Subject: DRAFT minutes for the 25 January 2024 McNary Spillway Task Group Meeting
In Attendance:

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1. Repairs Update. Peery went through the following information slide. Cranes and 21 hoists will go up to Capital Work Group first week in February for the Phase 1 work. Capital Work Group has approved the funding for the SLABS and handrail construction materials, out-of-cycle. Request to Capital Work Group for new gates will come up next. Solicitation will be out soon for the first hoist, February or March.

25 January 2024

- **McNary Spillway Working Schedule**
  - MCN Replace Spillway Cranes 6 & 7
    - Phase 1a approved. FY23-24 Funding in place.
    - Design FY24-25? (pending appropriated $$s) **To CWG 1st week Feb**
    - Award 1 crane (pending appropriated $$s):
    - Start fabrication crane 1 in FY26

- Award 2nd crane (pending appropriated $$s):

- MCN Spillway Major Rehab Evaluation Report (MRER)
  - Creating new project for FY24-25 budget request

- MCN Spillway Hoist Replacements
  - First hoist in final design **Solicitation out soon**
  - Award prototype early FY24. Install FY24-Early FY25
  - Award follow-on contract for remaining hoists FY26: three per year?
  - Safety handrails – Pending Phase 1&2 Approval: Construction FY24
  - SLABS – Pending 1&2 Approval. **CWG Approval.** Construction FY24-FY25

- MCN Spillway Gate Replacements
  - Phase 1a pending 2024 Capital Work Group Meeting
  - Phase 1 design in FY24-25
  - Award:
  - New spillway gates delivered FY26?: Three per year?

- MCN Spillway Gate Dogging Mechanism Repair underway with FY23 NREX funds.
  - Funded. Repairs to occur in FY25 and complete in FY26

- MCN Spillway Gate Repair PIT Upgrade
  - Phase 1a has been approved, but no appropriated match
  - Lower priority since gates are to be replaced
  - Repair pit will likely be used for storage when new spillway gates start to be delivered.

- Modeling – Latest estimate, **$2.3** M to create new model
  - Initial funding from CRFM allotment has been sent to ERDC to initiate construction

Conder. Urged to have the first SLAB constructed be delivered as soon as available and not wait for all to be constructed to be delivered.

Peery. Reminded there will be two SLABs constructed, one for each crane. But he will alert the PM to have first one delivered as soon as possible upon completion.

Juhnke. Met with ERDC staff and they are finalizing the scope of work for the physical model construction and we are getting them their remaining funding. Schedule for witness trips has slipped some, likely now to be in November. The cost for the model is now $2.3 M. The ERDC team will be on-site at McNary Dam in April for validation trip.

Van Dyke asked about the longevity of the model.

Juhnke. New model is modular construction, which allows it to be dissembled and stored and then reassembled when needed. New materials (foam) are less prone to decay. And ERDC has said they will keep the model in place as long as needed and the District has committed to paying for upkeep.

Hesse, asked about the larger plan to have models and to keep them functional. He would like to have an update on this in the future. And, does the $2.3M include cost for trips to ERDC and model runs?

Juhnke. Update on plan to replace all models and keep them functional will be a topic for District H&H group to address. Not sure when that can happen. He will alert H&H of this request. The 2.3M cost does not include cost to run the model. That funding is under a different project and has been identified in FY24 budget. He will likely need to roll it over to FY25 but that should not be a problem.

2. Spill Operations Update.

Retain two TSW's in normal location

Move 13 hoists to upstream slot and use in split leaf configuration.
- Construct new control cables.
- Procure materials for handrails with Small Cap
  - Assemble handrails in-house.

Retain 7 gates in downstream slot closed in full gate configuration.
- Needed to maintain Standard Project Flood (SPF) capacity.
- **Adaptively manage operations once risk for spring floods are better understood.**
- Incorporate use of SLAB's when available

- **Modeling to estimate 125% TDG spill level with split-leaf spill, ~200 kcfs (vs. 260-270 in 2023)**

Peery. Since the December update the District has been asked to consider flexibility in the use of the seven gates to be stored in the downstream slots for flood management. The Division Water Management and District staff are in discussion to consider what options there might be and we have a call next week to discuss. There is reluctance to intentionally reducing capacity of the project to handle flood events before expected peak of the spring runoff. There was some discussion when a decision could be made, ideally in March.

Condor described his idea. Once we had a good idea of what the water year would be, could we use one lift to set some or all of the downstream gates at a moderate opening to be left through the spill season, and use the second lift to close those gates at the end of the spill season? He emphasized the lack of spill at north spillbays may generate a strong back eddy that could impact adult and juvenile passage.

An alternate idea is to move some of the downstream gates to upstream slots to be used with split-leaf flow.

Peery. There has been some preliminary modeling on TDG levels to expect with the current configuration with 13 gates with split-leaf flow and two TSWs. Model results estimate 125% TDG gas levels will be reached at about 200 kcfs, and possible as low as 150 kcfs. Previous (2023) levels were 260-270 kcfs. We likely will not know what TDG conditions are until we start spilling. We plan to have more intensive monitoring of TDG during spill to learn conditions in the tailrace with this spill operation, including monitoring from a boat.

