

ALASKA POWER AUTHORITY  
SUSITNA HYDROELECTRIC PROJECT  
SETTLEMENT PROCESS

POSITION PAPER DISCUSSION MEETING #6

April 29, 1985

Northern Lights Inn  
598 W. Northern Lights Blvd.  
Anchorage, Alaska

New Business: Staging Concept Presentation; Position Papers D-1, D-2,  
S-4, AE-1/2, W-16, F-4

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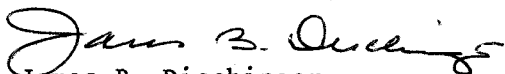
Dan Rosenberg  
Alaska Department of Fish & Game  
333 Raspberry Road  
Anchorage, Alaska 99502

Subject: Susitna Hydroelectric Project  
Document Transmittal

Dear Mr. Rosenberg:

Please find enclosed for your use one copy of the Sixth Position Paper Discussion Meeting Transcript.

Sincerely,



James B. Dischinger  
Project Manager  
Susitna Hydroelectric Project

jmo

Enc: as noted

cc w/o Enc:

T. Arminski, Power Authority  
C. Curtis, VFSC&L (DC)  
J. Lowenfels, BHBP&A  
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HARZA-EBASCO  
ALASKA POWER AUTHORITY  
Position Paper Discussion Meeting \*6

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8:30 a.m.  
April 29, 1985  
Anchorage, Alaska

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P R O C E E D I N G S

MR. ARMINSKI: This is Position Paper Meeting Number Six. Today we're going to have, before we get into the papers, a discussion on staging concept and Charles Craddock from Harza-Ebasco is going to make that presentation. So, Charlie, without further adieu why don't we just get right into it.

MR. CRADDOCK: Somebody catch the lights and switch on the machine. Okay, this is a presentation which we have presented on several occasions so it's sort of a canned version and to you folks who are intimately familiar with the Susitna Project we'll go over some of these things very quickly. This locates the -- our project as equi-distant between Fairbanks and Anchorage. This zeros in a little closer on the Watana Site by virtue here's Cantwell, here's the Denali Highway, the access road, the proposed access road leading down to Watana. This is an artist's conception of Watana. It shows an earth and rock filled dam with an underground powerhouse and a chute type spillway. This is Devil Canyon, it's a concrete, curved, arched dam with a -- with a set earth and rock filled saddle dam on the left abuttment and once again, a chute spillway with an underground powerhouse. This is a little more of a detail of the Watana project and this is what presently exists in the FERC license. Here again, it has a earth and rock filled dam, it has a reservoir elevation 2185 with -- on the right abuttment, the diversion tunnels, the powerhouse intakes and once again, the over falls spillway.

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1 This is the more detailed plan of Devil Canyon. It shows the  
2 saddle dam, the concrete arch dam with the crest elevation of  
3 1463. It again has the crest spillway with the underground power-  
4 house. This is the stage version of Watana superimposed on the  
5 plan that you saw previously by virtue of this outline of the  
6 downstream tow is a lower dam with a pool of elevation 2,000 as  
7 opposed to 2185, which I showed you just a moment ago. It also  
8 has an earth and rock filled dam, intakes to the underground power-  
9 house, the over falls spillway in exactly the same location that  
10 is in the higher dam but done to a lower elevation to accommodate  
11 the pool.

12 MR. MARCHEGIANI: Charlie, could you back  
13 up?

14 MR. CRADDOCK: Yes.

15 MR. MARCHEGIANI: What you're saying is the  
16 tow of the dam would be where you had it before and the dash line  
17 is where the final dam will be?

18 MR. CRADDOCK: Let me say it just as I said  
19 it before. This is the initial part of Watana. The tow that  
20 you see here would be for the dam that would provide a pool ele-  
21 vation of 2185, which that exists in the FERC license.

22 MR. MARCHEGIANI: Thank you.

23 MR. CRADDOCK: This is a cross section of  
24 that earth and rock filled dam and Stage I for Watana, which we  
25 call Watana Initial Dam, with the resevoir elevation of 2,000

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1 would be built to a lower elevation of 2,025. The Stage III raise  
2 would simply be to increase the height of this embankment up  
3 to elevation 2205, which allows you to have a reservoir of 2185.  
4 Now, as you can see, this structure simply incorporates an exca-  
5 vation through the alluvium, it sits the embankment on solid  
6 bedrock, it has a slightly inclined impervious core with filters  
7 both upstream and downstream and then rock fill is indicated by  
8 red for the shells. If you raise it up you would simply extend  
9 this chimney of impervious media with the two filters and the  
10 rock fill either side. This shows you the -- the way that the  
11 spillway will be configured. In the FERC license concept you  
12 have a relatively shallow excavation into the rock for this chute  
13 spillway. As the -- In the Watana Initial Dam Concept this exca-  
14 vation is deepened by about 185 feet and this material that you  
15 see that's excavated out here will become a quarry for that rock  
16 fill that was indicated in red on the dam cross section. In the  
17 upper part of this slide is the same Watana Initial Dam con-  
18 figuration that was on the previously slide and, as you can see  
19 here, in the Watana High Dam the raise would be to take the con-  
20 crete gravity over falls structure and raise it up so it would  
21 accommodate a pool of 2185 as opposed to 2,000. The gates would  
22 simply be raised to the top of this structure and used once again.  
23 Okay, to talk a little bit about the transmission line, I'm going  
24 to go through these very quickly. This shows you the present  
25 status by the solid line as existing intertie local transmission

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1 from Healy to Fairbanks and from Willow to Anchorage. This shows  
2 you in the FERC license concept when you bring the Watana on,  
3 shown in green, would be the transmission line going all the way  
4 from the project to both Fairbanks and down to Anchorage. And  
5 then when you bring Devil Canyon on, as shown in purple, then  
6 you would extend the lines from Devil Canyon down to Anchorage,  
7 thereby completing the system. Now, in the FERC -- in the stage  
8 construction concept you have once again the existing transmission  
9 system. If the Watana Initial Dam comes on it has, as shown in  
10 green or greenish-blue, the lines that would be extended from  
11 Watana to both Fairbanks and Anchorage through the existing inter-  
12 tie and by an additional line all the way to Anchorage. Once  
13 again, in Stage II the Devil Canyon now is on line in addition  
14 to Watana Initial Dam and Devil Canyon would be as indicated in  
15 purple. And we're back to the same configuration that we had  
16 in the FERC license for the ultimate configuration by having the  
17 existing intertie included in the system, the initial dam, Devil  
18 Canyon and now the raised dam for Watana. Okay, the stage of  
19 construction effects on project cost. As you can see here the  
20 FERC license we didn't have a low dam in the FERC license so that's  
21 non applicable. The Devil Canyon cost in '82 dollars would be  
22 1469, the Watana High Dam 3361, the total 4830. The arrow here  
23 indicates the difference between the Watana High Dam and the  
24 low dam of 2559 as opposed to 3361. The ultimate difference be-  
25 tween these are 4830 and 5340. These were the initial cost

