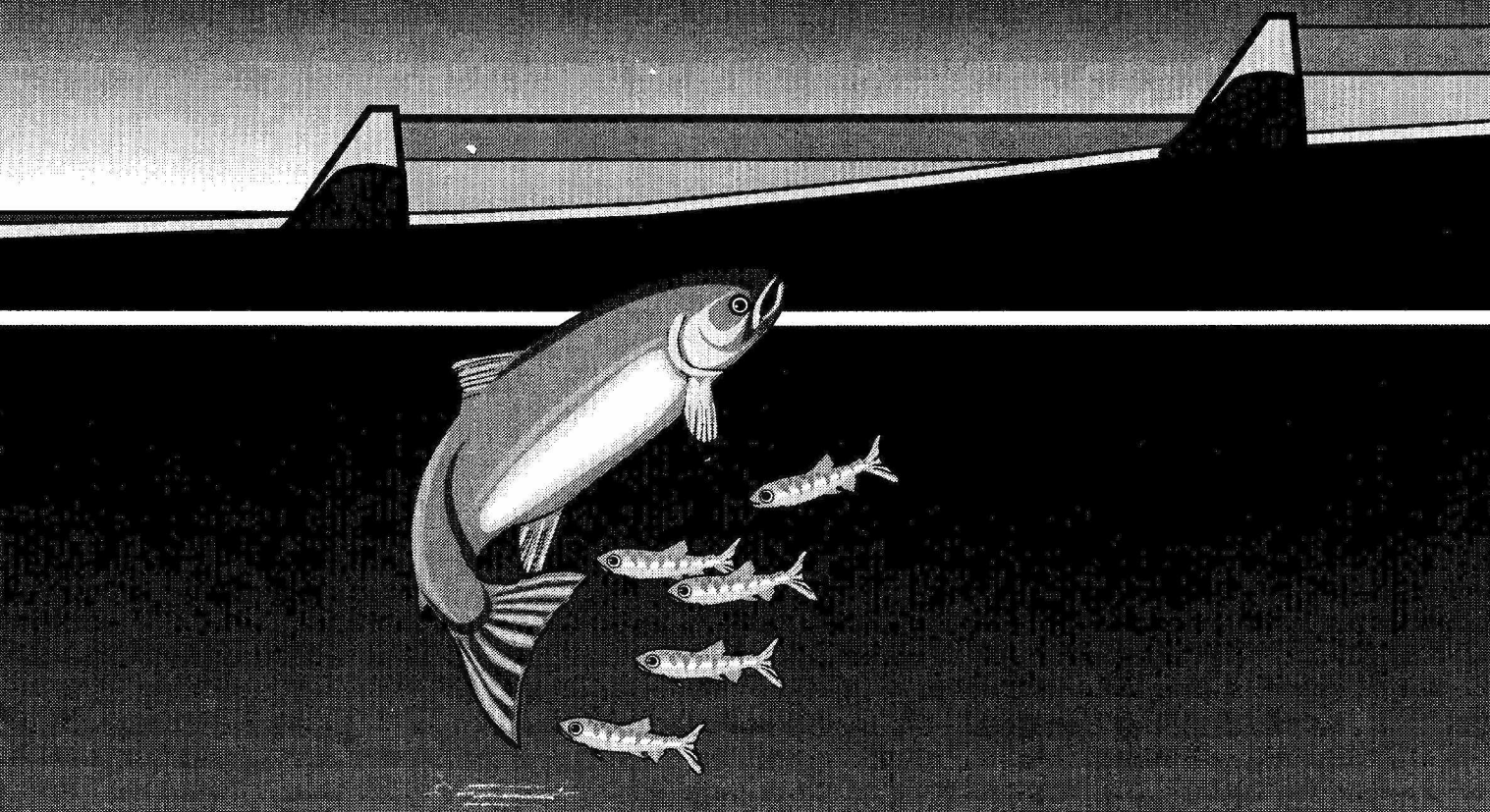
US Army Corps
of Engineers
Walla Walla District

1992 Reservoir Drawdown Test

Lower Granite and Little Goose Dams

Appendix U

Reservoir Drawdown Test Design Team Meeting Minutes
Volume 1 of 2



December 1993

APPENDIX U-1

Minutes from the April 5, 1991 Meeting

of the

Reservoir Drawdown Test Design Team

COPY

1992 RESERVOIR DRAWDOWN
TEST PROTOCOL DEVELOPMENT MEETING

Taken at the Quality Inn Confluence Room
Clarkston, Washington
Friday, April 5, 1991 - 9:40 a.m.

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est Protocol- Drawdown Concept 5 April 1991

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1 I N D E X

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3 PAGE:

4

5 CORPS OF ENGINEERS PERSONNEL PRESENT

6

Witt Anderson
7 Michael Passmore
Sarah Wik
8 James B. Athean
Greg Graham
9 Pete Poolman

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11 Stipulations. 3

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13 Certificate of Court Reporter 211

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24 Reported by Gloria J. McDougall, CP, RPR, CSR, Freelance Court Reporter and Notary Public, States of Idaho and
25 Washington, residing in Lewiston, Idaho.

1 S T I P U L A T I O N S

2

3 It was stipulated by and between counsel for the
4 respective parties that the meeting may be taken by Gloria J.
5 McDougall, CP, RPR, CSR, Freelance Court Reporter and Notary
6 Public for the States of Idaho and Washington, residing in
7 Lewiston, Idaho.

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FRIDAY, APRIL 5, 1991

MR. ANDERSON: Let me first say, we have a court reporter, Gloria, here today with us to take notes on what's discussed so we can go home and come back to the next meeting with some good information that comes out of today's meeting. For her to be able to do her job well, it will help if everyone states their name when they are talking; and, also, we have name tags for those of you sitting around the table if you would put your name on it and/or organization, that will be very helpful for her. And, in that light, I think the first thing we need to do is go around and introduce ourselves and who we are with.

My name is Witt Anderson. I am with the North Pacific Division of the Corps in Portland.

MR. PASSMORE: I am Mike Passmore. I am Chief of Environmental Resources Branch in the Walla Walla District.

MR. BOWLER: Bert Bowler. I am currently Columbia River Policy Coordinator out of Boise for Idaho Fish and Game.

MR. PETTIT: Steve Pettit. I am a fish pass specialist with Idaho Fish and Game.

MR. GILCHRIST: Bob Gilchrist, Red Wolf Marina.

1 MR. SATTERWHITE: Mike Satterwhite, Trout
2 Unlimited.
3 MR. HAAS: Wayne Haas, Idaho Department of
4 Water Resources.
5 MR. RANDOLPH: My name is Chris Randolph. I
6 am with Idaho Power.
7 MR. MEYERS: Dave Meyers, Idaho Power from
8 Boise.
9 MR. CRASE: Fred Crase with the Pacific
10 Northwest Region, Bureau of Reclamation.
11 MR. KINNEAR: Brian Kinnear, Fish and
12 Wildlife Service out of Vancouver, Washington.
13 MR. BJORNN: Ted Bjornn, Idaho Cooperative
14 Fish and Wildlife Research Unit.
15 MR. BENNETT: David Bennett, University of
16 Idaho.
17 MS. WIK: Sarah Wik, Corps of Engineers,
18 Walla Walla.
19 MR. ATHEARN: James Athearn, Corps of
20 Engineers, North Pacific Division in Portland.
21 MR. ANDERSON: Go ahead.
22 MR. GRAHAM: Oh, you want us too?
23 Greg Graham, Corps of Engineers, Walla Walla.
24 MR. POOLMAN: Pete Poolman, Corps of
25 Engineers, Walla Walla.

1 MR. HOPKINS: Steve Hopkins, Brix Maritime
2 Company.
3 MR. JENSEN: Pat Jensen, Tidewater Barge
4 Lines.
5 MR. HAYES: Charles Hayes, Nez Perce Tribe.
6 MR. COCHNANER: Tim Cochnaner, Idaho Fish and
7 Game.
8 MR. WELSH: Tom Welsh, Boise.
9 MR. JACKSON: Phil Jackson, Mid Columbia
10 PUDs.
11 MR. ANDERSON: Anyone else? You don't have
12 to.
13 MR. MONTGOMERY: Marty Montgomery, Northwest
14 Power Planning Council, Idaho.
15 MR. KRONEMANN: Loren Kronemann, Nez Perce
16 Tribe.
17 MS. STEDMAN: Kristy Stedman, Senator Larry
18 Craig.
19 MR. FLACK: Carroll Flack, Clarkston,
20 Washington, resident.
21 MR. ANDERSON: Okay. We also will have a
22 sign-up sheet going around, if it isn't already, again
23 so we can get names for Gloria's assistance here.
24 I know there are some folks coming from
25 Portland, Northwest Irrigating Utilities at least,

1 perhaps PNWA as well. I'm not sure of the others
2 coming. So, they should join us shortly.
3 First of all, I want to talk about the
4 process and -- did the agendas go out to everyone?
5 MS. WIK: Yes.
6 MR. ANDERSON: Everybody has got an agenda
7 and just quickly go through the agenda and talk about
8 what we view our purpose for being here today is. But,
9 before I do that, let me just mention the Corps staff
10 that is here and our roles, if we can clarify that.
11 My role is to try to facilitate this
12 discussion and the next two meetings for developing the
13 test in the 1992 drawdown proposal. Jim Athearn, also
14 from the division office, is a fishery biologist and is
15 overseeing the technical side. In Walla Walla, Mike
16 Passmore's staff is going to be responsible for the
17 biological aspects as well as the NEPA process,
18 National Environmental Policy Act. And we have Greg
19 Graham here with us who is an engineer in the District
20 responsible for the engineering aspects. Sarah Wik is
21 the, I guess, study manager for this test. Sarah has
22 got the responsibility to pull this thing off, so I
23 want to point that out. So, when we have discussions
24 continuing over the next couple of weeks, Walla Walla
25 District has got the lead on this job; and it is their

1 show. The Division is involved because of our
2 involvement in the Salmon Summit.
3 The agenda that you have is pretty brief.
4 The meat of this meeting, as we see it, is down in the
5 fourth bullet item, as the test development.
6 UNIDENTIFIED PERSON: We didn't get one.
7 MR. ANDERSON: Oh, I'm sorry. I thought you
8 guys --
9 MS. WIK: They were going around.
10 MR. ANDERSON: I'm sorry. I stopped them.
11 MS. WIK: Oh.
12 MR. ANDERSON: And before we get to that, I
13 just want to talk about those top terms: expectations/
14 requirements, a little bit on the schedule and also the
15 purpose.
16 A little bit more on the process. This is an
17 informal meeting. It is a discussion, if you want to
18 have a good discussion. It's not a formal public
19 meeting. It's not a hearing. This is a work session
20 such that we can develop a test plan. Jim and/or Sarah
21 or myself will take some notes during the meeting on
22 some plastic so we can capture the essential points and
23 issues in these discussion items for everyone to see,
24 and we will show those up on the screen as we get into
25 the meat of the agenda.

1 The last thing, I've been asked to get people
2 to put your names on both sides of name tags.
3 MS. WIK: So Gloria can read --
4 MR. ANDERSON: Yeah. So Gloria can read
5 them. Yeah, put big letters.
6 I don't have an expectation on how long this
7 meeting is going to go today. I would expect we are
8 going to have a lot of discussion on the test
9 development; and, perhaps, we will go until mid
10 afternoon. We will just have to see how that goes.
11 Does anyone have any travel plans?
12 Mike?
13 MR. SATTERWHITE: I just have a question.
14 MR. ANDERSON: Okay.
15 MR. SATTERWHITE: Could you send around a
16 sign-up list so that you can publish names, addresses
17 and phone numbers?
18 MR. ANDERSON: Yeah. We --
19 MS. WIK: It's coming. It's coming, Mike.
20 MR. ANDERSON: Okay.
21 MS. WIK: It's on its way.
22 MR. ANDERSON: Fred has it over there.
23 MR. SATTERWHITE: And could you see that that
24 will be sent back to us so we will know who to get a
25 hold of?

1 MR. ANDERSON: Sure, you bet.

2 MS. WIK: Sure.

3 MR. SATTERWHITE: One of the big problems in
4 the whole process is communications. The details of
5 communication is very important.

6 MR. ANDERSON: Yeah. We might be able to get
7 that to you today if we can get to a Xerox machine.

8 Yeah, a good point. This is a discussion.
9 Feel free to enter into the discussion and ask
10 questions. We want this to be a cooperative discussion
11 here today.

12 I guess it begs that we discuss briefly the
13 background of why we're here today. I don't want to
14 carry a lot of baggage from the Salmon Summit process.
15 I want to start this off on a positive note. That we
16 are moving ahead in a positive fashion.

17 But, just briefly, the concept of a drawdown
18 of the Snake River projects or a project emanated from
19 the Salmon Summit. And I think it first started
20 getting some serious discussion about two months ago,
21 and there were various proposals put on the table and
22 various concepts. One of which was a proposal to draw
23 Lower Granite Reservoir down to elevation seven
24 twenty-one during the juvenile anadromous fish
25 migration period each spring. The reason Granite was

1 chosen at elevation seven twenty-one, which is twelve
2 feet below the normal minimum pool, the reason that was
3 proposed is because Lower Granite project is designed
4 to have the adult fishway to operate with the forebay
5 drawn down to that range, around seven twenty-one. The
6 reason, because Lower Granite is designed to operate on
7 a swing basis with a forecasted flood such that the
8 forebay can be drawn down and the backwater slack would
9 not over top the Lewiston levees. We have not operated
10 that way. We have never operated the adult fishway in
11 that condition. But, in theory, it would operate in
12 the forebay. Now, I'm not talking about the tailrace
13 or Little Goose elevation. So, that was a proposal.
14 We had a lot of discussion in the Salmon
15 Summit; and, of course, there was a lot of concern by
16 various user groups that they would be impacted by such
17 an operation. So, what happened -- I guess the next
18 major thing that occurred was that there was a meeting
19 at the Power Planning Council on the first of March to
20 discuss the biological aspects as well as experimental
21 design and implications of that kind of a test. I was
22 not at that meeting, but I think it might be fair to
23 say that there certainly wasn't any consensus about
24 that test proposal. Shortly thereafter there was the
25 final Salmon Summit meeting on the fourth of March at

1 which the concept of a test drawdown -- and the
2 concept, of course, is increased velocities improve or
3 decrease juvenile fish travel time and improve
4 survival. That was, again, discussed on the fourth;
5 and it was left that there would be a follow-up on the
6 seventh of March hosted by the state of Washington and
7 and that occurred up in Spokane.
8 In that meeting, the test was redefined as -- for
9 1991 as a plan to bring Lower Granite pool down to
10 elevation seven thirty, three feet below minimum,
11 during the two-week scheduled lock maintenance period,
12 which was March 24th to April 6th of this year. There
13 was a lot of discussion by interested parties and
14 discussion about what could be learned from such an
15 operation.
16 The Corps committed to taking that proposal back
17 with us to look at it for two purposes. One, to see
18 what kind of information could be gained by that kind
19 of an operation this year and, also, to consider what
20 kind of implications it meant. And we also indicated
21 we would take input from interested parties. We did
22 get input. We did take a very hard look at the what
23 use that test would be this year, and concluded that we
24 wouldn't get any biological benefits because we didn't
25 have fish in the river at that period of time. Nor did

1 we conclude that that kind of a test this year would
2 really produce any significant information regarding
3 the potential biological benefits, nor would it help us
4 design an experiment for 1992. And the rest is kind of
5 history.
6 And there's been a lot of press about the
7 Corps -- Corps being negative and dragging its feet
8 because we didn't see a value of a test in 1991. We
9 did commit in all sincerity. We fully intend to
10 proceed with a development of a test in 1992. So, with
11 that background, we are here today with the purpose of
12 developing a test to be implemented in 1992.
13 We have three meetings scheduled: today,
14 next Friday and then on the eighteenth of April; and
15 our perspective on those meetings is, these first two
16 meetings we would like to get to the heart of the
17 science here, the biological aspects of the proposal of
18 this test and hope to come to closure in a reasonable
19 degree of definition on a test plan for 1992 such that
20 we can take this to the policymakers on the eighteenth
21 of April in Portland and get their -- their endorsement
22 on this operation for 1992.
23 So, this meeting we view as framing up the
24 test plan, lining it out from the experimental design
25 aspect, anticipating that we are going to have some

1 information needs based on today's discussion and
2 perhaps a need to have some work groups go back and
3 look at some issues. Perhaps get some additional
4 information such that we can meet again next Friday and
5 further define this test plan. Again, going to the
6 eighteenth to the policymakers for their support on
7 this proposal.
8 That gets us to this area of what we called
9 expectations and requirements. Our expectation is to
10 develop a test plan. I want to say at the outset here,
11 we're not here today to debate the policy issues or the
12 merits of the test or developing a hypothesis about
13 drawdown and its benefits and an experimental design to
14 test that versus the policy issue of, Do we need a test
15 at all, do we just go out there and start modifying
16 these projects. That's a policy debate, not that we
17 can't touch on that today; but that's not our purpose.
18 We want to develop a test plan if we -- should such a
19 plan be actually definable.
20 There's a couple of issues that have come up.
21 One a National Environmental Policy Act process. We
22 have concluded -- we have determined that we will have
23 to do an environmental impact statement for a test
24 implementation. That is a legal requirement. We
25 certainly don't want people to believe that is a foot

1 dragging measure on the Corps' part, but we will follow
2 the NEPA requirements and look at the implications and
3 trade-offs on whatever test is developed, and the
4 impacts to other users. We have not issued a Notice of
5 Intent at this point in time on the basis that we
6 believe we need to define the test proposal to the
7 extent that we can go out with a reasonable proposal in
8 our Notice of Intent in the Federal Register, such that
9 we have an action that we can actually begin to
10 evaluate and coordinate the scope of in a public
11 process. Which leads me to say that these meetings are
12 not scoping meetings, per se, under the National
13 Environmental Policy Act that will follow the
14 developing of the test plan. But, these meetings
15 certainly are open to the public and anyone that has
16 input.
17 Another issue that's been with us is the
18 consensus question.
19 (Unidentified individuals enter room.)
20 MR. ANDERSON: There you are. I'm just
21 talking about consensus. One consensus we have already
22 reached is the last guys in have to buy coffee at 10:00
23 o'clock.
24 MR. LOVELIN: Good. I'm the last in.
25 MR. ANDERSON: We took the liberty -- we were

1 aware that you guys were coming up. We took the
2 liberty to start, but you haven't missed much.
3 MR. LOVELIN: We have got consensus already
4 on that.
5 MR. ANDERSON: The consensus question, I
6 guess, was my next point. There's been a lot of debate
7 about that. We have indicated that we would like to
8 have consensus for whatever test is developed for
9 implementation for 1992. Of course, at issue
10 particularly following on the heels of the Salmon
11 Summit, what does consensus mean. What is required.
12 We would like to have it. We fully are aware that
13 there may be controversy about a test plan, and we may
14 not have unaminous consent. And, quite frankly, that's
15 a decision point that the Corps will have to grapple
16 with; and I suspect it will be after the eighteenth of
17 March meeting when we take a plan to the policymakers,
18 should we be sucessful in developing a plan.
19 So, that's something we are going to have to
20 deal with. It's our intent to proceed with a test
21 implementation in 1992.
22 MR. BOWLER: So, what you're saying, then, is
23 consensus isn't important in terms of what we're
24 dealing with. That's more of a policy issue.
25 MR. ANDERSON: It's a policy issue when we

1 get down to the implementation and proceed further in
2 the process that the Walla Walla District is going to
3 have to follow. Now, I guess, to say on an
4 experimental design that we have to have consensus on
5 that either, I guess, is probably too strong a
6 statement. I don't know where we are going to end up
7 after today and next Friday. Again, it's our full
8 intent as to the Corps of Engineers to facilitate the
9 discussion to come up with a test plan.
10 That's why we are here today. We did not
11 reach that in the March 1st meeting at the Power
12 Planning Council, and we are really following up on
13 that discussion. So, I guess, I would urge everyone to
14 participate in a cooperative fashion, in a good faith
15 fashion, because we certainly want to proceed ahead and
16 get beyond these issues that have come out of the
17 Salmon Summit.
18 Good point. Those of you who have come in
19 late, we have some name tags we would like you to put
20 your name on. We have a court reporter -- excuse me,
21 Okay. We have a court reporter here taking notes; and,
22 as I said earlier, this is not a formal hearing; but we
23 want to get the information down in the meeting today.
24 So, that would help facilitate that.
25 MR. KINNEAR: Brian Kinnear, Fish and

1 Wildlife Service. If the Corps sees a need for an
2 unified decision on a test for some segment of the
3 operation within the Snake River system, what's the
4 policy or procedure or the Corps' status relative to a
5 document for operations of the entire Snake River
6 system?
7 MR. ANDERSON: Well, in fact, is that for
8 other aspects, other proposals like Dworshak or the
9 Lower Columbia pool lowering; or is that what you're
10 referring to?
11 MR. KINNEAR: I'm interested in knowing how
12 the environmental impact, the operation of the project
13 on the Snake River is going to impact the salmon runs
14 that we are particularly concerned about here.
15 MR. ANDERSON: Well, I'm not sure I
16 understand the question, but let me try.
17 We have environmental impact statements on
18 our projects. We call them O and M. Operation and
19 Maintenance, EISs, on our daily operations covering a
20 wide range of what I'll say are normal operational
21 activity. We can debate normal. For example, we have
22 concluded on the Snake projects to operate them at near
23 minimum pool this year. We feel that is adequately
24 addressed in our existing project EISs. Not the case
25 on the Columbia River, per se, particularly the John

1 Day proposal because John Day is a different kind of
2 project and is actually a mainstem project that has a
3 flood control component and has a greater fluctuation
4 range. And we get to operate John Day at near minimum.
5 I say that with an emphasis because that is a term
6 that's come out of the Salmon Summit.
7 In terms of the overall measures that are
8 being packaged that follow on to the Salmon Summit and
9 will probably occur during the Endangered Species Act
10 process, we are going to have to deal with those types
11 of measures and their requirements underneath that on a
12 case-by-case basis. And I'll just tell you, quite
13 frankly, we are looking at overall environmental
14 documentation requirements, procedural requirements for
15 different packages of measures for '92 and beyond just
16 to address our operations as best we possibly can to
17 meet the needs of the fish. And I can't tell you today
18 what that's going to look like; but clearly, clearly we
19 have a mission here to pursue a test; and we clearly
20 have identified that as requiring an EIS. And that's
21 something that we need to proceed with. Conceivably,
22 this could get -- get grouped into a larger problamatic
23 statement, but I think that's probably not going to
24 happen, Brian.
25 Does that answer your question?

1 MR. KINNEAR: I think your last statement
2 very clearly answered it.
3 MR. ANDERSON: Okay. The third area -- I
4 mentioned NEPA process, the consensus issue. But, the
5 third area is modifications to the projects as they
6 exist today. This is certainly an issue, and I'm aware
7 there's a letter coming from the Walla Walla District
8 from an Idaho group of the conservation community on
9 that very, very question. Whether we should be dealing
10 with a test or should we just kind of go step up to the
11 plate and change the project's operation.
12 We are talking about a test in 1992, and we
13 need to recognize that major facility modifications for
14 those projects are not not within the realm of
15 possibility. I emphasize major.
16 Now, minor things that can be done in the
17 near term are certainly on the plate to be considered;
18 and the Corps will do everything it can to accomplish
19 those such that we can have a valid test developed and
20 implemented. We certainly want to have a sound test
21 here. And if we need to do some things in the projects
22 that are minor, I just want to be real about this.
23 That people understand we can't go out in the next
24 twelve months, cut a slot through the spillway so we
25 can have a free flowing river. We can debate that a

1 lot, but we have to understand the requirements there.
2 And there are studies underway in Idaho; and Idaho
3 Power has indicated looking at modifications, interim
4 modifications; and the Corps will be looking at some
5 things, and we hope we will have a cooperative effort
6 with MK on some of those. But we are going to need to
7 grapple with that question as to the type of
8 modifications that may be necessary in the near term.
9 I think what we want to do today is let's
10 talk about the hypothesis and the objective of the test
11 and the experimental design and see where that takes
12 us. If we have to regroup, we find that when we are
13 talking about removing Lower Granite Dam by March of
14 1992, we are going to have to do that. But, we think
15 we want to proceed in this discussion with developing
16 the experimental design and develop a sound one and see
17 what that's going to require in terms of the
18 environmental conditions that will be necessary.
19 MR. KINNEAR: Is the test going to be viewed
20 as a change of operation of proceedures not covered by
21 such things or paralleled to such things as are covered
22 by the EIS process or programmatic by EISs.
23 MR. ANDERSON: The existing EISs?
24 MR. KINNEAR: Yes.
25 MR. ANDERSON: Yes.

1 We see the test as going beyond the
2 assessment contained in the existing projects' EISs.
3 And maybe I need to back up here and just briefly say
4 for everyone that these projects were designed,
5 authorized and constructed to operate within certain
6 limitations. For example, Lower Granite has a five
7 foot fluctuation range with the exception, as I
8 mentioned, that it was designed to operate forebay down
9 to elevation seven twenty-one. Obviously, all the
10 facilities up and down the river and other aspects are
11 geared to that design and that constructive format.
12 And, if you get outside that range, we are beyond what
13 was ever intended back when they were constructed and
14 when the environmental evaluations were done. So, it's
15 clear when we get below normal minimum for any length
16 of time, that we're into a review under the National
17 Environmental Policy Act procedures. And that's really
18 a public process and a disclosure of the impacts. And
19 it's intended to be a process which affects our
20 decision making. So, that's why we have concluded that
21 we will -- we will have to follow that process for a
22 test.
23 Now, it could be -- now, I don't want to say
24 it's out of the possibility that some test could occur
25 that would not require additional environmental work,

1 but the type of test that we talked about at the Salmon
2 Summit certainly would.
3 MR. KINNEAR: So, the test will be confined
4 to a single reservoir?
5 MR. ANDERSON: No, no. Not necessarily, no.
6 We are going to have to deal with the kinds of physical
7 constraints that may lead us that way; but no, we are
8 talking about a test -- I would say we are talking
9 about the Snake River certainly. But, for various
10 reasons, we have -- we have in the Salmon Summit
11 focused on a project. And, as we discussed the history
12 there, we have narrowed in on the Lower Granite; and it
13 was redefined as we went in the last few weeks. But,
14 today it's a Lower Snake River test; and we will see
15 where the experimental design takes us.
16 Okay. I want to move on so we can get into
17 the meat of the meeting. Obviously -- obviously,
18 anything we develop here is not going to be able to be
19 determined a taking under the Endangered Species Act or
20 counted as a listed species that we have them at that
21 point.
22 As I said earlier, we view this as a
23 cooperative effort. We are here to facilitate it. The
24 Corps of Engineers certainly want to get on with this,
25 and we are positive and forward thinking about it and

1 expect everyone else to be, to help in a cooperative
2 fashion. I also mentioned earlier we expect that we
3 are going to need to have some work groups come out of
4 this process in the next few weeks, but we'll see where
5 we go on that today and wrap those tests up, I guess,
6 at the close of today or as we talk about the test
7 developing.
8 The schedule, as I said, there's another
9 meeting next Friday. Further refinement of the
10 technical sides of the test, and then the meeting on
11 the eighteenth in Portland at the policy level and such
12 that we can move on from there.
13 I guess at this point, if anyone else has any
14 comments they want to make? And Jim and Sarah,
15 anything else we want to say now to set the tone here
16 and the framework before we get into the test itself?
17 MR. HAAS: If I understand you correctly,
18 then, you're on the matter of consensus. You're saying
19 that although you would like to see -- obviously would
20 like to see consensus reached, you're not necessarily
21 saying that we have to have regional consensus before
22 we proceed with outlining and scoping and designing a
23 test program.
24 MR. ANDERSON: That's correct.
25 MR. HAAS: The second point, I guess the

1 Corps -- you say that you have made a determination
2 that there is a legal requirement that you proceed with
3 an EIS. We have some real questions as to the need for
4 a full EIS. Particularly trying to get it done and
5 proceed with the test objectives in '92. I wonder if
6 that's even practical. But I'm not sure that we can
7 gain that much by trying to face that here today. I
8 would like to get a copy of the Corps' paper where you
9 have made that legal determination that an EIS is
10 required.
11 MR. ANDERSON: Okay. I would be glad to talk
12 with you. I guess I agree, we don't want to
13 necessarily debate that today, but just a couple of
14 points.
15 Let me re-emphasize here that we said an EIS
16 would be required for the type of tests that were
17 discussed in the Salmon Summit. Now, certainly, if we
18 were to end up with a design that didn't trigger an
19 EIS, didn't have the potential for significant
20 environmental effects on the human environment, in
21 other words, then we wouldn't have to do that
22 necessarily.
23 The other point to make is maybe some of you
24 aren't aware that there is a bill right now -- I don't
25 think it's been signed into law because the President

1 has been down fishing, but we expect it to be signed
2 very soon as I understand it -- and it's a supplemental
3 appropriations bill for this fiscal year, and there's
4 report language in there that request the federal
5 agencies to report back to Congress on the steps they
6 are taking to deal with both the Endangered Species Act
7 process and management actions for the benefit of fish.
8 In that language, it mentions the -- it states that the
9 agencies should consult with the Council on
10 Environmental Quality, if necessary, to talk about ways
11 of expediting any environmental reviews that might be
12 required.
13 Now, I'm not saying that that's a
14 requirement. If necessary and if we have this, this
15 bill signed into law, certainly the federal agencies
16 will be responding to that. So, there are ways to seek
17 help in the environmental reviews; and we will just
18 have to see where that takes us, Wayne. I don't think
19 that today we can see far enough ahead. And our
20 mission is to develop a test plan and see what that
21 consists of and look at the environmental requirements
22 at that time. But, if we are talking about a test to
23 drawdown below minimum, we will be preparing an EIS;
24 and we will publish a Notice of Intent; and we will go
25 through a public scoping process. And you're right, it

1 will be very difficult to get it done by next spring.
2 But, if we have a cooperative effort here and we have
3 input early on and a lot of understanding about what it
4 means, it could be done. It could be done, and we
5 intend to get it done.
6 Anything else?
7 MR. LOVELIN: Back to the word "consensus,"
8 I'm not sure, maybe you discussed it long enough. I
9 want to expand on it a little bit further. But to the
10 extent we can reach the other objective in coming to a
11 cooperative discussion here with this group,
12 development of the experimental plan, I think that's
13 going to go a long ways, of course, of bringing
14 consensus.
15 I think the other point you said, which I
16 would like to echo, to the extent we can develop an
17 experiment which is biologically credible, does help
18 the fish and does take into account the concerns of the
19 river users, you know, hopefully mitigates the impacts
20 for those folks, that's going to help the process all
21 along from this point on. And I think that's what you
22 are talking about that if an Environmental Impact
23 Statement is necessary, it may not take a year. We can
24 reach some consensus in the early stages of it, you're
25 not going to see people potentially larger groups

1 raising major concerns of possibly legal concerns or
2 something like, you know, legislative purpose for the
3 facilities and that sort of thing. Authorization.
4 So, I would -- maybe the only point I would
5 make is that consensus is in my mind very important
6 through this early stage. So, I hope we can, as a
7 group, work towards -- work towards -- you know, coming
8 to that agreement and also just the significance of the
9 various river users too, the importance of how this
10 test could impact those folks. Like I say, that's why
11 I'm here and others are here too.
12 MR. ANDERSON: Okay. Anyone else? Any
13 comments before we get into it.
14 (No discernible or visible response was
15 made.)
16 MR. ANDERSON: Ted?
17 MR. BJORNN: Well, what your real plan is
18 today -- I got in kind of late -- you're really not
19 going to come up with an experimental design today,
20 presumably. Are we just trying to scope out the size
21 of the channel we're going --
22 MR. ANDERSON: Yes. Let me back up.
23 I mentioned that. Let me try it again.
24 We have three meetings set up in the next
25 couple of weeks. Today and next week we want to focus

1 on the experimental design and the biological aspects
2 and, as Bruce said, recognizing the impacts to others
3 and keeping that in mind. But, today's purpose is to
4 frame up the test. Let's put the objectives out on the
5 table here. We need to set some objectives and
6 hypotheses for that matter that we are testing it and
7 get some of the researchers that are here, and the good
8 minds that can help define what a valid test would be
9 in a framework fashion. Then to refine that by next
10 Friday, such that we -- we have a reasonably defined
11 test plan in mind. Now, I'm not going to insist that
12 we have -- we have the scope of the test down to all
13 the Ts crossed and Is dotted by next Friday. I don't
14 think that's possible. But, certainly such that we can
15 take our test plan to the policymakers on the
16 eighteenth of April. And when I say "policymakers,"
17 it's the level of the coordinating committee of the
18 Salmon Summit and see where we get.
19 MR. McCONNAHA: That's right. I don't see
20 us walking out of here today with a finished project on
21 a test design.
22 MR. ANDERSON: Does anyone have any questions
23 or thoughts about that because, again, we want this to
24 be a cooperative effort?
25 (No discernible response was made.)

1 MR. ANDERSON: You know, we are trying to
2 facilitate this. It's clearly something that's been
3 put on the table, and there's high -- high interest in
4 this test, and I understand Rolly Schmitten talked
5 about it in his news conference. And you all know, as
6 well as I do, that in the political arena it's very
7 important. So, we want to have a cooperative process
8 that we are facilitating and hope we can come closer;
9 but we have to really get at the biological aspects.
10 At least, that's our thinking initially.
11 MR. KINNEAR: Is it the eighteenth we need to
12 have the things in the Federal Register in order to
13 make --
14 MR. ANDERSON: Yeah.
15 And I should have mentioned that, under the
16 NEPA process, the kind of a schedule for this next year
17 is we need to get that Notice of Intent out and
18 published in the Federal Register by the end of the
19 month, such that we can have a draft impact statement
20 late summer or early fall time frame. The final,
21 winter -- late winter probably. The record of decision
22 one March, mid-March time frame, so, we have some time
23 to do some logistics of actually getting the test
24 implemented on the ground. That's the general schedule
25 we are working from. So, that's why we are trying to

1 expedite this.

2 And, of course, there's been a lot of people

3 asking us to get moving on this and publish a Notice of

4 Intent; and we are trying to do that.

5 MR. HAAS: Again, you don't really need to

6 have all the details in that Notice of Intent, do you?

7 MR. ANDERSON: That's right.

8 MR. HAAS: We can just agree on the six

9 elements that you outline in the list; that is, without

10 going into specifics. I'm not sure that you need to

11 have all of the specifics of the design of the test in

12 a Notice of Intent.

13 MR. ANDERSON: I would agree, Wayne. We do

14 want to bring this to the eighteenth at least to that

15 policy level. That's why we have compressed the

16 schedule here. We don't have to have the final test

17 defined in this Notice of Intent. We will be looking

18 at alternatives in the NEPA process. It's one of the

19 requirements under the process. So, it can be

20 continued to be refined over the next several months

21 and over the next year, for that matter, before we

22 implement. But, we have to have enough definition that

23 we have a proposal; and we can articulate that proposal

24 to the public and other interested agencies; and that's

25 our goal. That's our goal.

1 But, I agree with you we don't have to have a
2 final defined design for that Notice of Intent.
3 Anyone else?
4 MR. HAAS: From my understanding, what you
5 would hope through this meeting today and the meeting
6 next week is to get into the various specifics of the
7 design of the test itself; is that your intent to do it
8 through this type of forum? I had in mind that what
9 you were intending was that this forum would agree on,
10 you might say, the framework for the six elements that
11 you identified in your letter. More of a framework
12 type thing. And, then, we would get together with a
13 smaller team of experts, fisheries, et cetera, to have
14 them sit down and hammer out some of the various
15 specific confines of the test parameters.
16 MR. ANDERSON: We certianly want to have the
17 framework today, and we want to have as much of the
18 specifics as we can next week that we can take to the
19 meeting on the eighteenth. Granting, acknowledging --
20 at least I do -- and, Sarah, cut me off here if I'm
21 causing you trouble -- acknowledging that there's going
22 to be continued work by the researchers that are going
23 to do this thing, should we come up with a plan over
24 the next eight, ten, twelve months, for that matter. I
25 don't see that we are going to have it on paper next

1 Friday and ready to go next year. There's going to be
2 a lot of continued work and probably smaller work
3 groups that would be fine.
4 Sarah?
5 MS. WIK: We have to get fairly specific.
6 I'm not sure where you're drawing the line between
7 essentially the framework and the specifics of the
8 test. But, we do need to have a fair amount of
9 specifics to go forward with the NEPA process. And I
10 think we are ahead in the long run and, as Witt says,
11 there's alternatives to look at within that. But, I
12 think, as we start throwing out some of these
13 questions, we can begin to see where some of these fall
14 out under is this a framework question or is this a
15 specific, but....
16 MR. ANDERSON: Well, I certainly would like
17 in the next two meetings to get what we have scoped
18 here, the number of reservoirs, the degree of drawdown,
19 the duration and those kinds of questions. But, to get
20 to that, we felt that we really need to talk about the
21 experimental side here. The objectives and how you
22 achieve those objectives. How you meet your test
23 objectives.
24 Well, if there's anyone else here who has any
25 comments, feel free to join in as we go; but I guess at

1 this point maybe we can get right into that area on the
2 test development; and I'll look to Sarah and Jim here
3 to try to lead that technical discussion and try and
4 make sure we stay on track as to what our purpose today
5 is; and we don't get too far off.
6 MS. WIK: Okay.
7 As Witt has said, we are here to facilitate.
8 Someone asked me before the meeting if we had a
9 specific proposal to lay out. We do not. We want to
10 make this a cooperative and interactive effort, so we
11 are looking to you folks for participation on this.
12 I would like to apologize. I'm on the tail
13 end of a cold. So, if I sound a bit stuffy and do a
14 lot of sniffing, you'll have to forgive me. And,
15 again, some of this is just reiteration from what Witt
16 has said; but we want to develop a means to evaluate
17 the concept of a drawdown in a means that is
18 scientifically sound. We need to look at that.
19 Jim will be helping out here, writing things
20 down that we can look up at on the overhead at a point.
21 As Witt has mentioned, on the agenda under
22 test development, those aren't necessarily in the
23 correct order. Although, we would like to start
24 looking particularly at the objectives; and then, as we
25 go forward from there, we will get into the

1 experimental design and scope and some of the questions
2 that need to be discussed. We want to share the
3 information that we have in hopes that you folks will
4 do the same and look at the things that we need to go
5 forward with from here to gather more information on.
6 So, with those words of introduction, I
7 guess, starting with objectives, what do we want to
8 establish as objectives -- as an objective or
9 objectives for a test of the drawdown concept? What
10 should these be?
11 I guess as a starter, we will just throw out,
12 do we want to measure a change in the migration rate of
13 the juvenile fish that would occur with reservoir
14 drawdown?
15 Mike?
16 MR. SATTERWHITE: I think what we need first
17 is a clear statement of the ultimate goal of the whole
18 concept. And the ultimate goal of the whole concept is
19 to shorten the residency time of those juvenile fish in
20 the Snake River system. And by so doing, enhance and
21 optimize their survival to the ocean to the greatest
22 extent possible. The whole issue is ultimate smolt
23 survival to the ocean
24 MS. WIK: That's true.
25 MR. SATTERWHITE: We need to keep that in

1 mind. We have to improve on our track record if we are
2 going to get the fish back and protect those endangered
3 species.
4 MS. WIK: I think we agree.
5 MR. SATTERWHITE: Yeah.
6 MS. WIK: We are all here because we want to
7 do what's best for the fish, and how to establish that.
8 And, like Mike says is correct, the ultimate goal is
9 increased survival; but, in terms of the reservoir
10 drawdown, establishing objectives for that.
11 Wayne?
12 MR. HAAS: I want to follow-up a little bit
13 on what Mike said, that the ultimate goal of what we
14 are trying to achieve. It would seem to me from a
15 standpoint of the Corps' objective and the test
16 objective would be to determine the relationship
17 between the decreasing reservoir levels on the Lower
18 Snake Reservoir and an increase of survival of the
19 smolt.
20 MS. WIK: Okay.
21 MR. HAAS: Mike says the over -- what we're
22 trying to do is trying to measure that and trying to
23 determine that relationship.
24 MS. WIK: Okay.
25 Any thoughts on that?

1 Chip?

2 MR. McCONNAHA: Sarah, a couple of thoughts.

3 One of the purposes in lowering the reservoir

4 is to increase velocity. That's what we're trying to

5 do. So, we might say we are trying to clarify the

6 relationship between the water velocity and fish

7 survival. And because of how we have to measure these

8 things, I think it would be useful to include their

9 travel time in addition to the velocity as we initially

10 laid out. That, while survival is what we obviously

11 want to measure, you know the difficulty in doing that

12 and tracking that travel time is more likely what we

13 are going to measure.

14 MS. WIK: Correct. So, in essence,

15 clarifying the relationship with the water velocity and

16 a means to look at fish survival, looking at the travel

17 time because of the difficulty of establishing --

18 MR. McCONNAHA: Maybe we should throw out

19 survival as one of the objectives and whether or not we

20 can come up with an experimental design to measure

21 survival. Most likely, that's what we are trying to

22 do. I suggest we have two objectives.

23 MR. HAAS: I don't really think that -- we're

24 talking about the same thing. Velocity has really been

25 used as an index. An index for talking about survival.

1 Biologist say that travel time and velocity is crucial
2 to a fish getting through the reservoir. But, we're --
3 I think the overall relationship would be to measure
4 the relationship of the reservoir drawdown and
5 survival. We are going to use velocity, travel time
6 and different things as parameters of those index
7 measures to try to get at that.
8 MS. WIK: Steve?
9 MR. PETTIT: If the goal is to measure
10 survival, I think we need to get this right up front
11 right off the bat so we don't waste our time. It's
12 going to probably require a test, as I see it, for the
13 entire duration of the fish migration for a number
14 reasons. You're not going to be able to get enough
15 fish marked to evaluate until you do it through the
16 bulk of the run. If you do it too early, you're not
17 going to have enough fish in the system to even come
18 close to making any statistical inference. If you
19 don't do a series of replications, it requires an
20 increased amount of time to lower throughout the
21 migrating season, you're not going to compare anything.
22 If you don't do it through a long enough time during
23 the test period, you won't have anything with any
24 previous work that's been done with travel time in
25 which to compare.

1 So, I think we need to let the people here
2 know right off the bat that if you're going to test
3 survival with said drawdown test, you're talking about
4 an eight- to ten-week test.
5 MS. WIK: And I guess we need to get back to
6 the issue of whether or not we can or want to attempt
7 to measure survival, or do we want to use that as an
8 index of travel time?
9 Go ahead, Jim.
10 MR. ATHEANR: Sarah and I ask, as I'm putting
11 this information down on plastic, it would help me if
12 we can kind of rehash -- and I tried to capture briefly
13 what the goal statement was and then if we can get that
14 pinned down. So, if you don't mind, let me flash that
15 up and let people --
16 MS. WIK: Okay.
17 MR. ATHEARN: -- add to it or change it,
18 however you like.
19 MR. SATTERWHITE: Mike Satterwhite. (Speaker
20 inaudible.)
21 THE REPORTER: Excuse me, I need you to speak
22 up.
23 MR. SATTERWHITE: I'm sorry.
24 My name is Mike Satterwhite. Let me clarify
25 what I was trying to say. I would like to clarify what

1 I said earlier about the overall objectives of this
2 kind of an experiment.
3 The overall objective is in the context of
4 getting more fish to the ocean alive. I did not mean
5 to imply that the objective of our experiment today or
6 this year is to measure in an absolute sense survival.
7 But, we just need to know where we are going with the
8 progrss. And that is the ultimate goal.
9 There are two aspects, the engineering
10 aspects of the problem and the biological aspects of
11 the problem. And survival is one aspect of the
12 biological problem.
13 MR. BOWLER: Whatever test we do, I think we
14 have to be sure we get as reasonable data as we can so
15 we don't end up with inconclusive results; or to the
16 best of our ability, that we don't do something that's
17 going to be somewhat inconclusive.
18 MS. WIK: Right.
19 MR. BOWLER: We'll have to look at it and
20 hope that in the long run we accomplish something that
21 is somewhat conclusive to the best of our technical
22 ability. So, whether it's the duration, the size of
23 the drawdown or whatever, we have to be careful how we
24 couch it so we get reasonable results.
25 MS. WIK: I think that's back to the position

1 of whether or not we want to establish as an objective
2 of the test and not look -- keeping in mind what you're
3 saying, Mike, about the long term, but whether or not
4 we want to establish as an objective or one of the
5 tests to look at survival, or do we want to look at
6 that in terms of travel time and an index of increased
7 survival.
8 Chip?
9 MR. McCONNAHA: Sarah, do we want to maybe
10 just list the things that -- like, we are going to
11 determine and design what we call a hypothesis of what
12 we want to test, and then leave it to some technical
13 groups to see whether we can or cannot do it? I mean,
14 obviously, survival is what we would all like to be
15 able to measure because that's the bottom line. But,
16 we're not going to decide today here and start going
17 through all that again on whether you can or cannot
18 accomplish survival. Maybe that ought to be left to
19 someone else. Just put down the objective of why we
20 want to do the test in the first place. Why would
21 anyone be interested in lowering the reservoir and see
22 the kind of response we get and then see if we can go
23 back and come up with an experimental design and decide
24 as many of them as possible because we probably won't
25 be able to test every one of them.

1 MS. WIK: And that's what we have talked
2 about before, that we need to define the issues before
3 we can go forward from here to work between now and
4 next week.
5 MR. McCONNAHA: We are going to have to
6 decide today whether we chose survival or --
7 MS. WIK: Okay. Can we agree to put down
8 both the objectives of potentially looking at travel
9 time and survival, and then leaving that as an issue
10 that needs to be further resolved?
11 MR. BOWLER: The question before the Corps
12 within the Salmon Summit and all the modeling that was
13 done with particle travel time and drawdown, et cetera,
14 are those theoretical models that need to be tested in
15 terms of we know with a drawdown we are going to get an
16 increased particle travel time based on some computer
17 model; but you're actually going to have to test
18 whether fish move through that under those types of
19 scenarios to make it legitimate? Is that something
20 that --
21 MR. ANDERSON: We didn't do any sophisticated
22 modeling for the Salmon Summit, but those simple
23 calculations on average water particle travel time.
24 But we emphasize what we said that, number one, this is
25 average water particle time through the cross section,

1 not indicative of where the fish may or may not be
2 moving in the water. And not indicative of the water
3 particle travel time in relationship to the smolt
4 travel time. Nor the next one of travel time of
5 survival, the smolt fish travel time of survival. So,
6 I guess, all we said is, if you lower the pools, you're
7 going to get on the average basis across the cross
8 section increased velocities. We know that, but --
9 MR. BOWLER: The response of the fish to that
10 is an unknown?
11 MS. WIK: Unknown.
12 MR. ANDERSON: Is an unknown.
13 MR. BOWLER: There isn't any previous data to
14 cross check, correlate or lend any credence to that at
15 this point. That needs to be evaluated.
16 MR. KINNEAR: (Speaker inaudible.)
17 THE REPORTER: Excuse me, I can't hear you.
18 MR. KINNEAR: I believe the Fish Passage
19 Center does have data that indicates there is a
20 relationship between an increase in velocity and a
21 decrease in travel time and those correlations are --
22 MR. BOWLER: Right. In the sense of the
23 measured flows that we have. But, the theoretical
24 model and relating it back to the reservoir is simply
25 an unknown. I think there's indications that is there,

1 but --

2 MR. KINNEAR: You're asking for a validation

3 of the --

4 MR. BOWLER: Right. As a means of testing

5 the drafting principle of the test, whether that

6 actually holds up with the existing data that we have.

7 Is this something we need to evaluate based on the

8 test? I'm just throwing that out.

9 MR. ANDERSON: The physical relationship --

10 MR. BOWLER: Right. The physical model, is

11 that a reasonable thing?

12 MR. McCONNAHA: That was one of the

13 objectives that we originally had when we talked about

14 this a couple of months ago. That was one of them.

15 Because the water travel time calculations we used, as

16 Witt says, they are real simple. I mean, it's the same

17 knowledge of a bathtub. You pull the plug, how long

18 does it take a bathtub to drain out. Of course, the

19 reservoirs aren't -- one of the things I would hope to

20 get is, I think, a validation of if we predict that

21 water travel time by, say, Lower Granite Reservoir, is

22 so many days, we ought to be able to confirm that; and

23 test theoretical water particle travel time on it. As

24 well as on the second one, the fish travel time. And

25 thirdly, maybe the survival.

1 MR. ATHEARN: Chip, I wish -- maybe I'll do
2 this thing. I have tried to jot down --
3 MR. ANDERSON: Can everybody read that, or do
4 we need to write smaller?
5 MR. ATHEARN: Hopefully, just to capture what
6 you're talking about, which is a change of water
7 velocity or particle time, however you want to define
8 it, as an objective with some relationship to migration
9 travel time; and then some relationship of survival to
10 a presumed decreased travel time. Does that more or
11 less capture what you're saying?
12 MR. SATTERWHITE: I agree with the comments
13 that were made earlier about the relationship. It's
14 going to be difficult to come up with meaningful
15 conclusions about survival unless we do long range,
16 long term types of experiments. There are, however,
17 things that are correlated to the survival which are
18 fairly -- which can be done in a shorter time frame.
19 We talked about -- we have talked in the past
20 briefly about spillway survival or mortality rates
21 probably can be measured in a relatively short time.
22 We may have -- many of those experiments have already
23 been done in other areas. If you could draw a pool to
24 what has been called the run of the river condition,
25 you might be able to measure turbine mortality

1 have, obviously, the extreme and wherever you start
2 from. But one advantage of that is obviously if that's
3 the only thing we are interested in, then we can do
4 that anytime. We could -- we could draw it down in the
5 middle of winter and get the same information. So,
6 yeah, to answer your question, yes, you would have a
7 range of level of velocities that you could look at.
8 MR. ANDERSON: But, Chip, so you have an
9 infinite number of cross sections, however many cross
10 sections, and you have got your profiles, what does
11 that tell you about the travel through the entire
12 reservoir? I mean, you have effective flow areas and
13 noneffective flow areas at different cross sections.
14 Depending on the cross section as you drawdown, sure
15 you're going to change your velocities throughout the
16 water column; but still it seems to me you have got to
17 get that mean overall velocity through the reservoir.
18 MR. McCONNAHA: Yeah.
19 MR. ANDERSON: We have data on the Lower
20 Granite. And the state of Idaho says, Look we have got
21 velocities. We have some cross sections based on our
22 studies we did on the sedimentation problem we did up
23 here on Lower Granite. That's fine, but what does that
24 tell you about the overall movement through the
25 reservoir?

1 the time, and if we can come up with a -- if the real
2 simple model works, that's wonderful. But, I guess my
3 thoughts on that is, if we're going to talk about
4 modifying velocity, we ought to confirm that hypothesis
5 that the simple model is fully adequate and test it. I
6 guess I'm uncomfortable; and, from talking to
7 hydrologists, they only seem to increase my discomfort
8 in saying that using a simple evacuation is adequate
9 talking about velocity in the reservoir.
10 MR. BJORNN: I don't have any problem with --
11 (Speaker indaudible.)
12 THE REPORTER: Excuse me, I couldn't hear
13 you.
14 MR. BJORNN: I don't have any problem with
15 that. All I'm saying is I don't think you're going to
16 find mean travel time --
17 MR. McCONNAHA: That's what I would like to
18 see, but it seems like we have to confirm that before
19 we can really go with that kind of a model.
20 MR. BENNETT: So, to clarify what you're
21 saying, to get the necessary information, aren't you
22 going to need incremental drawdowns to get those water
23 velocity profiles?
24 MR. McCONNAHA: Well, you certainly have to
25 have a couple of points it seems like. But you would

1 certainly as related to the general issue of survival.
2 It's not going to be a simple function only of travel
3 time. There are going to be passageways that these
4 fish have to traverse. There are parameters that have
5 to be measured, and I think can be measured and
6 assessed.
7 As I understand it, Fish Passage Center has a
8 policy of providing spill or no transportation at flows
9 over a hundred thousand cfs in other systems; is that
10 correct?
11 MR. ATHEARN: Not exactly, no.
12 MR. SATTERWHITE: But, Steve Pettit here is
13 on the fish transportation committee.
14 Steve, do you want to explain the spill
15 bounds?
16 MR. PETTIT: For projects that don't have
17 bypass systems, it's recognized generally that spill is
18 a better option of improving survival than going
19 through the powerhouse. So, to make a long story
20 short, until the unprotected projects have completed
21 and successfully operated bypass systems, there are --
22 there is a plan called a spill plan that directs the
23 Corps to spill a certain percentage at a certain time
24 of day water at Ice Harbor and Lower Monumental, if
25 that's what you're referring to. You know, that will

1 stay in place until those projects have bypass systems.
2 MR. SATTERWHITE: Anyway, in relationship --
3 if I could finish. The reason for that is there is
4 concern about sending fish over spillways related to
5 nitrogen supersaturation. There is a variety of those
6 factors. Those are survival issues that can be
7 addressed in short time with a some degree of
8 reliability and have been, in fact, done so in the
9 past.
10 So, it's in that context that I think
11 survival has been assessed. I would agree with Bert
12 and Steve that we do need long-term information if
13 we're going to get a real good idea of the overall net
14 of the drawdown.
15 MR. ATHEARN: I thought I heard part of your
16 question having to do, though, with the spill versus
17 transport issue; and that was what I was pointing to
18 you.
19 MR. SATTERWHITE: No. I wasn't going into
20 the question of spill versus transport. I was just
21 trying to put in my comments about measuring spill and
22 what it means in that context.
23 MR. ATHEARN: Okay.
24 MR. SATTERWHITE: If we measure spill, we
25 measure more than one thing. The reason for a spill or

1 spillways may or may not be good for the fish. Those
2 are the kinds of things we can measure, and those are
3 the survival issues.
4 MR. HAAS: In fact, I think -- I suggest we
5 need to separate out the two different things. One, we
6 have the operation that we want to have occur in 1992
7 or trying to today achieve improvemed survival of the
8 fish in 1992. That operation or scheme. I think the
9 test is part of that which goes beyond that. The test
10 for 1992, I would envision, is an attempt to collect
11 that type of data that you can so that you can better
12 determine relationships between different reservoir
13 levels, different operation schemes, to help you design
14 a long-term program.
15 For example, the test could well include
16 monitoring, gathering data, outside of the period when
17 you have smolts migrating downstream because the test
18 period, if you can collect some critical data designed
19 either on velocities, either in the reservoir around
20 operating -- fish operating facilities or water quality
21 data, that would help you in the long term design
22 basis. You should collect it during those periods when
23 it's available. So, your test itself doesn't
24 necessarily have to be limited to some eight- to
25 ten-week period. The test could well fall outside of

1 that, the testing program.

2 MR. ANDERSON: I don't disagree that you can

3 do some things and get some physical information. But,

4 I guess what we are really probing around is the issue

5 of smolt traveling time and its relationship to water

6 particle travel time and then survival. I guess, I

7 would pose a question of gathering physical

8 information, while it may be useful, is that really

9 going to help us answer the question about the bigger

10 question, do the projects need to have major

11 modification. Do we need to overhaul the way we

12 operate the whole system.

13 MR. BOWLER: But, how important is that

14 physical criteria going to be? If you're going to

15 assess environmental impact, you're going to have to

16 know what happens to the Lewiston levees when they go

17 below -- those types of things you are going to have to

18 answer, aren't you, to satisfy --

19 MR. ANDERSON: Well, certainly, if we

20 implement a test, those kinds of things would be

21 monitired; and we would have to address those in the

22 impact statements on the test itself. We -- it might

23 be suggested -- we might be doing a bigger impact

24 statement on the long-term change if for some reason

25 that's why we decided to go that way based on these

1 test.

2 But, I don't -- I guess I don't see the

3 purpose of the test is to see if the Lewiston levees

4 are going to fail. The objective -- the thing we have

5 got to get at is the benefits of operating that way.

6 And I agree, physical information on velocities and so

7 on is good; but I guess I'm looking for some of the

8 fishery scientists and experts to hear on this issue of

9 smolt travel time's relationship to particle travel

10 time.

11 MR. BOWLER: But, some of those physical

12 attributes possibly could preclude testing some of the

13 biological needs if, in fact, there was concern.

14 MR. ANDERSON: And, as I said earlier, I

15 guess our intent is to develop the experimental design;

16 and, then, we have to do a reality check. I mean,

17 we're not going to be able to do something in '92 that

18 extreme that's going -- the test is going to require

19 removing Lower Granite Dam. That's not within the

20 realm of possibility, and we shouldn't delude ourselves

21 into that.

22 MS. WIK: I guess, Witt, I mean, do we agree

23 that these are objectives that we want to look at; or

24 do we want to focus in, for example, number two is the

25 primary objective for a test plan; and, then, go

1 forward, as Witt is saying, and looking at what we
2 would have to do to develop a test plan to answer that,
3 you know. And, then, what are the issues that surround
4 that as a realty check.
5 MR. HAAS: I have I problem with number two
6 being related to whether or not I have --
7 THE REPORTER: Excuse me, I can't understand.
8 MR. HAAS: I have a problem in number two
9 where you have related discussion of water travel time.
10 Is that in any way similar to particle -- water
11 particle time? That's such a gross approximation that
12 I think it's misleading. Why don't you say relevant to
13 velocity or something like that?
14 MR. ATHEARN: Yeah. We can -- this is a
15 starting point.
16 MS. WIK: Yeah. These aren't set.
17 MR. ATHEARN: Feel free to comment. And
18 maybe I would suggest that we start with the first one
19 and define what we mean by a change of water velocity
20 or particle, or however we want to do that. But we --
21 what we're talking about or at least hearing in the
22 group discussion is some means of verifying what people
23 have estimated particle travel time would be through
24 this test and actually lowering the water. Now,
25 whether we actually go out and take transects across

1 the reservoir at various locations up and down or not,
2 come up with some -- some targets for products out of
3 that and then go from there.
4 MR. BJORNN: I guess my -- I guess -- Ted
5 Bjornn.
6 I guess my feelings on the estimates of water
7 velocity, I would be surprised if we found that the
8 mean velocities are really very different from what's
9 already been forecast. I don't know whether that's
10 worth spending a great deal of time on. I think the
11 question -- there are a couple of questions in my mind
12 that need to be resolved. One is, do fish migrate
13 directly in response to water or velocities in the
14 reservoir. And secondly, what kind of flows or lowered
15 elevations or combination of those two do we need
16 through those reservoirs to get the fish down to --
17 down through the first dam.
18 That leads us to a second question, which is,
19 once we get the fish to a point where we can collect
20 them, do we collect them and transport them, or what do
21 we do? And it seems to me like the first question that
22 we really need to concentrate on is, do we have enough
23 data now -- maybe there is already -- that defines that
24 fish migration velocity through the reservoir
25 relationship. If that's not good enough, we need to

define that. We need to design the parameters to do that. I think that can be done.

The second part is, I think, from what I've heard, there is still a lot of numbers being banged around about how much water we need through the reservoir for acceptable capacity. I think we need to design experiments to better define that. That leaves another more difficult question. Once we get fish down through the dam, where we can collect them. What do we do with them. Do we pass them on down. Do we collect them and transport them or what.

MS. WIK: We need to focus back on the objectives for a test for 1992. And what I'm hearing Ted saying is that, do we need to consider something other than a test of a drawdown concept for 1992. Is there information that we need prior to that. Do we have all the information we need.

MR. PETTIT: I think we have the basic relationships between the fish behavior and cue.

MS. WIK: Okay.

MR. PETTIT: And the Fish Passage Center has data for a number of years on that. It's not as good as we like it, but it probably could do the job. We can definitely get a relationship between the fish movement and, say, travel time and flow.

1 MR. BOWLER: I think the question is, is that
2 to simulate a cue, can we get that with drawdown. We
3 have got that; and we have to know now, can we get the
4 hundred and forty or the hundred and twenty equivalent
5 "X" drawdown on, do we get the same response with fish
6 movement.
7 MR. PETTIT: I don't know. We don't come
8 close to a goal in fishery agencies and tribes in our
9 expressed flow proposal with a draft of seven
10 twenty-one. We have done some preliminary modeling,
11 which we presented in our February 22 meeting, which
12 has already been referred to by Chip, which shows a
13 range of flows that we could expect at that time of
14 year considering the test in April, early April, would
15 probably result in point six to point nine a day --
16 MR. ANDERSON: Okay.
17 MR. PETTIT: -- hours of improvement.
18 MS. WIK: Correct me if wrong, but I'm
19 hearing focus again on the objective of looking at what
20 that relationship is between lowering the reservoir to
21 get increased velocity and a decrease in travel time,
22 decrease in residents down through the reservoir.
23 MR. ANDERSON: Well, I guess I would like to
24 see some more debate on the first question that Ted
25 posed as the relationship; and that Steve mentioned.

1 Is there -- is there agreement that we have the data.
2 Is the Fish Passage Center data good enough. Do we
3 need to do some more experimental work there.
4 MR. HAAS: What relationship? I'm not sure
5 of the question.
6 MR. ANDERSON: The fish movement response to
7 flow, to cue.
8 MR. PETTIT: I don't know what you could do
9 different than what we are doing now. We are marking
10 fish and recovering them sequentially down the river
11 system and comparing that the best we can to -- maybe
12 Chip is a better expert than I am in these areas.
13 Is there something that we could be doing
14 different?
15 MR. McCONNAHA: Well, I don't know that
16 that's the basic kind of an experiment to be doing
17 here. If you were going to look at this, you would be
18 marking fish and collecting them at some point and
19 hopefully comparing that travel time to some nontested
20 fish. But that could be a real problem there.
21 MR. PETTIT: Well --
22 MR. McCONNAHA: Well, I guess I wouldn't want
23 to leave the impression that we -- that I agree with
24 you, Steve, that the information indicates the general
25 kind of relationship, but I'm not sure that we know all

1 we need to know about the fish travel time and survival
2 and its relationship to velocity.
3 MR. PETTIT: Well, I wasn't trying to make
4 that impression either. I'm not sure what you could do
5 differently just by changing the cross-sectional area
6 of the reservoir and testing it through means that's
7 already --
8 MR. KINNEAR: The purpose, then, would be to
9 validate on something that's already been made based on
10 that data.
11 MR. PETTIT: And, in order to do that, you
12 have to do it in a time frame that you can mark enough
13 fish at the head of the reservoir, which means you
14 can't do it in late March and you can't do it in early
15 April. I mean, we're getting five fish a day at Lower
16 Granite right now. So, in order to do an adequate job,
17 you're going to have to do that when enough fish can be
18 encountered at the head of the reservoir to monitor
19 them to get statistical influence some time later.
20 MR. CRASE: Couldn't you mark and tag
21 hatchery fish and put them in rather than during a high
22 migration period, but you could set loose a group
23 that's been tagged and put them into the head of the
24 reservoir. We have got a counter down at the dam. You
25 are talking the amount of time through the reservoir,

1 which is seven days or five days.

2 MR. PETTIT: You could mark fish at the

3 hatchery, but you can't get them to Lower Granite Dam

4 any faster than they may want to go.

5 MR. CRASE: But you're doing it through the

6 high travel time, you know, probably May. But, you

7 could mark the fish and dump them in and seven days

8 later, you should have a pretty good idea how fast they

9 move through the reservoir.

10 MR. PETTIT: I'm not disputing that fact.

11 I'm just saying that, in order to do that, you have to

12 do it when those fish are doing that; and that's late

13 April, early May. And you can't collect them at Lower

14 Granite if you're doing this test at seven twenty-one

15 because the fish collection facility is twelve feet out

16 of the water, you know, at that point.

17 MR. BJORNN: I think there's a couple of

18 other things we need to be talking about. What if next

19 year we get an above-average water year, do we do a

20 drawdown just to test the drawdown or do we not. Let's

21 say we have an average water year and the period of

22 time where we are short is where we are usually short,

23 the last part of April and the first part of May; and,

24 then, we have plenty of water. Do we just drawdown

25 during that month or do we -- you know, do we gauge the

1 drawdown -- basically, what we want to do is we want to
2 provide enough velocity through the reservoir so that
3 the fish can get down. To me, then, it seems like what
4 we really need is a sliding type operation where,
5 depending on what inflow you have got, that if you're
6 going to have drawdown, you gauge the drawdown to
7 compliment that. And you create the conditions that
8 are --
9 MR. PETTIT: With some goal in mind?
10 MR. BJORNN: Yeah. You have got a target.
11 You know what kind of velocity you are shooting for.
12 So, with the combination of inflow, you multiply the
13 drawdown to provide that velocity. And, in some years,
14 maybe you've only got a one-week period when you've got
15 a drawdown. In other years, when you've got dry years,
16 you may have a ten-week period. But, there may be some
17 times where you go way down. If you're really going to
18 shoot for the kind of drawdown that you need, you're
19 going to have to go clear to the spillway crest.
20 MR. BOWLER: The whole essence is to test
21 that cue equivalency. And anything that we draft up in
22 terms of an EIS, I think we would have to put a caveat
23 in there that if we have an above-average water year,
24 we obviously may not want to get into that. But the
25 whole design here is to test discharge equivalency. We

1 don't have eighty-five, ninety-five, a hundred and ten
2 or a hundred and forty to work with; but we possibly
3 have the ability to draft the reservoirs to come up
4 with those equivalencies through drawdown. And that's
5 the essence of it. And the fish response -- is the
6 fish response the same in that equivalency category as
7 it is with the actual discharge when we don't have one
8 hundred plus. If we're only dealing with sixty or
9 forty, but you're at a seventy or a thirty foot or
10 forty foot drawdown, are we getting the same
11 eqivalency?
12 The whole issue revolves around discharge
13 equivalency. I think we have pretty well established
14 or reasonably well established the relationships
15 between particle travel time, flow, et cetera, all have
16 merit; and that's what all this was based on, was
17 getting equivalency when we don't have the cue to work
18 with a discharge flow.
19 MR. KINNEAR: Just as a question, suppose
20 that we initiate the test during a period when we have
21 a great deal of fish migrating and that test period
22 runs for a shorter portion -- some portion of the fish
23 migration period, what happens to those fish that are
24 no longer part of the test. That is, when you start to
25 fill the reservoir, what becomes of the fish that would

1 have been migrating because you had increased flows
2 because you have drawndown and now you stop flows, how
3 do we deal with that portion of the migration that are
4 now in the reservoirs and filling, then, during what's
5 normally their key migration point.
6 MR. BOWLER: We have to deal with that.
7 MR. KINNEAR: Do you have a suggestion?
8 MR. SATTERWHITE: I have a suggestion on
9 exactly that issue. There are several points of
10 discussion. There is a group that thought that it
11 would be a great idea to test drawdown concepts when
12 fish were present. There's another group that thinks
13 that that's potentially dangerous to put yourself in,
14 especially with the petitioned stocks we're dealing
15 with. Perhaps one of the questions we are grappling
16 with right now is what we project our test results to
17 be.
18 Ted was just describing the essence of the
19 Idaho plan, the Idaho drawdown plan, which is
20 essentially a flexible window of drawdown to match flow
21 to achieve an ultimate velocity objective at the lower
22 end. And I think we need to first, though, before we
23 go beyond what Ted described, is to decide when we want
24 to do this. Whether it should be during normal
25 maintenance period or perhaps some other windows or

1 when fish are actually present in the normal migrating
2 pattern. We can certainly provide fish, but there's a
3 biological window we have to provide those fish in if
4 we're going to learn anything about the migratory
5 behavior. So, maybe we should address that issue
6 first.
7 MS. WIK: Well, doesn't that get back to what
8 we want to make the objectives of the test to be. If
9 we want to determine if the reservoir drawdown is a
10 benefit to fish, or are we looking at another
11 objective?
12 MR. SATTERWHITE: Well, again, there are two
13 issues. The engineering issues and the biological
14 issues.
15 MR. ANDERSON: Mike, I don't want to sound
16 negative, but there's always engineering issues if
17 you're going to change some operation. But do you not
18 need to seek first your rationale for changing the
19 operation, do you not have to support that. I mean,
20 assuming there's a group of people that believe that
21 drawing down the reservoir is the answer. But, what we
22 are struggling with here is, is it the answer. How do
23 we support that?
24 MR. SATTERWHITE: We can support it because
25 the situation we have in place right now is not

1 working. It is killing fish. We have declining
2 population of our natural salmon. Steelhead that are
3 barely hanging on, and that says there's something
4 basically wrong with the way the system is being
5 operated. Therein is the justification for looking at
6 a change in operation.
7 MR. ANDERSON: Well, we're not going to
8 debate the policy here today. We are going to have to
9 come up with an experimental design.
10 MR. BJORNN: Let me respond to this question.
11 If we were going to look at physical aspects and not
12 have the fish involved, then we can do it at any time.
13 Basically, we can do it in the late fall or early
14 spring. If we want the fish involved, we are talking
15 about mid-April -- the downstream migrants involved,
16 we're talking about mid-April to mid-June and maybe a
17 little later. And that's the window.
18 The other thing I would like to point out is
19 the type of test you conduct is really dependent on the
20 kind of time frame you are going to look at. Steve
21 alluded to it when he mentioned that full season test
22 to look at, you know, full effects of the drawdown. In
23 order to do that, you are really talking about a
24 multi-year experiment. You're not going to get an
25 answer. All you're going to get is one point on a

1 graph, and that's not enough data.

2 So, you are talking about a multi-year

3 experimentation. If we limit our scope to the

4 relationship between flow and fish migration, for

5 example, we can do that in a season. And that's the

6 task. We may do it -- we may find that you really want

7 to do it without -- with very little drawdown because

8 what you really want is to get a full range of flow in

9 the time of the situation we have during April, May and

10 June which is a wide variablility in flows. If you put

11 marked groups throughout that time period, then you can

12 test the wider range of flows with the migration level.

13 If you link the flows that occur with a drawdown, all

14 you're going to get is a constant velocity through the

15 reservoir. So, you're not going to define that

16 relationship. You need the variety of flows to deal

17 with, to look at, to be able to define that

18 relationship.

19 MR. HAAS: One of the fishery people can help

20 define the relationship between the velocity and the

21 fish passage. Only a certain range is going to occur

22 during the ten-week period.

23 MR. BJORNN: That's right.

24 MR. HAAS: Physically, there's no reason why

25 you couldn't extend your test beyond that period of

1 time and get some of the velocity points on the chart.
2 MR. BJORNN: You could.
3 MR. HAAS: Realizing, then, that the fishery
4 people are going to have to go back and with the
5 information they have or what they run through this
6 other test, extend that relationship to these other
7 points.
8 MR. BJORNN: Now, let me --
9 MR. HAAS: There's no reason to leave
10 yourself such a short window to not get some of the
11 other physical data.
12 MR. BJORNN: I agree that's probably true.
13 The normal flow range that we have to look at during
14 the spring runoff is -- what are we, thirty thousand
15 right now?
16 MS. WIK: Approximately.
17 MR. BJORNN: So, we are at a low range when
18 fish are starting to migrate. So, by the first part of
19 June, why, in a normal year, we could be up over a
20 hundred and twenty or a hundred and thirty thousand.
21 So, that's the kind of range you can normally look at.
22 If you don't get that range, if we have a low runoff
23 year, then that would argue let's add drawdown to that
24 to create the higher velocity that we're not going to
25 get because there's just isn't enough water.

1 MR. HAAS: Well, we know that we can't in
2 normal years and certainly in anything below normal
3 years, there's no way that there is going to -- no way
4 to provide the flows that year of a hundred and forty
5 thousand or a hundred thousand, and we know that. We'd
6 have to build twice as much storage as we now have in
7 the Upper Snake to even come close.
8 MR. BJORNN: It's true, but not for an
9 extended period of time. But, depending on the test,
10 you're going to run you may have enough.
11 MR. HAAS: But, we also want to look at the
12 relationship between velocity and reservoir drawdown.
13 Because in looking at what information we now have, it
14 certainly appears that it is a hell of lot cheaper to
15 obtain velocity through some drawdown possibilities
16 than simply drain all the storage.
17 MR. BJORNN: I guess I have a quick -- don't
18 you think you can model without testing, if all you're
19 interested in is reservoir velocity?
20 MR. HAAS: Not with the data that's available
21 so far. Not with the water particle time. As I
22 understand from the fishery people I have talked to,
23 they would -- they have really -- all the water
24 particle travel time is telling you is that they have
25 -- it's like you have got an example that the person

1 uses, how long does it take to drain a bathtub. It
2 tells you nothing about the velocity of cross sections
3 across the reservoir, with depth, with the length in
4 the reach or anything. Nothing about velocity at any
5 of your facilities, which the fisheries people say is
6 key to when you try to draw something down or try to
7 design a new facility. They need to know velocity.
8 Water particle travel time is almost meaningless in any
9 event.
10 So, I think you need to do some real testing
11 to establish a profile, velocity profile across the
12 reservoir at different points on meaningful conditions
13 because I don't think water particle travel time is
14 going to be of any use whatsoever at any rate.
15 MR. BJORNN: I guess I disagree with that. I
16 think water particle travel time is meaningful in the
17 velocity.
18 MR. BOWLER: Chip, do you have some feel for
19 that?
20 MR. McCONNAHA: I'm not a hydrologist. Maybe
21 Witt or somebody on the Corps is and could help a lot
22 more than I could.
23 I think it would be just dandy and great if
24 the simple model we have is fully adequate to predict
25 velocity in the reservoir because we have to do it all

1 MR. McCONNAHA: Well, do you mean water
2 movement or fish movement?
3 MR. ANDERSON: Well, ultimately fish
4 movement.
5 MR. McCONNAHA: Well, if only water movement
6 -- and I'm not a hydrologist -- and if the hydrologists
7 are convinced that a simple evacuation model is fully
8 adequate for th velocity through the Granite reservoir,
9 then I'm happy. That does not tell you -- that does
10 not, then, answer the question about the fish.
11 MR. BJORNN: The problem with doing that test
12 at the time other than the spring runoff is that you
13 have got pretty restricted range of flows you're going
14 to test for. You're only going to validate what's
15 going to happen in a fairly narrow range of flows.
16 Maybe that's enough that that tells you the model is
17 working.
18 MR. PETTIT: You could augment natural basin
19 flows with some storage for the test.
20 MS. WIK: But could you bring it up to what
21 you want to compare with at the upper flows?
22 MR. PETTIT: It always depends on what you
23 want to trade. And I don't think we are are at the
24 point in time where we want to trade the water budget
25 for the flows for a test.

1 MS. WIK: Yes.

2 MR. PETTIT: But, there is some option there

3 that you could add augmentation to base flows to

4 approach some equivalency that you wanted to look at

5 for a short duration of time.

6 MR. ANDERSON: Okay. We want to take a short

7 break. Gloria needs a break. Why don't we take -- how

8 long?

9 THE REPORTER: About Five minutes.

10 MR. ANDERSON: Five minutes.

11 (Whereupon, the meeting was in recess at

12 11:12 a.m. and subsequently reconvened at 11:26 a.m.,

13 and the following proceedings were had and entered of

14 record:)

15 MR. ANDERSON: First of all, all of you that

16 have business cards, would you please leave it with

17 Gloria so we can spell your name right?

18 Does anyone have any specific lunch plans

19 that we need to think about? Go on for another half

20 hour or 45 minutes and take a short lunch break and

21 come back in the afternoon. Just plan to go on until

22 12:00 or 12:30.

23 Well, I guess we will wrap it up by noon. I

24 guess I would like to still see us identify the

25 objectives that we have here. One of the things I

1 would like to emphasize, I guess, in response to some
2 something you said, Mike, that certainly we need to be
3 doing things to improve survival. Just like in '91
4 there's going to be a package of measures; we will be
5 operating at near minimum pool. But the discussion is
6 really on the test. We want to gain some information
7 to help us make the long-term big decisions about where
8 the region needs to head with the operation of the
9 system. Let's keep that in mind.
10 We are a little bit hung up on the
11 objectives. Questions. It's been suggested --
12 suggested that maybe we ought to perhaps just move on
13 for a moment here and start talking about an actual
14 experiment, and Ted has been suggesting some thoughts
15 there. I don't know.
16 Sarah?
17 MS. WIK: I would like to get back to the
18 idea of what Bert was talking about in terms of
19 equivalences. It seems to me that one of the major
20 objectives has to be whether or not we can essentially
21 simulate what's happening at the higher flows by
22 reducing the reservoir. And, if we tackle that by
23 looking at measuring velocities through the reservoir,
24 as well as trying to determine how we would determine
25 the benefits to the fish at the same time, you know,

1 I'm with that. I think I would like to see us
2 establish that objective; and, then, we can go forward
3 and determine -- or begin to discuss the experimental
4 design for that.
5 MR. ANDERSON: Or maybe another way, back to
6 something Steve said, if we just for the moment assume
7 that we are going to do a test when there's fish in the
8 river, we are going to mark the fish, let's talk about
9 how you're going to acquire the data when the fish
10 facilities would not be in operation. And I think it's
11 clear that we're not going to be able to make the kind
12 of modifications to those facilities by 1992 to be
13 collecting fish at least through our contemporary
14 system. Is there an experimental design potential out
15 there that we can gain something with just marked fish
16 in the river?
17 MR. PETTIT: We have given this a lot of
18 thought. This isn't the first time we have been been
19 visiting. Even though it is not as clean as you would
20 want it, you could compare a draft of the Lower Granite
21 and not do anything with the Little Goose pool and rely
22 on the comparison of PIT tag recoveries at the
23 irrigation facilities for PIT tags at Little Goose.
24 There are three years of data behind us, although the
25 number of points are not that great. It's 400 one year

1 and 500 the next and 1,400 the year when the bypass
2 facility wasn't functioning correctly at Lower Granite.
3 The bypass gate wasn't all the way closed, so for that
4 reason, there's a lot more recoveries in that
5 individual year fourteen hundred. That's not very many
6 fish to make a comparison with. And, so, all you would
7 be looking at is what benefit did those fish enjoy by
8 having lowered it to seven twenty-one compared to the
9 previous years. But, if you only did it for two weeks,
10 if you only did it during the lock outage, you would
11 have no test because there's no fish then. So, you
12 would have to get them beyond that point.
13 MR. ANDERSON: The lock outage period, I
14 think that's something we can discuss with those user
15 groups about when we would schedule that. I guess, how
16 do you isolate the flow situation so you have a valid
17 comparison between previous years?
18 MR. PETTIT: Well, you just have to treat
19 what you have got. Compare it to a velocity,
20 equivalent velocity in the nontest years. You would
21 have to fall back on -- based on bio relationships.
22 MR. ANDERSON: Simple, it's not.
23 MR. McCONNAHA: I agree with Steve. One
24 thing Steve said early on, if you're going to do this,
25 you're going to have to do it long enough and hard

1 enough that you're going to see a response. I think if
2 we -- it would probably be a waste of time to try to do
3 some jerry rigged experiments where we are going to try
4 to tiptoe into this and not lower the pool very far or
5 very long and what the picture is there. So, it's
6 going to take -- like Steve said, you're going to have
7 to be in the season when the fish is there. You're
8 probably going to have to lower it far enough to see a
9 measurable response. If you go through down three feet
10 or something and you're looking at the difference in
11 hours and we are trying to get -- between years trying
12 to distinguish -- hoping we can distinguish between
13 days and several days worth of travel time. So, the
14 idea of measuring between hours of travel time isn't
15 very realistic. So, we're going to have to lower it
16 far enough so you can really get an appreciable change
17 in velocity at the same time for our flow for a long
18 enough time to really see it.
19 MR. ANDERSON: Let me take a step back into
20 the forum. We have a concept plan put out here by
21 Steve. So, the objective on this one is determining
22 the fish response to that equivalent velocity and that
23 equivalent velocity based on our present knowledge of
24 mean water particle travel time.
25 THE REPORTER: Pardon me, mean what?

1 MS. WIK: Water particle travel time.

2 MR. ANDERSON: Is that -- I mean is there any
3 comment on that? There's a lot of things in what you
4 said, Steve, in terms of an experiment that makes me
5 comfortable. We have avoided many of the problems
6 associated with drawdowns of multiple reservoirs with
7 this concept. There are still other issues involved.
8 We, in that case, theoretically, can pass adult fish.
9 There's those kinds of issues to be addressed.

10 MS. WIK: Well --

11 MR. PETTIT: You can study all these things
12 that Mike was referring to, too. You can study gas
13 supersaturation, one hundred percent spill. You can
14 measure response of the adults that are approaching the
15 project. There's the Snake River, which is on tap for
16 the next couple of years. Those things can be done at
17 the same time that you're doing this drawdown. Again,
18 you're -- in order to get anything meaningful, we are
19 going to have to do it right on the peak of the run or
20 very close to it. And as this EIS process becomes more
21 involved, you are going to have to see how the
22 community feels about subjecting critical stocks to the
23 experiment.

24 MR. McCONNAHA: One problem I have with that
25 kind of a design is I'm a little pessamistic about

1 being able to make meaningful comparisons between what
2 we would get and what we got in the past. But the
3 alternative to it is maybe -- is probably -- the only
4 alternative I can think of probably has a lot of worse
5 aspects to it. It may be on again off again. Bringing
6 them up, bringing them down, bringing them up, bringing
7 them down. So, you in essence have a test, a nontest
8 period, and a test and a nontest period. And, being
9 scattered three times through a season, you have -- one
10 you have within your test and nontest comparison you
11 could make. You also have scattered through there,
12 different physiological conditions which is going to be
13 another factor we are going to have to control for
14 somehow in this experiment. Now, it may, in fact, have
15 -- there's a lot of biological questions you have to
16 answer in this. I think, if I'm not mistaken, the
17 adult ladder doesn't work between seven twenty-one at
18 Granite and a minimum -- is that right?
19 MS. WIK: Right.
20 MR. McCONNAHA: It operates at that or at
21 one or the other. But, the reason it is so important
22 here --
23 MR. KINNEAR: That's for your adult fish?
24 MR. McCONNAHA: For this discussion, it
25 doesn't make any difference. So, you have to talk

1 about how quickly you can raise the pool up and down or
2 how you cannot get it up, anyway. But that's from an
3 experimental -- strictly experimental design, and I'm
4 kind of pessimistic about how effective a comparison we
5 could make with what we have gathered this year and
6 compare it to past years.
7 MR. ANDERSON: Well, I see some problems with
8 multiple cycles in one year, but maybe two. Maybe a
9 lowered pool "X" weeks. I don't know how many weeks it
10 is. And, then, a normal operation for so many weeks.
11 I think that --
12 MR. McCONNAHA: You have to figure out how to
13 control it if you say lower the pool early and then
14 raise it later, then you could argue that what you saw
15 or didn't see was the result of the fact that fish
16 weren't very smoltified early in the season or they
17 were smoltified later in the season or vice versa.
18 MR. ANDERSON: Uh-huh.
19 MR. McCONNAHA: Again, on our experimental
20 design, we have to find out how to control for that
21 variable with some others that complicate the
22 relationships.
23 MR. ANDERSON: I would like to pursue this
24 discussion because we were caught up on objectives a
25 little bit. If we could just start talking about it as

1 an experimental design, maybe we can establish it by
2 the back door. I don't really like doing that, but if
3 we're struggling on objectives --
4 MS. WIK: Am I hearing, Steve, do you feel
5 that seven twenty-one, at which point the adult
6 facilities would still be operable, would produce
7 enough of a difference to --
8 MR. PETTIT: Well, I don't think you can
9 measure nine-tenths of a day and fish response. I
10 don't think you can physically measure the --
11 MS. WIK: The various travel times range from
12 three to twenty-two days as it is over the course of
13 the season, and if we're only talking a half a day,
14 would we be able to pick that out?
15 MR. PETTIT: Plus, the fact you're not really
16 measuring it at the site you're testing.
17 MS. WIK: And you're not measuring it in the
18 same way you that would be as you have done in the
19 past.
20 MR. McCONNAH: It's kind of a hard question
21 to answer, Sarah, because you're really going to have
22 to sit down with the old calculator and stuff to see
23 what kind of change and what the power of the test is.
24 MS. WIK: Well, is that an issue we identify
25 or home in on for next week? Is that --

1 MR. PETTIT: Based on what I have seen to
2 this point in time through the Salmon Summit and
3 outside of that, if you really take and measure again
4 on adult passage, you're not going to get a consensus
5 on the -- it's not going to happen. I don't know if
6 you feel the same way, Chip.
7 MR. McCONNAHA: I would not want to see
8 anything certainly.
9 MR. BOWLER: I think, at least for the
10 exercise, we need to not get too concerned about a lot
11 of other variables that may be highly influencial.
12 Obviously, we need to get in and maybe set up a
13 strawman for the duration, the length of the drawdown,
14 size of drawdown and, then, maybe work ourselves up and
15 down that column, and not get too hung up on the adults
16 right now or whether the levee is going to fall in or
17 whether we're going do have a super saturation or
18 whatever. You have got to start with a strawman and
19 work from there.
20 MS. WIK: So, we're talking Lower Granite
21 seven twenty-one for --
22 MR. BOWLER: Well, I think you need to look
23 at April 15th to June 15 on full pools to start
24 something to work with.
25 MS. WIK: Okay. We're backing away from just

1 the Lower Granite, then, is what you're saying?

2 MR. BOWLER: I think, in terms of looking at

3 some alternatives and looking at, say, to get the

4 strawman started, something that's going to be

5 meaningful, that we can measure. Obviously, if you

6 could satisfy all the needs of adults and everything

7 else, and go in and test the thirty foot drawdown at

8 four pools for four months, it would be ultimate. I

9 mean, it would be the best of testing.

10 MS. WIK: But what would you compare the beta

11 pools that you receive under that test to?

12 MR. BOWLER: The priod -- okay. Rightfully

13 so, in terms of existing travel time or data showing

14 travel time from McNary, for example, is taking the

15 mean over the number of years of data versus the mean

16 travel time if you, in fact, could do that, depending

17 on a given base flow, which is another -- trying to

18 simplify it without getting too complicated at this

19 point.

20 MS. WIK: But, those are valid questions.

21 MR. BOWLER: Sure.

22 MS. WIK: How will you compare data, if we

23 are --

24 MR. BOWLER: Sure, they are valid points.

25 All I'm doing is trying to get a strawman in terms of

1 testing capability irrespective of how the
2 comparability of existing information versus what we
3 would do; but compared to the needs of testing, we
4 probably need two months. We need a significant
5 drawdown if you're going to come up with some
6 reasonable testing of a significant number of fish that
7 would have to come out of the system or picked up at
8 Lewiston, assuming a bypass facility would not be
9 functional or those types of things. So, I think if
10 you maybe start with the bottom up in terms of ultimate
11 test, not worring about all the other variables at this
12 time, April 15th, June 15, I would even say to go back
13 to spillway crest fifty feet. Four reservoirs. That's
14 a strawman just to throw out.
15 As to how you might evaluate travel time
16 under those circumstances, keeping in mind we have no
17 collection, et cetera, the fish would be picked up in
18 the system where they will be marked, able to travel
19 time from Lewiston to McNary Dam, probably would be a
20 scenario. Would that be the nature --
21 MR. McCONNAHA: But, the question seems, if
22 you're just lowering -- lowering the Lower Granite and
23 you're going to mark in Lewiston, collect at Goose, if
24 you're going to lower them all four, you're going to
25 mark at Lewiston, collect at McNary?

1 MR. BOWLER: Right.

2 MR. McCONNAHA: Then the next jump, then, is

3 to get back into the mud on the four pool lowering

4 idea. What are you going to do with the adults in the

5 lower three pools and those kind of things?

6 MR. BOWLER: Sure. Sure. All I'm doing is

7 starting out with a strawman as -- as the best of

8 tests, without all the noise right now. I know this,

9 that is the best of tests and its equivalent and then

10 build on that.

11 MR. PETTIT: I don't think we have enough time

12 to do that --

13 MR. BOWLER: Maybe you don't.

14 MR. PETTIT: -- if we're going to have to

15 deal with having something ready by mid-March.

16 MR. BOWLER: Other than you can identify the

17 environmental impacts. Not that that's the preferred

18 alternative, but you would identify the impacts.

19 Obviously, we have adult problems. Obviously, we have

20 other intake problems. We have got nitrogen problems.

21 We have got possibly this problem and that problem.

22 You would identify that under the EIS, would you not?

23 Not that that's the preferred alternative, but that

24 would give you the range of --

25 MR. ANDERSON: But, there's a point here.

1 Our job here is not to produce an impact statement.
2 Our job is to accomplish a sound test that gives us
3 some information. So, just a way out --
4 MR. BOWLER: With given levels pf impact.
5 But we have to know what those given levels of impact
6 are based on those alternatives. I mean we can go back
7 and design something that's going to give us the least
8 impact and then decide whether that's going to give us
9 any meaningful information. You know, get all -- we
10 can put the variables on the table and say the least
11 impact or all of the things that might happen, not that
12 they are not measured; and, then, we can say, Well,
13 with that will seven twenty-one in Granite for two
14 weeks give us any meaningful information. Probably no.
15 MR. ANDERSON: Steve?
16 MR. PETTIT: I think there's another
17 approach; and, you know, we are all familiar with these
18 fish velocity rule curves that were passed around at
19 the Salmon Summit; and we have seen them at other
20 meetings, too. Is there a way to just strictly go with
21 that by -- in a period when it is not going to affect
22 fish, like in the middle of summer or in the middle of
23 winter during the low-water window. Perhaps start
24 drafting those pools down to spillway sill and test
25 whether this curve is accurate or not.

1 MR. ANDERSON: Okay.

2 MR. PETTIT: Then, you're going to have to,

3 like Chip said, get your calculator out and have some

4 faith in the model.

5 And how would you measure the velocity in

6 said pool at six eighty-one spillway crest or at seven

7 twenty-one for the ladder operation?

8 MR. McCONNAHA: Are you talking about Granite

9 pool?

10 MR. GRAHAM: We have got cross sections all

11 throughout the reservoir, and I think what we put

12 together for the Salmon Summit was just a quick and

13 dirty -- the bathtub example, that was a pretty good

14 one. I think, if you wanted more specific velocity

15 information, we could run a model and give that to you.

16 MR. PETTIT: You know, I think that should be

17 part of the alternatives that you look at.

18 MR. BOWLER: But I think the ultimate

19 response is the fish response and not -- there's going

20 to be noise veritability from year to year on the fish

21 response, but the question that needs to be answerd is,

22 is there an equivalent fish response to that. And you

23 almost have got to test that. And if you -- and you

24 may have to do it two or three years to take some of

25 the natural noise out of it or whatever. But, the

1 assumptions are there that it's velocity related. It's
2 time related. Survival is time related and all that.
3 But you have got to almost work with the fish to see if
4 there is a significant reduction in travel time that we
5 are making the assumption that it is equivalent to
6 velocity, and it's the assumption it is survival and
7 all this other stuff. But you have to -- we are all
8 working on predicated assumptions there that we are
9 trying to test.
10 MR. ATHEARN: I think I captured on here at
11 least the four main points that you had. And I want to
12 make sure that I have got those. And I guess I would
13 assume that if these actually become pretty much
14 sideboards, if this is the ultimate or the most that
15 could be done in a study, maybe we can focus down from
16 there, bringing in what Steve mentioned.
17 But is this pretty much what you had in mind:
18 four pools, April 15th to June 15th, lower the pools to
19 spillway crest, release fish at Lewiston to be
20 recovered at McNary?
21 MR. BOWLER: That would be an alternative.
22 One alternative.
23 MR. ATHEARN: I understand. That is the
24 broadest --
25 MR. BOWLER: That's probably --

1 MR. ATHEARN: -- alternative.

2 MR. BOWLER: -- one that's on the low end,

3 right, I would suspect for this consideration.

4 MR. ATHEARN: Right. So, we can -- for

5 nothing else, then, for right now, let's put Plan 1.

6 MR. CRASE: Why don't you say July 15th to

7 include fall chinook in that migration?

8 MR. McCONNAHA: At the time, I made the

9 decision not to.

10 MR. CRASE: Well, maybe you don't want to --

11 MR. McCONNAHA: No. That is --

12 MR. BOWLER: That's valid.

13 MR. CRASE: -- make that one as part of the

14 ideal experiment.

15 MR. BOWLER: The summer migration are a

16 different -- kind of a different issue; but this

17 design, I think, mostly is working with spring

18 migrants.

19 MR. PETTIT: I think you're going to be forced

20 to look at the other.

21 MR. ATHEARN: So, you want to change that to

22 July -- July 15th, then?

23 MS. WIK: Do we pretend to know --

24 MR. BOWLER: Or even longer.

25 MS. WIK: Do we need to go even longer than

1 that if we are going to really look at fall chinook
2 through the system of four reservoirs? Aren't we
3 talking about longer than July 15th, if we're going to
4 do it?
5 MR. BENNETT: I think the data indicates that
6 we need a longer period of time than July 15th.
7 MR. BOWLER: How far would you go?
8 MS. WIK: Yeah. How far would you go?
9 MR. BENNETT: Fifteenth of August.
10 MR. BOWLER: Okay.
11 MR. ANDERSON: So, shall we not, then, define
12 what you're going to test here? You're going to mark
13 fish so you will learn something about their movement
14 through the system. You can look at supersaturation.
15 You can observe the adults stacking up at Ice Harbor.
16 I mean -- and I don't mean to be facetious, but --
17 MR. BOWLER: Uh-huh.
18 MR. ANDERSON: -- I mean --
19 MR. BOWLER: No, right. Right.
20 MR. ANDERSON: We need to start putting down
21 what exactly it is we are going to do here --
22 MR. BOWLER: Exactly.
23 MR. ANDERSON: -- so we can --
24 MR. SATTERWHITE: We need to look at a remedy
25 for adult migration. A short-term remedy that will

1 work will address that issue.

2 MR. ANDERSON: And that, perhaps, we need to

3 assign a task group just to do that. Can we collect

4 adults in Ice Harbor and transport them? You know,

5 that was discussed in the Salmon Summit.

6 MS. WIK: Well, will the adults find their

7 way into the Ice Harbor facility for collection, given

8 a hundred percent spill conditions? Those are

9 questions that would need to be addressed.

10 MR. BOWLER: Well, why don't we -- why don't

11 we develop some ranges of alternatives now, I mean,

12 rather than getting too involved; and then we can pick

13 each one of them apart --

14 MS. WIK: Okay.

15 MR. BOWLER: -- in terms of the problem.

16 MS. WIK: Okay.

17 MR. BOWLER: Okay. This is on the lower end.

18 MS. WIK: Uh-huh.

19 MR. BOWLER: Well, let's work our way up.

20 MR. McCONNAHA: Can I suggest that we

21 separate the spring period from the fall? I agree that

22 the fall chinook are -- I don't want to ramble on

23 either -- but they are really a different beast. I

24 mean that -- that schedule unduly makes this proposal

25 look even worse than it might otherwise be if we go all

1 the way from April 15th to August 15th. We might just
2 want to separate it into April 15th, June 15, looking
3 at spring migrants. And then a separate proposal is
4 June 15 to August 15.
5 MR. BOWLER: And I agree with that. And I
6 think just in terms of sampling right now, the problem
7 is if you were just to look at it to get fish samples
8 to work with and then the comparative -- we have no
9 previous data to speak of on fall chinook, and to just
10 go out and collect fall chinook marked during that
11 period of time would be difficult. So, I think Chip is
12 right. There are two different time periods. We don't
13 need to address them both, but there ought to be a
14 spring period and a summer period.
15 MR. ATHEARN: What was the summer period that
16 you suggested?
17 MR. McCONNAHA: Well, I would set up August
18 15. So, it would be, I suppose, June 15 --
19 MR. BOWLER: June 15 to August 15.
20 MR. SATTERWHITE: Mike Satterwhite. I would
21 like to make a comment here.
22 For those people that are listening to what's
23 going on here and are hearing August 15th, we are
24 talking about what I think are realistic biological
25 realty for the fish concerned. These are -- this is

1 just the time period when the fish are in the river.
2 Includes spring and summer chinook and fall chinook,
3 and that's when the fish are present. And what we are
4 doing here is sitting a window that deals with the
5 biological realty, the requirements of the fish. Okay?
6 Does anybody in the audience -- do you
7 understand what I'm trying to say here?
8 (No discernible response made.)
9 MR. SATTERWHITE: We are looking at the
10 biological realty when we are talking about the window
11 in which the fish are present, and that's the point I'm
12 trying to make. And the problem we have to deal with
13 really is not limited to April 15th to June 15th
14 migratory period which is somewhat arbitrarily set by
15 the Fish Passage Center, which are the people that have
16 been dealing with fish migration over the past years.
17 We have got a big problem with fall chinook which
18 migrate later in the year, and that's why we are
19 talking about August 15th.
20 MR. KINNEAR: That's reasonably inclusive for
21 juvenile migration of fish --
22 MR. McCONNAHA: Yes.
23 MR. KINNEAR: -- and not intended for the
24 adult migration which --
25 MR. BOWLER: To begin with, for test

1 protocol --

2 MR. SATTERWHITE: Right.

3 MR. BOWLER: -- we need to separate them.

4 Because you test them -- they are tested differently.

5 MR. KINNEAR: Uh-huh.

6 MR. BOWLER: So, all we are doing is just

7 separating them for test purposes.

8 MR. BENNETT: Do we really have the numbers

9 of fall chinook to run any kind of a valid test?

10 MR. BOWLER: We probably don't.

11 MR. ANDERSON: Probably not.

12 MR. BOWLER: That's why I was making that

13 point. Test protocol is different for those two fish.

14 MR. ATHEARN: Did you say you want to hit

15 some other plans and proposals?

16 MR. ANDERSON: Yeah. Bert suggested let's

17 not take potshots at them now. Let's put them in --

18 MR. BOWLER: Yeah. We need to develop some

19 other alternatives.

20 MR. ANDERSON: Steve, recap the one you have.

21 MR. PETTIT: Well, I think at the other end

22 of the spectrum, if we are looking at the extremes,

23 purely physical test that would have the minimum impact

24 on the fish in the river. Something you could do

25 during the -- in the water -- I'm just using these

1 because the in-water windows that have been already
2 agreed upon by consensus have the least effect on the
3 fish in the river, and that's a summer window and a
4 mid-winter window and do some physical drawdown to the
5 extremes down to spillway sill level, and "X" number of
6 points in between to get the most data points you would
7 want.
8 MR. ANDERSON: Okay. The windows -- let's
9 specify the windows. The summer window is?
10 MR. PETTIT: Boy, I think it is mid-July to
11 mid-August.
12 MS. WIK: Yeah. I think it's sixteen July to
13 fifteen August.
14 MR. ANDERSON: Okay. And the winter is what?
15 MR. PETTIT: December 15th to March 1st.
16 MS. WIK: Yeah, it varies. But roughly
17 January -- the month of January and February would do
18 the same.
19 MR. ANDERSON: Did you get those, Jim.
20 MR. ATHEARN: No, I didn't.
21 MR. ANDERSON: Summer window is July, August.
22 MR. PETTIT: Right.
23 MR. ANDERSON: Mid-July.
24 MR. PETTIT: Right.
25 MR. ANDERSON: July to August?

1 MS. WIK: No. Mid-July to mid-August.
2 MR. ANDERSON: Okay. One month.
3 And the winter was?
4 MS. WIK: One January to end of February. I
5 think would be the best one.
6 MR. ATHEARN: One January to the end the
7 February?
8 MR. ANDERSON: Yeah.
9 MR. BENNETT: How are you coming up with
10 these dates, Steve?
11 MR. PETTIT: These are the established
12 in-water windows where the -- if the Corps would do
13 some in-water work, they are allowed to go in and do it
14 during these time periods because we have determined
15 that that will have the least amount of impact on both
16 juvenile and adult passage.
17 MR. BENNETT: Okay.
18 MR. KINNEAR: Is the winter period more
19 preferred than the summer period?
20 MR. PETTIT: Yes.
21 MS. WIK: Yes.
22 MR. PETTIT: For obvious reasons. It's a
23 longer period of time, and there's really no movement
24 involved because the water temperatures get down.
25 MR. BENNETT: Certainly that July 15th

1 period, though, is of concern from a fall chinook
2 standpoint.
3 MR. PETTIT: Right. So, then, what you test
4 is a time relayed cross sectional area of reduction to
5 particles -- there I've said that cruel word again --
6 travel time. I'm not quite -- I'm not a hydrologist.
7 I don't know how you measure this physically, but I'm
8 sure the hydrologists in the room could add to that.
9 MR. GRAHAM: I'm not a hydrologist either;
10 but, if you want to measure in the field, you can by
11 using a velocity measuring device. The Corps has a
12 number of them.
13 MR. PETTIT: To the best of your ability to
14 test the relationships that we're entering this whole
15 debate on. I mean, if you reduce the relationship
16 assumption, if you reduce the cross sectional area, you
17 would get a velocity equivalency there and test that
18 the best you can in the-- you know, go out and test
19 the physical environment and see if to the best of our
20 ability if we are --
21 MR. ATHEARN: Steve, could you list again
22 what you had then for test elements? Specifically what
23 you were talking about.
24 MR. PETTIT: I would suspect that you would
25 go down to spillway elevation, six eighty-one, I

1 believe it is --

2 MR. ATHEARN: Okay.

3 MR. PETTIT: -- spillway sill, maybe some --

4 that's about forty-five feet down, if I'm not

5 incorrect. Then maybe a thirty, a twenty, you know....

6 MR. ATHEARN: Ten foot increments?

7 MR. PETTIT: Right. You probably would want

8 to include the seven twenty-one because that's what

9 everybody is familiar with.

10 MR. KINNEAR: Are you proposing this just for

11 Granite, or are you proposing this for all four pools?

12 MR. PETTIT: I don't think it is necessary.

13 I think, if you do it for one pool, you can make some

14 general assumptions for the other pools. Again, I'm

15 not -- I don't know.

16 MS. WIK: Would you want to propose as an

17 option to look at adding more water to improve flows to

18 get it closer to the range that we might be looking at

19 during the fish season just as a thought? Again, then,

20 you're back to the question of trade-off between

21 additional flow during these windows versus additional

22 flows during fish migration; but, you know, if we are

23 talking -- if we're going to throw out creative ideas

24 here, I guess that is a question.

25 MR. PETTIT: Well, at that time of the year,

1 if you want --

2 MS. WIK: Because you are pretty low at that

3 point in time.

4 MR. PETTIT: -- maximum discharge capacity of

5 Lower Granite, you have got a 25 K Granite -- at

6 Dworshak and probably twenty at Brownlee.

7 MR. ATHEARN: Sarah, what you're talking

8 about then is all varying the flows?

9 MS. WIK: Yeah.

10 MR. PETTIT: Not varying.

11 MS. WIK: I guess not varying during that

12 but --

13 MR. PETTIT: During the winter it is very

14 low.

15 MS. WIK: -- I guess, supplementing it.

16 MR. PETTIT: So, I guess you're -- can you

17 double winter-based flows?

18 MS. WIK: Right. Not varying them within

19 that but supplementing to....

20 MR. ATHEARN: Well, for purpose of

21 discussion, you know, I can easily vary anything.

22 MR. PETTIT: You might add flow augmentation

23 as one of the elements.

24 MR. ATHEARN: But that -- your objective is

25 to measure the physical response?

1 MS. WIK: Correct.

2 MR. PETTIT: Yes.

3 MR. ATHEARN: In terms of mean velocity,

4 cross sectional velocity and --

5 MR. PETTIT: Right.

6 MR. ATHEARN: -- probably spill effects,

7 saturation, something -- something in the tailrace in

8 terms of the circulation pattern. What else? I'm just

9 trying to list these things down.

10 MR. PETTIT: And the physical impacts on the

11 levee system.

12 MR. ATHEARN: Yeah.

13 MR. PETTIT: And on the marinas.

14 MR. ANDERSON: Do you have that?

15 MR. KINNEAR: Not to be used as a trade-off

16 for lack of water to move fish in the summer or in the

17 normal migration period.

18 MR. ATHEARN: But --

19 MR. ANDERSON: So, really the objectives are,

20 Jim -- I don't want to put words in your mouth. The

21 objective in this test is to determine phyiscal

22 response in a number of areas. Water travel time,

23 structural response --

24 MR. PETTIT: Right.

25 MR. ANDERSON: -- on levees and other

1 facilities and so on.

2 MR. McCONNAHA: It doesn't have to be all

3 mutually exclusive either. You could do this as a

4 prelude of doing a biological test later in the season

5 since you could go to more extremes with this. You can

6 take it down to spillway, where you can't take it down

7 to spillway when the fish are there. You could do it

8 in the winter and give you a more extreme test just

9 from the physical effects.

10 MR. ANDERSON: You can't take the spillway

11 down because of the adult passage?

12 MR. McCONNAHA: Right. And I mean -- and,

13 also, yeah. Also, you might not be as inclined, for

14 any number of other reasons, besides biology, not to go

15 down to spillway in the spring. Because if you can do

16 it right now, you can do that possibly in addition to a

17 test some other time from a biological standpoint. I'm

18 just saying that these aren't necessarily all mutually

19 exclusive.

20 MR. ANDERSON: Uh-huh.

21 MR. ATHEARN: Is there anything to add to

22 this list?

23 MR. ANDERSON: Duration. I don't believe

24 we've said anything about duration within the windows.

25 MR. PETTIT: You have a two-month window

1 there more or less.

2 MR. ANDERSON: We're just looking at --

3 MR. PETTIT: You want to make each

4 incremental test long enough so that you could

5 physically measure what you're after. You can do that

6 in three days, or you can do it in a week.

7 MR. KINNEAR: What are the subsequent impacts

8 of refill on the rest of the system then, or what are

9 the potential impacts biologically?

10 MR. ANDERSON: Well, if you go down to

11 spillway at Granite, you're talking two hundred sixty

12 thousand acre feet, two hundred seventy thousand acre

13 feet to refill.

14 MR. LOVELIN: About ten days.

15 MR. ANDERSON: Yeah. I was talking if you

16 had to --

17 MR. BOWLER: I believe you could have it back

18 at full pool by the fifteenth of March.

19 MR. SATTERWHITE: I was told that Lower

20 Granite Dam filled in two and a half days shortly after

21 it was constructed and --

22 THE REPORTER: Pardon me, I couldn't understand

23 you.

24 MR. SATTERWHITE: I was told that Lower

25 Granite pool filled in two and a half days shortly

1 after it was constructed at about eighty-five thousand
2 cfs.
3 MR. ANDERSON: Yeah. I think four hundred
4 eighty thousand acre feet of storage; that's about
5 right.
6 What minimum release would you have to have
7 at Granite? What discharge would we have to have at
8 Granite during those windows? Is there any?
9 MR. PETTIT: Winter minimums. You would have
10 to maintain winter minimums.
11 MS. WIK: Well, if you're talking
12 incremental, Steve, are you going from six eighty-one
13 to seven hundred to seven ten, seven twenty, you would
14 be -- you would be filling it back up throughout that
15 course of time, anyway, wouldn't you?
16 MR. PETTIT: Right.
17 MS. WIK: So, you wouldn't be looking at
18 filling the entire from six eighty-one to seven
19 thirty-three at the end of the test if you're
20 working --
21 MR. PETTIT: The way you test it is on the
22 way down.
23 MR. KINNEAR: Yes. Unless you tested on the
24 way down.
25 MS. WIK: Yeah. That's the question. Which

1 way would you do that?

2 MR. ANDERSON: I think logically you would

3 test it on the way down in case we had some major

4 physical problem that we can observe and refill

5 immediately. Levee failure or something like that.

6 MR. PETTIT: I don't think you need to debate

7 it much longer; but, you know, now you have got the

8 in-between with the fish, I would assume you would look

9 at some kind of a test, since you have been debating

10 all morning long, that the goal is to do something

11 biological.

12 MR. ANDERSON: Well, can we do that, the one

13 you suggested earlier? Put that one down to Granite

14 only?

15 MR. PETTIT:. Yeah. I think that's one

16 that's been proposed in black and white more or less in

17 several literations by Idaho people.

18 MR. ATHEARN: Did we call this a biological

19 test then? Is that --

20 MR. PETTIT: I don't know what you would call

21 it. Anybody else have a better word?

22 MR. BOWLER: Alternative 3.

23 MR. ANDERSON: Yeah.

24 MR. PETTIT: It was Granite to seven

25 twenty-one, and you might put in parentheses behind

1 that, maintain adult passage. I mean, that's the goal.
2 Maximum drawdown, that's a goal.
3 MR. ATHEARN: I guess it's a little -- a lot
4 late, but is this large enough for everybody to read?
5 Should I write larger?
6 (No discernible response made.)
7 MR. ATHEARN: Granite lowered to seven
8 twenty-one.
9 MR. ANDERSON: The time period would be
10 sometime after April 15th.
11 (Unidentified person entered room.)
12 MS. WIK: Do we have a Loren Kronemann in
13 here?
14 MR. KRONEMANN: Yes.
15 MS. WIK: Here's a phone message for you.
16 MR. KRONEMANN: All right.
17 MR. ATHEARN: For what duration?
18 MR. PETTIT: Well, Option A under this No. 3
19 would probably be we would do it during the lock outage
20 time period. Option B would be for a progressive
21 longer test for the whole juvenile migration.
22 MR. KINNEAR: The lock outage --
23 THE REPORTER: Excuse me, I couldn't hear
24 you.
25 MR. KINNEAR: -- doesn't have a biological

1 concern.

2 MR. PETTIT: Well --

3 MS. WIK: Unless you're saying move the lock

4 outage --

5 MR. PETTIT: Right. We move the lock outage

6 to --

7 MR. BJORNN: Should we confuse the issue by

8 that? Let's just say --

9 MR. PETTIT: Maybe not.

10 MR. BJORNN: Let's just say we are designing

11 the test where we're going to draw it down, Lower

12 Granite to seven twenty-one and see what happens.

13 MR. PETTIT: April 15 to June 15th.

14 MR. ATHEARN: Okay. We can do that time

15 frame and say either a two-week test or a four-week

16 test or whatever, you know.

17 MR. BJORNN: Whatever is necessary for the

18 migration.

19 MR. ATHEARN: Yeah.

20 MR. PETTIT: Realistically, if you are going

21 to compare it to previous data, you would probably want

22 to do it for that long of time period.

23 MR. ATHEARN: So, you don't want to suggest

24 week increments?

25 MR. BJORNN: Are you thinking here, Steve,

1 that a drawdown would be no lower than seven
2 twenty-one, but it might be less than seven twenty-one
3 depending on what the inflow is?
4 MR. PETTIT: Yeah. I think, as you get into
5 the parameters of this test, you're limited by the
6 capacity of the spillway to successfully abate the
7 nitrogen. So, that's eighty. And then I have been
8 told by Corps representatives that if you try to run a
9 unit at less than full pool, you begin to get
10 cavitation effects; and juvenile mortality goes off the
11 charts. And whether that is actually correct or not, I
12 don't know; but I've been led to believe that that is a
13 real factor. So, that would probably lead me to
14 believe that if you exceeded 80 K you would have to
15 start filling the pool because you wouldn't even want
16 to run a unit even ten below without causing severe
17 cavitation.
18 MR. ATHEARN: Ted, what you're suggesting,
19 though, about perhaps being less, if we keep in mind
20 maintaining adult passage, that forces us to stay at
21 that lower level or quite a bit higher because there
22 isn't adult passage in between.
23 MS. WIK: Yeah.
24 MR. BJORNN: Well, there isn't any adult
25 passage in between?

1 MS. WIK: No.

2 MR. BJORNN: The emergency chute is not

3 functional higher than that, and seven twenty-seven is

4 the sill to the -- to the normal ladders so....

5 MR. PETTIT: Is that a fact? I mean, I've

6 heard this proposed that you wouldn't want to have

7 water coming up into that pipe.

8 MS. WIK: Well, this is --

9 MR. PETTIT: Is it the fear that the fish

10 might stay in that pipe and never come out, or is it

11 physical injury in the water or what?

12 MS. WIK: Well, this is -- seven twenty-one

13 is assuming you cut off the pipe quite a bit, Steve,

14 already because the actual exit is down to lower than

15 that. And I forget --

16 MR. ANDERSON: Seven twenty.

17 MS. WIK: Yeah. But I'm not sure of the

18 exact elevation where that pipe comes out of the wall,

19 but that's -- I mean, that's what you're limited by.

20 You have got to have some sort of an exit chute, and

21 it's not clear up at a higher elevation.

22 MR. ANDERSON: But is that not a minor

23 structural modification?

24 MR. GRAHAM: We could add or subtract the

25 pipe. I mean, we can put on a half a pipe on there if

1 it's a round pipe; and we can service the adults --

2 MR. BJORNN: I think it is a round pipe down

3 there.

4 MS. WIK: Yeah.

5 MR. GRAHAM: Of course, the lower part of it

6 is half round.

7 MS. WIK: Yeah, but the upper is -- I think

8 -- you know --

9 MR. ANDERSON: Would you have really a hard

10 constraint, the question is.

11 MR. GRAHAM: It's easy. We could cut the

12 pipe or modify the pipe if we want to put a half round

13 on it. We would have to send divers out to do it, but

14 I mean we could. That's a minor modification to the

15 pipe, and it could be done. I don't see a problem.

16 MS. WIK: Well, except at what point -- at

17 what elevation is the pipe exactly to where water is

18 going to be backflowing into that? I mean, I think

19 that's the question. It's not just a matter of

20 adjusting the pipe.

21 MR. GRAHAM: I don't know what a fish would

22 do when it hit the water. I think the concern is it

23 might plug up the fish because they would hit that

24 water, and they wouldn't swim -- it wouldn't swin out

25 of the pipe; and I guess -- I'm not so sure what the

1 problem is. What would happen if we had a submerged
2 pipe, the end were submerged?
3 MR. PETTIT: I'm not sure. I don't think
4 that is a hard contraint myself.
5 MS. WIK: Well, I think we need to look at it
6 because, depending upon how the system operates with
7 the pumps and where the exit lies, it's -- it's not a
8 problem of the fish hitting the water. It is what's
9 going to happen if the forebay elevation is higher
10 where it is forcing water into the system. Or, you
11 know, I think we need to --
12 MR. PETTIT: I think the limiting factor is
13 where the intakes for the three auxillary pumps sit, is
14 it not?
15 MS. WIK: I'm not sure, Steve.
16 MR. BOWLER: Can you take that to seven ten
17 and still maintain adult ladder operations?
18 MR. GRAHAM: Well, there's a problem now if
19 it extends down below seven twenty-one; and I can't
20 tell you if it's seven eighteen. Do you know what that
21 is?
22 MR. PASSMORE. I know you sent me a drawing,
23 but can't recall off the top of my head what it was.
24 But the lower part is half round.
25 MR. GRAHAM: So, for the seven twenty-one

1 test -- and I'm not sure. I think originally the seven
2 twenty-one was -- was talked about because that's where
3 we thought the end of the pipe was. Well, it's
4 somewhere -- it's below seven twenty-one.
5 MR. PETTIT: Below seven twenty-one.
6 MS. WIK: So, if it's --
7 MR. GRAHAM: And I don't think we've ever run
8 that system, and I don't know -- we know the pumps
9 work. We know the pipe is still there.
10 MR. ANDERSON: Let us leave it this way, if
11 we pursue this further, that's a work assignment for
12 our next meeting that we come back with some better
13 information --
14 MR. PETTIT: I would like --
15 MS. WIK: Right.
16 MR. ANDERSON: -- and with better knowledge
17 about the biology.
18 MR. GRAHAM: But one point I would like to
19 bring out, though, is that we have -- we have erosion
20 protection on the earth fill portion of the dam; and
21 that seven twenty-one is just -- I don't know if it was
22 coincidence or not -- but it jives with how low we can
23 draw the reservoir down without impacting that
24 embankment section.
25 MS. WIK: Right. The seven twenty-one didn't

1 come from the emergency fish ladder chute, I don't
2 think.
3 MR. GRAHAM: Well, I was never around when
4 that number was brought up.
5 MS. WIK: Yeah. That may be --
6 MR. ANDERSON: That's a further refinement of
7 the constraints when we actually start getting serious
8 about a test.
9 MS. WIK: Yeah.
10 MR. ANDERSON: We are going to have to
11 address that.
12 MR. PETTIT: Bert has an idea. Make Option 3
13 the lowest minimum pool we can get with the adult
14 passage.
15 MS. WIK: Okay.
16 MR. BOWLER: And then take the other
17 variables that we have been talking about which would
18 have to be incorporated into any --
19 MS. WIK: Yeah, okay. I think that's --
20 MR. PETTIT: If we go for the lock, all these
21 things have to be addressed.
22 MR. ANDERSON: Sure.
23 MR. PETTIT: The absolute minimum at which
24 the adult ladders can operate.
25 MS. WIK: That's a good resolution.

1 MR. GRAHAM: We think they will. They need
2 to be tested. We don't know. They have never been run
3 at seven ten or seven fifteen or whatever that is. We
4 need to look at that at Granite, test that at the very
5 optimum -- the very lowest possible operating level for
6 the ladders.
7 MR. McCONNAHA: Can the ladders be tested
8 during the winter without the fish?
9 MR. GRAHAM: Now, I'm not sure what you want
10 to test.
11 MR. McCONNAHA: Well, I'm not sure --
12 MR. GRAHAM: The pumps work and --
13 MR. McCONNAHA: -- what you guys are talking
14 about. Maybe you can't test that way.
15 MR. PETTIT: They have already tested the
16 auxillary water pumps, and they provide a full 75 K in
17 the ladder.
18 MS. WIK: Yeah.
19 MR. GRAHAM: The pumps work and the pipes
20 there. We just have never had to run the fish through
21 there because we have never had to draw the reservoir
22 down.
23 MR. McCONNAHA: I mean, I would just hate for
24 us to get into a situation where we get into this and
25 find the ladder isn't working a hundred percent, and

1 the two remaining sockeye can swim to nothing.

2 MS. WIK: Well, I guess, when we throw that

3 out, don't we need with any of this, at least when fish

4 are in the river, to have an emergency plan or what are

5 we going to look at here to where we say, We are

6 causing so much negative impact that we need to stop

7 that.

8 MR. PETTIT: Oh, yeah.

9 MS. WIK: I mean, wouldn't you --

10 MR. PETTIT: Right.

11 MS. WIK: I mean, that's a given if suddenly

12 it becomes obvious that that emergency chute is not

13 passing fish, for whatever reason, even though it

14 physical functions --

15 MR. PETTIT: Right.

16 MS. WIK: -- we would say we need to

17 re-evaluate.

18 MR. PETTIT: The ladder can work fine. The

19 fish also have to be able to find it. We haven't even

20 got to that yet.

21 MS. WIK: That's....

22 MR. ANDERSON: Any more description of these

23 alternatives, Steve? And we'll call it the Pettit

24 plan.

