

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

June 20, 2012

Facilitator's Summary

Facilitator: Robin Gumpert

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 June 6 and June 13 Meeting Minutes

With no comments, both sets of Official Meeting Minutes and Facilitator's Notes were approved as final.

Spill Priority List

Doug Baus, Corps, reported that with the system transitioning in to Summer spill operations, the action agencies developed a spill priority list that would support their ability to do performance standard testing and manage system wide TDG. This version of the spill priority list was linked to the agenda item and viewed at the meeting. He provided more detail about the specific changes that were made, and turned to the salmon managers to hear their input. Paul Wagner, NOAA, on behalf of FPAC said the salmon managers provided an alternative list that they believed would better place the priority of excess spill at the location of fish passage during this Summer period. With that, Doug shared a revised spill priority list (not yet posted during this discussion) that tried to meet the recommendations of the salmon managers and the action agencies' need to meet performance standard testing. The one exception to the salmon managers' recommendation was that Lower Monumental was placed lower on the list to allow more flexibility to meet the conditions of the performance standard test, which had already been initiated at that project. There was also some discussion about the high flows in the system and likelihood that the action agencies would have to implement at least Level 1 of this spill priority list.

Action/Next Steps: TMT members were willing to accept the revised spill priority list described in today's meeting, and as such, the Corps planned to put this list in place immediately and through July 20 when performance standard testing ends. This updated list will be posted to today's TMT agenda and the order for Level 1 and Level 2 is as follows:

LEVEL 1 – FISH PASSAGE SPILL CAP			
PRIORITY ORDER	PROJECT	SPILL UP TO (% TDG):	SPILL CAP ESTIMATE (KCFS)
01	LWG	120/115% ^a	41
02	IHR	120/115% ^a	92
03	LGS	120/115% ^a	35
04	BON	120/115% ^a	100
05	MCN	120/115% ^a	145
06	JDA	120/115% ^a	140
07	TDA	120/115% ^a	128
08	LMN	120/115% ^a	24
09	CHJ	110%	15
10	GCL	110%	5
11	DWR	110%	~ 3 (35%)

LEVEL 2 – LACK OF LOAD SPILL CAP			
PRIORITY ORDER	PROJECT	SPILL UP TO (% TDG):	SPILL CAP ESTIMATE (KCFS)
12	LWG	120%	55
13	IHR	120%	90
14	LGS	120%	52
15	BON	120%	190
16	MCN	120%	165
17	JDA	120%	142
18	TDA	120%	118
19	LMN	120%	72
20	CHJ	115%	70
21	GCL	115%	20
22	CHJ	120%	110
23	GCL	120%	25

The salmon managers thanked the Corps for the opportunity to provide feedback on the list, and the willingness to make adjustments to balance all needs. The Corps likewise appreciated receiving the salmon managers' input with enough lead time to coordinate the adjustments.

Lower Columbia Pool Operations for Summer Treaty Fishery

Tom Lorz, CRITFC/CTUIR, presented SOR 2012-C1 requesting special operations to support treaty fishing during the periods 6/18-6/21 and 6/25-6/28. As in the past, the Corps agreed to implement this operation to the extent possible. Tom will follow up in two weeks with a report and possibly new request for continuing the fishery.

Grand Coulee Refill

John Roache, Reclamation, reported that high flows are expected to continue through the first week of July, and so Grand Coulee was expected to reach refill sometime between the end of June and July 4th. The current project elevation was 1281.8'. John acknowledged that the high flows would most likely not allow the agency much flexibility this year to meet the interests of holiday recreationists who would like a lower reservoir elevation for beach access.

Upper Snake Flow Augmentation

John Roache also reported on Upper Snake flow augmentation, saying the full 487 kaf will be released this year: Releases above Milner began on 6/7 and will continue in to July, totaling approximately 207 kaf; releases out of Boise began on 6/5 and will continue in to July totaling approx. 42 kaf; the Payette releases will begin in late June and continue in to August, totaling approx. 160 kaf; and the rest, about 78 kaf, will come from natural flow.

Dworshak Operations

Steve Hall, Corps Walla Walla District, reported on final refill operations at Dworshak and shared inflow models going in to July. A 6/8 snow flight observed higher than expected, 8% remaining snow pack. Currently the project was releasing 11 kcfs and would ramp down to about 7.5 kcfs over the weekend; then further to about 5 kcfs through the week of 7/4, until the project is full. Summer augmentation discharges will begin around 7/10, depending on temperatures.

Steve also shared the latest temperature modeling runs and said Lower Granite temperatures, currently around 57° F (similar to recent years), should stay cool through the end of June so no need for temperature augmentation flows from Dworshak. The hatchery has asked the Corps to increase release temperatures out of Dworshak up to 45°, which the Corps will do as soon as flows subside enough for them to make the switch in to overshoot mode at the project. They plan to run weekly temperature models.

Steve introduced temperature modeler Evan Heisman and said he has done a lot of work on modeling improvements. Steve also reported that repairs had been done to fix leaky turbines at the project, and so the Corps did not anticipate any issues this year. A more permanent fix is scheduled to begin in 2013/2014.

Libby Operations

Doug Baus, Corps, reported that Libby discharges were currently 31.2 kcfs and Libby discharges were being managed to within one foot of flood stage at Bonners Ferry. Robyn McKay, BPA, added that BPA had to back down 10 megawatts on 6/19 and 20 megawatts on 6/15-16 at Libby and Hungry Horse to address low load issues in Flathead Valley – emergencies were declared because they disrupted the sturgeon operation, but the total flow disruption at the projects was minimal. It was reported that preliminary data shows 7 sturgeon have moved above Bonners Ferry; crews will know more and be able to recover them once the flows recede.

Action: Doug Baus will ask Joel Fenolio, Seattle District Corps, to provide model runs for Libby Summer operations at the next TMT meeting. The plan is to target elevation 2449' by the end of August.

Operations Review

Reservoirs – John Roache reported on Reclamation projects. Grand Coulee was at elevation 1281.8 feet and filling. Hungry Horse was at elevation 3558.1 feet with 12.5 kcfs outflows and about 20 kcfs inflows – runoff and precipitation are high, with precipitation for June at 200% of normal. Lisa Wright reported on Corps projects. Libby was at elevation 2446.6 feet, with 65.4 kcfs inflows and 29.7 kcfs outflows. Albeni Falls was at elevation 2061.4 feet with 84.9 kcfs inflows and 88.7 kcfs outflows. Priest Rapids inflows were 241.5 kcfs. Dworshak elevation was

1597.7 feet, with 15.1 kcfs inflows and 11 kcfs outflows. Lower Granite inflows were 92.1 kcfs and Bonneville inflows were 355.4 kcfs.

Doug Baus reported that the special operation at Bonneville to minimize descaling of sockeye had concluded on 6/13. Also, as follow up to the 6/13 TMT conference call, he shared that summer spill operations at Lower Monumental would begin on 6/21 since agreement on an earlier start date was not reached..

Tom Lorz, CRITFC/CTUIR, reported that a large subyearling Chinook run is expected to reach Bonneville very soon and there is concern for descaling at Bonneville given the unique high flow conditions and fish screens remaining in at Bonneville. Tom requested that the action agencies implement the special operation provided for sockeye, now for subyearling Chinook, beginning tomorrow, 6/21, and continuing through Monday evening 6/25. The Corps responded there had been a wide range of variability in percent descaling and mortality in juveniles during previous operations limiting PH2 to the mid-point (50%) of the 1% of best efficiency operating range. Based on the wide range of variability in mortality and descaling rates it has been unclear that the effects of implementing the special operation at PH2 provided any benefit to juvenile sockeye that passed through PH2. Furthermore, this operational change request would be taking place during performance standard testing at Bonneville Dam. Implementing this change would modify PH2 and PH1 operations during performance standard testing and would be a significant change from the current Bonneville Dam operation as identified in the FPP. Accordingly, the AAs need additional regional coordination before implementing this change. That said, Doug indicated that FPOM discussed this issue at the last meeting and set up a special task group to continue work on this issue. Doug committed to completing additional coordination and following up with Lorz prior to the next TMT with the goal of having a path forward to address Tom's concern. Scott Bettin, BPA, added that Unit 11 was expected to come back on line tomorrow and this would give the project more capacity.

