

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

January 14, 2009 Meeting

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

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 11/21 Year End Review, 12/15 and 12/17 facilitator notes and official meeting minutes were posted to the TMT webpage. Edits to the 11/21 and 12/3 official minutes were submitted by Kyle Dittmer, CRITFC:

- 11/21 minutes: on page 9, change "120%" to "102%" of normal
- 12/3 minutes: "Heinith" is misspelled on the last page.

Edits to the 12/17 official minutes were submitted by NOAA and the COE:

- 12/17 minutes: Wagner read aloud a suggested revision to the Joel Fenolio section on page 7. He handed a copy of the text to Jim Adams, COE, for editing.

With those changes made, all three sets of notes were considered final.

Action: Jim Adams, COE, will make the changes discussed following today's meeting and re-post the notes to the web

Water Supply Forecasts

Steve King, River Forecast Center, referred TMT to several web links posted to the meeting agenda. King reviewed October-December 2008 precipitation data and guided the group through links to 2009 regional water supply forecasts. He reviewed data for each project, noting that the RFC and official ESP forecasts aligned pretty closely for Libby (5490 KAF for the Jan-July time period.) King described the processes for official regression modeling and explained how some allowances are made for future conditions; he expressed a sense that the regression forecasts issued last week would be a bit higher if re-issued today. Kyle Dittmer, CRITFC, said that the three model prediction method used by CRITFC has produced slightly different data, perhaps signaling the need to find consensus across forecasts. King said that his office has been active in updated NWRFC regression procedures using techniques that are similar to what is employed by the NRCS and the COE. The new procedures will be tested internally during the 2009 forecast season. Products may not be made available to the public this season, but testing and coordination with partners including the COE will be ongoing.

King also referred TMT to links to the Climate Prediction Center and reviewed precipitation forecasts and seasonal outlooks. The three month outlook was for equal chance above/below normal conditions for much of the region. King reminded TMT that

a link off the main RFC page provides details on how to participate in “tele-web” water supply forecast briefings, which are typically held on the 8th or 9th of each month.

Randy Wortman, COE, referred TMT to a graph posted as a link to the COE’s April-July inflow volume forecast for Dworshak. The graph showed different forecasts, including the COE and RFC’s. The depiction was of wide-ranging variability, with data ranging between 2500-3800 KAF. Wortman clarified that COE forecasts meet a 95% confidence level, per its commitment through Canadian treaty agreements that requires a more conservative or “less risky” modeling technique.

TMT members thanked King and Wortman for their participation in today’s meeting and acknowledged that the take home message is that all the forecasts are predicting fairly close to normal precipitation conditions. They also agreed that it is early in the year and that inputs to the forecasting models (e.g., snowpack and precipitation) are likely to change over the course of the season ahead.

Chum Operations

Dan Feil, COE, referred TMT to links on the agenda of figures summarizing the last two weeks of spawning and also post-spawning operations that have occurred since 1/1. Chum spawning operations ended on 12/31. Feil noted that post-spawning or incubation operations began on 1/1 with the current teletype specifying a minimum tailwater elevation also available as a link on the agenda. Feil reminded TMT that all teletypes issued for chum operations that began on 11/7 have been posted to TMT meeting agendas. Tony Norris, BPA, commented that relatively low flows and fairly average precipitation helped efforts to maintain good habitat for chum spawning this year. Norris reminded TMT that next year there will be tighter constraints associated with The Dalles’ Spillway construction. Paul Wagner, NOAA asked whether data could be provided that would show the number of hours the recommended chum operations were maintained, to help supplement 10-year population trend data.

Action: Dan Feil, COE, will coordinate with Wagner offline on his data request summary.

The Dalles Spillwall Construction Update

Jim Adams, COE, announced that Lance Helwig, former project manager for The Dalles, had accepted a new position: Branch Chief of Design at the COE’s Portland District office. Helwig introduced TMT to Pat Duyck, the new project manger, who provided TMT an update on the status of construction at the project and shared plans for the 2009-10 season. Helwig acknowledged that the interface between construction and chum operations went well this past season, thanks in part to great coordination between the project, RCC and TMT. Duyck reported that 15 of 20 wall segments are currently in place, with a goal of all 20 segments (330 ft of wall) in place by this April. He also noted that 50% of the leveling slabs are currently in place. The spillwall will be 830 feet long when complete. Between April-October of this year, additional units will be cast and leveling slabs constructed. Pat and Lance described how sponsions floats are being installed on the work barges and will be used to assist with work in shallow areas (work performed this season was primarily in the deeper areas.) Helwig and Duyck said that the

300 foot crane being used will be removed for the summer months and re-installed at the construction site in September; this will require a short-term special operation but is not anticipated to conflict with spill. In-water work will take place between October 2009 and April 2010. Duyck suggested that the minimum tailwater ranges will be 76.5 ' daytime and 74' for nighttime hours. Duyck said he would coordinate closely with TMT, especially during the November-December 2009 chum spawning timeframe.