Hesse. Potential reduction in the spill cap, that is a direct impact. Does that reality change our thinking on the need for alternative mitigation actions?

Peery. I believe this should be taken into consideration in the discussion on the flexibility in how the seven downstream gates are used.

Van Dyke asked about the calculations used to estimate TDG levels.

Mills. RCC uses semi-empirical model that requires observed data to calibrate the coefficients. We do not have this for split-leaf gates so there is a high degree of uncertainty in model results. The good news is that results of CFD models run by Ryan Laughery indicate that the hydraulics look similar to TSW flow, so may not produce more TDG. The model results are related to having the 7 downstream gates closed which produces a more bulkier pattern and higher TDG [than a uniform pattern].

Van Dyke. Asked about flow in the spill pattern table showing less flow through the split-leaf gates.

Peery confirmed that split-leaf gate cannot pass as much flow as a full gate, because of how high you can lift the half gate.

Mills. Mentioned that the amount of time we can spill at gas cap is dependent on river flow. Last year we spent a lot of the season spilling at about 170 kcfs. And, as we collect more data, we will update the models to better be able to estimate TDG levels.

Hesse. Reminder that Appendix B operations have the potential to raise the low flow generation levels. So, if we are eroding the bottom end of the spill levels because of reserve carrying and we erode the top end because of spill cap adjustment, that is not positive for fish.

Conder asked about the assumption of having 10 units in operations, may be overly conservative. This increases the number of downstream gates needed for floods. And, how are the cranes going to be used?

Peery. We know some units will be down for transformer work, but we can go above 1% if needed to pass more flow. This was taken into account in calculations on what would be needed to reach SPF. Cranes are limited in their use like the hoists (two lifts) and they are needed to move two of the gates if needed. The cranes will be used if we need to lift the top leaf all the way out of the water.

I refer you back to the memo, provided in an email sent out 12 January, on how operations were developed to reach SPF.

Configuration (A): Gates Upstream except 1, 2, 3, 5, 8, 15 and 18

Required Spill	Configuration	PH Flow	Project Flow	Est. YRP w/ PH	Duration[1]	Notes
0 - 270 kcfs	Split Leaf	50 - 120 kcfs	50 - 390 kcfs	2.3	Realtime	- 13 bays split leaf, 2 TSW, 10u PH @ U1% - Avoid Unstable split leaf flow range - Identified bays closed in downstream slot for high spill or load rejection
270 - 500 kcfs	Split Leaf + Engineered Hoist Lifts	50 - 148 kcfs	320 - 648 kcfs	48	Realtime	- Add 7 bays dual leaf, 10u PH @ Op.Lim. - Open identified downstream gates using hoists to 20' open in 1 lift
500 - 700 kcfs	Crane	50 - 148 kcfs	550 - 848 kcfs	SPF +	1 - 2 days	- Open identified downstream gates to free flow using crane. - Single lift if superbolts installed and measured crane load under 200 tons
700 - 875 kcfs	Overload Dual Leaf Hoist	0 - 132 kcfs	700 - 1000 kcfs	SPF +	3 days	- HQ authorization required (exceed EM-385) - Gates closed one at a time and pinned together, hoist used to lift to maximum openning of 19.2' stops in upstream slot and 20' in downstream slot
> 875 kcfs	Overload Dual Leaf Crane	0 - 132 kcfs	1000+ kcfs	PMF	5 days	- HQ authorization required (exceed EM-385) - Gates located in upstream slot closed one at a time, hoist removed and crane opens gates to forecasted requirement.

There was a question if lower leaf gate can be lifted out after top leaf removed. *Peery will check on this.*

Van Dyke asked why spill pattern table starts at 4 stops. This is because we think that a short split-gate opening of less than 4 stops would be turbulent and have poor passage conditions for fish (high edge effects). So the draft spill pattern has all split-leaf gates starting at 4 stops.

Conder reiterated the concern that the proposed spill pattern could generate a strong eddy with the north bays closed. So opening the north downstream slot bays first, if needed for flood management, makes sense.

Hesse. Asked how these discussions and decisions were being documented over time, particularly the potential impacts to fish?

Peery. Meeting minutes will be sent out and stored on the FPOM website. I am also maintaining this slide deck for the updates and expanding as information is added. Let me know if there is information or specific framing questions that can be added to help clarify our discussion of McNary spillway O&M. *We will also create a McNary Spillway Task Group page on FPOM suite to store all documents.*

Hesse asked if the urgency of the situation at McNary understood by the Corps.

Peery. The urgency is very much understood by the District and Division. Above the Division level, our requests for funding, procurement, etc., are still competing with other national priorities. I do not have a feel for how it compares outside NWD.

Next update will be at monthly FPOM meeting, 8 February. Next Task Group update will be 22 February.