Fish – Paul Wagner, NOAA, reported on the fish. Adult summer Chinook were passing about 2,200/day at Bonneville, with a total 38,000 so far. This lined up with the 10-year average. Jacks counts, on the other hand, were falling short by about ½ of the 10 year average so far. Sockeye numbers were very high, totaling 96,000 at Bonneville. Steelhead numbers were picking up. On the Snake, from 3/1 to 6/17, 66,366 spring Chinook had passed Lower Granite, and this was close to the 10-year average. Jack counts were low. Russ Kiefer, Idaho, reported that 4 PIT-tagged sockeye from Stanley Basin were counted at Bonneville. Lamprey adult counts were 5,461 at Bonneville, well ahead of 2011 counts. FPAC received a report that there were issues with the adult lamprey counts and only those observed through the observation window were being counted, so the actual is probably higher than the observed total.

Juvenile yearling Chinook counts were low, but subyearling numbers were high – ranging from 17,000 to 40,000 at the Lower Snake projects; about 30,000 at McNary and 19,000 at Bonneville.

Water quality – Scott English, Corps, reported that TDG was high but manageable in the system and also said the tailwater gauge at Bonneville was back on line. If desired, Scott said he would prepare a presentation for TMT on the problem and solutions to the failed water quality gauge.

Power system – Nothing more to report.

TMT Schedule

June 27 Agenda items include –

- Libby Summer Operations – model runs
- Bonneville Operations Report
- Treaty Fishery Update
- Dworshak Operations – temperature modeling
- Water quality gauge report
- Other?

July 11 Agenda items include –

- July Final Water Supply Forecasts
- Dworshak Operations
- Libby Operations
- Other?

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM – OFFICIAL MINUTES

June 20, 2012
Notes: Pat Vivian

1. Introduction

Today's TMT meeting was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of Montana, BPA, COE, Idaho, NOAA, CRITFC/Umatilla Tribe, BOR, Salish-Kootenai Tribes, Washington, the Colville Tribe and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

2. Review June 6 and 13 Meeting Minutes

The facilitator's notes and official minutes for June 6 and 13 were approved as final.

3. Spill Priority List

On June 18, the COE posted to the TMT website a preliminary draft of the spill priority list that reflects the transition from spring spill to summer operations and is consistent with performance testing, Baus reported. The Action Agencies aim is to deemphasize spill in excess of summer spill rates as defined in the 2012 Fish Operations Plan (FOP) that arise during lack of load conditions at projects where performance testing is taking place.

Paul Wagner, NOAA, suggested a direct comparison of the changes from spring to summer spill priorities by comparing the draft list posted to today's TMT agenda with the list for spring posted to the April 11 agenda, which he considered an effective prioritization of involuntary spill at projects.

Level 1 (up to the 120/115% TDG cap at fish passage projects) spill priority order, per the draft list posted today, has Lower Granite and Ice Harbor in positions #1 and #2, respectively, which is the same as in spring since both projects do not have performance standard testing in spring or summer this year, Baus said. Those two projects are followed by Little Goose, McNary, John Day, The Dalles, Bonneville, Lower Monumental, Chief Joseph, Grand Coulee and Dworshak in that order. Lower Monumental is lower on the list than it was in spring due to performance testing now underway. The summer draft list adds Dworshak and Grand Coulee up to 110% TDG (neither project has state TDG waivers). For the sake of system wide TDG management, Level 2 summer spill for lack of load conditions includes Chief Joseph and Grand Coulee at the 115% and 120% TDG levels.