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1 estimates when we first presented staged construction. We now  
2 have more detailed cost estimates and this figure is more nearly  
3 450 million as opposed to 510 as a difference between the two.  
4 The environmental effects. Through Stage I and II we feel there  
5 would be less inundated, a minor change of the flow of releases.  
6 Through Stage III a longer duration for the construction work  
7 disturbance because we have a longer construction period and the  
8 long term impacts are equal to the present project. The -- In  
9 terms of timing, the FERC license, the Watana High Dam originally  
10 was scheduled to be completed in 1997 and because of the lessor  
11 fill required now it's scheduled to be completed in 1996. Devil  
12 Canyon has not changed it would still be 2002 in either concept  
13 and possibly Watana would be raised 2008 to 2010. The comparison  
14 of capacity and energy. The FERC license concept once again the  
15 Watana High Dam 1020 and as you add Devil Canyon another 600  
16 bringing it to 1620. The state construction Watana would have  
17 four units in its initial construction. It would be designed  
18 for the higher pool but it would operate somewhat inefficiently.  
19 It would, for those four units, have 130 kilowatts -- megawatts.  
20 They're designed for 170. Devil Canyon is the same as in the  
21 FERC license and then if you raise the Watana High Dam you add  
22 two units, the original four become more efficient and you bring  
23 it up to 1620 again. The gigawatt hours between the two is 6900  
24 versus 6900, exactly the same. The non Susitna alternative peak  
25 demand at capacity for the railbelt power demand is along this

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1 line. The non Susitna alternative thermal with a reserve capa-  
2 city would be as shown in pink or lavender, here. This shows  
3 you the comparison of the peak capacities available. The stage  
4 concept, as you can see, is smooth out the curve, where the FERC  
5 license has a decided hump in the year 2005. In terms of energy  
6 this curve indicates the energy demand by -- in terms of gigawatt  
7 hours versus the year. This has superimposed on that curve the  
8 energy demand by thermal, the Watana High Dam, the Watana High  
9 Dam and Devil Canyon as indicated in the FERC license. This shows  
10 you the stage concept and if you recall this had a decided hump  
11 right here. The stage more nearly coincides with the energy demand  
12 curve by smoothing out these jumps. Watana Initial Dam would  
13 bring you up to here. The Watana Initial Dam with Devil Canyon  
14 would bring you up to here. Watana Initial Dam raised and Devil  
15 Canyon in operation would bring you up to here. This is the FERC  
16 license concept versus the stage construction in terms of energy  
17 again and it points out those portions which are brought about  
18 by the cross hatched lines of the FERC license concept with  
19 Devil Canyon and the higher one is with the 2185 pool for Watana.  
20 The economic evaluation. These are still in 1982 dollars. The  
21 system costs are 8025 versus 8025. The benefit cost ratio in  
22 the FERC license is 146. The stage construction, because it costs  
23 slightly more, is reduced from 146 to 141. This slide gives you  
24 some indication of what the BC ration would be if you were to  
25 build this project in increments, which we do not recommend.

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1 The FERC license application again has the 146. The proposed  
 2 three stage construction, 141. If you were to build only Stage  
 3 I and Stage II, which would be Low Watana and Devil Canyon, you'd  
 4 have 122. Surprisingly, if you build only Watana alone you would  
 5 still have a benefit cost ratio above one. Now, in terms of review.  
 6 The advantages, a reduction in Watana initial construction cost,  
 7 a reduction in state contribution, timing of raising Watana can  
 8 be matched to the actual system and load growth, and that's that  
 9 -- referring back to those curves where it more neat and nearly  
 10 equals the peak demand as time goes on. Some of the disadvan-  
 11 tages, it's an increase in total economic costs of the project,  
 12 that's that 450 million that I spoke of, it's about nine percent,  
 13 an increase in nominal dollar amount of bonds required, an increase  
 14 in Power Authority license and process cost to provide for the  
 15 revisions to the application. The engineering, environmental  
 16 and economic conclusions. Staging for Susitna provides a trade  
 17 off, less initial investment versus the higher total cost. Staging  
 18 provides more flexibility in meeting the future power demands.  
 19 It also provides for full eventual development of the Susitna  
 20 River and that all benefits of the original project are available  
 21 with staging. Staging causes no significant change in project  
 22 environmental impacts. Okay, can you turn the lights on please.  
 23 Now, I realize this is a whirlwind trip through this subject but  
 24 I would be most happy to try to answer any questions you may have.

25

MR. ARMINSKI: Brad?

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1 MR. CRADDOCK: Yes, sir

2 MR. SMITH: How long would it take the rese-  
3 voir to fill with the Low Watana?

4 MR. CRADDOCK: Well, of course that's an  
5 estimate, which I can give you. I've been on projects where you  
6 estimate it would take five years and it filled in the first year  
7 and I've been on projects where it's estimated just the reverse.  
8 It would be about two and a half years in our predictions, based  
9 on the normal hydrology of the area. The high dam we figure will  
10 take three years to fill.

11 MR. SMITH: And given the way you stated  
12 the accuracy of that you pretty much would be at the same period  
13 of time then, within your ability to forecast?

14 MR. CRADDOCK: Yes. Based on the known in-  
15 formation sometimes these things come out very closely, sometimes  
16 it depends on nature. Like this year, if you had the run-off  
17 that we have or anticipated to be -- exist up there today, the  
18 resevoir might fill quicker than we would have accounted for under  
19 normal conditions.

20 MR. ARMINSKI: Other comments? Questions?

21 MR. CRADDOCK: Thank you very much.

22 MR. ARMINSKI: Thank you.

23 MR. SMITH: Maybe one other thing, Tom.

24 Maybe if you could tell us where all this is going right now?

25 It's been presented to the board or are they expected to take

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1 some action on it or has it been presented to FERC?

2 MR. ARMINSKI: Yes, this is -- This was pre--  
3 sented to the board, the preliminary figures, and we went back  
4 and we've done some more in depth figures and we went back and  
5 we did some more in depth evaluation of the staging concept.  
6 That will be presented to the board this meeting, which is on  
7 May second and third, and they'll make a decision as to whether  
8 or not to pursue this any futher. We've apprised FERC that we're  
9 looking at this and told them that after the meeting we'll tell  
10 them whether or not we're going to go ahead with this concept  
11 and the schedule to prepare a submission regarding it. Okay,  
12 if there's not anything else on the staging concept we'll go ahead  
13 on the discussion of position papers. The first one today is  
14 D-1. This is the determination of significance of risk and effects  
15 of catastrophic dam failure. Our position is that the dams will  
16 be designed and constructed and operated in such a manner that  
17 they're safe structures and that the areas below the dam will  
18 be protected from the consequences of failure or untimely release  
19 of resevoir flows. Mr. Craddock is going to present the discussion  
20 on these.