Next Steps: Regional Construction Task Force conference calls are held twice a month, on Thursdays at 9 a.m. Duyck invited TMT members for a site visit, suggesting late February as a good time. If any new construction developments arise, Duyck will contact TMT.

2009 Water Management Plan

Dan Feil, COE, reported that the 2009 Water Management Plan was finalized and posted.

Next Steps: Feil offered to talk with Russ Kiefer, ID, about comments submitted by the State that do not appear to be incorporated in the final version.

Note: the FOP is still under internal review and is expected to be released for region-wide review next month.

Operations Review

Reservoirs: Grand Coulee was at elevation 1289.2', and Hungry Horse was at elevation 3523.56', with outflows of 2.2 kcfs. Reclamation's January final operating forecast for Hungry Horse is 2193 kaf (Jan-Jul) which is 99% of average. Libby was at 2410.4', with inflows of 3 kcfs and minimum outflows of about 4 kcfs expected for the remainder of the month. Albeni Falls was at 2051.6'; Dworshak was at 1539.4', with inflows of 5.4 kcfs and outflows in the range of 6.5-7 kcfs. Seven day average inflows were 42 kcfs at Lower Granite, 157 kcfs at McNary and 188 kcfs at Bonneville.

Fish: Paul Wagner said that overall chum numbers from this past season were low.

Power System: Tony Norris, BPA, reported a unit trip [*note: Norris clarified after the meeting that the Powerhouse transmission line tripped off*] at Lower Granite on January 5-6th that caused the project to go to zero generation. In response to a question from the public, Norris clarified that there is no chance that spill will be required at Chief Joseph.

Water Quality: The COE is coordinating with BPA on formulating the plan for testing performance of the spill deflectors at Chief Joseph. Updates will be shared with TMT as they are made available.

Next face-to-face TMT Meeting: Thursday, 1/29 **Note: Special Day and Call-in #

Agenda items will include:

- Fish Operations Plan (?)
- WMP Fall/Winter Update
- Update - BPA Wind Integration Presentation (subject to availability)
- Operations Review

**Columbia River Regional Forum
Technical Management Team Meeting
Jan. 14, 2009**

1. Introduction

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of COE, USFWS, BPA, BOR, NOAA, FPC, Washington, Idaho, the National Weather Service, and others participating. 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 for Nov. 21, Dec. 15, and Dec. 17, 2008

Nov. 21, 2008 Year End Review official minutes: On page 9, CRITFC's latest forecast is 102%, not 120%, of normal, Kyle Dittmer said.

Dec. 3, 2008 official minutes: In the discussion of Libby flood control, Paul Wagner (NOAA) revised the end of the first paragraph to say, "The WMP had stated that there's a variable draft methodology in place for operating Libby reservoir, which says that if the November/December SOI forecast is less than 95% of normal, a sliding scale methodology would be used to calculate the flood control elevation between 95% and 88% of normal. The reservoir would be drafted to elevation 2,413.2 feet by the end of December, given this year's 94% of normal precipitation forecast, Wagner said. The WMP for the past 3 years has suggested that less than 95% of normal precipitation would invoke this sliding scale methodology for flood control. NOAA and USFWS asked the COE to explain the discrepancy between the Corps planned operation and the WMP." In the following paragraph, 94% of average should be 95%.

3. Weather Service Water Supply Forecasts and Flood Control

Steve King (National Weather Service) gave a presentation on the National Weather Service's River Forecast Center forecasts for 2009, beginning with the main water supply forecast (linked to today's agenda). It's so early in the year that these forecasts are but a hint of things to come, he cautioned.

The official regression forecast, coordinated with other federal agencies, shows relatively normal water supplies for April-Sept. 2009 in the upper Snake River, Canada, and the Idaho panhandle. However, lower than normal water supplies are forecast for the Libby/Kootenai River area in upper Idaho. There are very low forecasts along the mainstem Snake River due to regulated conditions in the basin. October and November 2008 were dry, followed by the heavy snows of December. Fall runoff was above normal in the upper Snake River in Idaho and

in western Montana. Roughly 30% of the normal runoff at The Dalles comes from precipitation or snowpack in Canada and another 30% from western Montana. Both of these areas are critical for forecasting water supplies in the Northwest.

