COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
May 17, 2006 Meeting

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg
Notes: Robin Harkless

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.

Priest Rapids Update
Russell Langshaw, Grant County PUD, presented Priest Rapids operations for the week of May 1-7 and 8-14. He also included a graph showing daily delta and flow bands; one violation occurred, on May 9, which Russell described as operator miscommunication. The operation outside the flow bands lasted one hour, and specifically, flows went from 155 kcfs down to 116 kcfs and back up to 175 kcfs.

Another 320 temperature units are needed to reach the end of protection flows. With about 10 per day accumulating, Russell offered that protection flows would end in the next 2 and a half weeks.

Libby Operations
The COE implemented sturgeon operations starting Monday, May 15. TMT reviewed model scenarios for possible operations at the project. The COE's desired goal is not to fill and spill at the project. The BiOp requires the project reach elevation 2439' at the end of August. The NWPCC Mainstem Amendments recommend the project reach 2439' by the end of September in the lowest 20% water supply years and 2449' by the end of September in all other years.

From Montana's perspective, today was a warm-up to see how the operation might be able to move water to benefit both salmon and Montana resident fish needs. Montana is seeking implementation of the Council's Mainstem Amendments. NOAA offered that it was unclear what the impact of starting the operation early this year will be.

Next Steps: TMT will continue to monitor the sturgeon operation. Montana will continue it's efforts to implement the Libby operators in the NWPCC Mainstem Amendments.

WMP Spring/Summer Update
The Spring/Summer update was finalized on May 3 on the condition of addressing the research summary on page 10. The summary is a good central location for research this year that will include operations affects on research, and vice versa. The May final forecast was also added to the Update. Paul Wagner, NOAA, noted that a comparative test between acoustic and pit-tag detection might tell us a good deal about future tagging. Acoustic tags might be the tool of the future.

Water Management Plan
The 2006 WMP was approved as final by NOAA, BOR, BPA, COE, Montana, Idaho and Nez Perce. Oregon, Washington and USFWS were not available to comment. It was noted they were aware the WMP was to be finalized today.

Operations Review
Reservoirs:
Lower Granite Navigation – Cathy Hlebechuk, COE, made a correction from her report at the last TMT meeting with regards to spill reductions at Lower Granite. Her numbers from last TMT included spill reductioins for both towboaters and fish barges. Since April 19, there have been spill reductions for 3 towboaters. In all instances , it was not necessary to reduce spill to zero.

Operations – Grand Coulee was at elevation 1235' and beginning to fill. Hungry Horse was at 3520' with high inflows filling the project quickly. The BOR expects 487 kaf from the Upper Snake for flow augmentation, around the third week in June when the migration is expected to begin. Libby was at elevation 2428.3', with 31 kcfs in. Albeni Falls was operating at 58 kcfs outflows. Dworshak was at elevation 1552.8', 20 kcfs inflows and 10 kcfs out (scheduled to be reduced to 5 kcfs outflows the next day). McNary flows were at 314 kcfs average for April 10-May 15. The Lower Granite average was 124 kcfs; flows were expected to reach 180-200 kcfs over the weekend, followed by sharp decreases. Priest Rapids average flows were 170 kcfs.

Flow Augmentation Volumes – Cathy shared graphs (attached to today's TMT agenda) of ESP flow augmentation forecasts for Libby, Dworshak, