasonal barrier. Catfish can move

above -- from downstream above the -- the barrier at certain times of the year. What kind of impact that has on numbers, I'm not sure without relooking at the data, though. But there is some data available.

STEPHANIE WHITE: More comments or questions on that matter? Go ahead, Lisa.

LISA RICHARDSON: I guess one thing is I would request that any data that you have, that you forward that to us as well so that we can look at that and include that as part of our information. We've had several meetings over the -- over last summer and asked for any information that you had that might be relevant to the relicensing, and this type of information obviously has some relevance.

And we haven't -- I'm not sure if we haven't asked specifically enough or exactly -- we don't know all the data that you have, so we can't ask for it specifically because we don't know what it is. But if you could provide that to us, we would certainly appreciate it, and I think we do need that for the relicensing effort. So that would be one comment.

NICK JAYJACK: Nick Jayjack from FERC.

The other area we're also looking at,

because it is part of the affected environment, so it's an area we'll have to cope with as part of our NEPA analysis, but it's the Platte River bypass reach and the Platte River downstream of the Tailrace Canal as well.

So again, that's another area. If you could search your records for that type of information, it's very important to us, especially, again, the fish abundance information.

RICHARD HOLLAND: As it so happens, we just finished reviewing a thesis from a UNL student who's been working with Dr. Mark Pegg on the catfish of the Platte River, Central Platte River. He's done some analysis on population characteristics, growth rates, mortality, and that includes stations from the mouth of the Platte River up through Elm Creek in the Central Platte. He does talk about those -- some differences in longitudinal characteristics in his thesis.

He's finished it up, I believe. I signed his passing document yesterday. He's got to get that printing done, and then we will distribute those -- that thesis. That will be something that you'd probably want to look at to meet those questions.

We have those other reports we'll get to you. I think there was just a -- some miscommunication internally here in terms of what was needed, so --

STEPHANIE WHITE: Thanks, Richard. Other comments or questions?

Okay. I might like to get into the discussion of our first study plan today. We're going to -- we've rearranged the order a little bit. You'll note on your agenda, we're going to cover five first, which is flow depletion and flow diversion.

We made this simple reorder just for our discussion today because we feel like a lot of the discussion and detail covered in Study Plan 5 would lend itself well to some of the other studies that are aquatic resources related. So we'd like to talk about Study Plan 5 first.

I'll give you a little bit of briefing on how -- how we'll run this discussion today. In the room, we've passed out some cards, some red, yellow and green cards, a little trick I learned at the soccer games at soccer fields.

Those of you on the phone, you won't have any cards. But we're going to take -- as we move

through each goal and objective -- and they're on the slides that you have in front of you as well, they are verbatim from the study plans -- we'd like to take a pulse of the group in the room and the group on the phone. So we'll call for a tally.

Red is your indication that the material we're discussing is something that you take great issue with, and we need to have an in-depth discussion about it here in this room; green is your indication that it passes your test and that it doesn't warrant discussion from either your specific area of expertise or the organization that you represent; yellow is an indication of the -- the goal or the objective is satisfactory, it may need some minor tweaking.

And so what we'll do is we'll call for your votes or your card ballot today, and we'll let that guide our discussion. So the goals or the objectives that have unanimous greens we'll run through. Those that have a high level of red, we'll spend some time discussing today.

Is that clear to everybody? Have you ever done the red, yellow, green trick before? We've passed out cards to the tables on the side. I would welcome your participation in the discussion if you

feel like you'd like to indicate your preference, I'd love that. But I would ask that you move into the table in the middle so that we can get the microphone to you and so that I can keep your vote in the tally. So if you feel that strongly, feel free to move into any one of the seats at the table. Is that clear to everybody?

Okay. We're going to start with sedimentation. I'm going to get my slides up, both in front of me and on the screen. And I might, from a logistics perspective -- Pat Engelbert, I may have you do the slides and maybe read the materials, and I'll take tallies. We're doing flow depletion and flow diversion.

So for those of you on the phone, we're moving to Slide 76. And I'll call for your verbal votes, red, yellow or green, as we move through the goals and the objectives.

So Slide 76 starts with flow depletion and flow diversion goals. We'll take them one at a time. For the first couple of them, I'll just read -- I'll read the slides, and then we'll take your tally. As we move through them, it may be more effective, or you may have come well-prepared and not need a full narration of what's on the slides.

Okay. Slide 76, Goal No. 1: The goals of the flow depletion and flow diversion study are to determine if Project operations result in a flow depletion on the lower Platte River and to what extent the magnitude, frequency, duration and timing of flows affect the Loup river bypass reach.

So let's test out our card system. I'd like to have a show of cards. Green, this -- you're fine with this goal as stated; yellow, it needs some discussion; red is you object strongly, and we need to spend some time discussing. And you're welcome to abstain, if you would like.

Okay. I see a number of yellows -- three yellows. We'll spend some time discussing. I'll just work my way from right to left. Jeff, if you'd like to talk about your yellow objections, that would be fine.

JEFF RUNGE: This comment applies to points -- or to Tasks 1 through 3. We would like to see these depletion estimates or consumptive use estimates to be broken down on a month-by-month basis, if possible. The effects to species are seasonal, and the best and, I think, most reasonable way of capturing that is to break down the effects on a month-by-month basis.

STEPHANIE WHITE: So if I can -- if I can ask, is your objection to the goal itself, or is it more into the methodologies and the activities that relate to it?

JEFF RUNGE: Well, if -- it could be both. Right now, the objectives are vague in nature, so it's unsure whether that's on an average annual basis or on a monthly basis, but just to make that little bit of clarification for the group.

STEPHANIE WHITE: Okay. I saw one more yellow card down this way. Whose was it? We'll go to you.

NICK JAYJACK: The second bullet addresses my concern.

STEPHANIE WHITE: Okay. He's withdrawing his yellow card. So the first concern was of the time period related to Goal No. 1. Does that warrant further discussion?

PAT ENGELBERT: Jeff, relative to the -- to the time period -- and I think the intent was do you feel that's a good goal, that we look at flow depletion and flow diversion on the lower Platte? Do you think that's a good goal, yes?

JEFF RUNGE: Yes.

PAT ENGELBERT: Relative to the

timing, you know, that's more of a task issue. And if you look at the tasks as we've proposed on Page 5-10 of the proposed study plan, it says that we will look at net consumptive uses on the bypass reach on a monthly, seasonal -- you know, it's an annual type basis. So I guess we're trying to stay --

JEFF RUNGE: I agree.

PAT ENGELBERT: -- a little bit higher on the -- is that a good goal to try to reach relative to this study plan. And then we'll look at objectives -- you know, kind of the next layer, the objectives to meet that goal. And then the methodologies, the timing, all that stuff, that would probably occur at the May 27, 28 type meetings. So maybe there was a little confusion on that.

STEPHANIE WHITE: Is that cleared up?

JEFF RUNGE: That's cleared up.

STEPHANIE WHITE: Okay. Other discussion for goal, the first bullet on Slide 76. I'll step over to the phone to make sure we've captured your comments if you have any. Would anybody on the phone today like to comment on the first goal on Slide 76?

DAVID TURNER: This is David. I'm okay with it. It is pretty broadly described, but I'm okay with it.

STEPHANIE WHITE: Okay. I'd like to move to the second bullet on Slide 76: The results will be used to determine if the Project operations relative to flow depletion and flow diversion adversely affect the habitat used by interior least tern and piping plover populations, the fisheries, and the riverine habitat in the Loup River bypass reach and the lower Platte River.

So a show of cards again. Green, your fine with this as is. I'm guessing we're going to have a yellow from Nick, or maybe your concern is addressed already. I got a green from Nick.

Green, yellow, and red, if it warrants significant discussion. All right. I have a yellow from Mary. Is there anyone on the phone who would show a yellow or a red objection to the second goal on the slide? Okay. Mary, I'll let you speak.

TELEPHONIC PARTICIPANTS: I have a yellow.

MARY BOMBERGER BROWN: Mary Brown.

This is just a general comment. With the flooding in North Dakota, the Fargo floods and all,

that is going to be stopping the terns and plovers from going further north. Those birds, their habitat is gone for this nesting season and presumably for a number of years in the future.

So those birds are going to be stopped, and they're going to come back down here to nest, which is going to make Nebraska and the Project properties even more important to the recovery of these species than they were in the past. So we need to keep that in mind, that Nebraska has become more important for these animals than they have been.

STEPHANIE WHITE: So if we needed to change something about this goal, what would it be specifically in the wording?

MARY BOMBERGER BROWN: I just raised my yellow card so I could bring that point up.

STEPHANIE WHITE: So noted. I caught a yellow on the phone, so I'm going to walk back and catch that. Okay. If there's someone on the -- participating via conference call who would like to speak, we're ready.

TELEPHONIC PARTICIPANT: I'm good with it.

TELEPHONIC PARTICIPANT: I'm good

with it.

STEPHANIE WHITE: Okay. We have a show of green from the phone today. I'm going to move off the goals for Study Plan 5, Flow Depletion and Flow Diversion, and we're going to talk a little bit about objectives. So Pat, if you could move it to Slide 77.

Now, what you see on the screen here in the room, you should see it on the screen as well if you're participating remotely. It's not reflected in your handouts.

As we reviewed the material in the study plans for -- in preparation for today's discussion, we realized that some of our objectives may be better suited as activities or tasks in support of those objectives, so we have grayed those out on the screen. I will verbally cue you in on which ones are gray.

And we'd like to focus our discussion today on the ones that are still bold, so on Slide 77 the one activity that remains, or the objective, is No. 2: To determine the net consumptive losses associated with Project operations compared to alternative conditions.

What will happen is we will take

Objectives -- on this slide, 1 and 3, and move them to the discussion of activities and tasks that will take place later on in May, if that's appropriate, if the group here today concurs that that's appropriate.

Let's take a quick vote or a quick pulse check on Objective No. 2: To determine the net consumptive losses associated with Project operations compared to alternative conditions.

And again, this is a discussion of whether or not you agree with the objective in support of Study Plan No. 5. Green, I agree with this objective; yellow, there's something that I have a concern with; and red, this is something that we need to discuss at large.

I see greens. Any objection from the group on the phone?

TELEPHONIC PARTICIPANT: No.

STEPHANIE WHITE: Okay. If everyone is comfortable, we'll move off Slide 77, again, with our commitment that we'll bring back Objectives No. 1 and 3 for discussion later on.

Okay. Pat, can we move to Slide 78, please? Let's move to Slide 78. Both of these are -- have been left in as objectives for

discussion today.

Let's talk about No. 4: To use current and historic USGS gage rating curves to evaluate change in stage in the Loup River bypass reach during Project operations and compare against alternative hydrographs.

Show of cards. Green, you're fine as is; yellow, it needs some discussion; red is you have an urgent comment to make. I see one yellow in the room. Anybody on the phone?

Okay. Jeff, I'm going to let you talk about this. Again, we're talking about Objective No. 4, Slide 78.

JEFF RUNGE: Okay. Jeff Runge.

I guess to further expand on No. 5 is not just to look at the historic flow trends -- and maybe this is incorporated into this part -- but also to look at any regulatory changes that may affect future trends in flow, the not fully appropriated designation for the lower Platte including those tributaries upstream in the Loup River system.

I know that there is mention of the Platte River Recovery Implementation Program and the changes in the hydrograph that that would bring

about. And there's going to be a lot of changes into the future too, that we can work with you to help better capture what the future trends would be.

STEPHANIE WHITE: Other discussion? Matt?

MATT PILLARD: This is Matt Pillard, HDR.

Is there a change that's needed to this objective? I guess that's what -- are you suggesting a change to -- or an addition?

JEFF RUNGE: Yes. And this may be difficult to formulate one here right off the top of my head. But it's not just to evaluate historic flow trends, but to reasonably predict what future flow trends may be.

DAVID TURNER: This is David Turner with FERC.

Is there good data on which we could base those future trends, or is this going to be very subjective types of things? I'm not doubting the value in that, but I'm just wondering how to capture it.

JEFF RUNGE: There is from -- from different -- from several aspects here of a lot of these developments. For the Platte River Recovery

Implementation Program, there is an EIS developed. And that EIS looked at how this program would change the hydrograph, and this hydrograph would be realized at the Platte River above Duncan.

In addition too, the Department of Natural Resources has developed a fully appropriated basin report -- they do that at the end of every year -- and this report looks at lag effects associated with ground water consumption. So it's reasonably certain to quantify these lag effects into the future.

STEPHANIE WHITE: Is there a need for clarification on the phone?

TELEPHONIC PARTICIPANT: No, not right now.

KIM NGUYEN: No.

TELEPHONIC PARTICIPANT: No.

STEPHANIE WHITE: Any other comments from the group?

Okay. So Jeff, do you want to repeat how you'd like this objective to be changed? I know that you didn't write it down.

JEFF RUNGE: Let's see. And to reasonably project changes in flow trends into the future.

MATT PILLARD: Again, Matt Pillard, HDR.

Jeff, are you trying to kind of move to how this would be from a cumulative effects kind of standpoint?

JEFF RUNGE: Yes.

MATT PILLARD: Okay. That helps somewhat. Predictive modeling with these things will be, you know, something that we'd look at. But obviously, cumulative effects is something we'd be required to look at, you know, as part of the process, so --

STEPHANIE WHITE: Any other comments from the Project team? Pat?

PAT ENGELBERT: Relative to the -- you know, nondesignation of fully appropriated, there has been a legislative bill -- I don't remember the exact number, 483 or 683, Chris Langemeier's bill -- that would allow for some -- I guess a little grosser projection in that they've limited the amount of additional surface acreages, et cetera, that can be irrigated. So we could look at it from a future perspective, as long as it's still within the realm of the cumulative effects.

JEFF RUNGE: Yeah, that's fine. And

recognizing how these cumulative effects, especially those upstream of the diversion, would also affect Project operations into the future.

STEPHANIE WHITE: Other comments or discussion on Objective 4?

Okay. I'd like to move to 5. Objective 5 on Page 78: To evaluate historic flow trends on the Loup and Platte Rivers since Project inception.

Any yellows or red cards from this?

PAT ENGELBERT: We just covered five. He jumped ahead to five.

STEPHANIE WHITE: We're pretty speedy today. Any discussion needed from the group on the phone today?

TELEPHONIC PARTICIPANT: We did just cover that. (Stated without the use of the microphone.)

STEPHANIE WHITE: Yes, we did. The comment was we did just cover that.

George, do you have a comment?

GEORGE WALDOW: No, a question. Have we finished with Objective 4?

JEFF RUNGE: I'm sorry, yes. I've got a green card for 4.

GEORGE WALDOW: And did we finish

with 5? Because there was a question of should we reword it, or -- I'm almost wondering does it need a No. 6 to cover future versus historic trends?

LISA RICHARDSON: I guess maybe Stephanie would require another show of cards on -- I think Jeff was maybe suggesting that we say to evaluate historic and reasonably foreseeable -- and reasonably foreseeable Project flow changes -- I guess I don't have it there. I thought I had it written down.

But change that a little bit to say historic and reasonably foreseeable future flow trends on the Loup and the Platte, is that what you're suggesting, Jeff?

JEFF RUNGE: Yeah, that's correct.

STEPHANIE WHITE: So there's been a call for cards. Would everyone be acceptive of that change? Green would be a yes vote. I've got a yellow.

FRANK ALBRECHT: With the change incorporated?

STEPHANIE WHITE: Yes. Neal?

NEAL SUESS: I won't agree until I understand what reasonable means. I mean, we're not going to study it ad nauseam. I mean, I want to

have some kind of relative agreement that we're going to limit this to a couple things. I mean, because we could study there until we're blue in the face, quite frankly, on what the future might look like. And I've got to have a better feel right now for what that means as to reasonably foreseeable future events, and I might not be able to see that until we put the whole study together and go that way with it. I'm struggling with that in my own mind.

MATT PILLARD: Matt Pillard, HDR. Council of Environmental Quality guidelines on effects addresses, you know, how to look into the future relative to reasonably foreseeable and what speculative projects may or may not include. So that's the guidance that we would use in implementing reasonably foreseeable projects.

LISA RICHARDSON: And I don't see this as becoming a what-if type of an exercise, if this happened, what would be the -- it's more of a -- we know based on reasonable information and plan and funded types of activities that these types of things, depletions, may or may not occur.

And it would be -- I think some of the data that would be used needs to be defined in our

activities. So we'll know when we get into the activities exactly what we're proposed would be those -- would make up those reasonably foreseeable.

So I think that it would be fine to use reasonably foreseeable, based on the CEQ type of language, but we will further define that as part of a task as to what types of projects and programs that might include.

Does that make you feel better?

NEAL SUESS: No, it does not make me feel any better, quite frankly. I'm just going to keep it as a yellow for right now.

STEPHANIE WHITE: And that's fine. The discussion -- the results of the discussion today will be reviewed in future meetings. And if future discussion needs to take place at that time to clarify and make sure that we've caught all the innuendos regarding the language, we'll do that. So if that's okay, Jeff, we might move off of this and bring it back at another discussion.

JEFF RUNGE: That's fine.

STEPHANIE WHITE: Let's move on to Slide 79. We're still talking about Study Plan 5, Flow Depletion and Flow Diversion, objectives. I'd like to talk about Objective No. 6, so that's on the

table for discussion now.