21 MR. CRADDOCK: Well, the position paper was  
22 written more on the basis of my experience and others than any  
23 reference to -- in particular. As you noticed, there are not  
24 any references in the back of the position paper. I've been in-  
25 volved in this -- in this business to the extent of maybe 23 major

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1 dam and resevoir. The first part of my experience was in the  
2 construction of dams for about 15 years and then for the next  
3 15 years intimately involved in the design. The last 10 years  
4 or so have been in the area of designing, operating and constructing  
5 ajor resevoirs. Most of this has been with the Corps of Engineers.  
6 The last five years has been with private industry. I'm not  
7 saying this to impress you with -- with my attributes so much  
8 as that this is the basis for the paper that you see here. It's  
9 tried to cover the subject from beginning to end, from the feasi-  
10 bility aspects, through the design aspects, through the construction  
11 aspects and winding up with the operation of the dams. I would  
12 be most happy to discuss the paper and answer any questions you  
13 might have in regards to it.

14 MR. ARMINSKI: Bruce?

15 MR. BEDARD: I have a question on page IV,  
16 which I guess is Roman numeral four. On your emergency warning  
17 plan, you specify here you'll alert residents in the affected  
18 areas. What kind of a plan is that? Is that like bull horns  
19 downriver of any community that would automatically come on in  
20 the event of -- ?

21 MR. CRADDOCK: In normal circumstances you  
22 use radio, any kind of a media that you can. In our particular  
23 case I think it would be a combination of a helicopter going down  
24 through the valley with a loudspeaker warning of such an event  
25 as imminent.

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1 MR. BEDARD: The only concern I had here  
2 is that is it possible to put such horns on the transmission line?  
3 Gold Creek, for example, has no radios, has no electricity and  
4 there are two families that live there. Across the river you've  
5 got Indian River Remote and there are some families that have  
6 recently moved in that area. And some other system other than  
7 flying over with a helicopter, you might get shot down. I'm just  
8 bringing that out as a suggestion.

9 MR. CRADDOCK: Well, Bruce, obviously at  
10 this stage of the game when you're this early up front, and by  
11 the way, folks, you don't usually do these things this early.  
12 I think it's a good idea but you don't always do that. Yes, Bruce  
13 you would use all means that you have. In many instances up and  
14 down the river valley where there is a settlement or a community  
15 they put out loudspeakers, siren, if you would. All kinds of  
16 mechanisms for warning the public. There are test drills and  
17 this sort of thing to acquaint the people with what this means.

18 MR. ARMINSKI: Further comments?

19 MR. CHERRY: My name is Kyle Cherry. I work  
20 with the Alaska Department of Natural Resources in the dam  
21 safety unit. In the position paper we request that we be included  
22 under the dam safety criteria for review. Because we have state  
23 statutes and regulations that require these reviews.

24 MR. ARMINSKI: Thank you.

25 MR. GRANATA: Charlie, on page three you.

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1 mention preliminary evaluations of the potential for landslides  
2 and how large landslides would -- posing a threat are fairly re-  
3 mote. I have a comment from the water management section ad-  
4 dressing that and I'd like to read that.

5 MR. CRADDOCK: Okay.

6 MR. GRANATA: And then perhaps discuss it.

7 The absence of prehistoric landslides is determined by aerial  
8 reconnaissance implies little with regard to slope stability under  
9 conditions of hydrostatic loading. On the ground field work is  
10 necessary to evaluated adversely oriented joint surfaces and po-  
11 tential modes of failure. Has the destabilizing effect of under-  
12 cutting the tow of material site slopes been evaluated?

13 MR. CRADDOCK: No, and as I said earlier,  
14 this usually comes after you have done a rather comprehensive  
15 job of designing the resevoir. Here we've seen the need to put  
16 out this document prior to the time that we've had the resources  
17 or the time to do this kind of thing. Everything that you sited  
18 is exactly correct and will be done. It just hasn't been done  
19 now and as you might expect, in the feasibility level, evaluations  
20 have just not been appropriate to do, but it certainly would be  
21 before this project is finished.

22 MR. GRANATA: I understand, but because of  
23 the nature of these papers it's appropriate to mention.

24 MR. CRADDOCK: Sure. I'd like to have a  
25 copy of your remarks.

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1 MR. GRANATA: Certainly.

2 MR. CRADDOCK: Thank you.

3 MR. MARCHEGIANI: What you're saying, Mike,  
4 is that you'd like to see something written that would indicate  
5 that during design these things would be considered?

6 MR. GRANATA: Um-hm, as a plan to do it.

7 MR. ARMINSKI: Any other comments? Okay,  
8 let's move on to D-2 then. D-2 is the formulation of emergency  
9 action plan for Watana and Devil Canyon Dam projects. We believe  
10 that the plan described in this paper will effectively protect  
11 potentially affected residents and visitors from the effects of  
12 catastrophic dam failure. Charlie, you want to go in more detail  
13 on that, please.

14 MR. CRADDOCK: Well here again, the -- in  
15 my background the Corps of Engineers has been doing this kind  
16 of thing for -- and the Bureau of Reclamation also for about the  
17 last 10 years. What you see here is if you would compare their  
18 plan it would not be exactly in this format. I've tried to make  
19 this a little more comprehensive even than that. But I think  
20 it fulfills the obligations of the government agencies and also  
21 FERC in terms of preparing an emergency action plan in case some-  
22 thing -- some catastrophic event would occur.

23 MR. ARMINSKI: Comments?

24 MR. BEDARD: I've got a couple.

25 MR. ARMINSK: Bruce.

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1 MR. BEDARD: On page iii you mention an  
2 emergency action plan and in there you refer to a map and then  
3 on page 2 you refer again to the same map and one statement you  
4 say the map is doen and the other you say it will be prepared.  
5 I just wondered if maybe this is -- this wording --

6 MR. CRADDOCK: -- Well, there is. You --  
7 When you do these kinds of studies you take the ground cross  
8 section at various intervals as you go downstream from the project  
9 all the way out and into the river where the flood flows are  
10 essentially diminished. These are taken off of USGS contour maps.  
11 What we've done to now -- up to now is we have run the analysis  
12 and we have drawn the cross sections to figure these flows as  
13 routed downstream when the catastrophe occurs. Bruce, what we've  
14 done is a thorough study of the cross sections but at this point  
15 in time we haven't literally drawn the contour maps.

16 MR. BEDARD: The only other question I had  
17 on page 2 was in regard to the copys of the maps, they will be  
18 distributed to local government officials. Could that also include  
19 wording -- be worded to include, and the major landowners?

20 MR. ARMINSKI: (Nods head affirmatively)

21 MR. BEDARD: Okay, I just want to make sure  
22 it's in there. The only other thing, on page 4 you again refer  
23 to something in regards to, include an example of a news release  
24 that would be the most effective for each possible emergency.  
25 Use of news media will be preplanned as far as feasible. Are

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1 you more or less talking about further down river where people  
2 would have access to the news media versus those that don't?