Seasonal precipitation plots also reflect large contributions to precipitation in December. There was additional precipitation in western Montana near Missoula, and above normal precipitation in the upper Snake, but conditions in British Columbia were on the dry side. Precipitation on the Columbia for December 2008 above Grand Coulee Dam was 96% of average (October through December precipitation was 91% of average). Precipitation on the Snake River above Ice Harbor Dam for December was 144% of normal, but only 107% of normal for October-December 2008. Precipitation in the upper Snake was 150% of normal for December but 11% of normal for the season. Precipitation in the Clearwater region was 132% of normal for December and 108% of normal for the season.

Snowfall was even lighter than precipitation across the region, until the recent storms. Snowfall in British Columbia has been around average, an encouraging trend for the long haul. However, snow accumulation on the upper Snake was less than normal until the end of December; it normally picks up around Nov. 1, a month and a half earlier than it did in 2008. Snowpack levels have risen to normal now, but nothing in the next 10-day forecast suggests more snow accumulation, so the normal trend might not continue.

The official regression forecast as of Jan. 9, 2009, was 5,490 maf at Libby Dam for January-July; the ESP forecast for Libby is also 5,490 maf. The ESP forecasts are issued weekly and typically represent the best thinking available at the time. At present, both models are operating with the same snow information, but it's best to look at the first ESP forecast following the official forecast to get an exact comparison, unless the two forecasts are issued simultaneously, King said. This is because the latest snow information is rarely input into the models at the same time. Snowfall predictions are heavily based on modeling because of the limited number of observation points, especially at higher elevations. Both models have methodologies to account for future conditions.

King showed TMT several forecasts for January-July 2009 at individual dams. The regression forecast for Hungry Horse Dam is 2,110 kaf (normal is 2,224 kaf), 95% of average. The ESP forecast for Hungry Horse is 2,107 kaf. The regression forecast for Albeni Falls Dam for the same period is 1,306 kaf, 89% of normal, but the ESP forecast came in quite a bit higher at 1,503 kaf. The regression forecast for Grand Coulee Dam is 58.2 kaf, 93% of normal; the ESP prediction is 60.1 kaf.

For April-July 2009, the regression forecast for Dworshak Dam is 2,409 kaf, 94% of normal, while the ESP forecast is 3,016 kaf, 115% of normal.

Comparatively, the 1978 and 1981 runoff years are most similar to the current 2009 coordinated regression forecast for Dworshak. Final forecasts are coordinated with other federal agencies, while the early bird and mid month forecasts reflect Weather Service models. In the case of Dworshak, regression models used by the National Weather Service and the National Resource Conservation Service are nearly identical, showing an upward trend, while the COE forecast has shown a downward trend over the past several months. For water supply volumes at Dworshak, the ESP and COE forecasts are a little over 3 maf, while the coordinated RFC forecast is around 2.5 maf.

There was discussion of why the COE and official coordinated Weather Service forecasts differ. The Columbia River treaty with Canada requires that operations be based on a 95% level of confidence, so the COE forecasts are calculated accordingly, Randy Wortman explained. This means the COE can't allow any subjective influence in their forecasts, or average their forecasts with anybody else's. This is why the COE issues an official forecast for Libby and Dworshak which differs from the Weather Service's official coordinated forecast.

For April-July 2009, the regression forecast for Lower Granite Dam is 18.4 maf, 85% of average, while the ESP forecast is 21.6 maf, with neither model forecasting natural conditions for the Snake River. In response to questioning about why the regression and ESP forecasts are so different, King explained the Snake system is heavily regulated, so trying to figure out what's going to happen operationally is difficult. Both models use different techniques for handling assumptions as to how water will be managed over the course of the year. It's easier to forecast for Grand Coulee, where the forecast represents natural flow conditions.

The ESP forecast for The Dalles is now 114% of normal, but will probably drop in the weeks to come because no additional precipitation is expected over the next 10 days.

For January-July 2008, the regression forecast is 94.7 maf, 88% of normal, while the ESP forecast is 104.5 maf, which is within 10% of normal or 107 maf. CRITFC's forecast for The Dalles, updated Jan. 5, is 111 maf, 103% of normal, Kyle Dittmer noted. The University of Washington's Jan. 1 forecast is 102 maf, 105% of normal, making all the forecasts within plus or minus 5% of normal.

John Roache (BOR) asked, if precipitation is around 100% of average above The Dalles, why is the official forecast only 88% of normal? Although precipitation was normal, King said, runoff was low in the fall, and snow accumulation to the north was below normal until mid December. In Canada and on the Kootenai River, seasonal precipitation was only 70-90% of normal. These things brought down the initial forecast of 150% of normal for the first week of January 2009. The ESP forecast for The Dalles is now 114% of normal, but will probably drop in the weeks to come because no additional precipitation is expected over the next 10 days.