Objective 6 reads: To determine the extent of interior least tern and piping plover nesting on the Loup River above and below the Diversion Weir.

We'll use a show of cards. Yellow, some concern; red, this is something the group needs to discuss. I see a red card and a yellow -- two yellows and a red. Anything from the participants on the phone?

Okay. We haven't heard from Mary in a minute. Mary, I'm going to let you go and then, Nick, you'll be next, and then we'll come back to the other side of the table.

MARY BOMBERGER BROWN: Okay. This is Mary Brown.

I would like to have a clear definition on what the Loup River above and below the Diversion Weir actually is. Is it the river? Is it the canal? Is it the sand pile? Is it sand and gravel mines? Who -- what is that -- what are we talking about?

STEPHANIE WHITE: Matt, I wonder if I bring this board up that shows that, can you answer that question with a visual, or even -- okay. Matt

will answer your question.

MATT PILLARD: At this -- at this time, you know, above and below the Diversion Weir, you're right, it's not defined here in the objective. And so is it a question of, you know, a disagreement with the objective to evaluate above and below, or is your agreement based on how far above and below? Because that kind of gets into the how.

MARY BOMBERGER BROWN: My concern is more above and below, and also side to side of above and below, and how broad.

MATT PILLARD: The intent was to be on river, not sand -- not sand pile or sand pits. So the intent is in the river above and below, not adjacent on sand pits.

MARY BOMBERGER BROWN: It's just that the behavior on -- of the river and on the river determines the off river behavior as well, and particularly in light of the fact that we will almost certainly be having more of these animals down here because of the flooding to the north of us. I'm just concerned the behavior of the river -- what the river is doing is going to determine the off river behavior. So they're not -- they are

interconnected.

STEPHANIE WHITE: So it sounds, Mary, that you'd like to add some language to Objective No. 6, or a new objective?

LISA RICHARDSON: I guess, Matt, add to this as you think appropriate. The intent of the objective is to try to quantify what effect the Project has on the species, not what's going on in the species just in general.

And so we've determined that below the diversion, there's obviously a change in flow there that's related to the Project. And so we wanted to see below the diversion, with this change in flow, what does the species look like? And also, then, above the diversion where there are no Project impacts, what does the species look like, and is there a difference in how the species used those two reaches that could be then perhaps reasonably attributed to Project operations?

Matt, is that --

MATT PILLARD: Yeah.

GEORGE WALDOW: George Waldow, HDR.

Mary, I think, first of all, I'd point out that the study itself won't be done this year, it will be done next nesting season. So the -- the

issue regarding North Dakota probably --

MARY BOMBERGER BROWN: But that will extend -- it's not a single season effect. (Stated without use of the microphone.)

GEORGE WALDOW: Okay. I'm told that it will extend over several years, and I still don't see that as a conflict with the objective itself. And I, again, would support what Mat Pillard said, that we -- we tried to structure this as an objective to be sought or achieved, and the determination -- and correct me if I'm wrong -- but it's to use the census data on the birds to make this comparison.

So if the census data covers off river nesting as well and it's important, I think it can be factored into the tasks themselves or the activities to cover that.

STEPHANIE WHITE: I'd like to capture Nick's comment --

MARY BOMBERGER BROWN: I'm fine.

STEPHANIE WHITE: Okay. Is your comment related to the discussion we're having now?

JEFF RUNGE: Yes, with the same objective.

I guess is there going to be a

modification to the Project so that you can detect changes in species response?

MATT PILLARD: Jeff, at this time, the objective is to look at -- at the trends of the bird usage above and below. So that's the objective of -- that's what the objective is -- the intent of that objective.

JEFF RUNGE: Okay. And with that, then, there really is no ability to look at species response or to really have some measure as to how changes in Project operations will change or would affect species response or would affect species habitat.

There is a good -- you know, I think that we can have a reasonably foreseeable flow trend evaluation, and that flow trend evaluation will be translated to stage at USGS river gages, but then there's no linkage to stage and habitat. And I think that's the component that's missing from the fish component and for the terns and plovers.

In addition to that, I guess there's no -- not only is there no linkage to habitat, but then there's no evaluation of how Project changes would affect habitat or would affect species response.

MATT PILLARD: Mat Pillard, HDR.

Jeff, some of those response issues -- I think sedimentation starts to touch on how we would use effective discharge and total sediment transport as a means and measure.

So Stephanie, do we have an opportunity to kind of maybe revisit kind of things that we have in the depletion study plan once we kind of look at sedimentation and see if those other questions are addressed as part of another study?

STEPHANIE WHITE: We can. We can table it if you'd like. Neal, do you have a comment?

NEAL SUESS: No.

STEPHANIE WHITE: Okay. I'd like to capture your comment, Nick.

NICK JAYJACK: Nick Jayjack from FERC.

I make this statement or this question -- or this comment with a fisheries perspective in mind. But one of the two goals identified in a previous slide on this Study No. 5 was -- the statement says, The results will be used to determine if the Project operations relative to flow depletion and diversion adversely affect habitat of the various species in the Loup River bypass reach

and the lower Platte River.

And one thing I notice here is that in these seven or eight objectives, whatever they are, there's little mention of that -- of the objective of looking at effects on habitat in the Platte River. And I'm wondering if we either, one, need to include a new objective here that places emphasis on habitat effects on the Platte River as related to depletion and diversion; or two, if we simply just refine one or two of these objectives to include more emphasis on the Platte River -- or equal emphasis on the Platte River as well.

STEPHANIE WHITE: So can you rephrase? Habitats on the Loup River -- this is for a potential new objective.

NICK JAYJACK: It would be the effects -- to determine -- let's see -- to determine effects of flow depletion and diversion on fisheries and other fish and wildlife habitats on the Platte River. We already have the Loup river bypass reach covers it, it appears.

And again, I'm just relating back to one of the goals listed previously, trying to connect back to that with an objective.

STEPHANIE WHITE: So if I've caught

it correctly, the potential new objective is to determine the impact of flow depletion on fisheries and other habitats in the Loup River?

NICK JAYJACK: Platte River.

STEPHANIE WHITE: In the Platte River. Discussion on that?

FRANK ALBRECHT: That would be an addition?

STEPHANIE WHITE: That would be an additional objective.

LISA RICHARDSON: And I just would clarify, Nick, for you. I know you mentioned the Platte River bypass reach, that one-mile stretch or so from the confluence with the Loup down to the Tailrace. And I guess in our minds, the Loup River bypass reach includes that one mile. So when we talk about the bypass reach, we mean from the Diversion Weir down to the Tailrace. So that piece of the Platte would certainly be included.

Now, when you talk about depletions on the lower Platte below the Tailrace, that's a different analysis because any depletion that may exist is different than that which would exist in the bypass reach. So I think that -- just that one clarification on the Platte bypass.

STEPHANIE WHITE: Does that accomplish it for you?

NICK JAYJACK: Can we say Platte River downstream of the Tailrace? (Stated without the use of the microphone.)

STEPHANIE WHITE: The request was to add, Platte River downstream of the Tailrace. So the new objective -- and I'm calling it Objective A, not to be confused with the numbering scheme that we have.

So Objective A on the table with regard to Study 5 is to determine the effects of flow depletion on fisheries and other habitats on the Platte River --

NICK JAYJACK: Well, the goal is worded the lower Platte River, which I'm assuming it's one in the same. So why don't -- to be consistent with the goal, why don't we say the lower Platte River there at the end.

STEPHANIE WHITE: Okay. Okay. Let's take a show of cards, yellow and red. We're talking about adding an objective -- we've already eliminated green.

PAT ENGELBERT: Leave green on the table.

STEPHANIE WHITE: Green on the table. New objective, the language is the following -- George, do you have a comment?

GEORGE WALDOW: George Waldow, HDR.

I'm trying to understand, if we're looking at Project impacts, are we looking -- in this -- the way this is worded, does it read to just address all flow depletions and diversions beyond the Project? It's unclear to me.

And in fact, there may -- the Project may not have a depletion. We're not sure if there is one, and so I'm wondering if we're getting a little ahead of ourselves.

NICK JAYJACK: Nick Jayjack from FERC.

I guess I'm, again, just relating back to the -- to the stated goal. And so maybe the way to word that objective would be to add, To determine effects of flow depletion -- or I'm sorry, to determine effects, if any, of flow depletion on fisheries and other habitats on the lower Platte River.

Now, it may be that the goal -- I'm misinterpreting what the goal says. So I mean, I'm open to -- you know, to any comments as to whether

I've misinterpreted what was meant by the goal, in which case there would be no need for this new objective.

JEFF RUNGE: This may be -- a change here that I would recommend is there's two different effects that we try to lump into Study 5, and one is the consumptive use of the Project and how those projects -- or the effects of that consumptive use is recognized downstream and the bypass.

And I think if we can separate those two components into two separate study groups, I think it would help to clarify this, to separate the two effects of the bypass. One effect is the bypass and the flow within that bypass. The other effect would be the consumptive use of the Project in that diversion area and those effects to resources downstream.

STEPHANIE WHITE: So are you suggesting, in addition to the new Objective 5-A, that it reads, To determine effects, if any, of bypass flow and consumptive use on fisheries and other habitats on the lower Platte River?

JEFF RUNGE: Yes.

STEPHANIE WHITE: Any comments or thoughts? How about a show of cards for the new

Objective 5-A? I will read it again: To determine effects, if any, of the bypass flow and consumptive use on fisheries and other habitats in the lower Platte River.

Show of cards, green, yellow, red. You want me to read it again? To determine effects, if any, of bypass flow and consumptive use on fisheries and other habitats on the lower Platte River.

NEAL SUESS: I guess what I'm having the problem with is once you get to the lower Platte River, you have both the bypass flow and the hydrocycling effects. How can you -- how can you examine one without the other?

And under hydrocycling, we already talked about the effects of hydrocycling on the terns and plovers and pallid sturgeons in the lower Platte River. So I'm wondering -- and we haven't talked about that, but we will -- do we need to have a separate study here on the lower Platte on flow depletion and flow diversion when we will get to that?

I don't know that we need to double up here, is, I guess, what I'm trying to get at. Because I think we will talk about that when we get to hydrocycling because that was the big effect of

hydrocycling or the discussion that we've had in the past about hydrocycling.

And I definitely don't think you can just take flow depletion and say, What's that effect going to be on the lower Platte, because you've got the cycling going on on top of it.

And then Gary, I like the way you shake your head every time I say something, so I appreciate that.

STEPHANIE WHITE: So if I understand, you're saying let's eliminate bypass flow?

NEAL SUESS: I guess what I'm saying is I don't think we need this objective because we have it already because it's in the hydrocycling. Because you can't take into account the flow depletion until -- in the lower Platte because you've got the hydrocycling and the flow coming from the diversion that we -- and then the flow back from the Tailrace into the lower Platte River.

So -- and again, in the hydrocycling goals and discussions, we talk about the terns and plovers and the pallid sturgeon in that particular goal and the objectives there. So I guess my thought process is I don't think we need this because we already cover it someplace else.

STEPHANIE WHITE: We have a comment from the back.

JULIA SAGE: Hi, I'm Julia Sage. I'm from the Ponca Tribe of Nebraska.

I've been going back over the slides that we've covered, and if you go back to Slide No. 76, read that, I think it's covering everything you guys are trying to put into the new objective, so --

STEPHANIE WHITE: Okay. The suggestion that a review of the goals might cover this. Also, we're discussing now whether we need to eliminate -- well, we can eliminate Objective 5-A because it may be covered in more detail in other study plans.

Jeff, would you be fine if we eliminated 5-A?

JEFF RUNGE: Yeah. And that can be integrated with hydrocycling. Yeah, that is a reasonable approach, is to integrate those consumptive use impacts with hydrocycling.

STEPHANIE WHITE: Okay. Nick, would you feel comfortable if we eliminated 5-A? I'm going to give you a second and let Pat Engelbert speak.

PAT ENGELBERT: The intent of the

flow depletion was to look at the consumptive uses in both the canal and the reservoirs versus what's going on on the bypass reach, which we were going to look at independently of the hydrocycling. Hydrocycling was more of an inundation thing that was going on. This was, are we removing flow from the lower Platte that -- as compared to alternative conditions.

And I think what Jeff is getting at is in our goal, which we state here, we talk about flow depletion in the bypass reach and on the lower Platte, but the objectives -- there are no objectives that talk directly to the lower Platte River.

So it would seem to me that that may be a reasonable addition to add because that looks directly at the lower Platte River, which helps us meet -- if we're all okay with the goal, that would help us meet our goal.

STEPHANIE WHITE: Now, bypass flow and consumptive use, or only consumptive use for 5-A?

PAT ENGELBERT: I'm assuming that's a consumptive use when we're looking at flow depletions in 5-A.

STEPHANIE WHITE: Okay. So the 5-A, as it reads is to determine effects, if any, of consumptive use on fisheries and other habitats on the lower Platte River. I'm getting a head nod from Nick. Other discussion from the group? Neal? Okay.

NICK JAYJACK: Can I just add something?

STEPHANIE WHITE: You may. Hold on.

NICK JAYJACK: This just goes back to something Neal mentioned earlier. I'm not asking for new study procedures or anything like that, I just wanted to make sure that there's at least some statement within the study report that addresses the goal, so that's all.

STEPHANIE WHITE: Okay. So the addition of 5-A, green, yellow and red cards. Green is the addition; yellow, we need to spend a little more time on it; red, not ready to include it yet. Okay. Anybody on the phone like to contribute a concern?

TELEPHONIC PARTICIPANT: No, I'm good with it.

STEPHANIE WHITE: Okay. We're adding 5-A to objectives for Study Plan 5. It reads: To

determine effect, if any, of consumptive use on fisheries and other habitats on the lower Platte River.

Is there any more discussion that needs to take place on existing objectives -- actually, we're up a slide. Pat, if you could move us to Slide 79?

I believe the discussion we just had was on 6. I'd like to move to Objective 7. We have about ten minutes until lunch, so bear with me.

Objective 7 for Study Plan 5: To determine the relative significance of the Loup River bypass reach to the overall fishery habitat for the Loup River.

Show of cards, green, yellow, red. Okay. Any concerns from the folks participating on the phone? We have one yellow -- or two yellows. So Jeff, I'll start with you, and then Richard, if you'd like to comment, you may.

JEFF RUNGE: Jeff Runge again.

And I'm not sure how much detail we want to go into this. We can easily skip over this and discuss it at some point in time later. I agree with the objective. The methods under the task, I think, can be improved. But I do agree with the objective.

STEPHANIE WHITE: Okay. So I'd like to move your vote to a green on the objective and ask you make some notes to discuss the activities in greater detail later on in May.

JEFF RUNGE: Yeah, sometime later.

STEPHANIE WHITE: Okay. Great. Another yellow, Richard, from you?

RICHARD HOLLAND: I guess I don't have a yellow objection. I was just trying to figure out which part of the system we were really talking about here. The bypass reach is below the diversion to the mouth of the river. Okay. That's fine.

STEPHANIE WHITE: Okay. So with those yellows addressed, we have unanimous greens on Objective No. 7. We're going to move on. Any comments from those participating on the phone?

Pat, will you move us ahead to Slide 80 -- no, I'm sorry, 63.

LISA RICHARDSON: I have a question. Before we move on to the next study, though, I think we want to make sure that we've covered all the objectives, that there's nothing else that needs added, or that we're getting all the information that's needed. Because this is -- this is the study

we've proposed. We want to make sure that we -- there aren't any additional requests or requirements or information that might be needed.

STEPHANIE WHITE: Does everyone feel confident that Study 5, the goals and objectives we just reviewed for Study Plan 5, does that -- the objectives meet the goals of the study?

DAVID TURNER: With the qualifications you're going to revisit 1 and 3. (Stated without the use of the microphone.)

STEPHANIE WHITE: The comment was with the qualifications that we will revisit 1 and 3 as activities. And who was speaking on the phone?

DAVID TURNER: David Turner.

STEPHANIE WHITE: Yes, we will revisit those as activities at a future meeting. Are we ready to move?

LISA RICHARDSON: Uh-huh.

STEPHANIE WHITE: Let's move ahead. Pat, I've just fired you from slide management.

We're now going to talk about fish passage. I may just call a break here. It's a couple minutes of noon. Lunch has not yet been delivered. What's the plan?

RON ZIOLA: We had a

miscommunication. We were thinking it was 12:30. But it's on its way, it should be here in just a couple minutes.

STEPHANIE WHITE: Okay. I would like to call a break. I think it's a good time in our discussion to stop, take a couple minutes for yourself, grab a bite to eat. Depending on how quickly lunch gets here, we'd like to start again at 12:30 Central time, for those on the phone. We may need a little bit of leeway --

RON ZIOLA: The dining room is available to sit out there and eat out there. We don't have to bring it back in here.

STEPHANIE WHITE: Okay. So let's plan on reconvening at 12:30. If you'd like to eat in the dining room at the hotel lobby, you're welcome to do so. At 25 minutes after the hour, I'll start tapping you on shoulders and getting you back into the room. So let's take a break.

(Lunch break - 11:56 a.m.)

(Meeting resumed - 12:47 p.m.)

STEPHANIE WHITE: Okay. Let's get started. I have reordered the slides so we can talk about sediment. So now we'd like to focus on

Study Plan 1, which is Sedimentation. For those of you on the phone, we're on Slide 66 -- nope, it got reordered.

NEAL SUESS: It's 62 because they got reordered.