3 MR. CRADDOCK: All along. It's anywhere.  
4 I think I recognize your concern and I would like to pass onto.  
5 We know this is a unique situation here and we would adjust to  
6 it to whatever is required to inform the people.

7 MR. BEDARD: That's it.

8 MR. ARMINSKI: Any other comments?

9 MR. GRANATA: Just one. Charlie, in terms  
10 of the emergency action plan I believe the agencies would like  
11 a chance to review any draft plans prior to its finalization.  
12 I think that's only fitting.

13 MR. ARMINSKI: Yes, I think that's appro-  
14 priate and the -- I'm trying to remember what it's called. The  
15 Office of Emergency Services I think is the arm of the government  
16 that would be involved in this as well.

17 MR. GRANATA: They have some of those  
18 inundation maps you were talking about. I'm not sure of that  
19 particular area. I know they've been doing some work on that.

20 MR. CRADDOCK: Well, all of this -- There  
21 is a set standard and it's disseminated out very thoroughly. I'd  
22 like to leave you with the impression that I hope we can make  
23 further strides in this by the time that we get around to doing  
24 this, which is several years away yet. All the interested agencies  
25 and the people themselves will be made an integral part.

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1 Any maps that we do, anything like that, would be furnished to  
2 any and everyone who has an interest in it.

3 MR. ARMINSKI: Further comments?

4 Okay, the next paper is S-4. This is significance of changes  
5 of employment in area communities and the Power Authority's posi-  
6 tion is that the project would have no adverse impacts on employ-  
7 ment in area communities. These are defined as Cantwell, Tal-  
8 keetna, Trapper Creek and Healy. I'm going to talk about that  
9 one. This is my only shot at it. Essentially the -- the Watana  
10 and Devil Canyon Dams would have peak construction work forces  
11 of about 2700 and 1500 workers respectively. About 225 workers  
12 would be located in the railhead at Cantwell. It's our position  
13 that we would like to enhance the employment opportunities for  
14 the area communities and we'll do that to the extent legally  
15 feasible by complying with all local hire laws and by providing  
16 transportation from area communities to the project site via the  
17 worker transportation plan. We recognize that much of the employ-  
18 ment opportunities are dependent upon what kind of contracts are  
19 let and the worker hiring practices, if it's a union job. At  
20 this time we haven't got a handle on what those things would be  
21 so all I can say is we'll enhance the employment opportunities  
22 to the extent possible. Any comments? Bruce?

23 MR. BEDARD: The only thing I wanted to refer  
24 to on page one you refer to, overall the Power Authority will  
25 fully comply with employment legislation in effect at the time

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1 of project hiring. I would like to have that reworded that Alaska s  
2 Affirmative Action plan and Alaska have local hire and contracting  
3 laws that are applicable at the time of contracting placed on  
4 the RFP's rather at the time of hiring. If you don't get that  
5 on your contract it's hard to enforce it.

6 MR. ARMINSKI: Any other comments? Going  
7 to have a short meeting today.

8 MR. LOWENFELS: We assume that when we don't  
9 get comments everybody is going to rush over there with their  
10 pencil and sign off on Jack's chart, right?

11 MR. ARMINSKI: The next paper is AE-1 and  
12 AE-2. This is the significance of impacts of borrow and spoil  
13 areas, transmission lines, access roads, rail lines, construction  
14 camps and villages and dams on scenic resources and the feasibility  
15 and desireability of incorporating specific esthetic mitigation  
16 measures in the project plans. Basically it's our position that  
17 we will minimize the esthetic impacts of the project as much as  
18 possible, that the esthetics of the area are scenic but not  
19 uncommon or esthetically significant. We will have an esthetic  
20 mitigation plan which will incorporate a interdisciplinary team  
21 to address esthetic -- mitigation of esthetic impacts. Who's  
22 going to discuss this one? Rick?

23 MR. SUTTLE: The main source for developing  
24 this paper was a review of the esthetic chapter of the license  
25 application, which was done by Edall, a landscape architecture

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1 planning firm. In addition to that we reviewed the US Forest  
2 Services Visual Resource Management Manual, their guidelines.  
3 With respect to a number of mitigation measures, place in the  
4 paper, there was a review of the REA, Rural Electric Location  
5 Association guidelines on environmental criteria. Those are the  
6 three principal sources. Comments?

7 MR. ARMINSKI: No comments.

8 MR. LOWENFELS: Does that mean you don't  
9 care? No jurisdiction?

10 MR. ROSENBERG: I don't feel it's jurisdiction

11 MR. BEDARD: The only thing I had on page  
12 ii where you mention the various tributaries, Devil Canyon, Vee  
13 Canyon, rapids at Deadman Creek and et cetera. I'd also have  
14 included in that Devil Creek and Kosina (ph) Creek. Let's see,  
15 also on that I have another thing. I had a question on page IV  
16 on the rail spur why you would want to keep vegetation clearing  
17 to a minimum on the rail spur when it could have a great impact  
18 on moose. We've had great experience recently on a lot of moose  
19 killed because of present snow problem. But if you also minimize  
20 vegetation clearing you're going to have a very narrow passageway  
21 and you're going to have another problem with moose and also fire  
22 prevention. I think minimizing it to too small of a size could  
23 be dangerous both to moose as well as fire. The borrow areas  
24 on page V it's saying here, local access roads, borrow sites out  
25 of significant view corridors if possible, prioritize borrow

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1 sites so that sites would the least visual impact will be used  
2 first if feasible. Doesn't the economics of transportation make  
3 it more practical to bring them as close to where you're doing  
4 construction? I estimate it 25 cents a cubic yard per mile to  
5 move borrow material. That can be quite expensive the further  
6 away you get from your actual construction. I just bring that  
7 out as a point of interest.

8 MR. THRALL: I think the key word there is,  
9 where feasible. 25 cents a mile or whatever it comes out makes  
10 it infeasible usually.

11 MR. BEDARD: I didn't quite understand what  
12 you meant by, reclaim borrow sites with no designated end land  
13 use to conform to surrounding topography. What does that mean?

14 MR. ARMINSKI: Rick?

15 MR. SUTTLE: Yes, the -- for some of those  
16 some of the -- one of the fishery papers, one of their mitigation  
17 proposals, is to reclaim some of the borrow sites for -- as a  
18 lake and stock it with fish. So that's a designated in land use.  
19 Another possibility of some of these may be future camping sites  
20 if the demand is high enough to warrant those. Where it's no  
21 designated land use is if at that time there's not -- there's nothing  
22 that can be seen in terms of a specific use for that site.

