

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

February 15, 2017

Facilitator's Summary

Facilitator: Emily Stranz; Notes: Charles Wiggins, DS Consulting

The following Facilitator's Summary is intended to capture basic discussion, decisions and actions, as well as 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. Official minutes can be found on the TMT website: <http://www.nwd-wc.usace.army.mil/tmt/agendas/2017/>

TMT Meeting Minutes

TMT members approved the minutes and facilitators' summaries for January 18, January 25, February 1, and February 8, 2017.

Dworshak Update

Steve Hall, Corps, provided an update on Dworshak operations. He noted that the forebay is currently at 1,520.4ft, compared to 1,519ft last week. The project is releasing 8.1-.2 kcfs, with inflow at 7kcfs, which is slowly receding. TDG has stayed close to 107%. The Corps has been operating to stay below 110% TDG, as coordinated at TMT.

Paul Wagner, NOAA, presented three scenarios, prepared by the Fish Passage Center for FPAC conversations. The three scenarios show potential operations based off a range of inflow and water supply through the end of July 2017. These scenarios are available on the TMT website.

Those present at the February 14th FPAC meeting reached consensus on holding at or below 110% TDG until late March to early April, then dropping outflow to lower TDG for two week when Fall Chinook emerge in the Clearwater River. This operation also was intended to meet the April 15th flood control targets.

Russ Keifer, ID, agreed with the FPAC recommendation. He stated his understanding that the intent of the state water quality standards is to stay below 110% TDG, however, did not think that it would be considered a violation if TDG went above 110% for a few hours because of unusual conditions.

Jay Hesse, Nez Perce, commented on the desire to lower TDG levels in late-March and early April for fall Chinook emergence. It was noted that typically the hatchery requests an increase in flows at Dworshak to help push the fish out, however, in the past this was not associated with higher TDG. Both Jay and Russ agreed to connect with the hatchery to see if 8kcfs flows and 108-110% TDG or 5kcfs flows and 100% TDG would be preferred.

- **ACTION:** Jay and Russ will work with the hatchery to determine desired flow and TDG during the Fall Chinook releases in early April. They will also check to make sure that the release dates are up to date and see if there is any flexibility in those dates.

Steve Hall, Corps, provided a scenario, similar to the FPAC runs that he noted was one potential operational option. The Corps scenario is available on the TMT website. Steve also apologized for errors in the long-term scenarios provided last week, noting that he was trying to get the scenarios out to the TMT quickly and was short staffed. Steve provided an early-bird water supply forecast, which assumed no additional precipitation. The forecast was still 2.4maf on March 1st, which would equate to a flood control elevation of 1,515-1,520ft on April 15th. He noted that this estimate is conservative.

- **ACTION:** The Corps will continue to operate Dworshak Dam with approximately 8kcfs outflow to meet the April 15th flood control value and stay below 110% TDG. It will then set up for refill.

Operations Review

Reservoirs: Mary Mellema, BOR, presented data on BOR reservoirs.

- Hungry Horse midnight elevation was 3,541ft, with 1.6kcfs inflow and 1.7kcfs outflow (to meet Columbia Falls minimum flow).
- Grand Coulee midnight elevation was 1,277.9ft (drafting down to meet drumgate maintenance elevation).

Lisa Wright, Corps, reported on Corps projects:

- Libby midnight elevation was 2,395.3, with 3.2kcfs inflow and 4kcfs outflow.
- Albeni Falls midnight elevation was 2,051.7ft, with 20.8kcfs inflow, and 19.9kcfs outflow.
- Dworshak midnight elevation was 1,520.5ft, with 6.6kcfs inflow, and 8.2kcfs outflow.
- Lower Granite average outflows are 59.7kcfs.
- McNary average outflows are 179.2kcfs.
- Bonneville average outflows are 229.1kcfs.

Water Quality

Laura Hamilton, Corps, reported that there is involuntary spill at the John Day, The Dalles, Bonneville, Chief Joseph, and Ice Harbor Dams due to lack of turbine. Turbines are out for maintenance.

Fish

Paul Wagner, NOAA, noted Steelhead numbers are low in the Columbia and Willamette Rivers -- well below the 10-year average. The slow start may be due to a delay or colder water temperatures.

Also, adult fish count data is being transferred from the Corps website to the Fish Passage Center's (www.fpc.org).

Power System

Scott Bettin, BPA, shared that there was nothing to report.

The next TMT meeting will be a conference call on February 22nd.

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

February 15, 2017
Minutes: Pat Vivian

1. Introduction

Representatives of NOAA, Montana, the COE, BPA, USFWS, Idaho, BOR, Nez Perce Tribe, Warm Springs Tribe, Oregon, Washington, CRITFC/Umatilla Tribe and others participated in today's TMT meeting. Doug Baus, COE, served as chair and Emily Stranz, DS Consulting, facilitated the conversation.

