

**Columbia River Regional
Forum System
Configuration Team
Meeting July 20, 2023
Final Official Notes**

Representatives of Corps, ODFW, WDFW, BPA, NOAA, and others participated in today's SCT hybrid meeting facilitated by Trevor Conder, NOAA. Ida Royer, The Corps of Engineers, hosted the WebEx to facilitate better notetaking.

Draft and final SCT notes are available on the COE's TMT website under the [FPOM link](#). For copies of documents discussed, contact Kathy Ceballos at kathy.ceballos@noaa.gov. See the final page of these minutes for the list of attendees of today's meeting.

1. Review and Approve June Notes

- Conder read through the minutes, they do a good job of covering the discussion. There were a couple small things but nothing to gripe at.
- Tom Lorz, Umatilla, also reviewed and they were fine.
- Royer said that she sent in a few minor corrections this morning. She can send them to the group if needed.

Conder read through her corrections and did not see anything significant, but we can go ahead and send that. He said that he is also okay with approving as is.

Lorz said he is fine with them.

- Minutes approved.

2. Open Floor

- Lorz asked if there have been any significant changes for the budget this year. He said that things usually come in higher or lower.

Royer said no, the PBud of \$66.6 is where we stand, and she does not think that she will hear anything until Congress moves. She is not expecting and budget updates for a little bit.

Lorz said that he was thinking more for the current year. As contracts come in, sometimes they are higher, sometimes they are lower. He asked if there is any

jockeying around with the funds that SCT needs to do.

Royer said that she would say nothing significant. As we get closer to the end of the year things do adjust a little bit but there is nothing major.

- Royer will come next month with an update on FY23 execution and where we are looking.
- Lorz said that they had FPOM last week and they asked Chris Peery where they were with the McNary (MCN) Modeling. Peery said they have not identified funds for O&M to cover the modeling. Lorz said that they are curious then the only other source of funds that we have is CRFM. He asked if that is an option.

Royer said that if that if she hears that the Corps is moving forward with modeling than CRFM is an option.

Lorz asked where or if this discussion is going to happen. He said that they sent a letter¹ three months ago requesting modeling and they have not received a response. He said that the other big issue in the letter was to get a schedule for modeling and hoist replacement and they have not seen that either. Lorz brought this up at FPOM and Chris Peery was surprised that they had not seen a response. Lorz said that he is taking this up the policy food chain and SCT is the next step in that ladder. Lorz said that he did not see anyone from Division on, so he will need to send a nastygram to Ian or Dan, or if Royer will pass it on. Lorz said that he loves writing letters but if the Corps plan to ignore them he asked that they give him a heads up.

Royer said that she will talk to Ian today. She asked if Lorz is wanting a response about the modeling. She asked Lorz what the second thing he would like to hear back about.

Lorz said that there was a discussion and one of the primary features of that letter, that they wrote three months ago, was a schedule for hoist replacement and they still have not seen that either.

Royer said that she will ask someone from Division to get back with Lorz formally or informally.

Lorz said that they had set up FPOM as the place, but FPOM has been very quiet on this topic the past three months. He said that he has given the Corps three months so now he has to kick it up to SCT, the next rung.

Erick Van Dyke, ORFW, said that he knows that it is Lorz talking but this a SCT topic and if all could be included on status and update that would be great.

¹ [See Attached Document, page 14]

Royer said to be clear, the hoists are not SCT topics. SCT is generally CRFM funded projects. She said that SCT can bring it up, but she is not going to have answers. Which would not be very helpful, at least on the hoists. She said that if they tell her that they are not getting traction from somebody, she works for the Corps, she can try to get them to loop back.

Lorz said that there is still some confusion because two meetings ago, Lorz thought, the member from Walla Walla district said they were still looking at the option of using CRFM funds to possibly do some of the hoist work. Lorz asked if that decision has been made now that it is all going to be on O&M, and we are going to hope that the Santa Clause O&M guy is going to come and fund us.

Royer said that she did not think that he was saying that we were looking at CRFM. She said that she thinks that we are looking at different funding pots, like large cap and other Corps funding sources.

Lorz said that they could debate that at a different time because since this is not a replace in kind, he thinks CRFM becomes an available tool. It may not be ideal but if we are going to take 15 – 20 years to put these in he would rather use CRFM and try to get it done sooner.

Van Dyke asked if the hoist work involved a new hoist that had a untested abilities would be put into the CRFM pot.

Royer said that she was not sure what Van Dyke meant. She said unless we are designing something new, generally speaking it is not going to be CRFM. It's a hoist, you are not changing it into some sort of fish passage-like slide or something like that. It is going to be hard to make that case that it should be CRFM.

Jonathan Ebel, IFDG, said that he thinks that it is pretty easy to make that case given that we spill all this water for fish passage.

Royer said that she understands that and though we pass fish in fish ladders every single day, the ladders are still not CRFM. There are other distinctions. She said that it is very confusing and frustrating, she understands.

Ebel said to return to the spill pattern modeling, he thought it might be helpful. Essentially it has been a stalemate with no response, and it is important to know what is holding that up because if they can suggest and rate highly through SCT that they would like Spill Pattern Modeling at MCN then in essence he would see that lack of funding becomes less of a reason for not doing the modeling. He said that would be step one, finding what the holdup is, is it simply Policy-level digging their heels in on the issue or is it a funding thing. If it is a funding thing Ebel said he feels like what the States and Tribes are saying here is they think this

is the avenue.

Royer said that the modeling discussions are happening at the Division-level. So, she is not going to commit or not commit until there is some decision made at that higher level. She said that she thinks that they understand that there is an interest. She said that she thinks those discussions are happening, but they are above her paygrade.

Ebel said okay, how about we speed them along a little bit but either way thank you.

Conder said to Royer that while the hoist replacement in her current opinion is not CRFM, the ERDC modeling to deal with this issue that we are having with the lack of usable hoists and cranes, that could potentially be CRFM.

Royer said yes. Conder said okay.

Van Dyke said that something that he is unclear on with the hoist conversation is if they are planning on replacing them in kind and they have been characterized as inadequate to do that job that is expected of them is that a wise strategy and will it just buy us nothing more than the current problems we have.

Royer said that she wants to be clear. She is not involved with MCN hoists, and she does not know much about it. It is discussed at FPOM and is not a CRFM item. She will not be able to respond very intelligently to details about the plan for replacement, what they are being replaced with, et cetera. She said this is why she is suggesting that the discussion should happen at FPOM. So, the people who are more versed in those things can answer those questions because she just does not know. Chris Peery has been leading that for the Corps and she is not going to have any more answers for anyone.