23 MR. BEDARD: Then on page 4 under dams you  
24 refer to construction areas surrounding the dams however would create  
25 large areas of (indecipherable) land which would require

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1 reclamation to reduce visual impact. Is this the area out --  
2 sort of adjacent to the dams on each side of the dams that you're  
3 going to reclaim and revegetate? Is that what that means?

4 MR. SUTTLE: Pretty much. I'd say just the  
5 whole area around the construction activity surrounding the dam  
6 after it's -- construction is completed those areas, to the extent  
7 that they can, would be reclaimed. A lot of these, Bruce, you've  
8 had some good points, particularly the minimizing clearing on  
9 the railroad. I think it's important to bring out that the miti-  
10 gation plan -- this mitigation plan, the esthetic mitigation plan,  
11 definitely needs to be coordinated with the mitigation measures  
12 that are going on with a lot of the other disciplines, parti-  
13 cularly the -- for instance the wildlife mitigation going on.

14 MR. LOTTA: Just in answer to Jeff's question  
15 a few minutes ago, you know, if it's on state land it's in our  
16 jurisdiction but we'll be handling any specific problems in the  
17 permitting process and the way it's written is generic and fine.

18 MR. ARMINSKI: Any other comments. Okay,  
19 we're going to take W-16 next. We're moving along so fast that  
20 we can get the fisheries people here to talk about their paper.  
21 W-16 is the feasibility and desirability of refinement of timing  
22 of construction and operation activities to reduce wildlife impacts.  
23 It's our position that by employing mitigation measures in this  
24 paper the short and long term impacts of construction activities  
25 will be reduced. Who's going to take that one?

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1 MR. LINDSAY: The major sources of data used  
2 to develop this were the BMP manuals and the license application.  
3 Any questions?

4 MR. BEDARD: Yes, I had a comment on page  
5 2. You refer here that impoundment clearing could either begin  
6 well in advance of filling and proceed immediately to the high-  
7 water mark or accomplished sequentially over a period of years  
8 as filling progresses. Will that cause a problem when you do  
9 have times when the river can exceed 50,000 CFS?

10 MR. LINDSAY: If we don't clear to the high-  
11 water mark.

12 MR. BEDARD: My other comment is that where  
13 you say, similarly, borrow areas can be cleared prior to use either  
14 in their entirety or as the onset or the use on an as needed  
15 basis. I look at that as an unnecessary expense to do it ahead  
16 of time and it should be done on an as needed basis.

17 MR. LINDSAY: So you're saying you agree  
18 totally?

19 MR. BEDARD: That was all I had on that.

20 MR. ARMINSKI: Dan?

21 MR. ROSENBERG: Is this intended for the  
22 impoundment only? My impression was that this pretty much just  
23 covered the impoundment whereas I think it also means to cover  
24 access roads, transmission lines, camps, railroads so on and so  
25 forth.

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1 MR. LINDSAY: It was meant to generically  
2 cover most major construction activities. W-13 was meant to get  
3 into specifics.

4 MR. MARCHEGIANI: What you're saying, Dan,  
5 is that we need to add something to it?

6 MR. ROSENBERG: Yeah, well, judging by the  
7 issue itself and then when I read the paper I thought the paper  
8 pretty much just referred to impoundment construction and the  
9 issue was all construction.

10 MR. ARMINSKI: Charlie, are we going to have  
11 much -- really much latitude on things other than resevoir or  
12 borrow areas where it's sort of a progressive activity or could  
13 be a progressive activity? I guess my impression would be once  
14 you're going to put the road in you're going to put the road in.  
15 You can't -- I mean, other than, you know, going down the line  
16 there's not much timing involved there. You've got to start the  
17 activity and finish it within a certain amount of time to maintain  
18 your schedule. The same for other camp facilities, for example.

19 MR. CRADDOCK: Well, I think the usual pro-  
20 cedure is it's just like the resevoir clearing, it will be more  
21 or less progressive. Unless we make a contract requirement that  
22 he do it otherwise they usually do it in increments as they go.  
23 I don't know about our particular area here but on projects this  
24 large it's even possible that if you'd have the requirement that  
25 he come in and clear everything first off that by the time he

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1 would get around to doing it it would have grown up again and  
2 he will have to do it twice and that's kind of hard to handle  
3 it contractually. So it seems like to me it would be reasonable  
4 to do it kind of as you do the work you do the clearing.

5 MR. ROSENBERG: Can -- Will some kind of  
6 schedule, I'm sure there will be a schedule prepared, that has  
7 these major activities that this will involve and then those  
8 species that will be affected and how timing may or may not affect  
9 certain species? Similar to what we're talking about with the  
10 fisheries in the access roads and the transmission lines where  
11 we were going to get a matrix that had various life history stages  
12 and timing the use of those -- the portions of the river by fish.  
13 Can we get the same thing here?

14 MR. LINDSAY: I suppose. A lot of the  
15 problem species were covered in W-13 specifically. I mean, like  
16 a particular golden eagle nest or specific bear den or something  
17 like that. Have we discussed W-13?

18 MR. THRALL: I'm not sure. Have we discussed  
19 that one? They're all running together.

20 MR. LOWENFELS: Jack, can you check on the  
21 list and see if we did 13 -- W-13?

22 MR. ROBINSON: W-13, yes.

23 MR. THRALL: But I guess in answer to your  
24 question, Dan, we can look at preparing some sort of a matrix.  
25 It might be a little more difficult in this case, if I understand

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1 what you're asking for.

2 MR. ROSENBERG: Just to identify certain  
3 periods of time that might be critical.

4 MR. THRALL: I would think that the way to  
5 approach it, and maybe I'm -- for instance, for resevoir clearing,  
6 once a detailed resevoir clearing plan is developed that plan  
7 should be developed so if there's some advantage for not doing  
8 things in a certain area in a certain time of year that becomes  
9 part of that plan, that specific plan, so that each major activity  
10 has its own sort of built in planning.

11 MR. ROSENBERG: Yeah, I just thought this  
12 -- maybe this would be helpful as an outline putting it all, you  
13 know, something that you could go to.

14 MR. THRALL: But again, we can certainly  
15 take a look at putting together whatever we can right now.

16 MR. ARMINSKI: Any other comments? Are you  
17 afraid to speak up today, Hank?

18 MR. HOSKINS: No, actually I just wanted  
19 to say that, with reference to the difficulty that we had last  
20 week on W-12, we had one meeting with Harza-Ebasco people since  
21 then and got the problems pretty well ironed out. It was a very  
22 productive situation. It's going very nicely this morning.

23 MR. ARMINSKI: Okay, we'll move on to --

24 MR. ROSENBERG: -- Can we -- Excuse me.

25 One more thing. Somewhere I think we need to identify what the

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1 major ground activities are, project related ground activities.  
2 This paper refers to major ground activities without specifying  
3 which ones we're really talking about and which ones we're not  
4 talking about as far as timing and maybe it should be a little  
5 more specific if it could be on which activities we're really  
6 talking about here.