25 MR. ATHEARN: We had on the other one about

1 where we release and recover fish. In this case,
2 you're talking about release at Lewiston and recover at
3 Little Goose?
4 MR. PETTIT: Correct.
5 MR. BJORNN: You would have marked fish
6 releases upstream someplace and then recovery at Little
7 Goose.
8 MR. PETTIT: And I think you're bound by the
9 nature of the beast to use the Lewiston traps. Because
10 if you mark fish at hatcheries, you're not quite sure
11 how they are going to behave or whether they are going
12 to be at Slot "X" -- Spot "X" at the right point in
13 time at the head of the pool. So, you want to mark a
14 migrating smolt; and you assume a fish reaching the
15 trap is well on its way. I don't think you have
16 another option.
17 MS. WIK: Okay. Can I throw out one
18 alternative for consideration?
19 We are assuming we need to pick up fish at
20 Little Goose because of the PIT tag facilities. Would
21 it be worth exploring using juvenile radio tags as an
22 alternative to where you could get actual travel time
23 to Lower Granite via additional receivers similar to
24 what Ted's already got out there now. Is that --
25 MR. PETTIT: Quite frankly, that's the first

1 time that's been presented to me.

2 MS. WIK: Yeah.

3 MR. PETTIT: And I didn't know the tool was

4 there, and it's been used in the past at Granite. It

5 could be an option.

6 MS. WIK: Yeah.

7 MR. PETTIT: It could be an option.

8 MS. WIK: Okay. I think that's worth

9 considering because it does give us more direct -- I

10 mean, if we can assume that the type of tag doesn't

11 have an effect on travel time, then we could apply that

12 directly across comparing travel times from the

13 confluence down to Lower Granite.

14 MR. PETTIT: Is there any --

15 MR. ANDERSON: That applies to any

16 alternative then.

17 MS. WIK: Correct. Except that we do have --

18 we know we have a good data set -- or at least I think

19 we have the best data set of travel time from the

20 confluence to Lower Granite. You know, points on down

21 river get, you know, fewer and fewer in terms of the

22 number of data points we have, so....

23 MR. BJORNN: I guess one of the things that

24 probably needs to be stressed on this is that it's not

25 -- I don't think we are talking about pulling down to

1 minimum adult passage level and holding it there during
2 the whole time. We are talking about a variable level
3 drawdown.
4 MR. ANDERSON: The drawdown rate, I guess we
5 concluded, Greg, is a maximum of two feet per day.
6 MR. BJORNN: Well, excuse me, not the rate;
7 but that we would --
8 MR. ANDERSON: Want to test it?
9 MR. BJORNN: Yeah. As Steve said earlier, if
10 the flow goes up to where we're starting to get a real
11 super -- nitrogen supersaturation problem, we have to
12 bring it back up and start passing the water in another
13 way.
14 MS. WIK: But, is that an end to the test; or
15 is that trying to see if we can pick out the difference
16 in travel time and then whether it is flow or because
17 of the drawdown or --
18 MR. BJORNN: Well, not necessarily. You
19 could look at it in the sense of what we often get is a
20 spring pulse of water in late April, and then we get a
21 lull again in mid-May before we get the high elevation
22 runoff. And so, you might want to be flexible enough
23 in your drawdown that you respond to that.
24 MR. PETTIT: There's going to be a bunch of
25 biological concerns there, and exceeding the flip lip

1 capability is one of them. And the other is, if you're
2 marching along on this test and your adult passage
3 deteriorates to zip because they can't find the ladder
4 entrance because your spill -- your powerhouse
5 collection facility is inoperative, then you're going
6 to have to stop also. So, you know, these things, I
7 don't think we need to dwell on that too much.
8 MR. BJORNN: We may need the time to let the
9 fish get through the system too. So, you just don't
10 shut it off when you get to a certain point. You make
11 the adjustment to keep the test going.
12 MR. PETTIT: Well, I would think that you
13 would build that into the test, you know. An option
14 for flows over 80 K and also inability for the adults
15 to find the entrances.
16 MR. ANDERSON: Have you got everything down?
17 Okay. We've got --
18 MR. ATHEARN: I don't know if anyone said
19 anything else.
20 I would suggest being even more creative on
21 this and getting back to -- I don't remember who now
22 mentioned the concept of having more replicates
23 throughout the season -- but another way to consider
24 that would be to have Granite down, Goose up and Lo Mo
25 down and Ice Harbor up. And if this radio tag thing

1 would work, track those fish through a fast pool and
2 through a slow pool, another fast pool and slow pool as
3 a food for thought here.
4 MR. BOWLER: Why don't you list that as
5 another alternative.
6 MS. WIK: Yeah.
7 MR. ANDERSON: Yeah.
8 MS. WIK: Alternative 4.
9 MR. PETTIT: But this alternative assumes
10 that you're going to maintain adult passage at all four
11 projects, and that limits you to the normal five-foot
12 operational pool level --
13 MR. ATHEARN: Unless you were to trap fish in
14 a mobile ladder.
15 MR. BJORNN: Let's talk about that as another
16 option, if you want to.
17 MR. BOWLER: Yeah.
18 MS. WIK: Yeah.
19 MR. BOWLER: I think we need to not get too
20 hung up on the problems with them now. We want to
21 scope some range of alternatives here and something may
22 just shake out, you know, not to be feasible. But
23 those ideas, we need to capture those ideas just to be
24 safe; and that ought to be the next alternative and
25 let's look at some alternate ranges in each of the

1 reservoirs without getting too hung up on the problems
2 associated with it.
3 MR. ANDERSON: Okay. This is the alternate
4 plan, so Athearn can write it all down.
5 MS. WIK: Yeah.
6 MR. ATHEARN: Well, all I was suggesting was
7 Lower Granite and Lower -- it's handy we named them
8 this way --
9 MS. WIK: Lower lowers.
10 MR. PETTIT: Both are lowers.
11 MR. ATHEARN: Lower and Lower to "X" level.
12 Granite at seven twenty-one, whatever we decide.
13 Little Goose, Ice Harbor near full.
14 MS. WIK: Normal operating pool.
15 MR. ATHEARN: And the time frame, I would
16 presume, would be the same as what we identified
17 before, April 15th to June 15th. And this concept
18 really requires radio tags.
19 MR. BOWLER: Is the juvenile radio tag
20 functional?
21 MS. WIK: It's my understanding that they are
22 functional. It would have to be built; but, yeah, we
23 looked into it for this year's test. They are
24 certainly out there functioning.
25 MR. BENNETT: What's their longevity, Sarah?

1 MS. WIK: I think that varies with what you
2 want in terms of --
3 MR. BENNETT: I mean, you are kind of limited
4 to chinnok, aren't you?
5 MS. WIK: We are talking up to a year in
6 terms of the adult.
7 MR. BENNETT: Yeah, but --
8 MS. WIK: I would have to look back to my
9 information, but we are talking roughly two months as I
10 recall.
11 MR. BOWLER: Now, what would be the
12 advantages on this one?
13 MR. ATHEARN: What we are looking at with a
14 single pool concept is just the fish movement there and
15 assuming some rate of change; and, as Chip pointed out,
16 depending on what stage of smoltification you are at
17 with these fish and the variability that Sarah talked
18 of, three to twenty days right now of fish movement
19 time, with a single pool, you run the risk that you're
20 misled in seeing a difference. If you have two pools
21 and you see a change twice, it gives you the
22 opportunity to see that they did go more quickly
23 through Granite. They slowed down at Goose, but they
24 picked it back up at Lo Mo.
25 MR. BOWLER: I don't think that's a likely

1 response to the physiological part of the problem.

2 MR. PETTIT: Of course, I don't know. Is it

3 manditory that these pools are similar in nature and in

4 distance? I mean. --

5 MR. ATHEARN: That's another -- yeah. In all

6 likelihood they are generally similar in terms of

7 length and what have you.

8 MR. ANDERSON: In terms of volumes --

9 MS. WIK: You could look at a rate.

10 MR. ANDERSON: -- they are fairly similar.

11 MS. WIK: Yeah.

12 MR. LATHAN: Are we looking at pool levels or

13 are we looking at velocities through the reservoirs?

14 MR. ATHEARN: You mean picking a target

15 velocity?

16 MR. LATHAN: Picking a target velocity

17 instead of target numbers.

18 MR. ATHEARN: I hadn't specified. I was just

19 thinking in terms of pool lowering with that

20 assumption. But, if somebody wants to suggest that,

21 that's another approach. If you could estimate what

22 velocity it would actually get to be.

23 MR. PETTIT: This assumes a major chaotic

24 adult passage through the reservoirs.

25 MR. ATHEARN: I wouldn't -- I wouldn't -- I

1 hope not. This assumes that we can come up with a way
2 of avoiding the problem.
3 MR. ANDERSON: Well, I see one -- one of the
4 assignments we need to grapple with that was discussed
5 briefly at the Salmon Summit is the feasibility of
6 trapping adults, whatever the project.
7 MR. BOWLER: It needs to be explored.
8 MR. ANDERSON: Yes. It needs to be explored.
9 We have got to make an answer on that question. I'm --
10 I'm beginning to list some work assignments that we
11 will have to grapple with in the next week or so.
12 Why don't we -- why don't we take a lunch
13 break.
14 MR. McCONNAHA: Are you done listing
15 alternatives?
16 MR. ANDERSON: Well, I'm not sure that we
17 are. Do you want to list another alternative or two
18 and then take a lunch break?
19 MR. McCONNAHA: I was --
20 MR. BOWLER: We can eat later.
21 MR. McCONNAHA: -- we need lunch.
22 MS. WIK: I think we need to --
23 MR. ANDERSON: What I was going to suggest is
24 I think we need to come back, then, and address some of
25 these biological issues. The adult passage, some of

1 those -- your biological testing questions unless
2 someone has another proposal. But I think we need to
3 begin to refine these and zero in on a test plan
4 because we just can't lay out half a dozen
5 alternatives. We have got to scope these down.
6 Lunch, back at quarter after. Okay.
7 (Whereupon, the meeting was in recess at
8 12:27 p.m. and subsequently reconvened at 1:36 p.m.,
9 after which the following proceedings were had and
10 entered of record:)
11 MR. ANDERSON: Why don't we -- since I don't
12 know when everyone has to leave this afternoon, let's
13 at least establish our next meeting and talk about the
14 eighteenth meeting as well as. Next week the meeting
15 is scheduled for Kennewick.
16 MS. WIK: Kennewick. Cavanaugh's in
17 Kennewick. The same starting time, twelve April.
18 MR. ANDERSON: Does that fit with everyone's
19 needs?
20 MR. SATTERWHITE: 9:30.
21 MR. BOWLER: Friday.
22 MR. PETTIT: Do you know where?
23 MS. WIK: Cavanaugh's in Kennewick. It's on
24 Columbia Drive -- Columbia Boulevard.
25 MR. ANDERSON: Okay. And then the eighteenth

1 meeting in Portland. Wednesday, there was a
2 Coordinated River Operations group meeting which
3 basically consisted of the agencies and the operators
4 of the projects; and there was a number of things going
5 on in that arena. But, to get to the bottom line,
6 there is a meeting on the eighteenth at Bonneville
7 Power, Room 106, beginning I think at 10:00 o'clock in
8 the morning; and it's going to involve a good portion
9 of the policy level membership that we anticipate going
10 back to on the eighteenth with our test proposal. So,
11 I would propose that we piggyback our eighteenth
12 meeting on to that meeting; and, if we did that, we
13 would -- we can expect to have our portion of the
14 meeting beginning at 2:00 o'clock. And I would hope in
15 two hours we can resolve any of the policy issues such
16 that we can proceed. So, if no one has a problem with
17 that, I think it would be an efficient way to do it,
18 since we will have those same people in the coordinated
19 river operation meeting.
20 Mike?
21 MR. SATTERWHITE: So, the equivalent of this
22 meeting on the eighteenth will start when?
23 MR. ANDERSON: 2:00 o'clock, Room 106 in
24 Bonneville, give or take on the time on that. Because
25 I really don't know how long this other meeting will

1 take. The thinking was -- I talked to ~Ned Sikless
2 (phonetic), since he volunteered to host that meeting
3 -- that they would be done by about 2:00.
4 MR. BOWLER: Usually they get -- try to get
5 done by 2:00 o'clock.
6 MR. ANDERSON: Yeah. Do you have a feel for
7 that?
8 MR. BOWLER: I've been to them.
9 MR. ANDERSON: Does that start at 10:00?
10 MR. BOWLER: Yeah.
11 MR. ANDERSON: In fact, I'm sure anyone is
12 welcome to sit in on the other agenda for that day. It
13 will involve the same kind of people.
14 Is that okay, Sarah, then?
15 MS. WIK: Unless there's objections from
16 those here, I don't --
17 MR. ANDERSON: What we will need to do is get
18 a letter out to the members that we sent the initial
19 notice to these series of meetings, which was the
20 coordinating committee of the Salmon Summit. We will
21 get a letter out -- Sarah will get a letter out to
22 those folks saying that we will have this policy
23 discussion on the test at that meeting.
24 Wayne?
25 MR. HAAS: I'm not sure, but I think the

1 flight back and forth from Boise is around 5:00
2 o'clock.
3 MR. BOWLER: 5:00 o'clock our time.
4 MR. HAAS: Do you know when they leave?
5 MR. BOWLER: 11:30.
6 MR. HAAS: Do they all come in at 11:30?
7 MR. ANDERSON: I assume you would hope that
8 we could discuss what we need to discuss within two
9 hours in which case you can get back.
10 MR. HAAS: The 5:00 o'clock flight, there's a
11 lot of people trying to catch it. And if they leave at
12 4:00 --
13 MR. ANDERSON: Are you taking the Fraturian
14 (phonetic) or are you taking the shuttle?
15 MR. HAAS: Pardon?
16 MR. ANDERSON: Would you be taking the
17 shuttle?
18 MR. HAAS: Probably.
19 MR. ANDERSON: I don't have a better idea.
20 We need to have this meeting on the eighteenth for us
21 to maintain a reasonable schedule.
22 MR. HAAS: My thought, if there was any
23 way that the other meeting could be moved from
24 10:00 to --
25 MR. ANDERSON: Okay.

1 MS. WIK: Shift it a little bit.

2 MR. HAAS: -- 8:30, and this one moved to

3 around 1:00 o'clock or something. .

4 MR. ANDERSON: Okay. I'll tell you what I'll

5 do. I'll discuss that with corporate people on Monday

6 and pass the word to Sarah; and, when she gets the

7 letter out, she can just tell you what the time is.

8 Any other business we need to take care of

9 before people leave?

10 What I thought we might do at this point is

11 perhaps we can recap the alternatives that we put on

12 the table, identify any other alternatives that people

13 might have thought about over lunch or had in mind

14 beforehand and get those up; and then I think the next

15 order of business is to start looking at those more

16 critically to see what really makes sense and what is

17 doable. We can do some of that this afternoon. And/or

18 we can look at some of the critical issues and

19 questions on these alternatives in some work groups for

20 report back next week.

21 MS. WIK: I think we can flush out some of

22 the issues today at least what we need to look at in

23 further detail. Some of it may fall out based on

24 discussion today, so....

25 MR. ANDERSON: Okay.

1 Maybe, Jim, you can just kind of quickly
2 recap the four alternatives we have.
3 MR. ATHEARN: Okay.
4 First one we had was the one that basically
5 covers everything, all four pools, April 15th, August
6 15th, lowering the pools as low as we can get them
7 which is to spillway crest, releasing the juveniles at
8 Lewiston, picking them up at McNary Dam and for both
9 spring and summer migrants within the right time frame.
10 So, April 15th to June 15th for spring and until August
11 15th for summer.
12 MR. BOWLER: What -- could there be an option
13 of removing turbines and going below the spillway --
14 THE REPORTER: Pardon me, I couldn't
15 understand.
16 MR. BOWLER: Removing the turbines and going
17 below spillway crest? Is that -- is there anything
18 lower than spillway crest?
19 MR. PETTIT: You're getting back to the days
20 when we had skeleton bays, and we tried to run fish
21 through those gates.
22 MR. BOWLER: I mean, is that -- I'm just
23 asking that question.
24 MS. WIK: I guess that would have to fall
25 under the category of major structural modifications,

1 and I --

2 MR. PETTIT: Plus taking fish through the

3 draft through the skeleton bays was tried --

4 MR. GRAHAM: Slotted bulkheads.

5 MR. ATHEARN: We made major modification to

6 the fish when we tried that.

7 MR. SATTERWHITE: You're talking about

8 lowering the pool even further?

9 MS. WIK: Even further, Mike?

10 MR. BOWLER: Yeah. Even further by pulling

11 like turbines out of their --

12 MR. SATTERWHITE: Walter Bean (phontic)

13 suggested that it wouldn't be possible to lower the

14 pools much below spillway due to the limitations of

15 available passage space of the turbines. If you did it

16 under certain water conditions, you couldn't get enough

17 water evacuated down through those ports to draw them

18 physical through the spillway, again, under some

19 conditions of inflow.

20 MR. ANDERSON: Yeah, I think that's correct.

21 MS. WIK: I do want to point out one thing

22 here in terms of the spillway crest. That's elevation

23 at Granite, for example, six eighty-one; but it would

24 be several feet above that, depending upon your flow.

25 For example, I think, you know, at eighty-five

1 thousand, it's about seven zero four. I'm not sure.
2 But just so people understand that at six eighty-one
3 nothing would be happening because -- because of the
4 head -- you need head on the system to pass the water,
5 so....
6 MR. ATHEARN: Probably the best way to
7 describe those things is like we are doing to for the
8 '91 operation where we say "near minimum." We would go
9 down as far as minimum --
10 MS. WIK: Right.
11 MR. ATHEARN: -- depending upon the operation
12 that actually existed within the reservoir system. It
13 could be somewhat above that periodically, so --
14 MS. WIK: Yeah.
15 MR. ATHEARN: -- these things, then, I guess
16 you would say, would be near spillway crest.
17 MS. WIK: Near spillway crest.
18 MR. PETTIT: When is this supposed to start,
19 by the way? Changing the subject, but when is this
20 minimum pool operation --
21 MS. WIK: This year, Jim, I think is what
22 he's asking.
23 MR. ATHEARN: Oh, the near minimums?
24 MR. PETTIT: (Speaker nods head.)
25 MR. ANDERSON: It was discussed the other day

1 at the Coordinated River Operations, but our
2 anticipated plan of operation is to be near minimum 15
3 April --
4 MR. PETTIT: 15 April.
5 MR. ANDERSON: -- through 15 July. But I
6 think there's a task group looking more specifically at
7 the time frame.
8 MR. ATHEARN: A task group that's going to
9 meet Monday morning at Portland and go through a list
10 of whatever recommendations that can be developed to
11 take back to that group on next Friday also. I think
12 Monday the 15th, or whatever the fifteenth is, would be
13 the soonest.
14 MR. KINNEAR: Does that operation level apply
15 only to Lower Granite or --
16 MR. ANDERSON: The four Snake projects to
17 John Day to an elevation at which we don't suffer major
18 impacts which probably will be in the range of two
19 sixty-two to two sixty-three, which is about five feet
20 below full on John Day. John Day is in the eleven-foot
21 range.
22 MR. BOWLER: Sarah, do you have a feel at all
23 for full pool, the head, in terms of collection for
24 Lower Granite?
25 MS. WIK: Well --

1 MR. BOWLER: I know that the surface is --
2 MS. WIK: -- we know the collection is better
3 -- or not -- I won't say better, but fish pass more
4 efficiently at higher head --
5 MR. BOWLER: Higher head.
6 MS. WIK: -- than they do at the lower. We
7 don't have exact data points to my knowledge, but we do
8 know that passage efficiency drops as you lower the
9 pool. So that -- you know, we have talked about that.
10 MR. ANDERSON: Let's have Jim recap quickly
11 each of the alternatives.
12 MS. WIK: Yeah.
13 MR. ANDERSON: And then lay out anything
14 further that we need, and then we will come back and
15 talk about some of these issues and questions.
16 MS. WIK: Because that's going to come out on
17 some of the tests, too.
18 MR. BOWLER: Probably at the Monday
19 discussion about that.
20 MS. WIK: Yeah.
21 MR. ATHEARN: That's one end of the scale,
22 Option 1. Option 2 is the opposite end of the scale,
23 which is just a physical test as described by Steve,
24 incremental drawdown to spillway crest in ten-foot
25 increments. The summer period of July 15th to August

1 15th and a winter period from January 1st to the end of
2 February. Other elements that we talked about was
3 consider fall augmentation. Physical impacts on roads,
4 levees, what have you, and then water velocity
5 measurements and the measurement of actual water
6 movement in the reservoir.
7 MS. WIK: Jim, can I add one thing in terms
8 of physical impact? I think we would want to add water
9 quality impacts as well. I mean, that's in a sense
10 physical; but it's dealing with more than just your
11 road and levee and that type of physical impact.
12 MR. PETTIT: Is the impact on the nonoverflow
13 section of the dam significant enough to have it as a
14 separate bullet now?
15 MR. GRAHAM: Are you talking about the
16 embankment sections?
17 MR. PETTIT: Yeah.
18 MR. GRAHAM: Yeah. That's a pretty major
19 thing.
20 MR. ATHEARN: I was -- I will list the
21 concerns to each of these items.
22 MS. WIK: Yeah.
23 MR. ATHEARN: Maybe we will list that there,
24 Steve.
25 MR. PETTIT: Okay.

1 MR. KINNEAR: Jim, before you pull that, is
2 there means of indicating that the winter would be
3 preferred than the summer; or is that, in fact, the
4 consensus of the group? You're looking at two
5 different potential times, but the winter would be
6 preferable in terms of at least the impact
7 biologically.
8 MR. ATHEARN: I think we can note that on
9 here.
10 MR. PETTIT: I think it probably would be --
11 probably would be no advantage to go into either one
12 because the basic flow is going to be about the same.
13 MR. ATHEARN: Okay.
14 Option 3, we got into biological test
15 alternatives, starting with Lower Granite pool lowering
16 to whatever the lowest level was we can achieve and
17 maintain adult passage.
18 MS. WIK: Can I kick in here?
19 That would be seven ten. I checked with the
20 District over lunch, and seven ten is the minimum
21 operation, and there was some hesitancy. But I think
22 we could make the adult fish emergency exit functional
23 between seven ten and normal -- normal operating range.
24 It would require some modification, but they certainly
25 are not major. But seven ten is the bottom because

1 they need five foot of head on the pumps and the intake
2 for the pumps is seven zero five.
3 MR. ATHEARN: Okay. April 15th to June 15th.
4 Release juveniles at Lewiston, recover them at Little
5 Goose. That's under the premise of a PIT tag
6 collection. We also talked about the option of radio
7 tags tracking just through the reservoirs.
8 Four was another alternative. This one had
9 Granite and Lower Monumental lowered and Little Goose
10 and Ice Harbor near full pool. Same time period as the
11 previous one. Use radio tags. Release fish at
12 Lewiston, tracking through the reservoirs slow, fast,
13 slow, fast.
14 MR. BOWLER: I thought of some alternatives
15 on "X" level. Seven ten at Granite and five zero nine
16 at Lo Mo. Obviously, we would struggle with ladder
17 considerations at Lo Mo. But that would be at least a
18 similar drawdown at Mo as Granite would be; that's
19 twenty-eight feet for full pool.
20 MR. ATHEARN: Five zero nine?
21 MR. BOWLER: Yeah.
22 MR. ATHEARN: Okay. The last one we talked
23 about -- I guess that was it.
24 MR. BOWLER: There's always the no action
25 alternative.

1 MR. ATHEARN: Right. I thought there was
2 five on the next one, but there's nothing on it.
3 MS. WIK: Are there other alternatives that
4 we want to --
5 MR. McCONNAHA: Yeah. I would like to throw
6 back my on-again and off-again program --
7 MS. WIK: Okay.
8 MR. McCONNAHA: -- to try to --
9 MR. BJORNN: Describe that, Chip.
10 MR. McCONNAHA: For example, as I recall, it
11 takes three days to bring it down to seven twenty-one;
12 and the Corps had some --
13 MR. ANDERSON: Two feet per day.
14 MS. WIK: Two feet a day.
15 MR. McCONNAHA: I don't remember how many
16 days it took to get it down. And then, anyway, you
17 would have to maintain that at, say, seven -- now this
18 is Lower Granite, I'm speaking of -- and the other
19 pools are maintained at normal elevations. Keep it at,
20 say, seven twenty-one for seven days, bring it back up
21 to normal for another seven days, bring it back down to
22 seven twenty-one and back up.
23 MR. BOWLER: Pulsing.
24 MR. McCONNAHA: That's one of the questions
25 you would have to think about. Are you really testing

1 pulsing here or testing velocity and whether or not
2 that would be sorted out. But you could end up over a
3 season having three replicates of high- and low-flow
4 condition that would be both early and late that way
5 for actual physiological conditions as well. A little
6 extra bonus is conceivably barge traffic could go up
7 during the full time, and you wouldn't loose barge
8 traffic for the entire season. But you would be --
9 when I say seven up there, Jim, you know, it might be
10 five or it might be eight or nine. Anyhow, the concept
11 here is to try to end up with three low periods and
12 three high periods during the season. And, obviously,
13 you're marking fish at Lewiston and recovering at Goose
14 all during that period.
15 MS. WIK: Or could you also as an option
16 recover at Granite with the radio tags?
17 MR. McCONNAHA: Actually --
18 MR. KINNEAR: Why use radio tage?
19 MS. WIK: Well, with radio tags, you can
20 recover at Granite at low pool as well.
21 Chip, why necessarily seven twenty-one? Why
22 not down to seven ten?
23 MR. McCONNAHA: Yeah.
24 MS. WIK: Except for the time that's going to
25 be involved in lowering and refilling is -- you're not

1 including that in the time block of --

2 MR. McCONNAHA: No, no. That's -- I at one

3 time sketched this out, and I think it ended up -- I

4 don't have it with me unfortunately -- but I think it

5 ended up you get three seven-day periods of each one

6 within a season. April 15, June 15 period, I think. I

7 would have to figure out how many days it took to lower

8 it, and how many days it took to raise it.

9 The other decision is, what do you do with

10 the adult passage while you're lowering and raising.

11 And, I don't know, does this modification you guys are

12 talking about on the Granite ladder make it usable in

13 between seven twenty-one and --

14 MS. WIK: Yes. That's what I was just

15 talking about.

16 MR. McCONNAHA: Oh, okay. That would be

17 better.

18 MS. WIK: We can't -- I believe that we can

19 modify it to make it it functional.

20 MR. PETTIT: Chip, how would you guarantee a

21 fish that was marked on "X" day and then got to the

22 Lower Granite some period of time later was only

23 affected by one regime or another? Are you --

24 THE REPORTER: Excuse me, I couldn't hear

25 you. Was only affected....

1 MR. PETTIT: -- by one regime or another.
2 You know, based on what we know about travel time to
3 that pool, it would be real difficult to measure it, I
4 would think.
5 MR. McCONNAHA: Of course, if you are using
6 PIT tags and you were really concerned about that, I
7 suppose you could discharge any PIT tags that migrated
8 outside the particular test period or say that we would
9 only count those PIT tags released in Lewiston or
10 collected within the regime of test conditions.
11 MR. PETTIT: At Little Goose?
12 MR. McCONNAHA: At either -- yeah, presumably
13 Goose. I don't know. I -- there's things you have to
14 work out on any of these.
15 MR. PETTIT: Yeah.
16 MR. McCONNAHA: I'm not sure how you would
17 handle that one, that particular one. That's a good
18 point, though.
19 MR. SATTERWHITE: Just one question about the
20 drawdown rate.
21 The two foot per day, is that hypothetical
22 drawdown rate based on some engineering assumptions, I
23 assume; or would there be some attempt to assess that;
24 and, if the two foot per day drawdown rate appears to
25 work without consequences, do we accelerate the

1 drawdown -- try to accelerate the drawdown rate?

2 MR. ANDERSON: I think that potentially is

3 the situation. We would have to plan on entering this

4 with a two foot per day limit.

5 MR. GRAHAM: I think -- I think if it goes

6 anyplace beyond, it will probably go back. I mean, two

7 foot is probably the maximum we can do, maybe less.

8 MR. KINNEAR: Why?

9 MR. GRAHAM: Pardon me?

10 MR. KINNEAR: Why?

11 MR. GRAHAM: Well, as Mike pointed out, it is

12 kind of a preliminary -- or -- or -- very initially

13 when we looked at it, it was one foot a day. And our

14 soils people say we feel comfortable at one foot a day.

15 And they did a little more looking and talked with some

16 other districts that had done some other studies

17 similar to this; and they said, Well, one and a half

18 foot a day we can live with. If you want to stretch it

19 out, we can say two foot. But you are taking more risk

20 at two foot a day.

21 MR. KINNEAR: That's because the banks are

22 sloughing and you're -- you're drying them out?

23 MR. ANDERSON: Yeah. Saturated slopes.

24 MR. SATTERWHITE: What I'm getting at is if

25 there were multiple cycles. The first drawdown would

1 give you a good indication of your engineering
2 limitations, and then it may be possible to reconsider
3 a maximum rate.
4 MR. GRAHAM: So, you're assuming if you draw
5 it down at two foot a day and you don't have a problem,
6 you can increase that. Well, I guess I don't believe
7 in that philosophy.
8 MR. SATTERWHITE: I'm not asking you to do
9 it. I'm just asking you if you're planning on
10 considering the option of accelerating the rate of
11 drawdown if it appears that the two-foot rate is
12 acceptable.
13 MR. GRAHAM: I guess about all I can tell you
14 right now is our soil engineers are starting to feel
15 uncomfortable at two foot a day. They would like to
16 drawback to a foot and a half.
17 MR. SATTERWHITE: I fully understand your
18 interest and caution. I think it's wise. But there
19 needs to be another side of it, a willingness to
20 experiment with the limitations and the real limits
21 of --
22 MR. ANDERSON: I think it -- suffice it to
23 say, we will certainly gain some information if we
24 actually implement a drawdown like that.
25 MS. WIK: I think one other thing we need to

1 consider, Mike, is just in terms of the drawdown, how
2 that happens. You know, you're talking about the
3 inflow plus pulling the reservoir down; and you're
4 talking about it going over the spillway. I mean
5 calculations need to be made as to how much water that
6 puts over the spillway.
7 MR. SATTERWHITE: That's right.
8 MS. WIK: We would want to be careful that
9 what we are doing is not setting us up for a problem
10 downstream in terms of dissolved gas levels as well.
11 So, just by virtue of increasing that just to speed the
12 process up, I mean it's going to happen anyway, but
13 that would increase the --
14 MR. BOWLER: Are you going to be able to
15 model some of the dissolved gases under some of these
16 alternatives?
17 MR. BJORNN: We can monitor.
18 MS. WIK: We can monitor, but we don't --
19 MR. BOWLER: Are you predicting any
20 particular type of modeling?
21 MS. WIK: We are going to look at that, but
22 that's pretty -- pretty tough. We don't have good
23 information about what happens right below the dam
24 right now. We are installing instruments to get that
25 information this year; but we, you know, know what the

1 conditions are at the next pool downstream at the
2 forebay. But, you know, a major concern is going to be
3 what's going on down at the tailrace; and I don't know
4 we have good info from that from which to model. We
5 will attempt it, but I think that's a big....
6 MR. SATTERWHITE: I guess my point is, if you
7 can push a drawdown to the maximum, you can shorten the
8 duration of transition which should have an advantage
9 for some interested parties, I would think, by
10 shortening the duration of the test or allowing other
11 options to occur.
12 MR. GRAHAM: The one problem I have with that
13 is there's many areas around the reservoir where
14 there's random fill, and we don't know exactly what
15 type of material it is. You know, it's random. And to
16 do any kind of calculations on there, we would have to
17 go in there and figure out exactly what type of
18 material that is. So, there's -- there's risk.
19 MR. KINNEAR: The first drawdown will tell
20 you, won't it?
21 MR. GRAHAM: Pardon me?
22 MR. KINNEAR: The first drawdown will tell
23 you, won't it?
24 MR. GRAHAM: Well, that's a big problem. It
25 may. But, if it doesn't tell you, that doesn't mean

1 the next time you draw it down or if you try to draw it
2 down a little faster, you won't run into problems.
3 MR. McCONNAHA: That might be a good reason
4 to do Steve's physical experiment prior to doing
5 anything else. You can do it during a noncritical
6 period when it won't hurt anything. You can draw it
7 down two feet a day and see what happens.
8 MR. ANDERSON: Do we have any other
9 alternatives?
10 MR. HAAS: Well, one of the -- I'm wondering
11 if one of the alternatives couldn't be a combination of
12 physical alternatives with some of these others? Is
13 there any reason why you didn't want to do that or --
14 MR. ANDERSON: I think that is certainly
15 something to consider. They are not mutually
16 exclusive.
17 MR. HAAS: I didn't mean that.
18 MR. ANDERSON: If you did something in the
19 winter, is that physical?
20 MR. HAAS: Is that one of the things we are
21 considering?
22 MR. PETTIT: I think that it's physical, not
23 biological.
24 MS. WIK: That's right. You would --
25 MR. PETTIT: If the impacts are too great to

1 the resource, for whatever reason, yes, they -- it's
2 common sense then that maybe we have no alternatives,
3 you know, but to just go with a physical test.
4 MR. HAAS: From a standpoint of the test,
5 just looking at the test results, it would seem to me
6 there wouldn't be any reason why you wouldn't -- if you
7 are setting up the test itself look at all the windows
8 of opportunity to do the test within.
9 MR. BJORNN: That's right. I think we are.
10 MR. HAAS: I don't know whether you need to
11 list that as an alternative or whether it is just
12 understood when you go through this --
13 MS. WIK: I think that's a given under the
14 biological list of alternatives, that we would also
15 look at the physical. That's a given.
16 MR. McCONNAHA: I think the sixth one should
17 be --
18 MR. ATHEARN: Excuse me, before you get to a
19 sixth one, have I captured everything on this one
20 because I added a couple of things while you all were
21 talking.
22 MR. McCONNAHA: Unless you wanted to say
23 something about Sarah's idea using radio tags.
24 MS. WIK: Yeah. Recover at Little Goose or
25 Lower Granite with radio tags too.

1 MR. ATHEARN: Okay. Little Goose would be
2 PIT.
3 MS. WIK: PIT. Lower Granite with radio
4 tags.
5 MR. ATHEARN: Okay.
6 MR. PETTIT: It would be nice to have
7 somebody like Lowell be present at the next meeting to
8 talk about what he thinks are the realistic uses of
9 those tags and whether they would affect the behavior
10 to the point where you may want to try a different --
11 MS. WIK: Okay. I'll talk to him to see if
12 he can.
13 MR. BJORNN: We need somebody to talk to him
14 for sure.
15 MS. WIK: Yeah.
16 MR. McCONNAHA: I think the no action one
17 here is actually a variant on what we already do.
18 That's why it's no action. But, if the intent --
19 purpose of lowering reservoirs is solely to look at the
20 effect of velocity changes on fish movement, then we
21 could do -- we would not necessarily have to lower the
22 reservoir a lot for all that to be the best, if you
23 want to get the widest variety of test conditions.
24 But, even within the season, we get different velocity
25 in the reservoir. And one possibility would be to give

1 some thought to a well-designed fish travel time
2 experiment with or without -- accompanied by --
3 accompanied or not accompanied by pool drawdown. In
4 other words, right now, most of the travel time
5 information we have is the result of monitoring studies
6 which are obviously necessary and good; but they are
7 not necessarily designed to test all of the different
8 ramifications of fish travel time. We actually have
9 never done a really thoughtout designed travel time
10 experiment in a long time. We are more into monitoring
11 probably now. And one -- again, if it's velocity that
12 we are interested in here and not the physical effect
13 of having the pool lowered, which may have some other
14 kinds of behavioral affects that we don't know about
15 other than just velocity, one alternative would be to
16 conduct a travel time experiment looking at physiology,
17 flow, time of release, all of the other factors which
18 go into this fish travel time equation.
19 Did you get that, Jim?
20 MR. ATHEARN: Yeah. I was trying to figure
21 out how many words to cut it down to. How about if --
22 what you're talking about, then, is normal pool
23 operation --
24 MR. McCONNAHA: Right.
25 MR. ATHEARN: -- taking advantage of whatever

1 flows we have and monitor migration timing and develop
2 a relationship with some velocity?
3 MR. McCONNAHA: Yeah, Jim. I guess what I'm
4 trying to do is get the -- saying another way to look
5 at velocity is within a year and trying to take
6 advantage of the velocity conditions that occur within
7 a year. For instance, if we got into a situation that
8 Steve was mentioning, where we had BSA considerations
9 or common sense or whatever says we shouldn't do this
10 right now, but we still need to get -- obviously get
11 improved information on fish movement in response to
12 water velocity, we can do Steve's physical experiment
13 to get physical information and think about how we
14 could design a travel time experiment within -- we
15 wouldn't even have to limit ourselves to Lower Granite
16 pool for one thing at that point. We could look at
17 other pools. And try to get a variety of velocity and
18 a variety of physiological conditions and other factors
19 and see what we can learn about fish travel time from
20 -- without taking perhaps the broader measures we are
21 talking about. Although, that's a less preferred
22 alternative in my mind
23 MS. WIK: I mean, that's -- you're basically
24 summarizing what Ted to one degree or another talked
25 about earlier.

1 MR. ANDERSON: Yeah.

2 MS. WIK: You know, I guess one advantage to
3 keep in mind, too, with something like that is that it
4 would make sense to do it no matter what the flow
5 conditions are next year. And, again, as Chip says, it
6 may not be the preferred alternative; but I think it is
7 something we need to consider.

8 MR. KINNEAR: Do we not now monitor fish that
9 are released above Granite pool? What you're talking
10 about is simply the ongoing operations.

11 MR. PETTIT: Well, like Chip was alluding to,
12 you can fine tune that more than just the simple
13 monitoring.

14 MS. WIK: Yeah. Monitoring versus, as Chip
15 says, a well-designed travel time experiment are two
16 different things.

17 MR. PETTIT: There's a lot of difficulties,
18 though, in laying your hands on fish at the right
19 period of time. Right about the time when a lot of
20 fish are coming, your flows got too high to operate the
21 Clearwater traps, so you pull those out; and you can't
22 mark those. The Snake may be inundated at that time,
23 and you can't catch fish there.

24 MR. McCONNAHA: Well, there are maybe some
25 things we need to think about, no matter what test we

1 do. Say, we are limited in how we can -- the kind of
2 experiment and the information we can get by
3 performance of existing traps we have to perform at
4 different flow conditions. I bet it is a heck of a lot
5 cheaper than a lot of this stuff to have some bright
6 engineer sit down and say, Can you design us a trap
7 that will operate efficiently within these flows and
8 give us the information we need? If we are in that --
9 if we fall into that kind of a situation. I don't
10 know.
11 MR. PETTIT: Support that.
12 MR. ATHEARN: How am I doing, Chip, is this
13 getting close to capturing --
14 MR. McCONNAHA: Well, I think that's....I
15 guess I would just say something more about a design
16 experiment because that sounds like exactly what we are
17 doing now.
18 MS. WIK: Yeah.
19 MR. McCONNAHA: And that's -- I'm certainly
20 not belittling what we do now. I'm saying augment what
21 we do now, go beyond what we are doing now in terms of
22 design experiment.
23 MS. WIK: Yeah. For example, we don't
24 calculate how many fish we would have to mark in
25 Lewiston in order to get adequate recovery at Little

1 Goose?

2 MR. McCONNAHA: Right.

3 MS. WIK: Or McNary or wherever, and that
4 would be what you would really want to look at is, you
5 know, how many fish do we need to have in the system to
6 get that information.

7 MR. McCONNAHA: Right.

8 MR. PETTIT: One thing that would really have
9 to change for doing these fish replicates is to
10 correspond to individual flow change.

11 MS. WIK: Yeah.

12 MR. PETTIT: You can't predict what you're
13 going to get unless you also improve augmentation in
14 further test data.

15 MR. McCONNAHA: Yeah. Or ways in which we
16 can control for the physiological conditions. Time of
17 release, all these other factors that we are trying to
18 sort out.

19 MR. PETTIT: How much effect do you think
20 frequent stops of fish would have?

21 MR. McCONNAHA: I don't know. Ted had
22 mentioned that it. My guess would be that it would be
23 more of an effect of them coming out of a hatchery, a
24 different physiological state maybe, a different size
25 maybe, you know, kind of a genetic stock effect. I

1 don't know. But that's something we don't know.

2 MR. BJORNN: I think, if we were going to do

3 that, there's a couple of things to think about. One,

4 as Steve mentioned, is if you depend on traps at

5 Lewiston, you run the risk of going out of operation

6 when the water goes too high. So, you maybe want to

7 think about releasing groups of fish from a place like

8 Rapid River or Dworshak and using more than one

9 species. Use steelhead and chinook. So, you might not

10 release the fish at Lewiston and that doesn't

11 necessarily impair the experiment.

12 MR. ATHEARN: Anything more for No. 6?

13 MS. WIK: Do we hear No. 7?

14 MR. ATHEARN: Yeah. Do we have a No. 7?

15 MR. KINNEAR: No. 7 would simply be run of

16 the river. I think Witt has already told us he won't

17 entertain that.

18 MR. ANDERSON: Won't entertain that?

19 MS. WIK: Removing the dams.

20 MR. PETTIT: Blowing the dams up.

21 MR. ANDERSON: Oh, oh. I'm sorry. Yeah.

22 I've got to get a new mind set.

23 MR. BOWLER: Bedrock.

24 MS. WIK: Blow them up and rebuild them.

25 MR. BJORNN: That's certainly not a 1992

1 option.

2 MR. PETTIT: One or two smart bombs would.

3 MR. ANDERSON: What? Smart what?

4 MR. PETTIT: One or two smart bombs.

5 MR. ATHEARN: Do we want to go ahead, then,

6 and go back to these and start talking about the

7 concerns that we have for these different alternatives?

8 How do you want to handle that?

9 MR. BJORNN: I think it would be helpful for

10 the people who are going to put it together for next

11 week to hear what everybodies concerns are.

12 MS. WIK: I think we should do that. Shall

13 we start with Option 1?

14 MR. ATHEARN: I almost feel like starting

15 backwards is easier. But, yeah, let me flash one back

16 up here just to refresh everybodies memory.

17 MS. WIK: I think within this discussion, you

18 know, we will flush out some of the things that also

19 apply to the others.

20 MR. ATHEARN: Okay. All four pools; three-

21 month, four-month time frame; low as they can go.

22 Spring, summer migrants. Okay.

23 What are the issues to be resolved?

24 MS. WIK: Who wants to start?

25 MR. BJORNN: I think adult passage is a

1 serious one that needs to be really evaluated.

2 MR. BOWLER: And that might be coached in the

3 terms of timing. If you were to back the timing back

4 to some less severe total time. In other words, run it

5 under a test, April 15th to May 1 or May something or

6 something less than that.

7 MR. ATHEARN: Okay. How about if we -- adult

8 passage is the concern and possible solution is timing.

9 MR. BOWLER: Adjust the timing.

10 MR. KINNEAR: Jim, did you mention that a

11 possible concern would be handling adults and trapping,

12 some physical means of moving --

13 MR. ATHEARN: Would that be a concern or

14 would that be a potential solutions?

15 MS. WIK: Yeah. The adult fish passage is

16 the concern. How do we get the fish around the dams.

17 So that would be something --

18 MR. ATHEARN: So, develop adult trapping.

19 MR. PETTIT: Yeah.

20 MR. ATHEARN: Actually, it's trap and haul,

21 which, in itself, begs the question, how far you haul

22 them. But you get around -- well, let's say the

23 Tucannon problem, I assume you would release them --

24 any fish captured at Lo Mo, for example, immediately

25 upstream rather than above Granite.

1 MR. BOWLER: And any ladder modification.

2 MR. BJORNN: I'm not sure I understood that

3 last comment, Jim. How would you have them released at

4 Lo Mo?

5 MS. WIK: Yeah.

6 MR. PETTIT: Trapping at Ice Harbor.

7 MR. ATHEARN: Trapping at Ice Harbor and

8 releasing from Ice Harbor. In other words, if you had

9 all four pools down and you wanted to maintain adult

10 passage and felt you could do it through ladder

11 trapping and hall them out of each dam.

12 MR. PETTIT: I think you could --

13 MR. BJORNN: In order to solve the Tucannon's

14 Lion's Ferry issue, you would let them go just upstream

15 and you would just truck them around one dam.

16 MR. ATHEARN: Yeah. You just --

17 MS. WIK: Well --

18 MR. ATHEARN: Yeah.

19 MR. BJORNN: Rather than all three.

20 MR. ANDERSON: Trap them. Trap them and haul

21 them again.

22 MR. ATHEARN: Well, you run into other risks

23 if you capture them at Ice Harbor. For example, if

24 they were in mid-Columbia waters --

25 MS. WIK: Well, you run into that, I think,

1 anywhere, the question of fall back and whether those
2 fish really did want to be above that dam or not.
3 MR. ATHEARN: Yeah. Ladder modification.
4 MS. WIK: Would you include under that,
5 Bert, the concern of them even finding the collection
6 channel --
7 MR. BOWLER: Sure.
8 MS. WIK: -- because of the spill, I guess,
9 is my -- not just that the collection channel may not
10 function, but that the spill may inhibit the fish in
11 finding where they are supposed to be.
12 MR. SATTERWHITE: Doesn't that already occur
13 in the system?
14 MS. WIK: At high spill, yes. And that's the
15 concern that we are creating a condition of high spill
16 for the test which we know --
17 MR. KINNEAR: Confuses the adults.
18 MS. WIK: Right, right. What we're creating
19 now --
20 MR. SATTERWHITE: To some degree we already
21 have that problem.
22 MR. ATHEARN: The difference being there,
23 Mike, that when you're in a real high flow situation
24 where you have high spill, you also have powerhouse
25 operation. So, you have an attraction for the

1 powerhouse site. But, if you switch to a low pool
2 operation where you're, in effect, not using the
3 powerhouse, you lose that.
4 MS. WIK: Yeah.
5 MR. ATHEARN: It's a big -- potentially a big
6 disruption and significantly make things worse.
7 Does that capture adult passage? I was going
8 to put spill down next unless there are other things
9 that are there.
10 MR. BOWLER: Well, put a space so we can go
11 back to that, but leave a little room. Spill would be
12 another one.
13 MR. ATHEARN: Here we have got dissolved gas.
14 MR. BJORNN: Uh-huh.
15 MR. PETTIT: There's been some discussion
16 that if we had spillway elevation, wherever the head is
17 plunging, that the plunge is not as significant. So,
18 you may not get the same amount of dissolved gas
19 supersaturation as you would with a full operation.
20 MS. WIK: But, Steven, your tailwater would
21 be -- your tailwater would be down in this case too.
22 MR. PETTIT: Okay. So, that's -- I'm just
23 wondering about that.
24 MS. WIK: Yeah. No, I'm not meaning to throw
25 it out. It's just that it would depend upon what

1 happens to your tailwater basically.

2 MR. PETTIT: What about considering how the

3 flip lips themselves would become inoperable because of

4 low tailrace.

5 MR. ATHEARN: That's entirely possible.

6 MR. BOWLER: Put down effectiveness.

7 MR. ATHEARN: But effectiveness of

8 dissipating the energy, but also potential effect on

9 juvenile migrants.

10 What do you call the baffles down there?

11 Dentates?

12 MR. ATHEARN: Dentates.

13 MR. PETTIT: They're gone.

14 MR. BJORNN: There's energy dissipaters.

15 MR. GRAHAM: We have energy dissipaters. We

16 have got an insill on the stilling basin.

17 MR. ATHEARN: So, there are some pieces down

18 there for fish for bounce off of. Okay.

19 MR. PETTIT: So, some of the projects still

20 have those dentates in place? They haven't all been

21 ground down --

22 THE REPORTER: Pardon me, I couldn't

23 understand what you said.

24 MR. PETTIT: There's some accessory apparatus

25 at the spill flip lips, and one of those are called

1 dentates which is a big I-bar piece of steel hanging
2 down out of the conrete.
3 MR. GRAHAM: I don't know if those have been
4 removed or not. I can sure find out.
5 MR. ATHERAN: I suppose we need to put down
6 here channel passage disruption.
7 MS. WIK: Physical impact to juvenile fish.
8 I mean, that's tied to that, but --
9 MR. ATHEARN: All right. That's --
10 MS. WIK: -- even beyond just those
11 questions, there may be concern at that volume.
12 MR. PETTIT: Is the concern that once you
13 exceed inflows that renders the boilerplate
14 effectiveness of the flip lips? What I am trying to
15 say is, pretty soon you have to start getting rid of
16 some of that inflow by either refilling or going
17 through one of the units.
18 MR. GRAHAM: I don't follow you.
19 MR. PETTIT: Okay. If Granite runs in -- the
20 flip lips have a 10 K forebay effectiveness. If you
21 have more than eighty thousand cfs in the river, you
22 exceed the nitrogen abating capabilities of the flip
23 lips.
24 MR. ATHEARN: It overrides the flip lips,
25 yeah.

1 MR. PETTIT: You have to do something with
2 the rest of the flow.
3 MR. ATHEARN: Right. I think we captured
4 that here.
5 MR. PETTIT: Is that what that falls under?
6 MS. WIK: Yeah.
7 MR. McCONNAHA: This may not apply to all of
8 them, but maybe just -- there's some people here that
9 have expressed concern about concentration of
10 predators.
11 MR. ATHEARN: That wouldn't be under spill.
12 MR. McCONNAHA: No.
13 MR. ATHEARN: Now we are talking about a
14 major --
15 MR. McCONNAHA: We're talking under --
16 MR. ATHEARN: Okay. Is there anything else
17 under spill? We can come back to this, too, I guess.
18 MS. WIK: I guess one quick question is, Ice
19 Harbor does not have flip lips. So that would be
20 one....
21 MR. ATHEARN: Okay. That may be good.
22 MR. PETTIT: Mo only has six.
23 MS. WIK: Goose and Mo only have six.
24 Granite is the only one with eight.
25 MR. BOWLER: As far as gas accessment there,

1 does Ice Harbor build up high levels of nitrogen?
2 MR. ATHEARN: Yes.
3 MS. WIK: We don't know what it is
4 immediately below Ice Harbor, but it does increase the
5 levels when we're spilling and testing projects, both
6 Mo and Ice Harbor.
7 MR. ATHEARN: Okay. Let's go into predators.
8 Steve left. He said more concentrated at
9 lower pools.
10 MR. BOWLER: Is there any information about
11 predators and velocity as to --
12 MR. ATHEARN: We have target velocities for
13 release sites at our collection facilities, for
14 example, with, say, about three and a half feet per
15 second, Sarah?
16 MS. WIK: I think that's what it is.
17 MR. BOWLER: That you shoot for --
18 MS. WIK: Three to three and a half.
19 MR. ATHEARN: Yeah.
20 MR. BOWLER: -- that don't tend to
21 concentrate predators at high velocities?
22 MS. WIK: Right.
23 MR. ATHEARN: But they would tend to avoid
24 velocities of that much or more.
25 MR. BOWLER: Three and a half feet per

1 second?

2 MR. ATHEARN: Yes. Of course, that depends,

3 too, on how close cover would be. They could be right

4 in the midst of a real fast velocity if they had some

5 means of getting out of it, but still being able to

6 arch into the flow to cover.

7 Anything else to specify under known

8 predators?

9 MR. OSBORN: Well, I think lower pools might

10 also affect the ability for limitation of a squawfish

11 managment program, either dam handling or sportman's

12 access to the reservoirs.

13 MR. ATHEARN: Okay. So, impact to ongoing

14 control effortd.

15 MR. OSBORN: Implementation of squawfish

16 management program, you know, by ODFW.

17 MR. ATHEARN: Okay. You're calling it

18 management rather than control?

19 MR. OSBORN: Either way.

20 MR. BOWLER: Kill them.

21 MR. OSBORN: Stopping the squawfish.

22 MR. ATHEARN: Any more on predation?

23 MR. KINNEAR: Relative to higher

24 concentration, that's an assumption that will effect

25 the additional concentration of squawfish or higher

1 concentration, is it part of the protocol, perhaps, to
2 adjust whether or not we do have higher concentrations
3 of squawfish?
4 MR. ATHEARN: Per unit volume it's going to
5 have more fish, but does it mean anything? It's a
6 valid question.
7 MR. KINNEAR: Yes. If the predation -- or
8 the squawfish are there because of much higher incident
9 of stunned or otherwise damaged fish coming through the
10 turbine, which won't be the case under a spill
11 situation, You might not have a higher concentration of
12 squawfish.
13 MR. OSBORN: You might even know that most of
14 the squawfish do concentrate in the fall out and bypass
15 facility, not necessarily in the powerhouse.
16 MS. WIK: But, on the other hand, they may
17 end up concentrating along the spillway and for some
18 reason that impacts the juvenile fish going that route,
19 too. But, it's a given that there is a certain amount
20 in the reservoir volume, and you decrease that volume,
21 you effect -- the concentration goes up. Whether, you
22 know, just overall the concentration goes up.
23 MR. SATTERWHITE: But you might also except
24 redistribution?
25 MS. WIK: Right. And that's what he's

1 saying.

2 MR. ATHEARN: I had a change in distribution.

3 Anything else under predation?

4 (No discernible response made.)

5 MR. ATHEARN: All right. How about other

6 effects?

7 (No discernible response made.)

8 MR. ATHEARN: Add a change in distribution.

9 Anything else under depredation?

10 (No discernible response made.)

11 MR. ATHEARN: All right. How about other

12 effects, concerns?

13 MR. HAAS: We're talking about the effects

14 other than biological?

15 MR. ATHERAN: I was thinking --

16 MR. HAAS: You're talking about things other

17 than biological, or are we still concentrating on that?

18 MS. WIK: Well, we still have some more

19 biological concerns, so....

20 MR. ATHEARN: I don't care what order we go

21 in next.

22 MS. WIK: Yeah. Well....

23 MR. ATHEARN: Sarah, do you want to hit some

24 more biological?

25 MS. WIK: Well, yeah. Some of the concerns

1 are in terms of water quality. You might want to make
2 that --
3 MR. ATHEARN: Water quality.
4 MS. WIK: In addition to dissolved gas
5 concerns, there may be a turbidity problem. And
6 related to that may be the release of sediment
7 contaminants.
8 MR. McCONNAHA: On the other hand, if the
9 reservoir was down, that would give you an opportunity
10 to get rid of contaminated sediments without having the
11 water to deal with.
12 MS. WIK: Well, it's a question of getting
13 rid of them. Would you really be getting rid of them,
14 or would you merely be relocating them and resuspending
15 them in the water column where they may affect the
16 biological --
17 MR. McCONNAHA: Well, if they are still out
18 there. But if you have such PCBs as a sediment, it --
19 MS. WIK: Well, dioxins, furans, PCBs,
20 other --
21 MR. McCONNAHA: If you want to get rid of --
22 can't get rid of them right now in the river, with the
23 water and everything that will just wash it down. So,
24 you lower the reservoir and the stuff is high and dry
25 now, and you get rid of it then.

1 MS. WIK: Well, except in the process of
2 lowering, you are going to pulling -- pulling that
3 material into it because you're going to have the wind
4 and wave action when you're lowering it.
5 MR. SATTERWHITE: But, you are doing the same
6 thing when you dredged annually or semiannually when
7 you're moving that water back into the river.
8 MS. WIK: That's true, Mike; but we do test
9 in those areas that we dredged; and the material in the
10 areas that we are dredged is very coarse, whereas
11 contaminants like dioxins and PCBs tend to bind to the
12 finer material, which is in other areas that may be
13 exposed under this scenario that normally we don't
14 expose in the dredging process.
15 I mean, those are questions that need to be
16 evaluated. You know, I'm not saying that's a given;
17 but that's something that you would want to be
18 concerned with.
19 MR. SATTERWHITE: That's one comment that I
20 would like to make about what we're going through right
21 here. I think these are issues that need to be further
22 addressed and discussed and not regarded as absolute
23 concerns or negatives. I think that these things --
24 all these things that we have just listed here need to
25 be evaluated and discussed and put into a realistic

1 context to try to make some assessment whether it
2 really is, in fact, a factor worthy of concern. I
3 think we are going to be surprised.
4 MR. BOWLER: Yeah.
5 MR. SATTERWHITE: I don't want to go to the
6 meeting on Friday and say, well, these are all the
7 reasons we couldn't do it.
8 MR. BOWLER: Another thing, that is totally
9 judgmental at this time.
10 MR. ATHEARN: I think we just want to get
11 everything on the table.
12 MR. SATTERWHITE: That's right.
13 MS. WIK: Yeah.
14 MR. BOWLER: Water temperature, the change in
15 the water temperature.
16 MR. MCCONNAHA: Go ahead, Bert. Anything
17 else on water?
18 MR. BOWLER: Dissolved oxygen.
19 MR. OSBORN: I just want to back up to the
20 contaminated sediments. Not only with the PCBs and
21 things like that, but also the resting stages of
22 diseases are also something that should be pointed out
23 that should be addressed and have a fairly good idea of
24 the contaminated sediments, not just PCBs, but also
25 fish diseases as well as.

1 MR. SATTERWHITE: This gets to another point
2 on the issue of water quality. If you were to propose
3 to do this option number one, you would want to
4 initiate and continue a water quality study that would
5 continue for the duration of test run to follow the
6 level of all the water values that you're talking about
7 to put it on a meaningful basis. For example, you
8 might expect siltation early on in a process like that.
9 But, later it might disappear and no longer become a
10 problem. And may not even be a problem in subsequent
11 years because you have redistributed the silt to a more
12 stable delivery.
13 MS. WIK: Right.
14 MR. SATTERWHITE: That's what I'm saying. If
15 we are going to deal with all the issues, then we have
16 got to do this in a context of a long-term study
17 throughout the duration of the period.
18 MS. WIK: Well, there's two concerns there.
19 One is what Wayne was talking about. You would examine
20 these automatically. In doing this procession, you
21 would monitor turbidity in the end and so forth. But,
22 on the other hand, you do want to at least consider the
23 short term. If we did know that there was going to be
24 a considerable pocket of disease exposed, if there's a
25 way to determine that ahead of time or a significant

1 factor of highly contaminated sediment that could have
2 a very negative impact in the short term, you know, we
3 would want to further evaluate that because those could
4 impact a lot of fish in a short period of time in a way
5 that we don't want to do. So there are both aspects to
6 that, both the short term and the long term.
7 MR. ATHEARN: Okay. Number one, water
8 quality?
9 MR. BOWLER: Resident fish.
10 MR. ATHEARN: Resident fish.
11 MS. WIK: Can I back up?
12 MR. BOWLER: Sure.
13 MS. WIK: This is sort of related. Before we
14 went to resident, I thought we might want to talk about
15 the effect on shelter and food sources. In other
16 words, macrophytes and the food sources within the
17 reservoir for the salmonids. I'm not sure what
18 category --
19 MR. ATHEARN: Do you want to do that under
20 resident fish and other organisms? Or is that too
21 broad?
22 MS. WIK: Okay. That would --
23 MR. BOWLER: No.
24 MR. PASSMORE: So, wouldn't your concern
25 actually have some affect on the --

1 MS. WIK: Correct. But that would fall out
2 under other aquatic organisms. What would happen to
3 them and what that affect would be on salmonids.
4 MR. KINNEAR: Migration food resources.
5 MS. WIK: Yeah. You could lump it other
6 acquatic resources.
7 MR. ATHEARN: So, impacts on the food
8 organisms. And I heard habitat. Do you want to break
9 that down finer to, say, resident spawning habitat?
10 You may have some some other term you wish to use. I
11 assume cover.
12 MS. WIK: Yeah, habitat. Cover habitat.
13 That's not just resident fish. That would be, for
14 example, fall chinook.
15 MR. BJORNN: Juvenile fall chinook habitat.
16 MS. WIK: Yeah. That would be all fish cover
17 habitat.
18 MR. PETTIT: How about predator
19 concentration?
20 MR. ATHEARN: We have that under predators.
21 MR. BOWLER: That's where it would help in
22 some respects, you know, all of that predation. There
23 would be a lot of data there already.
24 MR. ATHEARN: What about angling?
25 MR. BOWLER: Do you want that under

1 recreation?

