COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
May 6, 2009 Conference Call

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS
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 of Minutes/Agenda
TMT members needed more time to review the past meeting notes. Edits to the 4/22 and 4/29 notes are due by 5/13. The meeting summaries from the 4/22, 4/29 and today's meeting will be finalized at the next TMT meeting on 5/20.

Dworshak Operations
TMT began with a review of last week's TMT discussion of Dworshak operations, during which a plan was made to reduce outflows to ~10 kcfs through Wednesday, 5/6 and check in during today's meeting to determine next steps. Jim Adams, COE, reported that the salmon managers offered a new recommendation on 5/5: reduce flows to 7.5 kcfs during the evening of 5/5 and reduce further on 5/6 to two small units, ~4.8 kcfs, and holding for a week. The COE had reduced flows at the project to 7.5 kcfs the evening of 5/5.

Steve Hall, Walla Walla District COE, shared updated information during today's meeting on the May runoff forecast, showing the new forecast runoff at 2.683 MAF (98%). He showed graphs with the various inflow forecast comparisons, augmentation volumes, ESP inflow and outflow statistics. The latest forecast information, Steve summarized, suggested that flexibility to manage flows was reduced and this could potentially impact the COE's ability to refill the project.

Paul Wagner, NOAA, responded that the information shared during today's meeting was new and different from what the salmon managers were working with the previous day. As a result, the recommendation was modified to reduce flows to one unit or minimums sooner.

Dave Statler, Nez Perce, shared that the loss of flexibility to refill this year due to flow augmentation operations was of concern, and that TMT needs to address management of flood control and transition to refill operations to find a better balance – one suggestion is to begin the transition management earlier in April. Given the most current information, Nez Perce supported reducing flows to minimums, using a gradual shift down to avoid flow fluctuations.

Jim Litchfield, Montana, said that considering Lower Granite flows were at 100 kcfs, he supported a reduction to minimum flows at Dworshak as soon as possible.

Paul Wagner, NOAA, offered that the Clearwater fish could be better supported with a slightly higher flow but the degree of benefit is unknown. He said he would like to use input from the Nez Perce Tribe to inform the decision, and, given the uncertainties, would prefer to reduce flows to 2.5 kcfs (rather than minimums) for the next week.

Action: The COE made the decision to reduce flows to minimums (about 1.5 kcfs) starting at 10:00 pm (2200 hours) on 5/6, using a two-step ramp down. Jim Adams shared that this decision was based on input from the region and upon a determination that the planned operation would maximize the potential for refill, as a high priority.

A final comment was shared by one TMT member that the region has managed the transition given the information that was available and the conditions that were presented, and that the decisions were made consciously using the best available information.

Transportation Operations

Jim Adams, COE, provided a quick update that fish were collected at Lower Granite on 5/1 and transported the following day; another round of fish was collected at Little Goose on 5/5 and would be transported today; another round of fish would be collected at Lower Monumental on 5/8 and released the next day.

Upper Snake Flow Augmentation Accounting

John Roache, BOR, introduced Ted Day, Boise BOR, who is responsible for the BOR's forecasts. Ted provided a summary of estimated flow volumes and potential sources for this year's Upper Snake River flow augmentation. He shared that the total estimated volume, 487 kaf, was very likely to be provided, and that the sources listed on the summary might shift some. He also noted that the water would be released earlier this year (in June) per the finalized Upper Snake River BiOp. A question was raised about how this operation will be coordinated with Idaho Power to ensure the water is released into the system, to which Ted suggested that this year will be monitored and lessons learned will be shared with the region. John also suggested that he did not anticipate any conflicts concerning Idaho Power passing Upper Snake Flow Augmentation through Brownlee Reservoir.

Operations Review

Reservoirs: Jim Adams reported on COE projects: Libby was at elevation 2405.5 feet with 7.4 kcfs in and 5.8 kcfs out. It was clarified that Libby elevation guides how VARQ is set, and that the COE will pass inflow at the project until VARQ inflows are reached. Albeni Falls was at elevation 2056.4 feet. 7-day average inflows were 82.1 kcfs at Lower Granite; 221.6 kcfs at McNary; and 232.1 kcfs at Bonneville. Dave Wills, USFWS, shared that the May Spring Creek hatchery release was underway and that the migration timing was matching that of 2007. (Around 85% had passed as of the last report.) The USFWS will continue to work closely with the COE and BPA to communicate when the run has passed, which will trigger a return to a more flexible operating range at

Bonneville powerhouse 2. John Roache, BOR, reported that Grand Coulee was at elevation 1257.4 feet. The ICF date had been set for May 8, which triggers the option to begin refill –actual refill will be based on river conditions and flood control guidance from the COE. The project will be held to an elevation around 1257.7 feet until May 7. Hungry Horse was at elevation 3519.75 feet with 6 kcfs outflows.