STEPHANIE WHITE: I've reordered the slides so that we can talk about sedimentation next. Will you be able to follow along?

Okay. Let's get started. Study Plan No. 1, Sedimentation, two goals, which are as follows: To determine the effect, if any, that Project operations have on stream morphology and sediment transport in the Loup River bypass reach and in the lower Platte River.

I'd like to get a good sense of how you feel about this one. Let's use cards again. Green, yellow and red for the first goal listed on -- regarding sedimentation.

All right. I've got unanimous greens here in the room. Any thoughts or comments from those of you participating on the phone?

TELEPHONIC PARTICIPANT: We're good.

STEPHANIE WHITE: Then let's move on to Goal No. 2, or the second goal listed there on the slide: To compare the availability of sandbar

nesting habitat for interior least terns and piping plovers to their respective populations, and to compare the general habitat characteristics of the pallid sturgeon in multiple locations.

I'd like to get a sense of acceptance for this goal, a show of cards. So we have one yellow around the table. Any concerns from those of you on the phone?

Okay. Mary, I'll let you open up the conversation. Just give me a second.

MARY BOMBERGER BROWN: My question is about the word availability. Is available -- does availability include appropriateness, quality, quantity, or simple availability? What does that word actually mean in this goal?

STEPHANIE WHITE: Pat or Matt?

MATT PILLARD: Mary, the intent of this was to look at how birds are utilizing the areas that they are currently nesting in, using existing data to determine, you know, where are these birds and what are they using, not only here on the lower Platte, but also comparing at other locations.

So in terms of measuring -- you know, identifying the characteristics, if that is

identified in the literature, then that's -- we would use that information as well.

STEPHANIE WHITE: Is that okay?

MARY BOMBERGER BROWN: That's fine.

STEPHANIE WHITE: So your yellow has changed to a green.

MARY BOMBERGER BROWN: Uh-huh.

STEPHANIE WHITE: Then we would have unanimous greens for the second goal regarding Study Plan 1, Sedimentation. Okay. I'm going to move on to objectives.

Again, to reiterate our system, we feel that Objectives 1 and 2, as set forth in the study plan, are really activities and should be discussed at our meeting in May. If there's anyone here who believes that 1 and 2 need to be discussed as objectives today, raise your red card.

FRANK ALBRECHT: If it needs to be discussed today, is that what you said?

STEPHANIE WHITE: What we would like to do -- as we -- as we went back and reviewed Study Plan 1, we felt that there were a number of items we called objectives that are actually activities. And so the two that have been grayed out or shaded, Objectives 1 and 2, we'd like to

discuss as activities at our meeting in May. And are you okay with that, Frank?

FRANK ALBRECHT: Yes.

STEPHANIE WHITE: Okay. So let's talk about -- yes, there's a question? No? Okay.

Let's talk about Objective 3: To characterize stream morphology in the Loup River bypass reach and in the lower Platte River by reviewing existing literature on channel aggradation/degradation and cross sectional changes over time.

I'd like to see a show of cards, red, yellow and green, for Objective No. 3. Okay, there's one yellow card in the room. Any yellows on the phone?

TELEPHONIC PARTICIPANT: Just a question, but I'll hold back on that.

STEPHANIE WHITE: Okay. I'll come back to you. Jeff?

JEFF RUNGE: Right now I'm just taking my time to see if there is any -- if this -- any of my comments here are addressed later on, and I don't see that it is.

I guess I'm a little concerned that the channel aggradation/degradation and cross sectional

changes over time, applying that as a -- as a representation of -- as a surrogate for habitat. And I don't see that there are really a lot of other measures here that would measure effects -- sediment effects to habitat.

PAT ENGELBERT: Jeff, I guess the intent of this first objective was to try to use existing information -- for example, like the GS has done a couple of studies -- to determine is this reach aggrading/degrading, is it currently, you know, potentially in regime, how long has it been, you know, those types of deals, just so we -- as we establish this baseline or as we establish current Project conditions from which to measure impacts relative to alternatives, how does this help us establish our baseline, what is the current condition of the Platte River as well as the Loup River bypass reach, by using these existing literature sources.

JEFF RUNGE: Okay. Well, I guess if you established a baseline using these literature resources, then is there an objective there that would be able to parse out and evaluate different Project alternatives to the habitat?

PAT ENGELBERT: I need to think on

that for a second. And I guess I don't have a better way to explain it, in that if the -- if the current system, you know, were in regime, and as we look at, you know, working through other objectives within the sedimentation to see how total sediment transport, et cetera, you know, as a result of the Project would affect that, how could that maybe tip the scale from it being maybe from aggrading to in regime, or from in regime to degrading.

So -- and this isn't the only measure to establish the baseline, but a measure to help, again, characterize the overall morphology based on existing literature sources, that being, you know, how the GS has done it in some of their research over the last -- you know, gaging records, et cetera.

Maybe Gary or George could expand on that a little bit.

STEPHANIE WHITE: George, I'll take it to you, but I have to go this way.

GEORGE WALDOW: George Waldow, HDR.

I think, Jeff, that part of this element or this objective is to address some of the comments we received, both in the meetings and in comments, that speculated on what was going on in the river in

the bypass region and -- and with respect to things like the removal of sediment from the river by the dredging operations, for example.

There was discussion about did -- did that have an impact on either degrading or aggrading the reach below the Diversion Weir, for example. I think we heard it speculated both ways. And then there was a lot of discussion about clear water return flows back into the Platte River, and did that mean that there was degradation for some distance downstream.

And what we're striving to do here, as I understand it, is we're taking the pulse of the river relative to the data that's out there and to the various cross sections that the GS has maintained over the years. And there's -- there's other documentation -- I can't quote it -- Pat, you know the GS document I'm talking about that looked at the stability of the river channel downstream further.

And we're trying to just characterize the complete stream morphology with this step so that we know where we are when we -- when we go into these other objectives and tasks, habitat being one consideration. But overall changes in the

morphology is also one, especially, for example, with respect to ice jams.

So this -- this is kind of the -- taking the available data that's out there, both gage data, cross sectional data and literature, and summarizing it with respect to the various reaches going down through the entire study reach.

Gary, do you want to add anything to that?

GARY LEWIS: I think it's an excellent question, one that has perplexed a lot of us for years.

Just relating to the corporate agreement and the study I performed for the governance committee along with the Platte River office, we debated this at length. How do you cause that linkage from morphology in -- changes in morphology to habitat, and what is that defining linkage?

And there have been all kinds of attempts, the Sed-Veg Model, daily calculation of aggradation/degradation, widening of the channel, none of which addresses habitat. It addresses surrogates for habitat.

And what we're proposing here is that morphology is probably the best surrogate for habitat that can be conceived, that it's going to be

difficult to extend what has not yet occurred, with an awful lot of experts studying the Platte, Central Platte, of trying to link habitat in whatever form, whether it's for the cranes or plovers or terns, and now with the sturgeon in the lower area.

There are parameters, like connectivity is a measure of habitat, open area, things like that, those are all part of -- I would suspect are part of the work plan on trying to collect this information that exists and any inventories of that. But that can't be done really with 20,000-foot aerial imagery, it needs to be done on the river.

I might just comment, there is some research done by Kearney -- I'm sorry, a University of Nebraska at Kearney professor in the '70s, where he came down the lower Platte and got in the river and observed the process of habitat formation, sandbars, and he observed the processes that form that. And it's very worthwhile reading for anybody. I have a copy of that paper. It's not a great quality copy, but I can -- I have scanned it, and I can send that to anybody. It was peer-reviewed, a very high-level peer review and publication in a major journal.

It probably would be an eyeopener to most

people here on just what does cause the formation of habitat, and he really shows how influential low-flows are and he talks about the -- the nonstatic nature of this. If you don't have connectivity today at noon, you could have connectivity tomorrow at noon because of the -- just the flow finding its way through this braided stream.

You know, other eyeopeners are along the lines of a braided river is an insipient form of a meandering stream. So that factors into this, can we really understand braided streams except as having oversupply of sediment. And that's what characterizes them. If you change that, you don't have a braided stream anymore.

So there is an abundance of sediment there and an oversupply of it. And the question on the regime change is if the Project is anywhere close to tripping that from an abundant oversupply to something close to an undersupply of sediment, then the regime change that we would want to identify and report is, Yeah, it's right there on that threshold, and it needs to be addressed.

If it's far from that -- so these are qualitative things. I just -- it's a very good

question. I don't have an answer to it. And I've worked in this field for years, and I haven't really seen anybody else that can relate these morphology changes or has any other tool for determining the real effect on habitat in terms of the parameters that you have.

We will be working with things like connectivity and that sort of thing, but I don't know that there's any better answer to your question.

JEFF RUNGE: I guess getting back to No. 3 here, is that I do believe that this is a good indice as to identifying the trends. There's some improvements in the methods there that I think I'll touch on later.

But this really identifies existing conditions, and it is an indirect indice towards habitat. But there really isn't -- it's not taking that next step and looking at -- or having some interpretation as to what this aggradation or degradation means to habitat, and not only that, but to also parse out the different alternatives and how these different alternatives will affect this aggradation/degradation state. And I think just by including that as a separate objective, I think that

could simply address that issue.

STEPHANIE WHITE: So Jeff, can you take a spot at rewording your objective?

JEFF RUNGE: Developing -- let's see, to -- to assist -- let's see -- develop methods that would qualitatively or quantitatively evaluate the effects of the different alternatives -- the effects of sediment supply from different alternatives to habitat.

STEPHANIE WHITE: I'm way behind. Qualitatively or quantitatively --

JEFF RUNGE: Qualitatively or quantitatively evaluate the effects of sediment supply from different action alternatives to habitat.

STEPHANIE WHITE: Okay. In my shorthand, I have: To develop methods that would qualitatively or quantitatively evaluate the effects of sediment supply from different action alternatives to habitat.

JEFF RUNGE: And if someone has a better way of rephrasing that, please speak up.

NICK JAYJACK: This is Nick Jayjack. What I think I heard this gentleman say previously -- I didn't catch your name, sorry --

GARY LEWIS: Gary Lewis.

NICK JAYJACK: -- Gary, is that the first -- I think the first phase of this approach here is to first identify whether or not the system is at quasi equilibrium, or if it's degrading or aggrading, and that if it is at a quasi equilibrium now, then there's nothing -- it means the Project doesn't have an effect, so no matter what you do -- and correct me if I'm wrong -- the sediment -- there still would be the oversupply of sediment, and therefore, there would be nothing -- there would be nothing that could be done as far as Project operations to change that.

Is that what I'm hearing? So I think it sounds like your objective is already covered by this study.

So in other words, let me rephrase. The first step is to figure out whether or not the Project is claudent, by taking the pulse, figure out what the Project is doing as -- or what the river is doing in terms of whether it's at equilibrium, or not.

And then if it's not, say if it's aggrading or degrading, then the next step would be, then, to identify what the Project effect would be,

or in other words, what could be done in terms of additional flow release or leaving the flow and sediment in the river, et cetera, to reach some desired condition.

Am I right?

GARY LEWIS: Yeah. The thought on this is that if we characterize the condition now, the river is probably aggrading. If it isn't, it's not a braided river. That's the characteristic of a braided river, is it's always aggrading. So it probably is in an aggradation. If we find it's not, that would be surprising. It wouldn't be a braided stream anymore. That change would affect its appearance and everything else.

But the bottom line of this is the habitat is the morphology, and vice versa, the morphology is the habitat. The morphology is the shape. The number and quantity of sandbars and everything else is defined by the morphology, and we have a very good way of determining if that morphology is stable, or not. That's our tool. That's what we're talking about here, and that this is the baseline condition, we're going to pull up the literature and look at all the records and data and cross section changes over time and make a determination, are we

at that state of having a -- a quasi equilibrium in the morphology. And if that's occurring, then that exists.

Now, if there are changes proposed in the Project, we can evaluate the impact those changes might have on that equilibrium. Since the Project has been around for a long time, it's going to be hard to tell that the Project did or didn't influence that equilibrium. But we definitely want to know if it is or is not in equilibrium. That's the purpose of this objective.

Does that help?

JEFF RUNGE: Okay. So we find out that it is either one of three options: Aggrading, degrading or in some type of quasi equilibrium. Knowing that there is 1.2 to 2.2 million tons of sediment being removed from the diversion, we know that there's a reduction in sediment supply at that -- at the Tailrace.

And so it's -- I guess if we find out that, through this -- this Objective No. 3, that it's degrading, do we reopen the study plan to address what that may mean in regards to impacts to habitat?

NICK JAYJACK: Nick Jayjack from

FERC.

That's where your two comes in. So let's say we go this route the first year, and like you said, the initial results show, as dictated in the study report, that there is a degrading situation, then we can look at additional study based on those results.

David, can you hear me? Do you have anything to add to that?

STEPHANIE WHITE: Just a second, David. I have to race up there.

DAVID TURNER: No, I don't really have a whole lot to add to that. However, I guess the only thing I would kind of caution or what I'd like to maybe see discussed, if we have the time, in terms of approaching that question is if it's a phased approach, then we probably should talk about the what-ifs scenario and how we would approach that second part of the question so that we have a clear understanding of where we go, than just rephrasing and reopening the -- the discussion.

PAT ENGELBERT: I think what Objective 3 does is help us to establish the current operations. And then through our effective discharge calculations, and in looking at

alternatives, that will tell us what impact those different alternatives would have on the current condition.

But I think the first thing we need to do is to establish what mode it's in, and then determine through our -- what we're proposing relative to sediment transport characteristics, whether that shifts it one way or the other. And then the third step would be, then, what impact could that have on habitat.

Is that -- is that -- Gary, does that make sense?

GARY LEWIS: The answer is yes.

PAT ENGELBERT: So we may -- what we may need to do is either add a modification of the objective that Jeff threw up there, or look at Objective 2, which we thought was more of an activity and modify that. Because up there we were saying we were going to look at those sediment transport parameters through effective discharge, collective discharge, et cetera, and then that would allow us to look at differences between the baseline and the alternative conditions.

So maybe it needs to be a reintroduction of either 2 -- or maybe it's a merge between 2 and

6-A that gets the next step, Jeff, which I think you're alluding to, is how do we assess the impacts.

Does that make sense?

DAVID TURNER: To do what Nick said, talk about degradation, and then maybe go into what I think was Rich -- I'm not sure who was saying that -- just to ask, Well, what happens -- you run the model again, whatever the scenario is, and -- in the sense of defining, Well, if you didn't divert any of the sediment, how does that change the characteristics?

Isn't that what you were just trying to say, or am I missing a picture here?

STEPHANIE WHITE: Yes, that is what Pat was saying. So I think the suggestion on the table is that we either add 1-A as amended, or we reintroduce No. 2 with some changes. It was 6; I changed it to 1.

Jeff, since this was your original yellow, you're welcome to weigh in on which of those you'd like, or if you think you know the solution.

JEFF RUNGE: I guess just to help things move along, I think as long as we've got this flagged right now, maybe breaking this down into greater detail is not necessary. I think that's

something that we can easily discuss and integrate when we get into the methods part.

STEPHANIE WHITE: So what I'm adding in my notes is that we either add some version of what is 1-A, what we've wordsmithed here, or we potentially reintroduce No. 2 with some adjustments in language.

DAVID TURNER: I guess before we leave this, I do have another question.

STEPHANIE WHITE: I'll take it in one minute. Hold on.

Okay. David, you're up.

DAVID TURNER: This may be more of a method type of a question than it is an objective question. But is there a reasonable expectation that there is enough existing data to accomplish this qualitative analysis?

PAT ENGELBERT: Yes.

STEPHANIE WHITE: Yes.

Okay. Unless there's some more discussion, I'd like to move us off Objective 3 and/or 2, and let's move to the next slide. So we would be on Slide 64, for those of you on the phone.

We're now talking about Objective No. 4 regarding Study Plan 1, Sedimentation: To determine

if a relationship can be detected between sediment transport parameters and interior least tern and piping plover nest counts as provided by the Nebraska Game and Parks Commission.

Let's take a show of cards, red, yellow and green, regarding this Objective No. 4. I've got a green from the District and from Game and Parks. Okay. Mary?

MARY BOMBERGER BROWN: Let me think for a second.

STEPHANIE WHITE: Okay.

FRANK ALBRECHT: Just for clarification, Mary, I think that would -- that wouldn't exclude the data from the partnership as well.

MARY BOMBERGER BROWN: Yeah, okay.

FRANK ALBRECHT: Is that what you were just kind of --

MARY BOMBERGER BROWN: That's fine.

STEPHANIE WHITE: So with unanimous greens or no objections -- yes, Matt, I'm sorry.

MATT PILLARD: Matt Pillard.

We can -- not knowing -- we are under the understanding, kind of, that Game and Parks were the keeper of all the data, and that's why they are

referenced. We can very easily rephrase that to say, you know, existing data from any, I guess, valid source, any of the resource agencies that have that data, we would surely use.

STEPHANIE WHITE: Okay. Lisa?

LISA RICHARDSON: And to add on to that, the bigger question in my mind is, is the Game and Parks the keeper of all of the bird data? I mean, that's the source that we've been going to, although we have been put on the track -- on the trail of some other data through the Corps of Engineers and other agencies.

But I guess, where do we go to get all the data? We were under the impression that Game and Parks had it all. So if we need to look at other sources, we'd like to know those now so we can continue to try to dig up that information.