2 MR. ATHEARN: Do you want to cover recreation

3 later? Under resident fish and organisms, anything

4 else?

5 MR. PETTIT: What about waterfowl?

6 MR. BOWLER: Waterfowl? Wildlife?

7 MR. ATHEARN: Do you want to go into --

8 MR. PASSMORE: Waterfowl would be one

9 specific. Fur bearers would be another one.

10 MR. ATHEARN: Okay. Anything -- what about

11 biological? Sarah, do you have others?

12 MS. WIK: I guess maybe one would be the

13 impact of the population of fish that then hits McNary

14 pool, what happens at that point in terms of, you know,

15 overloading facilities at McNary? I don't know. I

16 don't know how exactly to put that into --

17 MR. McCONNAHA: Are you saving that many fish

18 by that proposal?

19 MS. WIK: Well, you're not saving. I'm not

20 saying saving, but you're passing what normally you

21 would take a lot of them out of the system at Lower

22 Granite at Little Goose. You are now running the

23 entire population through -- through those four lower

24 reservoirs and depositing them at McNary pool, which is

25 different than the normal operation. Are there any

1 concerns with that?

2 MR. SATTERWHITE: Well, you have certainly

3 built enough growth capacity into the system to handle

4 improvements.

5 MR. KINNEAR: Resident fish, are you still

6 talking resident fish and the impact --

7 MS. WIK: No. I'm talking about monitoring

8 particulates.

9 UNIDENTIFIED SPEAKER: (Speaker inaudible.)

10 THE REPORTER: Excuse me.

11 MS. WIK: I'm not saying there is a definite

12 problem. I'm just asking, do we need to consider what

13 the impacts to Reservoir McNary and facilities beyond

14 may be by doing this?

15 MR. McCONNAHA: Is that any different than

16 what happens during high flooding?

17 MR. ATHEARN: Potentially it is, but it might

18 be something that you just plan for. You can plan to

19 park all the barges down there, for example, and just

20 load right on them. I might have said that too quick

21 we may have spillage problems with that.

22 MR. SATTERWHITE: It might also even along

23 the same consideration that the Northwest Power

24 Planning Council would have a goal of doubling runs.

25 MR. ATHEARN: The difference is the timing

1 question.

2 MR. SATTERWHITE: Difference in the timing.

3 MR. PETTIT: Not if you're taking them out

4 above.

5 MS. WIK: You're just doing a different

6 operation that even the Power Planning Council is

7 talking about because you have all your steelhead

8 coming through as well, which even if you were

9 bypassing those chinook, you would still be pulling

10 your steelhead out, for example.

11 MR. BJORNN: What about the evaluation of the

12 cost or benefits to the salmon themselves as kind of an

13 operation? How do we evaluate if we're doing any good

14 by doing this?

15 MS. WIK: In other words, do we have data

16 with which to compare what benefits may exist in terms

17 of increased travel time under this scenario?

18 MR. BJORNN: Not really an economic

19 evaluation; it's a biological evaluation.

20 MS. WIK: Uh-huh.

21 MR. BJORNN: Are we really improving smolt to

22 adult survival by doing this?

23 MR. OSBORN: Along those same lines, you

24 would be eliminating the smolt monitoring program and

25 that is a concern that we have no idea of the timing of

1 some of these fish, wild hatchery stock coming out of
2 the Upper Snake Basin until we get into this. This is
3 something we feel we need to monitor. Is that part of
4 the evaluation. Could it be put in the evaluation, the
5 ongoing research stating to the pool of the Snake down
6 to McNary.
7 THE REPORTER: I'm sorry....
8 MR. OSBORN: I was just saying along the
9 evaluation side, you would eliminate your smolt
10 monitoring program. A lot of the ongoing research in
11 the Upper Snake River would be eliminated.
12 MR. ATHEARN: Impacts on ongoing research.
13 MR. OSBORN: And part of the evaluation as
14 well.
15 MS. WIK: Is it unfair to back up to that
16 question, how would we evaluate whether or not the
17 drawdown did have positive benefits? I mean, it's back
18 to where we were --
19 MR. BOWLER: I thought we listed that to
20 begin with, and I think we're just culminating that
21 looking at the ways we would do the evaluation.
22 MS. WIK: Yeah.
23 MR. ATHEARN: Well, let's go to some more.
24 Do we have some more biological effects?
25 MR. McCONNAHA: I have a -- Jim, I have a

1 couple of things. One thing -- we could probably deal
2 with a couple of exceptions like the adult ladders and
3 maybe a few of the spillway considerations. We should
4 deal with almost every one of these -- every one of the
5 programs. Every one of the alternatives we have. So,
6 hopefully the rest of these won't be as long as the
7 rest of them.
8 MR. ATHEARN: I agree with you.
9 MR. McCONNAHA: And, then, secondly, do we --
10 although we are trying not to be judgmental about
11 these, most of these things are potential costs to each
12 proposal. There are concerns and some problems. Do we
13 want to talk at all about the potential benefits of
14 particular alternatives? I mean, some of them -- they
15 all have particular features that youi're trying to get
16 at. Some of them have different variances over each
17 other. Do you want to list those, too?
18 MR. SATTERWHITE: Can I interject? Maybe we
19 are getting beyond the intent of being here, and that
20 is to try to design a general experimental strategy.
21 It sounds to me like we are going back into the same
22 thing we have already discussed to some degree at the
23 Salmon Summit. We came here to try to devise an
24 experimental scenario and discuss to some degree the
25 effects we have and biological problems to solve here.

1 MS. WIK: But we do have to identify some of
2 these issues if we are looking at six different
3 options, which of those options will have the least
4 negative potential negative impacts on the fishery
5 resource that we are concerned with. And I think
6 that's what we are trying to do here.
7 MR. SATTERWHITE: Isn't that a policy
8 decision that's going to be made later on down the
9 line?
10 MR. BOWLER: Why don't we just move on.
11 MR. ATHEARN: So, far as we are identifying
12 things that need to be considered in the next step of
13 protocol development, I think we need to have them all
14 listed out. It doesn't mean that they are all bad.
15 They are things we have got to overcome or figure out a
16 way to handle in the process of conducting the test.
17 And whoever said it is right. Once we get through the
18 detailed list this time, we have just about covered the
19 gamut of the concerns.
20 MS. WIK: Can we move on to the Option 2?
21 MR. ATHEARN: I thought we've got some more
22 on this one.
23 MS. WIK: Oh, okay.
24 MR. ATHEARN: We haven't addressed recreation
25 and some of the others which I know are waiting in the

1 wings.

2 MS. WIK: I don't know if we want to get into

3 that.

4 MR. ANDERSON: I think we want to stick with

5 the biological aspects. And, certainly, we get to the

6 NEPA process which is the recreation and other users it

7 will have to be evaluated in depth. Not to say that we

8 ignore those now. We don't want to put blinders on,

9 but he did want to keep to the experimental design I

10 think.

11 MS. WIK: Yeah. There's a long list of other

12 impacts.

13 MR. ANDERSON: Let's do a check here, where

14 we're headed. My view is we have laid out some

15 optional experiments. We can -- we can plan to refine

16 those and take a hard look at those by next week and

17 come away from next week's meeting with perhaps two or

18 three that look like they make some sense, and we can

19 proceed with those. We can take those to the policy

20 level on the eighteenth and then move out.

21 I don't think we can take what we have now to

22 the eighteenth and make any kind of a sound

23 recommendation to that group. Does anyone disagree

24 with me on this?

25 (No discernible response made.)

1 MR. ANDERSON: So, I think we need to
2 continue working on the biological issues, again, with
3 the goal of developing an experiment.
4 MR. PETTIT: I might mention that a lot --
5 (Speaker inaudible.)
6 THE REPORTER: Excuse me, I can't hear you.
7 MR. PETTIT: A lot of the things that we are
8 doing now have been debated in the last two months at
9 the Salmon Summit.
10 MR. ANDERSON: The point is that we are
11 revisiting --
12 MR. PETTIT: There was a lot of dejavu, at
13 least to me.
14 MR. ANDERSON: Well, that's right. I guess,
15 I don't disagree, Steve; but how are you going to get
16 to a point of developing an acceptable --
17 MR. BOWLER: Had we developed an EIS at the
18 Salmon Summit. But, no one ever came to grip with
19 these issues A, B, C and D alternatives, et cetera, et
20 cetera. No one put it all together so it would get
21 culminated. Even though it might have been battered
22 around in the Salmon Summit. So, this has to be done
23 to get on with it. And I think what you're doing here,
24 you're on the right track. And you don't want to get
25 too much of the Salmon Summit confused with what we're

1 doing here.

2 MR. ANDERSON: That's right. And we don't

3 want to get the environmental review that's going to

4 have to along with this full development of a test over

5 the next ten months. That's a given. We are going to

6 have to do that unless we develop a test plan that's

7 not going to require an environmental review. The

8 things we talked about today will. So, we certainly

9 don't need to get off track about it today. But we do

10 need to refine our test proposal.

11 MR. SATTERWHITE: I think we need to decide

12 on a couple of experiments that give us the most

13 possible information, biological information. We

14 already know what some of the other problems are. The

15 recreation, the transportation and all those other

16 issues. We know that. But we still have to decide

17 what's the best experiment that we can do, and the most

18 information we can gather and answer the questions we

19 pose.

20 MS. WIK: May I make a suggestion that we go

21 forward like we have done here with the other five

22 alternatives and see which of the concerns that we have

23 listed under the maximum case fall out and so, under

24 the other alternatives, see which concerns are left.

25 MR. HAAS: What do you mean, "fall out"?

1 MS. WIK: Well, which ones aren't a concern.
2 For example, if you're not lowering all four
3 reservoirs' spillway crests, you're only lowering Lower
4 Granite, then you don't have the concern of adult fish
5 passage problems at the bottom three. So, adult fish
6 passage at all four is no longer a concern. It is just
7 the one or whatever. I think if you can pull out which
8 of these aren't a concern under the other alternatives.
9 Is that....
10 MR. BOWLER: Right.
11 MR. PETTIT: Right.
12 MR. CRASE: Aren't most of those concerns
13 just a matter of degree?
14 MS. WIK: Well, I don't think necessarily. I
15 mean, if you're not lowering all four reservoirs --
16 MR. CRASE: You're not going to worry about
17 the sediment. You're not going to worry about
18 temperature or --
19 MS. WIK: Well --
20 MR. BOWLER: No. That was just an example.
21 Adult fish passage was an example that would shake out.
22 MS. WIK: The first thing --
23 MR. BOWLER: Others may be common to all of
24 them.
25 MS. WIK: And it may be like you're saying, a

1 case of degree. But that's what we walked through
2 here. Which concerns fall out, which are still a
3 concern but may be to a lesser degree. But, I don't
4 know how else to really do it except to --
5 MR. HAAS: In other words, if you were to
6 list the alternatives down the left-hand side and this
7 would solve the problem, if you put an "X" -- in other
8 words, if you were to list the alternatives down the
9 left-hand side and this would solve the problem, if you
10 just put an "X" under where it applies --
11 MS. WIK: Yeah.
12 MR. ANDERSON: Maybe we ought to stop and
13 check our process, too. It may not be essential that
14 we do it in this group today, if you're willing to
15 entertain a concept of a smaller work group that could
16 do that in the next several days. And I don't know how
17 the right people could get together. Maybe it's on the
18 phone or, Sarah, you take a strawman approach. We have
19 laid out the biological --
20 MR. BOWLER: Sort of a matrix to go through
21 and address all the concerns --
22 MR. ANDERSON: We could develop a matrix by
23 next Friday, let's do it next Friday. And, then, that
24 will be our task next Friday. That would be our task
25 to then select those best options to answer all our

1 objectives.

2 MR. CRASE: Why -- why -- you know, we went

3 through, and we laid out six alternatives. Why do you

4 need to eliminate any of them, period?

5 MR. ANDERSON: We may not need to, Fred.

6 MR. CRASE: I got the impression these were

7 the alternatives, that we were going to evaluate as a

8 part of a group process.

9 MS. WIK: Well, I think --

10 MR. CRASE: Now, we never selected a

11 preferred alternative.

12 MR. BOWLER: It wasn't to eliminate an

13 alternative. It was to eliminate some things that

14 weren't a concern as an alternative. It wasn't to take

15 away all the alternatives.

16 MR. CRASE: How are you coping --

17 MS. WIK: Well, now, wait a minute. On the

18 one hand, if everybody at the table agreed that because

19 of these concerns -- this is again assuming that

20 everybody agrees -- that this Option 1 is probably not

21 a good idea, rather than go forward with the scoping

22 process that tries to analyse this entire -- you know,

23 all the possible alternatives under that option, you

24 know, that's going to take a lot of time, as we talked

25 about before. We are -- we're already on a short time

1 frame for the EIS.

2 MR. McCONNAHA: Do you want -- on the other

3 hand, not everybody that's going to have to look at

4 this, unfortunately is going to have the benefit of

5 this whole discussion. And if you go into a policy

6 group and say, Well, these are the three alternatives

7 we have, and they all involve lowering Granite Dam, we

8 eliminated the four pool option and go on from there,

9 somebody is going to stand up and say, Well, why did

10 you eliminate the four pool option. That was my

11 favorite option. What are we -- wouldn't we be better

12 following along with what Fred says, list all six of

13 them with our opinion of pros and cons in a

14 recommendation. And, then, somebody can say, Well, the

15 four pool -- we eliminated the four pool option because

16 of unrealistic impact on adult ladders.

17 MS. WIK: Do you really think that decision

18 will get made in two hours on the eighteenth?

19 MR. McCONNAHA: No, no. Maybe a weekend, but

20 that will take a whole --

21 MR. ANDERSON: I would think it's going to

22 take some kind of a grouping for that. This is what we

23 did. This is what we considered, and here's why we

24 recommended what we have to recommend. Certainly, you

25 are going to have to explain what we screened out if we

1 have screened it out, and then I think that Bert has a
2 good concept to start with, we can put this into a
3 matrix form.
4 MR. McCONNAHA: A matrix with the pros and
5 cons is okay. But, I'm saying we chose this one or we
6 recommend to you this one because it has certain
7 advantages.
8 MR. SATTERWHITE: I'm still a little troubled
9 by the way this process is being distilled down into a
10 simple set of statements here. I could take issue for
11 one with the issue of resident fish adverse effect on
12 macrophytes and food sources, that's a matter of
13 opinion and not even maybe based on a complete
14 foundation in fact or study because it's never been
15 examined under the way we are proposing to use it.
16 MS. WIK: Mike, we're not saying that's all
17 the problems. We are saying that's an issue.
18 MR. SATTERWHITE: That's a concern.
19 MS. WIK: Right. We are not saying that
20 that's a definite.
21 MR. SATTERWHITE: Are we going to be
22 eliminating things because there is concern about
23 potential problems; or are we going to try to analyze
24 these problems, these potential problems, first and
25 then evaluate each plan against the evaluation of those

1 concerns?

2 MS. WIK: Isn't that what this dialogue is

3 for, is to look at which one of these would be, you

4 know, a potential versus one that we feel strong enough

5 is a definite?

6 MR. SATTERWHITE: Well, we can't do that

7 until we have addressed all these concerns and

8 determined whether, in fact, they are real. Some

9 certainly are. Some aren't.

10 MR. BOWLER: That's what the whole EIS

11 process --

12 MR. PASSMORE: We don't need to sit over the

13 next few weeks at these meetings to come up with a long

14 list of alternatives to analyze in the NEPA process.

15 If we had the two years or three years to it do at this

16 time, which something of this magnitude would probably

17 take, we could have gone through this process. What we

18 tried to do is bring experts together to look at

19 alternatives, and weed those out so we can go in with

20 one or two alternatives to look at, which are

21 reasonable for the '92 test. Now, some of these will

22 fall out because of physical constraints, et cetera.

23 But, if we can't paw through all the concerns and

24 decide one or the other is going to be more practical

25 or more realistic, then we are not going to get

1 anywhere within three weeks?

2 MR. HAAS: I believe we could complete the

3 matrix this afternoon. I don't think that would be a

4 terrible big chore. I think it would be easy to put an

5 impact, a yes or no perhaps someplace and a question

6 mark. I question, however, whether after we've

7 completed that matrix whether we are going to be ready

8 to make a decision to select one or throw one out. I

9 can tell you right now, the one that has the most

10 impact is the first. The one that's going to have the

11 least impact is no action.

12 MR. ATHEARN: There's one more.

13 MR. ANDERSON: Which one is going to gain you

14 the most information?

15 MR. HAAS: I think we can get this matrix of

16 what we have here and go back through the options

17 between now and next week, and we can agree to have

18 people look and analyze it and be ready to come back

19 and do something in-depth. I don't think -- at least,

20 I'm not prepareed to say, Okay, we looked at the

21 example in the matrix, okay, throw out this one, this

22 one, and we concentrate on this one.

23 MS. WIK: We weren't talking about throwing

24 any alternatives away. We were talking about

25 essentially walking through all the alternatives, and

1 whether you call it a matrix or whether you just list
2 what is or isn't a concern, maybe that's the same
3 thing. We leave with that today and come back with
4 next week.
5 MR. ATHEARN: I would like to cover a few
6 more things here because if I were to sit down and go
7 from here to the test protocol, if I might ask you a
8 question, if you wanted to bring up things like
9 equipment and techniques and talked about radio tags
10 and PIT tags, and somebody needs between now and next
11 Friday to make sure that if we are going to rely on the
12 radio tag technology, it exists and can work for us.
13 If we decide that we want to get physical
14 measurements, that there is actually equipment in the
15 range of expected velocities that were -- that we can
16 measure it, these to me are show stoppers for the test.
17 If we don't have the technology to actually conduct
18 this test, then who cares about debating the policy and
19 politics of it.
20 MR. KINNEAR: Do you mean at the Corps of
21 Engineers or is the "we" everyone else?
22 MR. ATHEARN: I'm looking at "we" as sitting
23 here and anybody else that's interested. No. It's not
24 the Corps of Engineers, Brian. We are trying to help
25 get this process going, but it's not our test.

1 MR. HAAS: But, the Corps -- you are going to
2 be the lead agency in doing the logistics from the
3 standpoint of getting the equipment?
4 MR. ANDERSON: That has to be defined, Wayne.
5 MR. HAAS: Yeah.
6 MR. ANDERSON: Certainly, we will have some
7 lead on that, but it may be a cooperative effort with
8 the agencies on the test, and we'll --
9 MR. HAAS: It certainly will be a cooperative
10 effort, but we have got to have some lead agency. We
11 can't design that thing by making --
12 MR. ATHEARN: We have already taken the lead.
13 We have got people together here, and we are trying to
14 get the numbers for having a proposal written down.
15 MR. ANDERSON: That's it. We are trying to
16 develop a proposal here so we can get on with the
17 process.
18 MR. HAAS: Okay.
19 MR. ATHEARN: The ideal end product to take
20 to the policymakers on the eighteenth is a proposal or
21 a couple of proposals that would then go the very next
22 step.
23 MR. BJORNN: It seems to me like the next
24 step is one of -- the really important one is the
25 design. Can we really design something that we are

1 going to get some information. All we're talking -- if
2 we just quit throwing up ideas here of things we might
3 do, and actually sit down and try to put it together
4 and see if we can make it work, we might find, Hey, we
5 can't make that work for '92 or any other year in some
6 cases.
7 And so, then it becomes -- then we come back
8 to the next meeting. Somebody comes back to the next
9 meeting and says this is what it's going to take to do
10 this particular alternative. And, you know, you sort
11 of have a design to look at. This is the kind of data
12 you're going to get back. Is it worth it?
13 MR. HAAS: I agree.
14 MR. McCONNAHA: I think it's unrealistic if
15 you're going to have experimental design with all the
16 problems worked out by the eighteenth. The best you
17 can do is come down to two or three you can't eliminate
18 because they're totally absurd, or we are going to have
19 to call out the National Guard to enforce it or
20 something like that. To get rid of those and come down
21 to two or three that you're going to send out with a
22 bunch of eggheads, and they are going to figure out
23 whether or not you can do it. How many fish you are
24 going to mark. What rate you're going to collect them
25 at. That kind of stuff.

1 MR. SATTERWHITE: I guess what I see in this
2 list here are things that are of concern, that are
3 things that we are going to be finding out when we
4 actually do the experiment. Say, we are worried about
5 the predators. We're not going to know if it's a
6 problem unless we do the experiment and assess that.
7 If we're going to rule it out because it's a concern,
8 then we are ruling out the -- we are selecting the
9 information we would like answers to.
10 MR. McCONNAHA: That's what you're doing.
11 Then you could then go to the predator experts and say,
12 What do you guys think if we do this. If they talk to
13 them, they say, Yeah, it looks like it is. Maybe it is
14 a reason for a negative, if they say no effect.
15 MS. WIK: Well, I'll be honest, I don't see
16 something like the predators eliminating an option.
17 The only thing that I might see eliminating an option
18 is if we -- whoever goes forward and takes the task of
19 looking at what to do with adult passage says this idea
20 of trapping them below each of the four dams and
21 dumping them out above is not something we want to do,
22 I mean I think the adult passage is going to be one of
23 the biggest things that will eliminate an option. I
24 don't think the rest of these, Mike, are necessarily
25 something that would kill it.

1 MR. SATTERWHITE: Well, I would agree. I
2 would agree.
3 MS. WIK: And all we are trying to do is list
4 the concerns here. We are not trying to kill it, based
5 on those.
6 MR. McCONNAHA: By the way, based on listing
7 of that five or six, I think it's less than a half an
8 hour to go.
9 MR. ANDERSON: Okay. I think -- I think we
10 beat this one enough. We need to think about how we
11 get to the next meeting, and what we need to accomplish
12 in the next meeting. I mean, we have got the next two
13 meetings, and if we are going to meet the schedule, we
14 have got to accomplish the development of the proposal.
15 MS. WIK: Do you want to try and finish
16 building the matrix today in terms of looking at what
17 falls out, or do you want to make that a take back?
18 MR. PASSMORE: I would make --
19 MR. ANDERSON: Well, since we won't get that
20 today, we need to discuss how we accomplish that the
21 next time. Talk about our job -- our work at the next
22 meeting.
23 I guess I'll throw out a proposal. I think
24 the best people to do it are the fisheries experts and
25 anyone else who is interested, for that matter. Maybe

1 it's going to be this whole group, and that's fine, but
2 I don't know if it will take another meeting prior to
3 next Friday's meeting.
4 MS. WIK: Even if we have a conference call
5 and talk.
6 MR. ANDERSON: If you remember, we're
7 developing a biological test design here; and you have
8 got to have the right people discussing that. Not to
9 the exclusion of any one, but --
10 MR. ATHEARN: Well, Witt, I wrote some more
11 things down behind your back there; and I was getting a
12 little antsy that we're going to get away from here
13 today without some pieces that a work group is going to
14 need to consider, and it isn't -- this list isn't all
15 inclusive, but it's a different direction here, and
16 that is some practical things for both a test
17 development and an experimental design development and
18 in this small group sample size, as Steven mentioned,
19 is critical. How many fish are you talking about.
20 Everybody is going to ask that. What kind of stocks.
21 Is it going to be hatchery fish, wild natural migrants,
22 or whatever. These are things that are going to have
23 to be presented in some framework that we bring back to
24 the table next Friday.
25 MR. ANDERSON: Do we have a smaller nucleus

1 of people that should work on this?

2 MR. SATTERWHITE: We had talked about that

3 briefly. I think our feeling is that the issues that

4 are technical in nature in designing and conducting the

5 experiment should be done by people that do it for a

6 living. Fish passage people should be involved.

7 Fishery biologists should be involved from a number of

8 different agencies. But I think we can come up with a

9 list which might also involve the water managers to

10 some degree. But the Corps, the BPA, Fish and Wildlife

11 Service should be involved. We think the fish and game

12 representatives of the Fish and Game Departments of at

13 least Idaho, probably Washington and Oregon, should be

14 involved in the design. I mentioned the fish passage

15 people. Idaho Power, the Corps.

16 MR. HAAS: I'd say it could even be a smaller

17 group. Are you talking about getting together between

18 now and next Friday? Getting technical experts

19 together?

20 MR. ANDERSON: I couldn't agree more.

21 MS. WIK: I would like to propose getting

22 those folks together next Wednesday.

23 MR. KINNEAR: I would suggest that you at

24 least add the tribal fisheries.

25 MR. SATTERWHITE: I figured they were

1 represented through the Fish Passage Center on this
2 issue. You know, I'm not limiting the membership.
3 MR. KINNEAR: I think it should be all the
4 fishery technologies, too, Mike, to design and conduct
5 this experiment.
6 MR. PETTIT: I don't know about anybody else
7 but this time of year things are happening rapid fire;
8 and I can speak for myself, it's going to be very hard
9 in the next week -- I mean, today is Friday -- to get
10 anybody going. We may be able to a accomplish quite a
11 bit on a conference call type of thing. But, I've got
12 a full docket, and I know Bert does
13 MS. WIK: I think all of us do.
14 MR. HAAS: Maybe the Corps --
15 MR. PETTIT: I have no money to travel with.
16 (Indiscernible discussion amongst speakers.)
17 MR. SATTERWHITE: One of the problems of the
18 whole process is we have been in a big hurry. We are
19 in an emergency situation; we are trying to get a lot
20 done in a period of time that's too short to do it.
21 This is a problem we've got. Somebody like us comes up
22 with a question about the changes of the policy, we
23 discuss it for half an hour, then, we are a half hour
24 behind; and then we finally have a plane to catch.
25 There's just not enough time in a one day, one

1 afternoon, session to do it. So, I think we're are
2 going to have to commit more time to solve the problem.
3 MS. WIK: I mean, based upon what Steve is
4 saying about all our schedules, Mike, do you have an
5 alternative? Do you have a better option to throw out?
6 MR. SATTERWHITE: Well, realistically, the
7 Corps initiated the series of meetings. We would just
8 have to do the best we can and try to allow yourself
9 enough time to do that.
10 MS. WIK: I guess I would like to reiterate
11 that while you are talking a technical working session
12 between now and next Friday, that's what we tried to
13 accomplish here today is get a relatively small group
14 of technical staff together to do that very thing.
15 MR. ANDERSON: Well, let me ask this, do you
16 people have next Friday on you calendar, could you not,
17 in fact, do it next Friday?
18 MS. WIK: Or can I throw out another option?
19 We've talked about this stuff, can I take a stab at a
20 strawman, fax it to those of us here, to additional
21 parties that we feel should have been here or should be
22 at a technical meeting and pull it together and have
23 comments to that next Friday? Is that a reasonable --
24 MR. BOWLER: It might be the quickest way to
25 do it.

1 MS, WIK: I'm a sucker for extra work, I
2 guess.
3 MR. PETTIT: I think we should draw on a
4 lesson we have learned getting to the point we are
5 today. If we go back to try to redesign the wheel and
6 come up with a lot of these things, impasses that we
7 have had for the last two months, we are just going to
8 be at the same place a week from now. For obvious
9 reasons, we came up with a far left and a far right.
10 There's no way we are going to do Plan 1; it's a joke.
11 Plan 1 for '92, for '92. It really kind of sets the
12 strawman up. You know, if we really wanted to get
13 something progressing, we are going to have to make in
14 the last half hour we have here today, maybe we can
15 limit them down to one to concentrate on before we go.
16 MR. CRASE: The point I want to make is why do we
17 need one to present to the policy group? I see at
18 least of those six that -- five that I would like to
19 see some people do a study on. I think you can
20 eliminate a couple that are obviously beyond our reach.
21 But -- and then the actual final alternative you end up
22 with may be some hybrid out of the three. I don't know
23 yet. I don't know. Why not go to the policy group and
24 say, Here are the three we think should be studied?
25 MR. ANDERSON: If we could do that right now,

1 and then we could -- Sarah and the right people could
2 go and address some of the questions that Jim has just
3 put up on the board by next Friday, to the extent
4 possible, and we can lay out a proposal here. And
5 remember, I said in the beginning the objective was by
6 next Friday we have a more refined proposal or proposal
7 and alternative. And, then, we can discuss that
8 Friday, and then we have the concept that we are going
9 to the policy group with. Remember we have to develop
10 a proposal here. If we end up reinventing the wheel,
11 as Steve said, for the next three meetings, we're not
12 going to have anything to act on. We have got to bite
13 the bullet. We either have a program to pursue for
14 '92, or we're not going to have one. We are trying to
15 make it happen, and we are asking people to cooperate,
16 and Sarah is willing to take on more work than she
17 should. And if we have to send out a strawman to do
18 that....
19 MR. BOWLER: I think it would be wise, and
20 not to get all involved in it, but to carry all the
21 alternatives to the policy group.
22 MR. ANDERSON: That's fine. I think
23 we can --
24 MR. BOWLER: Just so they are laid out and
25 put on the table. And they can be narrowed, but I

1 think they are --

2 MS. WIK: Okay. I guess what I would like to

3 do is maybe we can go ahead and carry all the

4 alternatives, but we need amongst ourselves to

5 recommend which of those -- three of those six we

6 believe have the most --

7 MR. ANDERSON: We're not --

8 MS. WIK: -- feasibility.

9 MR. ANDERSON: We're not going to spend a lot

10 of time in the next week trying to develop alternative

11 one and two if that's not real for '92. It's a waste

12 of time. We are not going to waste our time.

13 MS. WIK: I think if we document why we

14 eliminated three or two of the six alternatives and

15 we brief the prople at the policy Group level as to

16 that --

17 MR. ANDERSON: So, let's right now, in the

18 next five minutes, pick two or three that we will

19 concentrate some further efforts on. Some critical

20 thinking in the development of a test plan for next

21 week. Is that --

22 MR. HAAS: Well, we said that probably

23 alternative one as it was laid out was a maximum for a

24 strawman. I think there may be some variations of

25 alternatives on that, that could very well be

1 presented. That involve lowering all four pools, but
2 maybe not necessarily all four of them down to absolute
3 minimum. So, we have variations -- in fact, that's
4 probably true of all the alternatives we have to look
5 at. I think -- I'm not sure that right now we are in a
6 position to look at it. To particularly start throwing
7 things out. I, for one, am not willing to throw out
8 the concept that there needs to be some sort of a
9 drawdown on all four pools. Now, maybe it can't be a
10 maximum, but could be something else. Some variation
11 of that might be possible.
12 Why don't we list those alternatives and then
13 we'll come back next Friday and flush them out.
14 MS. WIK: Well, it --
15 MR. HAAS: Why don't you put them all on one
16 page?
17 MR. ATHEARN: There's six alternatives that
18 we've talked about. And we have one -- one vote that
19 one is -- or several votes that one is not doable for
20 '92. Okay.
21 UNIDENTIFIED PERSON: I didn't know we voted
22 on it.
23 MR. ANDERSON: Well, Wayne just says he sees
24 some scenarios for one that may perfectly well be.
25 MR. HAAS: We looked at a scenario of one

1 where we took all four pools and brought them down to
2 their absolute maximum, and that probably is not
3 doable. There may be other alternatives that Sarah --
4 on one that involved all four pools that aren't all
5 that possible.
6 MR. McCONNAHA: I think it's still on all
7 three of those going below minimum operating pools, I
8 think would still be a problem. The reason being --
9 the reason you can eliminate number one is the impact
10 on adult fish.
11 MR. HAAS: Well, one of the things that we've
12 invested money with is for MK to look at some of the
13 problems and how to overcome them. We don't have that
14 factor.
15 MR. PETTIT: I don't know anything that they
16 are going to do will be usable for '92.
17 MS. WIK: I guess I would like to reiterate,
18 too, that we have put a lot of work in getting the
19 facilities that we have out there functioning to the
20 best that we can; and I'm not sure we want to assume
21 that a proposed structural modification for 1992, that
22 if it actually could be implemented by 1992, that we
23 would guarantee that it would -- it would work the way
24 that it is designed to on paper. I don't know that we
25 want -- do we want to take that risk?

1 MR. BOWLER: That needs to be spelled out --
2 MS. WIK: Yeah.
3 MR. BOWLER: -- in any kind of introductory
4 remarks that you put in any of the -- people need to
5 understand that, if it took twenty years to get where
6 we are at now, we didn't start from -- to think that
7 you could, you know, especially modify something and
8 have it functional instantly is not reality.
9 MS. WIK: I know.
10 MR. BOWLER: Not to say that would prevent me
11 from trying something or doing something, but from that
12 experience that needs to be pointed out in any kind of
13 a document you're working on in my opinion.
14 MS. WIK: Gloria needs a break. Can we take
15 just a few minutes.
16 (Discussion held off the record.)
17 MR. ANDERSON: Let's take five minutes, only
18 five minutes, please, so we can wrap this up.
19 (Whereupon, the meeting was in recess at
20 3:14 p.m. and subsequently reconvened at 3:24 p.m., and
21 the following proceedings were had and entered of
22 record.)
23 MR. ANDERSON: At least two things I would
24 like to do. First of all, I would like to have Jim
25 just quickly review the objectives we talked about this

1 morning. We have got a group of alternatives, good,
2 bad and indifferent. But we do have some alternatives
3 laid out. Let's just go back through the objectives.
4 Then we have got to make a decision here on the process
5 between now and next week, and Sarah has offered her
6 services to do a strawman, and that may be the best
7 thing at this point.
8 Jim, just go quickly through the objectives.
9 MR. ATHEARN: And I rewrote these somewhat
10 because of some of the way the alternatives came out.
11 For example, on Objective 1, we're going to determine
12 the change of water velocity with pool lowering. We
13 had an option that we've also talked about functioning.
14 So, I threw in and/or flow manipulation to be more all
15 encompassing. The second one being the juvenile fish
16 part of it. Migration relative to water movement or
17 velocity. And then thirdly, if possible, to determine
18 the survival relationship with respect to increased
19 migration rate or decreased travel time, however you
20 want to define it, is basically the three main areas.
21 These two are in the measurable category; and this one,
22 based on what Steve said about it, might take multiple
23 years of study and what have you. This might be a
24 little bit more difficult to pin down, whether or not,
25 it would at least be something we would like to try to

1 do with whatever data we are able to obtain.

2 MR. ANDERSON: I want to echo something Ted

3 said earlier. That we need to think about the design.

4 Do we have a design that is valid? Can we gain some

5 information from a test? We're going to have to be

6 able to make some conclusions about that when we go to

7 the policymakers. So, I think we need to take at least

8 one of the alternatives or maybe all of them, if

9 possible, and do some critical thinking about design.

10 And Sarah has suggested -- go ahead.

11 MS. WIK: I was just going to say that we

12 would make that part of the matrix.

13 MR. ANDERSON: And Sarah can develop a

14 matrix, and I guess begin to layout what a design would

15 look like. And layout the pros and cons about ability

16 to gain some information. Now, I guess you will do

17 that on your own and send it out to this full group

18 early in the week?

19 MR. BJORNN: You are really going to use the

20 fax machine.

21 MS. WIK: Yeah. You took the words right out

22 of my mouth.

23 MR. ANDERSON: Okay. All that want to see

24 Sarah's matrix leave your -- or tell her right now your

25 fax number. And you will get this out sometime next

1 week before Friday, then. Okay.

2 MS. WIK: Hopefully, no later than Wednesday,

3 so.... What I'm going to do is send this sign-up sheet

4 around again with an attachment to it. If you want to

5 be in on this, please add your fax number to that. I

6 believe I have some of them. But please put them down.

7 I will also include a copy of overheads at the same

8 time of what we have put down so you have got where we

9 came from.

10 Any other comments or questions that are --

11 MR. CRASE: Where is the meeting going to be

12 next time, in the Tri-Cities?

13 MS. WIK: I think that's the simplest at this

14 point. We have arranged for Cavanaugh's in Kennewick

15 which is on Columbia Boulevard in the Tri-Cities.

16 MR. CRASE: That's pretty hard to get to from

17 Boise, isn't it?

18 MR. BOWLER: Fly to Pasco.

19 MR. PETTIT: Portland is pretty easy to get

20 to from Boise.

21 MR. CRASE: I'm not so sure that commercial

22 service between Boise and Pasco are very good.

23 MR. SCHLUETER: Better than it is to

24 Lewiston.

25 MS. WIK: And, if you have got a definite

1 other suggestion in mind, I will try to throw it out.
2 But I will say, for one thing, we have had difficulty
3 in finding a meeting place in Portland for the
4 eighteenth. Fortunately, we are piggybacking in
5 another location now, but we do want to make these
6 meetings where other constituents may be more likely to
7 get to as well.
8 MR. McCONNAHA: Why don't you move it to
9 Portland? We will find you a room.
10 MS. WIK: Okay.
11 MR. SCHLUETER: How big do you want?
12 MS. WIK: Well, if it's in Portland, I would
13 say we would need at least space up to two hundred
14 people in addition to those around the table.
15 MR. McCONNAHA: I can check on our big room
16 on that date. I don't know.
17 MR. SCHLUETER: You're talking about next
18 Friday.
19 MS. WIK: Yeah. That's -- is Portland what
20 you're in essence looking for or are you looking
21 elsewhere?
22 MR. CRASE: Boise.
23 MS. WIK: Let me put it this way, if you --
24 I'll throw this out. If you want it in another
25 location next Friday, Boise or Portland, if you are

1 willing to try to set it up and let me know by a real
2 short time frame because we have got, you know, to fax
3 out to people were it is going to be and so forth. You
4 know, I would just as soon as stick with the Tri-Cities
5 because we --
6 MR. SCHLUETER: This decision was made an
7 hour ago or two hours ago.
8 MS. WIK: Well --
9 MR. ANDERSON: Yeah. People brought it back
10 up.
11 MR. ATHEARN: We have people that left,
12 though, that left two hours ago with --
13 MR. ANDERSON: I think it's best if we use
14 the Tri-Cities.
15 MS. WIK: Yeah. I'd just as soon stay where
16 we're at.
17 MR. SCHLUETER: We have our travel plans. We
18 have our flight reservations.
19 MR. ANDERSON: Yeah, it's Kennewick.
20 MR. SATTERWHITE: I can get to Kennewick two
21 and a half hours from here. You just fly up here and
22 I'll drive you over.
23 MR. CRASE: Okay.
24 MR. SATTERWHITE: I'm serious. We can even
25 arrange for a suburban and meet with some of the others

1 and ride over.

2 MS. WIK: Okay. Let's leave it that way

3 then.

4 MR. ANDERSON: We will set the agenda items

5 or Sarah will in connection with her matrix, I guess.

6 Is that fair guys?

7 (Indiscernible discussion had among

8 speakers.)

9 MS. WIK: I'm hearing we need a map.

10 MR. ANDERSON: Is everyone here planning to

11 be there in Kennewick? Can can you make it?

12 MR. BOWLER: I won't. Steve will be.

13 MR. ANDERSON: Okay. I think it's critical

14 that people show up, and Mike agrees that some of the

15 people that aren't here today like that we need to

16 contact them and see if we can encourage some of these

17 folks to attend. We will be better off in the long

18 run.

19 MR. PETTIT: I really think -- maybe we

20 should try to identify a core of passage people to, you

21 know, to be a solid core of what we are trying to do.

22 I ran through a list of names.

23 MR. ANDERSON: Uh-huh.

24 MR. PASSMORE: It would be nice --

25 MR. PETTIT: I don't want to exclude anyone.

1 MR. PASSMORE: It would be nicer to have a
2 couple of agency people.
3 MR. ANDERSON: Yeah.
4 MR. PASSMORE: Because if you don't include
5 them in the building process --
6 MR. PETTIT: And they sit there like a buzz
7 saw --
8 MS. WIK: I want to note that I did contact
9 Washington, and they told me they would have somebody
10 here as well as Oregon. So, I -- you know, again, I'm
11 not sure what happened. I didn't get the follow-up
12 phone calls saying we changed our mind or something
13 came up.
14 MR. BOWLER: Maybe the maple bars would have
15 gotten Frank here.
16 MR. SATTERWHITE: He has an aversion to
17 coming to Lewiston.
18 MR. KINNEAR: This process has been scheduled
19 on very, very short notice, and most calendars have
20 been filled for a long time.
21 MS. WIK: You're not saying anything we don't
22 already know.
23 MR. ANDERSON: We understand too, Brian; but,
24 you know, there's been a strong advocacy for this
25 operation. We're trying to make it happen. We're

1 trying to cooperate. And I guess I will say that I
2 expect that in return. You know, you can't expect
3 anything less.
4 MR. KINNEAR: But don't be disappointed if
5 other commitments have precluded you from getting the
6 people you want on such short notice.
7 MS. WIK: Well, that's --
8 MR. ANDERSON: Well -- and people better
9 understand what the implication is to implementing this
10 kind of an action in 1992. I mean, I just have to say
11 that. There's people that are insistent we have got to
12 have this happen. We are going to try to make it
13 happen. And, if we don't have the cooperative efforts
14 and some degree of consensus for it, it very likely
15 won't happen. Whether the Corps dosen't make it
16 happen, or we get into a legal challenge or an
17 injunction or what have you. So, we have got to expect
18 that people are going to make the effort to get
19 involved.
20 Wayne?
21 MR. HAAS: At the beginning of the meeting,
22 you mentioned the fact that the Corps determined that
23 you have a legal requirement to prepare an EIS, and I
24 asked you for a copy. You said you were going to send
25 me a copy of the legal analysis regarding the EIS?

1 MR. ANDERSON: Yeah. The Walla Walla
2 District has a -- has -- has a report. I won't term it
3 a legal analysis, but it's a determination that an EIS
4 is required. Do you have that? You don't have one?
5 MR. PASSMORE: We will get it.
6 MS. WIK: Yeah. We'll get that to you,
7 Wayne.
8 MR. ANDERSON: Okay. Anything else?
9 I guess -- Sarah, do you have any other --
10 where is the fax sheet?
11 MS. WIK: It's coming around. Okay.
12 Do we -- I guess the only other thing I was
13 thinking of, do we -- would we want assign someone in
14 particular to look in more detail, for example, at the
15 travel time experiment, instead of just making that
16 part of the matrix? Would that be worth having someone
17 like --
18 MR. ANDERSON: Chip.
19 MS. WIK: -- Chip be volunteered for that?
20 I'm just throwing that out.
21 We talked about that, and I don't see that
22 we can really flush that out in detail under what
23 I'm going to do. But, is that worth someone like
24 yourself --
25 MR. McCONNAHA: Well, I can think about it

1 and talk to some people. Actually, I think that
2 anything that we would come up with on that is actually
3 applicable to any of the experiments. We are all
4 talking travel time, and we are all going to be talking
5 about detailed controled experiments here. So, I mean,
6 really --
7 MS. WIK: Correct.
8 MR. McCONNAHA: -- the no action alternative
9 is almost an overlay off all the others.
10 MR. ANDERSON: Yeah.
11 MS. WIK: But, how would it -- I guess I'm
12 just looking in terms of maybe specifics of how it
13 would differ from what we do now in terms of
14 monitoring. And maybe that's not --
15 MR. McCONNAHA: No. We -- I will try to put
16 some thoughts together on those.
17 MR. BJORNN: Chip, you might also think about
18 looking up the information to put together on a
19 high-low alternating sequence.
20 MR. McCONNAHA: Okay.
21 MR. PETTIT: We also have -- you know, the
22 Fish Passage Center has a paper prepared on pulsing.
23 MR. McCONNAHA: Uh-huh. Yeah. I haven't
24 seen it.
25 MS. WICK: Yeah. I guess another request

1 would be any -- any pertinent info that you are either
2 aware of now or you become aware of that we haven't
3 talked about today, such as what Steve just mentioned,
4 I would sure appreciate a copy of that in a short time
5 frame. I don't have that paper on pulsing and would
6 like to see it just for my own benefit.
7 MR. ANDERSON: Okay. Thanks for coming.
8 Appreciate it. Expect to see you next Friday and more.
9 And work the network and get some of these other folks
10 out. I think Steve is right on, we need to have the
11 other agencies here.
12 MS. WIK: Did everyone who had one give
13 Gloria a copy of their business card? If not, she
14 would appreciate it for her task ahead.
15 (No discernible or visible response was
16 made.)
17 (Whereupon, the meeting was adjourned at
18 3:40 p.m.)
19
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1 CERTIFICATE

2

3 STATE OF IDAHO)
: ss.
4 County of Nez Perce)

5

6 I, Gloria J. McDougall, CP, RPR, CSR, Freelance Court Reporter and Notary Public for the States of Idaho and Washington, residing in Lewiston, Idaho, do hereby certify:
7

8 That I was duly authorized to and did report the above-foregoing meeting in the above-entitled cause;
9

10 That the foregoing pages of this transcript constitute a true and accurate transcription of my stenotype
11 notes of the above-foregoing meeting of all audible proceedings had to the best of my ability.
12

13 I further certify that I am not an attorney nor counsel of any of the parties; nor a relative or employee of
14 any attorney or counsel connected with the action, nor financially interested in the action.
15

16 IN WITNESS WHEREOF, I have hereunto set my hand and seal on this 9th day of April, 1991.
17

18

19

20

21 Gloria J. McDougall, CP, RPR, CSR
22 Freelance Court Reporter
Notary Public, States of Idaho
23 and Washington
Residing in Lewiston, Idaho
24 My Commission expires: 9/9/91, 8/24/91

25

L A W Y E R ' S N O T E S

APPENDIX U-2

Minutes from the April 12, 1991 Meeting

of the

Reservoir Drawdown Test Design Team

COPY

1992 RESERVOIR DRAWDOWN
SECOND TEST PROTOCOL DEVELOPMENT MEETING

Taken at the Conference Room of Cavanaugh Inn
Kennewick, Washington
Friday, April 12, 1991 - 9:36 a.m.

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Development of 1992 Test Protocol

Name	Agency	Phone #	Fax #
Fred Crase ✓	USBR, Boise	(208) 334-1550	(208) 334-1341
Dick Nason ✓	Chelan PUD	(509) 6638121	(509) 6631446
Dale Johnson ✓	BPA	503-230-5209	503-230-3314
Dick Watts	FFF	509 367-2785	509 376-3111
Mike Satterwhite ✓	Trout Unlimited	208-746-7288	509-335-7643
Frank Young	ODFW	503-229 5410 x352	503 229 5602
Will Whelan ✓	I.A.G.O.	208-334-2400	208-334-2690
Steve Pettit ✓	IDFG	208-743-6502	208-743-4314
Bob Woelller	Tri City Herald	509-582-1535	509-582-1510
Bruce Lovelin ✓	N.W. Irrigation Util	503-2335823	503-233-3026
Jonathan Schlueter	Pacific NW Grain + Feed	(503) 227-0234	503 227-0059
Ted Bjornn ✓	ID Coop Fish + Wild Res Unit	208-885-7617	208-885-6226
Mitt Anderson ✓	CoE	503-326-5189	503-326-3572
Bill MacDonald ✓	CoE	509-522-6625	
Pete Poolman ✓	CoE	509-522-6619	
Ron Reimann	T&R Farms Inc	509-547-2855	509-547-0583
Bob Gilchrist ✓	Redwolf Marina Clk, Wa.	509-758-6563	
Randy Staudacher	TRIDEC	509-7351000	509 7356609
Steve Proctor	TRIDEC	509-735-1000	509-735-6609
Jim Sanders	Benton PUD	509-582-2175	
Bob Hagman	Central Ferry Terminal Assn	509-549-3595	509 549-3335
Michael Rike ✓	Shaver Trans/ Columbia River Towboat	503-228-8850	503-274-7098
Chris Randolph ✓	Idaho Power Company	(208) 383-2922	(208) 383-2208

I N D E X

PAGE:

CORPS OF ENGINEERS PERSONNEL PRESENT

Witt Anderson
Sarah Wik
Bill MacDonald
Pete Poolman

Stipulations. 3

Certificate of Court Reporter 142

Reported by Gloria J. McDougall, CP, RPR, CSR, Freelance Court Reporter and Notary Public, States of Idaho and Washington, residing in Lewiston, Idaho.

1 S T I P U L A T I O N S

2

3 It was stipulated by and between counsel for the
4 respective parties that the meeting may be taken by Gloria J.
5 McDougall, CP, RPR, CSR, Freelance Court Reporter and Notary
6 Public for the States of Idaho and Washington, residing in
7 Lewiston, Idaho.

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1 FRIDAY, APRIL 12, 1991

2 MR. ANDERSON: This is the second of a series
3 of three meetings regarding the proposal to drawdown
4 the Lower Snake River projects or a project in 1992 for
5 providing fish benefits, juvenile migration, anadromous
6 fish benefits and travel time and to discuss the
7 experimental design to go along with that.
8 First of all, maybe we should all introduce
9 ourselves. I'm Witt Anderson with the Corps of
10 Engineers, North Pacific Division office.
11 MS. WIK: Sarah Wik with the Walla Walla
12 District, Corps of Engineers.
13 MR. CRASE: Fred Crase, Bureau of
14 Reclamation, Boise, Idaho, office.
15 MR. NASON: Dick Nason, Chelan PUD,
16 representing Mid-Columbia PUDs.
17 MR. JOHNSON: Dale Johnson, Bonneville Power.
18 MR. WATTS: Dick Watts, Federation of Fly
19 Fishers.
20 MR. SATTERWHITE: Mike Satterwhite, Trout
21 Unlimited.
22 MR. YOUNG: Frank Young, Oregon Fish and
23 Wildlife.
24 MR. WHELAN: Will Whelan, Idaho Attorney
25 General's office.

MR. PETTIT: Steve Pettit, Idaho Fish and Game.

MR. LOVELIN: Bruce Lovelin, Northwest Irrigation Utilities.

MR. SCHLUETER: Jonathan Schlueter, Pacific Northwest Grain and Feed Association.

MR. MacDONALD: Bill MacDonald, Corps of Engineers, Walla Walla.

MR. POOLMAN: Pete Poolman, Corps of Engineers, Walla Walla.

MR. STAUDACHER: Randy Staudacher, TRIDEC.

MR. PROCTOR: Steve Proctor from TRIDEC.

MR. SANDERS: Jim Sanders, Benton PUD.

MR. HAGMAN: My name is Bob Hagman. I'm with the Central Ferry Terminal Association.

MR. RIKE: Michael Rike with the Columbia River Towboat Association.

MR. WOEHLER: Bob Woehler, Tri-City Herald. You might say what TRIDEC stands for. They may not know.

MR. STAUDACHER: Tri-City Industrial Development Council.

MS. WIK: There's a sign-out sheet -- or sign-in sheet coming around. I was up too late last night.

1 Anyway, please make sure you get your name
2 on it.
3 MR. ANDERSON: The meeting was adjourned,
4 then?
5 MS. WIK: Yeah.
6 MR. ANDERSON: As we did last week, we have a
7 court reporter, Gloria, here, who's going to take
8 notes. This is not a formal hearing. The purpose is
9 to get good notes so we have a good record as we
10 proceed. So, all -- everyone at the table has a name
11 tag, I see, which is helpful to her. Also, when we
12 talk, you might say who you are so she might get that
13 down in the record.
14 As I said, this is the second of three
15 meetings. We sent out a letter to all the Salmon
16 Summit participants a couple of weeks ago --
17 MS. WIK: Uh-huh.
18 MR. ANDERSON: -- our Walla Walla District
19 did, indicating that, as follow-up to our decision not
20 to implement a test drawdown in 1991, we would
21 facilitate a regional discussion to come up with a plan
22 for that kind of an operation in 1992. We felt the
23 best way to approach that was to have two -- two what
24 we kind of characterized as technical meetings to
25 develop the test plan and the environmental design

1 framework. Then, in the third meeting, which is next
2 week in Portland on the eighteenth at Bonneville Power,
3 Room 106, 2:30, we would present what we have come up
4 with in the first two meetings to the policy level, if
5 you will -- I guess, in essence, the coordinating
6 committee level of Salmon Summit and other interested
7 parties, for that matter.
8 Last week we said our purpose was to frame up
9 the plan and the test design, and this week to come
10 back and further refine that. Then, next week present
11 it to the policymakers.
12 Sarah has done some fantastic work since last
13 week putting together a matrix and some discussion
14 items of the alternatives that we developed last week.
15 We did develop six alternatives. What we will do today
16 is go through those.
17 First of all, I would just like to put up on
18 the screen the objectives we laid out last week. I
19 guess my feeling is we didn't pick any specific
20 objective last week. We talked about that quite a bit.
21 We got a little bit caught up in the objectives, so we
22 we went on to actually framing up some alternatives;
23 and maybe we will back into the objective. But, I'll
24 put those up first; and then I think what we need to do
25 today is go through the matrix Sarah has sent out to

1 everyone. She has copies here today. And I would like
2 to see us get a little more specific on the real
3 programs that we might be able to implement in 1992 for
4 the benefit of fish and also for gaining that -- that
5 biological data in terms of what the benefits are for
6 the fish. Because it is certainly my feeling that we
7 need to get a handle on that if the region is going to
8 pursue this path of dramatic changes in the operation
9 of the system or major changes to the projects.
10 So, let me just show the objectives we had
11 last week.
12 MS. WIK: If any of you don't have or didn't
13 receive the other fax, the matrix sheets, I'll pass
14 them around. I only sent to those who had indicated a
15 desire to see it before today.
16 MR. ANDERSON: The three objectives we
17 discussed last week were: One, determining the change
18 in water velocity with lowering or flow manipulation.
19 Another was, determining juvenile fish migration rates
20 relative to the water movement or the velocity. And
21 the third was, determining survival relationships with
22 respect to the decrease in travel time, that we all
23 assume we will get with pool lowering, just as you get
24 with augmenting flows.
25 As I said, we talked about those quite a bit.

1 We didn't really settle on any particular objective.
2 If anyone wants to comment on that, please feel free.
3 By the way, this meeting is a free discussion. It's
4 informal, and we want to have input.
5 MR. JOHNSON: Witt, could you leave that on?
6 MR. ANDERSON: Oh, I'm sorry.
7 MR. JOHNSON: Thank you.
8 MR. ANDERSON: You bet.
9 Let me add -- I should back up a moment here
10 just because we do have a couple of new people.
11 We talked about why we set up this process
12 the way we did. The Corps determined that we will do
13 an impact statement on any plans to implement in '92
14 that would draft the pools below their normal operating
15 range, and our objective was to define the proposal.
16 Quite frankly, it is kind of difficult to go out in a
17 NEPA process without having a proposal. So, we had set
18 these meetings to allow -- allow sufficient time or the
19 most time that we possibly could to actually get
20 through the National Environmental Policy Act process,
21 the full public review, scoping and so on, by the '92
22 time frame, which means we have to start that very
23 soon. We indicated at the end of this month. So that
24 was an underlying objective in this process.
25 Is there anything you want to add, Sarah,

1 before we actually get into the alternatives we framed
2 up last week?
3 Will?
4 MR. WHELAN: Well, you mentioned that you
5 didn't quite get through the discussion of alternatives
6 -- or objectives last time; and I was wondering where
7 issues and concerns with the three objectives should be
8 brought up. Is that supposed to be at the Portland
9 meeting? Is that supposed to be this meeting?
10 MR. ANDERSON: Well, in fact, I would just as
11 soon, if there are some, that we do that today. We
12 talked pros and cons about those quite a bit. I guess
13 I had hoped that we would -- we would select the
14 objective. I mean, it's certainly our goal to have an
15 objective identified. But there was quite a bit of
16 debate. But, perhaps, that's the first -- first order
17 of business. I mean, we don't have a formal agenda,
18 like we did last week, today because we really need to
19 review the alternatives. But, let's do that first,
20 right now. Let's discuss those objectives. If anybody
21 has input -- for that matter, if anyone has a different
22 objective that should be considered, just recognizing
23 that any implementation next year is going to have to
24 be a decision of the Corps of Engineers and, as I said
25 last week, we are fully intending to sincerely

1 facilitate the process such that we can come up with a
2 reasonable plan and an implementable plan. And we also
3 talked last week about some other considerations: The
4 consensus and major modifications to the project. And
5 I guess I don't plan to cover that ground today unless
6 there's any questions on those -- on those items. But
7 -- go ahead, Will, we can start with the objectives.
8 MR. WHELAN: I guess I'll sort of struggle
9 around and try to express this. Sort of throw it out
10 for comment.
11 My concern is that in Items 2 and 3, that you
12 have up there, that we may be trying to pose questions
13 that are going to be very difficult to answer in a
14 one-year test. Particularly No. 3, determining the
15 survival relationship with respect to decreased travel
16 time. We are doing -- well, some of our alternatives
17 call for a one-pool drawdown. We may have a great deal
18 of difficulty getting real firm biological answers with
19 regard to survival relationships; and I'm concerned
20 that by having that objective up there, if we produce
21 useful information, say, on Objective 1, water
22 velocity, but we are unable to produce conclusive
23 results on Objective 3, that the test will be deemed a
24 failure.
25 MS. WIK: Well, these were objectives that we

1 just threw out as possibilities. These weren't saying
2 that any test we propose for next year would try to
3 address all three objections. We were just trying to
4 get at initially what the -- what the objective of a
5 test for '92 was, and those were some of the concerns
6 that we raised last week was, Could you get any
7 information regarding Objective 3, which is, you know,
8 in essence -- you know, overall what we are looking for
9 is increased survival.
10 MR. WHELAN: Right.
11 MS. WIK: But, is that realistic under a
12 one-year test plan scenario? So....
13 MR. WHELAN: It's quite conceivable that a
14 test will produce some fairly knowable and even
15 dramatic results of water velocity, and it's strongly
16 argued that travel time and survival through the system
17 are closely correlate. But, with one year and one
18 pool, we may not be able to produce those types of
19 biological results. And my concern is that we not set
20 such a high threshold in terms of an objective that
21 then the results of test are called inconclusive; and,
22 therefore, we don't go forward with something in future
23 years.
24 MS. WIK: I don't think there's any argument
25 there. One of the things that we talked about, also,

1 was that, whereas, for example, on Objective 3, you
2 might not be able to measure benefit, we did at least
3 want to try and measure some sort of benefit in that
4 there are negative impacts; and you need to be able to
5 weigh in the long run, you know, is there an overall
6 benefit to doing something. And we're not saying
7 there's not. It's just that there needs to to be some
8 ability to measure there.
9 MR. WHELAN: Is there disagreement -- you
10 know, I'm not a technical person, so it is a basic
11 question; but bear with me -- is there disagreement
12 that reducing water velocity by -- I mean increasing
13 water velocity provides a benefit for the fish?
14 MS. WIK: I don't think so.
15 MR. ANDERSON: No. I guess I'll speak to
16 that, and let some of the fishery folks.
17 I think it's pretty clear that there's a
18 relationship there. I guess what's uncertain is the
19 magnitude or the precise relationship. Does anyone
20 else want to offer -- Ted?
21 Ted, why don't you come up here. We have a
22 name tag for you.
23 MS. WIK: Yeah. And a seat over here, Ted.
24 MR. YOUNG: We do have a relationship between
25 travel time and water velocity, average water particle

1 movement; and, like anything else, it has some
2 variability associated with it. But it's probably
3 better than the kind of information we would get from
4 trying to measure a small change in water particle
5 travel time relative to survival estimates for
6 downstream migrants. Probably that's not doable in a
7 practical sense. We had great difficulty doing it over
8 a number of dams where the difference was very great.
9 I have kind of a different kind of problem
10 with the same area, objectives. I guess I would like
11 to see us identify the biological objective; such as,
12 reduce downstream migrant travel time, and then
13 identify possible -- the possible range of ways that
14 you might do this.
15 Do you want to write that down?
16 (No discernible response was made.)
17 MR. YOUNG: Okay. I'd just say reduce
18 migrant travel time.
19 MR. ANDERSON: Do you want to call it a
20 biological objective, to make that distinction?
21 MR. YOUNG: Well, I think, if we don't have a
22 biological objective, we shouldn't be doing this.
23 MS. WIK: I'd like to --
24 MR. YOUNG: You can call it an objective or a
25 goal, or whatever you want to do with it.

