

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

May 09, 2018 – Conference Call

DRAFT Facilitator's Summary

Facilitator: Donna Silverberg; 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/2018/>

Review Meeting Minutes

The edited TMT meeting minutes for April 18 and 25 will be reviewed at the next face-to-face TMT meeting on May 16.

May Water Supply Forecast

Joel Fenolio (BOR) and Doug Baus (Corps) reviewed the May water supply forecast, with data available on the TMT web site.

Hungry Horse May-September 2.5 kaf; 148% of 30-year normal;

The Dalles April-August: 107 maf; 122%;

Lower Granite April-July: 23 maf; 116%;

Libby April-August: 7 kaf; 125%;

Dworshak April-July: 332 kaf; 124%;

Grand Coulee April-August: 71 maf; 126%;

Albeni Falls April-August: 18 maf; 149%.

Weather Forecast: Doug noted that the Corps is expecting temperature departures of 3-6 degrees F. above normal throughout the basin. The 6-10, 8-14, 30-day and 90-day NWRFC Outlooks all forecast both above average temperatures and precipitation, with a corresponding increase in stream flows. At the Snake River projects, Lower Granite's forecasted spike in inflows in early May should drop to normal or below, with the June 1 forecast of 130 kcfs now predicted at 100 kcfs. Lower Columbia River projects are now running quite high, with predicted flows of 260 kcfs at The Dalles now observed at 400 kcfs. As always at this time of year, current weather conditions are creating substantial system volatility. TMT members were reminded: "Forecast!"

Kootenai River Habitat Restoration SOR

Sue Ireland (Kootenai Tribe of Idaho) described the proposed System Operation Request to continue habitat restoration work to benefit the ESA-listed white sturgeon population, burbot and other species. This work began in 2011, with Phase 2 started in 2017. It is designed to increase the number of pools and improve the overall ecosystem of the Kootenai River. The request is to limit outflows from Libby Dam to 6 kcfs from September to the first week in November. The November portion of this operation will require close communication with BPA and the Corps regarding anticipated November flood control and power needs.

Logan Osgood-Zimmerman (Corps) noted that snotels in the basin currently show much snow, though recent warm temperatures have dropped the lower elevation snowpack rapidly. Current runoff volume is the third highest on record, with high June inflows also predicted. The reservoir

target elevation is 2449 ft. at the end of August, and 2448-50 at the end of September. There is a good chance of refill this year.

- **ACTION: The facilitator polled all TMT members and all approved the SOR. Montana and NOAA had previously given their approval, and Doug Baus will confirm this after the meeting.**

Fish managers expressed appreciation for the effort to help this project move forward.

Libby Dam Sturgeon Flows SOR

Jason Flores, USFWS, informed TMT about the second System Operation Request, to provide a pulse from Libby dam to aid sturgeon migration and spawning. Based on the runoff forecast of 7.3 maf, this is a Tier 4 year. In earlier years, the SOR provided for a double pulse. However, after reviewing telemetry data, the request this year is to change the shape to provide a single pulse. The timing and magnitude of the pulse would be condition-dependent, with guidelines described in the document on the TMT web site. The ramping up of Libby flows to 20 kcfs will provide 30 kcfs of warmer water at Bonners Ferry for approximately 40 days to assist white sturgeon migration and spawning activity.

- **ACTION: The facilitator polled all TMT members and those who voted approved the SOR. The State of Oregon abstained. Montana and NOAA had previously given their approval, and Doug Baus will confirm this after the meeting.**

FOP Spring Spill Update

Dan Turner (Corps) described spring spill operations. Because of high water and flows, the four Snake River projects have been in involuntary spill conditions during much of the period, especially at Little Goose and Lower Monumental. Involuntary spill has resulted in TDG levels exceeding state water quality standards. All lower Columbia River projects have also had involuntary spill and the Corps expects this to continue. These conditions are likely to remain for some time. If the forecasts are accurate, high TDG levels could linger for 1-2 weeks, so the group can expect spill caps to remain low.

Dan noted that the May 2 outage at Lower Granite resulted in a noticeable change in flow and TDG spiked at 120% during the procedure. There was a 2-day travel time to the downstream forebay, and TDG dispersed as water moved downriver.