Wagner said the Salmon Managers would prefer to move Lower Monumental up from position #8 to #4 at Level 1 spill, and Bonneville up to position #5 at Level 1 spill. Level 2 spill priorities for lack of load would remain the same as in the Action Agency proposal, except the Salmon Managers would move Chief Joseph and Grand Coulee to the bottom of the list. The rationale behind this recommendation is to spill first up to TDG state standards at projects where the spill could provide fish benefits before spilling exceeding the state TDG standards at projects with no fish passage.

Baus then showed TMT a revised draft spill priority list, which incorporated feedback received yesterday from FPAC after they reviewed the Corps' draft. The revised list had not yet been posted to the TMT agenda as of this meeting and will be posted there this afternoon.

For Level 1 spill, FPAC had recommended the following order: Lower Granite, Ice Harbor, Little Goose, Lower Monumental, Bonneville, McNary, John Day and The Dalles up to the 120/115% TDG caps (in the tailrace and forebay of the next downstream project, respectively), and ending with Chief Joseph, Grand Coulee and Dworshak up to the 110% TDG cap. In the revised list, the Action Agencies have adopted the recommendations for Level 1 spill with the exception of Lower Monumental, which remains in position #8 to increase the likelihood of achieving a successful summer performance test which is already currently underway. The Action Agencies also adopted the recommendation to place Chief Joseph and Grand Coulee at the bottom of the Level 2 list. It was clarified that the two dams would both spill to 115% TDG in a stepwise approach before either spills to 120% TDG. The revised order of priority for Level 2 spill is as follows: Lower Granite, Ice Harbor, Little Goose, Bonneville, McNary, John Day, The Dalles, Lower Monumental, Chief Joseph, Grand Coulee and Dworshak.

Russ Kiefer, Idaho, questioned why the summer performance test at Lower Monumental would be considered higher priority than testing at other projects. Tom Lorz, CRITFC/Umatilla, commented that the performance test at Lower Monumental should represent a range of operations that might reasonably occur over the next 5-10 years, not a special operation for performance testing. Wagner commented that the amount of inflows coming is likely to make the position of Lower Monumental in Level 1 a moot point, as all projects on the list will likely have to spill up to this level due to the high flows.

Kiefer proposed moving Lower Monumental up to position #4 for Level 1 spill and leaving it at position #8 for Level 2 spill. Baus replied that testing time has already been lost at Lower Monumental due to involuntary spill, and the COE is making best efforts to put spill at other projects where there may be more flexibility. The placement of Lower Monumental at the bottom of the list for Level 1 spill reflects the fact that the summer spill treatment has not yet been attainable there, and performance testing is scheduled to end July 20.

CRITFC/Umatilla was willing to accept the spill priority list as revised by the Action Agencies in response to Salmon Manager recommendations. **Idaho** was likewise willing to accept the revised list. The Action Agencies will implement that list later today.

4. Operation of the Lower Columbia Pools for Summer 2012 Treaty Fishery

Tom Lorz, CRITFC, presented SOR 2012-C1, linked to this item on today's agenda. The SOR, presented on June 14, calls for two treaty fisheries:

- 6 am, June 18 – 6 pm, June 21
- 6 am, June 25 – 6 pm, June 28

The SOR calls for Bonneville, John Day and The Dalles pools to be managed within a 1.5-foot band during these hours. Baus reported that the COE has already provided guidance to the projects to implement the operation as requested.

Lorz will report back to TMT on planning for any further fisheries and will provide catch data when it is available.

5. Grand Coulee Refill

John Roache, BOR, reported. Typically the BOR manages flows so that beaches are available at Lake Roosevelt over the July 4 weekend, but high inflows this year mean that Grand Coulee is expected to fill around July 4. The current reservoir elevation is 1281.8 feet, and the project is slowly filling.

