

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

June 4, 2008 Meeting

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator/Notes: Erin Halton

The following notes are a summary of issues that are intended to point out future actions or issues that may need further discussion at upcoming meetings. These notes are not intended to be the "record" of the meeting, only a reminder for TMT members.

Review of Minutes/Agenda

The 5/21 and 5/28 meeting minutes and facilitator notes had been posted to the web; TMT members requested more time to review the notes and will look to finalize them at the 6/18 face to face meeting.

Update on Missing CRITFC Fisherman

Kyle Dittmer, CRTIFC, reported that the body of the third CRITFC fisherman had been recovered. On behalf of CRITFC and the families of the fisherman, Dittmer thanked all who provided assistance to the recovery effort and added that CRITFC sent an official letter of thanks to the COE.

Priest Rapids Operations

Russell Langshaw, Grant County PUD, reported that thon rearing protection flows were expected to continue for 12 days: average daily discharges for 5/19-23 were 235 kcfs.

Action/Next Steps: Langshaw will provide a final Priest Rapids Operations report at the 6/18 TMT meeting.

Transmission Outages

Mike Viles, BPA, referred TMT to a power point presentation linked to the TMT agenda. His presentation provided detailed background information regarding the May 27-June 15 planned outage for the Grizzly-Summer Lake line. Viles noted the impacts to OR-CA inter-ties and central Oregon loads (limitation of 2800 megawatts.) He clarified that local crews are performing their work between 7 p.m. and midnight on a daily basis, to minimize the impacts of the outage as much as possible. Robyn MacKay, BPA, added that the take home for TMT is that the spill priority list is being used, with every effort made to minimize impacts to TDG levels.

Libby Sturgeon Flows

Amy Reese, COE, reported that Libby shifted operations to full powerhouse on 6/1, with flows in the range of 25.5-26.5 kcfs, and after 48 hours dropped 4 units at full load, with flows of approximately 21.3 kcfs. She referred TMT to four operation scenarios for Libby, based on last week's ESP runs with two scenarios assuming a hold of the 21.3 kcfs through the end of June and two scenarios assuming a return to powerhouse capacity the 10th of June. The scenarios showed anticipated elevations and flow levels for the

June-September timeframe; Reese acknowledged that the June final forecast is still pending and said that new scenarios will be developed as each new forecast is made available. Jason Flory, USFWS, provided an update on the crane repair work at Libby: the crane was repaired, but not yet installed in gate 10. Also, temperature management was possible in units 1-4 but not 5. He noted that the seasonal warming of the reservoir remains 2-3 weeks later than observed in recent years. Flory added that the Sturgeon Operations Team was scheduled for a conference call on 6/5 and would be making operational recommendations based on the latest telemetry data. He reported that seven sturgeon have been observed in the area; and given that, the USFWS recommended holding Bonner's Ferry area temperatures fairly steady, not dropping by more than 3.6°F. TMT members discussed the need to hear the results from the Sturgeon Operations Team before making any operational recommendations and scheduled a conference call for 6/6.

Action/ Next Steps: The COE will continue to operate Libby at 4 units at full load (approximately 21.3 kcfs.) TMT will discuss the recommendation from the Sturgeon Operations Team regarding Libby Operations for Sturgeon during a conference call scheduled for 2 p.m. on 6/6.

Libby/Hungry Horse Operations

John Roache, BOR, referred TMT to Hungry Horse scenarios linked to the TMT agenda. TMT members commended Roache and Reese for the complimentary aspects of the scenarios developed for the Libby and Hungry Horse. Roache reported that Hungry Horse was operating with outflows of 7 kcfs and would likely fill during the first week of July. He added that scenarios would be updated as new forecasts are made available.

Jim Litchfield, MT, thanked the BOR and COE for developing the scenarios for TMT review/discussion. He stated MT's desire for a collaborative process around Libby/Hungry Horse summer operations for 2008. Litchfield said that MT is looking to reach a compromise on operations via increased communication and collaboration in between and during TMT meetings, supported by close monitoring of existing conditions as the season progresses. He introduced two NPCC Council Members: Vice-Chair Bruce Measure and Fish and Wildlife Chair Rhonda Whiting, who signified their support for a collaboratively developed operation. Litchfield said that from Montana's perspective, an operation with flows in the range of 11-12 kcfs would be optimal, and referred to the recommendations written into the new 2008 BiOp. He also referred meeting participants to a DART webpage showing 2004-2007 Libby operations and added that Montana is seeking a win-win for anadromous and resident fish.