FRANK ALBRECHT: Our Natural Heritage section located within our Wildlife Division does have -- it keeps the database current. And Mary, I'm assuming that all of that information is -- from the partnership, that's transferred to that database. There may be a little lag time from the season, but eventually it gets in there. And correct me if I'm --

MARY BOMBERGER BROWN: That's true, there is lag time. Different river basins are monitored by different agencies, the Corps and the Partnership and Game and Parks and Fish and Wildlife. So different segments of the river are monitored by different agencies.

So I would like to -- different agencies, different organizations, different groups are collecting the data. It would be nice to have the data reviewed before it progressed onward to this point because there are different quality control parameters that really probably should be included in that.

FRANK ALBRECHT: Just for clarification, do you mean -- there probably is -- I think -- I assume when Rick Schneider and they do enter that, that their -- the protocol is followed. Do you mean to meet the quality control for other entities that are meeting the --

MARY BOMBERGER BROWN: This is Mary again.

By the time it does get to Rick and to there, yes, it has been looked at. But it's the original field protocol that is very -- that is variable between the agencies and the groups. And

so if the field protocols are very -- are variable, then that does need to be considered.

MATT PILLARD: Matt Pillard.

At the end of the day, we just want to make sure we're going to the right source for the right data, that, you know, there's authority that approves the use of the data that we want to use as part of the analysis, so that's the point.

We aren't here to question the methodologies used to capture or collect or distribute, we just want to make sure we get the right stuff and that we actually have all the data that is available.

MARY BOMBERGER BROWN: The stuff that does pass through the Legacy Project is the -- is the data to use.

STEPHANIE WHITE: Okay. So the clarification of this discussion, I think, has resulted in the agreement of the group that the -- that one source of data will be the Nebraska Game and Parks Commission --

MARY BOMBERGER BROWN: The Legacy Project.

STEPHANIE WHITE: -- the Legacy Project.

FRANK ALBRECHT: Or the Heritage --

MARY BOMBERGER BROWN: The Heritage Project, yeah.

STEPHANIE WHITE: And does that need to be included in the objective?

FRANK ALBRECHT: I'm comfortable with that. Like Matt mentioned earlier, I mean, you could reword it, but I think if everybody is comfortable, it's housed at the commission.

STEPHANIE WHITE: Okay. So let's leave Objective 4 as is. The discussion will be noted in the transcript.

Let's talk about Objective 5: To compare the availability of sandbar nesting habitat to interior least tern and piping plover nest counts on the lower Platte River, and to compare these results to the relationship of interior least tern and piping plover nest counts and the availability of sandbar habitat in the Missouri River downstream of Gavins Point Dam.

I'd offer to read it again, but it's kind of tricky. Let's see a show of cards. Green, yellow, and red. Green from the District, noted. You can put your card down. Yellow from Fish and Wildlife, yellow from Game and Parks and Mary.

We'll start with you, Jeff.

JEFF RUNGE: Again, I'm just trying to get an understanding here for the -- the reason for this objective. Is this to have some sort of baseline information, or is this going to be used to evaluate different alternatives and -- and having some type of comparative analysis with these two different systems?

MATT PILLARD: The intent of this objective is to try to get to the question of, you know, a limiting or controlling factor to the species, and you know, it's not to use as to establish a baseline for which our project would be compared to what's happening on the Missouri.

We were searching for a way, knowing that these are the same species of birds and used, at least we assumed, the same types of habitat, that if one can look at what's happening on the Missouri River and how habitat changes have influenced bird numbers on the Missouri and then relate that back to what's happening on the Platte River relative to what our sediment discharge is showing us, as well as other data that may exist on bird habitat, you know, are bird numbers responding the same way that they do on the Platte River when there's changes in

habitat as they do on the Missouri when there's changes in habitat, trying to get to the answer of are sandbars a factor that's making bird populations go up or down on the lower Platte River, as we've seen and is being studied on the Missouri River.

JEFF RUNGE: When we discussed an earlier part, an earlier objective here, we talked about the different states of a river, aggradational, degradational or in some type of quasi equilibrium. And we've also identified how difficult that was to translate that towards some type of indice for habitat, although that's something that we're going to attempt to do.

What I see with Objective 5 is taking that a step further and not only quantifying habitat, but having some understanding of species response in response to this habitat, which was built in response to sediment. And for me, I find it difficult to draw this association based on species use when we have a difficult time addressing sediment effects to habitat or channel morphology.

I also see, with this being a limited two-year study, given what -- what Mary has stated earlier, these populations are connected to the Prairie Coteau and the Dakotas, they're connected to

the Mississippi River system, the Loup, the Niobrara.

I guess I'm really having difficulty in seeing this as a -- some type of end product that we can -- we can use to either evaluate a baseline or to compare alternatives.

MATT PILLARD: And this is getting into a little bit of the how, but the intent wasn't to use the next two years of data, it was to look back on past information.

JEFF RUNGE: Okay.

MATT PILLARD: For example, we know in '97 there was large events on the Missouri River that produced, you know, lots of habitat, or these sandbars on the Missouri River. And we've -- you know, we are anticipating being able to look at bird numbers in terms of response to that habitat or sandbar creation.

We would do similar -- using effective discharge and total sediment transport, we could look back in time to see were there various years that were better than others in terms of potential -- you know, having sediment availability, relating that to the existing bird numbers that we have that has been collected on the river, trying to

get an understanding of, you know, are we seeing the same responses on one system that we are on another. It's really comparing two systems and seeing if responses are similar.

STEPHANIE WHITE: Frank and Mary, I know that you had some concerns. Jeff, we can come back to you as well.

FRANK ALBRECHT: I guess I was struggling a little bit at first with it because of the different -- I was asking initially below Gavins Point Dam, did you mean all the way down to the channelized reach, or --

MATT PILLARD: (Nods head.)

FRANK ALBRECHT: All the way down? Okay. I guess it would be interesting information to have, I guess. Yeah, you're going to see correlation, you know, with the high flow events, then the following year, you know, you get the buildup of the sandbars and so on.

I was just, I don't know, thinking out loud, struggling a little bit on how the -- what you would actually gain from it, comparing those two drastically different systems. But I guess it would be interesting information to have. I don't know. I'm going to defer on that one. I'm kind of neutral

on it, I guess, is what my stance is. I'll defer to somebody else.

MARY BOMBERGER BROWN: This is Mary Brown.

The Missouri River downstream of the Gavins Point Dam, the only sandbars that the animals are actually using there are ones that have been constructed by the Corps, and because -- those sandbars are constructed because the dam captures all the sediment. There are the density dependent issues with the birds on those sandbars. There's too many of them on too small of sandbars.

It's not entirely clear to me how -- how the animals here on the lower Platte River and on the Loup in the Loup facilities, you know, the Project properties and these constructed sandbars on the Missouri River down of -- downstream of Gavins Point, it doesn't strike me as being an equivalent comparison, necessarily.

GEORGE WALDOW: This is George Waldow, HDR.

One of the questions that we were asking ourselves when we put this together was the question of whether the -- the birds are sandbar limited in the lower Platte. And what Mary just described is

that they are sandbar limited below Gavins Point Dam, and so a small increase in available sandbars led -- as I understand it, led to increased utilization and nesting success.

And so the question that we posed is within our study reach, where we have many, many sandbars, there may be other factors that are influencing their use by the birds and the relative success.

We wanted to ask ourselves, are the birds or the habitat sediment limited or sandbar limited, or not? And we thought this would be a way, by comparing the two -- even though it's one large population -- in the two locations. And if events occurred in one location, like a hailstorm, or something, and then there was a -- a concurrent rise in utilization of the other location, is it really an issue of sandbar limitation in the Platte, for example?

And we just -- there didn't seem to be a -- an examination of these things, and that's what we were trying to provide here.

MATT PILLARD: Thanks, George. And you're right, we were trying to figure out a way to look at -- and maybe a better objective might be --

if I could suggest something -- is to, you know, determine a method to identify if sandbar habitat is limiting tern and plover populations on the lower Platte River and/or the Loup River system.

And then the how -- this objective contains a little bit of the how that we were looking to do in it. I'll just throw that out there for discussion.

If the resource agencies feel that that kind of evaluation of is sandbar habitat limiting a type of study that's worthwhile, then I maybe would rephrase the objective, and we'll go back and collaboratively work on the how that would be done. It appears there's some issues in looking at the Missouri here and there's some questions on how that would be done.

STEPHANIE WHITE: I caught a little bit of your objective -- which I'm calling 1-B, for purposes of our notes -- To determine a method to evaluate if sandbars are habitat limiting --

RON ZIOLA: Are we talking habitat availability?

STEPHANIE WHITE: To determine if habitat is --

MATT PILLARD: If sandbars are a

limiting factor.

RICHARD HOLLAND: If sandbar habitat are limiting nesting --

STEPHANIE WHITE: Hold on, I think I got it. To determine if sandbar habitat are -- to -- if sandbars -- I didn't catch it.

RICHARD HOLLAND: We're talking about sandbar habitat for the birds.

STEPHANIE WHITE: Yes.

RICHARD HOLLAND: The question seems to be is sandbar habitat a limiting factor for nesting success or nesting numbers, or some factor of reproductive success. Is that what I'm hearing? There's a number of different ways of looking at that, one of which might be a comparison of historical data. The objective is to see if it's a limiting factor -- one of many limiting factors. (Stated without use of the microphone.)

STEPHANIE WHITE: So just to repeat what Richard said, the objective is to determine if it is one of potentially many limiting factors.

RICHARD HOLLAND: The objective would be to determine whether sandbar habitat represents a limiting factor in nesting success of least terns and piping plovers. Amen.

STEPHANIE WHITE: I sort of have it in my chart. I think we definitely have it in the transcript. If that's something that people are comfortable with -- I might have our transcriber repeat it, if I can come back to you.

COURT REPORTER: Sure.

JEFF RUNGE: Just one thing, though. If we can bring this objective back to a sediment focus because this section here focuses on sediment, and right now, just habitat in general is not related back to sediment.

(The requested portion of the transcript was read back by the court reporter.)

STEPHANIE WHITE: Do you have a comment, Pat?

PAT ENGELBERT: I think how we paraphrased it in the morning objectives list was to evaluate whether availability of sandbars is limiting tern and plover populations in the lower Platte River. And I don't know if that's a little cleaner than that one or not, but --

STEPHANIE WHITE: What slide are you looking at?

PAT ENGELBERT: Ten.

STEPHANIE WHITE: Which bullet?

PAT ENGELBERT: Three.

STEPHANIE WHITE: Okay. So we had also taken a shot at rewording this in our preparation for today. Bullet No. 3 reads: Evaluate whether availability of sandbar is limiting tern and plover populations in the lower Platte River.

All that work this afternoon to get us back to where we were. Let's take a -- oh, a comment from Mary.

MARY BOMBERGER BROWN: This is Mary.

I think it's important that we include the idea of nesting success or reproductive success in all this because if there's one thing that we've learned from constructing the sandbars in the Missouri to try and mitigate the sediment loss there, is that we're constructing it, but the animals aren't, by necessity, being successful there. We're having density dependent issues. So yes, we're providing them the habitat, but we need measures of reproductive success on them to actually have it be valuable.

GEORGE WALDOW: George Waldow, HDR.

I don't disagree with you at all, but I

believe that would be under the activities where we would address that.

STEPHANIE WHITE: Okay. So we're talking now about the addition of -- or the rewording of an objective to read: Evaluate whether availability of sandbar is limiting tern and plover populations in the lower Platte River.

Can we take a show of cards, red, yellow and green for the inclusion of this? Greens, okay. All right.

We're going to move on. Give me a second to jump back to the slide. Do you have a comment, Jeff?

JEFF RUNGE: If you want to please go back to that objective.

STEPHANIE WHITE: Sure. The one we were just looking at?

JEFF RUNGE: Yes.

STEPHANIE WHITE: Okay.

JEFF RUNGE: That is going to be very difficult to do because that takes an understanding of the entire population of the least tern and the piping plover. And the Platte River -- the lower Platte River is not a distinct and separate population. There's a lot of interchange amongst

different river systems and other areas of habitat. Such as Mary stated, the Prairie Coteau region and the Dakotas is flooded, and so they're going to be -- the conditions this year, they're going to be looking for nest sites at different locations. And even with the sediment being the same, it's -- the differences in other locations would identify -- would help to identify whether or not the Platte is limiting or not.

In some years it may be limiting, and other years it may not, but you can't make that determination until you have an understanding of the larger population and those interactions amongst that population.

LISA RICHARDSON: I guess perhaps, Jeff, could we just relate it to the objective, take out the term populations and maybe just talk about numbers and try to not -- not -- population is maybe more encompassing.

And then the other -- the other thought I had is I understand that, as a population overall, they use a lot of different areas, and when one area is not suitable, they're going to go to another area. But I don't know that we can attribute those types of activities to Project effects, if on -- and

we're not -- I think we said this before, we're not talking about looking at just what's happening this coming year, but really it's more of an evaluation of historical data and what kinds of trends do we see, what types of things look like they are factors, and so trying to get an overall understanding of how this relates to the Project area.

And if, on a general basis, sediment and habitat doesn't seem to be limiting, then we understand there might be some unique cases where habitat elsewhere is completely unavailable, so then everybody is crowded into the same sandbar. But --

STEPHANIE WHITE: Jeff?

JEFF RUNGE: Maybe I can make a recommendation for this objective, is to just evaluate the historic nesting in the lower Platte River. When you -- you can exclude the population -- the term population, but you still have that term limiting. And in order to identify whether the lower Platte River is limiting, you've got to have an understanding of the habitats and the available habitats throughout its range.

And so I guess my suggestion for this objective would be to evaluate historic nesting in

the lower Platte River.

STEPHANIE WHITE: Richard, go ahead.

RICHARD HOLLAND: I guess my suggestion might be what you're really talking about is to evaluate or document the -- the relationship between the availability of sandbar habitat and limiting -- and -- excuse me, and least tern and plover numbers in the river. That's really what you're talking about. You're talking about developing a relationship, not cause and effect. Because cause and effect goes beyond our ability to take all factors into account simply by observational data, and we'll never be able to do that in a two-year period, let alone two-lifetime period.

I mean, it's -- we're not talking about a population-wide causal factor based solely on sandbars because of all the variability with flooding up north, with predators down south. I mean, biologically, you can go into any number of factors that would determine reproductive success.

In terms of sedimentation, what you're trying to do is find out a relationship between sandbars, i.e., aggraded areas that are suitable habitat and the numbers of birds that are utilizing

those.

If it's a positive relationship, that tells you something; if it's a negative relationship or no relationship, then all you can say is, We have no relationship that we can determine at this time based on the data we have.

So I think what you're trying to do with that objective is to -- and I'm not sure what the appropriate word is -- document or evaluate a potential relationship between sandbar habitat and bird numbers.

Is that -- is that getting at what you want? I mean, that connects sedimentation in terms of the availability of the habitat, in a sense, with the bird numbers. I don't know.

JEFF RUNGE: I think that's -- that's great.

PAT ENGELBERT: That is Objective 4. It's the next one down. Not on the morning session, on the afternoon. The one that was actually in the -- if you flip to Slide 64. (Stated without use of the microphone.)

STEPHANIE WHITE: We've jumped back to Slide 64, for those of you participating on the phone.

MATT PILLARD: Rick, I think you're right. Objective No. 4 reads: To determine if a relationship can be detected between sediment transport parameters and interior least tern and piping plover nest counts, as provided by Nebraska Game and Parks.

That's what we previously discussed, and that is looking at those -- the sediment transport parameters, determining if a relationship exists between those parameters and nest counts.

What we were trying to do on No. 5 is see if there was a -- to see if we couldn't figure out a way to determine if sandbars were limiting. I guess what I'm hearing is maybe we can't determine that. So does this objective go away?

JEFF RUNGE: I think it does, especially if you're trying to evaluate historic nesting on the river and trying to identify trends. Because you've got trends in hydrology, you've got direct impacts to the channel through jetties and hard points being put in, and all those affect that ability to nest and -- or to develop sandbars which would be of nesting quality. And unless you can decouple those other factors from sediment alone, I think it's real difficult to draw that association.

RICHARD HOLLAND: I would also put a friendly amendment in there, if you're going to look at nest counts, you might also just look at number of birds. I figure you'd have that anyway.

STEPHANIE WHITE: So do you feel -- Matt and Pat, do you feel like we've had a robust enough discussion that you can go back and make the necessary changes for discussion in May?

FRANK ALBRECHT: What's on the table right now?

STEPHANIE WHITE: Let's let --

MATT PILLARD: We had rewritten this Objective No. 5, and we kind of agreed to the point of the fact that the objective made sense. Jeff wasn't certain if we could get there or if it was truly isolated to sediment.

I think I'd like to recommend that we take a look at the rewritten No. 5, and we'll go back and look and maybe we can discuss is there a way to meet that objective, and is it going to tell us things that we need to know. Is that fair to say?

JEFF RUNGE: Yeah.

STEPHANIE WHITE: Any additions?

PAT ENGELBERT: Nope.

STEPHANIE WHITE: Okay. Okay. I'm

going to move beyond 5 to Objective 6, with the understanding that we'll rewrite 5 and bring it back to the group.

We're now on Objective 6 for Study Plan 1, Sedimentation. That puts us on Slide 65, for those of you on the phone.

Objective 6 is: To determine if sediment transport is a limiting factor for pallid sturgeon habitat in the lower Platte River below the Elkhorn River.

I'd like to see a show of cards. Okay. Yellow from the Game and Parks. Richard, I'll let you comment.

RICHARD HOLLAND: Overall, I just would probably eliminate below the Elkhorn River. I think there's a need to assess the entire lower Platte River in terms of habitat.

STEPHANIE WHITE: Matt, I saw you nodding your head. Do you want to comment?

MATT PILLARD: Yes. And I think given -- the reason we have below the Elkhorn is that at the time, that's where they were all being found, was from the confluence of there, down the Missouri.

We can look at what that would mean above,

just there aren't a whole lot of numbers to support anything above that point. You know, if we want to use any population data, you know, there's not a very big sample there.

RICHARD HOLLAND: We're not talking about population, we're talking about habitat. (Stated without use of the microphone.)

STEPHANIE WHITE: And Richard's comment there was, We're not talking about population, we're talking about habitat.

So Matt, are you -- would we amend it to eliminate Elkhorn River -- below the Elkhorn River?

MATT PILLARD: Sure.

LISA RICHARDSON: The same evaluation would be done above or below. We're talking about sediment transport, right? So I assume that we can evaluate that in the same way above or below. I guess Pat and Gary need to weigh in on that.

STEPHANIE WHITE: John?

JOHN SHADLE: You know, I know we found recently a fish near the confluence. It just seems to me if we're going to go all the way up the Platte River -- which in this case is to Columbus, Nebraska -- it seems like a tremendous waste of effort.

STEPHANIE WHITE: George?

GEORGE WALDOW: I'm thinking to the temperature study that we've proposed in the lower Platte for the pallid, we only have data -- temperature data down in -- at the Louisville gage, and that's what we proposed using to address the temperature issue. Now, if the pallid habitat goes way up to Columbus, we've got a near field issue that we have no mechanism to consider temperature impacts.

MATT PILLARD: Yeah, I think for the purpose of this study, it was a qualitative evaluation of the habitat in the lower Platte below Elkhorn, looking at the -- you know, the types of habitat that the pallid exists in.

Scott, if you have anything to add, please jump in.

The methods to do that would be to look at, you know, the habitat as it exists from Columbus on down. We know it changes. I don't know if the -- from a perspective of, you know, is it inhabited all the way to Columbus, I think that remains to be seen. Obviously, the fish -- we haven't caught it that far, but that doesn't, I guess, necessarily mean the habitat isn't there.

There may be another reason why the fish don't migrate that far up.

I guess I'm not -- don't have the expertise to speculate, other than, you know, it's combinations of flows and habitat and what they eat and things like that, I would imagine.

So I guess relating to this study, you know, since it's qualitative in nature and looking at the types of habitat that exist, it doesn't appear that adding up to Columbus is going to be an exorbitant amount more work for what we need to do to do that evaluation. I don't know if that would hold true for what we want to do for temperature. And I guess we can discuss that under temperature, or we can -- that seems to be the place to hit that, is under that study.

STEPHANIE WHITE: And I think we -- Pat, I heard you say let's discuss it under temperature?

PAT ENGELBERT: The data for temperature exists downstream of the Elkhorn, which is why we had, you know, proposed that methodology. I don't know -- I guess I'm not familiar enough with how much data exists downstream of Elkhorn relative to sandbars, et cetera, and pallid sturgeon habitat.

I can't speak to that.

STEPHANIE WHITE: So what's -- on the table we're still talking about the inclusion or exclusion of below the Elkhorn River. So let's take a show of cards to leave it as is, and then I'll take a show of cards to take the Elkhorn River out. I have a green from the corner, green as is, No. 6 as is. Still a yellow from the Game and Parks.

All right. So what if we took out the -- below the Elkhorn River? I have a red from the District, green from Game and Parks, yellow from NPPD.

I think at this point, we'll leave it in -- I'm sorry, we'll leave it in. We can discuss it again if we need to. Okay.

Okay. Let's move to 7. Objective 7, sedimentation: To investigate the relationship between sedimentation and ice jam flooding.

I'll take a show of cards, red, yellow and green. Okay. It appears that we have no objections to No. 7, To investigate the relationship between sedimentation and ice jam flooding. We will leave it as is.

No. 2, let's talk about hydrocycling, if you're all ready to move to Study Plan 2,

Hydrocycling.

Before I do, are there any comments from Kim or David on the phone?

DAVID TURNER: No, I'm good.

LISA RICHARDSON: I guess kind of like I did in the morning, have we got all the objectives? Are we getting at all the data that's needed? I mean, this is the study that we're proposing related to sedimentation. These are the objectives that we identified based on the discussions and issues that were identified previously. Do we have it all?

STEPHANIE WHITE: For sedimentation, is there anything that's missing from an objective standpoint, goals or objectives?

NICK JAYJACK: Somebody correct me if I'm wrong, but thinking back to Scoping Document 2, I think one of the issues was whether hydrocycling also had an effect on fish populations in the Tailrace Canal.

Is that no longer an issue, or is it still an issue, in which case I think we need to add the Tailrace Canal to this list as well? I don't remember who -- who raised the issue. Perhaps it was the state or the Fish and Wildlife Service,

prescoping.

STEPHANIE WHITE: So we're now discussing the goal of hydrocycling. George, do you want to respond to that?

GEORGE WALDOW: I recall that it was deleted from the scoping document because the -- the depth of the Tailrace Canal is so deep that the cycling has a minor influence. There's no stranding or anything like that that's possible.

LISA RICHARDSON: Yeah, George is correct. It was related to fish stranding and mortality in that there's plenty of water in there already. You don't get any low depths, and FERC agreed with that.

STEPHANIE WHITE: I'm going to take a show of cards for this goal regarding hydrocycling, Study Plan No. 2: The goal of the hydrocycling study is to determine if Project hydrocycling operations adversely affect or benefit the habitat used by the terns and plovers, pallid sturgeon in the lower Platte river. The physical effects of hydrocycling will be quantified and compared to alternative conditions.

I'd just like to take a gage, show of cards, for this goal as it stands. Frank?

FRANK ALBRECHT: How is the lower Platte River being defined, the geographic area?

MATT PILLARD: It would be downstream of Columbus.

STEPHANIE WHITE: Okay. So we have greens on the goal for hydrocycling. We're going to move on.

NICK JAYJACK: That seems to be a little inconsistent, though, with the previous slide. (Stated without the use of the microphone.)

STEPHANIE WHITE: The concern is that it's inconsistent with the previous slide. Nick, I'll let you expand, if you'd like.

NICK JAYJACK: Nick Jayjack from FERC.

On the issue of sedimentation, the objective there, we said we were going to confine our look to the -- define the lower Platte as that portion of the Platte River below the Elkhorn River. But now I'm hearing it's a little different for hydrocycling, that it's the lower Platte River as defined as being downstream of Columbus. I'm thinking it's one or the other. We need to be consistent across the board with the various issues.

PAT ENGELBERT: This is Pat

Engelbert.

I guess, you know, there would be different defined regions within the lower Platte River, but I think the generally accepted area of the lower Platte is from the confluence with the Loup down to the Missouri; is that correct? Because in all the literature that I've read, the lower Platte River is confluence down.

JOHN SHADLE: I've had this conversation many times. As far as the Central Platte is concerned, when we always refer to the lower Platte River, it's the Elkhorn down. And I was interested to read the definitions when I read through this stuff to quantify this as lower Platte.

So there's -- different people call it different things, and I guess you can all agree per the confines of whatever study. But that's not the way the folks in the Central Platte have been doing this for some time.

JOHN BENDER: Just for a point of clarification, if you look at what the USGS defines and what NRCS now defines in their watershed boundary data set -- this is a GIS data set that's been accepted, it's been confirmed by the authorities that do this stuff, okay?

The lower Platte goes from the confluence with clear creek downstream, not from the Loup. The Loup River is a tributary to that portion of the Platte River that's in the middle Platte reach. So the lower Platte starts at Clear Creek and goes down to its mouth at the Missouri.

PAT ENGELBERT: And this is Pat Engelbert again.

I guess in the Platte River Program document, I believe it referred to the lower Platte River as being downstream of the Loup confluence. That -- I need to confirm that, but I'm pretty confident that the lower Platte River and the Platte River Program document had from the confluence with the Loup downstream. But we'll confirm that, and we can come up with a consistent designation.

GEORGE WALDOW: George Waldow, HDR.

I believe -- and maybe Lisa can answer this -- I thought we defined it in the PAD what was considered the lower Platte River for this -- purposes of the relicensing. And I -- I think that's in there. But I understand there are multiple definitions, depending on where you look --

JOHN BENDER: And if you have a

program specific definition, that's fine. (Stated without the use of the microphone.)

GEORGE WALDOW: Right.

STEPHANIE WHITE: And the comment was, If you have a program specific definition, that's fine, from John Bender.

GEORGE WALDOW: I've got one thing to add. With respect to Matt's comment earlier about the lower Platte River, with the respect to the discussion of hydrocycling, it needs to go from the Tailrace outlet structure downstream to the mouth of the Platte River because hydrocycling is a -- is a limited phenomenon on that reach.

LISA RICHARDSON: Nick, I think that in relation to Objective No. 6 from sedimentation, that the reason that that was limited from the Elkhorn down, I don't think it was establishing the Elkhorn down as the lower Platte, but establishing that as the reach to be reviewed with respect to the pallid sturgeon.

Because at least at the time when this was written, there weren't any information or data regarding pallid sturgeon above the Elkhorn. So it was more referring to where we were going to evaluate in respect to pallid sturgeon, not a

definition of the lower Platte itself. Whereas in the next objective, we're talking about multiple species and the entire Platte River, not just the pallid.

STEPHANIE WHITE: Okay. Other discussion? Nick?

NICK JAYJACK: And maybe you all can just run it by me one more time, but the hydrocycling issue has to do with, I'm assuming, effects on sturgeon habitat, right, as opposed to the species itself, how it responds to that?

LISA RICHARDSON: It's multiple species habitat, not just pallid.

NEAL SUESS: It includes both the plovers and the terns and the pallid sturgeon, as well as, I guess, all the other fish in the river down there, and birds. (Stated without use of the microphone.)

NICK JAYJACK: Could I see the current slide that we're on?

STEPHANIE WHITE: Yes. So we're talking about the goal of hydrocycling, Slide -- I'll tell you on the phone -- for those of you on the phone, Slide 66.

NICK JAYJACK: Okay. I see what

you're saying.

STEPHANIE WHITE: Is there any more discussion on the goal for hydrocycling? We will accept it as is.

Let's move into the objectives. Objective 1, we believe to be an activity and would like to include it in our discussions the latter part of May. Are there any objectives to that -- objections to that?

Okay. I'm going to move to Objective 2: To compare the sub-daily Project hydrocycling operation values, maximum and minimum flow and stage, to daily values, mean flow and stage. In addition to same-day comparisons, periods of weeks, months and specific seasons of interest to protected species will be evaluated to characterize the relative degrees of variance between hydrocycling, actual, and alternative conditions in the study area.

Let's see a show of cards for acceptance of Objective 2 regarding hydrocycling. I see a green from Fish and Wildlife. Mary, a green from the District, and Game and Parks.

Okay. This objective will stand.

Let's look at a portion of Objective 3.

So for those of you on the phone, we have grayed out all but the last sentence of Objective 3 with the intention of discussing it as an activity.

The objective on the table is, with some rewording: This will indicate the potential for nest inundation due to both hydrocycling and alternative conditions -- evaluate. To evaluate, yes.

PAT ENGELBERT: This is Pat Engelbert.

How we had paraphrased that in the morning on the second bullet back on Slide 17 was: Determine the effect, if any, Project hydrocycling operations have on the potential for nest inundation. So that's a little cleaner than the tail end of No. 3 up there.

STEPHANIE WHITE: Are there any objections to a rewording of No. 3, specifically to include the last sentences in objective?

I'll take a show of cards.

Okay. Let's talk about Objective 4: To assess effects, if any, of hydrocycling on sediment transport parameters. See Study 1, sedimentation.

Let's see a show of cards. Jeff, I've got yours. Neal, Mary, Frank.

Okay. We will accept Objective 4 as is.

Objective 5, another one that's partially grayed out. The first -- essentially, the first four lines, we would consider activities and would -- will discuss at a later time in May.

The objective, then, is: To identify material differences in potential effects on inundation of interior least terns and piping plover nests and pallid sturgeon habitat. Objective 5.

Okay. Yellow from Game and Parks. Go ahead, Frank.

FRANK ALBRECHT: I'm just asking for further clarification on the terminology there, to identify material differences. Is that the substrate, or what are you referring to?

MATT PILLARD: Frank, what we were trying to determine here is, is there anything different between pallid habitat here and what happens at potentially other locations in the qualitative assessment and their habitat relative to peaking or cycling or pulse flows.

FRANK ALBRECHT: All right. I'm going to process that.

STEPHANIE WHITE: Okay. A request to process.

JEFF RUNGE: With the stripped down No. 3 and No. 5, I guess, how are they different outside of pallid sturgeon?

STEPHANIE WHITE: Okay. I'm going to go back to No. 3, and now I will jump to 5. And Jeff's question is how are they different, right, with --

JEFF RUNGE: Uh-huh.

MATT PILLARD: Thanks, Stephanie. Could you go back to three real quick for me? Three dealt directly with the potential for nest inundation, while five is dealing with habitat for tern and plovers, as well as for pallid.

So we're differentiating here between the potential to inundate nests versus how hydrocycling might affect habitat under No. 5, which would include things like forage and items like that for tern and plover, and then pallid habitat was added under Objective 5.

MARY BOMBERGER BROWN: Am I understanding that we're not to be reading the words every-third-day cycling program on the Missouri River below Gavins Point Dam?

STEPHANIE WHITE: You may read it, but it's really an activity.

MARY BOMBERGER BROWN: It's not to be considered, is that what --

STEPHANIE WHITE: Yes, as an objective.

MARY BOMBERGER BROWN: Okay.

STEPHANIE WHITE: And Frank, I'll come back to you when you're ready.

JEFF RUNGE: And with that, if I could make the recommended change to eliminate the language in regards to inundation and discuss the potential effects to interior least tern and piping plover nesting habitat and pallid sturgeon habitat.

TELEPHONIC PARTICIPANT: What change are we making?

STEPHANIE WHITE: We're looking at Objective 5 on hydrocycling. And the recommendation has been made to eliminate, essentially, the word inundation. So then it's nesting habitat -- piping plover nesting habitat and pallid sturgeon habitat.

JEFF RUNGE: For clarification, the purpose for this objective is for realtime measurement of impacts, and not a historic assessment of impacts to the species, a realtime -- a -- an operational evaluation of changes in stage to direct effects to habitat versus -- versus using

historic data to develop a baseline for habitat.

DAVID TURNER: This is David Turner.

One of the issues that was raised is not necessarily on habitat, but the potential loss of nests because they get flooded out. And if we're talking about available habitat here, I'm wondering if we're losing that.

I mean, they nest, they come in and then a rise in a flood, and they get washed away. I thought that was one of the concepts here, not just the availability or the creation or lost creation of habitat, that isn't an objective as well. Are we missing something in these two objectives between three and five?

MATT PILLARD: Matt Pillard.

I think that was kind of the same question Jeff had in Objective No. 3, was to solely look at potential for inundation. And again, Objective 5 is to look at how habitat may be affected.

DAVID TURNER: Okay.

MATT PILLARD: And the how part of that -- and I know we're trying to look at the objectives here, and that is an objective we want to focus on. Do we want to -- is the objective, you know, to look at these -- at how habitat is affected

by hydrocycling? Inundation is a separate objective.

And the how we would do that is something that we can discuss later. You kind of see in the grayed-out version that we did want to look at how other systems operate and how they affect those habitats and how the pallid is dealt with when variations of stage and hydrocycling do occur in other locations.

So I don't know if that answers your question, Jeff, relative to, you know, realtime data versus historical. But it is -- it is to look at, you know, what are the differences between other systems and what they do -- what they do to manage both tern and plover populations as well as sturgeon populations, and how is that different to how the Project operates.

STEPHANIE WHITE: David, I'll bring the microphone back to you. Hold on.

DAVE BELL: I guess I just -- I had to go back and reread three again. I think both issues are being captured there, so --

STEPHANIE WHITE: So let's move -- I'll do it for the room. There's three, here's five. Are you comfortable with five?

DAVID TURNER: Are you talking to me?

STEPHANIE WHITE: Generally to the room. There is one suggestion to eliminate the word inundation and change -- add nesting habitat to the piping plover. Let's see a show of -- I see nods, unless there's a red or a yellow.

LISA RICHARDSON: I'd just like to speak to Jeff's question from a minute ago.

Matt and Pat, correct me if I'm wrong, but we are not proposing operational changes as part of a study. We are -- we would be -- review theoretical effects of operational changes, but we're not proposing to change the operation and measure that directly, if that's what you were talking about, Jeff, realtime.

We are looking at, Okay, what do we know historically, what does our data tell us, and then how can -- how do we expect that data to change based on a change in operation.

JEFF RUNGE: Yeah. I just want to make sure that we've got that ability to evaluate different -- this objective provides us with the tools to evaluate different alternatives.

PAT ENGELBERT: Pat Engelbert again.

Yes, Jeff, I guess what we would propose

to use -- and this is more along the activities line -- is existing realtime gage data at Columbus, at the study the Eighth Street return, at Duncan, at North Bend, and then we could synthetically generate hydrographs and stage relationships right at the confluence there.

That's how we would propose, and I think that's more of a discussion that would take place when we get really down into the weeds of how we're going to do it. And we would be able to do that for both existing and alternative conditions.

GEORGE WALDOW: George Waldow.

I think it's worth summarizing here that the -- Objective 3 is limited to measurements on the Platte River, specifically as -- as to how changes in stage may impact nests, including up to some inundation threshold, whereas 5 is a comparison of the effects on habitat as defined within the -- in the Platte River -- lower Platte River, and then comparing, as Matt said, with other locations once we understand the relative changes that are being made and incurred on the sandbar habitat.

So it's -- they're two separate things. And they overlap, but they're separate.

STEPHANIE WHITE: Let's -- so the

suggestion on the table from Jeff is to eliminate inundation so that it reads, Effects on interior least tern and piping plover nesting habitat and pallid sturgeon habitat.

Let's see a show of cards.

Okay. Greens.

LISA RICHARDSON: I guess my question was -- kind of related to what George was saying -- is do we need to add in there -- because we're saying identify material differences. Differences between what? Do we need to add in there compared to other systems or other locations? Is that really what we're doing, looking at our system and how it --

MATT PILLARD: That's the how we're doing it. (Stated without use of the microphone.)

STEPHANIE WHITE: So Matt says that's the how. Would that be an activity? Is that really your comment?

MATT PILLARD: Yes.

LISA RICHARDSON: Okay. I'm fine.

STEPHANIE WHITE: Okay. So let's -- the group then accepts Objective 5 with the proposed changes, as illustrated in 2.5 on the board, which is eliminating the word inundation, adding nesting

habitat for piping plover.

That takes us to water temperature. But what I might ask you now is have we captured the appropriate objectives for hydrocycling and the appropriate goal?

Okay. What I'd like to do before we move into Study Plan 3, Water Temperature in the Platte River, I'd like to take a quick break, let everybody go get a soda, refill our drinks. Let's reconvene at 35 after the hour, so about a ten-minute break.

(Short break taken - 2:22 p.m.)

(Meeting Resumed - 2:36 p.m.)

STEPHANIE WHITE: Okay. We're getting ready to discuss the goal for No. 3, Water Temperature in the Platte River. Let's talk about the goal.

We're looking at No. 3, Water Temperature in the Platte River. The goal of the study is to determine if Project operations materially affect water temperature in the pallid sturgeon's associated habitat reach of the lower Platte River.

When you're ready, let's see a show of cards. I got yours, Neal. We have a red from Fish

and Wildlife and a green from FERC. Jeff, I'll let you start the discussion, if you would like.

JEFF RUNGE: I guess to better characterize the spatial extent of this section here, this is a separate location. It is this Tailrace and downstream, compared to the dewatered reach -- reaches of the Loup and Platte, which is addressed under a different objective or study goal.

MATT PILLARD: Study No. 4 is Water Temperature in the Loup River Bypass Reach.

STEPHANIE WHITE: So do you still have a red, Jeff?

JEFF RUNGE: Well, yes, I do. I recommend the change that we define that as the Tailrace -- the Platte River or lower Platte River from the Tailrace to the mouth. And I would also recommend too, is this limited to endangered species, or would this also include effects under Section 10-J? Because if this does apply to section 10-J, I would like to evaluate the effects on -- of the Project on water temperature for habitats -- associated habitats of the fish community.

RICK HOLLAND: This is Rick Holland. I guess as I read this very -- I'm trying to be very specific about the wording. When you

talk about associated habitat reach, to me, that -- that's not necessarily specific habitat of the pallid. It's a reach of river. I mean, that's how -- that's one way or interpreting how this was written, okay, in which I would say we're talking about impacts of the -- the operations on temperature within that reach of river. All habitats, but it's that reach of river.

If we're just talking about specific habitat of the pallid sturgeon within that reach and the associated temperature effects, that would be a little harder to -- to focus in on. But then I think Jeff's comments come up, do we bring in the entire fish community into that, other things?

GEORGE WALDOW: I may have to be corrected, but I believe when the study was requested, the specification to the pallid was made, and that's what we tried to address. And the term associated habitat reach -- or the pallid sturgeons associated habitat reach came out of the literature, I believe from either Peters and Parham's report, or from some other Central Platte document, which was used to define the reach from the Elkhorn downstream to the mouth of the Platte, which was the inhabited reach, again, as you say, of the pallid sturgeon.

So when we conceived this study approach, we determined where the USGS gages were that had temperature records, and they were at the Louisville gage on the Platte, they were on the Elkhorn River, and they were on the Salt Creek, which bracket the Louisville gage.

And since there was no other temperature recording station below the Tailrace outlet, we decided that this would be a valid data set to use to look at temperatures in that reach where -- the surrounding Louisville gage, which is roughly in the center of the associated pallid's habitat, I believe.

It would have been nice to have three or four stations, but we -- we believe that we can determine with those three gages that the -- that the temperature variations are consistent enough between those gages to indicate that the -- whatever the impacts of hydrocycling on temperature are no longer present when the water reaches the associated habitat of the pallid sturgeon. And that's the goal of this study, is to demonstrate that.

So whether you include concern for the pallids or whether any other species, if there's no effect due to hydrocycling on temperature in that

reach, then there's no effect. That's what we'd like to determine. And if so, we'll put this issue to rest.

RICK HOLLAND: Based on what you just said, you're essentially -- this objective will determine whether or not there's any effect on certain river miles, essentially about 70 miles below the Tailrace. So it will have no -- no bearing on that upper 70 miles of river between that Elkhorn gage and the Tailrace.

I mean, you won't be able to essentially say anything because you're saying you don't have the temperature data. So the only way we would be able to address a question on the impact of operations on temperature for that upper level would be to install some type of a temperature monitoring system and then record it for a certain length of time while operating is going on; is that correct?

GEORGE WALDOW: Correct.

RICK HOLLAND: Okay.

STEPHANIE WHITE: Okay. Lisa?

LISA RICHARDSON: Yeah. Just kind of restating what George said, our initial take on the issue was that temperature was an issue with respect to pallid sturgeon, and so it was -- and

specifically to spawning. And so our -- our study was set up to evaluate sturgeon, and it happens that there are some temperature gages that would be reasonably used in that reach. But the -- like Richard said, there's nothing upstream.

But if it's a -- if it's the pallid, is the information that's available still relevant and valid to use; if it's more than the pallid, then I think we need to understand what is the specific concern and what species or all species -- what is the concern specifically that's not just related to pallid.

STEPHANIE WHITE: Any thoughts? So are we talking about a change to this goal? Have we just clarified it to -- to something that's acceptable?

RICK HOLLAND: I guess unless we want to add objectives to look at other species in the community, that's where -- you know, and I'm not sure, I guess, what -- our purview here, if we're restricted to pallids.

The impacts of temperature are going to be greatest immediately downstream, and that's where we also have experienced fish stranding and fish kills due to temperature in the past. So our concern,

from a community level, is that stretch immediately below the Tailrace in the Platte River, as well as -- of course, we'll get to that in the next project.

But I'm just -- I'm not sure how to -- I will defer to anyone else. I'm just kind of making the statement that there are concerns. Whether or not they're relevant to this process or not, I need clarification on before I go any further.

NEAL SUESS: Yeah. This is Neal Suess with Loup Power District.

I guess, Rick, we're not aware of any fish kills downstream of the Tailrace. I mean, we'll admit that there have been some documented fish kills in both the canal and in the bypass, but downstream of the Tailrace, I don't believe we're aware of any that have happened unless -- I mean, I know HDR never brought any to our attention, and we didn't list of any in the PAD, that I'm aware of.

So I guess I've got a little bit of concern over there because we're not talking about any specific fish kills downstream of the Tailrace in the Platte River.

RICK HOLLAND: We have records of fish kills in a number of different rivers. I'd

have to be specific and get back to one of our staff to make sure just exactly where those were. I'm not going to say I know exactly where they were. I know I've seen dead fish when I was out sampling for various reasons. I would not tout that as documented evidence because there was no report done on that. I know there's been isolations; that happens anywhere.

So I'm just more concerned with the effects of temperature on that stretch of river below and how that may be affected by operations. And I -- and I -- I don't know if you can clarify it or someone else can clarify, you know, Jeff's comment on do we go beyond just the pallid, or do we go through other species. It's something I'd just like to address at some level. I mean, fish kill aside for now, just that concept there.

JOHN BENDER: Okay. John Bender, DEQ.

Quinn had asked our agency to provide the fish kill records. And of course, we coordinate with all your district biologists and all that, so we should have the same information you did. We provided it all to them that we could figure out. And we didn't go much downstream of the Tailrace,

probably 4 or 5 miles, is all, but we gave them everything that we could get our hands on.

STEPHANIE WHITE: So there's some discussion now about two things that Jeff brought up early on. In this goal, do we need to add some language that states, From the Tailrace to the mouth of the -- of the Platte? I didn't write that down, but I'm guessing that's what you meant. And then for associated habitat of the fish community, which gets to your point, Richard, about more than just the pallid sturgeon.

Some thoughts or responses?

LISA RICHARDSON: Nick, do you have any thoughts on appropriate evaluation? (Stated without use of the microphone.)

STEPHANIE WHITE: The question from Lisa was to Nick, whether or not he had any thoughts on appropriate evaluation.

NICK JAYJACK: This is Nick.

The only thought I have -- I mean, this is a brand-new issue, as far as I could tell. I'm looking over my SD-2 and we do mention effects of peaking hydrocycling operations on aquatic habitat, but there's no mention of water temperature. So I haven't really thought about the issue at this

point. I mean, I didn't think it was an issue.

And just a couple of thoughts off the top of my head, there's also the next study, which is Water Temperature in the Bypass Reach, and I -- I'm thinking, again, just off the top of my head, that generally, if the bypass reach -- if temperature conditions in the bypass reach aren't causing a problem, I don't see how they would cause a problem during off-peak periods downstream of the Tailrace channel where there would be probably more flow, right, than there would be in the bypass reach.

So I mean, you could certainly add it as an objective. I don't know that I would add it here. I might add in the effects of peaking operations that the -- Study 5, maybe, as an objective, but it's up to you all.

STEPHANIE WHITE: So --

NICK JAYJACK: Is it an issue we need to look at? (Stated without use of the microphone.)

STEPHANIE WHITE: Nick's question, is it an issue we need to look at? Go ahead, Matt.

MATT PILLARD: I think, maybe, to expand on what Nick is saying, I mean, are we aware of any cause and effect relationship relative to temperature as it relates to, you know, a community

or a population that's being impacted by a change in temperature, whether it be warmer or colder? If there is an example of that, I guess we didn't get it before to know that that was an issue. Is that fair?

LISA RICHARDSON: And really, I would expand to say that the -- based on the studies that we proposed, Study No. 3 was really relative to cold water pulses, and Study No. 4 was related to elevated temperatures because of a lack of flow. So the two studies were designed kind of separately.

And Study No. 3 was related to pallids specifically and their spawning and the affected -- potentially affected cold water pulses from the Tailrace down into their habitat reach.

And I would agree with Nick that the higher temperature water -- we identified the bypass reach above the Beaver Creek as being the critical thermal area, and below that, we would have a fair amount more flow that would eliminate high temperatures as a concern at the Tailrace.

MATT PILLARD: I think Rick had a question on, you know, what is the cold water issue, is that --

RICK HOLLAND: Yeah.

MATT PILLARD: The thought is that water in the canal is going to be cooler than water that would be going down the bypass reach. And maybe George would be better to describe this than I would. So water entering the Platte out of Tailrace is cooler than the water that's already in the Platte.

That's the thought, is that correct, George? Would you verify that for me?

GEORGE WALDOW: That's the general opinion, and it's based on Loup's observations through time that during the summer, because of the -- the canal water is deeper and has less surface area than the water coming down the river, that it doesn't heat up as much during the day.

RON ZIOLA: And plus you have some ground water. (Stated without use of the microphone.)

GEORGE WALDOW: Right. It's supplemented by ground water flow in the Tailrace canal itself. And so nobody knows at this point what the Delta T is between the Tailrace and the Platte River. It's not 40 degrees apart or anything that radical, certainly, but there are no problems that have been brought to the forefront.

The concern, as I mentioned earlier -- and I was looking for it in the letters, and I think -- I couldn't find it. It may be in our meeting notes from our previous meetings last year.

But the -- the concern, as I remember it, was that the temperature changes that translate down the river into the pallid habitat could have a negative influence on their spawning cues. And we looked up the temperatures, you know, that trigger spawning in different locations, and so on.

But the reality is that the travel time of water exiting the Tailrace Canal to the time it gets to the Louisville gage -- Pat, can you recall what the travel time -- it's over two days, right?

PAT ENGELBERT: I think it's about two and a half days. (Stated without use of the microphone.)

GEORGE WALDOW: Yeah, 2.6 days, something like that. So our conclusion is, is that gain in water temperature in the lower Platte River is primarily driven by the sun more than anything else. And certainly, if there's a Delta T where the water comes into the Platte River from the Tailrace Canal, there will be a mixing zone, and that water temperature will equalize as it moves downstream in

what I call the near field.

RICK HOLLAND: I pretty much agree with what you're saying. Back in the day when I was actually getting my feet wet in the Platte, I did a very simplistic study. I don't even want to mention this to John Bender because you'll probably laugh at me.

But I did transects across the Platte River starting at the Tailrace and then went down all the way to -- past -- I don't know, past Louisville. I don't know if I did all the way to the mouth, measuring least conductivity, and I'm trying to remember if I measured temperature, which would give us that.

And there was a definite gradient across the river, which persisted for roughly -- I want to say 75 miles -- 75 kilometers or 75 miles. I can't remember whether I was metric then or not.

So it does maintain at least somewhat of a gradient throughout that stretch, but it slowly gets smaller and smaller as it goes. There's not as much mixing or at least apparent mixing as you'd see across the entire channel for quite aways, but I would assume that you're correct, that the air temperature is going to have that much greater

effect. And by the time it gets down to the Elkhorn area with the confluence of those other rivers, it's going to pretty much dissipate.

But I actually got that one published, so that was one little star on my name.

STEPHANIE WHITE: So what is -- what's still on the table with regard to this goal? We've talked about adding the language to indicate from the Tailrace to the mouth, also that we may add the language for associated habitat of the fish community.

JEFF RUNGE: I have reviewed our comment letter, and I do not see the comments in regards to temperature in the fish community. So I'll withdraw any effects to the fish community and their associated habitats and focus solely on the pallid -- temperature effects to pallid.

STEPHANIE WHITE: Rick, you also had that same concern?

RICK HOLLAND: Well, I guess if we're just going to use existing data, then we don't have any alternative but to focus on this stretch. So unless we're going to do some additional work monitoring temperature effects -- I wasn't thinking so much on cold water temperature effect on spawning

cues. That never really occurred to me. I was more concentrating on high temperature effects more likely associated with hydrocycling in combination with high water during the summer, where we'd probably see the most likely chance of impact.

But -- so I mean, this is -- I guess I don't have a problem with this as it stands. I think the wording could be changed a little bit to reflect the actual reach of river where you're talking about, where you have data to represent, would be more accurate.

STEPHANIE WHITE: Okay. So let's agree, then, to accept goal -- the goal for study Plan No. 3, Water Temperature in the Platte River, with some additional language that tightens up the area of study.

Matt or Pat or Lisa, I'm looking for confirmation.

PAT ENGELBERT: This is Pat Engelbert.

Rick, as that's defined now, the associated habitat reach of the lower Platte, that was that reach defined in the Platte River Recovery Implementation Program that is from the Elkhorn down. So as the goal is written now, that's the

definition of that reach.

STEPHANIE WHITE: Okay. So if there are no objections, we will take the goal as is.

Okay. Let's talk about -- let's get into objectives for water temperature.

Objective No. 1 is another objective that we felt was an actual activity. John, is your yellow whether it's an activity, or if you'd like to include it as an objective, or are you ready to vote for No. 2?

JOHN BENDER: What I read here indicates that you're going to rely on existing thermistors that are deployed by the USGS, and I don't believe you can accomplish your goal if that's what you're going to do. You're going to have to do something like Rick described.

And I'm serious about this. Because the Lower Platte Corridor Alliance has argued about this. We had a thermistor deployed on the north side of the river at Louisville, and it was telling us completely different from the south side of the river at Louisville, just across river differences are as much as you're going to find in 10 miles of -- down river. It's huge.

This is a braided river. I don't care

whether it looks flat across the top, the channels are there, they're underneath, they're braided. You're going to find cold, you're going to find warm, you're going to find cold, you're going to find warm. And trying to make sense of all of that difference is going to be almost impossible with three monitoring points.

STEPHANIE WHITE: I want to clarify. Are you -- is your concern both for Objectives 1 and 2? (Stated without use of the microphone.)

JOHN BENDER: Yes. Trying to meet that goal and make sense of what data we can get our hands on is the challenge.

STEPHANIE WHITE: Okay. So it's a little bit of a discussion both of objectives and methods.

GEORGE WALDOW: Excuse me for a little levity, but you're not suggesting we throw the study out, are you?