Van Dyke said that his initial question was about how we identify whether this is CRFM funding possibility or not. The rationale was it is “in kind”. If that the case, then Van Dyke said that he thinks that we are missing the point. We need to cognizant of the fact that these things are not functioning the way they are supposed to, they were designed and what is described as inadequate to do the job they need to do. He said that it seems to be where we are, and it has been what they have been trying to convey as something they are desiring moving forward. He hopes that it would be something that Royer could capsulate it that way

instead of pushing them back into a space where they have already been talking and not getting the answers. Somehow breaking this loop would be great. He said that everyone would benefit from that. If Royer could investigate how a CRFM approach fits a design that improves what is currently inadequate that would be what he would hope SCT would try moving forward. He asked if that makes sense or if he is just babbling.

Royer said yes. The hoists are already budgeted. She is not sure where they are in the budget, but they have already requested funding and she believes they are trying to work that out. She said that it is not like they are not doing their best to try and make movement.

Van Dyke said that he is not talking to that, he is talking to the fact that the hoists have been characterized as inadequate to do the job they need to do. If they are replaced in kind that means, we are just going to repeat what we already did and cross our fingers hoping that they do not demonstrate the same problems that we have observed. He said he thinks that if that could be conveyed that would be helpful to encapsulate what they are trying to move toward.

Royer said that she would suggest that Van Dyke ask Peery that at FPOM.

Van Dyke said that he would reiterate that to Peery. He said that they are saying it here as well because they are asking questions about the color of money and where these problems can be addressed with funding.

Conder told Royer that what he heard people alluding to about the past hoists were maybe sufficient to deal with the predicted amount of lifts expected with an old operation before we had this type of spill program. With this more modern spill program, with all the adjustments that are necessary, you need a hoist that has a higher lifting capacity, cycle rate, and usability than before. Conder said that it sounds like people are saying that to me it would make this qualify as a fish passage measure because the spill changes are for fish. You need a new widget to be able to have this level of fish passage, that therefore would qualify it as CRFM. Conder said that he is hearing Royer say no, that is a stretch. It does not meet the bar. He said that is the gray area that they are getting hung up on.

Royer said that she understood but does not have a great answer other than saying it is not CRFM. There are gray areas oftentimes on these things, but they have budgeted for it under a =line item. She said that she hears that there is concern about that design. She said that she can relay that concern to Peery and others so that he can address that at FPOM.

Lorz asked Royer if she is the one who makes the decision on the color of money

or is it a headquarters issue. He asked how it gets decided and what the process is for making the decision.

Royer said that oftentimes when we are budgeting for things there is kind of a conduit that starts with the district level and then division. There is a process for that, sometimes it is obvious and there is not a lot of back and forth. If there is a question that will get debated.

Lorz said that answers his question to a degree. Their concern is that they go talk to Peery and he goes they are still talking. We hear you say this isn't my widget but we're quickly running out of options. This is kind of important and this isn't a indication on you this is our only other area to discuss this or bring this up. He is going to bring it up. He is going to bring it up in the FFDRWG agenda.

They have three areas to talk about this and they are getting unsatisfactory answers at all three of them. Other than we are still discussing what they sent the Corps in a letter three months ago. He said that he is frustrated. He said that it is plain and simple. He said that they have been told numerous times by the Action Agencies how important spill patterns are and yet they do not even have a schedule for when we could return to the appropriate fish passage spill pattern. He said that he is not doing his job if he is not pushing the Corps, so he is sorry if this is getting old for you guys to hear but it is his job. He is out there trying to improve fish passage wherever he can, and he sees this as a fairly large deficiency. He said that the people are talking about trying to do a survival test using acoustic tags to evaluate things. He said that if you have a crappy spill pattern, he is not sure what that would tell you. He asked if it would measure the spill pattern or a measure of something else. He said that he is done. He is just confused why people are not talking to them or coming up with a schedule or why we are not moving a little more smartly on this topic.

- **Royer will try to get resolution on schedule, funding stream (who, why), and some kind of response to some of the concerns about the future design.**

Ebel said that maybe others would disagree, but he would like to ask Royer to rephrase one of three. He said that it is not necessarily who is paying for it but how can these colors of money be used in some combination or separately be used to do this as quickly as possible. He said that he thinks that this is a better way to put it. He said maybe the Corps has their reasons that they are saying that it is either this or this but a lot of time if there is a possibility to draw from both for different aspects of these projects and that can improve the timeline to something that is a little more acceptable.

Royer said generally speaking funding streams Congress sets up different funding allotments for a specific purpose and legally you are not allowed to spend money

on things outside of that purpose. If Congress says here is five dollars to go turn the screw you cannot use those five dollars for anything else. She said that is why we have to be careful about what we use funding for and why. While it would be easier to just spread money where it is needed, we do not have that ability so it can be limiting.

Ebel said that he gets that. He said that there are different parts here because you know you might get money to turn that screw, but you need money to design that screw and you need money to drill that hole. That is kind of like compartmentalizing and essentially selling this in a way through your funding streams to try to move this process along. Ebel said that he thinks that it would be helpful. He said that maybe there are reasons not to do that, but he thinks this could be broken up in ways where it is a lot harder getting one big chunk of money than an equivalent total of little chunks of money sometimes. Blending or mixing colors is the quickest way to get to what we want. He said that is how he is thinking about it. He said he will stop now because he is not an administrative guy, and he loathes administrative tasks, so he just complains about them here.

Charles Morrill, WDFW, said that he agrees with what he heard of Lorz and Ebel's concerns. He said that he needed to get himself on his soapbox for a moment and express that what they have heard back from the Corps is certainly not encouraging in terms of looking outside the box or trying to make sure that they are conveying to the States and Tribes the steps they are taking to try and address this, and this is a critical concern. He said that he would again say that we really need to look at all the options. He said that one of those things is that we are still waiting six months out and we have no idea where the Corps is with the discussion or the verdict for working on the modeling for MCN. He said that is kind of disappointing. He said that this is a critical issue for the region and the fisheries, and he does agree that it should be a blending of the funds and the CRFM funding makes sense to him.

Conder asked if for most people if it is a timing issue, to accelerate the timing, or is it to not deplete O&M funding. Or he asked if it is both. He said that if they were to get this done relatively quickly, is it a huge concern that they are using O&M, some large cap project. Conder said that he does not think the money is the issue, he thinks the concern is that it extends the timing significantly to where it could get done a lot quicker. He said if he is incorrect to let him know.

Ebel said that whatever gets it done as quickly as possible, but he said that Conder brings up a good point. If they put it all in one budget or out of one pot of money, then it depletes that pot of money. He said that they have all seen the list of O&M projects that are required, it happens things fall apart. If generally O&M is fixed and it is going to take a long time to try to fit into O&M with all the other stuff, or it is going to take away from the other critical needs in O&M for fish passage it is just more reason to split it up across funding sources and to make an ask to Congress to do this under CRFM.

Conder said yeah it is kind of both.

Ebel said that he does not envy the Corps, but he also thinks that it is a little too black and white. Then that is slowing stuff down. It is certainly not an optimized process if it is going to be taken from one pot.

Conder said that he can sympathize with Royer on this a little bit with the idea of crossing the line and then getting in trouble with whoever appropriates this funding. He said that could shoot us in the foot too. We could end up ticking someone off that is kicking us large sums of money annually in Washington D.C. for the program because we misuse funding and then that subsequently resulted in them not wanting to give us any more money. He said that could be a huge problem too. He said that we do have to make sure we cross our T's and dot our I's on that.

Lorz said that Large Cap is a complicated process and there is also BPA payback, you have to get BPA matching funds for that as well, which is also problematic because that is set by the rate case. He said that CRFM is the one pot of money that we have more flexibility with and can use more readily. While not an ideal tool, he is not sure why we are not trying to use it more if we can. Lorz said that anyone that makes the pushback saying that something is not CRFM, he thinks that we can make the case pretty strongly and if Royer needs help making the case the managers would gladly help her make it. She has a NOAA representative saying this is critical for fish passage, she could probably get a letter off Conder. He said this because this is one of the few areas, they have some control over and get some leverage. When they have gone and lobbied the Corps have gotten more funding, so their voices are being heard back there. Large Cap is a much more complicated thing to try to get lobbied and try to get funding for. So he is hoping the Corps are talking internally about leveraging CRFM as much as they can because that makes sense, instead of it being all Large Cap and we should have this done in 15 years.

Lorz asked Conder about the update from Gabe about the pile dike PIT tag stuff. He asked if that will be done at SCT or at FDDRWG.

Conder said that he would say that FFDRWG would probably be the more appropriate venue for that.

Lorz said that it fine just that Blane Bellerud and others had talked about it and he wanted to make sure it did not fall through the cracks.

Conder said from the notes he was reading that it is in September and Scott made a comment that they are not going to be able to do that until September. He said that we can put a shout out to Gabe that we are hoping that he can preset at FDDRWG in September on some of that information.

Morrill said that he talked to Gabe recently and the results from the season are encouraging and he anticipates them being able to give a presentation and update sometime in September. Gabe said that it was one of the best or second best years in terms of total detections and was pretty excited about the results that we are looking at. Morrill said that it was good news to hear.

Christine Peterson, BPA, asked if they have talked with Steve Smith, Jim Faulkner, and the statistics group over there. She said that is another side of things beyond the effectiveness of each antenna. She said that one thing on the physical design of the antennas it sounded like Gabe was saying that he had ideas for making each location work a lot better next year by adding more component antennas to each site.

Morrill said that Gabe did say that Steve Smith was looking at the information and got him to dive into it and look at it. But he said that one of the things that they did notice that he got very, very few, if any, double hits on fish moving through the arrays that are out there. Steve does have that information and is looking through it, we will hear from him.

Conder said that another they look at is just bias of the various methods and the more you look at it certain methods seem to acquire tags from different groups at a higher rate than others, which can somewhat skew or bias the survival estimates. But it just seems like the more you look at it the better it is to have a few different methods to capture all that. There is not one that is better than another. It is just where you can have the more unbiased it becomes.

Morrill said that Gabe addressed that a little bit. He said one of the pile dikes is very similar to what they have seen in composition from the initial look, the other is a little different. Morrill said that Gabe certainly did not see the pile dikes as

being “the silver bullet”, he still sees the cable and the pile dikes as an effective tool. So, they are working on their summary, and he shared that Steve is looking at that information. At some point in time, we will have a recap and a perspective from the research group on what they think is most appropriate going forward.

Ebel said that Conder brings up the bias, he said it is not necessarily bias because we do not know which way it will be biased but we have assumption violations in Cormack-Jolly-Seber models right now that are making our estimates questionable. It is difficult to find out which way it is leaning but disproportional representation is going to be a serious issue moving forward.

Lorz asked if this information is on PTAGIS.

Conder, Peterson, and Morrill agreed that it is available on PTAGIS.

Ebel said that FPC did a quick look on the pile dike results from last year. He thought he had brought it up. They had not found a huge difference in representation, which is a good thing, but something that we need to be careful of. For those who have not looked at it, it is somewhere in the maze of memos.

Ebel asked if Royer has all of the rankings. He is trying to remember if he sent in an updated set of rankings. He asked where we are at.

Royer said he emailed her his scores and then he was not at the last meeting. She sent out what she had after the last meeting to the distribution list. It is a living document so if Ebel wants to update, we can revisit next month and walk through it again. Hopefully she will have updated FY23 execution as Lorz requested. So, we could put that on the agenda for next month. If anyone has any updates, they can send them to Royer.

Ebel said that he will check and correct. He thinks that he was on vacation for the last meeting so he will go back and search and see.

Morrill asked if there was any update on the project report side that you need to allocate funding for a third and fourth quarter or if everything is going ahead as planned.

Royer said that they are charging ahead. She has sufficient funding in FY23 to the is no disruptions or anything and then our FY24 PBud is healthy.

Morrill asked if there are any projects that are significantly underspent that would allow us to shift money to high priority projects.

Royer said that everything is funded so she is not sure where this is alluding to.

Morrill said that his question was if the contracts need all the money that was

allocated for a given project are there funds that could be shifted to other projects depending on how much there is. That was his thought and question. He said in the past when underfunded project service did not require all the money, as with the litigation expenses, there were cost savings that we were able to consider using in different places.

Royer said that is helpful if you have something that is not funded and then you are able to fund it. She said that she does not have anything that is not currently funded. She said that we have some new starts in FY24, but she has no intention of starting them in the fourth quarter of FY23.

Morrill said that he thought that if they have \$100,000 and the group was comfortable with saying let ask Don and Gabe about putting in PIT detection into Little Goose. He said it would be something that some would support, not everybody. He said that is a need that has long been on the list and always is a low priority that many other things. That was his thought if there were funds, and the group was supportive maybe we could look into it.

Royer said that step one is determining if that is a viable project on the CRFM sheet, so that would have to be discussed.

Morrill said for next month meeting maybe Royer could provide a snapshot of where we are with funding for this year, whether there is a bunch of money that we might consider doing something with or have the option to.

Royer said for awareness, they do not just randomly put money wherever they want. It is not a free-for-all. She has a budget that she communicates to the administration where she is putting that money. If they have excess, they carry over in the project to continue that work into the next year. If there is an unfunded project, they will fund...

Morrill said even if the project is gray listed on the current spreadsheet.

Royer said that the gray listed are the ones that they are not planning to fund currently.

Morrill said because we did not have the money to do that, and it was a lower priority.

Royer said no, the Corps is not budgeting for those projects for various reasons.

3. Ongoing Topics

- PTAGIS
- avian wires at McNary
- improved pit tag detection (especially below BON, BON and MCN)
- Flex Spill Evaluation (no funding has been identified).
- PIT trawl - Are operations funded?