The one-month outlook for precipitation, updated Dec. 31, 2008, shows that January 2009 has a slightly weighted slightly odds having above normal precipitation. Now the Weather Service is saying it's weighted slightly more towards normal, but still there's a 66% chance of conditions not being normal. The 90-day precipitation forecast also shows equal chances of above, below, or normal conditions. Below normal temperatures are forecast for January-March 2009. It's difficult at this point to extrapolate with this means for the region's water supply.

In response to a question about whether the Weather Service plans to revise the regression technique, King reported that work on a new statistical technique would undergo testing beginning this month. The new technique will be evaluated internally and, later, with federal partners. For those who wish to follow the forecasting process closely, the Weather Service offers live water supply briefings via their web page under the "water supply" tab. This link is also available on the TMT web page. It includes a calendar of release dates for the early-bird, mid-month and official forecasts.

4. Chum Operations Review

Results of the last two weeks of the chum spawning operation are linked to today's agenda, Dan Feil (COE) said. Two graphs, Dec. 17-24, 2008, and Dec. 24-31, 2008, show Bonneville Dam outflows and tailwater elevations, with peaks after 1500 hours each day when excess water was released to maintain the target daytime tailwater elevations. The third item linked to today's agenda is the teletype the COE sent to project operators. Currently the only restriction on post spawning operations is maintaining an 11.5-foot minimum tailwater elevation. Item 4, also linked to today's agenda, shows Bonneville outflows and tailwater elevations for post-spawning operations. The peak tailwater elevation was last week at around 21 feet, with outflows of around 220 kcfs.

In response to questioning about tailwater elevations for chum, Feil explained that the 11.3-11.7 foot range is maintained to limit spawning to the lower elevations so eggs won't have to be kept inundated next spring.

Next year, construction work on The Dalles spill wall will restrict forebay elevations at Bonneville, making it harder to provide flexibility for the chum operation, Tony Norris (BPA) said. Conditions in November and early December 2008 were unusually dry, which supported the chum operation this year. He cautioned people not to expect these results in 2009, especially with spill wall construction upstream at The Dalles. Paul Wagner (NOAA) requested a post season wrap-up of the Bonneville chum operation, a sort of 10-year retrospective, including how many hours the target elevation was maintained. Feil said he could provide that at the next TMT meeting. The wrap-up should be limited to elevation exceedances during daylight spawning hours, Norris said.

Wagner and Feil will work on this together off line and decide whether to present the results to TMT.

5. The Dalles Spill Wall Construction Update

Pat Duyck (COE project manager for The Dalles spill wall construction) and Lance Helwig (COE Portland District Design Engineering Branch Chief, formerly TDA spill wall construction manager) gave a presentation.

Helwig recalled his visit to TMT last November. TMT asked him to minimize effects on the 2008 chum operation, and Helwig worked with the contractor to accomplish that. Duyck gave an outlook on the second year of the two-year construction. The 830-foot spill wall is being built between bays 8 and 9, with the goal this year of completing the first 300 foot span to the end of the stilling basin. Work in 2008 was in the deep end of the stilling basin, while work in 2009 will be in the shallow end, using a 300-ton crane to move large blocks weighing about 200 tons apiece. This will probably require about 6.5 feet of water with engineering modifications, making management of the chum operation at Bonneville more challenging next year. To lighten the load on the derrick barge and the impacts downstream at Bonneville, the contractor has proposed using sponsons as ballast to stabilize the barge and minimize the depth needed for flotation. This would reduce the requirement for 8 feet of draft to 6.5 feet 24/7. This depth will be needed at night as well as in daytime because the huge crane, which is difficult to move, will remain in place for the duration of the work season Oct. 2, 2009, through April 2010.

Scott Bettin (BPA) asked, will the crane be removed during spring and summer? Duyck and Helwig expected the contractor to use the valuable equipment elsewhere this summer. When it demobilizes for spring and summer, no special operations will be needed to remove it, Helwig said. Sensitive times will be in October through April, mainly the November-December chum spawning period. More restriction at Bonneville next year will be very problematic, Tony Norris said. Minimum elevation will be 76-76.5 feet at The Dalles tailrace 24 hours a day, which equates to 74.5-75 feet in the Bonneville forebay, or about a 1-foot elevation drop. The normal operating range at Bonneville is 71.5-76.5 feet so this will be within normal.