JOHN BENDER: Might be. I don't see throwing money at -- if you can't accomplish it George, why are we doing it? (Stated without use of the microphone.)

GEORGE WALDOW: Let me answer that. The -- my take on the study is this. We

downloaded some of the temperature information that GS has on their website, and we looked at the shape of the curves, and we overlaid the curves for a couple sample days. And what we discovered is that the -- the shape of the curves is very, very similar, and it gave us confidence that what we're really looking at here is not to get the absolute correct temperature at any point in time or for any braided condition. What we have are roughly two plus years of data, daily information, and what is it, Pat, 15-minute or 30-minute increments of time?

PAT ENGELBERT: I think Louisville is 15-minute.

GEORGE WALDOW: So this is comparable data for similar time periods, so we have -- by the time we would do the study, we'd have at least three years of good data. Regardless of how precise it is, we believe that it will show that the daily temperature swing is consistent with the solar -- and we intend to compare it with weather station gage -- it's consistent with the solar gain, if you will, during the day and the drop during the night. And it -- it doesn't appear to exhibit any spiking or periodic variations that would coincide with

hydrocycling releases.

And so the concept we're putting forward is to compare the gaged releases from the Tailrace Canal, do a time line adjustment to match up the temperature gages, and then as a validity check, we've got the independent gages on the Elkhorn River and Salt Creek, which are unaffected, we know, by hydrocycling.

So if we can develop that relationship -- the actual temperature in the water doesn't matter, but over a long period of time, we should have a valid representation of whether it's impacted by hydrocycling at the Project.

NEAL SUESS: This is Neal Suess. I guess, John, I want to address your data. And I'm going to ask -- I'm going to ask for a show of cards here. If this group doesn't think we need to do this, from Loup Power District's standpoint, we're very happy not to do it. And if we really don't think that there's going to be anything gathered out of this that's going to be very beneficial to us, I would say let's get rid of it.

Anybody else that wants to do it, raise their cards, let's do it. Because I haven't heard anybody yet say that there is something that we're

really going to get out of that that we need in the long term of the study at this point in time.

JEFF RUNGE: I've got a question for John here, and I'd be interested to hear your point, plus the answer to this question.

Is it that this objective will not answer the question, or is it you cannot effectively measure temperature in the river or find any relationship between temperature and stream flow because of the differences in variability across the system?

JOHN BENDER: I think it's going to be very hard to correlate the stream flow and temperature differences simply because of the variable that we're talking about, okay? It's going to be very difficult.

I guess what I'm getting at -- and I'm not ready to vote green with Neal yet -- but if we're worried about spawning cues, those would probably be most evident closer to the Tailrace. Now, we're talking two and a half days down all the way to Louisville, and I doubt if anything that's coming out of the Tailrace running up to maybe -- what is it, 1,500 CFS max, in that magnitude? When you're comparing it with 10,000 CFS at Louisville, it's

really going to be significant and you're not going to be able to tell anything down there.

So if you really wanted to do this study, you'd probably have to deploy a thermistor at North Bend, at that gage, or even closer to the Tailrace, and a series of thermistors across the stream.

So I -- I'm just wondering if we're really going to be able to determine anything with a thermistor down at Louisville. I agree, George, you're going to see a diel change. That's what you're going to -- that's all you're going to see. We've already established that, so --

JEFF RUNGE: Knowing how the hydrocycling and the hydrograph varies as it travels down through the lower Platte, you don't have a steady 10,000 CFS at the lower end, you've got some degree of variability over the course of a day. And that variability exists not just in magnitude and peaks and troughs, but also throughout the day -- the days as it travels through the system.

I guess to what extent -- would there -- would you be able to look at or detect changes in relation to temperature and stream flow at those very extremes? I know that you mentioned 10,000,

that it will be very difficult to detect these types of changes, but are there lower thresholds there that probably would show a more immediate reaction to temperature and stream flow?

JOHN BENDER: Yes. But you still -- remember, we're -- this is going to be attenuated as we move downstream. I don't know how many -- what is it, 70 some miles? I mean, something that's doing this (indicating) --

RICK HOLLAND: It's about 80 miles.

JOHN BENDER: Okay, 80 miles. Something that's got a change like this (indicating) may be due to hydrocycling, theoretically, at the Tailrace is going to be moderated. And all of a sudden you're like this (indicating) down at Louisville, and the noise from the system, from what the Elkhorn is kicking in, from what Salt Creek is kicking in, from what Buffalo Creek is kicking in, from what Shell Creek is kicking in, is going to overwhelm that signal. You're not going to be able to discern it.

MATT PILLARD: I hesitate to bring this up again, but again, the goal -- if we go back to the goal real quick, it was to focus on the area of -- where -- the associated habitat reach for the

pallid. And so that's where we do have the monitors in place to determine is there something going on there that's -- that might be out of the range of what the pallid -- that we know of the pallid in terms of temperature ranges in their -- what they're able to flourish in or work in relative to their life cycle, is there a period of time in that period when that temperature change is more important, less important relative to a spawning cue, or are they going to be able to migrate upstream or downstream?

So if we go back to the goal, you know, having thermocouples further up isn't accomplishing that goal either.

RICK HOLLAND: One last comment. I don't have any statistical data to back this up, okay? I do have, like, the transects I talked about. We know it attenuates. We know, from years of working on sandbars that are one time under water, the next -- you know, six hours later, after the peak goes by, you know, are high and dry. I mean, that's -- that's well-known. That's established.

The question is, you've got a two- to three-day period of transition from where it's released to the point where you're measuring the

temperature. And as it truncates down from a -- anywhere from a 1-and-a-half- to maybe 3-foot pulse or fluctuation down to maybe a 1-foot or less fluctuation down in the Louisville area and below, will you be able to actually measure a relationship, using the lag effect, that 2-and-a-half-day lag effect, or whatever period of time you're going to have to program into your modeling to get that, will you be able to show a mathematical difference or relationship?

I would say there's probably a chance that you will. I mean, it may be really weak, and it may be there. Can you then say it's due to the cycling or something else? You know, that's another stretch.

I mean, I'm just not sure that the magnitude of the -- between the error in measurements and all that and the amount of -- what's the word I just used -- attenuation in the wave front as it goes through is going to be measurable or useful in terms of showing a relationship.

As much as I might have to hate myself in the morning, I'd almost agree that this could be a nonissue that we -- Lord knows we might not even

want to do. So I just can't -- Mary, do you have feelings on that? You've been on the river. You know how it works.

STEPHANIE WHITE: John and then Jeff, then Mary, if you'd like to speak.

JOHN BENDER: Let me throw out an idea.

Periodically, you guys take down the system to clean out the stuff in front of the powerhouse, right? In fact, we've noticed that you're delaying it this year, and you haven't done it yet.

RON ZIOLA: Oh, you mean, the flush out --

JOHN BENDER: Right.

RON ZIOLA: -- which would be upstream of the powerhouse? Yeah, we did not do it this year. We ran into a mechanical problem. And we haven't done it for the last four or five years because of the refurb, so -- (Stated without use of the microphone.)

JOHN BENDER: If you get to a point where you actually bring the system down and you're going to clean her out, and then you could measure if -- if the stars all align and the Elkhorn is not

doing something funny and Salt Creek isn't doing something funny, maybe you could measure down at Louisville what's happening when the system is taken down for a couple days, and then what happens when you flush big time, consistently, for I don't know, 12, 13 hours. You know, it's just -- you know, then maybe you might be able to tell something.

STEPHANIE WHITE: I'm going to let Jeff comment, if you'd like to.

NEAL SUESS: No, let me -- I guess, John, we don't actually take the system down. Flush out means we're just basically running the crap out of it to get all the junk through the river. I mean, it doesn't just -- we don't take it down, let it build up behind it and then go.

I mean, what we do with flush out means we put as much water as we can through the Columbus Powerhouse to get it down into the Tailrace area at that point in time to flush out everything back at Lake North and Lake Babcock. So we don't get to a point where we actually take the system down, unless we have mechanical problems at either Columbus or Monroe.

RON ZIOLA: What we do is we pull it all the way down to the bottom over the course of

12, 14 hours. Then we let it build up 15, 20 feet in the canal, and then we run her down again. And we do that every day for about ten days. We don't do it on the weekends because we don't have all the people available to monitor everything we want to do.

But for about two weeks, I think we go from -- we get it down to 15'26" and then we run it down to 15'10" and then we let it back up to 15'26" and then down to 15'10". And we'll do that every day for about two weeks, except on the weekends.

JOHN BENDER: I guess my point was that if you're going to run at those extremes, then you may have a chance, assuming that the tributaries on the Platte River aren't doing something really crazy, of detecting something.

LISA RICHARDSON: I guess I'm going to step in with Neal and Rick here and just ask, it sounds to me like we can't determine any Project effect related to temperature that far down the river. And if our concern is with the pallid, which is in this location, then there's nothing to study.

If we can't get -- if we can't analyze data for this particular area, then I agree with Neal that we ought to just scrap the idea of the

study if there is no way to pinpoint Project effects.

JEFF RUNGE: Yeah. I place a lot of value in the opinions of Rick and John, and if you can't detect the effects of the Project, then you certainly can't detect the effects of different alternatives on temperature as well. So I guess I am in favor too of removing this study goal or objective.

MARY BOMBERGER BROWN: So I just want -- this is Mary.

I just want to say that our concern is more with the flow fluctuations and the level fluctuations much more than the temperature. So for the terns and plovers, temperature is not a particular concern.

STEPHANIE WHITE: Okay. So the whole study now is on the table, Study 3, water temperature in the Platte River, which consisted of this goal and essentially one objective.

So now, Neal, if you'd like, we can call for a vote on eliminating Study 3 from the study plan. Show of cards.

All right. We will eliminate Study 3 from the study plan.

Let's talk about four, and I believe this is our last study -- there's one more -- oh, fish passage. It's second to the last one, Water Temperature in the Loup River Bypass Reach. Let's talk about its goal, which is: To determine if Project operations materially affect water temperature in the study reach. Study Plan 4, Water Temperature in the Loup River Bypass reach, the goal is to determine if Project operations materially affect water temperature in the study reach.

I'll take your cards when you're ready. There's a question from George, or a --

GEORGE WALDOW: The study reach is understood to be from the Diversion Weir to the USGS gage at Genoa.

STEPHANIE WHITE: Okay. Let's --

RICK HOLLAND: It's not the whole reach? (Stated without use of the microphone.)

STEPHANIE WHITE: And Rick's question was, it's not the whole reach.

NEAL SUESS: I think, Rick, no, it's not the whole reach, but the fact of the matter is, what the thought process was there, if we study it in that area, by the time you get downstream of the Genoa gage, you have the influx from the

Beaver Creek and some other intermittent streams in that area. And if you can at least prove what you need to in that upper one, anytime you add additional water, you should be better off.

So what we -- what the thought process was was to just look at it from the Diversion Weir to the gage at the -- at Genoa. It's right on the bridge south of Genoa. It's on the Highway 39 bridge south of Genoa.

STEPHANIE WHITE: There's a map in --

NEAL SUESS: It's approximately four or five miles, yeah.

(Inaudible discussion between Rick Holland and John Bender.)

STEPHANIE WHITE: So we've had a discussion of fish kills over here. John, if you could repeat what you just said?

JOHN BENDER: Rick asked where the kills were that I gave Quinn, and there were only two. One was actually in the canal, and the other one was down at the Tailrace, reported but not confirmed. We had both Jeff Schuckman from Game and Parks and Dave Bubb from our agency out looking, trying to chase this one down, but we never found it.

NEAL SUESS: Yeah. And then there were three in the bypass reach that you reported, 2004, '99 and 1995. If you look at Table 521 on Page 546 of the PAD, it lists the fish kills. There was the one on -- in the Tailrace Canal, and also, then, in Lake North and Lake Babcock in 2007, and then one in 2005 on the Loup Power Canal.

And so you had the ones -- the more recent ones were all in the canal, and then you had the three on the bypass reach, although it doesn't say exactly where in the bypass reach that those occurred. Do you remember at all?

JOHN BENDER: No.

NEAL SUESS: Okay.

JOHN BENDER: I should clarify that I'm not the fish kill guy at the agency, I just asked them to pass this information on. So I thought there were only two, but --

STEPHANIE WHITE: This is Quinn Damgaard.

QUINN DAMGAARD: The scope here in the study reach was defined based on the fish kills being within that reach between the diversion and the Beaver Creek inflow. That's why it's defined as it is.

STEPHANIE WHITE: Okay. So Rick, your original concern was over the study area?

RICK HOLLAND: I guess my ultimate desire would be to have an understanding of how water temperature changes in relationship to the Project operations, if it does, for that entire reach from the diversion structure to the -- to the confluence. I don't know if -- if we don't have a gage below Genoa, that means we won't have any long-term records. Genoa has temperature data, I assume? That's why you picked it?

PAT ENGELBERT: We would install a --

RICK HOLLAND: You're going to install it, oh, I see.

PAT ENGELBERT: There is a gage station established there, but we would install a sensor. (Stated without use of the microphone.)

RICK HOLLAND: So you could have the flow data, yeah.

NEAL SUESS: Yeah, Rick. There's that, and there's not any other gage station from there down until you get -- I don't know, where's the next one at on the -- there's none on the Loup. I mean, there used to be the one there at Columbus, but there's not anymore. Then you go until you get

to North Bend on the Platte, right?

PAT ENGELBERT: The DNR has one at Columbus. (Stated without use of the microphone.)

NEAL SUESS: Oh, that's right. Yeah, the DNR just put one back on the Highway 81 bridge at Columbus.

PAT ENGELBERT: Last September.

RICK HOLLAND: I guess in my -- in my druthers, I'd like to see another thermistor, or whatever you're going to put out there, at both of those gages, then, so you have the three points along that, that would cover the entire reach. It wouldn't be a major -- since we've eliminated a whole study, you know, I mean, I think -- I'm trying to give a little bit back.

Because that -- that is, in fact, one of the most -- a very high potential for fish kill in that area because of the water diversions and the low flow potential and high temperatures during the summer. So our agency has a very big concern about that whole reach in there. So my -- my recommendation would be to add a greater distance for the entire bypass reach.

STEPHANIE WHITE: And just so I understand, it wouldn't impact this goal, but it

would be --

RICK HOLLAND: The goal is fine --

STEPHANIE WHITE: -- but the activities would change to document the entire reach.

GEORGE WALDOW: George Waldo.

How -- how are we going to rationalize the problem that John mentioned about the one thermistor and in a braided stream? If we go down all the way to the confluence, I -- the travel time is in hours instead of days, I would guess, but you still have the problem of the braided river and a single thermistor.

RICH CHELOHA: You can put more out. (Stated without use of the microphone.)

GEORGE WALDOW: Well, not if you're going to put it in the gage. I mean, there's only one gage.

RICH CHELOHA: I'm not sure you need the thermistor just associated with the gage itself. The gage will give you the flow. (Stated without use of the microphone.)

JOHN BENDER: If you're going to deploy the thermistor in the gage, well, I don't know that that's going to tell you what we want to

know. You should -- and I don't know how you're going to keep -- you know, establish the integrity of this instrument, but it really needs to be in the thalweg.

COURT REPORTER: I'm sorry, needs to be in the what?

JOHN BENDER: The thalweg.

RICH CHELOHA: It's T-H-A-L-W-E-G.

JOHN BENDER: That's the main portion of the channel where the water usually flows.

STEPHANIE WHITE: What I would like to say is I think that we accept the goal. What we're starting to talk about now is how you do it. The objectives are next. So can we move on from this goal as is -- and Jeff has a question or a comment.

JEFF RUNGE: Well, that depends on if the objective is the dewatered area, or is it just within that study area, as referenced in the current objective?

MATT PILLARD: Is your question, Jeff, does somehow this goal need to change relative to how the study reach is defined? Is that your question?

JEFF RUNGE: Yes. If -- I guess that

depends. If the study reach, as currently referenced now, only looks at a portion of that dewatered area. Rick wants to look at the expanded total area of dewatered Loup River. And if that's the case, if that's -- if we are all saying the same thing, that we are willing to look at that entire dewatered area, then I am agreeing. (Stated without use of the microphone.)

LISA RICHARDSON: Okay. I'm going to go back to the study reach.

We were proposing looking at what we consider to be the worst case in the study reach. And so I don't -- if we're concerned about high temperatures and fish kills, that area above the Beaver Creek is going to be the worst case. And whatever relationship we find is still valid downstream, and any adverse effects that we find in this reach would be mitigating. And that mitigation would be -- provide beneficial effects further downstream.

So I don't know what you gain by looking at it further downstream where you have more water, and anything that you mitigate based on what you find upstream is going to eventually get down there as well, I mean, if fish kills and high

temperatures, because of low flows, is the issue.

GEORGE WALDOW: I agree with what Lisa is saying. And it triggered in me the recollection that the -- the water quality standard for the stream is based on a certain temperature -- maximum temperature. And so to the extent that the Project would need to maintain that threshold temperature by diverting more flow, it would -- it would resolve that all the way down to the confluence. And so it supports the idea that you're regulating temperature in the stream according to the water quality standards, which could be measured at Genoa.

RICHARD HOLLAND: I agree with the scenario that the maximum impact would be found in that first stretch and that you could potentially mediate that impact down to that gaging station.

That doesn't mean that mediation would last the rest of the 20, 25 miles further down to the confluence, for whatever reason. The water is pretty shallow, it will heat up very quickly.