1 MS. WIK: I want to address that a little
2 bit, Frank; and that's what, you know, under Objective
3 2 there, we were trying to get at --
4 MR. YOUNG: Yeah.
5 MS. WIK: -- is to -- you know, the
6 relationship but, in essence, looking for on increased
7 -- or a decrease in travel time.
8 MR. YOUNG: Right. But I would like
9 something more direct.
10 MS. WIK: Okay.
11 MR. YOUNG: And under that I would say "A"
12 under that, and I'd have --
13 MR. ANDERSON: Just a second. Does that
14 capture your --
15 MR. YOUNG: Yeah. And then "A" under that,
16 displaying the range of alternatives would be:
17 reservoir drawdown.
18 MR. ANDERSON: What was the first word.
19 MR. YOUNG: Reservoir drawdown. "B" would be
20 flow augmentation. No particular order here. And "C"
21 would be dam removal. And there may be some in
22 between. But what I'm trying to do is display the
23 range of alternatives that are available for addressing
24 the biological objectives and then some description or
25 narrative in the introduction of this that shows how

1 reservoir drawdown then fits into the total picture.
2 I'm not suggesting that you address the other
3 alternatives in this process; but, in this process,
4 identify what the other -- the range of other
5 alternatives are, and how they will be addressed.
6 I understand you had some discussion about
7 this at the Lewiston meeting, but that it was
8 inconclusive as to how these -- this range of
9 alternatives was going to be addressed in the future.
10 And my only concern is that we will proceed down a
11 pathway of looking at reservoir drawdown and may find
12 it's infeasible and then say we have done our job.
13 MR. ANDERSON: I guess our objective here was
14 -- the Salmon Summit proposed a measure, the Idaho
15 caucus and others proposed a measure based on the
16 premise that there is benefit to help migrants; and the
17 task was to develop a plan to test that hypothesis, I
18 guess. And what you're suggesting here is, perhaps the
19 objective is a measure which we think will do that; and
20 maybe we will have some research associated with it.
21 And, also, you're suggesting that we look at some other
22 alternatives to just a drawdown, is that --
23 MR. YOUNG: Of course, all of these, plus the
24 objective, have been discussed ad nauseum in the Salmon
25 Summit.

1 MR. ANDERSON: Right, right.

2 MR. YOUNG: And it's just that, in this

3 instance, they have focused on a drawdown.

4 MR. ANDERSON: Yeah.

5 MR. YOUNG: They discussed augmentation.

6 MR. ANDERSON: Yeah.

7 MR. YOUNG: They discussed dam removal.

8 MR. ANDERSON: Yeah.

9 MR. YOUNG: They discussed modifying dams.

10 MR. ANDERSON: Uh-huh.

11 MR. YOUNG: And there is probably a NEPA

12 process involved in all of this that may not all fit

13 together. And my concern is that I want to make sure

14 that this all fits together, and it is taken care of --

15 MR. ANDERSON: Well --

16 MR. YOUNG: -- and that we know what part of

17 it we are addressing here. We're not -- our objective

18 is not to drawdown the reservoirs. That's not my

19 objective.

20 MR. ANDERSON: And I guess we came to this

21 meeting with the objective to look at this particular

22 measure, this proposal, this hypothesis and develop a

23 plan where we are actually developing an experiment for

24 it.

25 MR. YOUNG: And I don't have a problem with

1 that.

2 MR. ANDERSON: Yeah.

3 MR. YOUNG: So long as a part of this is

4 identified as to how this fits in --

5 MR. ANDERSON: Okay.

6 MR. YOUNG: -- with the other overall

7 problem.

8 MR. ANDERSON: You're looking at the bigger

9 picture.

10 MR. YOUNG: Right.

11 MR. ANDERSON: I understand.

12 MR. YOUNG: I think it is a mistake to go out

13 on a deadend -- perhaps a deadend track and not have

14 identified what part this is to the real problem.

15 MR. ANDERSON: Yeah.

16 Let me just address there's other things

17 going on here. Two things that the Corps is involved

18 in. One is a system operation review, and another

19 termed "our mitigation analysis" to define the

20 mitigation requirements for the eight Corps projects on

21 the Columbia and Snake, and then look at alternatives

22 for meeting a mitigation objective, should that be

23 beyond what we have right now. Those are ongoing

24 processes that won't be completed in '92. The Corps,

25 Bonneville Bureau and some other people, are also

1 looking at needs by 1992 for a more programatic
2 implementation of measures, not just the Snake River
3 test. Flow augmentation with Dworshak, Brownlee, Upper
4 Snake water. Drawdowns on the Lower Columbia River.
5 In that case, we have set a limit not below minimum
6 operating pool. That was -- that was kind of a
7 conclusion out of the Salmon Summit. So, there are
8 other alternatives going on.
9 And, I guess, what I think I hear you saying,
10 Frank, there's got to be sense made out of the whole
11 package --
12 MR. YOUNG: Right.
13 MR. ANDERSON: -- of all of these
14 alternatives. That, we just don't select one and spend
15 the next few years looking at that, ignoring these
16 other opportunities.
17 MR. YOUNG: I -- I -- all I'm proposing is
18 that there be an introduction to this that describes
19 what you have just described and with an accompanying
20 schedule.
21 MR. ANDERSON: Okay.
22 MR. YOUNG: So, we will know --
23 MR. ANDERSON: And I don't want to get out in
24 front -- it's not the purpose of this meeting, but we
25 are looking at -- the agencies are looking at what we

1 need to do in a bigger picture sense by '92; and, then,
2 how that relates to the other activity we have ongoing,
3 such as the ESOR and the mitigation analysis.
4 MR. YOUNG: Yeah. I'm aware of all those
5 other things.
6 MR. ANDERSON: Okay.
7 MR. YOUNG: I just don't want for this to be
8 isolated.
9 MR. ANDERSON: Really our purpose in these
10 meetings was this particular measure. How do we --
11 MR. YOUNG: I understand.
12 MR. ANDERSON: -- how do we implement this
13 measure. How do you test it such that the Corps can
14 get into the National Environmental Policy Act review,
15 and we can go through the public scoping and start
16 looking at those issues. We felt we needed to get to
17 the experimental side, the biological, the scientific
18 aspects. Can we design a plan where we can gain some
19 useful information. Then, we need to look -- do a
20 realty check with a lot of other users out there and
21 see -- see just what is implementable in 1992.
22 So, it is our hope that we can develop
23 something fairly reasonable and gives us some
24 information; and we would hope benefits the fish in
25 '92. Certainly, that's the underlying premises we are

1 trying to meet.

2 MR. YOUNG: Yeah. I understand that.

3 MR. ANDERSON: Okay.

4 MR. YOUNG: But I just want it to be kept in

5 context so that maybe, when we get all through here in

6 '92 and say, that didn't work, you check it out; and

7 that doesn't mean you're all through.

8 MR. ANDERSON: Right.

9 MS. WIK: Yeah.

10 MR. YOUNG: You just proceed from there, too.

11 MR. ANDERSON: Sure.

12 MR. YOUNG: There's some recognition of that

13 in the document that comes out of this.

14 MR. ANDERSON: Okay.

15 MR. WHELAN: This issue of scoping, I think,

16 is important right now. Because the type of context

17 that Frank is talking about, the broader context, this

18 mitigation analysis for the Columbia River, is the type

19 of thing that would be useful for us to have some

20 information on in terms of our comments during the

21 scoping of this and the EIS. So, if you could provide

22 us with as much information as possible on what these

23 other NEPA processes are.

24 MR. ANDERSON: Okay.

25 MR. WHELAN: What their purpose and

1 parameters are.

2 MR. ANDERSON: Okay.

3 MR. WHELAN: That will help us in terms of

4 getting comments in the scope of this document.

5 MR. ANDERSON: In fact, just to comment on

6 that, there was a meeting of the Council of

7 Environmental Quality this week on Monday talking about

8 that very item; and they talked about a framework

9 document. How does all the activities in the region

10 going on to deal with the salmon situation, how do you

11 make sense of all that to the public, and how do we

12 make sense in the collective decision-making about the

13 types of measures that are pursued. How they might fit

14 together.

15 MR. WHELAN: I take it, from your

16 description, that the Columbia River mitigation

17 analysis, that will be a NEPA process? You will be

18 producing an EIS to do that?

19 MR. ANDERSON: No. I wouldn't call it a NEPA

20 process. There may be NEPA procedures associated with

21 it, but that's really an analysis process.

22 Maybe, Sarah, you want to comment on that.

23 MS. WIK: Yeah.

24 We are -- we're still looking in terms of

25 what -- of what we would do under -- with the NEPA

1 process, but it is more of an analysis, as Witt said;
2 and there will be public involvement and so forth with
3 the analysis, but not necessarily the typical scoping
4 initially with that, that would go on with preparation
5 of an EIS, for example.
6 MR. WHELAN: I have a fairly specific concern
7 with the way that this EIS process has been described
8 and scoped thus far; that is, we are really talking
9 about a 1992 test here -- that's the way it's been
10 described --
11 MR. ANDERSON: Yes.
12 MR. WHELAN: -- I'm concerned about getting
13 into '92, doing a test, several months later having
14 some interpretation of the results; and then a
15 conclusion coming out from that that we really need
16 another EIS to take another step. And that that EIS
17 will take eighteen months to two years, and we will
18 lose -- we will lose progress. We will lose momentum
19 during '93 and '94. So, one of the things that would
20 help address that concern is, perhaps, the early
21 commencement of an EIS process that is more broadly
22 scoped along the lines that Frank Young talked about a
23 few minutes ago to begin to provide the NEPA coverage
24 necessary for actions in '93, '94 and beyond. The
25 Columbia River mitigation analysis may be one process

1 process to provide that NEPA coverage.

2 MR. ANDERSON: And the system operation

3 review as well, in terms of the flow operations, we

4 have a schedule for the system operation review; but,

5 in view of the way the terrain has changed in the past

6 six months with the petitions and now we have tentative

7 species, that schedule is being looked at. And also,

8 again, I think you will be seeing a '92 environmental

9 statement. We are working on that right now. I don't

10 really -- I can't -- I don't want to comment too much

11 on that, about the types of measures that will be

12 addressed in that, because we are looking very hard at

13 that. Perhaps, by next Thursday's meeting, we will be

14 able to articulate what that package is going to look

15 like. But we have now a specific request from

16 Congress, some language in a supplemental

17 appropriations bill, that requests the agencies to

18 identify the environmental procedures and management

19 actions and other things that needs to be prepared to

20 deal with the potential listing or the listing of these

21 stocks in 1991 and 1992. So, all of the federal

22 agencies are taking a hard look at that right now to

23 report back through the administration of Congress.

24 So....

25 MR. WHELAN: That might be a good thing to

1 bring back up next Friday -- next Thursday. Thank you.
2 MR. ANDERSON: Yeah. That's right, Will.
3 With the policymakers that would certainly be a comment
4 that, perhaps, you might want to make.
5 Okay. Are you ready to actually walk through
6 these alternatives that we discussed as a group?
7 (No response was made.)
8 MR. ANDERSON: Anything else?
9 MR. JOHNSON: I would like to suggest two
10 other objectives. In reading the material that Sarah
11 put together there, in most cases, there will be --
12 THE REPORTER: Excuse me, I need you to speak
13 up.
14 MR. JOHNSON: -- there will be -- in most
15 cases, there will be effects on adult fish. And two
16 possible other objectives: One would be to determine
17 the effect on adult passage, the delays and mortality
18 due to difficulty finding the ladders; and the other is
19 to determine the effect on adult and juvenile survival
20 due to gas supersaturation.
21 MR. ANDERSON: I --
22 MR. CRASE: Are these objectives?
23 MS. WIK: I think that was kind of an
24 understanding, Dale, that that would be a given. That
25 we would be monitoring for those, and that that would

1 be part of a more specific test design.

2 MR. JOHNSON: Okay.

3 MS. WIK: What we were trying to do is set up

4 the basic test framework to get the information

5 regarding the concept of a drawdown; but, under that,

6 we would, of course, include within that --

7 MR. JOHNSON: Test --

8 MR. ANDERSON: -- a monitoring impact on the

9 adult fish, monitoring dissolved gas levels,

10 turbidities. And that's -- we were trying to not get

11 too specific before going forward with this; but, I

12 guess, I envision that we would continue with a small

13 technical work group to -- to decide on how to get to

14 some of those issues in terms of actual test plan.

15 MR. JOHNSON: Yeah. I'm recommending

16 alternative objectives, and maybe I'm talking about

17 tasks within objectives. Maybe you are talking about

18 the overall goal of reducing travel time. I wasn't at

19 the last meeting.

20 MS. WIK: Okay.

21 MR. JOHNSON: So, maybe the perceptions are

22 different. But goals, tests -- goals, objectives and

23 tests, but....I was just offering up that there are

24 other objectives that could be pursued in a research

25 study.

1 MR. YOUNG: I think those are really tasks,
2 Dale.
3 MR. JOHNSON: Okay.
4 MR. YOUNG: I think we are all in agreement
5 that all those things need to be addressed.
6 MS. WIK: Yeah. I guess I would agree with
7 that. Does that --
8 MR. JOHNSON: That's fine.
9 MS. WIK: Okay.
10 MR. NASON: I wasn't at the other meeting
11 either, but we haven't talked specifics yet, and I hope
12 that we don't let the politics of the situation drive a
13 '92 test. Because I think that once we start
14 addressing Dale's concern for adult mortality,
15 monitoring turbidities, things of this nature, we will
16 find this is a horrendous test; and we probably should
17 be starting immediately to secure the fish. Whether
18 they are going to be hatchery, wild, whatever. And I
19 think that, when you start getting into the specifics,
20 it's going to be very difficult, even without on EIS
21 process, to meet '92.
22 MR. ANDERSON: Well, that --
23 MR. YOUNG: What politics?
24 MR. ANDERSON: In fact, that was the
25 discussion last week; and we will walk through those

1 very types of issues in Sarah's matrix and in her
2 discussion. But, that's quite right. That's why we
3 need to get to -- to the design of this program in '92,
4 the plan itself and the environmental design to go
5 along with it.
6 MS. WIK: And we need to walk through those
7 concerns as we develop them. That's critical that we
8 evaluate those.
9 Any other thoughts before we move into....
10 (No response was made.)
11 MS. WIK: I guess what -- just a quick
12 rundown on this, and some of this will be reiterating
13 what Witt said.
14 But I would like to see us today review the
15 alternatives as we discussed them last week, go through
16 the matrix that was developed and come away with
17 reasonable alternatives that we want to recommend. I
18 don't -- well, I'll throw this out, but I don't know
19 that we want to go forward next week with all six
20 alternatives, which was something we discussed last
21 week. I would like to see us pare that down, looking
22 at these issues, such as Dick brought up, such are on
23 the matrix and decide what really is reasonable for
24 '92.
25 Will?

1 MR. WHELAN: I'm sorry to keep -- when we get
2 to the technical stuff, I'll shut up.
3 Why are we trying to pare down alternatives
4 at this stage, prescoping?
5 MS. WIK: Because we -- in the short time
6 frame for the EIS, we cannot -- we cannot scope all six
7 alternatives reasonably, and do -- do we want to. I
8 mean, if there are definite ones that we agree we don't
9 want to implement for 1992 because of adult fish
10 passage concerns, or whatever, then....
11 MR. WHELAN: Yeah. I understand the concern.
12 But, you know, NEPA says that the consideration of
13 alternatives is the heart of the document.
14 MR. ANDERSON: Uh-huh.
15 MR. WHELAN: And really -- as you go forward
16 through your NEPA process, you really need to have a
17 range of alternatives included; and, if you don't have
18 that range in the document, then I think you're going
19 to be subject to criticism and possibly attack. So, I
20 think you are much safer having at least six
21 alternatives. And beyond that, you don't need to
22 identify a preferred alternative at the notice of
23 intent stage.
24 MR. ANDERSON: I don't disagree with that
25 fact. We will present all of these six alternatives at

1 least in the document. Our objective was to see if we
2 can't come to closure on a proposal. Do we have a
3 proposal. And I mean, let's be frank, we need -- we
4 need to get the fishery agencies and other responsible
5 parties to conclude that the proposal is acceptable. I
6 mean, there's people responsible for the fish out there
7 as well as the Corps of Engineers responsible for a
8 number of other items, as well as the fish. The point
9 is we want to see if we can develop a plan and an
10 environmental design that is implementable. I mean,
11 that was the purpose to come and have these meetings,
12 such that we have a proposal; and we will go out with
13 the NEPA process. And, of course, we will want
14 alternatives. I agree with you. That's part of the
15 purpose of NEPA. But, I guess, we -- I think what
16 Sarah is saying, at least in my view, is we want to try
17 and focus in on some plans that make some sense. I
18 mean, I don't think there's any kidding here that
19 there's a lot of debate about -- about these various
20 proposals, these alternatives. Now, maybe we can all
21 come away agreeing that there might be something here
22 that does make some sense, might benefit fish. We
23 might get some good information, and it's actually
24 implementable when we get through the EIS process.
25 MR. BJORNN: Could we talk for a minute about

1 what we think is going to happen next week, at the
2 meeting next week. I think that might have an
3 influence on what we -- on how we view this process.
4 If the policymakers next week are going to look at six
5 alternatives that we are considering and select one,
6 then we approach that meeting in one way. If they are
7 going to look at all six of them and say, Okay, those
8 six are all okay for your consider in the NEPA process,
9 then that's a different approach.
10 But, if they are going to come away with --
11 you know, and want to make a proposal to the Corps and
12 say, That's the one we want you to do the NEPA process
13 on, then we need to go into that meeting with different
14 preparation than if we just expect them to say, Okay,
15 those six look okay. Go ahead.
16 MR. ANDERSON: We would like to see
17 direction, a proposal, a regional proposal, that was
18 our mission at the outset here. Having sat in the
19 Salmon Summit over the past six months, I'm not sure --
20 not sure that it's wise to expect that to happen. But
21 I do think that we will get some comments. And I will,
22 for example, look at Bruce here or I'll look at the
23 navigation industry. If, for example, we said we are
24 going to do a four-month drawdown on all the projects;
25 in fact, we had a good experimental design for that.

1 Bruce, I mean, are you going to come in and say, Well,
2 we better screen that now because we're not going to go
3 with that.
4 MR. SCHLUETER: Yeah.
5 MR. ANDERSON: And not to say that the Corps
6 will not consider that in the NEPA document. We will.
7 But we really want to get focused on something that's
8 reasonable. Because I know there's other people out
9 there that have indicated in the Salmon Summit, a test,
10 we accept the concept of a test; we want to get some
11 information; but we have -- we have to have something
12 that's reasonable. And I expect that to be the
13 discussion next week.
14 MR. SCHLUETER: Our point has been made --
15 and I think that's why we are having these meetings,
16 not necessarily from our point; but we are pleased to
17 see the Corps undertake these kinds of meetings and
18 develop an experiment. We felt that, first off, you
19 need to get the biologists together and develop a
20 biologically credible experiment; and then, second, we
21 need to involve the river users in terms of trying to
22 mitigate for their impacts to the extent you can. And,
23 hopefully, that's the steps we are going through right
24 now.
25 Today we will complete the biological test.

1 And, hopefully, next week -- and I know that's a big --
2 a big agenda for a two-hour meeting with a group of the
3 Salmon Summit members, and that is to have recognition
4 for navigation, irrigation, for resident fish, public
5 safety and other issues in relation to those drawdowns.
6 And it was our expectation that we could come to some
7 kind of a general consensus on an experiment. So that
8 we enter, if a NEPA process is required, such as an
9 environmental impact statement, you folks need to start
10 going through that, at least we have some consensus at
11 the leading edge of it. We did not feel -- we did not
12 feel that NEPA is a proper vehicle to be designing a
13 biologically credible experiment. We felt it should be
14 developed in this kind of a forum here and, hopefully,
15 gaining consensus from nav and irrigation and other
16 folks, a leading edge. We don't -- we don't want to be
17 obstacles in an experiment -- excuse me -- in an
18 experiment or in the environmental impact statement.
19 And we thought, again, in a leading edge, before you
20 start an EIS, if that's required, it would be pretty
21 nice to help that process through to have some
22 consensus at the start.
23 MR. ANDERSON: Let me -- is it not fair --
24 excuse me a little bit -- to say that, I think we will
25 have to present the alternatives to the group; but that

1 we don't have an -- we have an objective to narrow that
2 to one or two tests that we actually think are doable
3 and have some -- some sound experimental design, I
4 mean, again focusing on the biological aspects and the
5 experiment. I mean, I certainly would like to go back
6 to that group next week and say, We have looked at
7 these six. Here are some of the major pros and cons of
8 these, and we are really looking at one or two of
9 these, at least in our collective wisdom. Is that not
10 a fair objective?
11 MR. WHELAN: I think there's a way of getting
12 that done and still more or less going towards Ted's
13 second option. I think that it's -- you don't need to
14 go forward with just one alternative. Now, I think it
15 would be a mistake to try to limit the range of
16 alternatives or say that we really have one test
17 proposal here and this is it. We will consider these
18 other alternatives, but here it is. What you need
19 right now is a proposed action, a list of possible
20 alternatives and some description of their impacts for
21 a very brief notice of intent, a page. A page. Your
22 proposed action is to test reservoir drawdowns in 1992.
23 You have got six alternatives right now. They can be
24 refined. Some added, some dropped. But I think six is
25 a decent number for present purposes. Put them in the

1 notice of intent and very briefly summarize the
2 impacts.
3 To go beyond that and to try to get the group
4 to start focusing on just one alternative really is
5 getting the cart in front of the horse. You want to
6 use the NEPA process to take a look at some of the
7 specific advantages and disadvantages of each
8 alternative and to make an informed decision at the
9 proper point in the analysis. But I still think we can
10 go into Portland's meeting with some sense of the
11 concerns and the points raised on a technical level
12 about each the alternatives as long as it's being put
13 in the sense that these are the comments to date.
14 We're not making any decisions at this point. But here
15 is sort of some weight of opinion about this
16 alternative, and here is some comments about that one.
17 I think you can do that, and I think that accomplishes
18 your purpose of giving the policymakers some sense of
19 where this group is headed. But to make decisions
20 selecting between alternatives, which ones are going to
21 be the preferred alternative, I think that would be a
22 mistake this morning.
23 MR. SCHLUETER: If I could respond to that.
24 If your objective is an environmental impact
25 statement for NEPA, I would agree to that. Except my

1 objective is a little bit different, and my objective
2 is to come up with a biologically credible experiment,
3 one that's not going to impact my industry and some of
4 the other industries, impact them in a negative way.
5 And if -- with that as an objective, I would just think
6 that this group would be spending its time wisely in
7 doing some kind of filtering process and going through
8 some of those objectives. I mean, let's face it, an
9 objective of a four-dam drawdown for several months,
10 you know, that -- that may have some biological
11 credibility at least for smolt survival; but, you know,
12 is it reliable for adult returns and things of that
13 sort. Is it going to be something that is going to
14 make it through the political and policy level folks,
15 or is it going to be something that's salable. And I'm
16 concerned about that. I think we ought to be narrowing
17 ourselves, realizing that if we do get into a NEPA
18 process, I'm sure the attorneys will be in there
19 arguing to -- that it be broadened, we look at all
20 kinds of options.
21 But, again, I would just request that the
22 biologists here kind of narrow this thing down.
23 MR. ANDERSON: I hear you're concerned --
24 thank you, Bruce. I hear you are concerned that you
25 don't want to eliminate something, and we will have to

1 look at alternatives in the EIS. But, I guess, I still
2 think we set out to talk on a technical sense of what
3 we could develop and implement that can help fish, not
4 harm fish; and we can gain some information and
5 implement it. And, if we don't come away from this
6 recognizing that there's some -- some problems to
7 overcome in some of these alternatives, then I'm not
8 sure we have -- we have done much in these meetings;
9 and the Corps is going to have to make a hard decision
10 about where we go from here after the eighteenth. But
11 I....
12 MR. WHELAN: You don't need to make that
13 decision on the eighteenth. You need to make it at the
14 final EIS stage for the notice of intent. Don't set
15 your -- don't set the bar you have to clear too high
16 here because you're just going to get a lot of grief
17 trying to clear that bar right at the outset. It is a
18 very simple thing to do at this point. I think this
19 group is making good process towards that.
20 MR. ANDERSON: Well, I guess, let's get into
21 the alternatives because I think we have got some
22 information on these alternatives that helps -- helps
23 clarify what -- what may or may not be reasonable and
24 recognizing that we will present alternatives in the
25 NEPA process.

1 Ted?

2 MR. BJORNN: I'm just trying to think

3 through, is there anybody here that's an expert in the

4 NEPA process? One of the --

5 MR. ANDERSON: There's one over there

6 (indicating).

7 MR. CRASE: How about someone that's written

8 several impact statements, does that make them an

9 expert?

10 MR. BJORNN: One of the thoughts that comes

11 to my mind is that the NEPA process is usually gone

12 through when you have got a proposed action; and that's

13 different, for example, than from a Forest Service

14 management plan which proposes a whole raft of

15 alternative ways of doing business. And it seems to me

16 like there's -- you know, we are looking at -- we are

17 trying to do more under the NEPA process than maybe

18 it's designed to do. I don't think that's the process

19 to make -- to choose between alternatives. What it is,

20 is to evaluate -- and I stand to be corrected -- the

21 actions that are proposed -- you know, the results of a

22 proposed action. And, if that's true, then, that

23 demands that we come up with some kind of a proposal.

24 MR. WHELAN: Yeah. Can I make a suggestion?

25 That we deal with some of this stuff at a break maybe.

1 I have the NEPA regs here (indicating). If people are
2 interested, a few of us can get together and take a
3 look at this stuff, hash it out over just a real quick
4 break and come back. We don't need to take everybodies
5 time for some of this stuff
6 MR. SCHLUETER: I guess I would recommend
7 that -- my attorney is not here, and he's quite versed
8 on the NEPA regulations. And, if we want to get
9 together on some conference calls or something or
10 during the next week or something --
11 MR. ANDERSON: Sure.
12 MR. SCHLUETER: -- we would be willing to do
13 that. We have already come to a position on this and
14 express that to the Corps.
15 MR. ANDERSON: Is there anyone else that has
16 the same concern that Idaho -- I'll characterize it for
17 you, correct me if I'm wrong, Will -- your concern is
18 that we might get too focused on a proposal and
19 eliminate something that you might want to see happen
20 as opposed to the proposal that the group is focusing
21 on, is that --
22 MR. WHELAN: And that we need to distinguish
23 between a proposed action and a consideration of
24 alternatives. Idaho is not concerned with the proposed
25 action here. The proposed action is a test of

1 reservoir drafting in 1992. What I'm concerned about
2 is, is that we establish prior to the EIS -- and, in
3 fact, prior even to the publication of the notice of
4 intent -- a momentum for a single one of the
5 alternatives in that proposed action.
6 MR. ANDERSON: A momentum towards a single --
7 let us establish a proposal and alternatives that will
8 be evaluated in the process. We don't have any
9 decision on that proposal, but the intent was to get
10 some collective consensus in the region. And we talked
11 about this last time. We had said during this we want
12 a consensus, recognizing that it is going to be very
13 difficult to get. Failure to get full consensus is not
14 going to stop us from going through the process. But
15 certainly, if we don't get some understanding about the
16 proposal, that's a difficult one to overcome, I mean to
17 make sense of going into a process, making sense of
18 what we are proposing to the public.
19 Does anyone share that concern? I mean, does
20 anyone else have any views about --
21 MR. PETTIT: Well, Witt, I certainly don't
22 want to waste all our time if we're going to flaw the
23 process by limiting how we enter it. Time is too
24 valuable and --
25 MR. ANDERSON: We are not -- we are

1 certainly not eliminating alternatives from further
2 consideration, but --
3 MR. PETTIT: This whole thing can be shut
4 down legally into this year ahead of us because we
5 didn't follow the right process or we limited ourselves
6 too restrictively; and, you know, I don't want to make
7 -- I think that's a valid point that Will made, you
8 know.
9 MR. ANDERSON: Yeah. I agree with you. I
10 agree.
11 MR. YOUNG: Our concern is, too, because
12 something isn't feasible to test in '92 doesn't mean it
13 should be eliminated from further consideration.
14 Because by correcting the problems associated with its
15 being infeasible for testing in 1992, you may be able
16 to do it in '93 or '94. So, in that respect, I would
17 agree with Will.
18 MR. NASON: And that's basically what I was
19 alluding to earlier. The more drastic the test, you
20 might say, a four-reservoir drawdown for four months,
21 for example, it is probably biologically easier to
22 measure than something we can reach consensus on that's
23 so benign that -- that you can't measure the
24 difference. And I think that's my concern, is that the
25 difference be measured. You know, that we measure that

1 it's going to help fish or not. And I think the thing
2 to do is to go through this like you want to.
3 MR. ANDERSON: But, let's go through the
4 alternatives; and we'll bring this back up by the end
5 of the day and see where we are and how we want to
6 present it to the group next week. I'm certainly -- I
7 don't have any problem with going through the
8 alternatives with them if we can't reach some -- some
9 degree of satisfaction on a proposal. And that
10 proposal can be framed fairly broadly, but I certainly
11 would like to give them the benefit of all the
12 discussions we have had about the good and the bad with
13 each of these in the sense of at least -- at least
14 experimental design. Okay?
15 Okay. We will just start going through the
16 alternatives.
17 MS. WIK: Everybody got their handout?
18 (No response was made.)
19 MR. JOHNSON: You're looking at the matrix or
20 the text?
21 MS. WIK: Well, what I would like to do is,
22 maybe we want to take the two matrix pages off the back
23 and kinD of set them aside. What I would like to do is
24 go through each of the alternatives, describe what's on
25 the brief description page and then walk through the

1 matrix associated with it. So, it might be easiest
2 just to -- anybody else need a copy?
3 (No response was made.)
4 MR. YOUNG: Are you sure you have enough
5 copies?
6 MS. WIK: Better safe than sorry, Frank.
7 MR. ANDERSON: Sarah, can I get one thing
8 back up. I should have done this first.
9 We have set a goal to shorten in-river
10 migration time.
11 MR. YOUNG: Wonderful.
12 MR. ANDERSON: Okay.
13 MS. WIK: That answers Dale's question.
14 Okay. Looking at Test Alternative No. 1,
15 four reservoirs, we threw out the idea of -- or we
16 tossed into Corps discussion lowering all four Lower
17 Snake River pools to nearest spillway crest elevation.
18 In other words, the maximum possible that could be done
19 in '92.
20 Looked for a maximum time frame for this from
21 April 15 through August 15. That allowed for fall
22 chinook going through the system, again, depending upon
23 which stocks were proposed for testing. Also suggested
24 that this time frame could be broken down into April
25 through June and then June through August.

1 With that in mind, the brief type of study
2 plan that we discussed was that we would tag juvenile
3 fish to be released at Lewiston and then recovered at
4 McNary Dam to estimate travel time through the entire
5 Lower Snake system under a drawdown. We did discuss
6 the possible use of radio tags. I talked to Lowell
7 Sternberg (phonetic) from National Marine Fisheries
8 Service at length about that, and he said that he would
9 highly recommend against using those in juvenile
10 chinook. He said any fish less than a hundred
11 seventy-five millimeters, there was concern about
12 impact to the fish. Problems in bouyancy, et cetera,
13 so that they would not be -- they wouldn't respond as a
14 fish normally would. So, he, in essence, suggested
15 that we not consider using radio tags.
16 Under this study plan, all fish would have to
17 be collected at the McNary juvenile fish facility; and,
18 you know, we can then get into the concerns.
19 The only -- the only issues that I have
20 really outlined on those descriptive pages were the
21 major ones; such as, the elimination of adult fish
22 passage. So, we have to go back to the matrix just to
23 walk through.
24 For those of you who weren't here last time,
25 we took this alternative and we outlined all the

1 potential issues and concerns with it. Then, rather
2 than going forward with the other alternatives and
3 doing the same thing, we agreed, you know, that some
4 would be applicable and some wouldn't; and that was
5 what I was tasked with, was to at least draw out a
6 strawman of what -- what concerns would fall out on the
7 other alternatives. So, I would just like to walk
8 through that.
9 So, as I note here, again, adult fish passage
10 at three of the four projects would be eliminated if we
11 went below minimum operating pool.
12 MR. ANDERSON: Question on that, would we not
13 also lose passage at Lower Granite?
14 MS. WIK: That's what I was going to say.
15 MR. ANDERSON: Okay.
16 MS. WIK: One of the things we talked about
17 was, well, maybe we wouldn't want to go all the way to
18 spillway crest elevation at all four. Adult passage
19 would be still functional at Lower Granite to the
20 elevation of seven ten, which is twenty-three feet
21 below minimum pool. So, that's -- I note that here,
22 that if we did go below that, if we did go clear to the
23 spillway crest at Granite as well --
24 MR. ANDERSON: Right. But the other
25 exception is if Goose is drawn down below the criteria

1 at the adult fishway entrance on Granite, you put
2 Granite out, so --
3 MS. WIK: Right. Which -- yeah.
4 MR. ANDERSON: I didn't --
5 MR. CRASE: Is the -- a question would be, is
6 there anything that could be done by the spring of 1992
7 that would make the ladders operable to some elevation?
8 MR. NASON: I don't think that's possible,
9 engineeringwise.
10 MR. CRASE: Well, I don't think any of us
11 really know that; and that's one problem we have with
12 setting a definite proposal.
13 MS. WIK: Okay. Let me throw out one thing
14 on that, Fred. And that is, we don't know what would
15 have to be done; but, with our existing facilities, we
16 have undergone many years of testing to develop those
17 to pass fishways as effectively as possible; and we are
18 still undergoing that test. Ted is out there on the
19 Lower Snake this year to look at ways to improve that,
20 but is it --
21 MR. CRASE: At minimum operating pool. Have
22 you looked at ways to go below that.
23 MS. WIK: Okay. Let me follow that thought
24 through. In other words, it's taken us a long time to
25 get where we want to go at minimum operating pool.

1 Would it be safe to assume that between now and the
2 spring of 1992, we could design some modifications that
3 we would be comfortable in assuming that those fish
4 could find those when we are still working on the
5 existing facilities. I mean that's just --
6 MR. CRASE: I don't know.
7 MS. WIK: Well, yeah. I'm not negating. I'm
8 just throwing that out for discussion.
9 MR. ANDERSON: There's two things here. It's
10 the major construction that will be required; and I can
11 tell you, as Dick said, I mean, you can't do those
12 kinds of modifications in that time frame.
13 MR. CRASE: Well, look at to get down to
14 spillway; but what kind of modification would be
15 required to get down three feet more?
16 MR. ANDERSON: But, if you're -- I guess,
17 let's start with the fact that you are spilling all
18 your water and you need to discuss the problems of just
19 getting the fish to a -- a fishway, to an adult ladder.
20 I would like Ted or Frank or someone else to comment on
21 that. I mean, that's -- that's --
22 MR. CRASE: I guess I was trying --
23 MR. ANDERSON: Never mind getting to the
24 point of what you would do structurally.
25 MR. CRASE: I guess I'm trying to make a

1 point more in that it has to do with a lack of
2 information. I don't think anybody here thinks you
3 could probably lower all four pools down to spillway
4 crest, but there's some people, I know, that think that
5 you might go somewhere between minimum operating pool
6 and spillway crest. And how far down you might go
7 would be determined on what kind of impacts you run
8 into and what kind of impacts can be mitigated. In the
9 time frame that we're talking about, you might be able
10 to do some of it by '92 and something further by '93.
11 And I know I don't have the knowledge to say at what
12 level we can protect adult fish migration, plus a whole
13 lot of other uses: Navigation, irrigation. What kind
14 of modifications can be done reasonably at a reasonable
15 cost to keep those functions working. And that might
16 have a whole lot to do in your final proposed test.
17 Because those kinds of things are going to lay
18 constraints on what you can do. You're not going to
19 wipe out navigation for the entire season.
20 MR. NASH: The Corps during the -- Fred,
21 during the Salmon Summit and the Mainstem Passage
22 Committee, which you were on, I believe put together a
23 list of impacts at what reservoir elevation the impacts
24 occurred, if I'm not mistaken.
25 MS. WIK: Uh-huh.

1 MR. ANDERSON: Yeah, I did that. I presented
2 it.
3 I guess, Fred, when you're talking about the
4 major modifications that would be required, we know
5 physically it can't be done. I mean, you can't develop
6 the designs and get out there and construct it in the
7 time frame we are talking about. But, beyond that,
8 just the -- just the design that you would have to to
9 come up with to get fish into a fishway when you're
10 spilling all the water, you don't have the water coming
11 through the powerhouse.
12 MR. CRASE: Well, you keep going down to
13 spilling. What if you didn't spill?
14 MR. ANDERSON: Okay. But --
15 MR. CRASE: What if you went down one foot
16 below minimum operating pool, what happens?
17 MR. ANDERSON: Okay. Let's start with the
18 juvenile bypass facilities. And the premise is -- I
19 don't think anyone has changed this -- that if you
20 can't bypass the fish efficiently from the powerhouse
21 that we have to shut down the powerhouse, which means
22 you're spilling all your water, which means you have
23 conditions in the tailrace that are certainly not
24 conducive to the present adult fishway.
25 MR. CRASE: And there's nothing that can be

1 done between '92 and '93 that would allow you to go one
2 foot below minimum operating pool at Ice Harbor?
3 MS. WIK: I guess one question on that, what
4 is the purpose of one-foot below minimum operating
5 pool? What does that really gain you?
6 MR. CRASE: I don't know. I'm just using one
7 foot -- I just pulled it out of thin air.
8 MR. ANDERSON: What --
9 MR. CRASE: The point is, I guess, I don't
10 feel -- and I know a lot of other folks don't feel --
11 that we have the information to come out and say, Okay,
12 without a doubt, this possibility is totally
13 eliminated. Some people don't feel comfortable doing
14 that at this time.
15 MR. ANDERSON: Well, one of the suggestions
16 Frank made to me on the way over here from the airport
17 today was one of the physical tests you might want to
18 do is an observational thing where, when there's not
19 fish in the river, you spill all the water and you look
20 at the circulation patterns and whether you're meeting
21 criteria in your adult fishway entrances.
22 I stole that from you, Frank. Maybe you want
23 to comment on that.
24 But that's one thing that could be done at
25 some point in time.

1 The other thing that was discussed in the
2 Salmon Summit, and we even talked about it last week,
3 was maybe the only thing you're talking about is
4 trapping fish at one of the lower river projects and
5 hauling the adults upstream, and there's lots of
6 problems with that that we discussed last week.
7 MS. WIK: I guess I would like to focus back
8 on what we can do in '92, and this gets back to the
9 discussion we had earlier. That it doesn't mean that
10 we're not going to get to go forward looking at other
11 alternatives for '93 and beyond. But that we -- you
12 know, we are here to focus on what we can do in '92,
13 and we keep getting in -- in -- into discussions of,
14 Well, if we did -- if you modified it this way, you
15 could do something else besides that. But, is that
16 reasonable to try to cover between now and when we are
17 looking at reaching closure on this? And I guess --
18 MR. WHELAN: Have you looked at what type of
19 fish ladder extensions might be possible between now
20 and '92?
21 MR. ANDERSON: We haven't.
22 MR. WHELAN: Until that's done, doesn't it
23 make sense to keep this on the table and take a close
24 look at what type of extension might be possible?
25 MS. WIK: What do you mean by "extension"?

1 MR. WHELAN: I mean, isn't it a problem that
2 your reservoir -- your ladders are not effective
3 because your reservoir pool is lower than the ladder
4 entrance or exit?
5 MS. WIK: Right.
6 MR. WHELAN: So, it might even be possible to
7 try to get some -- some -- pump water into the tops of
8 the ladder and extend the ladder --
9 MS. WIK: But -- but --
10 MR. ANDERSON: That's one problem.
11 MS. WIK: Yeah.
12 MR. WHELAN: One problem.
13 MS. WIK: But it's not just the ladder. It's
14 a whole series of collection canal and entrances.
15 MR. WHELAN: Yeah, I understand. But the
16 problem is to sit here in April and say these are all
17 problems that should take an alternative off the table
18 before we have tried hard and sat down with pin and
19 paper and tried to solve some of these problems.
20 MR. NASON: I think that you're minimizing
21 the complexity of a fish ladder system. People should
22 go out -- Frank is sitting over there laughing because
23 he knows I'm right on this thing. They are a complex
24 item. They are hundreds of millions of dollars when
25 they are constructed, you know, with the dam; and it

1 has to put up with head differentials and everything
2 else, the hydrologic situations, and still be able to
3 be in the right spot to attract the fish to it. You
4 couldn't take -- right now, I would be willing to bet
5 money -- and have a design and out for bid and the bid
6 awarded between now and the spring of '92, let alone
7 construction.
8 If you wanted to modify the fish ladders, if
9 we had some design, you're probably talking about '94,
10 the spring of '94 before it would be completed if we
11 are really lucky. You're talking hundreds of millions
12 -- tens of millions of dollars.
13 MR. SATTERWHITE: I think there's a point to
14 be made here that's getting passed over. We have got
15 to deal with adult fish migration problems. It seems
16 reasonable that somebody within the Corps and with the
17 assistance of cooperating agencies have a work group
18 with -- an internal work group right now brainstorming
19 and addressing exactly that issue and not leaving it to
20 a long-term planning process to start some time farther
21 down the road. Because this adult fish passage issue
22 is, apparently, the primary impediment -- one of the
23 primary impediments of any kind of a drawdown scenario.
24 Are we going to go through a conventional process and
25 take four years to get to -- to get -- to come up with

1 a conventional design? Is somebody within responsible
2 agencies brainstorming and trying to identify all the
3 problems and any short-term fixes that might be usable
4 in 1992, which is what I think is a reasonable
5 expectation. Are there some short-term fixes that are
6 creatible by March of 1982. And, if they are not,
7 then, someone should have at least spent a little time
8 discussing those possibilities. If you can say there's
9 nothing we can identify to do for 1992, then the adult
10 upstream migration short-term solution is a valid
11 point.
12 Now, if we -- if we have -- if we get past
13 that process, then we have to go to the long-term
14 planning; and we can say, Yeah, we do have a long-term
15 adult passage problem that we can maybe fix; and we are
16 going to have to do that. But I think it's -- it's
17 reasonable to expect one to seriously look at the
18 short-term solution by March of 1992 which might give
19 us a wider range in which to operate the test. If that
20 can't be done, then, we need to know that. I mean, if
21 you can't -- if nobody -- has somebody done that yet?
22 Last week we talked a little bit about modifications.
23 We said there was a ladder problem at Lower Granite
24 between seven twenty-three and seven ten.
25 MS. WIK: And I covered that and said that

1 that could be taken care of.

2 MR. SATTERWHITE: Yeah. That could be taken

3 care of.

4 MS. WIK: That's a modification that could be

5 taken care of.

6 MR. SATTERWHITE: At Lower Granite?

7 MS. WIK: Right.

8 MR. SATTERWHITE: That's something that's all

9 ready in place and presumably had -- there might have

10 been some reasonable solution to that suggested at some

11 previous time.

12 MS. WIK: Uh-huh.

13 MR. ANDERSON: Uh-huh.

14 MR. SATTERWHITE: But we've got the other

15 problems in the other projects. Now, is anybody in the

16 Corps doing any brainstorming right now to see what

17 kind of Band-aids we can put on for 1992?

18 MR. ANDERSON: We're going to take a look in

19 a holistic sense, Mike, not only adult fishways; but

20 that is a major problem with the fish. But you have

21 got all kinds of other issues as well.

22 MR. SATTERWHITE: Uh-huh.

23 MR. ANDERSON: In powerhouse operations

24 and --

25 MR. SATTERWHITE: Right.

1 MR. ANDERSON: -- in navigation and in
2 recreation areas and --
3 MR. SATTERWHITE: I agree with that.
4 MR. ANDERSON: -- all of those things that
5 have to be looked at in the sense of a long-term change
6 in the system.
7 MR. SATTERWHITE: Right. But you do have a
8 single problem with it.
9 MR. ANDERSON: Okay. What you're doing here
10 is you're saying, Okay, now we have said here's one
11 problem; let's go take a look at that. Well, there's
12 literally dozens of problems like that that have to be
13 looked at. And to go back to Frank's idea, we have got
14 to look at that in a holistic sense.
15 MR. SATTERWHITE: Yeah.
16 MR. ANDERSON: And we will be doing that in
17 terms of kind of a recon look at what this means --
18 MR. SATTERWHITE: Right.
19 MR. ANDERSON: -- to the whole system.
20 MR. SATTERWHITE: What I'm trying to point
21 out here is that there is a single, well-defined
22 problem that can be looked at immediately through the
23 same kind of process that goes on here internally
24 within the Corps. They can say, Okay, if we wanted to
25 get fish from Point A to Point B, what do we have to

1 do. And somebody should be doing that now. That's
2 what I'm trying to say. Somebody should be doing that
3 right now. Because that's engineering and
4 construction, and I don't know what the engineering
5 considerations are. That's something that you guys
6 have to do to address that one single thing about the
7 whole issue of adult transport. That appears to be a
8 limiting factor in what we're going to do in a drawdown
9 test.
10 MS. WIK: Let me back up one more step. For
11 1992, again, as I said in this matrix and we have all
12 discussed, there is no questions in people's minds that
13 reducing the travel time by increasing the velocities
14 will benefit fish survival. But what has to be looked
15 at is, you know, what benefit does that give and that
16 benefit has to be weighed against some of the other
17 potential negative impacts. And so, what we need to do
18 is find a way to identify at least a range of what that
19 benefit might be. Now, for example, with this drawdown
20 test of all four reservoirs --
21 MR. SATTERWHITE: Uh-huh.
22 MS. WIK: -- do we have a way to identify the
23 benefit? And my answer is no. Because we have no
24 existing data, that I'm aware of -- and somebody can
25 correct me if I'm wrong -- but that describes what the

1 existing travel time is from, say, for example,
2 Lewiston down to McNary to which we then could compare
3 and say, Okay, by doing this, by lowering it ten feet
4 or lowering it down forty feet, we gain a week, we gain
5 two days. Whatever. We don't have anything to balance
6 that against.
7 MR. YOUNG: We do have travel time
8 information over that reach, but I think your point is
9 it's over a range of flows. You would have also under
10 this condition a range of flows that would occur during
11 the time that you performed this test, but it would be
12 almost impossible to make any kind of a statistically
13 valid comparison between the two conditions. But about
14 the best you could do is look at the theoretical change
15 in water particle travel time and compare that to a
16 relationship we have between water particle travel time
17 and fish movement. And I think from a practical sense,
18 that's all you can do. Otherwise, you would just be
19 pretending to get information that you really weren't
20 getting.
21 MS. WIK: Well, how would you -- how would
22 you look at theoretical water particle travel time? I
23 guess, Mike, I'm asking specifically, are we talking
24 theoretical in terms of modeling?
25 MR. YOUNG: Right, just modeling.

1 MS. WIK: And, if we do that, which average
2 water particle travel times do you use? I mean, you've
3 got a range from the confluence on down; and that water
4 particle travel time is changing constantly. You know,
5 it get's -- it's faster up in the confluence and --
6 MR. YOUNG: Well, for our purposes, I think
7 that's something that the engineers would have to know
8 before they could tell us what needed to be done; but I
9 suspect what we need to know isn't very precise. And
10 we could make some assumptions about changes that occur
11 in other than cross-sectional areas and just go with
12 it. Because we are looking for a large change --
13 MR. ANDERSON: Uh-huh.
14 MR. YOUNG: -- in order to get the kind of
15 response we need.
16 MR. ANDERSON: We have that information. We
17 have done that.
18 MR. YOUNG: Yeah. I mean --
19 MS. WIK: We have got that on modeling.
20 MR. YOUNG: Right. So, I really don't see
21 any additional studies that are needed. All you need
22 to know is what the flow is during a period of time and
23 the average flow and roughly the average change in
24 cross-sectional areas; and you get an average water
25 particle movement difference. And you would look at

1 the point on the relationship between the water
2 particle movement and fish travel time, and that's what
3 you would have. That's probably the best you can do
4 from a practical standpoint. You know, from a --
5 MR. NASON: To get -- I didn't mean to
6 interpret you. But to get that information you don't
7 need to pull any reservoirs down; am I correct on that?
8 MR. YOUNG: Right, yeah. That's true.
9 MR. NASON: Yeah.
10 MR. YOUNG: But, I don't know how much time
11 we are going to spend debating these different
12 alternatives. I guess I have a concern, like I said
13 earlier, of making sure that nothing is eliminated for
14 the long term because we determine that it is
15 impractical or infeasible for '92. And, as far as our
16 agency is concerned, there's probably only one of these
17 that we could support for '92 because of concerns
18 mostly about an impact on adults.
19 MR. ANDERSON: And -- excuse me, I don't want
20 to interupt you.
21 MR. NASON: Which one is that?
22 MR. ANDERSON: But that really was our
23 mission in these two meetings. What can we do in '92.
24 We can look at the long term. We can continue to look
25 at the long term. But, if we are going to conclude

1 that we're not going to do anything in '92 but continue
2 to look at the whole system and what it requires to
3 change, that can be done; but it's -- we are not going
4 to have that answer by '92.
5 MR. YOUNG: I think Mike had a good point.
6 There's one overriding constraint, from at least the
7 fishery interest point of view, in any kind of a
8 reservoir drawdown scenario; and that's the concern
9 about adult passage; and what kind of modifications
10 would be needed in order to allow it. I think that it
11 might be useful if the Corps took just kind of a
12 general look at that, not look too deeply into it.
13 Because I think there are probably individuals within
14 the Corps that probably off the top of their head could
15 give us the kind of information we need, both schedule
16 and various conceptual ideas of what would need to be
17 accomplished in order to do this.
18 MR. ANDERSON: Okay.
19 MR. YOUNG: And they would probably give us
20 some feedback on time required and that kind of detail.
21 MR. ANDERSON: I'm willing to do that. Can
22 we set, though, some -- some framework or some
23 boundaries for what the proposal is?
24 MR. YOUNG: I don't -- I think it would not
25 be very useful to look at increments, you know, just

1 off the top of my head. I think if we are going to
2 have the impact of total powerhouse shut down, we want
3 to maximize the benefits from that impact. We are also
4 shutting down navigation completely. So, the impacts
5 are all going to be real heavy on one side once you get
6 past minimum pool, so we might as well maximize the
7 biological benefits. So, let's go down as far as you
8 can go and then look at what you would have to do to
9 the adult passage facilities to make them function at
10 that level. So, I guess I wouldn't stage it once you
11 got past minimum pool and powerhouse shut down. I will
12 make that recommendation.
13 MR. NASON: If you go to powerhouse shut down
14 and go down to spill crest or something there --
15 MR. YOUNG: Right.
16 MR. NASON: -- are you going to have to do
17 something on the downstream side of the spillgates to,
18 you know, try and reduce supersaturation?
19 MR. YOUNG: Well, that's something we don't
20 know. We don't know what -- what kind of problems
21 you're going to have, you know, reducing the head when
22 that water is spilled from about forty feet. So, we
23 don't know what that effect is going to have on
24 nitrogen. We probably know that it is going -- that
25 heavy of spill may cause undercutting below the

1 spillway and impact the integrity of the project and
2 those kinds of things.
3 There's all kinds of things that the Corps
4 can give us feedback on without actually doing them,
5 probably, at least the concerns.
6 MR. ANDERSON: That's right.
7 MR. SATTERWHITE: The operating range of the
8 Lower Snake, I was told yesterday, has been between
9 about ten thousand five hundred cfs and four hundred
10 and five thousand cfs. I seriously doubt whether a
11 flow of four hundred -- four hundred and five thousand
12 cfs was a design criteria. I don't think we are going
13 to have problems with dealing with it, the spillway.
14 MR. YOUNG: I think, Mike, your concern is
15 that the projects were designed -- I sound like the
16 Corps now.
17 MR. SATTERWHITE: Yes.
18 MR. YOUNG: The project was designed to spill
19 into a tailrace, something of a pool.
20 MR. ANDERSON: Yes.
21 MR. YOUNG: And, if you remove that, the
22 energy dissipation goes to digging back under the
23 spillway.
24 MS. WIK: Uh-huh.
25 MR. SATTERWHITE: That's a good thought.

1 MR. YOUNG: Anyway, I guess I would prefer
2 focusing on Alternative 3 with some modifications; and
3 that's the Lower Granite drawdown to seven ten.
4 MS. WIK: I guess I want to get a feel if
5 others want to go through all the alternatives or --
6 MR. YOUNG: I don't have any problem either
7 way. It's just that I wanted you to know because of
8 the concerns we have with the adult passage issue that
9 we could not support any other alternatives, and we
10 support this one conditionally.
11 MR. NASON: I'm wondering, does this
12 Proposal 3, does it disrupt transportation?
13 MS. WIK: Yes.
14 MR. ANDERSON: Yes.
15 MR. SCHLUETER: Anything below seven
16 thirty-three.
17 MR. LOVELIN: What's normal operating level?
18 MS. WIK: Seven thirty-five.
19 MR. LOVELIN: Seven thirty-five, seven
20 thirty-eight.
21 MS. WIK: Well, seven thirty-three to seven
22 thirty-eight is the normal operating range.
23 MR. YOUNG: Even with this proposal, we would
24 want to see some kind of test of powerhouse -- of total
25 powerhouse shut down when fish -- adult fish are not

1 present in order to observe just visually and probably
2 videotape the entrance conditions for the adult
3 fishways and the kinds of eddies that form in front of
4 the powerhouse collection system before we could
5 determine whether we wanted to go through with a full
6 test with a drawdown.
7 MS. WIK: Okay. Frank, I guess one question
8 along those lines, if we were to do that, assuming we
9 would do that in the winter when no fish were there,
10 how would the fact that our flows could be considerably
11 less than they might be in the spring affect your --
12 MR. YOUNG: The flow would be whatever you
13 wanted it to be.
14 MS. WIK: By augmenting from --
15 MR. YOUNG: By how far down you pull the
16 gates. You can have any flow you want.
17 MS. WIK: Okay. But that would affect -- I
18 mean, it might be different under a normal scenario in
19 terms of --
20 MR. YOUNG: Well, I guess that what I would
21 do is have, say, three flow levels you would look at.
22 MS. WIK: Okay.
23 MR. YOUNG: And you might be able to do this
24 over a few hours.
25 MS. WIK: Okay.

1 MR. PETTIT: Yeah. You could augment if the
2 region got behind the test.
3 MR. ANDERSON: Yeah.
4 MS. WIK: Yeah.
5 MR. ANDERSON: You could augment with
6 Dworshak.
7 MS. WIK: Yeah. I just -- I mean, you know,
8 I want that --
9 MR. YOUNG: But, you know, we have done this
10 kind of thing before, not with a total powerhouse shut
11 down, but with modifying the spill and observing
12 entrance conditions for adult fishway. You know, we
13 may find that after that there's no sense pursuing a
14 further test. Or we may find that there is a
15 particular spill pattern that would provide conditions
16 that we thought adult passage may be feasible, and then
17 we could procedure on from there. But we would be
18 opposed to any kind of test during the time that adult
19 fish were there without some kind of a preliminary
20 workup.
21 MR. BJORNN: You're talking about a
22 combination of two and three, then?
23 MR. YOUNG: Right.
24 MR. JOHNSON: Yeah. I would say that
25 Proposal 3, jumping ahead here, I would recommend that

1 the Corps' evaluation the risk of -- of forfeiting
2 transportation.
3 MR. ANDERSON: Say that again, Dale.
4 MR. JOHNSON: I would recommend that you
5 evaluate the risk associated with, let's say, survival
6 of the fish by forfeiting or disrupting any
7 transportation activity. That, in itself, is going to
8 have a degree of detriment.
9 MS. WIK: Well, the fish would still -- if we
10 do lower Granite only, the fish could still be
11 collected and transported from Little Goose, and
12 that's....
13 MR. YOUNG: Yeah.
14 MS. WIK: I mean, I think you're right.
15 That's got to be looked at.
16 MR. NASON: I have a question, You talked
17 about on your Alternative 1 about PIT tag fish would be
18 released in Lewiston and then in Alternative 3 you said
19 PIT tag fish at Lewiston. Is there a smolt trap at
20 Lewiston?
21 MR. SATTERWHITE: Yes. There's two of them.
22 MS. WIK: Yes.
23 MR. SATTERWHITE: One on the Clearwater and
24 one on the Snake.
25 MR. YOUNG: I don't think that you can

1 evaluate this Alternative 3 using PIT tagged fish. I
2 guess what you would do in order to get a control group
3 is release a group below Granite which would have been
4 transported some distance would be comparable to the
5 group that you released in the river at Lewiston unless
6 you transported those an equal distance and put them
7 back in the water up there. Then I -- I suspect that
8 because of the small difference you would expect to get
9 that you still wouldn't be able to show any difference.
10 MR. PETTIT: What are you trying to show
11 there, Frank, survival?
12 MR. YOUNG: Yeah. I'm just going from under
13 Alternative 3, No. 1, it says, PIT tag fish at
14 Lewiston, recover at Little Goose. If you did that,
15 you wouldn't be able to sort out the effect of
16 variability in the passage through Goose Reservoir.
17 So, what I was saying is, then you need some kind of a
18 control group. But, if you did, then your control
19 group would be transported to the Goose site below
20 Granite, so that it wouldn't be comparable to the group
21 that was released at Lewiston. Unless you transport
22 those also. But, then, you have the problem that
23 overall you're trying to measure a small difference.
24 MS. WIK: Well, Frank, what would you be
25 comparing it to? You're talking about the control

1 group transported below Lower Granite, but what's the
2 group that you are comparing that to?
3 MR. YOUNG: Well, all you would get, then, is
4 travel time through Granite pool.
5 MS. WIK: But where would you -- I guess the
6 big question I have is there's no place to read those
7 fish at. You have no place to recover the data of
8 travel time from Lewiston to Lower Granite.
9 MR. BJORNN: Yeah, there is.
10 MR. YOUNG: No, I mean Little Goose.
11 MS. WIK: Oh, I see what you're saying.
12 MR. BJORNN: You're going to collect at
13 Goose --
14 MS. WIK: Okay.
15 MR. BJORNN: -- in both ways.
16 MS. WIK: Okay. Plus --
17 MR. YOUNG: But the problem is you have the
18 "so what problem" when you get the answer. What do you
19 compare it to?
20 MS. WIK: Yeah.
21 MR. BJORNN: I think the Frank's earlier
22 comment is really a germane one. I would almost
23 concede that if you create suitable water velocities
24 you're going to create suitable migration, but then
25 resolves down to a question of what other kinds of

1 impacts are there going to be; and can we live with
2 those. Can we make the project operate in a way that
3 is still going to be suitable.
4 And I'm not sure that it's even necessary to
5 measure, for example, that travel time. I would almost
6 give you that and say, if you drawdown to a certain
7 level and create a certain velocity through Lower
8 Granite pool, you're going to increase the velocity --
9 the travel time of the fish. I'll give you that.
10 The question becomes one, can we live with
11 the other things that are going to be associated with
12 that.
13 MS. WIK: And I guess that's a question that
14 ties back into Dale, and I know this issue is somewhat
15 sensitive. But, depending upon how far you want to go
16 with that, if you're going to assume an increased -- or
17 a reduction in travel time through Lower Granite but
18 then that's the only one you're going to look at, and
19 then they go into Little Goose and instead of only one
20 pool they have traveled through, they are now traveling
21 through two reservoirs, they're not -- a majority of
22 them won't be removed at the system at Lower Granite.
23 And is the increase or the reduction in travel time
24 really benefiting them overall and that's --
25 MR. BJORNN: That's one of the conditions you

1 have to decide that you can live with.

2 MS. WIK: You know, that becomes the

3 question.

4 MR. YOUNG: Uh-huh.

5 MS. WIK: And that's why, I guess, we were

6 trying to get at, can you measure that reduction in

7 travel time and benefit to weigh against all these

8 other factors.

9 MR. YOUNG: Well, let's say, even if you did,

10 if you got a perfect estimate, then, you still -- I

11 think it's pretty much a judgment call.

12 MR. BJORNN: It's still -- you would still

13 have to go to the paperwork exercise that says, What if

14 I put them in a barge or if I let them go on down.

15 MS. WIK: Yeah.

16 MR. BJORNN: You still have to go through

17 that paperwork exercise to make a judgment as to

18 whether or not you should have given up the opportunity

19 to put them in a barge or let them go on down.

20 MS. WIK: Well, then, we're back to, what

21 do we want to do for a test in '92. Do -- you know,

22 you're saying you guys would only support No. 3, but --

23 MR. PETTIT: Actually, wouldn't you support

24 2, also, the physical test, just for an example? We're

25 not eliminating it.

1 MR. YOUNG: My only problem with 2, I saw no
2 purposes in your doing the ten-foot increment. I think
3 once you -- we wouldn't implement it that way. We
4 would want to maximize the benefit. As I said earlier,
5 once you put the powerhouse out of operation and impact
6 navigation, you might as well maximize benefits. So
7 you would go to seven ten.
8 MR. NASON: Of course, the thing is, Frank,
9 if you went in ten-foot increments on that Item 2 here,
10 then you could actually tell, are you maximizing the
11 benefits. Because you know, yourself, that the
12 particle travel time is not a good indication of what
13 the -- you know, what a smolted fish is actually doing.
14 He's going to look for the faster moving water. And by
15 doing it in ten-foot increments -- and I was talking to
16 Fred about this earlier -- maybe do slices in the
17 reservoir and actually do current meter tests to where
18 you're actually getting what the velocity profile is.
19 MR. YOUNG: Well, I understand. But, once
20 you go below minimum pool, the adult fishway doesn't
21 function again until you get at least to seven
22 twenty-one.
23 MS. WIK: No. We threw that out, Frank. We
24 would be able to make the facilities function from
25 seven ten through -- all the way up through the normal

1 operating range, so....

2 MR. YOUNG: Okay. Well, I still feel you

3 will not be able to measure the biological differences

4 or perhaps not even go out there and physically measure

5 the changes in average water particle movement by

6 drawing down in ten-foot increments.

7 MR. BJORNN: My recollection was that the

8 ten-foot drawdown increment was the time for people to

9 look at what was going on with railroads and roads and

10 that kind of thing.

11 MR. YOUNG: Well, that's a different sort of

12 thing.

13 MS. WIK: Yeah. That was one, but the other

14 was --

15 MR. BJORNN: Not the biological question.

16 MS. WIK: The other one was to get travel

17 time, water particle travel time as well. But the main

18 -- I think one of the main reasons was that, if you

19 drop down ten feet and everything starts failing, you

20 know, it's a --

21 MR. YOUNG: I guess, as a physical test, I

22 wouldn't have a great problem with it. I don't see --

23 I guess I have a problem when you test something if you

24 don't see actually implementing that condition as part

25 of the solution. Though, I wonder why you would test

1 -- you know, a ten-foot drawdown probably isn't going
2 to get you much.
3 MR. BJORNN: Frank, let me reiterate my
4 perception of what the discussion was. That it would
5 be drawn down; but, then, you might pause at ten feet
6 to see what's going on --
7 MS. WIK: Right.
8 MR. BJORNN: -- before you go on down.
9 MR. YOUNG: Yeah.
10 MR. BJORNN: It's primarily exactly a
11 physical test which we are interested in --
12 MR. YOUNG: Okay. You draw down --
13 MR. BJORNN: -- as to what will happen. Will
14 the canyon walls and stuff hold up.
15 MR. YOUNG: You see where the pool level hits
16 below the riprap on the levee, and assuming you have
17 got wave action there or the bank storage, hydrologic
18 pressure differences causing sloughing.
19 MR. BJORNN: Yeah.
20 MR. YOUNG: The trouble is, it seems to me,
21 doing something like this, it's going to -- going to
22 fail in the test or it's going to fail within the
23 prototype.
24 MS. WIK: Yeah. Correct me if I'm --
25 MR. YOUNG: What's the difference in failing

1 in the test and failing in the prototype?

2 MS. WIK: I see your point, Frank. But,

3 correct me if I'm wrong, Steve, we did talk about

4 trying to measure velocities at each of those --

5 MR. PETTIT: Yeah. We threw that out

6 because --

7 MS. WIK: Yeah.

8 MR. PETTIT: -- we wanted to cover all

9 options.

10 MS. WIK: Yeah.

11 MR. PETTIT: And I'm not even sure we have

12 the technology to do it. But I mentioned, if we did,

13 it would probably be beneficial to try to measure it.

14 MR. BJORNN: Measure water velocity?

15 MS. WIK: Yeah.

16 MR. BJORNN: That could be done.

17 MR. NASON: I agree with Steve that it would

18 be interesting -- I mean it would be nice data to have,

19 but I would also have to agree with Frank. I don't

20 think we should be testing anything that wouldn't be

21 implemented. That's been our policy --

22 MR. YOUNG: Yeah.

23 MR. NASON: -- on the Columbia.

24 MR. YOUNG: I guess what Ted was saying,

25 though, in testing a lower level, maybe you would pull

1 it down in stages and evaluate given time to stabilize
2 and see what the impact is. I guess I would have
3 characterized it differently than the way it's written
4 here, if that was the intent.
5 MR. NASON: I guess I have to ask a question.
6 If you pull it down -- and Ted made the comment that
7 it's a given that when you pull the reservoir down to
8 the bottom that there will be a reduced travel time.
9 And, if it's possible -- and I don't know if it is to
10 measure that reduced travel time -- say, you get
11 precise and the reduced travel time is two days. I
12 guess I have to ask the question, is the reason this
13 reservoir is being pulled down to benefit the fish; and
14 are those two days, are they of benefit. That much of
15 a benefit. You know, did it -- did it -- did a two day
16 -- and I'm just using that off the top of my head. Did
17 a two-day reduced travel time increase the survival?
18 It's probably not even measurable for what it's going
19 to do to the region. I don't know. I was just asking.
20 Because we have -- as we're getting back here, it's not
21 -- we're doing this to benefit the fish.
22 MR. SATTERWHITE: No.
23 MR. NASON: No, we're not?
24 MR. SATTERWHITE: We're doing this as a test
25 to answer concerns brought up by the Corps initially at

1 the Salmon Summit. We want to see what effect a
2 drawdown will have on the -- on the system. We are
3 talking about erosion. We're talking about --
4 MR. ANDERSON: No.
5 MS. WIK: No, no.
6 MR. SATTERWHITE: That's -- that's one way --
7 MR. ANDERSON: No. If we're not doing it to
8 benefit the fish, then, we're wasting our time being
9 here.
10 MR. SATTERWHITE: No --
11 THE REPORTER: Excuse me, I need everyone to
12 speak one at a time.
13 MR. ANDERSON: Let me respond to that. Just
14 the opposite, Mike. We said we can -- we can determine
15 a lot of things about physical effects without
16 implementing a drawdown.
17 MR. SATTERWHITE: Okay.
18 MR. ANDERSON: We want to see the biological
19 benefit to the best extent we can. We had Objective 3
20 up there, I think it was, determining survival. And I
21 think it was said, it was said this morning, that in
22 one year you're not going to have the answer to that.
23 But, certainly, something that's got to be rolled into
24 the equation in the long run if we're going to change
25 the system.

1 MR. NASON: I have to re-evaluate -- may have
2 to re-evaluate my position if I'm in agreement with
3 Frank. But it -- but I hear Frank saying you can't
4 measure -- probably cannot measure the biological
5 benefit, and that's -- that's the only reason I'm here
6 today.
7 MR. PETTIT: I thought he said you couldn't
8 directly measure the test.
9 MR. YOUNG: Yeah. You can't measure them
10 directly. You have to accept some assumption about the
11 relationship between -- a relationsihp between, first
12 of all, survival and travel time. Then fish travel
13 time and water particle movment and water particle
14 movement appear to be large leap of faith.
15 MR. PETTIT: But, at the first --
16 MR. YOUNG: But you guys have --
17 MR. PETTIT: -- meeting, we had several other
18 engineer-types there that said what we were measuring
19 wasn't linear. You know, there was differences in the
20 canyon as you exposed it.
21 MR. YOUNG: Sure.
22 MR. PETTIT: And, for that reason, it would
23 be difficult to model travel time. So, I think one of
24 the reasons that I said, or somebody else suggested,
25 you could drop it down in intervals in an attempt to

1 measure those two was to get at that point. How does
2 re-exposing this canyon relate to real time particle
3 movement.
4 MR. WHELAN: I take it that people agree with
5 Mike's point, that part of the purpose of the test as
6 well as to assess the extent of the obstacles or the
7 impediments to doing this as well. So, things like
8 bank stability and so on would have to be part of the
9 physical test.
10 MR. ANDERSON: Certainly, others have that
11 objective. The Corps does not have that objective in
12 the Salmon Summit, not to say that you would -- you
13 wouldn't gain some information. But we -- we -- know
14 where we would have problems, that there will likely be
15 problems. We have indicated we can see a lot of use in
16 just drawing down to see which location the railroad
17 fill sloughs into the river. But you can gain some
18 information, and I think the state of Idaho, in fact,
19 was pushing for that. But --
20 MR. WHELAN: We should get some information
21 on those issues.
22 MR. ANDERSON: Yeah. Or that would be the
23 objective of the test. Right. We do have that here as
24 one of the alternatives, but it was more directed to
25 the physical effects in terms of the environmental

1 condition -- conditions affecting the fish. Certainly,
2 we gain other types of physical information.
3 MR. WHELAN: There would be an attempt
4 intentionally to go out and gather that information
5 about some of these these -- these drawbacks --
6 MR. ANDERSON: Sure.
7 MR. WHELAN: -- impediments of --
8 MR. ANDERSON: Sure. If we implement
9 anything drawing down below minimum pool, we would
10 develop a program to go out and monitor and gain every
11 bit of information we could.
12 MR. JOHNSON: Witt, I would hope that would
13 include the chemical aspects, especially in sediment.
14 I noticed in the notes from last meeting that you
15 talked about contaminated sediment release. And I
16 would -- I would suggest that we expand this proposal
17 to physical and chemical testing and not just limit
18 it to physical. When Grand Teton Dam blew up, there
19 were fifteen hundred or eighteen hundred barrels of
20 fifty-five gallon drums of DDT that are spilled in
21 the Snake River. There's a lot of phosphorus, nitrous,
22 pesticides and herbicides; and it would be interesting
23 to at least --
24 MR. YOUNG: Do you think those will work
25 their way down to Granite pool?

1 MR. JOHNSON: The Idaho Department of Health
2 and Welfare has done some testing in the early '80s
3 with Jim State, and there's some further information
4 supporting that, yes, regarding DDT.
5 But it seems to me that we should look at --
6 in more depth look at the water quality aspects and
7 maybe some sediments cores and relate that to some
8 baseline fish tissue analysis; and, then, relate that
9 to adult fish tissue analysis as fish return and form
10 some type of a relationship between what toxic
11 chemicals are in the sediments, and what their ambient
12 levels are in the fishes, both juveniles and as
13 returning adults. So, I would recommend expanding this
14 to your physical and chemical environmental aspects.
15 MR. NASON: Has anybody, either Ted or Steve,
16 done any work on numbers of fish you would be needing
17 -- Has it progressed that far? -- for a control or test
18 or number of replicates? Are we -- I realize it
19 varies. Are we talking PIT tag or --
20 MR. PETTIT: For observation?
21 MR. NASON: Yeah. I know I realize it is
22 tremendously different whether it's PIT tagging or
23 whether it's just branded or whatever. I'm just
24 curious.
25 MR. SATTERWHITE: I thought we had deferred

1 that as a detail of the experiment.

2 MS. WIK: Yeah.

3 MR. SATTERWHITE: I think we deferred to a

4 later phase in the design and the experiment. So, we

5 don't have a particular --

6 MR. NASON: Well, the more fish we have,

7 though, the more precise your estimate is going to be.

8 And I was just curious, are we -- are there enough

9 fish? I mean, are these traps good enough to catch the

10 amount of fish that we need?

11 MR. YOUNG: I doubt it.

12 MS. WIK: Yeah. We've discussed the one

13 thing; and I guess we ought to consider this as maybe a

14 given for next year, is looking at how we could either

15 improve existing traps or build new ones to get more

16 fish no matter what we --

17 MR. NASON: Because I would hate to see a

18 study done next year with only half the number of fish

19 that were required to where, you know, the -- you

20 really couldn't tell, you know, what you had.

21 MR. PETTIT: The present traps are certainly

22 limiting, especially the Clearwater trap, because it

23 becomes unfishable at flows over twenty-five thousand

24 cfs; and we would certainly see that during the normal

25 adult migration.

1 MR. YOUNG: I question the value of any test
2 at all --
3 MS. WIK: Which --
4 MR. YOUNG: -- if your objective is to
5 produce useful information.
6 MR. NASON: I agree.
7 MR. YOUNG: You know, less anyone be misled
8 about this drawdown of Granite, say, to seven ten, we
9 were talking -- Dick mentioned a little earlier about
10 the benefit being maybe two days; I think he was fairly
11 close. We -- I don't think anyone should think that
12 this is what we regard as a long-term solution to the
13 problem in the Snake. It may be a part of an interim
14 -- may be part of an interim solution. Long term is
15 going to require something substantially more than two
16 days difference in travel time.
17 MR. ANDERSON: So, are you --
18 MR. YOUNG: So, this is just kind of a first
19 step in testing the concept of reservoir drawdowns as
20 improving travel time.
21 MR. ANDERSON: Are you suggesting, then, that
22 we really should be doing a feasibility analysis of all
23 required changes and making some assumptions about fish
24 travel time to water particle travel time with some
25 major changes in the system and the survival

1 relationship?

2 MR. YOUNG: Well, that's kind of how I --

3 MR. ANDERSON: Rather than doing a test?

4 MR. YOUNG: -- how I --

5 MR. ANDERSON: Well, see, we have gone full

6 circle on that. You know, we have talked about that at

7 the Salmon Summit. And then there were those saying,

8 No, absolutely you have got to do something in 1991.

9 You have got to lower those reservoirs below minimum in

10 '91. We concluded that we shouldn't be doing that in

11 '91. We can facilitate the discussion in the region to

12 try to come to that in '92. And are we coming to the

13 conclusion that we can't get any information in a test

14 in '92; and, really, what we ought to do is concentrate

15 on the feasibility analysis?

16 MR. SATTERWHITE: No. I don't think it's --

17 it's -- a no information conclusion is a reasonable

18 conclusion at all. The mere fact that you have drawn

19 down a reservoir will reveal a multitude of new things

20 to you. Number one, the fact that it can be even done.

21 Number two, that it may have some impacts on other

22 things. We know some of the other things that are

23 going to happen already. We don't need any test to

24 show us that. We probably -- and Ted has already

25 conceded we are going to get some increase in travel

1 time. The point is, in the context of immediate,
2 near-term or short-term measures to help the fish, this
3 may be the only real solution we have got to getting
4 them down the river faster. We are going to learn a
5 lot by testing something in '92.
6 I don't think its value should be minimized
7 at all. What are we going to do between now and the
8 year 2000? If we don't do anything, we are not going
9 to have no fish left; and it will no longer be a
10 problem.
11 MS. WIK: Mike, assuming --
12 MR. SATTERWHITE: Yeah.
13 MS. WIK: -- like we are doing here --
14 MR. SATTERWHITE: Yeah.
15 MS. WIK: -- that increasing velocities
16 reduces travel time, fine. We can improve that.
17 MR. SATTERWHITE: Uh-huh.
18 MS. WIK: But how do you weigh that against
19 all the other negatives? You're saying we want to go
20 out and to do that, but we've -- I mean, there's got to
21 be -- whether it's a paper exercise, like Frank was
22 saying or what, but it seems to me that if we are
23 talking about doing that when fish are in the river,
24 we're talking about negative impacts; and somehow we
25 need to weigh against the positive.

1 MR. SATTERWHITE: Let's -- let's -- let's let
2 the policy people make that decision. Let's do what
3 you came -- you called us together for, which is to
4 design the drawdown experiment and not to get into the
5 philosophical decision of whether it's worth the
6 effort. Because we have already decided we are going
7 to let the policy people make that decision.
8 MS. WIK: Right.
9 MR. ANDERSON: Yeah.
10 MR. SATTERWHITE: Well, the Salmon Summit
11 clearly commissioned the Corps to conduct a test
12 hopefully in '92; and that's reflected in the document
13 that came out recently in the summary of PNUCC. So,
14 you're following through on that?
15 MR. ANDERSON: Yes. Well, let's go back. I
16 agree with you. We were commissioned to develop a test
17 and an environmental design that would give us some
18 information. Let's continue going through the
19 alternatives.
20 We just have to keep pushing ahead because,
21 obviously, we all don't agree on much here. So, shall
22 we go on?
23 MS. WIK: Let's take a quick break.
24 MR. ANDERSON: Let's go until lunch.
25 MS. WIK: She needs a break.

1 (Dicsussion held off the record.)

2 (Brief recess was had.)

3 MR. JOHNSON: I would like to offer another

4 suggestion; that is, that we press on with Alternative

5 2. And with caution regarding the July 16th through

6 August 15th aspect to work throughout caution there,

7 that we don't lose the transportation of fall chinook

8 and look at the impacts on adult fish again. But press

9 on with Proposal 2 and wait until subsequent years --

10 wait until a Lo Mo, Lower Monumental bypass

11 transportation has been installed to check there. Then

12 in '93, '94, after we have gotten some information on

13 No. 2, you can try lowering your Lower Granite and your

14 Little Goose pools. Try different scenarios like that.

15 And you will still have your collector sites and your

16 PIT tag sites. Your PIT tag sites are variable in that

17 they'll increase the quality of your research results.

18 MS. WIK: Okay. I guess one thing there,

19 Dale, I'm not sure I'm clear on what you're saying.

20 But, if we were to lower Lower Granite and Little Goose

21 Reservoirs, we would lose the collection facilities at

22 those two locations.

23 MR. JOHNSON: At Granite.

24 MS. WIK: And Goose.

25 MR. JOHNSON: And Goose.

1 MS. WIK: If we lower the reservoirs, we lose
2 the collection facilities.
3 MR. JOHNSON: At least -- at least you have
4 PIT detectors --
5 MS. WIK: No, we would not.
6 MR. JOHNSON: -- at Lo Mo.
7 MS. WIK: You would have it at Lo Mo.
8 MR. JOHNSON: Otherwise, you have lost PIT
9 detectors at Granite and Goose. At least at a minimum
10 you have it at Lo Mo and then down at McNary also.
11 MS. WIK: That's what Alternative 3 does, is
12 it lowers the PIT tag at Little Goose. You're saying
13 essentially the same thing, but you're adding one more
14 reservoir.
15 Any thoughts on that one? Do we want to
16 include that as a potential alternative?
17 MR. PETTIT: I'm a little unclear what the
18 real alternative was.
19 MS. WIK: Well, I guess the bottom line is
20 that really it wouldn't be a alternative for '92 and
21 would have to be considered under some of these other
22 methods mitigation analysis and so forth.
23 MR. SATTERWHITE: If I understand what he
24 said correctly, was basically to combine two or three
25 tests and move into the '93, '94 period.

1 MS. WIK: I guess what I understood --
2 MR. JOHNSON: Conceptually after '92, yeah.
3 MS. WIK: Okay. That's something, I guess,
4 looking down the road seeing how other things fall
5 together, but other than proceeding like Dale's
6 recommending with a No. 2 for '92, your other testing
7 would not kick in, in '92; is that fair?
8 MR. JOHNSON: Right.
9 MS. WIK: I guess what I would like to do is
10 just so we get through all this, is to go back to
11 looking at each of the alternatives in sequence,
12 keeping in mind what we have already discussed and if
13 there's any other concerns with what we have got on the
14 matrix, let's talk about it. But let's try and walk
15 through the whole thing with things -- identifying
16 things that need to be evaluated. Things that aren't
17 on here that need to be considered -- and, you know, we
18 have heard Frank, for example, his basic
19 recommendations already -- to kind of get a feel for
20 where people are.
21 Mike?
22 MR. SATTERWHITE: I have a question about --
23 I agree with you, we probably should go through them
24 all; but we have already identified some fairly broad
25 windows for spring and summer test ranges. Wouldn't it

1 be appropriate to deal with the length and duration of
2 your test before we go on to looking at....
3 MS. WIK: Well, that's going to vary under
4 each alternative; and, as we go through each
5 alternative, we can discuss --
6 MR. SATTERWHITE: Right. Because I think the
7 windows or the time frames are identified, are windows
8 when a test could occur, not necessarily the duration
9 of the test.
10 MS. WIK: Correct.
11 MR. SATTERWHITE: Or the length of time the
12 test takes. That's the point I'm trying to make.
13 MS. WIK: We have identified the outside --
14 MR. SATTERWHITE: Yes.
15 MS. WIK: Let's do that under each test.
16 MR. SATTERWHITE: That's relatively important
17 when you're discussing sacrafices such as juvenile
18 bypass. We're talking a time period in which adult
19 fish ladders are only inoperable for a week; that's
20 quite a bit different that an adult fish ladder that's
21 not operable for sixty days. I don't think anybody
22 here has the idea of going necessarily for a four-month
23 test or anything like that. But, that puts the
24 sacrafice of juvenile transportation and a sacrafice of
25 adult passage in a realistic context to evaluate.

1 MS. WIK: Let's look it my alternative.
2 MR. SATTERWHITE: Okay.
3 MS. WIK: What you're saying there, Mike, is
4 reducing, for example, let's start with Altenative
5 No. 1. You're saying you wouldn't necessarily see us
6 going the full time frame?
7 MR. SATTERWHITE: I mean, if you're talking
8 about designing a test here, right?
9 MS. WIK: Right.
10 MR. SATTERWHITE: Okay. We should set a
11 criteria on it, that the test should try to be done
12 within a certain time. We have a range of time we want
13 it to occur in, but the length of time that we want to
14 shoot for, that seems like a logical objective step, am
15 I wrong?
16 MS. WIK: No, you're right. But that is --
17 that can't necessarily be set by whether or not it just
18 would take out the adult fish ladder for only a week,
19 but that has to be looked at in terms of, if you were
20 only looking at a one-week test, would it give you any
21 information at all. That's why we threw out the
22 boundary. Am I -- I think I'm understanding what
23 you're saying.
24 We need to look at more alternatives than
25 just that full time frame; but, we also have to look at

1 it in terms of what information can be gained within a
2 shorter time frame.
3 MR. NASON: Speaking of gaining information,
4 it appears to me unless I'm mistaken that of these six
5 alternatives the only one that's possible for '92 is
6 No. 2 because of the lack of smolt capturing capability
7 in the Lewiston area.
8 MS. WIK: Well, now, I disagree. I certainly
9 wouldn't think that with all our technology that we
10 might not be able to come up with a more efficient
11 trap.
12 MR. NASON: I'm not saying we couldn't come
13 up with a more efficient trap.
14 MR. SATTERWHITE: There are other ways to
15 trap fish other than relying on adult transportation.
16 We can still do with wire tags.
17 MS. WIK: No, no. He's talking about the
18 fish released from Lewiston, getting sufficient numbers
19 for recovery. Well, let's ask --
20 MR. NASON: Maybe that should be one of the
21 first questions. Do we have the capability right now
22 to capture enough fish for testing control and a proper
23 amount of replications that would be needed with the
24 equipment that's currently operational -- in operation.
25 I heard the answer is probably no.

1 MS. WIK: But, could we --

2 MR. PETTIT: With the current devices we have
3 now, it's questionable whether we could do it. But,
4 with a year's lead time, we could purchase twenty-foot
5 screw traps and probably relocate those traps. You
6 know, if the goal is different, it's a smolt monitoring
7 program now; and they are there in a certain site for a
8 certain reason. If it's just to get your hands on a
9 maximum number of fish through a longer duration of
10 time so that we can get enough replicates tagged over
11 time, then -- why then you might just briefly move the
12 traps to a different location. It's my understanding
13 also that the Fish and Game was considering seining
14 this year.

15 MR. JOHNSON: And the Fish and Wildlife
16 Service is seining this year.

17 MR. PETTIT: We have our own seine, too, but
18 you pay for it.

19 MR. ANDERSON: Is that adequate?

20 MR. NASON: The thing, Mike, is that you
21 capture "X" number of smolts over the whole year. We
22 have -- we have a small monitoring place at Rock Island
23 Dam. We capture an average of a hundred and twenty,
24 thirty thousand fish a year. You're looking at a very
25 short window in which to chapter these fish, mark them

1 and release them because of the test. And so that's
2 why I'm asking, you know, do you have the capability of
3 capturing enough fish. And I don't know. I don't know
4 the answer to that. I have never seen the trap
5 MR. SATTERWHITE: Well, I would agree with
6 Steve. Given the right lead time, we could increase
7 the numbers we are currently trapping.
8 MR. BJORNN: It depends on what you're trying
9 to do.
10 MR. NASON: I don't know what we're trying to
11 do really.
12 MR. BJORNN: Yeah. I think for travel time
13 and maybe even percentage of fish through Lower Granite
14 Dam or the Little Goose, we could probably collect
15 enough fish. I think we could add the kind of things
16 that Steve was talking about, or we can actually have
17 scheduled releases from Dworshak. Instead of releasing
18 everything at once, we could hold back some test groups
19 and release them every three days throughout the season
20 and use those.
21 MR. PETTIT: Certainly allowances can be
22 anticipated before for different reasons or another.
23 MR. BJORNN: I think you could do that. Some
24 of the other types of things which you may try to
25 evaluate may not be able to be done, but I think those

1 kinds of fish you probably could.

2 MS. WIK: Well, I guess at this point, let's

3 say that getting the numbers of fish at Lewiston is

4 potentially not eliminating factors that we need to

5 consider, in that we think a year's time would be

6 enough led time to purchase --

7 MR. PETTIT: You would certainly have to

8 expand the present program.

9 MS. WIK: Correct. But, you think that could

10 be done within a year, if that's what we decided we

11 needed to do?

12 MR. ANDERSON: What's critical -- is it a

13 year lead time?

14 MR. PETTIT: No. I think we have the

15 technology to collect fish. The first thing to cover

16 is the most realistic technigue.

17 MR. ANDERSON: Okay.

18 MR. PETTIT: Or like, maybe, Steve said

19 cordoning off a certain portion of your production at

20 one hatchery or another. I'm not saying that would be

21 easy because it would take some resistance to turning

22 over, you know, a hatchery production to research.

23 Don't get me wrong, it would not come easy. You're

24 asking somebody to -- we're all familiar with this

25 problem. We have visited every year, the Bonnevile and

1 everyplace else. It is a big sacrafice for a
2 production program.
3 MR. YOUNG: The key, again, is the objective.
4 If the objective is to tag fish, we can sure do that.
5 If it's to measure travel time, we can probably do
6 that. If it's to determine the benefit of what you're
7 doing, then you probably can't do that.
8 MR. SATTERWHITE: Not in one year anyway.
9 MR. BJORNN: Unless we could measure it in
10 terms of percentage of fish getting through Granite or
11 Goose, for example.
12 MR. SATTERWHITE: Right.
13 MR. BJORNN: If you are talking an overall
14 long-term survival, then a one-year test is not going
15 to tell you anything. Multi-year tests are going to be
16 necessary.
17 MR. YOUNG: But, even if you have a
18 percentage of fish to Goose or to Granite, what would
19 you do with that? I mean, what would that mean?
20 MR. BJORNN: What that does is better define
21 what kind of flows you need to be able to get the fish
22 down to the point where you decide to either put them
23 in a barge or spill them down the river.
24 MR. YOUNG: You would do it under different
25 range of flows? You would compare one flow with

1 another?

2 MR. BJORNN: Right.

3 MR. YOUNG: Okay. It's still going to be

4 real tough to get a sample.

5 MR. BJORNN: It is. It may take you two or

6 three years of doing that test to get enough data

7 points to average itself out.

8 MR. PETTIT: There's so few tags that have

9 been recovered at Goose because we are moving the bulk

10 of the population at the clutching system above there.

11 So, you know, if you go into some program in '92, you

12 have to compare it to a head of pooled releases,

13 recovery at Goose, and there's not very many data

14 points there.

15 MS. WIK: I'm not sure what you're talking

16 about in terms of -- are you throwing out another

17 alternative, Ted, in that we wouldn't compare it to the

18 past data; but we would compare within a year? Because

19 if you are just looking at percentage of fish that

20 reach Little Goose under different flows, is that

21 really going to tell you what we're looking for?

22 MR. BJORNN: It seems to me that's one of the

23 critical pieces of information that tells you how much

24 water you need to be able to get the fish down to a

25 point where you do something with them.

1 MR. YOUNG: You're just looking at response
2 to Granite pool?
3 MR. CRASE: Right, yeah.
4 MR. YOUNG: What kind of juvenile response
5 are you --
6 MR. JOHNSON: Overall response.
7 MR. BJORNN: The response would probably be
8 the same on the other pools if we spilled them on down
9 the river.
10 MR. JOHNSON: The problem is you don't know
11 what caused them to respond, right?
12 MR. NASON: Right. You would have to do some
13 physiological work with it.
14 MR. BJORNN: You can tie that pretty closely
15 to the flow.
16 MR. ANDERSON: Just flow augmentation, not
17 drawdowns?
18 MR. BJORNN: You can't use drawdown because
19 you're using -- you're going to lose your collection
20 facility.
21 MS. WIK: Well, he's asking to Lower Granite
22 Reservoir, just flow augmentation or drawdown?
23 MR. BJORNN: Every year we have a wide range
24 of flows that occur from anywhere from thirty thousand
25 cfs, like it is right now, or up to a hundred and

1 twenty or a hundred and fifty thousand cfs. You have a
2 release group coming down influenced primarily by a
3 particular flow range, why that's the kind of
4 information you need. We can make an estimate of how
5 many of them are getting down to Lower Granite Dam and
6 to Little Goose and provide us with that relationship.
7 MS. WIK: Well, that's an alternative. Yeah.
8 that's Alternative 6.
9 MR. BJORNN: Right.
10 MR. JOHNSON: But, there are other
11 components, such as predation. I feel if you want to
12 draw a relationship between all of those variables, you
13 not -- I believe travel time is a subcomponent of the
14 distribution studies. You should really focus on where
15 those fish in the long term are distributed throughout
16 that reservoir. Do a massive sampling program. Where
17 are they distributed? Evaluate that information
18 spacially and sequorially. And out of that you will
19 get your travel time. And out of that you can also
20 relate the distribution of your juvenile migration with
21 your environmental variables, predation and the
22 physiological variables. So, I'm looking at more of a
23 distribution study; not only a part of that what you're
24 talking about is the travel time study.
25 MR. NASON: If you're not using radio tags,

1 that's almost impossible to do.

2 MR. JOHNSON: In numerous sites they used

3 hand wands to interrogate the PIT tag fish. It's maybe

4 possible.

5 MS. WIK: So, wouldn't that, by the very

6 nature of what you're doing, affect their --

7 MR. NASON: The movement would be an artifact

8 of the study.

9 MS. WIK: Yeah.

10 MR. WHELAN: Well, yes. That's -- anything

11 would be. That's a catch twenty-two.

12 MR. SATTERWHITE: I think the details of

13 those kind of experiments are something that need to be

14 peer reviewed rather than something that needs to be

15 discussed at this table.

16 MR. JOHNSON: The dams are artifacts to

17 studies. You need to begin somewhere.

18 MS. WIK: Dale, why don't you put together a

19 write up of what you're proposing there.

20 MR. JOHNSON: It's in my office; but, okay,

21 I'll write it down.

22 MS. WIK: Let's go back to Alternative 1 and

23 try to -- are there less than the two-month or

24 four-month time frames suggested here? I guess -- or

25 -- well, I'm not sure how to proceed. Do we -- do we

1 look at adult fish passage as essentially a limiting
2 factor for '92, keeping in mind that we would be
3 looking at what would have to be done to do something
4 like this?
5 I guess what I see as two limiting factors
6 for this one, are adult fish passage. We are going to
7 look at what might have to be done, and the other is,
8 if you really want to see if there's a benefit, there
9 are no data at this point to -- well, Frank is saying
10 maybe there are -- to compare to.
11 MR. YOUNG: At McNary.
12 MR. WHELAN: Passage to McNary, that's useful
13 information
14 MR. PETTIT: We have the --
15 MR. WHELAN: We have it under the drawdown.
16 MS. WIK: Okay.
17 MR. PETTIT: The same concern with Little
18 Goose applies; but, at least, there are some -- you
19 know, if somebody asks you what the travel time through
20 that reach is under various flow conditions, we can
21 give you the best answer our data provides.
22 MS. WIK: Okay. So, I guess, two things on
23 this one, then, would be look at ways for adult fish
24 passage. If there are ways to do it in '92. The
25 second thing is to get somebody like Lyle involved in

1 looking at the information that we do have on passage
2 time at McNary and see if we can pick out a difference
3 in the drawdown scenario.
4 MR. SATTERWHITE: Go ahead and finish.
5 MS. WIK: Well, those are essentially the two
6 things I see as --
7 MR. SATTERWHITE: That's certainly two
8 reasonable points. Another point might be that you can
9 set a minimum time period over which the experiment
10 would have to occur. The first limitation would be set
11 by the two-foot drawdown rate. We are talking about a
12 fifty-foot drawdown, a four-reservoir drawdown near
13 spillway -- near the spillway crest as the objective.
14 We are talking a fifty-foot drawdown at two feet per
15 day necessarily would take about twenty-five days to
16 get it to that point. That's the concept of the test.
17 MS. WIK: Well, I guess, I'm assuming that on
18 each of these we would be at that point at the start of
19 the experiment. I mean, that would be included in the
20 review of that, that the reservoir starts drawing down
21 twenty-four or twenty-five days or however many our
22 engineers finally agree is the maximum per day that
23 would have to take place ahead of time to accommodate
24 the experiment
25 MR. SATTERWHITE: Okay.

1 MS. WIK: It's then a question, again, of
2 again statisticians being involved, how many days
3 minimum would you have to be releasing groups of fish
4 over to get information; is that a fair assessment?
5 MR. WHELAN: The one issue -- I guess, we
6 have gotten close to it a couple of times, and that is
7 the usefulness of information when you can't use fish
8 passage time. That is what is basically the water
9 particle travel time. Don't you get useful information
10 from a drawdown in terms of just finding out what water
11 particle time is?
12 MS. WIK: I guess what we decided, Will, is
13 we have modeling that can do it probably as well as
14 going out measuring the current meters, knowing where
15 in the reservoirs to measure and so forth. Correct me
16 if I'm wrong on that.
17 MR. WHELAN: In asking that -- I'm trying to
18 figure out -- I don't know if you have seen curves like
19 that that shows velocity --
20 MS. WIK: I have a whole notebook full.
21 MR. WHELAN: Is there agreement on these?
22 Are there questions as to the validity of these terms
23 of the predicted velocity?
24 MS. WIK: I don't think so.
25 MR. ANDERSON: No. The question is, so you

1 have data at various cross sections, what you need to
2 know is the travel time through the reservoir. That's
3 going to change because your cross section changes at
4 different points in the reservoir. You can get an
5 indication. We have done that with models already for
6 Lower Granite. We know that. And we also have a
7 pretty good feel for average water particle travel
8 time, but you don't know where the fish are in the
9 water column in relation to changes in the
10 cross-sectional velocities. So, it's --
11 MR. YOUNG: We are interested in relative
12 differences. So, I don't think that that's a big deal.
13 MR. ANDERSON: Yeah. I guess I would have to
14 agree.
15 MR. YOUNG: I guess whatever it -- to do an
16 average water particle test in the reservoir, I don't
17 think we want to go through that.
18 MR. BJORNN: I don't -- I don't have any
19 problem with the estimates, assuming that they have
20 been reasonably well put together. I don't have any
21 problem with those estimates, and I don't think if we
22 went out and measured things that we would find that
23 they would be much different. I think the relationship
24 is between average water travel -- particle time and
25 travel time of fish. And so, I don't -- that's why I

1 say, I'm not sure we're going to gain a lot by drawing
2 down the reservoir just to measure that.
3 MR. PETTIT: I don't think we have the
4 capability of measuring with any more precision than
5 those models reflect.
6 MR. YOUNG: Well, you probably could, and you
7 would wonder why you went through all of that.
8 MS. WIK: Is anybody in disagreement with
9 that because that effects some of the others?
10 Basically, that type of information we can get what we
11 need out of modeling efforts.
12 MR. YOUNG: Even if it's wrong, it doesn't
13 matter as long as --
14 MS. WIK: It's relative.
15 MS. WIK: -- if relatively it gives you some
16 indication of the change.
17 MS. WIK: Okay. I guess then, summing up No.
18 1, as Witt said, we are going to look at things -- the
19 type of things that would need to be done and right now
20 not to encourage anybody that they could be done by
21 '92.
22 MR. PETTIT: Could you go to the second page
23 of the matrix.
24 MS. WIK: Okay.
25 MR. PETTIT: Item 7, can valuable information

1 be gained.

2 MS. WIK: Change that to a question mark.

3 MR. PETTIT: Instead of --

4 MS. WIK: Yeah. I was not aware that we had

5 it to McNary; and, again, I guess the statiticians can

6 look at that. A question mark. Is everybody in

7 agreement that that is an acceptable change? And the

8 one underneath it as well?

9 MR. PETTIT: Right.

10 MR. WHELAN: Sarah, just to be sure I heard

11 you had right, you said you were going to go ahead and

12 look at what type of adult passage may be possible

13 under a full pool drawdown.

14 MS. WIK: We are going to look at what it

15 would take to get adult passage under a drawdown

16 scenario.

17 MR. WHELAN: My concern is this, is your only

18 full pool alternative, it's a fairly extreme

19 alternative in that it really takes it all the way down

20 to the spillway sill. There's a full pool drawdown

21 scenario that may be capable of passing adults or

22 making some provision for adult passage above into the

23 spawning grounds, whether that be trap or haul or

24 whatever, then it might be worth keeping a full pool

25 drawdown that doesn't include as a draft. I didn't put

1 that well. Did you follow that?

2 MS. WIK: I followed.

3 MR. ANDERSON: Less than a full --

4 MS. WIK: Okay. We need to evaluate that

5 because one of the things that came up, we had talked

6 last time about the potential well loss. You know, we

7 could get the fish at each project and haul them

8 around; but, then we are back to if the collection

9 ladder is functional, we have no way of getting the

10 fish and then haul them around. We would have to look

11 at what could be done at least, for example, the

12 collection channel to get fish into a point that maybe

13 we could haul them around. And they are --

14 MR. ANDERSON: Maybe we can look at the

15 agency, if we could physically do it, collecting adults

16 at Ice Harbor and transport them by truck.

17 MS. WIK: Well, it would have -- the fish

18 have to be in the -- to be in the forebay of each

19 project.

20 MR. YOUNG: Right.

21 MS. WIK: You couldn't go more than that

22 because you don't know where -- whether the ones that

23 go on through and go back or to a tributary or

24 whatever. So, I guess that becomes another question

25 whether or not that would be acceptable to handle the

1 fish that much.

2 MR. WHELAN: It could all be that this is

3 rejected during the EIS. To try to keep on the table

4 for the moment the four-pool scenario, the main problem

5 you have with that is the spillway crest.

6 MS. WIK: Well, alternatives in terms of

7 either actually passing at the facility or at least a

8 place or point at which they could be collected, and we

9 could manually -- again, not ideal.

10 MR. NASON: I'm putting you on the spot,

11 Frank, would agree to adult transportation?

12 MR. YOUNG: Only if you could tell by looking

13 in their eyes where they are headed.

14 MS. WIK: Well, I want to make that clear,

15 Dick, that we would only be talking in terms of

16 transportation just around the dam and back in the

17 forebay. We wouldn't be talking about transporting any

18 further than that.

19 MR. NASON: Okay.

20 MS. WIK: I don't see how you could even

21 entertain the thought of --

22 MR. PETTIT: That means handling every fish

23 that's bound for Sawtooth four times.

24 MS. WIK: That's right. Any other comments

25 on Alternative 1 at this point, either from the matrix

1 or things that need to be at least pursued?

2 (No response was made.)

3 MS. WIK: Okay. Alternative 2, I would like

4 to note one thing on here, one of the things that was

5 thrown out, and this is a physical test lowering, at

6 this point, just one reservoir down. And I'm hearing

7 that it's -- other than -- other than seeing what

8 happens in terms of failure incrementally, we wouldn't

9 need to stop at each ten foot and try to gather

10 velocity data. So, that's out. Is that a fair

11 assessment of what I have heard?

12 (No response was made.)

13 MS. WIK: Okay.

14 We talked about last time in terms of doing

15 this, reservoir drawdown to gather physical

16 information, that we would do it within the current

17 in-water work windows. This is a rough estimate of

18 time frames for the summer and winter. We noted that

19 the winter work window would be the preferred time.

20 Witt and Bill can correct me if I'm wrong;

21 but, in terms of a winter work window, the first window

22 we would be talking about would be '91-'92; but,

23 because of the NEPA process, it would -- essentially,

24 if we wanted to stick with a winter work window for a

25 good physical impact test, it would have to be '92-'93.

1 MR. WHELAN: Can a window be changed?

2 MS. WIK: Can a window --

3 MR. PETTIT: Now, the -- what he's referring
4 to, no, I don't think so because those windows have
5 been agreed on after years of evaluation, and our
6 knowledge of how to reduce impact on salmonids in the
7 river system. Secondly, I hadn't really thought about
8 that, that if you don't expect this process to be done
9 at its earliest until mid March of '92, you have
10 eliminated the winter window opportunity.

11 MS. WIK: In other words, one of the options
12 we talked about was doing this first and then going
13 forward using that information with a biological test.
14 But, I did want to point that out.

15 MR. ANDERSON: Yeah. If we are serious about
16 trying to do this by 1 January, I mean, that's
17 something, Will, that, quite frankly, we have got to
18 get squared on if we have any chance to get something
19 done. I know that the people that are going to have to
20 work up this document are going to say it's absolutely
21 impossible.

22 MR. SATTERWHITE: I would.

23 MR. ANDERSON: The Corps is going to do
24 everything it can to get through the process; but, if
25 it takes three months out of our ability to get through

1 the procedure, I'm certainly not going to promise you
2 it's going to be done.
3 MR. PETTIT: I wouldn't want to eliminate the
4 possibility, though, the fact that you're even
5 entertaining doing this in a nine-month period.
6 MR. ANDERSON: I agree with you; we won't
7 eliminate it today.
8 MR. PETTIT: I think you had gathered it for
9 the January '92 possibility.
10 MR. ANDERSON: I agree with that, but I guess
11 I'm just emphasizing that we're going to have to reach
12 some understanding about that fairly early on. That we
13 can't drag on in regional debates about that very far,
14 or we will miss the opportunity. We certainly won't
15 eliminate it at this point.
16 MS. WIK: Okay. Adding to the possible
17 information to be added -- Dale is gone, but of course
18 the chemical information -- he does have a good point
19 as to one of the considerations would be some sediment
20 testing ahead of time to determine maybe some potential
21 hot spots; and so, we would have to look at adding
22 that.
23 MR. YOUNG: Is there any chemical testing
24 that occurs when the Corps dredges up around Lewiston?
25 MS. WIK: We have tested in the confluence

1 area, Frank. But we are -- at this point, our testing
2 has been limited to areas that we dredge. One thing
3 that we talked about last week under that was those
4 sediments right there in the confluence area are fairly
5 coarse and, therefore, do not retain a lot of the
6 contaminants that you might find in the quieter areas.
7 Where the finer materils is, of course, will be
8 resuspended in the water column as the reservoir comes
9 down. So, while we do have good information on the
10 confluence, we don't have any information on those
11 areas that really would be of a higher concern.
12 MR. YOUNG: This information, would it give
13 some kind of an indication, though, of what you might
14 expect? If you're finding heavy metals in the finer
15 sediment, but if you're finding it not at all....
16 MS. WIK: Well, off the top of my head, we
17 found, you know -- and, again, we found some of the
18 different concentrations of dioxin, for example. We
19 found some PCBs, things like that. So, you know, at
20 that place with the limited organic content of those
21 sediments, it was not considered to be a problem by all
22 the agencies involved. But, again, that is -- a
23 critical factor is the organic content of those
24 sediments. And that changes very much when you're
25 looking at other areas of the reservoir that may be

exposed.

MR. SATTERWHITE: That testing should be initiated immediately.

MS. WIK: There's no question on that.

MR. SATTERWHITE: Starting right now the --

MS. WIK: All I said, Mike, is I just needed to note, addressing Dale's comment here, that that would be -- that would have to do with that.

MR. SATTERWHITE: Right. She was correct; that there's been some considerable testing already done in the Lewiston area looking at those gravels. Also, the EPA has been looking at dioxin levels in the river, in the Columbia already, as you're probably already aware of that. And the University of Idaho has some plans for some testing of resident fish at some time in the future.

MR. BJORNN: For dioxin levels?

MR. SATTERWHITE: For dioxin and other kinds of particles.

MR. BJORNN: They talked to us at one time, but I haven't heard any recent stuff, Mike. Maybe you're aware of something I'm not.

MR. SATTERWHITE: I was under the impression that was supposed to take place fairly soon, if it's not all ready underway. It might have been Jim

1 Konklton (phonetic) or somebody involved in collecting
2 samples or analysis, but I don't know what the details
3 were. But those would be probably the fish samples,
4 not sediment samples.
5 MR. SCHLUETER: I have a question about
6 sedimentation that I didn't think was appropriate to
7 raise last week because I thought it was more of an
8 economic concern for the barge shippers than I did as
9 an environmental impact for the fish. That is, with
10 the redistribution of the sedimentation, stirring up
11 the mud when we draw these reservoirs down by
12 fifty-foot increments, what is going to be the
13 redistribution of the sedimentation below these dams;
14 and what is that going to do with the channel and,
15 therefore, the fish recovery in the direction to the
16 upriver ladders for the returning adults? Is there any
17 concern about changing the path or the access to the
18 ladders itself by changing the channel below the dams?
19 MS. WIK: I wouldn't really think so, but we
20 haven't talked about that.
21 MR. SATTERWHITE: The velocity -- there
22 should be a critical velocity that the silt continues
23 to move even below that velocity and will drop out.
24 MR. SCHLUETER: Yeah. But, whether it's
25 below the reservoir we're testing or the reservoirs

1 that are not effected, McNary or John Day, that
2 sediment has got to go someplace.
3 MS. WIK: I don't think it would settle in
4 areas that would block effective passage below, though,
5 if that's the question that you are asking.
6 MR. YOUNG: It will probably improve velocity
7 wherever it settles by reducing the cross-sectional
8 area of the reservoir.
9 MR. SATTERWHITE: I like that. That's good.
10 MR. NASON: Always looking for a bright spot.
11 MR. SCHLUETER: That will create some
12 economic concerns that we will have to address.
13 MR. YOUNG: As a matter of fact, that may be
14 an alternative, just fill the reservoir with sediment
15 and just have a channel going through it.
16 MR. LOVELIN: Sandbag them.
17 MS. WIK: I guess, any other comments on
18 Alternative No. 2? We have talked about a lot of these
19 things already.
20 MR. ANDERSON: Let's just do a check of
21 process here. Do you people want to trek on and get
22 through these and reach the conclusions that we can
23 reach today about next week and be done, or do you want
24 to break for lunch and come back? I guess maybe we
25 could press on and get through these, discuss how we

1 want to present this next week; and that's what we will
2 accomplish today.
3 MR. SATTERWHITE: I would prefer to press on.
4 (Discussion held off the record.)
5 MR. ANDERSON: Let's press on and get through
6 the alternatives. If we're not going to make it, we
7 will break.
8 MS. WIK: Anyway, let's move on to
9 Alternative 3. I didn't hear any more under
10 Alternative 2.
11 Any comments under Alternative 3 that we
12 haven't discussed already?
13 (No response was made.)
14 MS. WIK: Assuming Frank's suggestion of
15 using a control by hauling fish down below Lower
16 Granite to compare to versus comparing past data at
17 Little Goose as an option, is that -- Steve, is that
18 what you heard?
19 MR. PETTIT: Yeah, that's his goal, is to try
20 to that.
21 MR. NASON: I would like to say that this
22 wasn't really even necessary. The fact that it's a
23 given, if you pull the pool down, one pool down, you're
24 going to reduce your travel time. And, if you want to
25 take and measure the biological benefits for the fish,

1 you probably can't do it.

2 MS. WIK: That's true.

3 MR. NASON: A lot of these --

4 MS. WIK: That's true for a lot of these. I

5 guess we include that. And, again, I guess that's for

6 a statitician to take a look at.

7 MR. PETTIT: I'm not quite sure when you

8 would -- when the fine details of testing protocol that

9 he has in mind are. When you would release the

10 controls versus similar experimental groups at the head

11 of the reservoir. Do you know what he has in mind?

12 MR. BJORNN: It would probably have to be a

13 continuous thing, Steve.

14 MS. PETTIT: Uh-huh. It would relate --

15 MR. BJORNN: To the flow at that time.

16 MS. WIK: So, that again --

17 MR. BJORNN: One of the things that Sarah

18 mentioned in the first page of her handout down at the

19 bottom is a note, maybe it's a good thing to bring up

20 and make sure how we are thinking about that, is the

21 question of, when we talk about a drawdown, are we

22 talking about a drawdown throughout the whole season

23 regardless of what happens; or are you really talking

24 about a variable drawdown, related to the amount of

25 water coming down the river. And, for example, right

1 now, you may want to draw it down to spillway level in
2 order to get the velocities you want down through Lower
3 Granite pool; but four weeks from now, when you have
4 got a hundred thousand cfs in the river, what do you
5 do? Do you keep it down at that level, or do you raise
6 it back up because you have enough velocity?
7 MS. WIK: Well, I guess, there's two thoughts
8 related to that, Ted. And one is, if for some miracle
9 we actually have an above-average flow year next year,
10 do we want to do one of these tests that actually
11 propose a drawdown on the reservoir? And the other
12 related thought is, I guess, as part of a test
13 protocol, I would think we would want to include and
14 need some decisions on if we are -- if we are spilling
15 and the levels start coming up, we are measuring
16 dissolved gas levels, is there some point at which we
17 decide that's a critical level and maybe we don't want
18 to continue? You know, dissolved gas levels, because
19 of our operations, reach a hundred and thirty, a
20 hundred and forty, I guess we need some sort of a
21 safety mechanism in there that we would want to have
22 worked out ahead of time.
23 MR. PETTIT: Yeah.
24 MS. WIK: And that's what you're talking
25 about, is that at some point that we would want to

1 have --

2 MR. PETTIT: I don't think we have to detail

3 that out right at this point; but, obviously, that's a

4 major concern. And not only that, but what do you do

5 with the excess water in real time? Do you discontinue

6 to spill it and take the hit on nitrogen, or do you

7 start to divert some of it through the powerhouse,

8 which is also a line -- in line when you talk about

9 fish survival?

10 MR. BJORNN: I think it's the kind of thing

11 that people need to understand. We are probably not

12 talking about a constant drawdown for two months. I

13 don't think any of us would probably buy that as being

14 saleable. If we tried to put a hundred and twenty

15 thousand cfs down through the spillway, we would be in

16 trouble.

17 MR. SATTERWHITE: I think it's appropriate,

18 since we know so very little about the operation under

19 a variety of conditions, including the standard

20 conditions we operate under, that we ought to build in

21 the design the intent to take the opportunity to

22 monitor any condition over the spillway under any

23 condition of flow so that we can start collecting that

24 data if we are concerned with the operation of a

25 spillway.

1 MR. NASON: There comes a time when
2 monitoring that data that is deemed to be detrimental
3 to fish health -- that's the point --
4 MR. BJORNN: I'm not sure what you were
5 saying, Mike.
6 MR. SATTERWHITE: I'm not arguing with what
7 you said. I'm just -- I'm just saying we should build
8 into the experimental scheme the ability to adjust to
9 changes in environmental conditions and monitor those
10 changes so we can start building the data base of
11 nitrogen concentration versus flow. We need to have a
12 mechanism in place to do that.
13 MS. WIK: We have already been working on it.
14 I think I mentioned last time we have a lot of years of
15 data, for example, on dissolved gas in the forebays.
16 MR. SATTERWHITE: In all the projects we are
17 concerned with?
18 MS. WIK: In all the projects we are
19 concerned about. In the spring, we went in and we
20 installed gas monitoring instruments immediately below
21 the project as well. So, that's -- those types of
22 things, yeah.
23 MR. SATTERWHITE: Okay.
24 MS. WIK: So, with those types of things,
25 what we haven't already gotten in place, we are

1 assuming we would include as part of this.

2 MR. NASON: Do the units at the four projects

3 on the Snake, do they have the capability of sluicing?

4 MS. WIK: With the gates open without

5 operating, no, they do not.

6 MR. CRASE: No.

7 MS. WIK: So, you would be operating when the

8 water is going through. Okay.

9 Any other thoughts on Alternative 3 or on the

10 matrix or comments?

11 (No response was made.)

12 MS. WIK: Okay.

13 Alternative 4, when we originally talked

14 about doing this alternative, which is lowering Lower

15 Granite and Lower Monumental pools to approximately

16 twenty-three feet from normal minimum, which allowed

17 Lower Granite ladders to continue to operate, and

18 retaining Little Goose and Ice Harbor pools at near

19 maximum, when we originally talked about that, we were

20 looking at using radio tags as the ability to measure

21 the difference in travel time between pools. With

22 Lowell's comment of recommending against radio tags, is

23 there another alternative way to get information?

24 MR. NASON: You could have another release

25 point, actually.

1 MS. WIK: But, how would you collect
2 information?
3 MR. SATTERWHITE: Well, the idea behind the
4 suggestion, if I understand it correctly, is to have
5 two low reservoirs and two high reservoirs; and the
6 idea is to collect data from all four reservoirs and
7 compare those migratory times to get some more
8 statistical infomation.
9 MS. WIK: Right.
10 MR. SATTERWHITE: Or values or numbers that
11 you obtain
12 MS. WIK: Correct.
13 MR. SATTERWHITE: But, you have a problem.
14 MS. WIK: Yeah. I don't see any way to get
15 the information at this point.
16 MR. SATTERWHITE: Not even by seining at the
17 collection facility or anything?
18 MR. PETTIT: I don't think you could do that.
19 You know, that's what allowed us to carry that option
20 on was the possibility that you could use juvenile
21 transport.
22 MR. SATTERWHITE: You don't think you could
23 do that with marking and then netting or something in
24 the lower end of the pool.
25 MR. NASON: I don't think that under the new

1 pool configurations of not actually having a pool, you
2 would be able to net.
3 MR. SATTERWHITE: Oh.
4 MR. NASON: It would be a river. The
5 reservoir wold be drawn down. It would be a river
6 again.
7 MR. PETTIT: But, you're a long ways from the
8 pool that you're currently purse seining into if you
9 have a fifty-foot drawdown. That's the object. The
10 velocities, in fact, are higher.
11 MR. ANDERSON: We are pursing right now at
12 the confluence of the Snake and Clearwater with
13 velocity we might entertain with a fifty-foot draft
14 without any problem.
15 MR. CRASE: Could radio tag steelhead.
16 MR. PETTIT: It just goes with the flow.
17 MR. SATTERWHITE: But, you know, it may be
18 less labor intensive just to seine, purse seine to
19 collect fish and count your tags, count your marks.
20 MR. PETTIT: I don't think you would want to
21 eliminate a critical species from the test environment
22 by only marking steelhead.
23 MS. WIK: Is what Mike talking about an
24 option?
25 MR. PETTIT: Netting in the forebays of

1 the.... I have real difficulty applying it to anything
2 that we could compare it to. And the risks involved,
3 it would --
4 MS. WIK: You would have to compare them
5 between reservoirs is what -- but it would be -- I
6 guess timing would be a problem in terms of being --
7 knowing when to be there at the right time.
8 MR. NASON: You would have to do it
9 continually.
10 MR. PETTIT: You would have to do it
11 continuously, twenty-four hours a day.
12 MS. WIK: Yeah.
13 MR. NASON: I have a lot of reservations
14 about that collection method.
15 MS. WIK: Well, okay. I guess one thing
16 here, since this option was put on the table assuming
17 radio tags, is this one that we still want to carry
18 forward? Given the other options that we are carrying
19 forward, is this one that we still want to carry
20 forward?
21 MR. PETTIT: I don't think it's really
22 feasible, but I'm only one vote.
23 MS. WIK: Does anybody have any problem
24 eliminating this option from carrying it forward?
25 (No response was made.)

1 MR. PETTIT: Just keep it in mind, we don't
2 want to propose something that's going to be leathal to
3 large populations. And purse seining to get real time
4 continuous data is not advisable.
5 MR. SATTERWHITE: Is that due to injury?
6 MR. PETTIT: Yes.
7 MR. YOUNG: It tends to remove scales.
8 MR. SATTERWHITE: Yeah.
9 MR. WHELAN: There's sort of a more general
10 question, taking this out. The question is, is there
11 any other reservoir, any other single or multiple pool
12 test that we would do other than Lower Granite because
13 this is the only one that had a non-Lower Granite pool
14 in it except for doing all four?
15 MS. WIK: Well, again, back to that one. The
16 other single reservoir was because of the ability to
17 gather the data at Little Goose. You know, some
18 thought at one meeting talked about a desire for a
19 Lower Monumental drawdown, but I don't know of a way to
20 get the information from that except at McNary. And,
21 again, your adult fish passage is affected.
22 MR. WHELAN: So, you thought about it; and
23 there isn't any other reservoir that you could see
24 pulling down other than Lower Granite unless -- except
25 for all four alternatives.

1 MR. ANDERSON: Nobody's come up with any
2 reasons why -- any merit in that. I mean, if there's
3 merit --
4 MR. WHELAN: Just to flip the question
5 around, is there any reason why the results from Lower
6 Granite wouldn't be applicable to any of the other
7 reservoirs? Would there be anything different among
8 these reservoirs that would cause you to question Lower
9 Granite results?
10 MS. WIK: Well, that's something that would
11 have to be looked at in more detail because there are
12 different conditions. But, at this point, people are
13 assuming that a benefit obtained in lowering Lower
14 Granite would be applicable.
15 MR. PETTIT: The pools are a lot more similar
16 than they are dissimilar
17 MS. WIK: That's right.
18 MR. PETTIT: They are all approximately forty
19 miles long.
20 MR. ANDERSON: Pretty similar volumes
21 relatively. Now, does anyone an objection to taking
22 this off our working list?
23 MR. SATTERWHITE: I just -- I would say that
24 it might be worth pointing out from a statistical point
25 of view, the data you might get on migration rates

1 through if you could do the experiment would be the
2 most significance or more significant than on the one
3 pool. Is that a fair statement? Maybe that's not a
4 fair statement.
5 MR. PETTIT: The concept of treating one
6 reservoir versus --
7 MR. SATTERWHITE: Yeah.
8 MR. PETTIT: Ideally, I guess you're right.
9 MR. SATTERWHITE: I mean, the more replicates
10 of experiments you have, the better the experiment is;
11 that's all I'm saying.
12 MR. NASON: This isn't a replicate. This is
13 a -- this additional pool.
14 MR. SATTERWHITE: No. This is a replicate.
15 Two low, two high.
16 MS. WIK: No. Well, I mean, the idea --
17 MR. SATTERWHITE: That's the intent.
18 MS. WIK: Yeah. The idea behind it was to be
19 able to, with a method, compare travel time from a high
20 to a low. The reason, you know, Lo Mo would kick in
21 was because of the radio tags.
22 MR. SATTERWHITE: This came in shortly after
23 the discussion about how reliable could you measure the
24 movement rates through the pool, if it's a fairly small
25 change with respect to a small change in elevation.

1 MS. WIK: Yeah. Well, one thing this did,
2 again, is you would have to compare movement rates
3 versus absolute travel time because you have different
4 lengths and different conditions in the pools.
5 MR. SATTERWHITE: That makes it difficult.
6 That's another level of complexity.
7 MS. WIK: Yeah. I don't know if you can make
8 your point in a general manner for all of these. You
9 know, ideally replicates and so forth are important;
10 but I don't know that we want to keep that in. I am
11 just asking.
12 MR. PETTIT: There was a caution mentioned at
13 the beginning of this discussion that we should
14 probably include as many alternatives that are
15 realistic in the process. And perhaps six is, you
16 know, a good healthy number. The next nine months
17 you're going to be looking at all these, and you can
18 throw them out then, but you probably should go into
19 the process with them. Some will be eliminated rather
20 quickly.
21 MR. SATTERWHITE: I don't think it's going to
22 necessarily make it more difficult to evaluate in the
23 evaluation process to keep No. 4 in.
24 MR. NASON: I have a problem keeping No. 4 in
25 when you know it can't work. You know, I hear Steve

1 over here saying, I don't want to you collect
2 twenty-four hours a day seven days a week if these
3 scales (sic)injure the fish. So, why are we keeping a
4 study in that we know is not feasible?
5 MS. WIK: Just for the sake of a number of
6 alternatives.
7 MR. NASON: If that's the case, we could put
8 another half a dozen, you know, off-the-wall ones in
9 and say we have got twelve now. Wasn't Dale going to
10 give us another alternative? Didn't he have one?
11 MS. WIK: He did.
12 MR. NASON: Well, we will still have six.
13 MS. WIK: Well, his wasn't an alternative for
14 '92, though.
15 MR. ANDERSON: That's the magic number.
16 MR. SATTERWHITE: I think its's a minor point
17 to be hung up on, to worry about it.
18 MR. ANDERSON: Well, we can certainly review
19 it next week and say for these reasons we don't see it
20 really as being feasible. Steve said that -- you know,
21 I guess, we still today have to talk about how we want
22 to present these next week.
23 MR. YOUNG: I think that's a good approach,
24 just to point out the problems that were identified and
25 associated with that alternative.

1 MR. ANDERSON: Okay.

2 MS. WIK: Okay. All right. No. 5, we really
3 haven't talked about.

4 MR. YOUNG: I think we can probably eliminate
5 that one, too.

6 MS. WIK: Okay. Chip did send me just a
7 brief outline, and I got it too late to fax or even
8 ditto out. What he was looking at doing was --
9 specifically, the protocol might be as follows: Period
10 1 of low velocity, say, a seven-day period, flow and
11 elevation manipulated to obtain water velocity
12 equivalent to eighty-five kcfs at normal pool
13 elevations; and, then, alternating that with Period 2
14 of high velocity flow and pool elevation manipulated to
15 obtain water velocity equivalent to the Period 1
16 average, plus two days. Repeat over the season.

17 MR. YOUNG: So, he wasn't identifying the
18 length of period, then?

19 MS. WIK: Just a quick calculation here. If
20 we are assuming the April 15th to June 15th and
21 assuming what we know about the maximum drawdown rates
22 and refill rates, thirty days of that two-month period
23 would be taken up in drawdown and refill.

24 MR. YOUNG: I meant for the period here. It
25 says seven days down, seven days full, which I didn't

1 think was worth doing.

2 MR. BJORNN: Did he modify that --

3 MS. WIK: No. He didn't modify that. This

4 is still seven days; and, in calculating out what our

5 best way of drawing down and refilling drops is, it's

6 back to five days. We wouldn't be able to have them

7 any longer than five days during that time frame.

8 Travel time between Lewiston and Little Goose varies

9 from three to fifty days.

10 MR. YOUNG: Uh-huh.

11 MR. SATTERWHITE: Yeah.

12 MS. WIK: So, I don't know how we would deal

13 with -- we would have to have --

14 MR. YOUNG: I would hate to have to analyze

15 the data.

16 MR. PETTIT: Me too.

17 MR. YOUNG: I would hate to be responsible to

18 analyze the data that came out of this. I don't know

19 what you would do.

20 MS. WIK: Okay.

21 MR. YOUNG: I see the idea. Idealistically

22 it would be good; but pratically, I don't think it's

23 possible.

24 MS. WIK: Well --

25 MR. SATTERWHITE: This is the old pulse flow

1 experiment that was described early on here. Not here,
2 but early on in the summer.
3 MR. YOUNG: I'm not sure that's what Chip has
4 in mind. I think he's just proposing this as a way to
5 get information that's been useful. I don't think this
6 is going to accomplish it
7 MS. WIK: I don't know how you would deal
8 with the fish that were caught in between the rising
9 and falling reservoirs and sorting all that out.
10 MR. YOUNG: Not with the sample sizes we have
11 to deal with. I'd say it's not feasible.
12 MS. WIK: So, we leave it in, but we present
13 the problems with it next week.
14 MR. YOUNG: Right.
15 MR. WHELAN: Give Chip an opportunity to
16 explain his alternative.
17 MS. WIK: Well, I would like to talk to him
18 some more just to see if I missed something he was
19 talking about because it was a quick description.
20 MR. YOUNG: Yeah.
21 MS. WIK: Alternative 6, this assumes, as all
22 of these do, assumes the purchase of equipment for
23 trapping at Lewiston that is --
24 MR. YOUNG: A conspiracy has been born.
25 MR. WHELAN: There are some apples and

1 oranges in Alternative 6. It seems to me that this is
2 a no action alternative in --
3 MS. WIK: I don't agree, Will. I wouldn't
4 call it a no action because it's signicantly more
5 information than we are currently getting.
6 MR. WHELAN: That's the orange. That's the
7 research issue. If our proposed action is to draft in
8 '92 and how much, then this is a no draft. And you
9 need a no action alternative in there, and it seems to
10 me Alternative 6 might as well be it.
11 MS. WIK: I guess, I don't --
12 MR. WHELAN: There's a second question, and
13 that is this issue of the research project. That seems
14 somewhat different than reservoir drafting. You can do
15 this research project with no reservoir drafting.
16 Maybe I'm screwed up.
17 MS. WIK: No you're --
18 MR. ANDERSON: No, that's right. I mean,
19 it's just what you want to call this. We can call this
20 "no action," "no drafting"; but we would propose that
21 in that case we would do certain things differently
22 than we are doing now or more intensively is all.
23 MR. NASON: If it comes to pass that due to
24 physical constraints or whatever, that a reservoir
25 drawdown test is not taken in '92, is not completed in

1 '92, I think that this would be -- if you were to
2 perform this study, assuming the Lewiston traps were
3 upgraded, then you would have baseline data if a test
4 were to occur in '93 to compare it.
5 MR. WHELAN: Yeah. I'm not commenting on the
6 validity of the research or anything like that. You
7 have to have a no action alternative in the range of
8 alternatives. This might as well be it, but I think it
9 ought to be identified as a no action alternative in
10 terms of a proposed action of reservoir drafting.
11 MR. ANDERSON: Well, the no action would be
12 not drafting the reservoir. This is a no action with
13 the something in there.
14 MR. WHELAN: Okay.
15 MS. WIK: Yeah. I guess, in terms of a 1992
16 test, this could be viewed more as a Phase 1 to
17 drawdown test in the future, rather than no action at
18 all. I guess, I'd just as soon see it as a no action
19 phase. No reservoir drawdown and no increase of normal
20 monitoring.
21 MR. WHELAN: You make Alternative 6 no
22 drafting, and then maybe semicolon, travel time
23 experiment.
24 MS. WIK: Okay. Just for ease of this, is
25 why the name is short.

1 MR. WHELAN: This suggests that you're doing
2 the draft since it's got a --
3 MS. WIK: I guess that's why I put on the
4 note. This alternative assumes resevoirs are operated
5 within normal operating ranges. So, I will make that
6 more clear.
7 Any other comments on --
8 MR. SATTERWHITE: Could Alternative No. 6 get
9 underway this year?
10 MS. WIK: Well, you mean for the '91 season?
11 MR. SATTERWHITE: Yes.
12 MR. NASON: Can they get their hands on
13 enough fish?
14 MR. SATTERWHITE: It's a matter of
15 collection.
16 MR. YOUNG: It's a design.
17 MR. BJORNN: It would take some planning.
18 MR. SATTERWHITE: You mean there isn't a yard
19 full of traps just lying around.
20 MR. YOUNG: The hard part is getting
21 agreement on the study design.
22 MR. NASON: That's true.
23 MR. WHELAN: By way of other comments, it
24 seems that in thinking through some of this stuff, one
25 of our major issues is the use of the spillway as the

1 sole means for passing fish through a drawndown -- a
2 dam with a drawndown reservoir and causes problems with
3 detraction flows potentially for adults. It causes
4 potential nitrogen gas supersaturation issues. One of
5 the things that we have been thinking about is how we
6 can get safe juvenile fish passage through the turbine
7 route, possibly by pulling a turbine. And I would like
8 to put that on the table for purposes of analysis.
9 We can test reservoir drawdowns, but we also
10 need to try to think of how to provide decision-makers
11 with useful information. It seems to me, we're
12 starting sooner, rather than later, a consideration of
13 how we deal with that issue of providing alternative
14 passage than sole reliance on spillway. Frankly, I
15 don't have enough information of any sense whether it's
16 possible to pull a turbine in '92. MK is taking a look
17 at that through their contract.
18 Whether or not you actually pool one, though,
19 it may make some sense to analyze the issue.
20 MR. NASON: I can maybe speak to that. At
21 Rocky Reach Dam in 1984, Chelan proposed doing that to
22 the Mid-Columbia Coordinating Committee, Frank is a
23 member. We brought in Milo Bell as a consultant to
24 look at that, and it was decided that the velocities
25 and the sheers that would be encountered were great

1 enough to abandon that.

2 MR. SATTERWHITE: Assuming the full-pool

3 operation?

4 MR. NASON: Assuming a full-pool operation of

5 a hundred feet of head, that's correct. Ninety feet of

6 head.

7 MR. WHELAN: Yeah. That's a type of thing

8 that might at least be worth keeping on the table to

9 consider doing it now. You have different types of

10 sheer forces in drawn down reservoirs, and are there

11 things that you can do by modification to reduce those

12 sheer forces?

13 MS. WIK: I would like to mention one thing a

14 little along those lines. We are working right now

15 with Milo to evaluate juvenile mortality through the

16 turbines under differing head conditions; and I guess I

17 would like -- I just made a note to talk to him about

18 also maybe looking at it with the turbine removed and

19 seeing what it might be under varying heads. If we

20 were to only be at fifty foot of head, what would the

21 mortality, if any, be.

22 MR. YOUNG: There may be a way after putting

23 an operating gate in there and drawing the water to

24 lower the head to spill over the top of it. You know,

25 something along those lines.

1 MR. WHELAN: And, again, the question is to
2 try to come up with alternatives to sole reliance on
3 the spillway as a means of passing fish.
4 MR. ANDERSON: And MK is looking at that.
5 MR. WHELAN: They are going to be looking at
6 the question of pulling turbines. They designed a
7 project in California where they could pull the turbine
8 out in a matter of a couple days turnaround.
9 MR. ANDERSON: Okay.
10 MR. NASON: You may want to look at instead
11 of pulling the turbines -- the problem you have when
12 you have pulled the turbine, is you have -- there's
13 nothing to remove the energy from the water. You may
14 want to look at the speed no load or something along
15 those lines to take and actually remove some of that
16 energy from the water.
17 MR. PETTIT: There's also another benefit
18 there from just arriving at an alternative route of
19 passage for juveniles. Hypothetically, you might be
20 able to operate the unit closer to the adult passage
21 entrance to improve adult attraction, too.
22 MR. WHELAN: That's what I thought.
23 MR. ANDERSON: Any other comments.
24 (No response was made.)
25 MR. ANDERSON: Okay. Next Thursday we take

1 this to the policymakers. I guess the way to do it is
2 to have Sarah go back and do some more work. Redo the
3 good work she did here, based on the comments today;
4 and we give this to everybody next week and walk
5 through it.
6 MR. PETTIT: Who are the policy people, the
7 Salmon Summit?
8 MR. ANDERSON: It's the Salmon Summit
9 Coordinating Committee that is -- that is going to --
10 that is piggybacking the meeting at Bonneville on river
11 operations and other Salmon Summit activities.
12 MR. WHELAN: So, that's going to be at the
13 same meeting then?
14 MR. ANDERSON: Essentially. And I can't tell
15 you, Will, precisely who's involved or invited to that
16 -- the former meeting. But, I think it's largely the
17 same group. That's why he said -- you know, we had
18 them on the same day to begin with. And we said, Well,
19 it makes sense to just join the two meetings, in
20 essence.
21 MR. WHELAN: I take it, Bruce Lovelin and
22 some of the nongovernmental entities are also invited;
23 is that true?
24 MR. ANDERSON: To the discussion?
25 MR. WHELAN: To the policymaker --

1 MR. ANDERSON: Everybody -- the whole Salmon
2 Summit participants list is invited to this meeting.
3 Were they not at that previous meeting?
4 MR. WHELAN: They are not on the Mainstem
5 Executive Committee. They are at the governmental work
6 group and all of these other --
7 MR. ANDERSON: I guess I'm unclear on the
8 governmental work group.
9 MR. WHELAN: Yeah. I'm not so clear on that
10 either. I just wanted to be sure we are going beyond
11 the government --
12 MS. WIK: We will send letters to the entire
13 Salmon Summit.
14 MR. ANDERSON: Right.
15 MR. SATTERWHITE: What did you set as the
16 time?
17 MS. WIK: 2:30.
18 MR. ANDERSON: Room 106 at Bonnevile.
19 Now, I mean, how we do this, I guess -- I
20 guess we will do it, me and Sarah. And we will just
21 have to do it; and anyone can add anybody that
22 participated here -- for that matter, anyone can add
23 what they want. I guess what I'm suggesting is I don't
24 know that we can say, this group did narrow a group of
25 alternatives down; although, we did identify many of

1 the pros and cons and actual questions of feasibility.
2 MR. YOUNG: I think they kind of narrowed
3 themselves down after you expressed the concerns that
4 were brought up.
5 MS. WIK: Well, I guess in one sense, would
6 we want to at least, for example, for four and five
7 that we as a group did not necessarily recommend
8 pursuing looking at those, pursuing details; whereas,
9 on some of these others we may not be sure on the --
10 where we are going forward, for example, and talking to
11 the engineers, What would it take to get adult fish
12 passage? So, at least semipursuing those. But, on
13 four and five, I seem to hear that, you know, we
14 weren't recommending detail pursual of those.
15 MR. ANDERSON: We will still identify them in
16 the NEPA process.
17 MS. WIK: Right.
18 MR. ANDERSON: Regarding pursual, I'll make
19 comments on Sarah's comment there. But, I guess it
20 seems to me that we need to have a technical committee
21 to define for some period of time into the future here,
22 and get the right people on that and the right agencies
23 and right organizations; and, I guess I would ask that
24 any of you submit your ideas to the makeup of that
25 group to Sarah in the next few days because I certainly

1 feel that's a recommendation we should make to the
2 policymakers.
3 Does anyone have comments on that?
4 MR. PETTIT: Good idea.
5 MR. ANDERSON: We have had a great turnout
6 and good people, but I think we suffer a little bit if
7 we don't have all the right people. We haven't had in
8 the last two meetings.
9 MS. WIK: I know everybody is busy, but I
10 sure see this as critical, that we get that group
11 together to look at the specifics of this -- some of
12 this.
13 MR. YOUNG: Well, the alternative is that the
14 wrong people will be debating the issues.
15 MS. WIK: That's right.
16 MR. ANDERSON: Well, that will be a
17 recommendation that we make; and, if anyone has
18 thoughts on who that should be -- and Mike made some
19 suggestions also -- of anyone else, let us know.
20 Anything else, anyone?
21 (No response was made.)
22 MR. ANDERSON: Okay.
23 Thank you, Gloria.
24 (Whereupon, the proceedings were concluded at
25 11:53 a.m.)

1 C E R T I F I C A T E

2

3 STATE OF IDAHO)
: ss.
4 County of Nez Perce)

5

I, Gloria J. McDougall, CP, RPR, CSR, Freelance Court
6 Reporter and Notary Public for the States of Idaho and Washington, residing in Lewiston, Idaho, do hereby certify:

7

8 That I was duly authorized to and did report the above-foregoing meeting in the above-entitled cause;

9

10 That the foregoing pages of this transcript constitute a true and accurate transcription of my stenotype
11 notes of the above-foregoing meeting of all audible proceedings had to the best of my ability.

12

13 I further certify that I am not an attorney nor counsel of any of the parties; nor a relative or employee of
14 any attorney or counsel connected with the action, nor financially interested in the action.

15

16 IN WITNESS WHEREOF, I have hereunto set my hand and seal on this 16th day of April, 1991.

17

18

19

20

21 Gloria J. McDougall, CP, RPR, CSR
Freelance Court Reporter
22 Notary Public, States of Idaho
and Washington
23 Residing in Lewiston, Idaho
My Commission expires: 9/9/91, 8/24/91

24

25

1992 LOWER SNAKE RESERVOIR DRAWDOWN – EXPERIMENTAL DESIGN AND MONITORING PLANS

ALTERNATIVE	FISHERIES/AQUATICS	WATER QUALITY, etc.	WILDLIFE	CULTURAL RES.	PROJECTS
1. All 4 projects near spillway crest 15 April–15 August or 15 April–15 June	– juv. fish travel time & condition – adult fish – resident fish pops. – benthic organisms – macrophytes – algal productivity – zoopl. productivity – habitat	– diss. gas levels – turbidity levels – temperature – velocity – contaminants	– waterfowl – wetland/riparian habitat – furbearers	– archeological site – erosion and vandalism	– Lewiston levees – railroad embankments – highway embankments – hatcheries – spillways – stilling basins – earthen fill – bridge abut. & piers – recreation – safety hazards – irrigation – navigation
2. Lower Granite near spillway crest non–fisheries window	– benthic organisms – macrophytes – algal productivity – zoopl. productivity – resident fish pops. – habitat	– diss. gas levels – turbidity levels – temperature – velocity – contaminants	– waterfowl – wetland/riparian habitat – furbearers	– archeological site – erosion and vandalism	– Lewiston levees – railroad embankments – highway embankments – hatcheries – spillways – stilling basins – earthen fill – bridge abut. & piers – recreation – safety hazards – irrigation – navigation

1992 LOWER SNAKE RESERVOIR DRAWDOWN – EXPERIMENTAL DESIGN AND MONITORING PLANS

ALTERNATIVE	FISHERIES/AQUATICS	WATER QUALITY, etc.	WILDLIFE	CULTURAL RES.	PROJECTS
3. Lower Granite 23' below MOP 15 April–15 June (once or more than)	– juv. fish travel time – adult fish passage – resident fish pops. – benthic organisms – macrophytes – algal productivity – zoopl. productivity – orifice psg. effic. (LGO) – habitat	– diss. gas levels – turbidity levels – temperature – velocity – contaminants	– waterfowl – wetland/riparian habitat – furbearers	– archeological site – erosion and vandalism	– Lewiston levees – railroad embankments – highway embankments – spillway – stilling basin – earthen fill – bridge abut. & piers – recreation – safety hazards – irrigation – navigation
4. Lower Granite Lower Monumental 23' below MOP 15 April–15 June	– juv. fish travel time & condition – adult fish – resident fish pops. – benthic organisms – macrophytes – algal productivity – zoopl. productivity – orifice psg. effic. (LGO) – habitat	– diss. gas levels – turbidity levels – temperature – velocity – contaminants	– waterfowl – wetland/riparian habitat – furbearers	– archeological site – erosion and vandalism	– Lewiston levees – railroad embankments – highway embankments – hatcheries – spillways – stilling basins – earthen fill – bridge abut. & piers – recreation – safety hazards – irrigation – navigation

1992 LOWER SNAKE RESERVOIR DRAWDOWN – EXPERIMENTAL DESIGN AND MONITORING PLANS

ALTERNATIVE	FISHERIES/AQUATICS	WATER QUALITY, etc.	WILDLIFE	CULTURAL RES.	PROJECTS
5. All four projects MOP	– juv. fish travel time & condition – adult fish passage – resident fish pops. – benthic organisms – macrophytes – algal productivity – zoopl. productivity – juv. fish staging areas – orifice psg effic. – habitat	– diss. gas levels – turbidity levels – temperature – velocity	– waterfowl – wetland/riparian habitat – furbearers		

COLUMBIA RIVER SALMON MITIGATION ANALYSIS
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MAILING LIST

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Jackson, Phil	Mid-Columbia PUD		
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COLUMBIA RIVER SALMON MITIGATION ANALYSIS

MAILING LIST

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Lucas, James	Idaho Rep.		
McConnaha, Chip	NPPC	(503) 222-5161	
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COLUMBIA RIVER SALMON MITIGATION ANALYSIS

MAILING LIST

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Robinson, Tom	Oregon Salmon Commission	(503) 265-5241	
Rohr, Dennis	Mid-Columbia PUD	(503) 222-3317	(503) 222-5718
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COLUMBIA RIVER SALMON MITIGATION ANALYSIS

MAILING LIST

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Tice, Ty		(206) 624-2699	(206) 343-8864
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APPENDIX U-3

Correspondence for, and
Minutes and Overheads from the April 18, 1991 Meeting

of the

Reservoir Drawdown Test Design Team

02

DEPARTMENT OF THE A
WALLA WALLA DISTRICT, CORPS OF E
WALLA WALLA, WASHINGTON 9936

April 17, 1991

letters that went out on 4/92 test of the drawdown concept (prior to addition of other alternatives such as Dworshak, lower Columbia)

REPLY TO
ATTENTION OF:

Planning Division

Please reference the enclosed letter dated March 27, 1991. Representatives from our North Pacific Division and Walla Walla District offices met with members of the Salmon Summit and representatives from various State and Federal agencies on April 5th and 12th, to discuss possible plans for a 1992 test of reservoir lowering on the lower Snake River. Six test plan alternatives were proposed at the April 5th meeting. Issues and concerns regarding biological aspects and experimental design of each of the test plans were outlined and discussed at the April 12th meeting.

The third meeting was scheduled for 9:30 a.m., on April 18, 1991. The date for the meeting remains April 18, but the time has been changed to 2:30 p.m. The meeting will be held in Room 106, Bonneville Power Administration, Portland, Oregon. At this meeting, we seek agreement on which test plan alternative(s) should be considered for implementation in 1992. In order that we can reach an understanding of regional views on a 1992 plan, your participation will be appreciated.

Please contact Mrs. Sarah Wik of my staff, at (509) 522-6629, if you have any questions.

Sincerely,

for Robert D. Volz
Lieutenant Colonel, Corps of Engineers
District Engineer

Enclosure

Faxed

DEPARTMENT OF THE ARMY
WALLA WALLA DISTRICT, CORPS OF ENGINEERS
WALLA WALLA, WASHINGTON 99362-9265

March 27, 1991

REPLY TO
ATTENTION OF:

Planning Division

This letter is a follow-up to Mr. John Velehradsky's March 13, 1991, letter to Mr. Bob Turner, State of Washington, (enclosed) concerning a test of reservoir lowering on the lower Snake River. Our North Pacific Division office has tasked Walla Walla District to facilitate development of a regionally supported test and complete any documentation required by the National Environmental Policy Act (NEPA). We are determined to try to implement a test in 1992. In order to do so, we must expedite development of the test plan. To do this, we have scheduled meetings as follows:

Date	Time	Place*
5 April	9:30	Lewiston, Idaho
12 April	9:30	Tri-Cities, Washington
18 April	9:30	Portland, Oregon

*We will notify you of specific locations.

In the meetings we will focus on the following critical elements:

a. Establish test objectives.

b. Identify which reservoirs would be lowered.

c. Determine the level of drawdown.

d. Identify a time frame for the test, including test duration.

e. Develop a preliminary experimental design that will determine benefits to juvenile fish.

f. Identify a cooperative effort to monitor impacts to the fish and other aquatic resources, physical structures, etc.

The first meeting will focus on the purpose of the test, objectives, experimental elements, and required schedule. The second meeting will be for follow-up after participants have had the opportunity for their respective constituencies to review the initial plan.

The third meeting is scheduled to approve essential elements of the plan, as outlined above. It will include policy-level representatives from the Salmon Summit Coordinating Committee.

Once the test framework is established, we envision continuing to meet to work out details, particularly for the biological monitoring efforts, and to discuss measures to assist impacted parties. Because these meetings will be of a technical nature, we request that members of your technical staff attend.

Again, I emphasize the need to quickly determine the nature of, and reach regional consensus on, a viable test plan. The regionally approved test plan must be defined by the end of the April 18, 1991, meeting, so a notice of intent to prepare an Environmental Impact Statement can be published by April 26, 1991. Your cooperation in this effort is appreciated and we look forward to working with you in the coming weeks.

Please contact Mrs. Sarah Wik of my staff at (509) 522-6629 if you have any questions.

MAS, Acting

Robert D. Volz
Lieutenant Colonel, Corps of Engineers
District Engineer

Enclosure

12 April
Development of 1992 Test Protocol

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Pete Poolman	CoE	509-522-6619	
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Chris Randolph	Idaho Power Company	(208) 383-2922	(208) 383-2208

COPY

1992 RESERVOIR DRAWDOWN
SECOND TEST PROTOCOL DEVELOPMENT MEETING

Taken at the BPA Building
Portland, Oregon
Thursday, April 18, 1991 - 2:30 p.m.

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1992 Lower Snake River Experimental Drawdown

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✓ Will Whelan ✓	State of Idaho	208-334-2400
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✓ Ed Chaney	NPPC	208-939-0714
* Frank Young	ODFW	503 229 5410
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R. K. (Skip) Hart	Tidewater Barge Lines	503-281-0081
* Fred Olney	U.S. Fish & Wildlife Service	206-696-7605
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Idaho Power

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minutes

NEZ PERCE WATER
RESOURCES DEVELOPMENT

RAMON LATHAM
Water Analyst

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P.O. Box 365
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Old Address

Mr. Will Whelan
P.O. Box 844
Boise, Idaho 83702

Apt./Suite No.	PO Box	RR No.	Rural Box No.
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Boise, ID 83701

Rural Box No.

No. (If any)

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new contact is **TRISH KLAHR**, rather than Will Whelan.

PS Form 3576, August 1985 ... new address.

I N D E X

PAGE:

CORPS OF ENGINEERS PERSONNEL PRESENT

Witt Anderson
Sarah Wik
John Velehradsky
Vic Armacost
Jim Athearn

Stipulations. 3

Certificate of Court Reporter 61

Reported by Dennis Misener, Jr., CSR, Freelance Court Reporter and Notary Public for the State of Idaho, residing in Lewiston, Idaho.

1 S T I P U L A T I O N S

2

3 It was stipulated by and between counsel for the
4 respective parties that the meeting may be taken by Dennis
5 Misener, Jr., CSR, Freelance Court Reporter and Notary Public
6 for the State of Idaho, residing in Lewiston, Idaho.

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1 THURSDAY, APRIL 18, 1991

2 MR. VELEHRADSKY: My name is John
3 Velehradsky, I'm the director of programs and project
4 management. At the 4 March Salmon Summit meeting which
5 was held here in Portland, there was a petition that
6 was circulated around the room that was signed by some
7 fifteen members of the summit group requesting the
8 Corps to initiate a 1991 drawdown of the Snake River
9 reservoirs and to begin NEPA action on the 1992
10 potential drawdown of the Snake River reservoirs.
11 Following that meeting, there was a meeting
12 on the 7th of March in Spokane. We talked about Lower
13 Granite drawdown, and there was eventually a decision
14 made not to make a drawdown test in 1991 because the
15 benefits would not justify the impacts that would be
16 caused by such a drawdown during that period.
17 We then set up three meetings on the 5th of
18 April, the 12th of April, and the 18th of April to
19 discuss the scope, duration, and protocol for potential
20 tests in 1992.
21 The purpose of this meeting is to seek
22 agreement among the various participants in the region
23 on a potential proposal or concept for a drawdown test
24 in 1992 at the Lower Snake -- four Lower Snake River
25 reservoirs and to start the environmental impact

1 process for the -- for that process.

2 We also want to discuss the relationship of

3 the 1992 drawdown to the potential consideration of

4 long term changes in the Lower Snake system. Witt

5 Anderson will begin by reviewing some of the

6 alternatives that were discussed and some of the issues

7 that were discussed at the 5 and 12 April meetings,

8 Witt.

9 MR. ANDERSON: I have copies here of the

10 overheads that I'm going to talk from. Let me just

11 circulate it. I'm going to quickly go through the

12 alternatives that we developed in the first two

13 meetings that John said. Sarah Wik, from our Walla

14 Walla District Officer and Jim Athearn are here also to

15 talk on any technical biological issues because they

16 can address those better than I can. But just to back

17 up a little bit and reiterate what John said, our

18 intent in these three meetings was to see if we can't

19 focus on a proposal for 1992, recognizing there's a

20 great deal of controversy about this proposal -- or

21 this concept and recognizing that there really is a

22 limited amount of time for the Corps to get through the

23 environmental review process and environmental impact

24 statement that needs to be prepared for implementing

25 any dramatic changes in the operation of the Snake

1 project that is going below normal minimal operating
2 pool. So, we felt it made sense to start with two
3 meetings at the technical level to discuss the
4 biological aspects of the proposal and the experimental
5 design that would go along with it, and that's what we
6 discussed in the two previous meetings. We have not
7 gotten into any discussion of issues and concerns and
8 impacts on other river uses from any kind of a drawdown
9 plan that's implemented. I want to be clear about that
10 that discussion will occur as we get into the
11 environmental review. There's lots of other issues
12 than just the biological aspects and the experimental
13 design.
14 We went into the first meeting two weeks ago
15 with the intent of framing up a proposal, hoping that
16 in the second technical meeting we could refine that
17 such that we had a pretty clear proposal that we could
18 bring to this group, the policymakers, and get your
19 views on the feasibility of this proposal -- or
20 proposal for implementation in 1992. Where we got
21 after those two meetings was development of a series of
22 six alternatives with discussion of methodolgy that you
23 would employ to develop an experiment; and, then, a
24 discussion of the pros and cons from the biological
25 perspective of these alternatives.

1 As John said, we really would like to seek
2 some understanding of what kind of consensus we might
3 have or degree of consensus regarding these proposals.
4 I can't emphasize enough that that will assist our
5 ability to get through the environmental review and
6 decision process so we can actually implement something
7 in '92.
8 The goal we identified in the first meeting
9 was obvious to shorten the in-river migration time and
10 thereby increase juvenile fish survival. We talked
11 about several objectives, and we actually came up with
12 three objectives initially in the first meeting. The
13 first one being: Determine the change in water
14 velocity with pool lowering and/or flow manipulation.
15 That's the experimental objective. I think after the
16 last meeting last week, my sense is that there's
17 general agreement among the fishery biologists and some
18 of the researchers out there that we have a pretty good
19 handle on what happens to average velocities in the
20 reservoirs when you draw them down based on the
21 information that the Corps provided to the Salmon
22 Summit and based on, I think, the Fish Passage Center
23 observations over the years. I think -- I think
24 there's at least a group of feeling that that
25 information is probably good enough to make some

1 decisions regarding velocity benefits and that becomes
2 a discussion we'll talk about, just a physical test to
3 look at velocity changes.
4 A second objective we identified, or
5 potential objective, was to determine juvenile fish
6 migration rate relative to water movement, and we also
7 listed a third potential objective was to determine
8 survival relationship with respect to decreased travel
9 time. This third one, I think, everyone pretty much
10 agrees really, really requires a multi-year experiment.
11 It's not something that we would have an answer to
12 based on a one-year implementation.
13 There was a fourth objective suggested last
14 week by Frank Young from Oregon. Unfortunately, he's
15 not here to make sure I present this properly. But he
16 said, Hey, I have an objective. It's to reduce
17 downstream migrant travel time. And I said, Hey,
18 that's our goal. Basically, flashed the goal up there.
19 And he said, Okay. But I think really what Frank was
20 saying was that -- that we need to be looking at the
21 bigger picture of how you achieve this, and he
22 suggested three options. We could be looking at
23 reservoir drawdown. We could be looking at flow
24 augmentation, and we could be looking at major changes,
25 i.e. dam removal, which maybe is associated with

1 drawdown. And his point was that let's not get so
2 focused on just a test that we miss the bigger picture.
3 And if we can check that with him when he comes back in
4 to make sure I described that properly.
5 We identified six alternatives in the first
6 meeting, laid those out, the parameters, the methodolgy
7 associated; and, then, in the last meeting, we talked
8 about the pros and cons, tried to get to the
9 experiemental design. We had some of the researchers
10 at some of the meetings which provided a lot of help on
11 how you would implement some of these ranging from four
12 reservoirs drawn down rather dramatically throughout
13 the migration period to an alternative, which wouldn't
14 even require a drawdown. And I want to walk through
15 those quickly and then get some discussion from you all
16 about your views.
17 The first alternative to -- or would entail
18 dropping all four Snake projects rather dramatically
19 down to spillway crest elevation in the time frame we
20 set; and, obviously, this is a variable, would be April
21 15th through August, the full migration period in the
22 Snake. The study plan for this would be to PIT tag
23 fish at Lewiston and recover at McNary. On the
24 positive side, assuming that there is a direct positive
25 relationship, this would have the most effect in

1 reducing travel time. We would get the best velocity
2 improvement for the migrating fish, juvenile fish. On
3 the down side --
4 MR. KARR: I wanted to ask if dropping the
5 reservoir also has with it a change in level of flow?
6 MR. ANDERSON: Does the cue change as you're
7 dropping or....
8 MR. KARR: Are you planning a change to say
9 the purpose --
10 MR. ANDERSON: ....with flow augmentation or
11 this pulsing concept?
12 MR. KARR: No. The idea is at a given level
13 of flow you have faster water as the reservoir
14 elevation is lower.
15 MR. ANDERSON: Correct.
16 MR. KARR: Okay. Is that what you're
17 contemplating?
18 MR. ANDERSON: Yes. Yes.
19 MR. KARR: Not dropping it and changing the
20 flow also?
21 MR. ANDERSON: Well, there would be a period
22 a drawdown because we will have some limit on the
23 drawdown rate. Right know we're looking at probably
24 two feet per day in that range but --
25 MR. KARR: But you're contemplating some

1 given flow level when you're operating at a drawn down
2 level, basically?
3 MR. ANDERSON: Yeah. And, of course, in all
4 of these, one of the considerations is do you implement
5 or not implement depending on what the natural flow for
6 the region is in this particular year you're doing
7 this. That's one of the things that has to be
8 discussed, and we didn't get very far on that issue.
9 On the down side, of course, adult passage is
10 eliminated, and we've had a lot of discussion about
11 that. I think we need some more today from the
12 policymakers, but we -- the Corps was asked to look at
13 modifications that we might make to those facilities.
14 We've agreed to that, and we're doing that, the Walla
15 Walla District is doing that. Suffice it to say, with
16 any kind of drawdown, we're talking major modifications
17 to those facilities; and we certainly don't have enough
18 time for M and K Construction to make those changes by
19 1992. So, that's a serious problem with this
20 alternative. The ability to compare data that you gain
21 in -- in this alternative with existing information
22 such that you could derive what the benefit is in
23 question because of the data that we have now. Of
24 course, there's the physical affects to fish that we're
25 concerned about in just about all of these

1 alternatives, increased gas levels, nitrogen, turbidity
2 affects; and, then, of course, some other biological
3 areas or aquatic organisms there's concern with a major
4 drawdown of this nature. Again, we didn't get into
5 impacts and other uses, okay.
6 A second alternative that was identified was
7 to test or look at physical impacts only. This would
8 be at Lower Granite, as we described this alternative.
9 That would be a significant drawdown near spillway
10 elevation and it would occur during the nonmigration
11 period, which we have two work windows. One, a summer
12 window, I think July 15th to August 15th. And the
13 other is in the winter, which probably would be
14 preferrable, January or February time frame. The study
15 plan would be to operate the Granite reservoir down at
16 this elevation. You could look at velocities. We
17 could put meters in the river and look at velocity at
18 particular points in the river. You could monitor
19 water quality, physical impacts on the structures, such
20 as the levies and fills and so on. You could look at
21 spill patterns, dissolved gas and so on. On the plus
22 side for this this approach, you're not -- you're not
23 entailing any risk to adult or juvenile fish and your
24 risk factor is limited to just one reservoir in terms
25 of other kinds of impacts.

1 On the con side, there's the question of the
2 data applicability to the migration season. Things
3 such as water quality and turbidity and tempurature,
4 which would be different if you conducted a test in the
5 winter. Some concern was raised about impact on
6 subsequent migrations. For example, if you had water
7 quality affects, you disturb contaminated sediments in
8 Lewiston, if we have them at any significant degree.
9 We had bank sloughing problems, that was a concern.
10 And another issue, of course, is to do this in the
11 winter period by '92 January -- January or February
12 time frame of '92 really puts a strain on our NEPA
13 process. And rather than may not be possible to
14 complete by '92, I guess I would be a little stronger
15 than that to say, I think it's very unlikely that we
16 would be able to complete the NEPA process on this, but
17 we can see.
18 Okay. A third alternative would be a Lower
19 Granite drawdown during the migration period, 15 April
20 to 15 June is what we specified down to elevation 710,
21 which is twenty-three feet below normal minimum pool.
22 The reason being, we can operate the adult fishway at
23 Granite exit in the forebay down to 710 in theory.
24 It's designed to operate to that elevation. Of course,
25 we still have the problem with adults getting in the

1 fishway and the tailrace because under a situation of
2 high spill, no power house discharge, we're concerned
3 about the attraction water. So, that's something that
4 has to be looked at.
5 The study plan here would be to tag juvenile
6 fish at Lewiston and recover at Little Goose fish
7 facility. Okay. On the positive side, in theory, you
8 can maintain adult passage. Again, the impacts are
9 limited to one project. On the negative side, as with
10 the other drawdown alternatives, the dissolved gas
11 issue is a pretty significant certain. The data that
12 you would get from this, we have some concern about
13 it's -- about the ability to actually identify the
14 benefit and travel time.
15 One thing that was suggested, I think by
16 Frank, was you could use a controlled group of fish in
17 Little Goose reservoir to compare with. So, you had a
18 travel time through Goose to compare with travel time
19 through Granite and Goose and that would give you some
20 idea of the benefit of drawing down Lower Granite.
21 Again, the physical impacts and the impacts on other
22 aquatic organisms is a concern.
23 MR. LOVELIN: Didn't you say, though, in your
24 description of alternatives, that alternative, that we
25 may have a problem with the adult passage?

1 MR. ANDERSON: Well, as I said, the -- in the
2 exit in the forebay?
3 MR. LOVELIN: Yeah. Because of the -- your
4 spilling and the fish attraction flows.
5 MR. ANDERSON: Yes. As I just said, I think
6 that there's concern for the ability of fish to get
7 into the fishway because of the circulation pattern and
8 the lack of attraction water in the power house
9 operation. Now, at the end here, I'm going to suggest
10 something that was brought up in the last meeting about
11 how we might look at that as a first step in a study
12 approach to this alternative.
13 MR. LOVELIN: The only reason why I brought
14 that up, I don't see that in the pros and cons, and I
15 would list that as a con. We have a pro as it
16 maintains adult passage but on the con side there would
17 be a problem -- potential problem there; right?
18 MR. ANDERSON: Okay. Trust me, I said it
19 and --
20 MR. LOVELIN: No, I understand.
21 MR. ANDERSON: And we can put it down here,
22 but you're right, that's correct.
23 MR. LOVELIN: I wanted to make sure I heard
24 you right.
25 MR. ANDERSON: Let's not mislead ourselves.

1 Granted, in theory, the fishway exit can operate down
2 to 710 under certain release conditions at the project.
3 We are very concerned about the ability of adults to
4 get in the ladder. And, again, I want to come back to
5 that at the end here.
6 The next alternative was look at a Lower
7 Granite combined with Lower Monumental drawdown. Both
8 projects down about twenty-three feet. Little Goose
9 and Ice Harbor maintained at their normal elevation
10 again during the present water budget period 15th April
11 to 15th June. On the positive side, in theory -- and
12 the reason this came up was, in theory, we would be
13 able to get some data on the fast pool travel time
14 versus slow pool or normal elevation. On the con side,
15 the technology to do that may not be at hand. We were
16 talking about the possibility of using radio tags in
17 juvenile fish and Sarah did some further investigation
18 on that and the NMFS researchers strongly recommended
19 that that's really not viable, it's not feasible. So,
20 that really puts a crimp in this alternative with the
21 experimental design, you know, you start right off the
22 bat with basically no experimental design here. Again,
23 we would eliminate adult passage at Monumental and the
24 same physical concerns.
25 Based upon this experimental design, I guess

1 my feeling is I think the group in the previous
2 meetings pretty much agreed that this is not something
3 that really should remain on the table in terms of
4 serious further consideration.
5 The fifth alternative was replicates at Lower
6 Granite. It would be Granite project only down to 710,
7 which would, in theory, provide adult passage and the
8 concept with the replicates would be you would have the
9 project in the normal range, drawdown to 710, perhaps
10 take about twelve days, hold the pool at this lower
11 elevation for five or six days so you could get some
12 data on fish traveling at the lower elevation and then
13 raise it back up and go through that for a series of
14 perhaps three times during the season. You PIT tag
15 fish at Lewiston and recover at Little Goose.
16 On the positive side, in theory, Bruce, we
17 have adult passage impacts limited to one reservoir.
18 On the negative side, the physical effects, gas levels,
19 turbidity and impact to other organisms. And, then,
20 the issue on the experimental design being fish. Now,
21 we know it takes three to twenty days to get through
22 Lower Granite. If you're only able to have the pool at
23 say this low elevation for a week or so, it's very
24 likely that you'll have fish moving through both the
25 low pool condition and a transition pool or a high pool

1 condition. So, it's going to be very difficult to
2 separate out or make the distinction of what the
3 benefits are at the low pool. Again, this is -- this
4 one, I think, presently is pretty well discarded on the
5 experimental design basis.
6 Okay. The last one that we identified was
7 that -- what we started calling a no action
8 alternative. And I guess it's not really a no action
9 alternative. It's meaning no action that we wouldn't
10 have a drawdown with this. The frame work would be no
11 lowering during the spring/summer period. We might
12 look at flow augmentation. The study plan would be to
13 increase the numbers of PIT tag fish at Lewiston above
14 the present index process, recovery at Lower Granite,
15 Little Goose, and McNary.
16 On the plus side, there's no risk to -- to
17 anadramous fish here, either juveniles or adults. On
18 the negative side -- and this is really just a hurdle
19 to overcome -- is the travel facilities probably would
20 have to be redesigned, would have to have some
21 different facilities that can operate under low and
22 high flow conditions. I think this alternative is
23 something that everyone feels comfortable with doing
24 regardless of the drawdowns. If we, for some reason,
25 didn't do a drawdown, this is something that's

1 desirable to pursue.

2 MR. KARR: How does that differ from what we

3 do nowadays other than additional monitoring?

4 MR. ANDERSON: Really, I'll let Sarah or Jim

5 speak to that. But, really it's just a higher degree.

6 It's a more intensified program. Sarah, do you want to

7 comment?

8 MS. WIK: We talked about looking at

9 designing a specific travel time experiment where we

10 would increase the numbers and really try to design it

11 as an experiment versus just the standard monitoring

12 that goes on now, and maybe someone else wants to add.

13 But that was, you know, basically what was said.

14 MR. KINDLEY: Are you going to also vary your

15 flows or keep them constant during this period? We

16 have the variability in there, could you actually test

17 travel time on the various flows or are you taking

18 whatever comes down the river?

19 MR. ANDERSON: Well, that would certainly be

20 a parameter in the experimental design. We certainly

21 haven't gotten as far in design development to answer

22 those kinds of questions. We identified lots of those

23 kinds of issues as things that would have to be further

24 discussed and addressed for any of these alternatives.

25 Let me just -- let me just close here my

1 discussion. We would like to get some input from the
2 policymakers here. As I said and John said, it
3 certainly will help us get through this process by '92.
4 Now, recognizing that in the NEPA process, we are going
5 to look at these alternatives, perhaps other
6 alternatives will be identified in the public scoping
7 process. We certainly will do that. Our intent is to
8 see if we can't get some agreement on what's really
9 desirable to do in '92, and we heard some comments from
10 some of the folk last week. Frank made a comment about
11 what the State of Oregon might be willing to do. And I
12 think there's others that made some comments. And I
13 think it's useful to get some of that out on the table
14 today so we can move ahead. I'm concerned that we're
15 going to continue to talk following on the Salmon
16 Summit and not get some closure on those issues, and
17 it's going to be very difficult to get through the
18 environmental review. And it's going to be difficult
19 to make some decisions come next spring.
20 But let me just make some observations from
21 my perspective. I think first of all, any alternative
22 that's going to eliminate adult passage probably is not
23 something that is feasible in 1992. As I said earlier,
24 we've indicated we can look at minor modifications to
25 the fishways, but I just can't stress enough that the

1 significant drawdowns, we're talking major
2 modifications to those fishways. And it's just not
3 something humanly possible to rectify by '92. I think
4 Alternative 6, the intensified research or definitive
5 research design on the indexing or monitoring we do now
6 is pretty much a given, and we want to continue to
7 explore that. That leaves -- leaves me looking at
8 something involving a drawdown experiment at Lower
9 Granite, and I think you might look at that in a
10 two-phase process. I think it was Frank last week that
11 expressed a great deal of concern about adult passage
12 and mentioned the possibility of needing to observe the
13 physical conditions in the tailrace under a nonfish
14 movement period. And we've talked about that a little
15 bit, Sarah and I and Ted Bjorn after the last meeting,
16 perhaps others have talked about it. One thing that
17 might be feasible is to do a limited observational test
18 even before '92, perhaps even this year where we would
19 -- we would go to a no power house discharge high spill
20 so we can actually look at those conditions in the
21 tailrace, look at the conditions in the ladder
22 entrances and so on. Perhaps you might even want to do
23 it with adult fish in the river to see their behavior,
24 how they respond. That could be a first stop to
25 confirm the adult passage capability at Lower Granite,

1 Bruce, at least on the ability of fish to get into the
2 fishway.
3 Now, when we drawdown the project next year
4 or whenever we do it, we know we're probably going to
5 be looking at some minor modifications to the fishway
6 exit, and we'll just have to deal with that as it
7 comes. But if this group was indicating that a Lower
8 Granite test really should be further explored, it
9 might be one way to do it. We do it kind of in a
10 step-wise process.
11 I think what we need to do from this point
12 on, the Corps needs to begin its environmental process,
13 but we need to have a defined group of the fishery
14 representatives continue to discuss and develop the
15 experimental design. We've got to get a handle on
16 that. I don't think we got as far as we wanted to in
17 the last two meetings, and I certainly would recommend
18 that we identify a group. And perhaps a group, the
19 Fish Facility Design Review Committee is the basic
20 nucleous we can start with and maybe there's other
21 interested parties that need to be involved in that.
22 But I think we need to have the policymakers identify
23 their people at that level to work with the Corps on
24 the development of a study plan and a proposal.
25 I guess beyond that, I certainly would like

1 to hear some of the input from you all about the
2 feasibility of some of these alternatives or other
3 alternatives for that matter, Bruce.
4 MR. LOVELIN: Can you go over your last point
5 again? You said a scientifically biological committee
6 and, then, you talked about the policymakers involved
7 in that?
8 MR. ANDERSON: I would like to see the policy
9 folks say I have a certain person that's going to
10 participate in this process. We've had good turn out
11 in the last two meetings, but I don't think we had
12 representatives from all the parties that needed to be
13 there. And I guess I would like to -- I think it would
14 be very helpful to enhance our ability to get to an
15 implementation in '92 to get the right people together
16 now early on.
17 MR. LOVELIN: Okay. And that group will
18 further develop this --
19 MR. ANDERSON: Experimental design among one
20 proposal or two proposals or six proposals, if that's
21 what we need to do. Again, recognizing we would like
22 to narrow our focus and intensify discussion on the
23 reasonable plans that really have some some potential
24 for it being implemented. I mean, it -- I'll ask Frank
25 to say is the State of Oregon willing to look at

1 alternatives that are going to prevent adult passage,
2 and I think he said last week there's no way. I guess
3 are there other views out there? Again, recognizing
4 that we'll need to consider a wide range of
5 alternatives in the NEPA process, but I think it
6 behooves us to get serious about a proposal. Again, we
7 don't have a lot of time to get through the hoops we
8 need to get through by 1992.
9 MR. CHANEY: Do you need to go through the
10 NEPA process to make an adult fish ladder that will
11 work at a lower reservoir elevation?
12 MR. ANDERSON: I guess I don't know the
13 answer to that, Ed. It depends on the type of impact
14 that would be incurred --
15 MR. CHANEY: Okay.
16 MR. ANDERSON: -- for that modification.
17 MR. CHANEY: I do have one question. I'm
18 very concerned as what started out to be a test because
19 we're concerned about structural problems, it appears
20 to me to turn out to be another biology study of fish,
21 you know, in terms of everything from one through four
22 is we're going to study the affects of drawdowns on a
23 juvenile migration at juvenile reservoirs. What
24 happened when we're figuring out what we got to do to
25 modify the fish ladders. What we have to do to worry

1 about what the 100 percent spill and lowered tailwaters
2 for the dam. I mean those kind of things.
3 MR. ANDERSON: I hear two questions. One is
4 the biological benefits. Now, I'm going to turn the
5 tables on you a little bit. I heard you earlier say
6 what's a benefit of these other measures we're taking
7 about. And, certainly, I believe the region's got to
8 get a handle on the benefits of this kind of an
9 operation in the long term change if the region wasn't
10 to make that long term change. At the same time, what
11 you're asking for is the feasibility analysis, what
12 does it take to make those modifications? What are the
13 opportunities forgone in terms of power, our
14 navigation? What are the economic factors, and I think
15 that's a very good question. John, maybe you want to
16 respond to that.
17 MR. CHANEY: John, let me just finish my
18 question. You're telling me you can't do anything
19 significant enough that's going to show biologically,
20 but we're going to go out and try to measure them
21 anyway. That's why I'm -- if you can't do anything
22 significant because of constraints, why are you
23 bothering measuring these marginal benefits?
24 MR. ANDERSON: Well, and that's frankly the
25 discussion we've had for two weeks now, is there a

1 design that we can get some information. I think we
2 are getting to the point of, Hey, the biologists are
3 saying there may be no use here. And we've got to
4 reach some conclusion on that. The bigger picture I
5 think is another question. What are those changes that
6 you would have to implement to just go ahead and do
7 this. John do you want to....
8 MR. VELEHRADSKY: Yeah. I mentioned earlier
9 that we're going to initiate the NEPA for the drawdown
10 test in '92. We're also looking at the NEPA process
11 for the Dworshak operations of '92, Lower Snake
12 reservoir test in '92, and John Day drawdown in '92,
13 below what we're proposing to drawdown in '91. So,
14 there would be one NEPA action underway to cover all
15 the 1992 actions.
16 In addition to that, an annual mitigation
17 study would be intitiated where we would be looking in
18 a constant scope fashion, the structural changes that
19 would have to be made and costs and the impacts of
20 those changes on -- to bring those reservoirs down to
21 operate as suggested in some of the Salmon Summit
22 discussions. So, the test's looking at a short term
23 test in '92, but where will that test lead? I think
24 you have to decide are you leaning toward major
25 modifications in the reservoir. If you are, here's the

1 implication of that kind of modication. That kind of
2 information needs to be put into the public discussion
3 process over the next year.
4 MR. CHANEY: I would like to see us focus on
5 that and then we'll say, Well, we can't do anything
6 about that. I would like to see a test and say, Well,
7 what would we have to do to pass the test? Not will
8 water go past or go down or can we measure it in some
9 marginal increase in travel time. I mean, that's
10 something we can measure. You would have to do some
11 tests to simultaneously pass adults and juveniles. You
12 can't do it, but I would like to -- can we devise a
13 test that will provide some insight as to what we would
14 have to do? Things like pulling out some turbines and
15 power houses adjacent to the adult fish ladder to
16 address your problem of attraction flows to the
17 entrance plus diminish nitrogen. Those are the kinds
18 of things we would like to see us address a test to,
19 the impediments to doing anything rather than studying
20 the biological effects of incremental changes here that
21 basically everybody's agreeing, Hey, we don't think
22 it's going to do any good, then why study that. Let's
23 study the known problem and use the test to get to that
24 aspect.
25 MR. WHELAN: I think that was consistent with

1 some of our discussion in Kennewick last week. And at
2 that time I think the group had a sense that what the
3 real purpose of what this test, this EIS, was to
4 provide information on the factors necessary to decide
5 reservoir -- a reservoir drawdown strategy for the
6 future. So, we ought to be looking at a broader range
7 of issues than merely how fast the fish move through
8 the reservoir, taking a look at a variety of issues we
9 would have to take into account prior to a reservoir --
10 a drafting strategy being adopted. Bank stability -- I
11 mean, you know the list.
12 MR. CHANEY: I really like your idea about
13 doing something in '91 on a limited basis at Lower
14 Granite right now and let's find out if the damn fish
15 ladder works or doesn't. But, we don't have to study
16 that too long. And I would also like to suggest that
17 you look at -- I can't remember the configuration of
18 the dam -- pulling a couple of turbines out and seeing
19 whether or not we can structure some kind of a test to
20 look at whether or not we can pass juveniles through
21 those holes, whether or not we can provide adult
22 attraction. I can't design this thing. I'm saying
23 let's look at some things we can do with existing
24 hardware, existing structures, and do something to see
25 if it tells us anything. I don't think -- like you

1 say, we don't have to wait until '92 to do that. We
2 can do that right now.
3 MR. ANDERSON: Well, I guess I feel we need
4 the input from the responsible fisheries and tribes on
5 some of those matters affecting fish. But I think
6 you're right, those are the things that need to be
7 explored; and, again, we need to be doing that quickly.
8 Some of these things might not be implementable this
9 year without getting through the NEPA process. It
10 depends on the kind of impacts, but we need to get
11 those up on the table, and I think that's what we tried
12 to do on these last two meetings and today.
13 MR. RILEY: Let me see if I can capture what
14 I think I heard again. Basically, are -- are you
15 asking us -- I guess I'll ask a a question: Are you
16 asking us to -- to in essence preselect the feasability
17 of Alternatives 5 and 6, I guess, because that's what
18 you view as doable in '92 rather than looking at all of
19 the alternatives that you've arranged so far as would
20 it -- it seems to me like the NEPA process, as I look
21 at all those alternatives and let that decision as to
22 whether something can or can't be done in '92 fall out
23 of the process and you pick a preferred alternative for
24 '92 at the end of the process not at the start.
25 MR. ANDERSON: I think you're right on the

1 later part. I wouldn't say preselect. I wouldn't use
2 that term but recognize that if we are going to
3 implement research, we've got to get -- make some
4 headway on the study plan, what needs to be put in
5 place. The whole experimental design. Now, we could
6 do that on twenty alternatives. Is it time and money
7 well spent? Probably not. Let's -- let's screen some
8 of those alternatives at this point. If we can't -- if
9 people can't sit in this room today and do some
10 screening on reasonable alternatives to pursue,
11 recognizing we will look at all of them in the NEPA
12 process, and recognizing that we're trying to develop a
13 proposal, then let us at least think about some of the
14 screening criteria. Is adult passage a firm
15 requirement? I think it is. A lot of people sit in
16 these meetings, and we don't hear from some of the
17 parties that have some responsibility there. I was
18 glad to hear from Oregon last week.
19 MR. RILEY: You know, and I think that's
20 legitimate. They're not going to ask -- you know,
21 they're not going to bless something that clearly stops
22 all adult passage upstream, nobody is. But, you know,
23 is that clearly something we've established has to
24 happen, that's my question.
25 MR. CHANEY: Why can't we try to figure out a

1 temporary way to do this and maybe somebody has, but
2 I've never heard any discussion analytically that we
3 simply -- there is no way physically we can pass adults
4 and juveniles simultaneously. We've looked at it --
5 somebody has looked at it. There is simply no way to
6 do it. I have not heard -- I mean, maybe that's true,
7 and I hate to think it's true; but if it is, then we
8 ought to know that somebody has exhausted all the
9 alternatives, critically evaluated all the
10 alternatives. Pumping water into the fish ladders, put
11 tier shoots on them, I don't know. But it would be
12 nice if someone had done a critical analysis in some
13 kind of qualitative way at least subject to the peer
14 review, because that's very helpful. That's very good
15 knowledge. That's something that's nice to know,
16 forget it folks. You can't do it. You're going to
17 have to do something else, but we haven't even got that
18 far in any analytical way.
19 MR. VELEHRADSKY: Well, your target was 1992,
20 but it's conceivable that you would have some of those
21 alternatives which would be '92 actions. And some
22 because of the physical changes that are required are
23 '93 type actions. So, it follows the logic that we
24 ought to look at the alternatives and you might put
25 them in the time frame '92 potential or '93 potential

1 and that would be part of the NEPA process. And along
2 with that here's the cost of doing those kinds of
3 things. In other words, physically here's what we have
4 to do, here's the cost and here's the benefits that are
5 going to be achieved in terms of biological benefits.
6 MR. WHELAN: Yeah, of course, what we're
7 trying to do is test a process in terms of the final
8 benefits of that strategy. You're not going to know
9 that until you've got some of that work down. I hope,
10 Witt, that through this process, you're getting some of
11 the focusing you need, and I'll try to encapsulate some
12 of it. I would say -- I would say that based on what
13 I've heard, you've got a couple of front runner
14 alternatives, Alternatives 2 and 3 and 6, the no action
15 alternative. That Alternative 1, clearly has a problem
16 with adult passage and that you're not hearing anybody
17 say that we should adopt an alternative that would not
18 provide for adult passage and do that during the
19 adult passage season; but I think on Alternative 1, the
20 four reservoir drawdown, it's not so much -- the
21 question becomes how do you provide adult passage?
22 Take a hard look at what the maximum drawdown you could
23 do in those four pools during the migration season and
24 still provide adult passage. So, we've retained a four
25 pool drawdown and people take a hard look at that.

1 A couple of months ago on Lower Granite pool,
2 the highest -- the most drawdown thought possible was
3 723. We are a couple months later and somebody was
4 talking 710. Somethings happen and we want to just be
5 sure that we're taking a careful look and we're
6 identifying things like that and we're foreclosing that
7 we don't have an option before we toss that alternative
8 out.
9 MR. KINDLEY: Ed, is there any way that you
10 can expand the physical impacts study which would
11 address some of the concerns you have or would you
12 rather see the test conducted while the fish are in the
13 river? It sounded like a lot of the things that you
14 were wanting to get done were mainly physical impacts.
15 MR. CHANEY: Yes. I guess I'm very concerned
16 we're not getting into a juvenile -- another juvenile
17 migration study. I mean, we have been doing this and
18 my experience for twenty years, and I think, you know,
19 it's time now to figure out how these projects -- if we
20 were going to provide -- I would like to have one
21 question as the objective. If we were going to provide
22 simultaneous juvenile and adult passage at these
23 projects, what would we have to do to accomplish that
24 in the short term and, then, we're going to identify
25 all these impacts. Well, is there -- I've never heard

1 anybody discuss, for example, removing some -- just
2 removing the turbines and power houses to get rid of
3 some these concerns. You know, I can't attend all the
4 meetings so it makes me very nervous when I don't know
5 that all the options have been exhausted because I've
6 been in the business long enough I know that often we
7 sit around and make a list of why things can't get done
8 and, then, we just move on to something else. I would
9 like to see A, let's exam what, if anything, we could
10 do to mitigate the problems that prevent us from having
11 simultaneous adult and juvenile passage in the short
12 term. And while we're doing that, learn what we can
13 about the long term operational and structural changes
14 that might be out there if the policy is made
15 ultimately. We need to know know what the consequences
16 are and what we're going to have do in order get that.
17 MR. KINDLEY: Okay. But do you want it -- do
18 you see that you have to have experiments conducted in
19 rivers of fish or do you see any sort of expansion of
20 the physical test here which would answer a lot of the
21 questions that you have? For instance, you know, you
22 mentioned removing dams. Obviously, that's not a very
23 feasible test and maybe --
24 MR. CHANEY: No. Removing, pulling turbines.
25 MR. KINDLEY: -- even pulling turbine units

1 out. Is there any way that you could do that instead
2 of actually yanking out a turbine?
3 MR. CHANEY: I don't know. Somebody needs to
4 tell me. Is there a very high risk to juveniles or is
5 there some chance it might help adult passage. I'm not
6 sure how you're going to model it, what would that
7 would do for adult attraction, if there were any adults
8 there.
9 MS. WIK: Well, I'm not an artist, but I'll
10 see if I can try to explain. Ed, as I understand it,
11 you're talking about, say, for example, pulling Unit 1
12 so that there would be attraction flow and there's no
13 power house operation?
14 MR. CHANEY: As an example of the kind of
15 thinking. I'm not recommending that.
16 MS. WIK: Yeah. I guess one of the things
17 that we run into trouble with is say this is Lower
18 Granite at full pool, if your tailrace is at normal
19 minimal pool, your elevation is about 633. The bottom
20 of your adult fish collection channel, i.e. the
21 entrances to the ladder, the very bottom of that sill
22 is only about 628 or 629 and so -- and that allows for
23 you to have some flow in the channel and some head
24 going into the tailrace. So, if you drop below normal
25 minimum operating pool, you lose that ability to

1 attract fish into the extrance. It's not just a matter
2 of no water through the power house, but it's -- you
3 know, if you drop it here and there's the bottom of
4 your fishway right there at that black line and you
5 drop much below that, it doesn't matter if you would
6 have water flowing through a turbine. You wouldn't
7 have enough flow in the actual collection channel.
8 MR. CHANEY: So, what I would do is not do
9 that. I would draw it at the upstream reservoir.
10 MS. WIK: Okay. But if we're talking doing
11 this for all reservoirs. I mean, we can do that for
12 Granite. But if this is Lower Granite here, you can
13 draw this one down and the ladder exit will function to
14 710, but you're stuck with if you draw Goose down, then
15 the extrances into that system no longer function.
16 MR. CHANEY: So, then, one wouldn't do that
17 then.
18 MS. WIK: Okay.
19 MR. CHANEY: One would do the other then.
20 MS. WIK: But that's what we're saying in
21 terms of -- you know, we have -- granted, we don't have
22 a packet that we can hand to you and give you all those
23 specifics, but those are the problems we have looked at
24 in terms of what could be done for next year. And you
25 would be talking significant modification in trying to

1 find a way to extend that collection channel out. And,
2 you know, that's a big unknown, I guess. And, Jim, if
3 you have anything to add.... It's not just a matter of
4 attraction up to the power house. it's a matter of
5 once you drop below that minimum operating pool, then
6 the collection system doesn't function.
7 MR. YOUNG: I think that going ahead with the
8 Lower Granite drawdown experiment will probably provide
9 some of the information you would need to determine
10 whether it was feasible to go down further say to the
11 spillway sill or even further and maybe even provide
12 more information on the kind of modifications you would
13 have to make to adult facilities. So, you aren't --
14 you know, if you would conclude that the limited
15 drawdown of Lower Granite is not a long term fix, so,
16 why are we looking into the feasibility of doing this.
17 The answer is maybe, that it will give us some answers
18 that we need to have from a practical sense.
19 MR. CHANEY: I'm for that. I just don't want
20 to measure the biological benefits to juveniles of this
21 tinkering that we're forcing here.
22 MR. YOUNG: No. I agree, there's no
23 conceivable benefit of making that biological
24 evaluation on such small incremental changes and their
25 travel time.

1 MR. WHELAN: Why don't we take Objective 3
2 off. We don't anticipate getting it.
3 MR. ANDERSON: Yeah. And I didn't mean to
4 imply that we settled on an objective. I think it was
5 shown as possible objectives. We couldn't reach
6 closure on the objectives, I guess is what I'm saying.
7 Vic, do you have something --
8 MR. ARMACOST: Well, we do know what happens
9 when we take the turbines out, because when we built
10 the project, the turbines weren't in it and we had some
11 really disastrous losses of juveniles in passing -- in
12 trying to pass water in between those units. So, we do
13 know what happens and it's disastrous.
14 MR. CHANEY: And nothing can be done about
15 that?
16 MR. ARMACOST: Well, we certainly -- we
17 certainly studied it in a lot of detail at that point
18 in time when we're raising the water on those dams, and
19 we couldn't find anything to do, Ed. You know, there
20 maybe better newer idea; but it's been --
21 MR. CHANEY: That was under full pool,
22 though; right?
23 MR. ARMACOST: It was bringing the pools up
24 and at full pools, but it was during bringing them up
25 too.

1 MR. CHANEY: But a lowered pool would have a
2 fundamentally different situation.
3 MR. ARMACOST: You would have less problems,
4 but you would still have the same pressure problems.
5 MR. CHANEY: I guess what I'm really trying
6 to do is make sure we've exhausted all of our remedies,
7 because once we get to the point that we agree there's
8 nothing can be done out there, then we're looking at
9 really draconian -- the public is going to go to
10 congress and try to get this authorized. So, if you
11 guys agree it's hopeless, nothing we can do, we have to
12 go to congress and figure out something drastic. Are
13 you guys really sure you have exhausted every
14 conceivable thing because that's going to be important
15 for me to go before congress and say they've agreed --
16 the experts have all agreed there's nothing we can do;
17 and, then ,we're going to have to do something really
18 drastic.
19 MR. LOVELIN: Maybe I can ask a question and
20 explain a little bit. I attended off and on the last
21 two meetings that the Corps had and appreciate the
22 ability of the biologists coming together and start
23 scoping this out and trying to develop these
24 alternatives. It just seems like we haven't progressed
25 as far as we wanted to, and I'm not sure that maybe

1 over the next -- over some time and maybe that's --
2 maybe that's not what people are looking forward for,
3 but we would be able to get the biologists to come
4 together with a couple of different alternatives and
5 maybe -- and maybe consider more of the physical
6 impacts of the reservoirs and the hydroelectric
7 facilities first. Throw that out there just....
8 MR. KARR: Along that line, I would like to
9 ask Frank: It wasn't clear to me from what you just
10 said which of these alternatives you were expressing
11 support for, if any?
12 MR. YOUNG: At the Kennewick meetings, I said
13 that Oregon could not support any alternative that
14 would result in the lack of passage for adult fish that
15 I saw that Alternative 3 at the time. I don't know
16 what order you presented them here, but it was the
17 drawdown to 710 of Granite. That I thought that that
18 test was worth pursuing conditioned upon a test when
19 few or no adult fish were present to observe the
20 physical conditions by fishway extrances after the
21 powerhouse shut down hundred percent spill condition
22 and if that looked there was some possibility that
23 adults that -- if you could have a spill pattern that
24 would allow some adult passage under that condition,
25 then I would agree to a test during a time when there

1 are adults present.

2 MR. KARR: Do you still -- is that still your

3 position?

4 MR. YOUNG: Yes.

5 MR. KARR: Okay. And the reason I'm asking

6 is I haven't been at the earlier meetings, but I was

7 instructed at this meeting here today to take the

8 position that you just expressed, so you now have two.

9 MR. ANDERSON: And I think that's useful

10 information for us to begin focus, and as Bruce

11 suggested, I think it's a good idea get the right

12 representatives from all the agencies and tribes to

13 continue to find that test, the step wise fashion that

14 Frank is suggesting and move ahead.

15 MR. KINDLEY: Could you also maybe in

16 consideration of some of Ed's concerns here document

17 the reasons why certain alternatives are not pursued.

18 For instance, if there's a -- if you're lowering the

19 forebay at one dam and it affects the attraction at

20 another dam, you might want to document that. What the

21 constraints are on there. Just in case those who have

22 not been attending these meeting can figure out that

23 there is physical constraints.

24 MR. ANDERSON: And I think Ray, we'll do that

25 through the environmental process. Clearly, we are

1 going to look at alternatives, but at the same time we
2 can develop a proposal even a preferred plan at some
3 point. We, obviously, don't have a preferred plan to
4 any extent now, but we want to head down that path. We
5 don't have a lot of time. We don't have a lot of
6 resources to waste. We want to -- we want to be
7 focused on the right path is really what we're trying
8 to achieve.
9 MR. RILEY: I might just ask a question of
10 those that were at the other meeting: Was -- is it
11 fair to say there was consensus that about -- regarding
12 the positions we've just taken that the risks were too
13 great to go beyond this sort of a -- I'm searching for
14 a word other than meaningless experiment, but that --
15 like Ed just said, it was but it was just something
16 that's not a fix. And if that's the case, then, given
17 the limited resources you have, I guess I just would
18 throw out should we be thinking in terms of a '93
19 action plan and use the EIS capability drafting time
20 that you have to move into '93 and -- we couldn't do
21 anything meaningful in '92 and that's what I'm hearing,
22 then let's bag '92 and go on to '93 or whenever it is
23 we think we can get the NEPA work done on something
24 meaningful.
25 MR. ANDERSON: I guess I didn't hear there's

1 a consensus that there's nothing meaningful. Did you
2 say that, Mal?
3 MR. KARR: No. I said I support Frank
4 Young's position.
5 MR. ANDERSON: Yeah. And --
6 MR. RILEY: And I haven't discussed this with
7 Frank, but we were discussing -- I thought I heard that
8 as the lesser of two evils or something there that that
9 was -- I understand Frank that you think there -- that
10 you could do some study work that would have some
11 meaning.
12 MR. YOUNG: Yeah. I guess if I thought that
13 this was all leading to fine tuning a drawdown at
14 Granite to 710 and that was going to be some kind of
15 solution, I would agree. But I think that that is a
16 step in gaining information that we need to go further.
17 MR. CHANEY: But not on juvenile survival.
18 MR. YOUNG: No. We don't need to assess
19 juvenile survival because the incremental improvement
20 of this drawdown is so small that it can't be measured
21 with the techniques that we have. And it's also the
22 reason that it's not the solution, but I think that to
23 get to what people are suggesting of multiple drawdown
24 to spillway sill or even further in the future that
25 this is a step in finding out what we need to know to

1 make some kind of scoping of the magnitude of changes
2 that would be needed to both pass adults successfully
3 and provide some travel time benefits to juveniles.
4 So, I see this as a step in the process or I wouldn't
5 support it.
6 MR. WHELAN: A real concern of ours is that
7 NEPA not be an obstacle to timely implementation, we
8 get the most prompt use as possible on measures in 1993
9 and beyond. And in order to do that, I think it would
10 be very useful to have the Corps explain how it's going
11 to provide NEPA coverage for '93 actions and beyond. I
12 understand the Corps is about to launch into a
13 mitigation analysis of those actions at it's projects
14 that are necessary to pass juvenile and adult fish.
15 Could you give us some idea of that process and how it
16 might provide some NEPA coverage for longer term
17 action.
18 MR. VELEHRADSKY: We're looking at the '92
19 program. So, as far as the mitigation analysis, we're
20 going to probably be doing reconnaissance level
21 estimates of the impacts for the -- for the long term
22 actions in that document. If we are leading toward a
23 long term change, we're talking about the mitigation
24 study having a -- becoming a feasability scope type
25 change that would -- we will probably have to

1 supplement the environmental impact statement developed
2 for '92 with another document. And whether that's the
3 SOR or some other document, we haven't decided yet.
4 MR. WHELAN: It seems to me to be a decision
5 that needs to be made soon. I mean, my concern is that
6 we would follow up a '92 test with a decision say in
7 October of '92 or something like that as, okay, well,
8 the next step takes an EIS; and, therefore, we'll go to
9 scoping and that EIS will probably be ready by the fall
10 of '94 or something like that. I'm concerned that we
11 get timely NEPA compliance from --
12 MR. VELEHRADSKY: I'm not sure that NEPA is
13 your critical path here. I think that the physical
14 changes that are going to be required are your critical
15 paths.
16 MR. WHELAN: Well, I think that the decisions
17 themselves are extremely difficult. The problems that
18 comes on NEPA delays a decision that could otherwise be
19 made and implemented and that's why I'm suggesting that
20 perhaps it would be worthwhile considering scoping a
21 NEPA process for those longer term actions sooner
22 rather than later. Have the decision -- have the NEPA
23 documents support the decisions when they're made but
24 not delay those decisions.
25 MR. VELEHRADSKY: I haven't heard a regional

1 committment to that long term change yet. Did I hear a
2 commitment in the Salmon Summit process to a long term
3 change? I mean, I've --
4 MR. CHANEY: Now we're looking for a NEPA
5 analysis of how we're going to pass juvenile fish and
6 adult fish simultaneously.
7 MR. VELEHRADSKY: We can do that.
8 MR. CHANEY: That's what we're trying to find
9 out here. So, we can find out what the hell the answer
10 is. We know the status quo is not the answer, because
11 you've just told us we can't even do a test let alone
12 pass them simultaneously. I mean, I'm not being
13 argumentative.
14 MR. LOVELIN: Ed, if I understand this right,
15 I think that was one of the concerns that we've
16 expressed to the Corps was that -- and we had this
17 little exchange with Will and I last week -- was what
18 was the NEPA document going to do. We agree that it
19 should look at a full range of alternatives. That's
20 why we wanted to at this point, with our technical
21 experts, to examine on a biological basis what is this
22 experiment -- to scope out what is this experiment. Is
23 it a '92 experiment, which is what we thought going
24 into the -- and we still think -- or is it a
25 transitional kind of a program heading for '93 and

1 beyond actions.

2 I mean, from the Salmon Summit, what I didn't
3 understand we were talking about in terms of a
4 drawdown. How many reservoirs is it going to impact,
5 time frame? Is it going to be a physical impacts test,
6 biological impacts? Is it going to be '93 and beyond?
7 And that's why we want that to be scoped out now. And
8 so that in addition -- I'll add on my other little
9 point. We look at the other river uses and kind of
10 bring them into the decision at the leading edge of the
11 development of an experiment of a '92 test so that --
12 so that when we go through the EIS that is -- I mean,
13 if an EIS is warranted, then that's subsequent process.
14 Not delay the time frame; but, again, to resolve some
15 of the issues on the front end of the discussion.

16 MR. CHANEY: Well, Will is expressing our
17 concern as well is that we want NEPA compliance. What
18 we're very concerned about is that we -- that we help
19 the Corps in any way we can. I frankly am not looking
20 for a consensus that will not allow you to not do an
21 EIS plan. I mean, we can't get consensus, let alone
22 when we walk outside. But to make sure that when we
23 structure our NEPA compliance, we don't do it three
24 times or it doesn't take three times longer than some
25 other alternative that is available to us going in.

1 And I'm paranoid that that could happen because if we
2 are talking about substantial change, that could get
3 very complicated. Is there a way to forward or
4 structure a NEPA compliance process that will --
5 whatever happens will express that amount of time to
6 the maximum that is required to do NEPA compliance.
7 MR. VELEHRADSKY: I think we can only
8 determine that after we go out and do scoping to
9 determine that through the scoping process. I don't
10 see how we could make that judgment now until we've --
11 actually have gone through that process. Our goal is
12 to get it done in a certain amount of time. But if
13 we're looking at a bigger universe, then our time is
14 going to get protracted out.
15 MR. CHANEY: Is there a tiered process that
16 you can go through that allows you to define the frame
17 work of the universe is kind of fuzzy out here, but
18 you're going to do a -- what the agencies used to do
19 these all the time is try to get away from NEPA. What
20 do they call them? They called them umbrella
21 comprehensive --
22 MR. WHELAN: Programatic.
23 MR. CHANEY: Programatic. I mean, they were
24 using that as kind of a technique to kind of dodge the
25 NEPA bullet for years. I thought it -- well, maybe I'm

1 for that now. Maybe that sounds like a good idea.
2 Again, I don't have the answer. I'm trying to describe
3 the need from our perspective.
4 MR. WHELAN: John, we don't need an answer on
5 this today. Let's keep the discussion point open.
6 There's a concern that we provide compliance for that
7 stuff and we should talk about how that might be done.
8 MR. VELEHRADSKY: Are there any other
9 questions or comments? I think that's useful
10 information. Sarah, did you have some?
11 MS. WIK: Well, I just -- I have a hand-out
12 here that summarizes the discussions that we had the
13 last two times and a matrix that we put together
14 looking at all the issues and concerns in fisheries.
15 And I guess if there are any questions or comments
16 after that regarding this or our discussion today if
17 you don't have my phone number from the letters that
18 went out, I'll be glad to give it to you.
19 MR. VELEHRADSKY: Witt, do you have anything
20 you want to add? Bruce?
21 MR. LOVELIN: Well, I'm just wondering what
22 you're doing at this point. Is this the end of this
23 discussion? Are we -- then what is the Corps going to
24 be doing, because we haven't even gotten any of the
25 impacts of other users and I'm not sure how that gets

1 stuck in the discussion now.

2 MR. VELEHRADSKY: The impacts on other users

3 of any drawdown tests or any long term drawdown are

4 going to have to be identified in this process.

5 MR. LOVELIN: Well, I guess the point I would

6 make -- that I made consistently at the Salmon Summit

7 is it's frankly much better for those users to have

8 discussions right now with the Corps and other parties.

9 And I thought this was the forum here to try to get

10 some recognition of the importance of those users and

11 try to work around their needs. And I'm not just

12 talking about navigation and irrigation. I mean,

13 obviously, we got resident fisheries and public safety

14 issues and other things that -- you know, that we need

15 to discuss. So, I guess I'm hopeful that we can have

16 that discussion at some point before we go charging off

17 into starting with some kind of an EIS process.

18 MR. VELEHRADSKY: What are you suggesting,

19 Bruce?

20 MR. LOVELIN: Well, I guess I haven't heard

21 the impacts of navigation expressed here in terms of

22 how that's going to be rectified.

23 MR. VELEHRADSKY: That would be -- the

24 impacts on navigation would be identified in the NEPA

25 process. Then any mitigation required would also be

1 identified in the NEPA process. I mean, that would be
2 part of the process that we're looking at.
3 MR. LOVELIN: Sure.
4 MR. VELEHRADSKY: Now to move to that step of
5 a long term change, would probably require
6 congressional authorization which would also probably
7 imply that there would have to be some mitigation of
8 the impacts to that change.
9 MR. LOVELIN: I guess the point I would make
10 is that if there are desires of the region to conduct
11 an experiment, I think it's incumbent upon the region
12 to come together and work through these other users
13 that have lead. I don't think you'll be able to work
14 them through during the environmental impact statement
15 process. You can't rely on that process. And, you
16 know, bringing those folks in, I think that's what
17 you're doing right now is really what I ask for and
18 what others ask for. And, again, I just really -- the
19 EIS is not the way to bring folks together, because I
20 can tell you that if we have six alternatives and you
21 have one or two alternatives which for my -- in my
22 particular case a four dam drawdown which is one of the
23 alternatives, there's going to be a lot of public
24 concern from the irrigation community and the Ice
25 Harbor pool relative to that proposal. And in my mind,

1 that's why I think it's beneficial to narrow this thing
2 up to a preferred option and frankly not go through
3 that public hysteria.
4 MR. VELEHRADSKY: Okay. Now as part of the
5 mitigation study which is in the -- contained in the
6 NEPA document, the Walla Walla district will be charged
7 with developing a public involved process to do what
8 you're asking them to do, okay. So, that -- that
9 process is going to have to be developed. We don't
10 have it developed yet and that's going to be a
11 short-fuse thing that we're going to have six months to
12 nine months.
13 MR. CHANEY: The mitigation study?
14 MR. ARMACOST: Well, I think we're all saying
15 -- I'm hearing to the affect -- to the extent we can
16 narrow and limit things that are unacceptable to a
17 significant force to the region, we can do that. We
18 can explain the reason for doing it. Yes, we're going
19 to have a public involved process, but to the extent we
20 can narrow that down, I think it makes much more
21 easier, as you know, John, to do a more affective
22 evaluation of those alternatives that are real to the
23 extent --
24 MR. VELEHRADSKY: Well, my problem is I'm not
25 hearing that narrowing occur.

1 MR. ARMACOST: Well, I think he's seeking to
2 have it happen, and I agree with you. I'm not hearing
3 it either.
4 MR. VELEHRADSKY: So, until that occurs, then
5 we're stuck with the broad range of alternatives to
6 deal with which is going to be a real task.
7 MR. LOVELIN: Again, I'll make a point I made
8 earlier. I would -- I think there has been some good
9 discussions that occured at the previous two meetings
10 in Lewiston/Clarkston and Kennewick, and I would like
11 to see those meetings continue in the next few weeks to
12 try to narrow this field. And also I would like to see
13 those discussions include other interests besides --
14 besides the objective of enhancing smolt survival. I
15 think there's -- I mean, there's got to be some other
16 objectives in here as trying to maintain river
17 navigation, maintaining irrigation, maintaining other
18 issues, residents fisheries. Again, I'll just make a
19 point, this is the last time I'll make it, the EIS, in
20 my mind, is not the right process.
21 MR. ANDERSON: Well, Bruce, again as I said
22 earlier, we wanted comments today from the policymakers
23 from the Salmon Summit, that's why we convened that
24 group. I haven't heard much from anyone else today. I
25 guess if you're suggesting that we continue to have

1 some meetings, that's fine. We can do that. But we
2 have got to get on with the Notice of Intent and the
3 NEPA process if we're going to do anything, and I do
4 to, that inolves any test drawdown below normal
5 minimum. I don't know if you're suggesting don't start
6 that process until we have had further meetings and
7 other input but that's going to put us --
8 MR. LOVELIN: Okay. What I'm suggesting,
9 Witt, is don't make the NEPA process your primary tool
10 for implementing this experiment, and I would suggest a
11 parallel process that you continue with what you
12 started here. But maybe that started at the Salmon
13 Summit and just continued.
14 MR. ANDERSON: And maybe that's something we
15 can do. I mean, we tried to do that through three
16 meetings. We tried to set up the experiment, the
17 design, get some understanding among the fishery
18 experts, come today and get some understanding from
19 those at the coordinator level of the Salmon Summit.
20 I'm not hearing that. I mean, we don't have everyone
21 here. If we don't hear that, we're still going to have
22 to move ahead but. I'll look to Walla Walla. I mean,
23 we can have some more meetings, if that's helpful.
24 MR. CHANEY: I would just like to say from
25 the fish advocates point of view more meetings are

1 great, but we would like to see that notice published
2 tomorrow.
3 MR. LOVELIN: Correct me if I'm wrong, John,
4 but we're going to be moving ahead with the Notice of
5 Intent on a series of actions, series of measures.
6 There are a number of measures for 1992. One of which
7 is this measure we talked about this afternoon.
8 MR. PASSMORE: Speaking for Walla Walla, as
9 Witt has many times, the concern that he has reiterated
10 several times here is that the time frame that we're
11 dealing with. Now to do the NEPA process that we've
12 talked about requires that we get into it very quickly.
13 And very quickly we're talking about beginning serious
14 analysis of alternatives by 1 May. Much of this is
15 going to be done by contract. We have scopes of work
16 put together, and we're trying to narrow those
17 alternatives down such that we can focus on a couple of
18 alternatives. We're assuming we're looking at a '92
19 action. When we extend this thing beyond '92, then we
20 greatly expand potentials here because of the
21 construction time involved. And when we do that, we're
22 well beyond the scope of what this NEPA was intended to
23 do. We have approximately two months from May 1 to
24 meet the schedule for NEPA if we have full public
25 involvement as NEPA requires. Now, I'm trying to put

1 the timing in perspective. We cannot continue to have
2 weekly meetings for another two months to determine
3 what the test is going to be, because we'll be at the
4 point that we have a draft EIS on the street. And,
5 Bruce, I totally agree with what you said about the
6 narrowing of alternatives and that was what this
7 meeting was intended to do.
8 MR. LOVELIN: Okay. Let me add on to my
9 point then. I understand the NEPA constraints and the
10 process you have, if you folks have to get started you
11 just have to get started, that's okay. I guess what we
12 wouldn't want to have happen is at the end of your
13 record -- your decision based on the NEPA process, you
14 can't implement the action or you find that you've got
15 a couple years worth of legal construction or whatever
16 constraints you have, but you can't run a test in '92
17 several years afterward. I'm suggesting that the
18 region would be better off if during this interim time
19 parallel to the NEPA process, you are working out any
20 potential conflicts you have or otherwise you may come
21 to that point in May of next year and be unable to
22 implement it.
23 MR. PASSMORE: Exactly. And, again, we held
24 these three meetings with that exact intent. In order
25 to narrow the number of alternatives that we're

1 focusing on, we ask that we have the representatives
2 from all of the user group areas in order to help us
3 screen this as Witt mentioned. And we have the six or
4 seven alternatives on the board. And if the
5 preliminary information shows that the construction
6 time is a constraint for implementing a full four pool
7 drawdown, to continue to focus on that, it would appear
8 to be a diversion of effort. Now, I'm -- I'm curious
9 to see if we went around the table what the opinion was
10 as a group, because I think that there is a near
11 consensus in this room with regard to a '92 action.
12 There are some things that can be done and others that
13 cannot from a physical standpoint. If we walk through
14 the NEPA process and by January, February, or March of
15 next year decide that we can implement a drawdown
16 action that requires significant construction, where is
17 the time for that construction to take place; let
18 alone, as Witt said, the E and D side of it. So, I
19 think we have come to a conclusion on some of the those
20 if they're looked at in that light. Now, we can
21 continue to look at what the possibilities are for
22 modifications in the long term. I'm not arguing that.
23 And we will. And we will look at it through the
24 mitigation analysis process in addition to many other
25 types of actions that may be taken to improve the

1 resource, not neccessarily structural.

2 MR. LOVELIN: I didn't hear any objection

3 from Ed to looking at the '92 action. He was asking us

4 to look at some other things.

5 MR. CHANEY: Right. Now I guess, I'm just --

6 for '92 I want to -- hopefully we will focus on those

7 things that we say prevent us from passing juveniles

8 and adults simultaneously as opposed to trying to

9 determine the biological benefits to juveniles of these

10 marginal changes. I don't -- I agree with Frank, I

11 don't think we can measure those things. So, why

12 bother. Let's focus on what's preventing us from doing

13 what we want to do and see what we can learn in '92

14 that will help us.

15 MR. PASSMORE: And most of the things that

16 you just discussed are within that mitigation study

17 that John was talking about.

18 MR. VELEHRADSKY: So, what I'm hearing is

19 there's probably two viable alternatives for '92 and if

20 we make the next leap to any of the other alternatives,

21 we're probably looking at something as beyond '92; is

22 there a consensus in that?

23 MR. RILEY: John, I'm afraid Oregon just has

24 -- you know, from my perspective and it may be -- and

25 I'm not trying to contradict Frank or Witt. Of couse,

1 we haven't had a chance to discuss at any of the other
2 meetings. I'm not satisfied that's been demonstrated.
3 From the beginning, we've taken the position that a
4 minimum of one pool drawdown in the Snake in '92. We
5 don't want to stop upstream passage, but it has not
6 been demonstrated to us yet that that can't be done.
7 And I'm just not willing to accept -- we're not willing
8 to accept the two alternatives that seem to be left,
9 and I -- I think it's back to what Ed said, you know,
10 you may be able to convince us in very short order that
11 you can't do a one or two or three pool drawdown
12 without threatening upstream migrants. But after more
13 than two weeks, but sixty days of going over this, it
14 wasn't demonstrated during that period of the last
15 sixty to ninety days of negotiations throughout the
16 Summit that those were not possible. And it's hard for
17 me to believe that in the last two weeks we've suddenly
18 reached the conclusion that none of those things --
19 those meaningfull things that we've been discussing are
20 simply not possible. So, we would completely change
21 our position to say those Alternatives 6 and 7 or 5 and
22 6, whatever are all that's on the table for fiscal year
23 '92 -- calendar year '92. It's also a little bit
24 difficult for me to think that six alternatives -- or
25 four alternatives with two subsets is more than you can

1 deal with in a NEPA process. You're not dealing with
2 twenty, you're dealing with seven if you count tham all
3 as full separate alternatives. I mean, I -- that's
4 almost a minimum. If you didn't have five, somebody
5 would ask you why you didn't have more alternatives,
6 there must be more out there.
7 MR. VELEHRADSKY: Yeah. I think we'll take
8 the information we got out of this meeting, which was
9 beneficial for our use, even though we don't appear to
10 have come to a closure. But we'll take your input and
11 Bruce's and the other folks here and design the
12 remainder of the NEPA process and the mitigation
13 analysis and try to address the issues that were raised
14 today. That's about the best we can do.
15 (Proceeding concluded at 4:00 p.m.)
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1 C E R T I F I C A T E

2

3 STATE OF IDAHO)
: ss.
4 County of Nez Perce)

5

I, Dennis Misener, Jr., CSR, Freelance Court Reporter
6 and Notary Public for the State of Idaho, residing in Lewiston, Idaho, do hereby certify:

7

8 That I was duly authorized to and did report the above-foregoing meeting in the above-entitled cause;

9

10 That the foregoing pages of this transcript constitute a true and accurate transcription of my stenotype
11 notes of the above-foregoing meeting of all audible proceedings had to the best of my ability.

12

13 I further certify that I am not an attorney nor counsel of any of the parties; nor a relative or employee of
14 any attorney or counsel connected with the action, nor financially interested in the action.

15

16 IN WITNESS WHEREOF, I have hereunto set my hand and seal on this 15th day of May, 1991.

17

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19

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21

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23 Dennis Misener, Jr., CSR
Freelance Court Reporter
24 Notary Public for the State of Idaho
Residing in Lewiston, Idaho
25 My Commission expires: 5/9/96

LOWER SNAKE RIVER

1992 EXPERIMENTAL DRAWDOWN

GOAL

SHORTEN IN-RIVER MIGRATION TIME -

RESULT IN INCREASED JUVENILE FISH SURVIVAL

POSSIBLE OBJECTIVES OF RESERVOIR DRAWDOWN TEST

1. DETERMINE CHANGE IN WATER VELOCITY WITH POOL LOWERING AND/OR FLOW MANIPULATION.

2. DETERMINE JUVENILE FISH MIGRATION RATE RELATIVE TO WATER MOVEMENT (VELOCITY).

3. DETERMINE SURVIVAL RELATIONSHIP WITH RESPECT TO DECREASED TRAVEL TIME.

4. REDUCED DOWNSTREAM MIGRANT TRAVEL TIME.

   a. RESERVOIR DRAWDOWN
   b. FLOW AUGMENTATION
   c. DAM REMOVAL

TEST PLAN ALTERNATIVES

1. FOUR RESERVOIRS
2. PHYSICAL IMPACTS
3. LOWER GRANITE
4. LOWER GRANITE AND LOWER MONUMENTAL
5. LOWER GRANITE REPLICATES
6. TRAVEL TIME EXPERIMENT (NO DRAWDOWN)

ALTERNATIVE 1 - FOUR RESERVOIRS

TEST DESIGN FRAMEWORK

- o LOWER ALL FOUR LOWER SNAKE RIVER RESERVOIRS
- o NEAR SPILLWAY CREST ELEVATION
- o APRIL 15 - AUGUST 15

POSSIBLE STUDY PLAN

- o PIT TAG JUVENILE FISH AT LEWISTON, RECOVER AT McNARY

ALTERNATIVE 1 - FOUR RESERVOIRS

PROS

- MOST EFFECT ON REDUCING TRAVEL TIME FOR IN-RIVER FISH

CONS

- ADULT PASSAGE ELIMINATED
- MAY NOT BE ABLE TO DETECT DECREASE IN TRAVEL TIME
- INCREASED DISSOLVED GAS LEVELS
- INCREASED TURBIDITY
- SIGNIFICANT IMPACTS ON RESIDENT FISHERIES, FOOD ORGANISMS, ETC.

ALTERNATIVE 2 - PHYSICAL IMPACTS

TEST FRAMEWORK

- o LOWER GRANITE RESERVOIR ONLY
- o NEAR SPILLWAY CREST ELEVATION
- o NON-FISH WORK WINDOW

POSSIBLE STUDY PLAN

- o LOWER RESERVOIR AND MONITOR WATER QUALITY, PHYSICAL IMPACTS ON STRUCTURES, WATER VELOCITIES, SPILL PATTERNS

ALTERNATIVE 2 - PHYSICAL IMPACTS

PROS

- DOES NOT IMPACT SALMONIDS
- ONLY ONE RESERVOIR

CONS

- APPLICABILITY OF DATA TO MIGRATION PERIOD
- MAY IMPACT FISH DURING SUBSEQUENT MIGRATIONS
- MAY NOT BE POSSIBLE TO COMPLETE NEPA FOR 92 WINTER WINDOW

ALTERNATIVE 3 - LOWER GRANITE

TEST FRAMEWORK

- o LOWER GRANITE RESERVOIR ONLY
- o ELEVATION 710 (23' BELOW MINIMUM POOL)
- o APRIL 15 - JUNE 15

POSSIBLE STUDY PLAN

- o PIT TAG JUVENILE FISH AT LEWISTON
- o RECOVER AT LITTLE GOOSE DAM JUVENILE FISH FACILITY

ALTERNATIVE 3 - LOWER GRANITE

PROS

- MAINTAINS ADULT PASSAGE
- IMPACT TO ONLY ONE RESERVOIR

CONS

- INCREASED DISSOLVED GAS LEVELS
- MAY NOT BE ABLE TO DETECT REDUCED TRAVEL TIME
- INCREASED TURBIDITY
- SIGNIFICANT IMPACTS ON RESIDENT FISHERIES, FOOD ORGANISMS, ETC.

ALTERNATIVE 4 -
LOWER GRANITE AND LOWER MONUMENTAL

TEST FRAMEWORK

- o LOWER GRANITE RESERVOIR LOWERED TO 710
- o LOWER MONUMENTAL RESERVOIR LOWERED TO 509
- o LITTLE GOOSE AND ICE HARBOR POOLS MAINTAINED AT NORMAL OPERATION
- o APRIL 15 - JUNE 15

ALTERNATIVE 4 - LOWER GRANITE AND LOWER MONUMENTAL

PROS

- COMPARISON BETWEEN TWO "FAST" POOLS AND TWO "SLOW" POOLS

CONS

- TECHNOLOGY NOT AVAILABLE
- ADULT PASSAGE AT LOWER MONUMENTAL ELIMINATED
- INCREASED DISSOLVED GAS LEVELS
- SIGNIFICANT IMPACTS ON RESIDENT FISHERIES, FOOD ORGANISMS, ETC.

ALTERNATIVE 5 - LOWER GRANITE REPLICATES

TEST FRAMEWORK

- o LOWER GRANITE RESERVOIR ONLY
- o ELEVATION 710 FOR LOWERED POOL
- o 3 PERIODS ALTERNATING BETWEEN LOWERED RESERVOIR AND NORMAL POOL ELEVATION

POSSIBLE STUDY PLAN

- o PIT TAG GROUPS OF FISH AT LEWISTON
- o RECOVER AT LITTLE GOOSE JUVENILE FISH FACILITY

ALTERNATIVE 5 - LOWER GRANITE REPLICATES

PROS

- o MAINTAINS ADULT FISH PASSAGE
- o IMPACT TO ONLY ONE RESERVOIR

CONS

- o INCREASED DISSOLVED GAS LEVELS
- o MAY NOT BE ABLE TO DETECT REDUCED TRAVEL TIME
- o INCREASED TURBIDITY
- o SIGNIFICANT IMPACTS ON RESIDENT FISHERIES, FOOD ORGANISMS, ETC.

ALTERNATIVE 6 - TRAVEL TIME EXPERIMENT

TEST FRAMEWORK

- o NO RESERVOIR LOWERING
- o 1 APRIL - 15 JULY
- o POSSIBLE FLOW AUGMENTATION

POSSIBLE STUDY PLAN

- o INCREASE NUMBERS OF JUVENILE FISH PIT-TAGGED AT LEWISTON
- o RECOVER DATA AT LOWER GRANITE, LITTLE GOOSE, McNARY

ALTERNATIVE 6 - TRAVEL TIME EXPERIMENT

PROS

- NO NEGATIVE IMPACTS TO FISH ASSOCIATED WITH RESERVOIR LOWERING

CONS

- CURRENT TRAPPING FACILITIES MAY BE INADEQUATE

RESERVOIR TEST DRAWDOWN - MATRIX OF ALTERNATIVES

See attached pages for descriptions of proposed test alternatives

	1. 4 RESERVOIRS				2. PHYSICAL IMPACTS				3. LGR ONLY				4. LGR & LMO				5. LGR - REPLICATES				6. TRAVEL TIME EXP.			
FISHERIES ISSUES/CONCERNS	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR
5. Other																								
a. conc. of juv. at McNary coll		YES				NO				NO				YES				NO				NO		
b. wildlife-waterfowl	Y	Y	Y	Y	N	N	N	Y	N	N	N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
-furbearers																								
c. impacts on research activities	Y	Y	Y	Y	?	?	?	Y	?	?	?	Y	?	Y	?	Y	N	N	N	Y	N	N	N	N
d. impacts on Little Goose JFF		NO				NO				YES				?				YES				NO		
6. Experimental Design Questions																								
a. Can valuable info. be gained?		?				?				?				?				?				YES		
1) data to compare with?		?				?				?				BTW POOLS				?				YES		
2) technology available?						?				?				NO				?				?		
3) sample size required possible?		?				N/A				?				?				?				?		
b. Will Dworshak operations affect test?			?			?				?				?				?				NO		

RESERVOIR TEST DRAWDOWN - MATRIX OF ALTERNATIVES

See attached pages for descriptions of proposed test alternatives

	1. 4 RESERVOIRS				2. PHYSICAL IMPACTS				3. LGR ONLY				4. LGR & LMO				5. LGR - REPLICATES				6. TRAVEL TIME EXP.			
FISHERIES ISSUES/CONCERNS	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR
1. Adult Fish Passage-elimination of unless satisfactory solutions developed	Y	Y	Y	Y	N	N	N	N	N	N	N	?	N	Y	N	?	N	N	N	?	N	N	N	N
2. Spill																								
a. diss. gas increase	Y	Y	Y	Y	N	N	?	?	?	?	Y	Y	Y	Y	Y	Y	?	?	Y	Y	N	N	N	N
1) flip-lips ineffective (no flip-lips at IH)	N/A	?	?	?	N/A	N	N	?	N/A	N	N	?	N/A	?	N	?	N/A	N	N	?	N/A	N	N	N
b. energy dissipators	?	?	?	?	N	N	N	N	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N
c. delay in adult fish passage	Y	Y	Y	Y	N	N	N	N	N	N	N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
d. poss. injury to juveniles	Y	Y	Y	Y	N	N	N	?	N	N	N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
3. Predation																								
a. higher conc. of predators	?	?	?	?	N	N	N	?	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N
b. effect on squawfish mgt prog.	Y	Y	Y	Y	N	N	N	N	N	N	N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
c. change in predator distribution	?	?	?	?	N	N	N	?	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N
4. Water Quality																								
a. increase in turbidity	Y	Y	Y	Y	?	?	?	Y	?	?	?	Y	?	Y	?	Y	?	?	?	Y	N	N	N	N
b. contaminated sediment release (chemicals & disease)	?	?	?	?	N	N	N	?	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N
c. temperature change	?	?	?	?	N	N	?	?	N	N	?	?	?	?	?	?	N	N	?	?	N	N	N	N
d. dissolved oxygen	?	?	?	?	N	N	N	?	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N
5. Other Aquatic Organisms																								
a. food organisms (salmon & all)	Y	Y	Y	Y	N	N	N	Y	N	N	N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
b. cover (salmon & all)	Y	Y	Y	Y	N	N	N	Y	N	N	N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
c. resident fish spawning habitat	?	?	?	?	N	N	N	N	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N
d. displacement of populations	?	?	?	?	N	N	N	?	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N

APPENDIX U-4

Summary of the

April 5, 12, and 18, 1991 Meetings

of the

Reservoir Drawdown Test Design Team

02

C-5

CENPW-PL-ER (1165-2-26a)

19 June 1991

MEMORANDUM FOR Engineering Division Files

SUBJECT: Summary of Meetings to Develop Protocol for 1992 Test of the Reservoir Drawdown Concept

1. Walla Walla District was assigned responsibility to facilitate development of a plan to test the reservoir drawdown concept on the Lower Snake River in 1992. The governor of Idaho requested such a test in 1991, but the magnitude of impacts of a reservoir drawdown necessitate preparation of an Environmental Impact Statement, and this was not possible for 1991, given the short timeframe. In addition, there was no regional consensus on the governor's plan.

2. Although reservoir lowering is not an action proposed by the Corps, we will complete the National Environmental Policy Act (NEPA) process because we operate the Lower Snake River projects. An EIS for such a major action would normally require at least 18-24 months to complete, but we have been tasked to do so by March of 1992.

3. In an attempt to develop regional consensus on what the 1992 test should be and reduce the amount of effort needed in the EIS, we agreed to facilitate regional meetings. We invited Salmon Summit personnel and their technical staffs to attend three meetings. At the first meeting, we defined possible test objectives and developed six broad test plan alternatives (see enclosure 1). These six alternatives ranged from "worst case" (lowering all four reservoirs to spillway crest for 4 months) to eliminating drawdown and expanding the current travel time monitoring efforts into a research study. The group then "brainstormed" to outline all possible fisheries issues and concerns associated with the "worst case" test. Environmental Resources Branch staff then expanded this information into a matrix showing which of these issues and concerns apply to each of the six alternatives.

4. The second meeting, on 12 April, was spent discussing the matrix of issues and concerns and reporting information that was gathered after the first meeting. It was agreed by all present that a test design that eliminates adult fish passage was not acceptable. We agreed to provide information that clarifies why adult fish will not pass the projects when the reservoirs are drawn down below minimum pool. The group also agreed that

alternatives requiring technology that is not yet available should not be pursued. There was general consensus among the biologists that it is unlikely any information can be gained from doing a 1992 test of just one reservoir (Lower Granite), and since a lowering of all four would eliminate adult passage, further analysis should be done to determine feasibility of this concept prior to either testing or implementing. We explained that this type of analysis will be forthcoming under the Columbia River Salmon Mitigation Analysis, but we are still tasked to perform a 1992 test for which it would be advantageous to reach consensus on a test design.

5. Considerable discussion took place about NEPA requirements for such an action, and it was agreed that all six alternatives would be presented, along with issues and concerns associated with each, to the policy level representatives of the Salmon Summit at the final meeting.

6. We met with policy-level representatives in Portland on 18 April. All alternatives were presented, and significant concerns associated with each were discussed. Although the majority of the group agreed that three of the six alternatives were not feasible for 1992, no consensus was reached on eliminating them from the list to be pursued under NEPA.

7. As you know, the test of lowering the Snake River projects has now been incorporated into the package of alternatives to assist the salmon in 1992. Through the NEPA process, we will document the problems associated with each alternative. For those alternatives considered feasible, details of a test plan (such as numbers of fish and equipment required, appropriate agencies to perform, etc.) will be developed in cooperation with interested agencies.

8. If there are any questions, please call me at ext. 6629.

Sarah J. Wik

SARAH J. WIK
Environmental Resources Branch

Encl

CENPW-PL-ER
SUBJECT: Summary of Meetings to Develop Protocol for 1992 Test of the Reservoir Drawdown Concept

CF w/encl:
CENPW-PL-ER (Barila, MacDonald, Poolman, Shelin)
C, CENPW-PL-H
C, CENPW-PL-PF
CENPW-PL-PF (Graham)
CENPW-OP-PO (McKern, Hurson)
CENPW-OP-GG (Krahenbuhl, Hixson, Wik, Baxter)
CENPW-OP-IH (Voss, Cadwell)
CENPW-OP-MN (Gibson, Eby)
C, CENPW-EN-DB-HY

Reservoir Lowering
Development of Test Protocol

The following 6 alternatives for a 1992 test of the drawdown concept were outlined at the 5 April meeting. A preliminary test plan is presented for each alternative on the enclosed sheets, along with a summary of major issues/concerns. The enclosed matrix compares issues/concerns related to each of the alternatives.

1. Draw down all four lower Snake River reservoirs.
2. Draw down Lower Granite reservoir to test physical impacts of reservoir lowering.
3. Draw down Lower Granite reservoir.
4. Draw down Lower Granite and Lower Monumental reservoirs.
5. Draw down Lower Granite reservoir multiple times.
6. Maintain existing pool elevations and conduct expanded travel time research.

Although increased flow is desirable for fish survival, because of potential negative impacts to fish, a test of reservoir lowering must result in valuable information that cannot be gained from any other source, such as detailed nalysis of existing information, modelling of reservoir velocities, etc.

NOTE: For alternatives 1 and 3 - 5, serious consideration needs to be given to what the course of action would be during a average or above average water year. Although we could still gather some information early in the season, it may not be enough to be truly useful and could put a significant portion of the population at risk unnecessarily.

ALTERNATIVE NO. 1 - FOUR RESERVOIRS

Test Design Framework:

1. All four lower Snake River pools (Ice Harbor, Lower Monumental, Little Goose and Lower Granite) would be lowered to near spillway crest elevation.

2. Maximum time frame for this test would be April 15 through August 15, depending upon which stocks were proposed for testing. The time frame could be broken down into April 15-June 15 and June 15 - August 15 for spring and summer migrantss, respectively.

Possible Study Plan:

1. Juvenile fish would be PIT-tagged and released at Lewiston for recovered at McNary Dam to estimate travel time through the entire lower Snake system. Data would be compared to travel time data that has been collected under normal reservoir operations (Fish Passage Center). All fish would have to be collected at McNary (i.e. no bypass). Possible spilling at McNary would be a concern in the recovery of marked fish.

2. Additional data that would be collected during drawdown:

a. turbidity
b. water velocity patterns
c. physical impacts on structures
d. dissolved gas below project
e. dissolved oxygen levels within reservoir
f. spill patterns - tailrace formations, currents
g. chemical and disease organism concentrations

Major Issues/Concerns:

1. Adult fish passage would be eliminated at all four lower Snake River projects. Design and construction of alternative passage systems for operation below minimum pool is not feasible for 1992. (The Corps is exploring what it would take to allow adult fish passage, and if there are any elevations lower than minimum pool at which passage would not be blocked, but it should be emphasized that any new system would need considerable evaluation and modification before successful passage would occur.)

2. It may not be possible to measure an increase in fish travel time as compared to existing reservoir conditions. The

statistics would have to be reviewed.

3. The entire river flow would be passed over the spillway at each dam, resulting in increased dissolved gas levels and possible injury to juvenile fish.

4. Significant impacts on water quality are likely to occur throughout the system.

5. Reservoir lowering may result in a significant increase in predation.

6. Significant impacts on resident fisheries, food organisms and wildlife are likely to occur throughout the system.

ALTERNATIVE NO. 2 - PHYSICAL IMPACTS

Test Design Framework

1. Lower Granite reservoir would be drawn down (estimated maximum rate of 1' to 2' per day) to near spillway crest elevation.

2. Possible time frames for this test would be the current in-water work windows:

- summer - 15 July - 15 August
- winter - 1 January - 28 February (preferred time)

Possible Study Plan:

1. On 1 Jan begin lowering reservoir at maximum rate (up to 2' per day). As reservoir lowers, monitor impacts and gather data as listed below. Reservoir would be lowered to near spillway crest, provided no major problems occurred (such as levee failure, embankment failure, etc.).

2. Possible information to be gathered:

a. turbidity
b. water velocity patterns
c. physical impacts on structures
d. dissolved gas below project
e. dissolved oxygen levels within reservoir
f. spill patterns - tailrace formations, currents
g. chemical and disease organism concentrations

3. Augmentation of flows, and how it would fit into the study plan would need further examination. (Test may require flow augmentation since base flows would be less than 30,000 cfs at this time of year.)

Major Issues/Concerns:

1. Completion of the NEPA process prior to the winter work window of 91-91 may not be possible.
2. **Water quality information**, such as dissolved gas levels and turbidities, collected under reduced winter flows and temperatures **may not be applicable** to reservoir drawdowns during the fish migration season.
3. Consequences of this test **may result in harm to fish** populations during the subsequent spring migration, especially if structural failure should occur somewhere within the system.

4. Velocity data at lowered reservoir elevations is currently available through modelling and more accurate information may not be possible by lowering the reservoir.

ALTERNATIVE 3 - LOWER GRANITE

Test Design Framework:

1. Lower Granite reservoir would be drawn down to elevation 710 (emergency adult passage facilities theoretically functional), 15 April - 15 June.

Possible study plan:

1. PIT-tag juvenile fish at Lewiston and recover at Little Goose. Compare travel times to those obtained from existing monitoring efforts OR set up some type of control group.

2. Additional data that would be collected during drawdown:

a. turbidity
b. water velocity patterns
c. physical impacts on structures
d. dissolved gas below project
e. dissolved oxygen levels within reservoir
f. spill patterns - tailrace formations, currents
g. chemical and disease organism concentrations

Major Issues/Concerns:

1. If travel times during a reservoir drawdown were to be compared with those under existing condtions, the following issues would have to be analyzed.

a. There may not be enough past recoveries of PIT tag migrants at Little Goose to make a statistically sound comparison.

b. The potential reduction in travel time upon entry to Little Goose reservoir may mask any potential gain made in Lower Granite during the drawdown.

c. Past PIT tag recoveries at Little Goose have been fish that have gone underneath the STSs at Lower Granite, i.e. have not been highly smolted. Under this test scenario, we would have a mixture of fish: those that would have been guided at Lower Granite, and those that would not have been. This will affect our comparability.

d. If comparing to existing data is not statistically sound, a control group would have to be developed, which may prove to be difficult.

e. Increased turbidity under the test conditions may cause a decrease in travel time that would not be there once sediments have been flushed from the system.

2. A reduction in travel time through Lower Granite reservoir be overridden by the increase in mortality due to spill, Little Goose reservoir predation, and the overall increase in migration time incurred by those fish that under normal operating conditions would have been removed from the system at Lower Granite (particularly in a low flow year).

3. The entire river flow would be passed over the spillway at Lower Granite dam, resulting in **increased dissolved gas levels** and possible **injury to juvenile fish.**

4. **Water quality** is likely to be significantly impacted.

5. Reservoir lowering may result in a significant **increase in predation** in the Lower Granite pool.

6. **Resident fisheries, food organisms and wildlife** are likely to be significantly impacted.

ALTERNATIVE 4 - LOWER GRANITE AND LOWER MONUMENTAL

Test Framework:

1. Draw Lower Granite and Lower Monumental pools down approximately 23' from normal minimum (maintains adult fish passage facilities at Lower Granite), retain Little Goose and Ice Harbor pools near maximum. Maintain these conditions from 15 April through 15 June.

Possible study plan:

1. Juvenile fish travel rates through lowered reservoirs would have been compared to rates through reservoirs operated at normal pool elevations. The only method for obtaining travel rates would be with juvenile radio tags, and the National Marine Fisheries Service strongly recommended against using these tags on juvenile chinook. Therefore, it was agreed that this alternative was not feasible.

Major Issues/Concerns:

1. Adult fish passage at Lower Monumental would be eliminated.

2. The entire river flow would be passed over the spillway at Lower Granite and Lower Monumental dams, resulting in increased dissolved gas levels and possible injury to juvenile fish.

3. Water quality would likely be significantly impacted.

4. Reservoir lowering may result in a significant increase in predation in the Lower Granite and Lower Monumental pools.

5. Resident fisheries, food organisms and wildlife would be significantly impacted.

ALTERNATIVE 5 - LOWER GRANITE REPLICATES

Test Framework:

1. Draw Lower Granite reservoir down to elevation 710 and operate it at normal elevation on an alternating cycle (estimated 12 days to lower, maintain lowered elevation for 5 days, 2 days to refill and maintain at full for 5 days) during the 15 April through 15 June time frame. Maintain all other pools at normal elevation.

Possible study plan:

1. Release PIT tagged juveniles at Lewiston and recover at Little Goose. Compare juvenile fish travel times at normal operation with those at lowered pool.

2. Additional data that would be collected during drawdown:

   a. turbidity
   b. water velocity patterns
   c. physical impacts on structures
   d. dissolved gas below project
   e. dissolved oxygen levels within reservoir
   f. spill patterns - tailrace formations, currents
   g. chemical and disease organism concentrations

Major Issues/Concerns:

1. Variability of travel time, coupled with periods of reservoir lowering and refill periods, would result in an inability to distinguish differences in juvenile fish travel times. For example, fish may take anywhere from 3 - 20+ days to travel from Lewiston, Idaho to Lower Granite Dam. The test periods would be a maximum of 5 days long, thus fish could be travelling during more both normal and lowered pools, as well as the refill and lowering periods.

ALTERNATIVE 6 - TRAVEL TIME EXPERIMENT

Test Framework:

1. This alternative assumes reservoirs are operated within normal operating ranges throughout the fish migration season.

Possible study plan:

1. Juvenile fish would be PIT-tagged at Lewiston (or possibly elsewhere) and recaptured at Lower Granite, Little Goose and McNary. The number of fish would be significantly greater than the current marking program and would allow us to collect more information over a broader range of flow conditions.

2. Flow augmentation could be considered to increase the range of flows.

Major Issues/Concerns:

1. Limitations of existing trap equipment under low and high flows. A screw trap could be purchased for use in low flows, but a method of trapping fish in flows over approximately 100 kcfs would have to be developed.

General notes on matrix:

1. Dissolved gas levels **will increase**, even though flip-lips may still be functional. The effect of the increase on survival of fish is unknown, but must be considered.

2. We do have evidence that spill can be injurious to fish, and while may not be lethal, there is a concern with delayed mortality and cumulative impacts over several spillways in sequence.

3. A "Y" indicates the issue/concern applies to the drawdown test alternative. However, the severity of the effect may vary considerably. A "?" indicates either the issue/concern is applicable only under certain timing conditions (for example, in alternative 1, if all four reservoirs were refilled prior to resident fish spawning times, then it would not be a concern) or we do not know if it is a real concern.

ESERVOIR TEST DRAWDOWN - MATRIX OF ALTERNATIVES

ee attached pages for descriptions of proposed test alternatives

	1. 4 RESERVOIRS				2. PHYSICAL IMPACTS				3. LGR ONLY				4. LGR & LMO				5. LGR - REPLICATES				6. TRAVEL TIME EXP.			
ISHERIES ISSUES/CONCERNS	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR
. Adult Fish Passage-elimination of unless satisfactory solutions developed	Y	Y	Y	Y	N	N	N	N	N	N	N	?	N	Y	N	?	N	N	N	?	N	N	N	N
. Spill																								
a. diss. gas increase	Y	Y	Y	Y	N	N	?	?	?	?	Y	Y	Y	Y	Y	Y	?	?	Y	Y	N	N	N	N
1) flip-lips ineffective (no flip-lips at IH)	N/A	?	?	?	N/A	N	N	?	N/A	N	N	?	N/A	?	N	?	N/A	N	N	?	N/A	N	N	N
b. energy dissipators	?	?	?	?	N	N	N	N	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N
c. delay in adult fish passage	Y	Y	Y	Y	N	N	N	N	N	N	N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
d. poss. injury to juveniles	Y	Y	Y	Y	N	N	N	?	N	N	N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
. Predation																								
a. higher conc. of predators	?	?	?	?	N	N	N	?	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N
b. effect on squawfish mgt prog.	Y	Y	Y	Y	N	N	N	N	N	N	N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
c. change in predator distribution	?	?	?	?	N	N	N	?	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N
. Water Quality																								
a. increase in turbidity	Y	Y	Y	Y	?	?	?	Y	?	?	?	Y	?	Y	?	Y	?	?	?	Y	N	N	N	N
b. contaminated sediment release (chemicals & disease)	?	?	?	?	N	N	N	?	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N
c. temperature change	?	?	?	?	N	N	?	?	N	N	?	?	?	?	?	?	N	N	?	?	N	N	N	N
d. dissolved oxygen	?	?	?	?	N	N	N	?	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N
. Other Aquatic Organisms																								
a. food organisms (salmon & all)	Y	Y	Y	Y	N	N	N	Y	N	N	N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
b. cover (salmon & all)	Y	Y	Y	Y	N	N	N	Y	N	N	N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
c. resident fish spawning habitat	?	?	?	?	N	N	N	N	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N
d. displacement of populations	?	?	?	?	N	N	N	?	N	N	N	?	N	?	N	?	N	N	N	?	N	N	N	N

RESERVOIR TEST DRAWDOWN - MATRIX OF ALTERNATIVES

See attached pages for descriptions of proposed test alternatives

	1. 4 RESERVOIRS				2. PHYSICAL IMPACTS				3. LGR ONLY				4. LGR & LMO				5. LGR - REPLICATES				6. TRAVEL TIME EXP.			
FISHERIES ISSUES/CONCERNS	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR	IH	LMO	LGO	LGR
6. Other																								
a. conc. of juv. at McNary coll		YES				NO				NO				YES				NO				NO		
b. wildlife-waterfowl	Y	Y	Y	Y	N	N	N	Y	N	N	N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
-furbearers																								
c. impacts on research activities	Y	Y	Y	Y	?	?	?	Y	?	?	?	Y	?	Y	?	Y	N	N	N	Y	N	N	N	N
d. impacts on Little Goose JFF		NO				NO				YES				?				YES				NO		
7. Experimental Design Questions																								
a. Can valuable info. be gained?		?				?				?				?				?				YES		
1) data to compare with?		?				?				?				BTW POOLS				?				YES		
2) technology available?						?				?				NO				?				?		
3) sample size required possible?		?				N/A				?				?				?				?		
b. Will Dworshak operations affect test?			?			?				?				?				?				NO		