2. Review Meeting Minutes – January 18 and 25, February 1 and 8

The meeting minutes and facilitator's notes for all four meetings were approved as final.

3. Dworshak Update

3a. Current Operations Data. Dworshak reservoir is at 1520.4 ft elevation, about a foot higher than last week, with inflows of 7 kcfs slowly receding. Outflows are 8.1-8.2 kcfs and TDG saturation levels are 107-108% in the tailrace, Steve Hall, COE, reported.

3b. FPC Scenarios for FPAC. Paul Wagner, NOAA, presented three scenarios based on Fish Passage Center projections that FPAC considered yesterday.

- Scenario #1 – This graph follows the current February-March STP inflows through March 1, then uses the 2009 water year runoff forecast of 2.5 maf for subsequent modeling. It shows DWR discharging 4.5 kcfs in February, then increasing to 8.4 kcfs to meet flood control objectives and dropping to 5 kcfs releases until later in the year, when releases rise to 10 kcfs.
- Scenario #2 – This uses the same assumed DWR inflow volume of 2.5 maf for April-July and the same STP trace through March 1, then follows the 2009 water year going forward. The operation holds 8.5 kcfs out until April 1, then drops it and raises it again to achieve refill while maintaining the project elevation below the flood control refill curve. FPAC identified this scenario as the most desirable.
- Scenario #3 – This operation assumes an inflow volume of 2.5 maf. Flood control elevations were taken from current February 2017 flood control (DWR has 2.541 Maf forecast), plot uses 2-13-17 STP inflows for DWR from February through March, from April through July, actual inflows from WY 2014 were used (2.942 April-July runoff volume). The operation remains steady through May despite higher inflow volume. Discharges drop after May in order to achieve refill.

FPAC chose scenario #2 because it achieves the objective of meeting the April 15 flood control target while keeping TDG levels below 110% in late March and early April, as requested by the Nez Perce Tribe for fall Chinook emergence in the Clearwater River. Wagner noted that Idaho didn't participate in the FPAC discussion. FPAC's recommendation is based on information available as of yesterday, which didn't include an early bird forecast from the COE (see section 3d of these notes). If the weather dries up, the operation will need to be revised. Jim Litchfield, Montana, pointed out that shape will be critical.

Hall asked the Salmon Managers to clarify whether the goal of the operation is to manage TDG levels to 110% or below 110%. Tom Lorz, CRITFC, said 110% or below. Russ Kiefer agreed but doubted that Idaho would consider small excursions above 110% to be exceedances of state standards if the intent of the operation is to keep levels below 110%. He will confirm this with IDFG.

Tom Lorz, CRITFC, asked whether the COE was able to complete a snow flight, and Hall said yes, he will send the results to TMT as soon as they are available. Preliminary findings indicate that even low elevation SNOTEL stations in the Columbia basin didn't lose measurable snow/water content, while most of the higher elevation stations (above 3,300 ft) gained snow/water content.

Dave Statler, Nez Perce Tribe, asked whether the timing of reduced flows around April 1 as depicted in scenario #2 is primarily driven by the need to meet the April 15 flood control elevation. Wagner said no, the purpose is to maintain lower flows during that period for the protection of spring Chinook smolts released by the hatcheries on March 15 and 31, as discussed below.

3c. Timeline of Fish Impacts. In response to a TMT request two weeks ago, Jay Hesse, Nez Perce Tribe, provided TMT with a matrix of release dates, which is linked to today's agenda.

The tribe's main concern at this point is water quality for hatchery smolt releases. On March 15 the Clearwater Hatchery will release 400,000 spring Chinook into the North Fork of the Clearwater, and on March 31 Dworshak hatchery will release 1.5 million spring Chinook into the North Fork. One of FPAC's main goals for Dworshak is to keep tailwater values below 110% TDG during those release periods.

Julie Ammann, COE, noted that the graph presented is hypothetical, merging two hydrographs during the transition from the end of March to the beginning of April, when 2009 flows were used for modeling. If inflows remain high in April – the period of greatest risk and uncertainty – it might not be possible to keep Dworshak releases low and TDG levels under 110%. There was general acknowledgement that the actual timing of DWR releases will depend on inflows.

Baus wondered whether the March 15 smolt release would need increased discharges to aid downstream migration. Hall said the COE works closely with the hatchery to increase discharges without exceeding 110% TDG so the fish are swept rapidly into the mainstem Clearwater and away from predators in the North Fork. In the past, the Nez Perce Tribe has requested increased flows for hatchery releases for this reason. The typical request is to increase discharges for a day in advance of the smolt releases and hold that discharge for a few days.

Hesse pointed out that the tribe's requests for increased flows in past years did not involve TDG exceedances because all three units at Dworshak were operating. This year, Hall said, it might take a bit of spill in addition to operating the two small units to produce enough velocity to flush the smolts out of the predator zone. High flows on the Clearwater combined with low flows out of Dworshak tend to produce eddies and reverse flows into the North Fork, which blocks smolt migration. So it might be appropriate to keep Dworshak discharges around 5 kcfs during smolt release times if flows on the mainstem Clearwater are low.

Scott Bettin, BPA, requested weekly updates on the hatchery release schedule. With sufficient notice, it may be possible to shape generation around hatchery release dates. Hesse said the tribe will keep TMT updated. Both Hesse and Kiefer agreed to connect with the hatchery to see if 8kcfs flows and 108-110% TDG or 5kcfs flows and 100% TDG would be preferred and whether there's any flexibility in smolt release dates.

3d. Future Operations. Hall showed TMT an updated scenario based on the COE's early bird water supply forecast for Dworshak. Even if the basin accumulates no additional rain or snow between now and March 1, the March final forecast would still be 2.5 maf, resulting in an April 15 flood control target of 1515-1520 ft.

In general, SNOTEL stations north of the Columbia basin have lower than normal SWE readings and those to the south, especially in southern Idaho, are way above normal. It's highly likely the runoff forecast will be higher than 2.5 maf by March 1. The RFC's 10 day forecast calls for continued precipitation and snow accumulation. And the Climate Prediction Center foresees an increased probability of cooler weather in the Columbia basin, with a jet stream off the Pacific creating unpredictable conditions.

The scenario based on the early bird forecast shows Dworshak releases continuing at 8 kcfs through the end of March and dropping slightly in April, then dropping to 5 kcfs in late May and early June, followed by reservoir refill. As one of many potential operations, it meets the objective of keeping TDG values under 110% while smoothing releases and minimizing the risk of high TDG exposures later in the season. The inflows modeled may be a bit low.

The COE will continue the current Dworshak operation of around 8 kcfs releases for the foreseeable future, given TMT's priorities – maintain steady flows close to but not to exceed 110 % TDG, shape discharges around spring Chinook release dates, and

continue operating to the April 15 flood control target in lieu of end of month targets. TMT will review the Dworshak operation in a week.

4. Operations Review

4a. Reservoirs. Mary Mellema, BOR, and Lisa Wright, COE, reported. Hungry Horse is at 3541 ft elevation with inflows of 1.6 kcfs and discharges of 1.7 kcfs. The project is meeting Columbia Falls minimum flows of 3,460 cfs. Grand Coulee is at elevation 1277.9 ft, drafting to meet the 1255 ft elevation required for drum gate maintenance to begin the week of March 15.

Libby is at elevation 2395.3 ft with 3.2 kcfs inflows and releases of 4 kcfs. Albeni Falls is at elevation 2051.7 ft with inflows of 20.8 kcfs and releases of 19.9 kcfs. Dworshak is at elevation 1520.5 ft with inflows of 6.6 kcfs and releases of 8.2 kcfs. Lower Granite is releasing 59.7 kcfs, McNary is releasing 179.2 kcfs, and Bonneville, 229.1 kcfs.

4b. Fish. Paul Wagner, NOAA, reported. Adult migration is just beginning, with 95 steelhead and 43 wild steelhead returning to Bonneville. That's about 20% of the 10 year average as of this date. Adult counts are well below average on both the Columbia and Willamette rivers. (For the sake of comparison, last year's wild steelhead count at Bonneville was 451.) It's possible that low temperatures are delaying migration, although winter steelhead are generally not affected by temperature. Dave Swank, USFWS, agreed that all runs seem to be low this year, possibly late due to cooler temperatures. FPC will start posting adult counts to their web page as of April 1, Wagner noted. These are currently being supplied by the COE.

4c. Water Quality. Laura Hamilton, COE, reported that McNary, John Day and Bonneville dams have been spilling involuntarily for the last 3-4 days, while Chief Joseph and Ice Harbor have been spilling for a day. Spill is due to due to lack of turbine, not lack of load. The Seattle District has installed a water quality gage in the Chief Joseph tailwater, which will begin reporting data to the TMT water quality page.

4d. Power. There was nothing to report.

5. Next TMT Meeting

TMT will meet next in a February 22 conference call to review the Dworshak operation.

Name	Affiliation
Paul Wagner	NOAA
Jim Litchfield	Montana
Julie Ammann	COE
Scott Bettin	BPA
Steve XX	COE

Doug Baus	COE
Lisa Wright	COE
Charles Wiggins	DSC
Dave Swank	USFWS

Phone:

Russ Kiefer	Idaho
Mary Mellema	BOR
Dave Statler	Nez Perce Tribe
Erick Van Dyke	Oregon
Jen Graham	Warm Springs Tribe
Jay Hesse	Nez Perce
Charles Morrill	Washington
Tom Lorz	CRITFC/Umatilla
Joel Fenolio	COE
Steve Hall	COE
Laura Hamilton	COE
Steve Lyman	PGE
Mike Shafley	Snohomish PUD
Margaret Filardo	FPC