Rick Kruger, OR, acknowledged the recommendation from Montana and said that he would carry it back to Oregon's fish and wildlife policy makers for consideration. TMT members discussed next steps for discussion of Libby/Hungry Horse summer operations and suggested that email and/or phone conversation be convened after new scenarios made available next week.

Action/ Next Steps: The COE will provide updated scenarios for Libby to TMT members by late 6/11. DS Consulting will assist with email/phone conversation between TMT members prior to the 6/18 TMT meeting.

Bonneville Screen Update

Dan Feil, COE, reported that screens were placed in Bonneville unit 11 on 6/3, which resulted in debris collection in excess of the head differential criteria despite aggressive cleaning efforts. He said the screens would be removed on 6/5 and added that flows were expected to drop to a 370-380 kcfs range in a few days. Feil said that de-scaling at the project has dropped to the 5% range and clarified that the smolt index data shows that fish passage continues, assisted perhaps by the shallow migration of steelhead. TMT members asked whether unit 11 could be operated without its turning vane; Feil said he would inquire as to that possibility and email TMT members with the answer.

Update: Feil sent out the email below following the TMT meeting:

“...our design engineers at the District and they advised me that operating the STSs without the turning vanes (flow vanes) in place is not recommended. The turning vanes replace a large wide flange that serve as the upper beam on the STS frames. The turning vane acts as a structural member of the frame and operating the STSs without the turning vane in place would likely cause a frame failure under turbine load. Therefore, the Corps will not operate the STSs at Bonneville without turning vanes.”

TMT Guidelines

TMT members discussed the most recent draft of the Guidelines, posted as a link to the TMT agenda. Jim Litchfield, MT, suggested a re-write of the guidelines was needed to have a more accurate reflection of actual TMT processes, but put forth no edits or revisions to the current version of the guidelines. Paul Wagner, NOAA, said he approved the draft version linked to the agenda. Russ Kiefer, ID, offered to email the facilitation team his edits to the current draft.

Action/ Next Steps: DS Consulting will email TMT members ‘nearly final’ draft of the guidelines that includes edits from ID and any other edits that are submitted by TMT members in the next week. TMT will look to approve that version of the guidelines at the 6/18 TMT meeting and plans to do a thorough revision of the Guidelines in the September timeframe.

Operations Review

Reservoirs: Grand Coulee was operating at 1268' and slowly filling. Hungry Horse was at 3539.22' with outflows of 7 kcfs and inflows of 20 kcfs. Libby was operating at 2427.21', with inflows of 46.4 kcfs and outflows of 23.63 kcfs. Dworshak was at 1567.35' with inflows of 27 kcfs and outflows of 8.7 kcfs. Albeni Falls was at 2061.35', with inflows of 101 kcfs and outflows of 90 kcfs. McNary average flows were 393 kcfs, with an expectation of dropping to the 370 kcfs range over the next few days. Lower Granite average flows were 150 kcfs.

Other: Dan Feil, COE, reported that as project operators at The Dalles followed the spill priority list on 6/2, they identified the need to add Dworshak to the list. He also reported that a one hour debris-clearing related outage was planned for Lower Granite.

Russ Kiefer, ID, expressed his frustration with the COE decision against moving water through the system earlier in the season and his overall concern for the amount of involuntary spill happening across projects; he requested not exceeding state water quality standards with spill at Dworshak and to spill only at night at Dworshak if possible. Greg Haller, Nez Perce Tribe, echoed Kiefer's concerns. BPA and the COE clarified that the Action Agencies were (and still are) operating under flood control criteria, that the intent was not to exceed spill criteria and that every effort was being made to mitigate spill and gas levels throughout the system. Robyn MacKay, BPA, added that over generation would likely continue for the next 7 days. Dan Feil, COE, said that operational adjustments would be made as needed so as not to exceed TDG standards and clarified that the COE does not anticipate any issue with achieving refill by 6/30. Paul Wagner, COE, said that more notice on this issue would have helped make a more informed decision. The COE asked the following parties to weigh in on the addition of Dworshak to the spill priority list:

- NOAA: no objection
- OR: no objection; share same frustration as expressed by ID and Nez Perce Tribe
- ID: no objection
- BPA: no objection
- BOR: no objection
- COE: no objection
- Nez Perce: no objection
- CRITFC: no objection

Fish: Paul Wagner, NOAA, reported that adult passage numbers were passing Bonneville at a rate of 1,000 per day. Juvenile counts are winding down and sub-yearling counts are expected to rise in the coming weeks.

Power System: Over-generation was an issue system-wide; load factoring was happening daily, with intent to manage TDG as best possible.

Water Quality: Tina Lundell, COE, reiterated that involuntary spill would likely continue across projects for the next week.

Next TMT Meeting: 6/18 face-to-face

Agenda Items include:

- Finalize notes/minutes
- Dworshak Summer Operations/Temperature Modeling
- Priest Rapids Operations Report
- Libby Sturgeon Flows
- TMT Guidelines – Approve Draft
- Libby/Hungry Horse Summer Operations
- Operations Review

**Columbia River Regional Forum
Technical Management Team Meeting
June 4, 2008**

1. Introduction

Today's TMT meeting was chaired by Dan Feil (COE) and facilitated by Erin Halton (DS Consulting) with representatives of USFWS, NOAA, COE, BPA, CRITFC, PPC, Montana, Oregon, Idaho, and others attending in person or by phone. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at the meeting. Anyone with questions or comments about these notes should provide them to the TMT chair or bring them to the next meeting.

2. Review Meeting Minutes

Minutes for the May 21 and 28 meetings have just been posted and will be open for comment at the next TMT meeting. Minutes through May 14 were finalized today.

3. CRITFC Update

Kyle Dittmer (CRITFC) presented the COE with a letter of appreciation for its work to recover the bodies of three tribal fishers who recently drowned.

4. Priest Rapids Operations Update

Approximately 12 days of the 2008 protection flow program remain, Russell Langshaw (Grant PUD) reported. Discharges dramatically increased on May 23 to an average of 235 kcfs. From that point on, Grant PUD has had 150 kcfs minimum flows in effect and expects these to continue for the next few weeks. Langshaw will give a final update at the TMT meeting on June 18.

5. Transmission Outages

Mike Viles (BPA) gave a slideshow presentation, attached to today's agenda, on the 500-kV Grizzly-Summer Lake line outage. The outage began May 27 and was originally planned to run continuously through June 15. However, with heavy runoff this spring, there was concern about involuntary spill raising TDG levels. The continuous outage was canceled, and an intermittent outage was planned for the off-peak times of 1900-2400 hours for 20 days.

This line will not be eligible for another outage until next year. Parts of the repair work can be postponed until then, but damage from vandalism to the insulators should be fixed before winter sets in because the situation increases the risk of a line fault.

BPA's performance criteria require protection from loss of lines next to each other. Viles explained why taking a single kV line out of service reduces the transmission capacity in the area from over 4,000 megawatts to about 2,800 megawatts. In this location, BPA is required to plan for a double contingency because of the line configuration. The biggest limitation involves two nuclear units in Arizona whose malfunction could disrupt the intertie line connecting the Northwest power grid to California.

Work on the insulators began May 27 and continues on a daily basis. Repairs are being done at night in the dark to avoid curtailing power sales during the day, thus reducing overgeneration spill. To avoid the need for future outages like this one, BPA has been working on bare-hand techniques that allow line workers to do repairs in a grounded suit without taking the line out of service. In future, bare-hand techniques could be applied to this line. At present, with uncontrolled spill happening system-wide, BPA has been using the salmon managers' spill priority list and employing other techniques to keep TDG levels below 125% for as many hours in a day as possible.

6. Libby Operations

The COE started the sturgeon operation Sunday, June 1, in response to the sturgeon SOR which was finalized Friday. Amy Reese (COE Seattle) presented four modeling scenarios (attached to today's agenda) that she prepared to help TMT compare the options for Libby Dam.

Scenario 1 – Assumes outflows stay at 4 units for the extent of the sturgeon volume. The reservoir drafts to 2,439 feet by the end of August. This scenario goes up to full powerhouse for 2 days, then drops to 21.3 kcfs outflows through the end of June. The end of August target elevation is 2,439 feet. At the end of June, the sturgeon flows ramp down to 18.5 kcfs, the rate chosen to draft the reservoir to that elevation by end August. In September, Libby ramps down for bull trout flows. Under this scenario, the reservoir elevation peaks at 2,455 feet sometime in mid-July. Running 4 units for the rest of June fully drafts the 1.04 maf sturgeon volume.

Scenario 2 – Resembles Scenario 1 in that it the end of August elevation is 2,439 feet. However, this operation goes to full load around June 10 instead of staying at 4 units for the duration of the sturgeon pulse. Full powerhouse flow is around 25-25.5 kcfs. The scenario assumes that selective withdrawal equipment at Libby is repaired before going to full powerhouse. Outflows are now limited to 4 units because unit 5 has no temperature control until the repairs are complete. Under this scenario, the sturgeon volume is exhausted earlier than Scenario 1. Jim Litchfield (Montana) asked if this scenario results in lower summer flows due to inflow forecasts. The reservoir elevation doesn't go as high, and the draft starts a couple of days earlier than in scenario 1, Reese replied.

Scenario 3 – This reservoir drafts to an end of August elevation of 2,449 feet. Outflows are around 14 kcfs for the first few weeks until the reservoir fills, at which point it drafts outflows of 12.2 kcfs for the rest of the summer.

Scenario 4 – Drafts to elevation 2,449 feet by the end of September, after going to full load for sturgeon flows. The reservoir peaks at elevation 2,457 feet, which is almost full. Summer outflows are around 11.9 kcfs.

There was general agreement that scenarios 2 and 4 are the most likely to materialize this year. As of yesterday, the selective withdrawal system is functional again, reported Greg Hoffman (COE Libby Dam). However, slot 10 was damaged by the boom collapse, so operators are hesitant to place gates in that slot, which has been drafting water from the coldest reservoir elevation available. The main decision now is whether to run 4 units or 5 at Libby. It would be premature to decide today whether to base the operation on flow temperatures or volume. At present, reservoir stratification is about 2-3 weeks behind schedule.

There is substantial sturgeon activity going on now at Libby, Jason Flory (USFWS Spokane) said. There are males in spawning condition and females in the hatchery. USFWS requested that temperatures drop no more than 3.6 degrees F at Bonners Ferry, and supports a full powerhouse operation as long as it doesn't exceed that limit.

Reese asked what the process will be for requesting a change in flows for the sturgeon pulse. The sturgeon managers have a call planned for Thursday afternoon, June 5, after which they will make a recommendation in the form of a SOR. TMT planned a conference call for 2 pm Friday, June 6, to discuss the outcome of the sturgeon recovery team meeting.

7. Hungry Horse Operations

The BOR's final June/July volume forecast for Hungry Horse is 1,200 kaf, 125% of normal, John Roache said. As a result of that forecast, outflows were increased to 7 kcfs yesterday. The reservoir will probably fill in early July instead of June because runoff is being pushed into later in the season. Roache presented two scenarios linked to today's agenda, one of which drafts the reservoir to elevation 3,540 feet by end August, the other to elevation 3,550 feet by end September. Roache will present updated scenarios at the next TMT meeting on June 18.

Discussion moved to the summer operation of Libby and Hungry Horse, specifically Montana's concerns about conditions for resident fish in these reservoirs. Montana collaboratively seeks an operation that comes as close as possible to the BiOp-recommendation, providing good conditions for both

anadromous and resident fish Jim Litchfield said, noting that it will be easier to find common ground on Hungry Horse operations than Libby.

Last year, Hungry Horse outflows were 4.3 kcfs all summer, with 17.3 kcfs outflows from Libby. Flows in 2004 were around 12.5 kcfs through the summer, ramping down to 9.6 kcfs in September – a good operation from Montana’s perspective. The main goal is to keep flows as flat as possible into September.

Litchfield noted that Montana’s two Council representatives were present today because Montana’s stake in this outcome is very high. He suggested starting with a reasonable goal, such as 15 kcfs flat outflows from Libby, to be fine-tuned as forecasts change. Last year’s process ended in elevating the dilemma to regional executives after a request for 15 kcfs flat outflows from Libby was rejected. Montana hopes to avoid a similar outcome this year.

TMT members then expressed their views on Libby and Hungry Horse summer operations this year.

Montana – Seeks collaboration and is willing to compromise on a gradually declining hydrograph through September 30 that resembles last year’s operation. Montana is willing to compromise on reservoir refill for the sake of steady outflows. Montana advocates a ramp-down in August to stable flows when anadromous fish benefit less from flows in the lower river. Montana’s perspective is that the 2008 BiOp went into effect when NOAA adopted it.

NOAA – Supports Montana’s request for flat flows around 15 kcfs through summer. The tradeoff is between achieving reservoir refill with aggressive ramp-downs vs. maintaining steadier flows at a lower elevation in the reservoir

Oregon – Does not want flows to decline in the lower river. Would seek replacement for volume lost in the lower river if upstream elevations are kept stable. Oregon agrees with Montana that this is a social policy issue, not a technical issue. Believes the 2008 BiOp won’t go into effect until the court approves it.

TMT will revisit this issue at its next meeting June 18. They discussed the possibility of a June 11 meeting as well. Amy Reese will update the COE’s scenarios by June 11 in case TMT decides to have a conference call then.

8. Bonneville Screen Update

Dan Feil (COE) gave an update since last Wednesday’s SOR and conference call to address this problem. The fish screens were replaced in unit 11 following the call. By the afternoon of Thursday, May 29, approximately 24 hours later, it was clear that the debris load remained overwhelming, so the screens were removed from unit 11 and not replaced until yesterday, June 3.

Flows are still over 400 kcfs depending on the time of day, a rate expected to continue until next week. Rates of descaling have gone way down – from over 50% to 5% or less. Unit 11 and all other units are being operated according to the FPP at the high end of 1% to mitigate gas impacts from high flows. Feil pointed out that next year the TIE crane will be available, allowing more efficient screen cleaning than the gantry crane allows.

Russ Kiefer (Idaho) asked why the smolt index stayed high with the screens out from May 21-23. Feil couldn't explain it, but said people have been surprised by the number of fish found in the collection system without the screens in place. The smolt index itself is calculated on a 1:1 ratio. Smolt sampling data indicate that fish were still being guided somehow into the bypass system without the screens in place.

Dave Wills suggested removing the turning vane from unit 11 and evaluating passage with screens in place during the high flows that are expected the rest of this week. Idaho, BOR and Montana raised no objections. Dan Feil will update TMT members via email.

9. TMT Guidelines

These look fine, Paul Wagner said, suggested they be revisited in August or September. Jim Litchfield suggested whittling the document down from its present length of 12 pages to something more concise; Wagner agreed some serious cutting could be done in future. Russ Kiefer had already sent comments to the facilitation team. The guidelines will be revisited in August or September.

10. Dworshak Operations

This issue was not on the agenda for today, but the operations review of Dworshak elicited extensive discussion of BPA's request to add Dworshak to the spill priority list. The purpose of the request is to move spill around on the system rather than loading up one location with gas, Robyn MacKay explained. Spilling 2 kcfs at Dworshak is roughly equivalent to spilling 15 kcfs at Bonneville because 2 kcfs of flow reduction at Dworshak reduces TDG production at all the dams downstream.

Idaho expressed concern about uncontrolled spill on Snake River projects, plus the fact that TDG levels have gone above state water quality standards several times recently. Three weeks ago, the salmon managers' request to maintain outflows at full powerhouse was not implemented due to concerns about refill – and now Dworshak is spilling. Idaho would prefer to move the water through the powerhouse instead of spilling at Dworshak because of gas impacts. Also, high flows during daylight hours create difficult conditions for fishers on the north fork of the Clearwater. Russ Kiefer advocated a more fish-friendly operation at Dworshak; Greg Haller (Nez Perce) seconded that.

Dworshak has been filling fast, even with high outflows, Feil said. Adding Dworshak to the spill priority list would mitigate gas throughout the system. Kiefer favored filling the reservoir soon to accumulate more volume for flow augmentation in late June and early July. Haller seconded that recommendation.

Steve Hall (COE) discussed Dworshak operations under current high flows. The reservoir is fuller now because some of the ESP years of record went to a fill and spill situation in the modeling exercise. So the COE has been trying to walk a fine line between filling too soon and spilling to the gas cap. The pool elevation might be limited because of flood control requirements, specifically a snow-covered area requirement. Overgeneration spill can be expected on the Snake for the next 5-7 days.

Laura Hamilton asked if Dworshak is added to the spill priority list, should it be listed last or second to last? Wagner's preference was to list Dworshak after Grand Coulee, second to last on the list. Dave Wills asked whether the COE has concerns about refilling Dworshak this year; the answer was an emphatic no. The target date for refill is June 30 if flood control allows.

NOAA, USFWS, BOR, Oregon, Idaho, and Nez Perce representatives did not object to BPA's request to add Dworshak to the spill priority list. USFWS assented with the caveat that TDG levels at Dworshak will be managed in accordance with state water quality standards. Idaho, CRITFC and Nez Perce representatives were uncomfortable adding Dworshak to the list without further discussion of its placement. Spill conditions being what they are, Dworshak could be last on the list and still have to spill, BPA and COE representatives agreed. The way to keep Dworshak spill from exceeding water quality standards is to set the spill caps low, Hamilton said. At Dworshak, the balance between spill and powerhouse flows affects TDG production.

11. Operations Review

a. Reservoirs. Grand Coulee is at elevation 1,268 feet and filling.

Hungry Horse is at elevation 3,539.22 feet and filling. Outflows are 7 kcfs and inflows are 20 kcfs.

Libby is at elevation 2,427.21 feet, with inflows of 46.4 kcfs and outflows of 23.63 kcfs using 4 units.

Albeni Falls is at elevation 2,061.35 feet, with inflows of 101.8 kcfs and outflows of 97.1 kcfs. Almost all inflows are being passed. Kiefer asked whether that much spill is creating gas problems. A visit to the TDG web page showed TDG readings of over 115%. Albeni Falls is a low head project, with not enough

difference in elevations above and below the project to produce energy, Robyn MacKay (BPA) said.

The Dalles did not experience a true power or transmission emergency recently, contrary to previous reportage, Feil explained. Bays unauthorized for use except in a flow emergency that could impact dam safety were used for overgeneration spill early Monday morning, June 2. The COE followed the salmon managers' spill priority list when they put bays 1-9 into service. The spill priority list has been updated for various gas levels.

Bonneville flows peaked at 420 kcfs on May 31. Flows are now around 411 kcfs, and will probably continue above 400 kcfs until June 8. Fish screens will be reinstalled when flows are in the 370 kcfs range.

The 7-day average at Lower Granite was 150 kcfs. A log became stuck in the RSW on June 2, and spill was shut off for less than an hour to remove it. Large, woody debris has been piling up in the Lower Granite forebay even with the RSW in place.

Dworshak is at elevation 1,567.35 feet, with inflows of 27 kcfs and outflows of 8.7 kcfs. Inflows averaged about 30 kcfs last week. There was extensive discussion of whether or not to put Dworshak on the spill priority list; see agenda item #10 above.

b. Fish. Adult passage counts at Bonneville are around 1,000 per day and holding steady, Wagner reported. In terms of juvenile migration, yearlings are winding down, with substantial but dwindling numbers. Meanwhile subyearling counts are increasing, a transition that normally occurs this time of year.

c. Power System. The whole system is in a state of overgeneration spill, Robyn MacKay said. BPA has been load factoring daily. Schedulers and traders are looking for every opportunity to move power until the flows come down.

d. Water Quality. Laura Hamilton (COE) gave a quick overview of recent SYSTDG data linked to the TMT web page. The entire system has been in involuntary spill since May 16 and is expected to remain so into the near future.

8. Next Meeting

The next regularly scheduled TMT meeting will be June 18, with finalizing the meeting notes for May 21 and 28, a Priest Rapids wrap-up of 2008 protection flows, an update on Libby and Hungry Horse with the focus on Libby operations, TMT guidelines, and the standard operations review on the agenda. This summary prepared by consultant and writer Pat Vivian.

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Robyn MacKay	BPA
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