Ice Harbor Dam Operations

Aaron Marshall (Corps) described operations at Ice Harbor. The MOP was raised by 0.5 ft. to support fish barge operations at Lower Monumental. These operations are scheduled to be daily until May 15, and every other day thereafter. The resulting elevation range is now 437-438.5 ft.

Other

Tony Norris (BPA) reported that on Monday afternoon, high flows and wind posed a challenge to power system operations, resulting in considerable megawatt swings. A unit tripped off at Grand Coulee, but operators managed to avoid having to deploy [something].

**The next TMT meeting is face-to-face on May 16 at 9:00 AM.
A process meeting for TMT members will follow.**

Columbia River Regional Forum

TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

May 9, 2017

Minutes: Melissa Haskin

1. Introduction

Representatives of BPA, COE, BOR, Washington, USFWS, CRITFC/Umatilla, Idaho, Nez Perce Tribe, Oregon, and others participated in today's TMT meeting chaired by Doug Baus, COE, and facilitated by Donna Silverberg, DS Consulting.

2. Review Meeting Minutes – April 18 and April 25

Approval of the April 18 and April 25 facilitator summary and minutes was deferred until the next face-to-face TMT meeting (May 16, 2018).

3. May Water Supply Forecast - Doug Baus, Corps NWD and Joel Fenolio, BOR reported

a. Forecasts

The following are the official water supply forecasts for May 2018:

Hungry Horse Dam (May – September): 2,500 KAF (148 % of average).
The Dalles Dam (April – August): 107 MAF (122 % of average).
Lower Granite Dam (April - July): 23 MAF (116 % of average).
Libby Dam (April – August): 7,356 KAF (125 % of average).
Dworshak Dam (April-July): 3,032 KAF (124% of average).
Grand Coulee Dam (April - August): 71 MAF (126% of average).
Albeni Falls Dam (April - August): 18 MAF (150% of average).

b. NWRFC Current Month Summary Graphics

Overall temperatures are 3-6 degrees Fahrenheit above normal throughout the Columbia Basin. Warm temperatures in conjunction with record snowpack is leading to an increase in stream flows.

c. Climate Forecast

Looking at the 6 to 10-day forecast, temperatures remain above average and streams are expected to have increased flows as well. This extends into the 8 to 14-day forecast as well as the 30-day forecast and 90-day forecast. In summary, the temperatures are above average and will stay above average.

d. NWRFC Extended Inflow Forecast - Lower Granite Dam

Above average temperatures have resulted in snowmelt and an increase in Lower Granite inflows. Current forecasts are for 140 kcfs rising to 170 kcfs over the next few days. Flows will remain above average through the first part of May and then drop closer to average towards the end of the month. In June, flows are expected to be below average.

e. NWRFC Extended Inflow Forecast - The Dalles Dam

The Dalles Dam is also seeing above average inflows. Typical inflows this time of year are 220 kcfs. However, current inflows are up to 400 kcfs. This will trend downwards toward the end of June to 350 kcfs and the long-term forecast shows average inflows. Doug Baus, COE, noted that the forecast has been changing a lot.

4. Kootenai River Habitat Restoration SOR - Sue Ireland, KTOI; Logan Osgood-Zimmerman, Corps-NWS presented

Sue Ireland, KTOI, talked about the Kootenai River Habitat Restoration SOR, which requests holding Libby outflows at 6,000 kcfs or less during September and through the first week of November 2018. The purpose of this, she expressed, is to improve conditions for sturgeon, burbot, and other fish in the Kootenai River by improving spawning habitat and overall ecosystem function to help adult sturgeon migrate upstream and spawn successfully.

This would be the second phase of the Lower Meander Project, the first of which was completed in 2017. Phase 2 will increase the number of pools to increase sturgeon migration. The SOR would help support in-river work.

Scott Bettin, BPA, noted that the first week of November is always a transition week, so close communication would be necessary.