Duyck offered to coordinate a site visit to The Dalles in early spring if TMT wants to view spill wall construction and receive an update before the 2009 spill season starts. Harkless suggested a site visit in late February. Dave Wills (USFWS) asked the COE to notify the salmon managers if anything changes before then. He and the other salmon managers will discuss their 2009 fishery management options and keep spill wall construction managers apprised of their thinking.

6. Fish Operations Plan

The 2009 spill/transport FOP is still under development, Feil said. The Action Agencies expect to have the planned spill operations out to the region within the next month, as an appendix to the Fish Passage Plan. Last week FPOM met and discussed a few updates to the FPP and made revisions; the revised draft is now posted.

7. Final Water Management Plan

The WMP has been finalized and is linked to today's agenda, Feil said. FPOM met last week and discussed updates to the plan; revisions were made. The spring/summer update will be available in a month or two. The fall/winter update is also posted, having been finalized at the end of the year. Russ Kiefer (Idaho) asked whether all comments were included; he and others will pursue this question further offline. The comments this year were generally excellent, greatly improving the value of the document, Tony Norris noted.

The FOP will be out for external review at the end of this month as Appendix E to the Fish Passage Plan. The deadline for comments on the FPP is Feb. 19. FPOM will meet that day to finalize the plan, which will be distributed in early March.

8. Operations Review

a. Reservoirs. Grand Coulee is at elevation 1,289.2 feet, the relatively high elevation is in part due to the heavy precipitation in early January. With the flow deflectors in place at Chief Joseph Dam, Grand Coulee Dam can now move a lot of water, Tony Norris said. Bonneville is the place of likely spill, which began today at 50 kcfs and will probably continue for several days. The Bonneville tailwater elevation is now around 16 feet.

Hungry Horse is at 3,523.56 feet elevation, discharging 2.2 kcfs. Reclamation's official operating forecast for Hungry Horse is 2193 kaf (Jan-Jul) which is 99% of average and is close to the River Forecast Center's forecast of about 95 percent of normal.

Libby is at elevation 2,410.4 feet. Inflows are around 3 kcfs, outflows have consistently remained 4 kcfs, basically 1 unit running at minimum outflows. The end of January flood control elevation for Libby, based on the water supply forecast, was 2,426 feet elevation; the reservoir elevation is currently 16 feet below that. The plan is to maintain minimum 4 kcfs outflows for the near future. There was brief discussion of the fact that planning for Dworshak includes use of both a 70-year average and a 30-year average for outflows.

Albeni Falls is at elevation 2,051.6 feet at the Hope gage, basically passing inflows and operating within a 1-foot elevation range of 51-52 feet. The plan is to continue operating that way until March.

Dworshak is at elevation 1,539.4 feet. Inflows, which were 5.4 kcfs yesterday, have been decreasing over the past few days. Outflows have been on minimum flows but recently came up to 6.5-7 kcfs, which will continue for a while in order to meet the end of January flood control elevation. The COE's water supply forecast for Dworshak is 3,075 kaf, 115% of average. The end of January flood control elevation is 1,528 feet, with 11 feet to draft out by then. Look for higher outflows from Dworshak for the rest of January, Adams said.

The 7-day average inflow at Lower Granite is 42 kcfs; at McNary, 157 kcfs; at Bonneville, 188 kcfs. A unit tripped out at Lower Granite in early January, and the plant has been off zero generation since then due to excessive flows, Tony Norris said.

b. Fish. Chum spawning season officially ended on Dec. 30, 2008. Chum numbers this year weren't impressive – the peak live count was 57 fish, similar to returns in the past few years, Wagner said. The peak in 2006 was 127 fish; in 2005 it was 122. In general there has been a downward trend in recent years due to multiple causes, Dave Wills said. There was brief discussion of monitoring tributaries.

c. Power System. There was nothing new to report today. BPA hasn't intentionally gone to zero generation on the Snake River since Jan. 5-6. There is no expectation of spill at either Grand Coulee or Chief Joseph dams at this point. The only possible spill point is Bonneville Dam. The flow deflectors at Chief Joseph Dam are mobilized and ready for the 2009 spill season. BPA, the COE and possibly BOR will be designing total dissolved gas testing either this year or next, Adams said.

d. Water Quality. Temperatures are cool and gas levels are low everywhere, Adams said.

9. Next Meeting

The next regular TMT meeting will be Jan. 29, 2009, a Thursday. The fall/winter update to the WMP, the FOP, a wind integration team update, and the standard operations review will be on that agenda.

The facilitation team requested responses to a facilitation services survey they recently emailed to all TMT members. Contact the facilitation team if you need a hard copy.

This summary prepared by consultant and writer Pat Vivian.

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Tony Norris	BPA
John Roache	BOR
Paul Wagner	NOAA
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