Fish: Paul Wagner, NOAA, reported on juveniles: Yearling chinook counts were near their peak at Lower Granite, with counts at about 100,000 per day. Steelhead were also near peak at Lower Granite, with counts at about 60,000 per day. Cindy LeFleur, WDFW, reported on adults: The latest count was 7,000 per day at Bonneville with some fluctuations in counts over the last couple days. It was uncertain whether adult migration was peaking. She noted that the run was very late.

Power System: Nothing to report at this time.

Water Quality: Jim Adams reported that TDG levels had been reduced recently and TDG levels were staying within criteria. Spill caps had been set at 32 at Little Goose, alternative 25/36 at Lower Monumental (for a study) and 101 at Bonneville.

Next TMT Meeting: May 20th Face to Face
Agenda items include:

- Finalize 4/22, 4/29 and 5/6 Facilitator Summary and Official Meeting Minutes
- Dworshak Operations
- Hanford Reach Update
- Sturgeon Operation at Libby
- Snake River Flow Augmentation Volumes Update (placeholder for any new information)

Columbia River Regional Forum
Technical Management Team Conference Call
May 6, 2009

1. Introduction

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting), with representatives of COE, NOAA, BPA, BOR, CRITFC, Idaho, Montana, Washington, USFWS, the Nez Perce Tribe, the FPC 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 April 22 and 29, 2009

Review of the facilitator's notes and official minutes for April 22 and the official minutes for April 29 was postponed until the next TMT meeting on May 20. Send any comments on these notes to Jim Adams by May 12.

3. Dworshak Operations

Steve Hall (COE) gave an update on Dworshak operations and conditions. For the past week, the COE has operated the project in accordance with the Salmon Managers' April 29 request to drop outflows from 15 kcfs to 12 kcfs, then to 10 kcfs and maintain that level through May 5 (yesterday). At that point, Paul Wagner (NOAA) gave the COE an updated recommendation which the Salmon Managers had generated at FPAC that morning. They recommended dropping Dworshak outflows from 10 kcfs to 7.5 kcfs last night, then to approximately 5 kcfs outflows (4.8 kcfs, or 2 units running at near optimal conditions) from tonight until May 13. However, the conditions that drove that recommendation have changed, so the Salmon Managers have modified their recommendation, Wagner said. At the time, flows from Lower Granite were predicted to be about 85 kcfs; current inflows at Lower Granite are now 110 kcfs.

Hall showed TMT updated information on Dworshak reservoir, based on the COE's May 1 water supply forecast for an April-July total volume of only 2,631 kaf, or 2.63 maf, 98% of average. Last month's April-July volume forecast was 2,662 kaf. A volume inflow comparison chart shows that ESP traces have leveled off over the past few weeks. A graph projecting Dworshak augmentation volumes as of May 4 showed that average outflows will be 2.9 kcfs, based on the current water supply forecast. A graph of the average ESP traces shows 2.2 kcfs outflows through the rest of refill, just barely above the minimum discharge of 1.5 kcfs. The maximum ESP trace is 5.0 kcfs through refill. According to these ESP traces, very little flexibility remains in the use of augmentation flows as the

reservoir moves toward refill. Flexibility is what allows the COE to respond to changes or forecasting errors.

Dave Statler (Nez Perce) asked where that flexibility went. Into holding 10 kcfs outflows from Dworshak for the past week, Hall replied. Russ Kiefer (Idaho) disagreed, saying that five days of full powerhouse flows for fish doesn't amount to much water, and TMT coordinated well this year on bringing the reservoir to its May 1 flood control elevation. Kiefer asked whether that elevation could have gone higher than 1,525 feet as of May 1 according to the COE flood control process. It could have been up to 4 feet higher, or anywhere from 1,525 -1,529 feet elevation, Adams replied.

The ESP graphs of Dworshak flow augmentation volume show that, according to the May 1 ESP traces, the reservoir needs to be on minimum discharge from this point forward and could fail to refill in 20 of the 44 ESP traces, while last week's comparable analysis showed the reservoir refilling in all 44 years with some augmentation flows. In other words, going to minimum outflows now would provide approximately a 50% chance of refill based on the 44 ESP traces, Hall said. The message here is that Dworshak outflows should go to minimums as soon as possible. The COE is very concerned about the risk of missing the Dworshak refill date.