Logan Osgood-Zimmerman, Corps-NWS, updated TMT on the Corps' plan to implement the SOR based on current conditions/forecasts before TMT polled on the SOR. Logan reported that the May water supply forecast for Libby Dam is 7.36 MAF, which is 125% of average. Based on the water supply forecast, the volume of water for the sturgeon pulse is 1.2 MAF and the bull trout minimum flow is 9 kcfs through the end of August, dropping back down to 6 kcfs after that. Due to rough zone issues, flow is currently 9.8 kcfs instead of 9.2.

Warm weather has resulted in snowpack dropping fast at lower elevations, but high elevations like Sunshine Creek still have quite a bit of snow. The Corps expects a lot of May runoff (the third highest volume on record) and above average flows for June, and will target a Libby pool elevation of 2,449 feet by the end of August and hold a maximum outflow of 6 kcfs through September, even if inflows go up slightly. There is a good chance of refill this year.

Erick VanDyke, OR, asked for projections for operations in the October-November period.

TMT members were polled and provided the following feedback on the SOR:

Nez Perce: support
OR: support
ID: support
WA: support
USFWS: support
BPA: support
BOR: support
COE: support
Umatilla: support
Colville: support

NOAA and MT were not present. NOAA provided Doug Baus, Corps, an email in support of the SOR. The Corps coordinated the SOR with MT the previous day and MT did not object to implementing the SOR.

Hearing no objections, the Corps plans to implement the SOR.

5. Libby Sturgeon Flows SOR - Jason Flory, USFWS, and; Logan Osgood-Zimmerman, Corps-NWS presented.

Jason Flory, USFWS, walked TMT through the reasons for the Libby Sturgeon Flows SOR. In previous years, the operation included a double pulse, where the first encourages sturgeon migration and the second encourages further migration and spawning further upstream. However, new data suggest that sturgeon migration at Bonners Ferry is more closely related to the number of days above 30,000 cfs. This year's May water supply forecast of 7.36 MAF equates to a Tier 4 year and 1.2 MAF for the sturgeon pulse.

The USFWS recommended maximizing the number of days at or above 30,000 cfs at Bonners Ferry. This will start as the tributary starts to peak. The temperature of the water will be controlled via selective withdrawal at Libby Dam in order to encourage sturgeon to spawn at the end not the beginning.

Erick VanDyke, OR, asked if the findings of the study had been shared publically. Russ Kiefer, ID, said he could put Erick in touch with the people who have the report. Charles Morrill, WA, also asked to be put in touch.

Logan reported that the chance of refill this year is good. Charles asked if that was due to it being a Tier 4 year or the SOR. Logan said it was mostly due to the water supply – i.e., it being a Tier 4 year.

Russ asked if a gradual step-down approach would be better for the ecosystem, mentioning that the same amount of water could be moved, but the result would be a less drastic change in late August and early September. He asked that those working with Montana mention his suggestion.

TMT members were polled and provided the following feedback on the SOR:

Nez Perce: support
 OR: abstain
 ID: support
 WA: support
 USFWS: support
 BPA: support
 BOR: support
 COE: support
 Umatilla: support
 Colville: support

NOAA and MT were not present. NOAA provided Doug Baus, Corps, an email in support of the SOR. The Corps coordinated the SOR with MT the previous day and MT did not object to implementing the SOR.

Hearing no objections, the Corps plans to implement the SOR.

6. FOP Spring Spill Update - Dan Turner, Corps-NWD

a. Snake River TDG Overview Table

Dan Turner, Corps-NWD, reported that spill levels were over the gas cap at Lower Granite and Lower Monumental. Ice Harbor was at minimum generation until recently when flows increased and the project quickly transitioned to involuntary spill.

b. Columbia River TDG Overview Table

Involuntary spill is expected to continue. Wind dropped TDG for a few days. Factors other than spill have been controlling TDG at times.

c. Project Graphs

At the Snake River, all projects are in involuntary spill. Projections show a peak on the May 11th, then resuming spill caps at some of the projects on the 13th and 14th.

The lower Columbia River projects are also experiencing involuntary spill due to high flows and will continue to for a while.

Charles Morrill, WA, noted that TDG at lower Granite hit 120% during the powerhouse outage for the transmission line repairs on May 2, and asked if there was any takeaway in the observed TDG versus what the Corps forecasted.