7 MR. ARMINSKI: Okay.

8 MR. SMITH: One other thing, maybe Jim can  
9 answer this. Is there going to be a counterpart or should there  
10 be a counterpart to this position paper for fisheries or do you  
11 think that the individual BMP's and specific plans for borrow  
12 areas and stream crossings and such would take care of that?

13 MR. THRALL: I think they would. When these  
14 issues were identified the way it fell out one fell out on the  
15 wildlife and didn't fall out on fisheries. We're not, I don't  
16 think, Tom, that we're locked into this but we would just --  
17 unless we see the need to add a new position and write a new posi-  
18 tion paper on it. I would personally like to avoid it. I'm not  
19 sure there's a need to -- I'm not sure this is a -- one of our  
20 better issues that's meaning can be meaningfully discussed. I  
21 mean, there are good issues and there are -- and there are so,  
22 so issues that we're dealing with. I don't know. I guess what  
23 I'm saying is I'd be reluctant to do that.

24 MR. SMITH: Yeah, I don't want to propose  
25 another so, so issue.

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1 MR. MARCHEGIANI: I think in other ways we're  
2 going to be providing it anyway. We talked about the life stages  
3 and timing and what not.

4 MR. SMITH: I know.

5 MR. MARCHEGIANI: I think some of the other  
6 issue papers you're going to actually find that information you  
7 want.

8 MR. ARMINSKI: Okay, F-4 is the significance  
9 of changes in stream morphology on salmon and resident fish  
10 habitats and populations downstream from the dam. It's our posi-  
11 tion that the implementation of the mitigatio measures presented  
12 in this paper will offset any changes in stream morphology and  
13 that no significant decline in quantity or quality of fish habitats  
14 or fish populations downstream of the dam will occur. Phil was  
15 going to discuss this.

16 MR. SCORDELIS: I prepared this paper utili-  
17 zing the information found in the license application and in  
18 several reports of Harza-Ebasco's river sedimentation study and  
19 several R&M reports on changes in stream morphology that were  
20 going to occur or were projected as possible occurrences. I think  
21 the major issue in this paper, in my opinion, was the potential  
22 for changes in slough habitats as a result of changed flows -- of  
23 altered flows. There's -- I believe there's sufficient mitiga-  
24 tion measures proposed to offset these changes.

25 MR. ARMINSKI: Comments? Brad?

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1 MR. SMITH: On page ii, are all tributary  
2 mouths going to be monitored for at least the first couple of  
3 seasons or are we going to project the ones that we anticipate  
4 some problems with or just the ones w'ith fisheries?

5 MR. THRALL: I would assume, I don't know,  
6 I'd have to defer to Larry, but I think they would all be monitored  
7 and at least be looked at.

8 MR. GILBERTSON: Yes, certainly the major  
9 ones would be put on a list and there would be some guarantees  
10 that people would look at those in certain ways. But some of  
11 the minor ones I think would just be monitored by the presence  
12 of people in the field specifically monitoring other things.  
13 There will be monitoring activities in the Middle River for several  
14 years.

15 MR. SMITH: It would probably be apparent  
16 then to anyone on the river then.

17 MR. GILBERTSON: Sure. But there's a few  
18 major tributaries that most of the tributary production come out  
19 of and those would specifically be watched.

20 MR. ARMINSKI: Bruce?

21 MR. BEDARD: Yes, I'm just kind of following  
22 up on his same question but I was wondering about the number of  
23 years that that would go on after the project is completed. The  
24 other question I had was on page 2 you referred to 1984 middle  
25 reach showing 14,000 and 2200 fish respectively. What river mile

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1 was that?

2 MR. SCORDELIS: Bruce, where? Page 2, middle  
3 paragraph?

4 MR. BEDARD: Yes, you refer to responding  
5 escapement of chum and sockeye to sloughs of the middle reach in  
6 '84 were 14,000 and 2200 fish respectively. Whereabouts was  
7 this study taken? I'm just curious.

8 MR. SCORDELIS: I believe that's at Curry  
9 Station.

10 MR. BEDARD: That's quite a bit down river.

11 MR. SCORDELIS: I'm not sure what --

12 MR. BEDARD: -- I'm just curious. I just  
13 wanted to know because I don't know --

14 MR. SCORDELIS: -- That's total -- No, that's  
15 total slough escapement. That's from the entire middle reach,  
16 not just at Curry. I think there were slough counts, individual  
17 slough counts, and then they totalled them.

18 MR. ROSENBERG: If there's a degradation  
19 in aggregation throughout various parts of the middle river here,  
20 that is, degradation to the tune of, what, .3 meters, is that  
21 what it was in here? Well, somewhere else I thought I saw .3  
22 feet in the reservoir and river sedimentation report. In here  
23 I thought it was .3 meters. But if there is degradation has that  
24 been accounted for in the -- or will that affect the flows that  
25 are projected and how that will affect slough overtopping and

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1 slough modification? Will that change things downstream?

2 MR. THRALL: Not -- I don't think within  
3 the error of measurement that we're dealing with.

4 MR. MARCHEGIANI: What you're talking about  
5 is site specific. What you're saying is, you know, are we going  
6 to have a bid aggradation or a -- yeah, a aggradation let's say  
7 right in front of slough 8A and whether that's going to in turn  
8 cause overtopping of that slough and I guess there really isn't  
9 any each way -- I mean, there's no way to predict a site specific  
10 aggradation or degradation. No modeling will show that. It would  
11 be impossible. That's a fairly site specific situation. What  
12 we can turn around and do is say, generally speaking we know down-  
13 stream of dams that historically there's been degradation and  
14 what normally happens is that degradation is passed on out through  
15 the system. It usually occurs over a period of time. Now, the  
16 only thing I can say, you know, is we don't expect to have, you  
17 know, a drastic increase in staging, let's say 8A or 9 or whatever.  
18 That's not to say that it can't occur.

19 MR. SMITH : I was a little surprised by  
20 the magnitude of the bed degradation that you're predicting for  
21 the different reaches. It was on the order of a half a meter  
22 or a third of a meter. And I -- What I was going to -- maybe  
23 it's what -- I think it was what Dan was asking too, if -- if  
24 we're having degradation on the order of two feet, was that calcu-  
25 lated when you defined what your post project water elevations

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1 are going to be? It seemed like on a fairly wide stretch of the  
2 river degradation on the order of two feet accounts for a lot  
3 of volume of water and I wonder whether that was facted into your  
4 slough equations when you predicted what the post project water  
5 elevations in the sloughs are going to be and for access into  
6 the sloughs and for the mainstem river itself.