Wagner presented the Salmon Managers' revised recommendation based on the May 1 updated water supply forecast, per their FPAC discussion yesterday: Instead of 5 kcfs of steady outflow, drop Dworshak to 2.5 kcfs outflows, or one unit operating in efficiency mode, beginning tonight. Jim Litchfield (Montana) asked, why not go to minimum outflows now and avoid further risk of not refilling? Conditions in the north fork of the Clearwater River pose problems for resident fish, particularly Pacific lamprey, when flows drop below the natural hydrograph which is about 2.5 kcfs flows right now, Wagner replied. NOAA would find minimum flows acceptable if the Nez Perce Tribe agrees.

The Nez Perce would not object, Dave Statler replied. Making flow changes gradually is as important to lamprey as mimicking the natural hydrograph because Pacific lamprey are vulnerable to sudden fluctuations. Statler re-emphasized the comment he made last week regarding the need for better balance between flood control and refill objectives during the spring transition period. Brian Marotz (Montana) asked whether lamprey could make use of higher flows at night; Statler didn't think so.

Wagner then proposed on behalf of the Salmon Managers that Dworshak outflows drop from 10 kcfs to 7.5 kcfs and transition quickly to 2.5 kcfs beginning tonight. He also expressed interest in exploring alternate weather forecasts on which to base Dworshak operations than the May 1 COE water supply forecast.

In light of serious concerns about missing the refill target and being able to moderate temperatures on the Snake, the COE proposed to drop Dworshak outflows from 7.8 kcfs to minimum flows (1.5 kcfs) in two steps beginning at 10 pm tonight. Minimum flows will consist of 1.5 kcfs through the powerhouse and 100 cfs for the Nez Perce hatchery. Dworshak will stay at minimum flows for the near future, and the COE will keep TMT informed of any changes in conditions that could affect this operation. There were no objections to this plan.

4. Transportation Operations

Fish collection began May 1 at Lower Granite, and transportation began there May 2, as previously agreed upon, Adams reported. Fish collection began at Little Goose on May 5, and transportation there begins today. Fish collection will begin at Lower Monumental on May 8, transportation on May 9.

5. Upper Snake Flow Augmentation

John Roache and Ted Days (BOR) presented estimates of the flow augmentation volume the Bureau of Reclamation plans to provide this year, as called for in the Upper Snake BiOp. According to data presented in a table attached to today's agenda, BOR is confident of supplying at least 449,000 acre feet, up to 487 kaf of flow augmentation starting in June 2009. This is the first year BOR has looked actively for ways to shape augmentation flows earlier in the season. At this point, BOR is projecting that the majority of augmentation volume will be released from June 1-30 after flood control operations wind down.

There was discussion of how to plan around flows from Brownlee Dam on the upper Snake River, owned by Idaho Power. BOR has been communicating with Idaho Power on moving water past Brownlee Dam, Roache said. Brownlee Reservoir is typically full by June 1. Then passes inflow or slowly drafts through the summer. The COE has been coordinating with Idaho Power on a gradual refill, Cathy Hlebechuk (COE) said.

Kyle Dittmer (CRITFC) asked how long BOR has had a June 1 refill target for projects in the upper Snake. It's not a refill target but a projection of when augmentation flows will begin, Ted Day replied. The BOR's goal at present is a smooth transition from the end of flood control to flow augmentation at whatever rate is needed to move the water during June.

6. Operations Review

a. Reservoirs. Libby is at elevation 2,405.05 feet. Inflows are 7.4 kcfs, up from 4.7 kcfs on April 29. Outflows were raised from 4.0 to 4.6 kcfs beginning May 1 as part of VARQ flow requirements. Libby began refilling on April 27 and is now regulated by VARQ operating procedures. The VARQ flow for Libby, based on the April inflow forecast, is 15.5 kcfs. Because inflows are currently less than

that, Libby will be passing inflows for the near future. A new forecast will be released later this week, which will be used to establish new VARQ flows. That forecast will also be used to establish the sturgeon volume and tiered bull trout minimum flows.

Brian Marotz asked whether there has been an attempt, based on plans to release 0.8 maf of stored sturgeon flows, to introduce flexibility in the VARQ discharge protocol. Yes, the Libby elevation will be taken into consideration during VARQ flows, Hlebechuk replied. Libby is required to start refilling 2 days before the initial controlled flow, which will begin on May 8 this year.