6. Upper Snake River Flow Augmentation

The BOR expects to provide 487 KAF of flow augmentation from the upper Snake River this year, Roache reported. Augmentation flows began June 7 and are expected to continue until mid July. Estimated volumes are as follows:

207 KAF – Upper Snake River above Milner
42 KAF – Boise basin
160 KAF – Payette basin
+78 KAF – natural flows
487 KAF – total flow augmentation

7. Dworshak Operations

Steve Hall, COE, reported on Dworshak final refill preparations. Two slides attached to today's agenda depicting inflow and temperature conditions at Dworshak. Inflows over the past few days have been substantial. The first slide depicts flow and elevation projections through July. On June 14, a snow flight

found about 8% snow covered area, which means there is less snow in the basin than expected. With the reservoir 2 feet from full now, inflows are expected to decline. Current outflows are 11 kcfs, expected to drop to 7.5 kcfs this weekend due to lower inflows. After that, releases will drop down to 5 kcfs until the reservoir is topped off at 1600 feet elevation, probably through July 4. Summer flow augmentation will begin around July 10 depending on temperatures.

Currently Lower Granite temperatures are around 57 degrees F, with the reservoir expected to remain cool through the end of June. Dworshak temperatures are currently around 43 degrees F. Next week's model run will include the July 4 holiday and is not expected to involve a need for temperature augmentation. As soon as possible, the COE will raise Dworshak reservoir temperatures to 45 F in response to a request from the Dworshak hatchery.

Kiefer asked about Lower Granite temperatures. Hall replied that temperature model runs indicate that conditions this year will be similar to the past few years. No special turbine operations are envisioned. Last year's repair of the leaking head seal at Dworshak was apparently successful. The head cover seal on the unit still needs to be rebuilt, but that repair will be scheduled a few years out (2013 or 2014) between September and March, when fish are not migrating.

Hall said current projections show 2012 will be a relatively high inflow year, but not as high as 2010. Similar years are 1959 and 1991. With Lower Granite tailwater currently at 57 degrees F and slowly warming, it will be a good 10 days before it approaches 65 degrees F, triggering temperature augmentation flows. The COE will provide updated temperature model runs for each TMT meeting throughout the remainder of fish passage season.

8. Libby Operations

Libby is currently releasing 31.2 kcfs, managing Bonner's Ferry within a foot of flood stage, Baus reported. Robyn MacKay, BPA, reported on recent transmission emergencies in the Flat Head Valley. The area has been experiencing higher generation than load especially during light load hours at night. This means generation at Libby, Hungry Horse or both dams must be cut back. Last night, Flat Head Valley generation was reduced by 10 MW. On June 15-16, generation was reduced by 20 MW, which is equivalent to about 0.5 kcfs at each project. Transmission emergencies were declared in light of the sturgeon spill operation at Libby.

MacKay said load and generation imbalances will continue to be a problem, primarily at night, until flows decline or loads pick up for warmer weather. The sturgeon operation has had its ups and downs as a result of the power emergencies and flood stage management at Bonner's Ferry. Scott Bettin, BPA, reported that 7 sturgeon, 4 of them females, have moved to the area above

Bonner's Ferry. High flows have made the area inaccessible for data collection. When flows go down, USFWS and Idaho will report on the sturgeon operation.

Jim Litchfield, Montana, asked about the status of summer operations at Libby in light of high inflows. The RFC water supply forecast is about a MAF higher than the official COE forecast for Libby, Karl Kanbergs, COE, replied. Recent storms in the area have added volume to the high flows.

9. Operations Review

a. Reservoirs. Grand Coulee is at elevation 1281.8 feet, expected to fill after June 30. Hungry Horse is at elevation 3558.1 feet, with outflows of 12.5 kcfs which are expected to continue. Precipitation in the Flat Head Valley was 220% of normal in the first 20 days of June. Inflows at Hungry Horse are now around 20 kcfs. Roache will notify TMT via email if the "glory hole" is pressed into service to handle the high volume.

Libby is at elevation 2446.6 feet, with inflows of 65.4 kcfs and releases of 29.7 kcfs. Albeni Falls is at elevation 2061.4 feet with inflows of 84.9 kcfs and releases of 88.7 kcfs. Dworshak is at elevation 1597.7 with inflows of 15.1 kcfs and releases of 11 kcfs. Priest Rapids inflows are 241.5 kcfs. Lower Granite inflows are 92.1 kcfs. Bonneville inflows are 355.4 kcfs.

The change to summer spill operations at Lower Monumental will begin on June 21 as identified in the Fish Operations Plan, Baus said. The operation for juvenile sockeye passage at Bonneville ended on June 13.

Lorz reported that 7.8 million subyearlings are expected to arrive at Bonneville next week. Because high flows have been forcing turbine operations toward the upper end of the 1% of best efficiency operating range, and it's unusual to have fish screens in place when flows are this high, he recommended that the sockeye operation to cap powerhouse 2 units to the mid-point (50%) of the 1% range be implemented immediately for a duration of one week.

In light of differing opinions in the region on the implications of that operation on juveniles, adults and water quality, as well as performance testing underway at Bonneville, Baus said the Action Agencies are not prepared to implement the request for a special Bonneville operation for juvenile passage. Bettin reported that Bonneville unit 11 is returning to service tomorrow, which will help alleviate passage problems. The current rate of juvenile descaling is 4-5% compared to an expected rate of 1-2%, so descaling is higher than it should be, Wagner said. Mortality is not an issue.

The Action Agencies will review available data and coordinate further with the region regarding the operation of Bonneville powerhouse 2 at the mid-point and powerhouse 1 at open geometry.

b. Fish. Adults: Summer chinook have been arriving at Bonneville at the rate of 2200 per day, with a total season count of 38,000 which is good, Wagner reported. However summer chinook jack counts are only 50% of the 10 year average. The causes behind the lack of jack returns in spring and summer are unknown. Sockeye have been arriving at the rate of 19,000 per day with a total season count of 96,000 to date, which is phenomenal – 400% of the 10 year average. Snake River steelhead passage is increasing. From 3/1 to 6/17, 66,366 spring Chinook had passed Lower Granite, which is close to the 10 year average.

Juveniles: Yearling chinook passage is on the wane, while subyearling passage is active – 17,000 per day at Lower Granite and Little Goose, 40,000 per day at Lower Monumental, 19,000 per day at Bonneville, and 30,000 per day at McNary. The next few weeks are prime time for subyearling passage.

Adult lamprey passage has been noteworthy, with 5,400 to date arriving at Bonneville – about double last year’s total adult lamprey count. Lorz will get clarification on whether that’s just lamprey observed through the fish ladder windows or using more sophisticated methods.

c. Water Quality. Scott English, COE, reported that systemwide TDG levels have been high but manageable. Bonneville and McNary have posed the greatest challenges. The previously inundated water quality monitoring station in the Bonneville tailrace has been restored to service. English will give TMT a presentation on the latest findings regarding TDG management in the Bonneville tailrace. He reported that performance testing of summer operations at Bonneville began on June 16 with 95 kcfs constant flows, dropping to 85 kcfs flows during daytime. The gas cap at Bonneville is now 121 kcfs at night, but spill levels reached 189 kcfs yesterday, Laura Hamilton, COE, reported.

d. Power System. As reported under Libby operations today, there have been transmission problems in the Flat Head Valley.

6. Next TMT Meeting

There will be a TMT conference call on July 11 to focus on temperature management at Dworshak. The next regular TMT meeting will be July 18. That agenda will include updates on Bonneville operations, Columbia treaty fisheries, Libby operations, Dworshak temperature management, and a presentation on water quality management in the Bonneville tailrace.

Name	Affiliation
Jim Litchfield	Montana
Robyn MacKay	BPA
Doug Baus	COE
Russ Kiefer	Idaho
Paul Wagner	NOAA

Scott Reed	BPA
Scott Bettin	BPA
Kim Johnson	COE
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Steve Hall	COE Walla Walla
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Richelle Beck	Grant PUD
Holly Krebs	Chelan
Denny Rohr	DRA
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Sheri Sears	Colville
Shane Scott	PPC