Dan responded that the projections were right around 120% TDG. Scott Bettin added that there were additional issues with maintaining the downstream forebays within the 1-foot MOP range due to the significant drop in Lower Granite outflows during the outage. He added that in the

future, the downstream forebay operating ranges may need to be expanded in order to manage the drop in flows.

Dan recapped that from a TDG-level, the operation went great because they were able to store into the pool and keep spill down at reasonable level.

Looking ahead, forecasts indicate several days of 10-15 mph winds, which could result in lower TDG levels. Barometric pressure is forecasted to rise over the next few days, bringing down TDG by as much as 1%. Low pressures are expected on Saturday, May 12, which could also affect TDG levels, Dan noted. With lower wind speeds, Dan shared that the Snake River projects may come out of involuntary spill but overall, TDG would linger in the system for a while – perhaps up to a week or two. Spill caps could stay low because of a result of that.

Erick VanDyke, OR, observed that on May 7, there was a 10% spike in TDG at 2 p.m. Dan responded that the Corps is investigating but thinks the spike is an error and will be removed from the data if so.

6. Ice Harbor Dam Operations - Aaron Marshall, Corps-NWD

a. Hourly Data

Aaron Marshall, COE, reported that, on May 8, the Ice Harbor MOP range was increased by 0.5 feet on the upper end to 437.0 to 438.5 feet. This change was necessary to maintain safe navigation through Ice Harbor per the 2018 Fish Operation Plan, section 4.6. This is to avoid drafting the forebay below 437.0 feet when Lower Monumental outflow is reduced during the daily spill reduction for the fish transport barge in the tailrace. During high flows, the significant reduction in outflow from Lower Monumental results in quickly drafting the Ice Harbor pool. With only a 1-foot operating range, the pool would drop below the minimum of 437 feet. Therefore, the operating range has been increased to a 1.5-foot range in order to provide sufficient storage to avoid drafting the Ice Harbor pool below the minimum. Going forward, the Corps and BPA will make best efforts to stay in the 1-foot MOP range; the additional 0.5-foot increase, which will remain in effect until further notice, allows for brief excursions above MOP and will only be used on an as-needed basis.

Jay Hesse, Nez Perce, asked why the pool elevation has to go up if flows were the highest they had been all season. The answer is that when flows are high and Lower Monumental Dam spill is curtailed for navigation safety as the fish barge traverses the tailrace, that water still has inertia and causes the forebays to bounce. In the past, the Ice Harbor forebay has dropped below the minimum, but it wasn't noticed because the data are reported on an hourly basis, not on a 5-minute basis.

7. Power update, Tony Norris, BPA

Tony Norris, BPA, reported on power. He said that the power system experienced some challenges on Monday, May 7, due to a unit at Grand Coulee Dam in the third power house that tripped offline causing a dip in generation. At the time of the meeting, the reason for the trip was still unclear. BPA moved to replace generation by enacting the contingency action plan, which armed the system to hold reserves above 1%; however, BPA managed around the

situation and was able to avoid deploying any of the reserves held above 1%. The unit came back online within two hours. During this time there were major swings in wind which required BPA to enact the Oversupply Management Protocol on the morning of the 7th.

8. Next TMT Meeting

The next TMT meeting is a face-to-face on Wednesday, May 16, followed by the monthly process meeting.

Attendees

Joel Fenolio	BOR
Lisa Wright	COE
Scott Bettin	BPA
Tony Norris	BPA
Julie Ammann	COE
Tom Lorz	(CRITFC - Umatilla)
Jay Hesse	Nez Perce
Charles Morrill	WA
Russ Kiefer	ID
David Swank	USFWS
Erick VanDyke	OR

Dan Turner	COE
Melissa Haskin	Flux Resources
Charles Wiggins	DS Consulting
Donna Silverberg	DS Consulting
Alfredo Rodriguez	COE
Jason Flory	USFWS
Greg Hoffman	COE

Natalie Richards	COE
Scott Richards	Snohomish PUD
Ann Setter	COE
Ruth Burris	Portland General Electric
Logan Osgood-Zimmerman	COE
Aaron Marshall	COE