Having knowledge of the temperature relationship with operation for that entire stretch would enable you to fine-tune any mediation for the entire affected reach. I think it doesn't matter

whether the fish are moved down 5 more miles to meet the standards and then die 5 miles past that because the water is -- is warming up again very quickly.

That's splitting hairs, I understand that. But you know, you've got to be a tough ass occasionally -- don't write that down. That was Frank.

STEPHANIE WHITE: So Rick, if you were to adjust this goal, what words would you add?

RICK HOLLAND: Materially affect water temperature in the Loup River bypass reach, in parentheses, from the diversion to the confluence of the Platte River.

JEFF RUNGE: And I think that proposed change adequately references the Project impacts, the area of impact by the Project. Method-wise, if we can assess that entire area through a single gage, that's an appropriate distinction within the methods. But to completely capture the area of effect, it would be the bypass reach.

STEPHANIE WHITE: Okay. So as I -- let me read it. The goal of the study of water temperature in the Loup River bypass reach is to determine if Project operations materially affect

water temperature in the Loup River bypass reach, parentheses, from the diversion to the confluence of the Platte River.

LISA RICHARDSON: I think for a goal that's fine. We just will need to determine what's the appropriate method to do that evaluation. (Stated without use of the microphone.)

GEORGE WALDOW: George Waldow again. I -- I don't want to split hairs either, but I've got to say this.

Does this change make sense in the absence of fish kill records downstream of Genoa in that reach? If there's evidence of what you've described earlier about fish moving downstream 5 miles and then dying anyway, the case is strong. But if there's no evidence of fish kills downstream of Genoa, I question whether we need to --

FRANK ALBRECHT: I'm just wondering if we need to follow up to -- this table doesn't show -- and I don't have the information right offhand either -- how far down they were. I know the most critical reach is that upper reach. It doesn't sound like John has it right now either, and neither do we.

Is that something that we can -- is that

going to throw a wrench into it if we could revisit it at a -- revisit with Jeff Schuckman about that?

STEPHANIE WHITE: Quinn has a comment, and then Pat.

QUINN DAMGAARD: Quinn Damgaard.

I don't have the letter with me, but in the study plan, the introduction to Study 4, we do quote a February 6, 2009, letter from the Game and Parks, which states that the main affected area for fish kills is the reach that we're -- we're evaluating here from the diversion to Beaver Creek.

STEPHANIE WHITE: Pat?

PAT ENGELBERT: Pat Engelbert.

Just to give a perspective of the drainage area, upstream of Genoa on the Loup River is roughly 14,300 square miles, and at Columbus, it's 15,2. So there's about a 900-square-mile influx, and about 450 of those come from Beaver. So just to give you a little perspective of how much inflows you probably get from Beaver Creek.

STEPHANIE WHITE: Other comments? Would you like to table this and take a look at the fish kill data that we have and further qualify this goal, if needed?

NICK JAYJACK: Nick Jayjack from

FERC.

In Scoping Document 1, I had the issue written much like you have up there on the easel, and I included temperature effects on the entire bypass reach. And then based on the comments referenced on SD-2, I changed the wording a little bit. I think it was from this data, I'm not sure. But I changed it to, With a special emphasis on that portion of the bypass reach between the dam and Beaver Creek.

So I would propose we use that same language here as we used in SD-2, you know, if not for any other reason, is that it's consistent with the issue we identified and the issue that we'll be analyzing in the NEPA document. I think it's better than tabling it.

STEPHANIE WHITE: The rest of that was that Nick thinks it's better than tabling it.

Would that be appropriate? George, Pat, Lisa?

Okay. With amendment to -- for the language to match SD-2?

PAT ENGELBERT: Yeah.

STEPHANIE WHITE: Okay. So let's amend the goal of Study Plan 4 to mirror the

language used in SD-2, and let's move on.

The first three objectives that we listed in the study plan, we now feel are more appropriately discussed in the activities portion. So I'll give you a moment to look at that, but I'd like to move beyond these first three and discuss Objective No. 5. We'd start with No. 5. So 1 through 4 we believe are activities to be discussed at our meeting in May.

Does anyone object to moving Objectives No. 1 through 3 to the activities portion in our discussion in May?

Okay. How about No. 4, this also is another previously stated objective that is more appropriately discussed as an activity, To analyze the collected ambient air and water temperature and flow data activity.

So let's talk about Objective 5: To estimate the relationship between flow in the Loup River bypass reach, ambient air temperature, and water temperature. Objective -- it's actually the first objective for Study Plan 4, Water Temperature in the Loup River Bypass Reach. Let's see a show of cards.

I have yours, John.

You've changed cards?

JOHN BENDER: I changed.

STEPHANIE WHITE: A card laid is a card played.

JOHN BENDER: I've changed.

STEPHANIE WHITE: All right. Frank and Jeff, I'll wait for you.

Okay. Jeff?

JEFF RUNGE: I've just got one other factor to throw in there, and hopefully the data are available. But you're going to have to know whether it's cloudy or sunny. We found that out with Lake Ogallala in our studies, made a big difference.

JOHN SHADLE: The same thing, relative humidity will make a big difference in water temperature as well.

PAT ENGELBERT: So John and John, would we modify the objective, then, to estimate the relationship between air temperature, water temperature, sunny, cloudy, and humidity, throw those additional parameters in to see if there's significance in those?

STEPHANIE WHITE: Are you comfortable with that?

PAT ENGELBERT: If it helps predict,

yeah.

STEPHANIE WHITE: Okay. So I think maybe the question before us is to accept Objective 5 with the addition of humidity and cloud cover, cloud cover and humidity.

Does that change your yellow to a green? Great. Greens up and down the row.

Okay. So let's move -- let's accept Objective 5 with the addition of those two words -- three words. And let's look at 6: To describe and quantify the relationship, if any, between diversion of water into the Loup Power Canal and water temperature in the study reach of the Loup River bypass reach. Goal 6 -- I'm sorry, Objective 6 for Study Plan 4, water temperature in the Loup River bypass reach.

You're voting green. I have a green. Let's see a show of cards. Frank and Rick, I'll wait for your nod.

Okay. So we have unanimous greens, then, on Objective 6.

We now are in Study 7. Before we move into Study Plan 7, I'd like to ask if we have all of the appropriate objectives for water plan -- Water Temperature in the Loup River Bypass Reach.

Okay. Let's talk about fish passage, Study Plan 7. The goal of this study plan is to determine if a reasonable pathway exists for fish movement upstream and downstream of the Diversion Weir.

Are there any objections to this goal? I'll see a show of cards when you're ready.

RICK HOLLAND: The only comment I have on this is the -- and I don't know if this is verbiage -- specific governmental verbiage, but reasonable pathway. I mean, the term reasonable pathway, if you're just defining -- do you know -- I'm not sure what that means, what a reasonable pathway is. We talked about this before with verbiage like that. I don't know if this is the same kind of issue.

GEORGE WALDOW: It's my verbiage. I've got to defend it. George Waldow.

I put that in there because simply punching a whole in the weir, for example, where you have a jet of water is a pathway, but it's not reasonable if it has a velocity that's prohibitive for the fish. And so I wanted to somehow characterize it in a way that actually would benefit the fishery interest, so that whatever pathway we're

describing, we would have to agree that it's realistic for whatever species we're talking about.

STEPHANIE WHITE: So is it your preference, Rick, that we define that?

RICK HOLLAND: I'm not sure how I -- I'm not sure how I would define that in terms of specific properties. I mean, we'd have to get into velocity and depth and distance. As you construct a fish bypass, a lot of those things have gradient factors that are all involved.

As long as it's understood that we're trying to do this relative to the ability for fish to actually use a pathway, that's fine. But acceptable, would that be a term? Acceptable pathway?

STEPHANIE WHITE: Let me catch Ron and then back to George.

RON ZIOLA: I think the word was usable, as he was describing what he wanted. I think to use the word usable would be --

PAT ENGELBERT: Is usable better? That's fine.

RICK HOLLAND: I think that's fine.

STEPHANIE WHITE: Okay. So let's change --

GEORGE WALDOW: I have no objection to replacing the word, but I think we need to keep in mind that we're looking at whether -- whether this pathway currently exists. It's not about building a fish way or fish ladder.

RICK HOLLAND: I understand. That wasn't my point. (Stated without use of the microphone.)

GEORGE WALDOW: Okay.

STEPHANIE WHITE: Okay, so usable. We're changing the word reasonable to usable. The goal of the fish passage study is to determine if a usable pathway exists for fish movement upstream and downstream of the Diversion Weir.

With that change, do we now have unanimous greens?

Okay. So let's accept the goal for Study Plan 7 and talk about objectives. Objective 1: To evaluate the hydraulic flow, velocity, and stage parameters at the Diversion Weir and Sluice Gate Structure. That is Objective 1 for Study Plan 7, Fish Passage.

When you're ready, I'll take a show of cards.

Okay. Objective 1, Fish Passage: To

evaluate the hydraulic flow, velocity, and stage parameters at the Diversion Weir and Sluice Gate structures. Red, yellow or green?

I have a thumbs-up, even. All right. So -- okay. We're getting lazy. It's now nods and thumbs up. That's fine. We will accept Objective 1 as is.

Objective 2 we would propose be moved to the activities discussion in May with regard to fish passage. There are no objections?

I would note that objectives -- existing Objectives 3, 4 and 5, we also feel are more appropriate to be discussed in May as activities.

Okay. So Objective 6: To develop a hydraulic model to determine the flow split between the Diversion Weir and Sluice Gates for a range of flows. Objective 6 for Fish Passage, Study Plan 7.

Yep, Frank has a question.

FRANK ALBRECHT: Can I get a clarification on that, To develop a hydraulic model to determine the flow split? Just -- is that -- does that just mean for -- just a CSF split? What does that all entail, I guess? Maybe we should expand on it.

STEPHANIE WHITE: So the question is

about the split. And who's --

PAT ENGELBERT: Pat Engelbert.

Frank, what we would do there is just develop a simple one-dimensional model for different head differentials, how much would come over the weir versus how many would be going through the Sluice Gates. That's all we would do, and we would use survey information to do that.

FRANK ALBRECHT: The level at the weir always stays the same, if I remember right? Even if there's boards replaced, and so on, that always stays the same?

PAT ENGELBERT: Right.

FRANK ALBRECHT: Okay.

GARY LEWIS: I was just going to add, that one-dimensional model will have velocities, head levels, stages, other parameters, so it isn't just discharge, if that was your question.

JOHN BENDER: John Bender, DEQ.

It seems to me that this is more fitting of the activities section because it's just one of those things that you're going to have to accomplish so you can do your objective.

STEPHANIE WHITE: So then the recommendation is to move Objective 6 also to the

activities category. Is there any objection to that?

Okay. Let's move six, and we'll discuss it. It will come up again.

Let's talk about Objective 7 for Fish Passage is: To determine whether fish pathways exist over the Diversion Weir, through the Sluice Gate Structure, or by other means.

Objection 7 is really Objective 1 now -- 2. Any objections to this?

Thanks for the green. I'll take a nod, a thumbs up. I'll wait for Frank and Rick. Green? All right.

Let's accept Objective 7. Do you have a question?

JOHN BENDER: I don't want to be taking more money out of HDR's pocket here, but it seems to me we could answer the same question if we did some mark-recapture studies on fish, stick marked fish below the diversion and see if we find them above it.

PAT ENGELBERT: I don't know that it would be more or less expensive to do that than develop a simple model or run some quick equations, but I've never tagged the fish and monitored them to

see if they go upstream or not. I'll leave that to you guys.

NICK JAYJACK: Nick Jayjack from FERC.

I think at this point, until we -- I think I would prefer to do this as opposed to mark-recapture. One of the problems I have with mark-recapture is differentiating between behavioral reason for not going above the diversion and a physical reason for why they couldn't get above it.

So I would need to know this first, what the hydraulics are at the various potential pathways for these fish, and then go from there.

STEPHANIE WHITE: Okay. So the Objective 7, To determine whether fish pathways exist over the Diversion Weir, through the Sluice Structure, or by other means.

Red, yellow and green for the objective, please. Okay. Okay. Greens for seven. We will accept as is.

That brings us to the conclusion of our second goal for today, which was to seek consensus on the goals and the objectives of what we consider our aquatic resources study plans. We did it in

record time, but I don't think that's because we didn't do the task at hand.

I'd like to bring Lisa back up to talk a little bit about our future meetings and next steps. I think probably by now, you have a good understanding of what we will cover in those meetings in May, and even how some of the discussion might go for goals and objectives about the recreation, land use, esthetics, and even the ice jam study.

Lisa?

LISA RICHARDSON: Thanks, Stephanie.

At this point, our next meeting is May 5 related to cultural resources. And really, I don't know that I would expect anybody in this room to want to participate in that. If you do, let us know -- well, Nick is a fish guy. He doesn't even care, I don't think. But FERC will be participating, we hope. So we'll be talking with the SHPO about Study No. 11, which is related to Section 106 compliance, at that meeting.

On May 11, we'll be discussing recreational resources. I would assume that Game and Parks will be interested in that, as well as National Park Service -- I assume Randy is no longer

on the phone -- and other local agencies, as well as FERC, participating in that, via -- whether it's in person or via conference call. And it will certainly be open to conference call to anybody that's interested to participate.

Then May 27 and 28 is what we've identified as, Okay, let's roll up our sleeves and really dig into the methods on these particular studies that we discussed today, the aquatic resources, as well as any other studies that may still have hanging issues.

I mean, we really hope that on the 5th and 11th, we'll come to a pretty good agreement on the studies related to those -- tasks related to those four studies.

The 27th is an added date compared to what we had sent you guys a few months ago. We just think that as long as it took to get a consensus on the goals and objectives, that we need a significant amount of time to discuss the tasks. So we're proposing a two-day meeting to dig into the details and get agreement on, This is what we really need to do to be able to answer the questions, both for the EA that FERC will be preparing, as well as for the biological assessment that goes with that and the

Fish and Wildlife Service evaluation after that.

So those are our next meetings. The hope is that we will be done then, and we wouldn't need a July 1 meeting, although we do have that on our calendars as a fallback if we still haven't come to agreement.

And I guess I will add that as everybody knows, we've had a court reporter here today trying to get a transcript put together. We will post that to the Project website as soon as it's available, and we'll send an e-mail out to the larger group when it's available.

The other thing that I'm wondering if it might be a good idea, we've come to an agreement on goals and objectives here today. We've tweaked a couple of objectives, we've eliminated an entire study, we've changed some studies, we've taken objectives that we'd identified originally as objectives and said, Those are really tasks, let's not muddy the waters in the objectives.

So I would propose that we put together a little document that just addresses the goals and objectives of the studies as we left them today and send that back out to everybody, not necessarily to change although if you have significant heartburn

with something, we'd certainly want to hear that, but as a reminder to everybody that these are our goals and objectives that will be leading us down the path of our methods in our next meeting.

STEPHANIE WHITE: I think that you need to include the activities because they've been shifted. So as part of that document, we need to indicate to all of you what activities will be discussed in detail in those meetings on the 27th and the 28th, the ones that we've grayed out, that we've moved.

LISA RICHARDSON: Okay. Pat, are any of the objectives that we turned gray and deleted them as objectives, were they already covered under tasks, or --

PAT ENGELBERT: I think they were put in as activities on the morning session stuff.

LISA RICHARDSON: Okay. What we'll do is if an objective that we turned into a task today isn't already in the tasks or activities of the study plan, we'll let you know that. I guess I don't want to re-send the entire revised study plan, but just focus on the goals and objectives and the things that have moved.

So if there was something that was an

objective that if we take it out as an objective, it doesn't exist anymore, we will make that note and add it in as something that moved from an objective to a task.

So I think with that, that was all that we had. Neal, would you like to send us on our way?

NEAL SUESS: Thanks, Lisa. I guess all I want to say in conclusion is I want to thank everybody for coming today. I know it's been a long day, and we didn't have a whole lot of breaks for you. But given where we were at, we figured we really needed to hit this pretty hard today.

Obviously, the 27th and 28th days will be very long days. Expect to be here for two full days of activities, then -- and go that way. We will probably have that back here, I'm guessing, at this point in time.

And again, thank you guys all for coming today. You know, as we go through this, obviously we'll be in contact with you. We've got a number of meetings set up in May, and we will -- you know, continue to look at the website for updates as to what's going on, and we will try to e-mail you as we can.

With that, we are done today. You guys are all free to go, and we will take it from there. So thanks.

(Meeting Adjourned - 4:04 p.m.)

C E R T I F I C A T E

STATE OF NEBRASKA)
) ss.
COUNTY OF DOUGLAS)

I, Kristin Teel, Registered Professional Reporter, General Notary Public within and for the State of Nebraska, do hereby certify that the foregoing study plan meeting was taken by me in shorthand and thereafter reduced to typewriting by use of Computer-Aided Transcription, and the foregoing two hundred seventy-five (275) pages contain a full, true and correct transcription of all the testimony of said witness, to the best of my ability;

That I am not a kin or in any way associated with any of the parties to said cause of action, or their counsel, and that I am not interested in the event thereof.

IN WITNESS WHEREOF, I hereunto affix my signature and seal this 18 day of April, 2009.

Kristin DeRocher Teel

KRISTIN TEEL, RPR, CSR
GENERAL NOTARY PUBLIC

My Commission Expires: