ATTACHMENT 5

System Configuration Team (SCT)

Reasonable & Prudent Measure #26
Meeting Notes
October 22, 2002

Greetings and Introductions.

The October 22, 2002 meeting of the System Configuration Team was held at the National Marine Fisheries Service offices in Portland, Oregon. The meeting was chaired by Bill Hevlin of NMFS and facilitated by Richard Forester. The agenda and a list of attendees for the meeting are attached as Enclosures A and B. Hevlin read a round of introductions, a review of the agenda and the notes from the August 22 SCT meeting.

The following is a distillation (not a verbatim transcript) of items discussed at the meeting, together with actions taken on those items. Please note that some enclosures referenced may be too lengthy to routinely include with the meeting notes; copies of all enclosures referred to in the minutes are available upon request from Kathy Ceballos of NMFS at 503/230-5420.

1. Less-Intrusive PIT-Tag Monitoring at Ice Harbor.

As you'll recall, said Mike Mason, for some time now we've been showing $1 million for the less-intrusive PIT-tag monitoring line-item on the CRFM spreadsheet. However, there has also been considerable ongoing debate about whether or not this measure is needed and, if so, which project should have priority – John Day, Ice Harbor or Lower Monumental. Mason said the salmon managers had planned to debate this issue at a recent FPAC meeting, but that he had not heard the outcome of that discussion. He added that, if possible, Rebecca Kalamasz would like to proceed with less-intrusive PIT-tag monitoring at Ice Harbor this year.

Steve Pettit said that, to the best of his recollection, the salmon managers agreed that less-intrusive PIT-tag monitoring at Ice Harbor should be a top priority, because of the need to obtain survival information at the two projects above McNary. After a brief discussion, it was agreed that this issue will receive further discussion at tomorrow's FFDRWG meeting; until that occurs, Rod Woodin said he is not ready to recommend that the Corps proceed to assign a project manager and move forward with this line-item. And if FFDWRG recommends that this project proceed, is that good

enough for the SCT? Hevlin asked. No SCT disagreements were raised to this statement.

2. BPA Cost Efficiency Proposals.

Bonneville's Kim Fodrea led this presentation; she began by saying that since the 2000 FCRPS Biological Opinion was issued, there has been ongoing research that has revealed new information about the effectiveness of some of the actions the region has been taking. Over the last two months, said Fodrea, the action agencies have been working with NMFS and the Fish and Wildlife Service to review configuration, spill and flow operations to see whether new information might indicate that we should modify our implementation of any of these measures, in a way that would sustain or accelerate our progress toward meeting the performance standards, but which could also potentially achieve that progress at a lower cost. We have identified several alternatives, listed in Section 5.1 of the FY'03 Implementation Plan, which the action agencies, NMFS and the Fish and Wildlife Service feel merit further evaluation and discussion by the Regional Forum teams, Fodrea explained. Specifically, the action agencies would like the SCT to consider the following system configuration alternatives:

Configurational Alternatives

The intent of the following options is to improve upon existing project survivals, or provide equivalent survival, while reducing spill levels. As we develop options, and if implemented, we would adaptively address necessary spill/operational requirements with the goal of meeting biological opinion performance objectives.

- Accelerate installation of a Removable Spillway Weir (RSW) and Behavioral Guidance System (BGS) at Ice Harbor Dam
- Accelerate installation of an RSW and BGS at Lower Monumental Dam
- Accelerate installation of a forebay physical guidance device at The Dalles Dam and reduce spill from levels called for in the BiOp.

Again, said Fodrea, these are just alternatives under consideration, not recommendations for implementation. We would like SCT to talk about how we might lay out a short-term plan to evaluate them further, and how we might redirect funds toward these alternatives if the decision was made to pursue them.

Kranda added that the action agencies are looking at actions that can be implemented within the 2006 time-frame – alternate configurational decisions that might be worked slightly ahead of the additional research that needs to be done at Lower Granite this year, and which could be beneficial to BPA's rate case. In the case of Ice Harbor, for example, the action agencies are looking at the possibility of getting an RSW installed by 2005 or 2006, Kranda said. At The Dalles, if everything works out, we might be able to get the behavioral guidance system in place within that time-frame. With all three of these alternatives, however, there are both biological and logistical questions, in terms of whether or not it would be possible to fund, build and install them within that time-frame, Kranda said. It would mean some additional expense in the

near-term; for example, for the Ice Harbor alternative, we would probably need an extra $750,000 as an add-on in FY'03, he said.

Would BPA be willing to direct-fund such an expenditure? Woodin asked. We're not in a position to do that, Fodrea replied. In that case, there is no way we would be able to fit these projects into the CRFM budget, Woodin observed.

At Hevlin's request, the Corps went through the details of each of these alternatives. The group offered a variety of clarifying questions and comments. Ultimately, Hevlin said that, from what he has heard today, the only one of these alternatives the Corps is recommending for additional funding in FY'03 is accelerated RSW at Ice Harbor for $750,000. Actually, I don't believe the Corps is saying that is their recommendation at this point, said Fodrea; rather, what the action agencies are saying is that if the SCT agrees that that is an option that should be explored further, the FY'03 cost would be $750,000. Essentially, these are the action agencies' three proposals for the region to consider, Kranda said; it would probably be fair to say that the accelerated Ice Harbor RSW offers the most benefit for BPA.

After a few minutes of additional discussion, Hevlin suggested that FFDRWG take up the details of the Ice Harbor RSW proposal, perhaps in the context of the Lower Monumental decision document. Mason agreed, noting that the LoMo decision document may well affect the ultimate configuration decision at Ice Harbor.

It sounds, then, as though, with respect to Ice Harbor, the SCT would like to wait to see whether funds will be available once the Congressional CRFM appropriation is made, said Forester. Also, I'm hearing that there are some additional details that need to be fleshed out at FFDRWG and at SCT, and that there will be additional discussion of this item at the next SCT meeting, Forester said. It also sounds as though the action agencies will be better-prepared to pursue the other two alternatives in FY'04, he added. Based on what I have heard today, that's correct, Hevlin replied. You would prefer, then, to work this within the structure of the meetings that are already scheduled? Fodrea asked. Let's get it on FFDRWG's agenda, and then we can ask the Corps to convene a meeting of the Lower Monumental Decision Document committee, Hevlin replied – that way, we can get some feedback at the November SCT meeting. It was so agreed.

3. Studies Review Work Group (SRWG) Update.

Rock Peters reported that the SRWG has now received comments from most of the states and agencies in the region on the 2003 studies package; everyone except BPA, the Fish and Wildlife Service and the Power Planning Council has now provided their comments. Peters said that, this year, Portland District is planning to formally respond to all comments in letter form. There will be a meeting on October 29 at John Day Dam to discuss the list of studies needing further discussion. Rebecca Kalamasz said Walla Walla District will also be responding to comments in writing this year. The group devoted a few minutes of discussion to the structure of the October 29 meeting.

4. Studies to Determine Juvenile Response to Water Acceleration and Deceleration.

Hevlin said he had asked NMFS' John Ferguson to attend today's meeting to discuss the proposed McNary flume (hydraulic behavior) study; in my opinion, said Hevlin, this study did not receive a very good hearing at the most recent Walla Walla SRWG meeting. I don't think that those in attendance at that meeting came away with a very good sense of the potential value of this study after hearing the presentation on the one-pager, Hevlin said; for that reason, I asked John Ferguson to attend today's meeting to give you a few more details.

Ferguson gave the group a detailed overview of the proposed study, touching on the history of the project, its purpose, scope, goals, design and schedule. The SCT devoted a few minutes of discussion to the proposal, ultimately agreeing to make a funding recommendation once the Congressional CRFM appropriation is known and the FY'03 CRFM program is finalized.

5. Continued Discussion of FY'03 CRFM Program.

John Kranda said Congress still has not made a decision on the exact dollar amount of the FY'03 CRFM program; the Corps is operating under a continuing resolution, a condition that is expected to continue until after the November election is concluded. For that reason, funding is very difficult at this point in time, he said, and we're scrambling to keep everything afloat. At the moment, added Peters, we need about $2.5 million to allow our researchers to close out their FY'02 research projects; if we can't find that money, we're going to feel pretty guilty about requesting people to come in and give us their final presentations and information at the year-end review.

What about the B2 corner collector? Hevlin asked. That's one of the major cash-flow problems, Kranda replied – we're paying the contractor to the tune of $25 million by February, because he's already pouring concrete.

Kranda then spent a few minutes going through the changes to the most recent version of the FY'03 CRFM spreadsheet; he noted that most of these alterations have been positive, in the form of reduced cost estimates for several line-items. He noted that the total estimated cost of the FY'03 CRFM package is now $86.6 million, if all line-items are funded, very close to the expected amount of the Congressional CRFM appropriation.

The group devoted a lengthy discussion to the most recent version of the spreadsheet, identifying several items they felt merited additional discussion at FFDRWG and SRWG. Ultimately, Kranda said he will incorporate the changes discussed at today's meeting, as well as any new information, into a revised version of the CRFM spreadsheet for distribution and discussion at the next SCT meeting.

6. Next SCT Meeting Date.

The next meeting of the System Configuration Team was set for Tuesday,

November 26. Meeting summary prepared by Jeff Kuechle, BPA contractor.

DRAFT

for Discussion and Study Purposes Only.

Configuration Alternative: ***Install BGS and RSW at Lower Monumental***

ALTERNATIVE DESCRIPTION

Configuration Alternative Description: **1.** Initiate design and install spillway modifications (RSW) to optimize spillway fish passage, reduce total dissolved gas and improve power generation. Operate RSW (7 kcfs) plus training flow (12 kcfs) – Total 19Kcfs @ 24 hours. **2.** Install forebay guidance (BGS) to optimize juvenile passage at the spillbays and RSW and reduce powerhouse turbine passage. Delay design and initiation until spillway survival is confirmed at Ice Harbor.

Existing Operation Description: (BIOP) is 40 kcfs @ 24 hours, limited by gas cap.

BIOLOGICAL EFFECTS

Biological Effects Description: Project passage with an RSW/BGS and limited training spill (for tailrace egress) is estimated to pass fewer fish over the spillway than BIOP spill. Current spillway survival is under investigation in 2003. Estimates from the Ice Harbor 2000 study estimated spring spillway survival at around 98%. More recent, but unpublished, estimates are lower. Continued evaluation in 2003 should reconcile whether a spillway survival problem exists, and, if so, determine the cause. An RSW with limited training spill may provide relatively high spillway passage, potential for improved tailrace egress, and lower Total Dissolved Gas levels. We are uncertain whether these benefits will provide as high or higher passage survival rates than the current BiOp operating conditions, which can only be determined by a post-construction evaluation. Any benefits of installing an RSW and BGS at Lower Monumental are speculative in nature at this time.

Biological Data/Research required pre-implementation - 2004 and 2005 – scope to be developed, as data is available from the Ice Harbor survival and the Lower Granite RSW test data becomes available. If implementation is initiated at Lower Monumental, conduct baseline spillway survival tests and balloon tag tests. Conduct project passage tests to assist in selection of RSW location relative to forebay migration trends.

Biological Data/Research required post-implementation –2006-2007 – Conduct project passage, spillway survival (radio tags and potential pit tags) studies to determine survival and RSW efficiencies.

SCHEDULE

Estimated Schedule: (assumption, start date Dec 2003)

Pre-construction biological evaluations: Spring 2004 and 2005
Complete RSW Pre-design/scope development: - September 2004
Detailed Design RSW P&S – March 2005
Construction/Installation (RSW): March 2006
Initiate BGS Design (as warranted) March 2005
Detailed Design (BGS) P&S – March 2006
Construction/Installation (BGS): March 2007
Biological Testing: Spring 2006 and 2007

Configuration Alternative: ***Install BGS and RSW at Lower Monumental***

ESTIMATED COSTS: ($M in current year $)

Design (includes all costs to implement through construction): (3.9 M BGS + 5 M RSW)
Construction: (15.1 M BGS + 16.3 M RSW)
Biological research - pre-construction and post-construction evaluations: 5.5 M
Total Costs: 45.8 M

OPERATIONAL COST SAVINGS (60 yr average) ($M)

Per year average: $6M (Range $0-16M)

RISKS AND UNCERTAINTIES:

Biological Issues: Tests are currently being planned to determine spillway survival at Ice Harbor under high and low spill operations in 2003. Only (1) spring of biological testing at Lower Granite (LGR) on the RSW and data is preliminary. Two years of BGS data is available (1998 and 2000), plus preliminary data from the spring of 2002. Transfer of technology not proven, performance may vary at other sites.

Design Issues: Added design and construction efforts likely to add time to implement both systems at one site. Removal for flood criteria needs to be researched. Operation (deploy and stow test of the RSW not completed at LGR. Technology may not be directly transferable from LGR to other sites, so design costs assume little economy in transfer of previous design to other sites.

Construction Issues: Difficult, but has been demonstrated at LGR to be possible. Need exacting surveys of spillways and bottom bathymetry early in design phases.

Legal Issues: RSW's are directly referenced in BIOP RPA #77 and 99. RSW's and BGS's are referenced for the Lower Snake river by RPA #80.

RECOMMENDATION:

Configuration Alternative: ***Install BGS and RSW at Ice Harbor***

ALTERNATIVE DESCRIPTION

Configuration Alternative Description: 1. Initiate design and install spillway modifications (RSW) to optimize spillway fish passage, reduce total dissolved gas and improve power generation. Operate RSW (7 kcfs) plus training flow (12 kcfs) – Total 19Kcfs @ 24 hours. 2. Install forebay guidance (BGS) to optimize juvenile passage at the spillbays and RSW and reduce powerhouse turbine passage. Delay design and initiation until spillway survival is confirmed at Ice Harbor.

Existing Operation Description: (BIOP) is 100 kcfs (night) and 45 kcfs (day), limited by gas cap at night and adult passage ladder attraction during the day.

BIOLOGICAL EFFECTS

Biological Effects Description: Project passage with an RSW/BGS and limited training spill (for tailrace egress) is estimated to pass fewer fish over the spillway than BIOP spill. Current spillway survival is under investigation. Estimates from the 2000 study estimated spring spillway survival at around 98%. More recent, but unpublished, estimates are lower. Continued evaluation in 2003 should reconcile whether a spillway survival problem exists, and, if so, determine the cause. An RSW with limited training spill may provide relatively high spillway passage, potential for improved tailrace egress at 100% spill conditions at night, and lower Total Dissolved Gas levels. We are uncertain whether these benefits will provide as high or higher passage survival rates than the current BiOp operating conditions, which can only be determined by a post-construction evaluation.

Since current spillway survival is under investigation, spill passage efficiency (percent of total project passage through the spillway) will initially be used to compare RSW / training spill alternatives with the BIOP spill condition. Current operation under the BIOP spill condition is estimated to pass approximately 90% of the fish at Ice Harbor. Estimates for RSW and BGS passage would pass less than 90% of the fish over the spillways, since BIOP spill at Ice Harbor passes most or all of the river flow, especially at night. However, if higher spillway flows contribute to lower spillway survival, as will be researched in the spring of 2003, RSW and BGS may provide a survival benefit higher than existing BIOP spill. Future studies are required to determine whether survival is different for spillway vs. RSW passage. Any benefits of installing an RSW and BGS at Ice Harbor are speculative in nature at this time.

Biological Data/Research required pre-implementation - 2004 and 2005 - Increase scope of radio tag spillway survival tests currently planned. Conduct balloon tag tests of direct spillway survival for baseline information. Conduct project passage tests to assist in selection of RSW location relative to forebay migration trends.

Biological Data/Research required post-implementation –2005-2006 – Conduct project passage, spillway survival (radio tags and potential pit tags) studies to determine survival and RSW efficiencies.

Configuration Alternative: ***Install BGS and RSW at Ice Harbor***

SCHEDULE

Estimated Schedule: (assumption, start date Dec 2002)

Pre-construction biological evaluations: Spring 2003 and 2004
Complete RSW Pre-design/scope development: - September 2003
Detailed Design RSW P&S – March 2004
Construction/Installation (RSW): March 2005
Initiate BGS Design (pending survival data results) November 2003
Detailed Design (BGS) P&S – March 2005
Construction/Installation (BGS): March 2006
Biological Testing: Spring 2005 and 2006

ESTIMATED COSTS: ($M in current year $)

Design (includes all costs to implement through construction): (3.9 M BGS + 5 M RSW)
Construction: (15.1 M BGS + 16.3 M RSW)
Biological research - pre-construction and post-construction evaluations: 5.5 M
Total Costs: 45.8 M

OPERATIONAL COST SAVINGS (60 yr average) ($M)

Per year average: $14M (Range $4-23M)

RISKS AND UNCERTAINTIES:

Biological Issues: Spillway survival may be lower than currently estimated at Ice Harbor. Tests are currently being planned to determine mortality at high and low spill operations in the spring and summer of 2003. Only (1) spring of biological testing at Lower Granite (LGR) on the RSW and data is preliminary. Two years of BGS data is available (1998 and 2000), plus preliminary data from the spring of 2002. Transfer of technology not proven, performance may vary at other sites.

Design Issues: Removal for flood criteria needs to be researched. Operation (deploy and stow test) of the RSW not completed at LGR. Technology may not be directly transferable from LGR to other sites, so design costs assume little economy in transfer of previous design to other sites.

Construction Issues: Difficult, but has been demonstrated at LGR to be possible. Need exacting surveys of spillways and bottom bathymetry early in design phases.

Legal Issues: Development of RSW's and BGS's on the Lower Snake river are referenced by BIOP RPA #80.

RECOMMENDATIONS:

System Configuration Team (SCT)

Meeting Notes
November 20, 2003

DRAFT

Comments on this draft are due February 19, 2004.

Greetings and Introductions.

The November 20 meeting of the System Configuration Team was held at the National Marine Fisheries Service offices in Portland, Oregon. The meeting was chaired by Bill Hevlin of NMFS and facilitated by Donna Silverberg and Richard Forester. The agenda and a list of attendees for the meeting are attached as Enclosures A and B. Silverberg led a round of introductions and a review of the agenda.

The following is a distillation (not a verbatim transcript) of items discussed at the meeting, together with actions taken on those items. Please note that some enclosures referenced may be too lengthy to routinely include with the meeting notes; copies of all enclosures referred to in the minutes are available upon request from Kathy Ceballos of NMFS at 503/230-5420.

2. FY'04 CRFM Funding and Program Update.

John Kranda said there are no changes to the CRFM spreadsheet since the last SCT meeting. He said the President is expected to sign the appropriations bill as soon as he returns from England. The conference committee agreed to set the FY'04 CRFM appropriation at $85 million; we're figuring savings and slippage at about 16-18%, which will likely put us at about the $70 million range. The bottom line is that, within a month or so, we will have FY'04 funds to spend, Kranda said.

Rock Peters added that proposals will be submitted by the end of this month, so by the time of the next meeting, the SCT will have a better cost estimate. Hevlin noted that, on December 10, the Corps will be hosting a meeting to identify those studies they intend to fund in 2004, for both the Portland and Walla Walla Districts. The location of this meeting has not yet been decided; the theater at McNary was one possibility mentioned, although Ron Boyce requested that, if possible, a location closer to Portland be selected. Peters said he will send out notification of the meeting location and agenda once available.

3. Discussion of RSW Development and Installation Schedule at Ice Harbor, Lower Monumental and Little Goose.

Facilitator Richard Forester noted that there is a possibility that this issue will be elevated to the IT on December 3; the Federal Executives are also waiting to discuss it on December 12. It is important, then, that we have a clear record of everyone's position on the RSW issue, he said.

Dana Knutsen said the Corps is still in the design phase on the Ice Harbor RSW; we're struggling to meet the December design deadline, he said. The federal executives decision in December will determine if we move forward with a construction contract in 2004, or to delay that contract. In the meantime, we're moving forward with plans and specs, Knutsen said.

Kevin Crum said one of the issues raised at the last SCT meeting had to do with the direction, last year, to look for possible configurational and operational alternatives that would confer similar biological benefits to the status quo BiOp spill operation, but that could be implemented at a lower cost to Bonneville. Crum said he had produced a new version of the paper used in the course of the 2003 discussion, including updated RSW and spill survival data from Lower Granite and Ice Harbor.

The premise, without benefit of data, was that an Ice Harbor RSW could yield biological benefits, in terms of increased survival, at lower cost, Crum said. That presumption was made with the understanding that there would be an opportunity for a thorough review of the 2003 Lower Granite and Ice Harbor survival data before the decision to move forward with Ice Harbor RSW construction was made. That data is now available, said Crum, but now the debate is, what does it mean? It appears that the Lower Granite data are pretty favorable, he said; it is the Ice Harbor data that are somewhat perplexing, in terms of the causes of the injury rate we're seeing. The other factor is that BPA is now estimating annual savings of $22 million per year from RSW operation, Crum said.

In order to have this structure installed in April 2005, the latest we can advertise the contract is in mid-March 2004, said Crum. We would then get through the bid evaluation process by early June. That's the latest we can actually award the contract if the builder is going to have it in place by April 2005, Crum said. We're currently about a month behind in the design process, he added, which puts everyone under even more pressure.

In response to a question from Russ Kiefer, Crum explained that the savings associated with the RSW would accrue because, with an RSW in place, spill can be concentrated through one or two bays, and raduced from 30 Kcfs-40 Kcfs to about 19 Kcfs, while passing at least the same percentage of fish. The additional water, obviously, would then be used to generate power and revenue. The group devoted a few minutes of discussion to the reasons for Bonneville's increased savings estimate; Kim Fodrea replied that the estimate is obviously based on the projected future price of power, as well as the spill assumptions. The $12 million figure that was originally quoted was based on 35 Kcfs spill through the RSW, while the $22 million savings is based on the 19 Kcfs RSW/training spill assumption.

The discussion then turned to the range of potential survival results at various spill volumes through the RSW, with 19 Kcfs spill at the low end and 35 Kcfs or more at the high end. Steve Rainey cautioned that no one should start counting on savings from spill due to RSW operation – we won't know what, if any, savings will be there until biological research tells us what operation gives us the optimal survival, he said.

The Corps was going to provide a mini decision document covering all of these biological and economic issues at today's meeting, Boyce said – do we have that central document to refer to? Boyce said that, to him, the concern is that the jury is still out on RSW efficacy at Ice Harbor; there is a possibility that the region would be sinking a lot of money into a system that will essentially provide lower spill at a lower gate opening, conditions that traditionally have provided poor survival at Ice Harbor. The risk, to me, is that we will make the wrong decision if we simply push forward with this project before we adequately understand the mechanical reasons for the lower survival at Ice Harbor, Boyce said.

The group discussed how best to proceed with this issue, in terms of teeing it up adequately for IT and Federal Executives discussion. Boyce reiterated that the Corps' summary document on the Ice Harbor RSW would be a useful starting-point for the SCT's presentation to those groups; Crum agreed to provide it, cautioning Boyce that it merely represents the Corps' perspective on this issue, and is far from encyclopedic.

Silverberg asked the other SCT participants to go around the table and state their positions on this issue.

Boyce said there was a good discussion of the relative survival and mortality of fish passing Ice Harbor through bulk spill and through a lower gate opening. It is clear that survival is lower then expected for fish passing through a lower gate opening, he said, and it is possible that that lower spill opening will be used with the RSW at Ice Harbor. It is unclear whether the RSW can provide the survival results we want to see, given that spillway uncertainty, he said. If we don't understand the mechanical reasons why injuries are occurring, he said, there is a chance we'll only make the situation worse by choosing the wrong system. My suggestion is that we go forward with the planned Ice Harbor spillway biological studies in 2004, homing narrowly in on the mechanical injury question at Ice Harbor, rather than pushing hell-bent forward to get an RSW in place in 2005. If we pursue that course, said Boyce, there is a very good chance that we will make a $5 million mistake. My preference would be to postpone the decision until the spillway survival and mechanical issue is resolved, Boyce said.

David Wills said the Fish and Wildlife Service echoes ODFW's concern that the region may be moving too far ahead of the information curve, in terms of the reason injury rates are so high at Ice Harbor. Tom Lorz agreed, saying that, from CRITFC's perspective, the RSW is designed to alleviate one hypothesis of what is causing the injury problems at Ice Harbor (the gate opening -- there is no gate opening with the RSW); however, if the actual cause turns out to be something different, it will not address those other issues.

Kiefer said that, in IDFG's opinion, it would make more sense to study bulk spill at Ice

Harbor in 2004; IDFG isn't even convinced that there is an unusual survival problem at Ice Harbor, or, if so, whether an RSW would solve that problem better than bulk spill. He said IDFG would prefer to use salmon recovery dollars to increase survival for listed species first, and use them to increase BPA's bottom line later. He added that, if BPA is so desirous of the savings the RSW technology will yield, then they should build the Ice Harbor RSW with their own funds, rather than seeking to use salmon recovery funds for this project. IDFG would not object to this course of action, Kiefer said. Boyce and Lorz said ODFW and CRITFC also concur with IDFG's concerns.

Kim Fodrea said her concern has to do with the idea that cost reductions are intended simply to benefit BPA's bottom line. We want to do what is in the best interests of fish, in terms of improving survival, she said; we also want to do what is in the best interest of fish, by making salmon recovery operations more affordable and sustainable. The fact of the matter is that we are in a regional economic crisis, and BPA is under extreme pressure to lower its costs and rates, she said – it is in the best interest of the fish to develop an operation that is less costly and more sustainable over the long term.

Hevlin said NOAA Fisheries has a response, from a fish biology and technical standpoint, to some of these issues. A number of people have raised the possibility that the gate openings are the cause of the survival problem, however, Hevlin said, perhaps depth over the flow deflectors is a more critical problem. What this also says, however, is that, when both flows and gate openings are low, so is survival, said Boyce. Rainey noted that results from the 2002 study at Lower Monumental showed a similar trend; he described the various low and high-flow scenarios implemented at that project in 2002. At Ice Harbor, what we've seen is a pattern under which, as per-gate discharges increase, so does survival, even when tailwater elevations are low and tailrace conditions are more turbulent, he added. Rainey went through some of the anecdotal information from Ice Harbor and Lower Monumental, as well as the various theories about what may be causing the spillway survival problems at these projects. Rainey added that there is a new hydraulic model of Ice Harbor available in Washington State which will allow additional hydraulic testing in 2004, looking at water particle movement through various spill, gate opening and tailrace conditions.

Rainey also described NOAA Fisheries' proposed two-phase study design for 2004; the bottom line, he said, is that we feel that, with the study design we will have in place, and with the additional, detailed hydraulic testing we plan, we will have a very good idea of what is going on at Ice Harbor after 2004. We'll certainly know whether or not we need to lower the flow deflectors at Ice Harbor, Rainey said, although that's a decision that will need to be made regardless of whether we have an RSW in place. It's not a 10-year process, he added -- we should be able to wrap it up after next year. It sounds, then, as though you're recommending that we defer the decision about whether or not to go forward with the Ice Harbor RSW for a year, Hevlin said. Delaying a year would allow us to have bulk spill vs flat spill test results from 2004 at both Lower Monumental and Ice Harbor, Rainey said, which would certainly help inform the RSW design and construction decision.

I guess my question is, what might we learn that would alter the fundamental design of

the RSW, which is a pretty simple mechanism? said Kranda – what is the risk of going forward with the RSW project and spending the money in 2004, other than the risk that next year's data may indicate that an RSW should not be a part of the solution at Ice Harbor? My belief is that, if it is a mechanical problem causing the injury and mechanical problems at Ice Harbor, we should be able to find it and correct it, as we are with the training walls at The Dalles, Rainey said. But the real question is, how will the additional information we get in 2004 inform the RSW design? Hevlin said. Crum said that, in his opinion, most of the mechanical issues under investigation are separate from the RSW question -- if, for example, it turns out that the flow deflectors need to be lowered. In other words, said Ken Barnhart, it does not seem likely that the information gathered through the 2004 survival studies will actually alter the RSW design.

It was further observed that the lower spill volumes that may result from RSW operation would not result in lower tailwater elevations (and lesser depths over the flow deflectors) at Ice Harbor – total river discharge would be the same.

Boyce suggested that it probably makes sense to wrap up this discussion for today, because it sounds, to him, as though the action agencies have already made up their minds to move forward with the Ice Harbor RSW contract in 2004. Kranda raised another question – what is the risk if the RSW is installed before the 2004 biological information is available? Is it that the RSW will not ultimately be a part of the solution at Ice Harbor, and the $22 million or so it would cost would be wasted? Is it that the RSW will need to be modified or retrofitted in response to that information? At this point, we feel the RSW will be a part of the solution at Ice Harbor, Rainey said -- in other words, that it will work. Any changes made in response to the 2004 biological testing results will likely be made downstream of the RSW, Rainey added.

So if we can agree that the RSW is likely to be a part of the future solution at Ice Harbor, and that it is unlikely to be substantially modified in response to 2004 biological testing results, what's the downside of going forward with design and construction of the Ice Harbor RSW in 2004? Kranda asked. On the other hand, what's the downside of waiting a year, from a biological perspective? Hevlin asked. We have seen very low survival through both Ice Harbor and Lower Monumental under low flow conditions, Barnhart replied – if the RSW technology is a part of the future solution at those projects, the risk is to the fish.

So is there a biological benefit to delaying RSW construction one year? Hevlin asked. It would allow us to answer the question of whether bulk spill will solve the survival problem at Ice Harbor, if that problem really does exist, Kiefer replied. We will also have some additional adult return information, he added. Actually, there are no PIT-tagged fish out there waiting to answer the adult return question, Crum replied – we don't know whether those marked fish passed the project on a treatment day of spill, or passed through the turbines or through transportation.

The discussion continued in this vein for some minutes. Ultimately, the group settled on three potential options for resolving the RSW issue:

1. Stay the present course, with Ice Harbor RSW construction in 2004 and

installation/operation by the spring of 2005

2. Defer Ice Harbor RSW construction for at least a year and switch the focus to make Little Goose RSW construction the next priority, followed by Lower Monumental RSW construction, then Ice Harbor (the soonest the Little Goose RSW could be operational is the spring of 2006)

3. (Proposed by Kiefer): Continue fasttrack development of the Ice Harbor RSW by 2005, with the understanding that the Little Goose RSW would be operational by 2006 and the Lower Monumental RSW by 2007. Additionally, Kiefer said this compromise would need to include the explicit acknowledgment that improving survival is more important than the cost savings expected to result from RSW installation, but the region anticipates that both would occur.

Barnhart said BPA feels that Ice Harbor should be the next RSW priority; the cost savings from the RSW technology are expected to be less at Little Goose and Lower Monumental, because spill occurs 24 hours at Ice Harbor during both the spring and summer period. Kranda noted that the most expedient path to getting RSWs installed at all four Lower Snake projects would be to stay the current course and do Ice Harbor next – any other course will delay the process by a year. Fodrea noted that, while she is encouraged by the IDFG proposal, she is concerned about Kiefer's final statement – that survival is more important than cost. That's the philosophy that has guided regional decision making for years, she said, and it has gotten us into a situation where spill levels are very high at most projects – we are finding those spill levels very difficult to sustain, Fodrea said. You're saying, then, that the biological and cost benefits need to be equal? Silverberg asked. That's correct, Fodrea replied. Would Idaho have a problem with the statement that, under your plan, the benefits would accrue to both the biological side and the economic side? Silverberg asked. It would have to be worded carefully, because BPA's financial problems were due to poor business decisions, not BiOp operations, Kiefer replied. That's not the issue we're trying to address here, Silverberg observed.

The group devoted a few minutes of additional discussion to the three RSW options. Ultimately, Forester asked the SCT members to state their positions. Boyce said that, in Oregon's view, RSW construction makes absolutely no sense, biologically, at Ice Harbor. David Wills said the Fish and Wildlife Service would prefer to see RSW construction go forward at Little Goose next, but is concerned about the year's delay such a course of action would impose. He said he will present the information to the USFWS federal representative and let him make the policy judgement. Tom Lorz said CRITFC remains unconvinced that an RSW will resolve the survival issue at Ice Harbor, so at this point, CRITFC is reluctant to recommend that RSW construction proceed on a fast track at that project. In response to a question, Lorz said CRITFC is also concerned about the effects of the Ice Harbor RSW fasttrack on the remainder of the CRFM budget; Kranda assured the group that the decision on the Ice Harbor RSW will not affect the placement of other items within the SCT's CRFM priorities. That makes us feel a little more confident, said Lorz.

In the absence of SCT consensus, it was agreed to present the various options outlined above to the IT for discussion and, hopefully, resolution at the group's December 4 meeting.

4. FFDRWG Updates.

Rebecca Kalamasz provided a report on the McNary 1% study, which was discussed at the most recent FFDRWG meeting. She noted that the proposal had been received from USGS, which contained very high radio-tag sample sizes. We felt, as a group, that it wasn't a good idea to proceed with the radio telemetry work, primarily because of the cost -- $3.3 million to more than $10 million, Kalamasz said. We did agree to continue with the gatewell dipping; one recommendation from the meeting was to get the seasonal gatewell results from the two units that are being operated outside of 1%, she said. Kalamasz added that she had sent out a memo to that effect. She added that a contractor had subsequently submitted a proposal for a reduced-scope PIT-tag study, at a cost of less than $2 million, so that is still a possibility. The SCT agreed that such a study would be useful and should be pursued, pending review of the proposal specifics. She said she will provide additional information as it becomes available.

5. Juvenile Survival Studies at Bonneville.

Discussion of this agenda item was deferred to the next SCT agenda.

6. B2 Corner Collector Hydraulics and Potential Modifications.

Discussion of this agenda item was deferred to the next SCT agenda.

7. Next SCT Meeting Date.

The next meeting of the System Configuration Team was set for Thursday, December 18. Meeting summary prepared by Jeff Kuechle.

SCT Notes
21 Nov 2003

Discussion occurred for about 3 hours on the Removable Spillway Weir (RSW). All other SCT agenda items were deferred while these discussions occurred.

There continues to be great concern by Oregon Department of Fish & Wildlife, Idaho Department of Fish & Game, Washington Department of Fish & Wildlife, Columbia River Inter-Tribal Fish Commission, U.S. Fish & Wildlife Service and some at NOAA Fisheries that the development and construction of the Ice Harbor RSW is occurring too rapidly, given the recent biological information from Ice Harbor and Lower Monumental.

Survival data is lower than expected, and the causal mechanisms are not yet known. Agencies are concerned an RSW would not solve the survival problems. There is concern that survival issues exist at Ice Harbor that need to be fully identified prior to building the RSW.

Kevin Crum discussed that injuries could not occur on the RSW structure itself, given the improved hydraulics and the very good survival data from Lower Granite. Any spillway/basin modifications, if identified necessary later, would not alter the RSW design. Those changes would occur on the spillway chute below the RSW terminal end, on the deflector, or the stilling basin. So, the decision to go forward with RSW is separable from the injury issues.

Also, there are questions identified by all agencies listed above about whether an RSW is biologically necessary, especially if an altered spill pattern can be adopted. Some items of discussion are as follows:

- Are the decisions being made strictly for economic (BPA revenue) reasons?
- Will other spill patterns, such as Bulk spill, provide sufficient survival?
- Will RSW improve or eliminate survival problems?
- Can we get adult return information at Lower Granite identified prior to implementation of RSW at Ice Harbor? (IDFG request).
- Is there a better site for RSW. Idea was use the CRFMP to get biological improvements first, then work sites that have the economic benefit, such as Ice Harbor.

Corps would like to evaluate and form an opinion as to whether to go to Little Goose instead of Lower Monumental first.

The agencies identified above would like to have the decision of the RSW raised to IT. In doing so they have proposed three alternatives:

- Propose develop Little Goose for 2006, then Ice Harbor in 2007. Schedule slips a year from present plan. (NOAA Fisheries, and Oregon Department of Fish & Wildlife)
- Go forward with Ice Harbor in 2005, then Little Goose 2006, then Lower Monumental 2007. (Idaho Department of Fish & Game). This is a compromise position for IDFG. They would prefer Little Goose, Lower Monumental and then Ice Harbor, however, they do not want to slip a year. Kevin stated if we change sites now, we will have to lose a year in the schedule.
- As proposed, Ice Harbor in 2005, Lower Monumental in 2006, and Little Goose in 2007. (Fed Exec Decision)

ATTACHMENT 6

CENWD-PDW-R 16 December 2008

MEMORANDUM FOR THE RECORD

SUBJECT: Comments on Spill Information in the Second Declaration of Edward Bowles in Support of Oregon's Motion for Summary Judgment

1. At the request of the CENWD-PDD, the Water Quality Unit of the Northwestern Division (NWD) Reservoir Control Center (RCC) provides the following comments on the Second Declaration of Edward Bowles in Support of Oregon's Motion for Summary Judgment.

2. Reference Exhibit 1 of subject declaration. The Fish Passage Center (FPC) calculated the spill volumes listed in Tables 5-12 of Exhibit 1.[1] The methodology used by the FPC to calculate spill volumes includes factors that introduce error into the calculated estimates. These factors are:

a. The FPC uses a spreadsheet model to estimate spill volumes at each individual project. The FPC spreadsheet model does not model the Columbia/Snake River system (8 projects) as a whole in regard to system-wide total dissolved gas (TDG) production. By neglecting to consider the system as a whole, the FPC model fails to take into account how TDG production occurring at an upstream dam affects the downstream dam spill cap and spill volume. That failure likely will result in the erroneous determination of a total spill volume at that downstream project as well as at successive downstream projects. This methodology inaccurately assumes that incoming ambient TDG levels are always within the state waiver criteria. That assumption is not representative of actual system conditions; thus, the FPC model tends to estimate higher spill volumes than what would actually occur system-wide.

b. As part of their modeling input, the FPC assumes full powerhouse capacity (94 turbine units) at all of the 8 Columbia/Snake projects. This assumption is flawed, in that it does not accurately represent actual generation capacity conditions. On average, there are approximately 20 unit outages throughout the system at any point in time during the fish passage season. This is primarily attributed to the required maintenance of turbine units and inspection and maintenance of fish passage facility components that may require turbine units outages to ensure the components are functioning as intended. Therefore, during an average season in which spill is occurring for fish passage, the Columbia/Snake powerhouse capacity for these 8 projects is approximately 80% of total capacity. This would result in further overestimation of spill volumes. SUBJECT: Comments on Spill Information in the Second Declaration of Edward Bowles in Support of Oregon's Motion for Summary Judgment

[1] In our analysis, we are assuming the FPC model analysis was conducted in the same manner as it was during the 2007-08 regional AMT process.

3. The Corps uses the SYSTDG to model the Columbia/Snake River system (8 projects) as a whole under varying operating scenarios to estimate individual project spill caps to determine total spill volumes at each project. To achieve this, the model takes into account TDG production at upstream dams as well as the water travel time for TDG to arrive at the next downstream dam progressing in a downstream manner. It also addresses actual generation capacity at each project to more accurately estimate spill volumes.

4. The differences resulting from the flawed assumptions in the FPC analysis and the Corps' SYSTDG analysis, is exemplified by model result comparisons that were completed for the 2007-08 regional Adaptive Management Team (AMT) process sponsored by the State of Washington and the State of Oregon water quality agencies. The FPC and the Corps performed spill volume calculations to determine how much additional spill would have occurred in the 2007 spill season if 115 percent (%) TDG limit was removed and all projects spilled to the 120% TDG standard. The FPC model results indicated 6.0 (million acre-feet) MAF of additional spill while the Corps' model indicated 2.5 MAF of additional spill. As demonstrated, by accounting for the system effects as a whole and factoring in actual generation capacity at each project, the SYSTDG model provides a more accurate representation of anticipated spill volumes.

Kevin Grode

KEVIN GRODE, P.E.
Acting Chief, CENWD-PDW-R