Albeni Falls is at elevation 2,056.4 feet, in slow refill mode. The reservoir is expected to fill by the end of June and will operate within a half-foot range of 2,062-2062.5 feet elevation. Dworshak (discussed at length above) is at elevation 1,526.2 feet, with daily average flows of 7.8 kcfs that will drop to minimum flows tonight.

Grand Coulee is at elevation 1,257.14 feet, with a current flood control elevation of 1,257.7 feet. The project will be held to an elevation around 1257.7 feet until May 7, John Roache reported. The initial controlled flow date of May 8 will trigger refill operations beginning on May 7. The BOR will not refill the project at a rate that causes flows to rapid decrease rapidly.

Hungry Horse is at elevation 3,519.75 feet, with 6.0 kcfs outflows, calculated according to VARQ. This discharge is expected to continue for awhile.

Seven-day average inflows are 82.1 kcfs at Lower Granite, 221.6 kcfs at McNary, and 232.1 kcfs at Bonneville, where the 2nd powerhouse unit has been operating at the lower quarter of 1% efficiency for the Spring Creek Hatchery release. An estimated 85-90% of the release has passed Bonneville, Dave Wills (USFWS) reported. USFWS and the COE are working together on concluding the lower 25% of the 1% best efficiency range of operation.

A planned two-line outage into The Dalles will put powerhouse units 13 through 22 out of service, Don Faulkner (COE) reported. It appears the COE will be able to continue to spill 40% in the remaining bays, but might have to spill more briefly during the outage.

b. Fish. Juveniles: The passage index count for yearling Chinook peaked at 100,000 fish per day at Lower Granite and Little Goose dams, Wagner reported. Approximately 50% of the yearling Chinook run has passed Lower Granite. Steelhead passage peaked at 300,000 earlier this month at Lower Granite and is now down to 60,000 fish per day. These numbers could pick up if flows increase. There was nothing to report in terms of subyearling or sockeye passage.

Adults: Up to 7,000 adults were passing Bonneville per day, but it's not yet clear that was the peak, Cindy LeFleur (Washington) reported. The run is turning out to be late again in 2009. The upriver spring Chinook run generally tends to be under-predicted. However, if counts continue to be low, the assumed relationships between cohorts will probably be reexamined. At present, the preseason projections for 4-year-olds are based on last year's jack counts, and for 5-year-olds on last year's 4-year-old fish counts.

c. Power System. There was nothing to report today.

d. Water Quality. Total dissolved gas levels have generally been low, Adams reported. Problem areas since May 1 have been the Ice Harbor and Bonneville dam forebays. Spill caps are 32 kcfs at Little Goose, 101 kcfs at Bonneville, and alternating between 25 kcfs for bulk spill and 36 kcfs for uniform spill at Lower Monumental.

Results of the spill test at Chief Joseph showed that gas generation from the deflector is low. After spilling up to 145 kcfs on two occasions, gas levels went no higher than 116.5% in the tailrace, Adams said. Wagner asked whether the results of the test will change Chief Joseph's position on the spill priority list. That hasn't been decided yet, Adams said. Based on the test results, the COE is working on a new strategy for handling generation shifts between Chief Joseph and Grand Coulee dams. Stay tuned for more information on this.

9. Next Meeting

The next regular TMT meeting will be on May 20 at the COE Portland office. Dworshak operations, a Hanford reach update, the sturgeon operation, upper Snake flow augmentation, and review of meeting minutes for April 22, 29 and May 6 will be on the agenda. This summary prepared by consultant and writer Pat Vivian.

Name	***Affiliation***
Jim Adams	COE
Cathy Hlebechuk	COE
Dan Feil	COE
Paul Wagner	NOAA
Tony Norris	BPA
Scott Bettin	BPA
Russ Kiefer	Idaho
John Roache	BOR
Cindy LeFleur	Washington
Steve Hall	COE Walla Walla
Ted Days	BOR Boise
Tim Heizenrader	Centaurus
Ruth Burris	PGE

Rob Diaz	Integral Renewables
Barry Espenson	CBB
Richelle Beck	DRA
Kyle Dittmer	CRITFC
Margaret Filardo	FPC
Dave Benner	FPC
Glen Trager	Shell Energy
Dave Statler	Nez Perce Tribe
Jim Litchfield	Montana
Dave Wills	USFWS
Rob Wallen	Deutsch Bank
John Hart	EWEB
Brian Marotz	Montana
Don Faulkner	COE