7 MR. GEMPERLINE: The answer is that we're  
8 not predicting that this much degradation will occur. We're saying  
9 that this is the maximum we believe is possible. It's -- When  
10 you're trying to predict this kind of degradation on this small  
11 an amount it's ridiculous to think that you can actually predict  
12 that much. We've just said that it shouldn't exceed this on the  
13 average, okay. I guess the model -- there are several things  
14 that would tend to compensate for this and that is sediment coming  
15 in from the tributaries, bed material, bank erosion, even erosion  
16 upstream near the dam might tend to come downstream and compensate.  
17 I guess I can't answer. I know in our water surface profiles  
18 with project we haven't -- we haven't accounted for this because  
19 we can't say how likely it is to occur.

20 MR. SMITH: The 40 millimeter figure you  
21 came up with, where did that come from? I was surprised -- it  
22 seems like that's a pretty small particle to be -- I take it that's  
23 the critical size particle? Everything else smaller than that  
24 you figure would move on out and everything larger or equal to  
25 40 millimeters would stay at least for some reach?

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1 MR. GEMPERLINE: I can't -- That might be  
2 a -- do you know what table that's in?

3 MR. SMITH: On page 2.

4 MR. SCORDELIS: It's on the table on page  
5 4 and also on page 2. The range that is given is 68 to 38.

6 MR. GEMPERLINE: I see, yes. Yes, that's  
7 right down in the -- that 40 millimeter particle is near the con-  
8 fluence where the slope is a little bit -- the river isn't quite  
9 as steep. So, yes, what we're saying is that would be the parti-  
10 cle that was used in the computations, the representative size  
11 that would be -- things larger than that would remain and things  
12 smaller than that would be washed on out. You can see it's much  
13 higher upstream near Gold Creek, it's almost twice that.

14 MR. SMITH: How do you figure, when you figure  
15 that, you use a certain project -- you use a certain high water  
16 event one in 50 or one in 100 and you assume certain velocities  
17 or a period of duration as well?

18 MR. GEMPERLINE: There are several methods.  
19 There are about five different methods and they all depend on  
20 the depth of flow and the velocity of flow as the major parameters.  
21 This is based on a -- on the flows that would be likely to occur  
22 when Devil Canyon first comes on line. That's when we would have  
23 the least controlled overflows because we don't have the power  
24 generation. So -- or we don't have the power demand. So in that  
25 -- in 2002 we would expect flows on the order of 30 to 40,000

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1 say every other year and that is -- that is generally used. It's  
2 not just a peak of 30,000 for a day. It's generally for a period  
3 of time, say a week or a couple of weeks. And that's the kind  
4 of flow that you can expect to define what the channel will --  
5 channel shape will be. That's what was used in coming up with  
6 these numbers.

7 MR. SMITH: Then would you say these are  
8 not necessarily conservative estimates then?

9 MR. GEMPERLINE: Oh, no, I think these are  
10 conservative estimates.

11 MR. SMITH: That they would be?

12 MR. GEMPERLINE: Yes. Now --

13 MR. SMITH: -- So a high, you know, a one  
14 in 50 or one in 100 year even for a day or two probably wouldn't  
15 be significant as far as armoring (ph) or --

16 MR. GEMPERLINE: -- Well, see, even at one  
17 in 50 -- or 50 year flood is still going to be controlled by the  
18 resevoir.

19 MR. SMITH: Sure.

20 MR. GEMPERLINE: And so the flow from the  
21 one in 50 year flood is going to be very similar to the flow from  
22 a one in five year flood in 2002. A one in 100 year flood, you're  
23 right, could cause some additional degradation. But again, even  
24 the 100 year flood would be controlled fairly well. And the other  
25 point to mention here is this is totally defined by what's going

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1 to happen in the five or ten years around the time Devil Canyon  
 2 first comes on line. When -- later on when the energy demands  
 3 increase the ability of the project to control flows is signifi-  
 4 cantly increased and at that point even 100 year flood probably  
 5 wouldn't have any more affect than -- than this. So the odds  
 6 of your getting a 100 year flood during the five or 10 years is  
 7 probably pretty minimal. So I think probably the answer is pretty  
 8 good.

9 MR. ARMINSKI: What affect does staging the  
 10 project have on this five year period?

11 MR. GEMPERLINE: Actually the affect that  
 12 staging has on it is that the Lower Watana Dam, to begin with,  
 13 you don't have quite the -- well you do have, I'm sorry. You  
 14 do have the ability to control flows -- control floods but your  
 15 flows in the first -- actually they'll extend that period out  
 16 from -- from the time that the project first comes on line say  
 17 in 1996 through if I were to say 2007 to 2010. It's just going  
 18 to be a longer period of time over which the -- this degradation  
 19 would be more likely to occur a little bit earlier than with the  
 20 high -- with the high project. That's my -- that's my feeling.  
 21 I haven't make the computations. It might not be, it might be  
 22 that it would start sooner but not reach the depth, if this depth  
 23 actually did occur. It might still occur at the same time but  
 24 it might start towards this a little bit earlier.

25 MR. THRALL: Gene, in terms of the affects

1 of this degradation on overtopping of sloughs, which I think,  
2 Brad, is basically where your concern comes from, isn't it? Or  
3 what effect it's going to have on the slough main stem relationship?

4 MR. SMITH: Um-hm, yes.

5 MR. THRALL: My understanding is that the  
6 amount of degradation we're talking about here, again recognizing  
7 that this may be conservatively overestimated, but even so, if  
8 you mix that in with natural seasonal flow variation and every-  
9 thing else and compare it to something like ice related staging  
10 events any affect that this degradation is going to have on river  
11 levels is minimal. Is that correct or not correct? Because I  
12 think that's basically what Brad is asking.

13 MR. GEMPERLINE: If there were to be a foot  
14 of degradation in a certain location you might -- the maximum  
15 -- you could expect to see perhaps a foot drop in water level  
16 for a given flow. You wouldn't get quite that much because the  
17 degradation doesn't occur uniformly over the entire channel stream-  
18 bed. It occurs basically in the deeper portions. So it could  
19 -- it could increase the flow required to overtop a slough.

20 MR. THRALL: But again, relating it to say  
21 the ice related staging where we're talking about what sort of  
22 a --

23 MR. GEMPERLINE: -- Well, it wouldn't have  
24 -- the affect on the ice related would be minimal.

25 MR. THRALL: I know, but the ice related

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1 staging we're talking about what kind of increases in river  
2 levels. We're talking about much greater -- I'm trying --

3 MR. GEMPERLINE: -- The ice related river  
4 levels are four to five feet higher than -- I don't know, I  
5 shouldn't say four or five feet, are on that -- on the order of  
6 four feet over the burms. It's -- They're still going to --  
7 they're still going to --

8 MR. SMITH: -- I realize we have a more dynamic  
9 situation going on. I was just wondering whether, since we're  
10 designing these sloughs and corresponding ground water and all  
11 this for kind of a controlled situation, whether this is something  
12 we have to take into effect.

13 MR. THRALL: I think my impression, again,  
14 this is as a non-hydrologist, but my impression is that this is  
15 a very small -- this is a very minor thing in the overall system  
16 and it's -- and other flow related events are more important and  
17 we take other things into consideration. Anything related to  
18 degradation gets taken care of.