4. Agenda Topics

- a. FY23 Update

Next meeting: August 17, 2023 (Hybrid)

NOAA offices at 1201 NE Lloyd in Portland (11th floor)

Today's Attendees:

| Name | Affiliation |
|---------------------------|--------------------------------|
| Ida Royer | <i>Corps</i> |
| Tom Lorz | <i>Umatilla/CRITFC</i> |
| Steven Sipe | <i>Corps</i> |
| Dana Bethea | <i>NOAA</i> |
| Jonathan Ebel | <i>IDFG</i> |
| Tom Iverson | <i>Yakama Nation Fisheries</i> |
| Jay Hesse | <i>Nez Perce</i> |
| Trevor Conder | <i>NOAA</i> |
| Chuck Barnes | |
| Erick Van Dyke | <i>ORFW</i> |
| Christine Peterson | <i>BPA</i> |
| Kate Self | <i>NW Council</i> |
| Charles Morrill | <i>WDFW</i> |

Minutes by Andrea Ausmus, CorSource Technology Group LLC, Contractor for Bonneville, AMausmus@bpa.gov (971-373-1288). Please send any requested edits to Kathy Ceballos, NOAA, kathy.ceballos@noaa.gov.

State, Federal and Tribal Fishery Agencies Joint Technical Staff Memorandum

*Columbia River Inter-Tribal Fish Commission
Idaho Department of Fish and Game
Washington Department of Fish and Wildlife
NOAA National Marine Fisheries Service*

*Oregon Department of Fish and Wildlife
Nez Perce Tribe
Yakama Nation
Confederated Tribes of the Colville
Reservation*

TO: Ms. Beth Coffey
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Lt. Col. ShaiLin KingSlack
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FROM:

| | |
|--|---|
|  Thomas K. Lorz, CRITFC |  Erick Van Dyke, ODFW |
|  Jonathan Ebel, IDFG |  Jay Hesse, NPT |
|  Charles Morrill, WDFW |  Tom Iverson, YN |
|  Trevor Conder, NOAA |  Kirk Truscott, CTCR |

SUBJECT: McNary Spillway Hoists and Modified Spill Patterns

DATE: April 18, 2023

Overview

Regional fish managers request that the Army Corps of Engineers (COE) evaluate the proposed spill pattern modifications at McNary Dam (Fish Passage Plan change form 23MCN001, see attached) with regional parties. The physical model would be the preferred option since that was the primary tool that was used in the development of the spill patterns that were identified in the 2020 Proposed Action under the Fish Passage Plan and evaluated by the Biological Opinions (BiOp).

Regional fish managers request the COE identify funding and resources to accelerate the replacement process for the McNary hoists without sacrificing funding for other planned Operational and Maintenance activities and Columbia River Fish Mitigation (CRFM) projects. Funding will be needed now and in the out years.

The COE should consider and discuss with regional partners a possible parallel path. While the gate hoists are being replaced, the existing hoists could be rehabbed thus reducing their risk of failure and allowing for increased usage. This would decrease the time that the spill pattern would need to be altered and reduce negative impacts resulting from the modified spill pattern.

Regional fish managers also request the COE provide regular scheduled updates for the proposed replacement schedule as well as critical milestones for return to service of the spill hoists and other critical spillway features. This would help inform regional partners when further review or modifications to the spill patterns may be necessary.

Background:

The COE informed regional fish managers through the Fish Passage Operations & Maintenance (FPOM) forum that issues with the McNary spillway hoists would necessitate alterations to the spill pattern for 2023 and proceeding future years (estimated up to 10 yrs. or longer). The attached July 2020 memorandum from the COE outlines the design deficiencies with these hoists. These issues were identified and there was an attempt to remedy the issue during 2003 - 2005. The COE has submitted a change form for the 2023 Fish Passage Plan (attached; 23MCN001) that outlines the modifications to the spill patterns planned for this and future years.

The regional fish managers understand the challenge that these hoists pose but have concerns that the proposed spill patterns have not been evaluated with either the available physical or computer models (physical modeling is the preferred tool), specifically for their impacts on fish passage and dissolved gas production. Spill patterns are carefully designed to create the best possible tailrace hydraulics for both a juvenile (egress) and adult (attraction to ladder entrances) salmon standpoint to reduce impacts to both life-stages. The McNary spill patterns were designed with the regional manager's assistance and have been tested to ensure they provide high survival for juveniles passing the spillway and produce minimal adult delay. Spill patterns can be very sensitive to flow levels, powerhouse operations, and local bathymetry and are designed to take these into account. The modified patterns were designed to reduce hoist usage and prevent additional failure. While this is an important consideration, the modified MCN spill

patterns need to be reviewed using the tools the region has available and used in the past to develop the spill patterns to ensure we have the best possible patterns for fish passage, given the current constraints for 2023 and future years. Additionally, modeling may help to understand if some further modification to spill patterns within these constraints is necessary to provide effective egress conditions.

The COE has stated the replacement of the hoists will start in 2025 and could take 10 years or longer to complete, thus any negative impacts from this modification will be felt far into the future, likely through the life of the 2020 CRS BiOp. Fish managers request that funding sources and a repair schedule be provided and updated regularly as necessary. A regularly updated funding and maintenance schedule will help managers to track progress, prioritize funding, and potentially minimize any negative impacts to fish. Any option to accelerate the replacement time frame to reduce the impact posed by these hoists should be pursued.

CC

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Fish Passage Plan (FPP) Change Form

Change Form # & Title: 23MCN001 – Reduced Auto Operation of Spillway Hoists & Cranes
Date Submitted: 1-DEC-2022 (*revised and resubmitted 22MCN005*);
REVISED 6-FEB-2023; **REVISED 7-MAR-2023**

Project: McNary Dam
Requester Name, Agency: Chris Peery, Corps NWW
Final Action: **9-FEB-2023 - Finalized for implementation (see Comments)**

FPP SECTION: MCN section 2.2.1 (Spill Management)

JUSTIFICATION FOR CHANGE:

Testing conducted 2003-2005 showed that McNary Dam spillway hoists have been operated above their rated capacity since installation. Following recent failure of Spillway Hoist 6 and resulting McNary Lock and Dam Spillway Gate Hoist Rehabilitation site inspection, it was recommended that use of all spillway hoists be minimized until hoists have been replaced.

The engineering analysis report on Hoist #6 identified macro pitting on gear contact surfaces that will increase friction as more wear and tear is experienced. Sheave bearings are also showing signs of failure due to being operated in a 100% duty cycle environment, beyond designed operational loading capability, for over 20 years.

This inspection has identified conditions of unacceptable risk to our critical Emergency Action Plan (EAP) response equipment and Project personnel. The risk of continuing to operate all hoists in an auto response mode, is no longer acceptable due to the level of risk to personnel, equipment, and downstream stake holders. As a result, McNary Dam has modified the spill patterns to reduce the use of auto response mode in the interim until the spillbay hoists can be upgraded or replaced to achieve the appropriate lifting capacity, a process estimated to take up to 10 years. In general, the modified patterns uses only four or five spillbay hoists set to auto mode at a time, with the remaining spillbays in manual mode. Auto-mode gates and hoists will be used to accommodate small changes in flow within defined flow bands. As flow changes to either higher or lower bands, manual-mode gates will be adjusted accordingly, manually.

Spill operations described here are intended to reduce risk to personnel and prolong operational life of the spillway gate hoists. These operations have not been evaluated to estimate the degradation to fish passage and tailrace egress conditions.

March 7, 2023: Revised to add footnote to interim spill pattern table per FPAC request.

PROPOSED CHANGES: See following pages for edits to existing FPP text in track changes.

2.2. Spill Management

2.2.1. Spring and summer spill operations for juvenile fish passage are defined in the *Fish Operations Plan* (FOP), included in the Fish Passage Plan as **Appendix E**. Spill at McNary Dam will be distributed in spill patterns defined in **Tables MCN-7, -8, -9, -10**, except as noted below in **section 2.2.1.1**.

2.2.1.1. Interim Spillway Hoist Operation - Minimization of Unsafe Operating Practices.

As an interim operation until hoists are repaired or replaced so they are no longer in an overloaded condition, McNary spillway hoists will be separated into two control groups: Macro-Spill (mManual/dogged) and Micro-Spill (Auto) modes. There are currently 3 spillbays that are manually adjusted – Bays 2, 6, and 16. Two of the remaining 19 spillbays serve TSW1 and TSW2 until they are removed, typically in early June. This provides a total of 17 spillbays with functioning hoists until early June, then 19 spillbays for the remaining of the spill season that can be rotated through Macro/MicroManual and Auto mode assignments, as described below. During spring and summer spill, April 10–August 31, four or five (during June) of these spillbays will be operated in Aauto/micro-adjusted mode each month according to the rotation schedule below. The change will occur during the first full week of the month. Hoists will initially be set to the average openings identified in the applicable interim spill patterns in **Table MCN-11**. Gate operation categories are as follows:

- i. ManualMacro Gates – ManualMacro gates will be set at the mid-point of the 50 kcfs spill block associated with the current flow level and manually dogged and will not be adjusted for 30 days or until there is a delta of 50 kcfs (+/- 25 kcfs) of current settings. All ManualMacro gates will be raised or lowered with a safety observer stationed at the spillway deck, in the event of sustained flow increases more than the difference of designated spill limits, when one or more of the following occur:
 - A. Present for more than 72 hours.
 - B. All AutoMicro Gate openings exceed an increase of 2+ “stops” per AutoMicro Gate beyond normal flow settings of Spillway Gate stops identified in Spill Pattern Table settings and if flows are expected to increase for 72 hours or more.
 - C. Expected flows are at peak delta and are predicted to rise beyond a max spill delta of 30 kcfs.
- ii. AutoMicro Gates – AutoMicro gates will be set at the pattern associated with the current spill and flow rate in **Table MCN-11** and will be left in auto-response mode for approximately 30 days before being rotated to the next spillway gate assignment. See gate rotation schedule below:

1.1.1.1. Interim Spillway Hoist Operation / Minimization of Unsafe Operating Practices.

- i. As an interim operation until overloaded hoists are repaired or replaced so they are no longer in an overloaded condition, McNary spillway hoists will be separated into two control groups: **Manual** (dogged off and manually adjusted) and **Auto**. Currently, of the 22 spillbays at McNary Dam, three are Manual (Bays 2, 6, and 16) and two serve TSW1 and TSW2 until

they are removed, typically in early June. This provides a total of 17 spillbays with functioning hoists until early June, then 19 spillbays for the remaining of the spill season that can be rotated through Manual and Auto mode assignments, as described below. During spring and summer spill, April 10–August 31, four or five (during June) of these spillbays will be operated in Auto-adjusted mode each month according to the rotation schedule below. The change will occur during the first full week of the month. Hoists will initially be set to the average openings identified in the applicable interim spill patterns in

Table MCN-1. Gate operation categories are as follows:

i. Manual Gates – Manual gates will be set at the mid-point of the 50 kcfs spill block associated with the current flow level and manually dogged and will not be adjusted for 30 days or until there is a delta of 50 kcfs (+/- 25 kcfs) of current settings. All Manual gates will be raised or lowered with a safety observer stationed at the spillway deck, in the event of sustained flow increases more than the difference of designated spill limits, when one or more of the following occur:

A. Present for more than 72 hours.

B. All Auto Gate openings exceed an increase of 2+ “stops” per Auto Gate beyond normal flow settings of Spillway Gate stops identified in Spill Pattern Table settings and if flows are expected to increase for 72 hours or more.

C. Expected flows are at peak delta and are predicted to rise beyond a max spill delta of 30 kcfs.

ii. Auto Gates – Auto gates will be set at the pattern associated with the current spill and flow rate in

iv. Table MCN-1 and will be left in auto-response mode for approximately 30 days before being rotated to the next spillway gate assignment. See gate rotation schedule below:

Rotation schedule for gates in Manual (Dogged) and Auto^a adjustment modes:

| | | Crane 7 | | | | | No Hoist | | | | | Crane 6 | | | | | TSW | TSW | | | | | |
|--------------|----------------|---------|---|---|---|---|----------|---|---|---|----|---------|----|----|----|----|-----|-----|------|------|----|----|----|
| Mode | First week of: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Macro/Dogged | April | | | | | | | | | | | | | | | | | | Open | Open | | | |
| Micro/Auto | May | | | | | | | | | | | | | | | | | | Open | Open | | | |
| | June | | | | | | | | | | | | | | | | | | Open | Open | | | |
| | July | | | | | | | | | | | | | | | | | | | | | | |
| | Aug | | | | | | | | | | | | | | | | | | | | | | |

^a Auto mode bays will be adjusted through their operational range as required. Desired spill volumes will be achieved by adjusting a single automatic bay one stop at a time. Automatic bays will operate within one stop of each other.

Table MCN-1. **Interim** McNary Dam **Manual/Auto/Micro/Macro** Spill Patterns with Bays 2, 6, and 16 Locked. See section 0 for more information (added July 2022).

| APRIL Manual/Auto/Micro/Macro Spill Patterns with TSWs (# Gate Stops per Spillbay) ^c | | | | | | | | | | | | | | | | | | | | | | Total Stops (#) | Total Spill (kcf/s) |
|--|---|----|---|---|---|----|---|---|----|----|----|----|----|----|----|----|----|-----------------|-----------------|----|----|-----------------------|---------------------------|
| Bays 2, 6, and 16 locked at 4 or 6 stops (manually adjusted) | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 ^b | 20 ^b | 21 | 22 | | |
| 2 | 4 | | 2 | 2 | | | 2 | 1 | 2 | | 2 | 2 | | 2 | 4 | 2 | 2 | TSW | TSW | 2 | | 31 | 78.5 |
| 2 | 4 | 3 | 2 | 2 | | 3 | 2 | 1 | 2 | 3 | 2 | 2 | | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 3 | 43 | 100.9 |
| 2 | 4 | 6 | 2 | 2 | | 6 | 2 | 1 | 2 | 6 | 2 | 2 | | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 6 | 55 | 120.1 |
| 3 | 4 | 0 | 3 | 3 | 6 | 0 | 3 | 3 | 3 | 0 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 0 | 55 | 120.0 |
| 3 | 4 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | 67 | 142.4 |
| 3 | 4 | 6 | 3 | 3 | 6 | 6 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 6 | 79 | 161.6 |
| 4 | 4 | 2 | 4 | 5 | 6 | 2 | 4 | 5 | 5 | 1 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 2 | 80 | 162.5 |
| 4 | 4 | 5 | 4 | 5 | 6 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 5 | 92 | 182.4 |
| 4 | 4 | 8 | 4 | 5 | 6 | 8 | 4 | 5 | 5 | 7 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 8 | 104 | 201.9 |
| 6 | 4 | 3 | 6 | 6 | 6 | 3 | 6 | 6 | 6 | 2 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 3 | 105 | 203.1 |
| 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 6 | 117 | 222.4 |
| 6 | 4 | 9 | 6 | 6 | 6 | 9 | 6 | 6 | 6 | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 9 | 129 | 242.0 |
| 7 | 6 | 5 | 8 | 7 | 6 | 4 | 7 | 7 | 7 | 4 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | TSW | TSW | 8 | 4 | 130 | 243.6 |
| 7 | 6 | 8 | 8 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | TSW | TSW | 8 | 7 | 142 | 262.9 |
| 7 | 6 | 11 | 8 | 7 | 6 | 10 | 7 | 7 | 7 | 10 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | TSW | TSW | 8 | 10 | 154 | 282.3 |

| MAY Manual/Auto/Micro/Macro Spill Patterns with TSWs (# Gate Stops per Spillbay) ^c | | | | | | | | | | | | | | | | | | | | | | Total Stops (#) | Total Spill (kcf/s) |
|--|---|---|----|---|---|---|---|---|----|----|----|----|----|----|----|----|----|-----------------|-----------------|----|----|-----------------------|---------------------------|
| Bays 2, 6, and 16 locked at 4 or 6 stops (manually adjusted) | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 ^b | 20 ^b | 21 | 22 | | |
| 2 | 4 | 2 | | 2 | | 3 | 2 | 1 | | 2 | 2 | 1 | | 2 | 4 | | 2 | TSW | TSW | 2 | | 31 | 78.5 |
| 2 | 4 | 2 | 3 | 2 | | 3 | 2 | 1 | 3 | 2 | 2 | 1 | 3 | 2 | 4 | 3 | 2 | TSW | TSW | 2 | | 43 | 100.7 |
| 2 | 4 | 2 | 6 | 2 | | 3 | 2 | 1 | 6 | 2 | 2 | 1 | 6 | 2 | 4 | 6 | 2 | TSW | TSW | 2 | | 55 | 120.1 |
| 3 | 4 | 3 | 0 | 3 | 6 | 3 | 3 | 3 | 0 | 3 | 3 | 3 | 0 | 3 | 4 | 0 | 4 | TSW | TSW | 4 | 3 | 55 | 120.0 |
| 3 | 4 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | 67 | 142.4 |
| 3 | 4 | 3 | 6 | 3 | 6 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 6 | 3 | 4 | 6 | 4 | TSW | TSW | 4 | 3 | 79 | 161.6 |
| 4 | 4 | 5 | 1 | 5 | 6 | 5 | 4 | 5 | 2 | 4 | 5 | 4 | 2 | 4 | 4 | 1 | 5 | TSW | TSW | 5 | 5 | 80 | 162.5 |
| 4 | 4 | 5 | 4 | 5 | 6 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 5 | 92 | 182.4 |
| 4 | 4 | 5 | 7 | 5 | 6 | 5 | 4 | 5 | 8 | 4 | 5 | 4 | 8 | 4 | 4 | 7 | 5 | TSW | TSW | 5 | 5 | 104 | 201.9 |
| 6 | 4 | 6 | 3 | 6 | 6 | 6 | 6 | 6 | 3 | 5 | 6 | 6 | 3 | 6 | 6 | 3 | 6 | TSW | TSW | 6 | 6 | 105 | 203.1 |
| 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 6 | 117 | 222.4 |
| 6 | 4 | 6 | 9 | 6 | 6 | 6 | 6 | 6 | 9 | 5 | 6 | 6 | 9 | 6 | 6 | 9 | 6 | TSW | TSW | 6 | 6 | 129 | 242.0 |
| 7 | 6 | 8 | 5 | 7 | 6 | 7 | 7 | 7 | 4 | 7 | 7 | 7 | 4 | 7 | 6 | 5 | 8 | TSW | TSW | 8 | 7 | 130 | 243.6 |
| 7 | 6 | 8 | 8 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | TSW | TSW | 8 | 7 | 142 | 262.9 |
| 7 | 6 | 8 | 11 | 7 | 6 | 7 | 7 | 7 | 10 | 7 | 7 | 7 | 10 | 7 | 6 | 11 | 8 | TSW | TSW | 8 | 7 | 154 | 282.3 |

| JUNE Manual/Auto/Micro/Macro Spill Patterns with TSWs (# Gate Stops per Spillbay) ^c | | | | | | | | | | | | | | | | | | | | | | Total Stops (#) | Total Spill (kcf/s) |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|-----------------|-----------------|----|----|-----------------------|---------------------------|
| Bays 2, 6, and 16 locked at 4 or 6 stops (manually adjusted) | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 ^b | 20 ^b | 21 | 22 | | |
| 2 | 4 | 2 | 2 | | | 2 | 2 | | 2 | 1 | | 2 | | 2 | 4 | 2 | | TSW | TSW | 2 | 2 | 31 | 78.5 |
| 2 | 4 | 2 | 2 | 3 | | 2 | 2 | 3 | 2 | 1 | 3 | 2 | | 2 | 4 | 2 | 3 | TSW | TSW | 2 | 2 | 43 | 100.7 |
| 2 | 4 | 2 | 2 | 6 | | 2 | 2 | 6 | 2 | 1 | 6 | 2 | | 2 | 4 | 2 | 6 | TSW | TSW | 2 | 2 | 55 | 120.1 |
| 3 | 4 | 3 | 3 | 0 | 6 | 3 | 3 | 0 | 3 | 3 | 0 | 3 | 3 | 3 | 4 | 3 | 1 | TSW | TSW | 4 | 3 | 55 | 120.0 |
| 3 | 4 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | 67 | 142.4 |
| 3 | 4 | 3 | 3 | 6 | 6 | 3 | 3 | 6 | 3 | 3 | 6 | 3 | 3 | 3 | 4 | 3 | 7 | TSW | TSW | 4 | 3 | 79 | 161.6 |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|----|---|---|---|----|---|---|----|---|---|---|---|---|----|-----|-----|---|---|-----|-------|
| 4 | 4 | 5 | 4 | 2 | 6 | 5 | 4 | 2 | 5 | 4 | 2 | 4 | 5 | 4 | 4 | 4 | 2 | TSW | TSW | 5 | 5 | 80 | 162.5 |
| 4 | 4 | 5 | 4 | 5 | 6 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 5 | 92 | 182.4 |
| 4 | 4 | 5 | 4 | 8 | 6 | 5 | 4 | 8 | 5 | 4 | 8 | 4 | 5 | 4 | 4 | 4 | 8 | TSW | TSW | 5 | 5 | 104 | 201.9 |
| 6 | 4 | 6 | 6 | 3 | 6 | 6 | 6 | 3 | 6 | 5 | 3 | 6 | 6 | 6 | 6 | 6 | 3 | TSW | TSW | 6 | 6 | 105 | 203.1 |
| 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 6 | 117 | 222.4 |
| 6 | 4 | 6 | 6 | 9 | 6 | 6 | 6 | 9 | 6 | 5 | 9 | 6 | 6 | 6 | 6 | 6 | 9 | TSW | TSW | 6 | 6 | 129 | 242.0 |
| 7 | 6 | 8 | 8 | 4 | 6 | 7 | 7 | 4 | 7 | 7 | 4 | 7 | 7 | 7 | 6 | 8 | 5 | TSW | TSW | 8 | 7 | 130 | 243.6 |
| 7 | 6 | 8 | 8 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | TSW | TSW | 8 | 7 | 142 | 262.9 |
| 7 | 6 | 8 | 8 | 10 | 6 | 7 | 7 | 10 | 7 | 7 | 10 | 7 | 7 | 7 | 6 | 8 | 11 | TSW | TSW | 8 | 7 | 154 | 282.3 |

| Manual/AutoMicro/Macro Spill Patterns with NO TSWs (# Gate Stops per Spillbay) ^c | | | | | | | | | | | | | | | | | | | | Total Stops (#) | Total Spill ^a (kcfs) | | |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|-----------------|---------------------------------|----|-------|
| Bays 2, 6, and 16 locked at 3 or 5 stops | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | | |
| 3 | 5 | | 2 | | 3 | 2 | | 2 | | 2 | 2 | | 3 | 2 | 3 | 2 | | 3 | | 2 | | 36 | 68.0 |
| 3 | 5 | 1 | 2 | | 3 | 2 | 1 | 2 | | 2 | 2 | 1 | 3 | 2 | 3 | 2 | | 3 | 1 | 2 | | 40 | 76.0 |
| 3 | 5 | 2 | 2 | | 3 | 2 | 2 | 2 | | 2 | 2 | 2 | 3 | 2 | 3 | 2 | | 3 | 2 | 2 | | 44 | 83.6 |
| 3 | 5 | 3 | 2 | | 3 | 2 | 3 | 2 | | 2 | 2 | 3 | 3 | 2 | 3 | 2 | | 3 | 3 | 2 | | 48 | 90.4 |
| 3 | 5 | 4 | 2 | | 3 | 2 | 4 | 2 | | 2 | 2 | 4 | 3 | 2 | 3 | 2 | | 3 | 4 | 2 | | 52 | 96.8 |
| 4 | 5 | 2 | 2 | 3 | 3 | 3 | 0 | 3 | 2 | 2 | 3 | 0 | 3 | 3 | 3 | 3 | 2 | 3 | 0 | 3 | 2 | 54 | 101.0 |
| 4 | 5 | 3 | 2 | 3 | 3 | 3 | 1 | 3 | 2 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 2 | 3 | 1 | 3 | 2 | 58 | 108.7 |
| 4 | 5 | 4 | 2 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 62 | 116.0 |
| 4 | 5 | 5 | 2 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 66 | 122.7 |
| 4 | 5 | 6 | 2 | 3 | 3 | 3 | 4 | 3 | 2 | 2 | 3 | 4 | 3 | 3 | 3 | 3 | 2 | 3 | 4 | 3 | 2 | 70 | 129.1 |
| 4 | 5 | 3 | 4 | 3 | 3 | 4 | 2 | 4 | 3 | 3 | 4 | 2 | 3 | 3 | 3 | 4 | 3 | 4 | 2 | 3 | 3 | 72 | 132.5 |
| 4 | 5 | 4 | 4 | 3 | 3 | 4 | 3 | 4 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | 3 | 3 | 3 | 76 | 139.2 |
| 4 | 5 | 5 | 4 | 3 | 3 | 4 | 4 | 4 | 3 | 3 | 4 | 4 | 3 | 3 | 3 | 4 | 3 | 4 | 4 | 3 | 3 | 80 | 145.6 |
| 4 | 5 | 6 | 4 | 3 | 3 | 4 | 5 | 4 | 3 | 3 | 4 | 5 | 3 | 3 | 3 | 4 | 3 | 4 | 5 | 3 | 3 | 84 | 152.0 |
| 4 | 5 | 7 | 4 | 3 | 3 | 4 | 6 | 4 | 3 | 3 | 4 | 6 | 3 | 3 | 3 | 4 | 3 | 4 | 6 | 3 | 3 | 88 | 158.4 |

^a Spill (kcfs) is calculated as a function of the total number of gate stops + TSW spill at forebay elevation 339 ft.

^b Bays 19-20 with TSWs = approx 19.2 kcfs spill (9.6 kcfs/bay) at forebay 339'. Raise tainter gates 3-5 ft above water surface to ensure free flow through the TSWs.

^c Auto mode bays will be adjusted through their operational range as required. Desired spill volumes will be achieved by adjusting a single automatic bay one stop at a time. Automatic bays will operate within one stop of each other.

COMMENTS:

November 10, 2022 - FPOM;

Condor requested that wording be added that this is a temporary change until hoists and cranes can be updated/repared and to include previous spill pattern tables.

3-FEB-2023 FPOM FPP Meeting:

Lorz – these patterns are degrading what we should be doing. “Temporary” in this case is on the order of 10 years, which is extremely concerning.

Peery – working with project manager to make repairs. This is getting a lot of attention and is a high priority. More updates at next FPOM.

Van Dyke – what is the difference between micro and macro?

Peery – difference is how often they are adjusted. Macro gates are changed less frequently because they are dogged off and manually adjusted due to hoist issues. Micro gates are automatically adjusted.

Van Dyke – **it would be clearer to change it from micro/macro to auto/manual.**

Peery – yes, that makes sense. Will make that change.

Van Dyke - what are tailrace impacts?

Peery – no modeling has been done. This isn’t how we’d like to operate the spillway but have to.

Hesse – these patterns are a degradation over multiple salmon generations. **Request adding to Justification section to state that the modified spill patterns have not been evaluated to estimate effects to fish passage and tailrace egress conditions.**

Peery - will do that.

Conder – **would like more language that this is truly temporary and not the default patterns.**

Ebel – echo Jay’s concerns. Ten years is two generations of salmon, and nearly the duration of the BiOp. At this point, in 2023, this is nearly the remaining duration of the Proposed Action.

There was general agreement that the expected 10 years needed for repairs is too long and all efforts are needed to restore original spill patterns ASAP.

Peery will make requested edits and add to next week’s FPOM with more updates.

6-FEB-2023 email from Chris Peery to FPOM:

“Attached is the McNary Spill FPP change form modified per our discussion at last Friday’s meeting, for your review. We will discuss at Thursday’s FPOM meeting.”

9-FEB-2023 FPOM:

Peery - plan is to repair hoist 6 before spring spill this year.

Hesse – this is a degradation to fish passage. Objects to this change and wants a path for elevation. Extremely frustrated that the Corps has not committed to ERDC modeling yet.

FPOM objects to this change and has very significant concerns with the Corps implementing these spill patterns and not prioritizing ERDC modeling. The assumption is that these patterns are a significant degradation to fish passage conditions. Evaluating at ERDC will provide information on the level of those impacts and a potential to explore other alternatives that could have less adverse impacts to fish. They are looking for a path to elevate to RIOG. Peery is developing a memo summarizing the situation and current plan. He will send to FPOM as soon as it's finalized (possibly next week). Salmon managers can use the regional forum process to elevate this issue at any time.

RECORD OF FINAL ACTION:

Finalized for inclusion in the 2023 FPP and implementation. FPOM does not support these spill patterns. Any future changes will be coordinated in a separate change form.

March 7, 2023: Revised to add footnote to interim spill pattern table per FPAC request.



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, WALLA WALLA DISTRICT
201 NORTH 3RD AVENUE
WALLA WALLA, WA 99362-1876

CENWW-ECD-M

01 JULY 2020

MEMORANDUM FOR

M McNARY LOCK AND DAM, CHIEF OF TECH (CENWW-ODM/Bill Dull)

SUBJECT: McNary Lock and Dam Spillway Gate Hoist Safety

1. There are 20 spillway gate hoists at McNary dam, 16 of them were manufactured and installed by Ederer Inc. in 1974, and the remaining four were manufactured and installed by Transco Industries in 2003. Both Ederer and Transco hoists were originally designed for a total load capacity of 350,000 lbs. Testing done in 2003 to 2005 showed that most of the hoists have been operating above their rated capacity. The worst case being 485,000 lbs. (139% of rated capacity). This load is based on the dead end of the wire rope and does not account for sheave friction. If the sheave friction of 96.15% efficiency as specified in EM 1110-2-3200 (Wire Rope for Civil Structures) accounted for, the worst case would be 560,000 lbs. (160% of rated capacity). It is a violation of OSHA to operate a hoist above its designed capacity.

2. The overload condition occurs during hoisting of the gate due to higher than predicted side seal and roller friction forces. Some of the gates have been rehabbed, but testing in 2005 showed that in most cases the hoists were still overloaded after the gates were rehabbed. Worst case was 473,000 lbs. (135% of rated capacity). While lowering and holding the gate in position the hoist is not overloaded because the friction is reducing the load on the hoist. The highest risk of failure is during hoisting, but since the overload has been occurring for so long, failure of the hoist can occur any time that the hoist is under load.

3. Likely modes of failure include brake, gearbox, coupling or wire rope failure. The uncontrolled release of mechanical energy can cause parts of the components to fly in all directions with the potential to cause serious injury or death to anyone on or near the hoist that fails.

4. A project is currently under way to replace the hoists with new hoists that have the required capacity to operate the gates, but it will take several years to complete.

5. Risk Mitigation. The following recommended hazard controls will help to reduce the probability of injury or death to personnel.

CENWW-ECD-M

SUBJECT: McNary Lock and Dam Spillway Hoist Safety

a. Recommend inspection of the wire ropes annually. Since the factor of safety of the wire rope is below the required 5:1 safety factor, the condition of the wire rope is critical.

b. Recommend access to the top of the hoist or work in front of the hoist only when the hoist and each adjacent hoist is unloaded and locked out to zero energy state per Hazardous Energy Control Program requirements. The hoist may be unloaded by either dogging the gate in position or lowering it to the sill.

c. Install warning lights and audible alarms to prevent travel in front of a spillway hoist when a gate is being hoisted or lowered. Warning lights and audible alarms should activate in enough time before gate movement to allow a person traveling on the roadway upstream of the gates or the walkway downstream of the gates to move beyond the adjacent spill bay.

6. Residual Risk Assessment: Using the Risk Assessment Code Matrix from EM 385-1-1, the following is the Residual Risk level that remains once the above mitigation measures have been implemented:

a. Severity: A hoist failure with personnel nearby carries the potential of a "Catastrophic" outcome in that can result in serious injuries or fatalities.

b. Probability: The probability of a Catastrophic (serious injury or fatality) event occurring is reduced to "Unlikely" by not allowing employees to work on or near these hoists while they are loaded and requiring employees crossing the spillway to be beyond the adjacent spill bay any time that the hoist is being operated.

c. The residual risk level for this particular exposure with hazards controls in place is assessed as "Moderate."

If you have any questions, please contact David Kloewer at 509-527-7498 or david.j.kloewer@usace.army.mil .

KEVIN M. RENSHAW, P.E.
Chief, Mechanical Design Section

CENWW-ECD-M

SUBJECT: McNary Lock and Dam Spillway Hoist Safety

CF:

CENWW-ECD-M, David Kloewer, Mechanical Engineer

CENWW-ECD-ODT, Eric Kelly, Crane Safety Program Manager

CENWW-ECD-ODT, Gregory Brooks, Chief of Maintenance Engineering Section

CENWW-ECD, Sue Walton, ETS Project Manager

CENWW-ECD-S, Bryan Mason, HSS Bridge Program Manager

CENWW-ECD-G, Alex Hammond, Dam Safety Program Manager

CENWW-ECD, Marcus Palmer, Chief of Design Branch

CENWW-EC, Dwayne Weston, Chief of Engineering and Construction Division

EM 385-1-1 Risk Assessment Matrix

| Overall Risk Assessment Code (RAC) (Use highest code) | | | | | |
|---|-------------|--------|------------|--------|----------|
| Risk Assessment Code (RAC) Matrix | | | | | |
| Severity | Probability | | | | |
| | Frequent | Likely | Occasional | Seldom | Unlikely |
| Catastrophic | E | E | H | H | M |
| Critical | E | H | H | M | L |
| Marginal | H | M | M | L | L |
| Negligible | M | L | L | L | L |