19 MR. GILBERTSON: I think, to answer your  
20 question, degradation was not included in our analysis of with  
21 project conditions in sloughs and our assessment of habitat  
22 availability pre and with project, but degradation would be in-  
23 cluded in design of slough modification and it certainly would  
24 be one of the things that would go into our monitoring program  
25 and contingency plans.

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1 MR. SMITH: It looks like Table One is probably  
2 the most important stretch of the rivers, at least for fisheries,  
3 didn't get evaluated. It's from 114 to 132 or something.

4 MR. GEMPERLINE: I think that the results  
5 are uniform enough, if you look at the post project degradations  
6 over the sites that were evaluated that within the errors that  
7 are possible here we would say they'd be in the same general  
8 vicinity. So I think generally what we've done is we've evaluated  
9 -- we can say in general we've evaluated the middle river here.

10 MR. SMITH: And these are conservative and  
11 these represent what you believe to be a worst case situation  
12 that probably wouldn't occur.

13 MR. GEMPERLINE: Yes, that's right.

14 MR. ARMINSKI: Any other comments? Hank?

15 MR. HOSKINS: On your mitigation, Phil, I'd  
16 ask you to please address winter utilization of sloughs by chinook  
17 juveniles and the access requirements and the access requirements  
18 they might have. So far all you've addressed here is adults  
19 getting into the sloughs.

20 MR. SCORDELIS: What page are you on?

21 MR. HOSKINS: Oh, this was on page 10. At  
22 the top of the page you talk about adult passage, getting into  
23 the sloughs, and if you have a system there where you're providing  
24 jumps (ph) and so forth you may have blockage of juvenile chinooks  
25 getting into these sloughs for winter use.

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1 MR. SCORDELIS: That -- I believe that infor-  
2 mation was taken out of the first attempt at the mitigation plan  
3 and I'll see that it's incorporated.

4 MR. HOSKINS: Okay, since the first attempt  
5 at the mitigation plan I believe more data is available about  
6 extenuating use or additional use of these sloughs by these small  
7 chinooks so this would have to be incorporated in here.

8 MR. ARMINSKI: Other comments? Brad?

9 MR. SMITH: This might follow up with what  
10 Hank just mentioned. I thought that even though it's mentioned  
11 in the text of the paper that debris removal, vegetation removal,  
12 beaver dam control ought to be in those specific methods mentioned  
13 on pages 9 and 10 and maybe some discussion about which sloughs  
14 that's going to be done for, whether that would be -- it may have  
15 some considerations for rearing juveniles as to which sloughs  
16 are going to be cleared of vegetation and beaver dams.

17 MR. SCORDELIS: I don't even know if that's  
18 been established. Is that set yet, Larry? Do we know what  
19 sloughs we're going to modify?

20 MR. GILBERTSON: No. Well, some of them  
21 were obvious.

22 MR. SMITH: 8A, 9, 11 and 21?

23 MR. GILBERTSON: Right, off the top those  
24 are obvious ones to take care of and then -- but additional sloughs  
25 we haven't really gone through those yet and decided which ones.

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1 MR. SMITH: Maybe just a statement to that  
2 effect.

3 MR. ARMINSKI: Other comments?

4 MR. ROSENBERG: What's the 30,000 figure  
5 on Table One, post project 30,000 CFS?

6 MR. GEMBERLINE: What does that represent?

7 MR. ROSENBERG: Yes, what does that represent?

8 MR. GEMPERLINE: I think that represents  
9 what we believe is the armoring, I shouldn't say armoring, an  
10 estimate of the dominant discharge so called with project when  
11 Devil Canyon first comes on line. Now, that's where this varies  
12 from the resevoir and river sediment report. The resevoir and  
13 river sediment report used 15,000, which is the dominant discharge  
14 say in 2020 when the project is fully utilized. But back when  
15 Devil Canyon first comes on line the dominant discharge is higher  
16 so that's what that represents.

17 MR. ARMINSKI: Any other comments? Are there  
18 any other general comments?

19 MR. ROSENBERG: Is this all based on -- from  
20 two years worth of data or is it more since the -- I know you've  
21 got a 1984 report, I don't think I've seen that, on resevoir  
22 and river sedimentation -- or I've seen the '84 report is that  
23 what most of this is from? There are two years of data sort of  
24 from normal flow years.

25 MR. GEMPERLINE: There were -- No, there

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1 were -- there were additional bed material samples taken  
2 between the time that reservoir and river sedimentation report  
3 was put out and there was a little bit more analysis of the flows.  
4 So it was -- it was a reevaluation of the bed material of the  
5 river and of the flows.

6 MR. MARCHEGIANI: I think the bottom line,  
7 Dan, is not so much collecting additional sediment data to try  
8 to define things but what we've actually done is we've looked  
9 at a different discharge. I think what Gene's basically telling  
10 you is that your discharge -- I mean, the characteristics of a  
11 sediment are pretty much the same no matter what. What we're  
12 saying is the velocity or the amount of water that's going down  
13 the river is what's really going to dictate how much it's trans-  
14 porting and if you use 30,000 CFS versus 15,000 CFS you're going  
15 to have more transport. It's just basic to the equation. IT's  
16 like he said, depth of water and velocity are what are going to  
17 control. That's the rationale behind the analysis that's here.

18 MR. ARMINSKI: Leroy?

19 MR. LATTA: I was just going to say, our  
20 instream flow handbook just came out I brought a stack of those  
21 and then our water rights handbook from last June I brought  
22 a stack of those. So if anyone wants one they're at the back  
23 table. I don't have to carry them home that way.

24 MR. ARMINSKI: Jack, when can we expect com-  
25 pletion of the discussions of -- initial discussions? How many

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1 meetings?

2 MR. ROBINSON: We have 11 papers left to  
3 discuss and the seventh meeting, which will be held May 17th,  
4 there are four papers. There are about 10 left after that. We  
5 hope to wind up the discussions on initial papers by about the  
6 end of May and then move to discussion of the provisions after  
7 that.

8 MR. ARMINSKI: Anything else anyone wants  
9 to discuss? Okay, thank you.

10 (OFF THE RECORD)

11 END OF PROCEEDINGS

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I, Barbara Brown, Notary Public in and for the State of Alaska, residing at Anchorage, Alaska, and Electronic Reporter for Gemini Reporting Services, do hereby certify:

That the annexed and foregoing transcription of proceedings was taken before me on the 29th day of April, 1985, beginning at the hour of 8:30 a.m. at the Northern Lights Inn, Anchorage, Alaska.

That these proceedings as heretofore annexed are a true and correct transcription of said proceedings, taken by me electronically and thereafter transcribed by me;

I am not a relative nor employee nor attorney nor counsel of any of the parties, nor am I financially interested in this action.

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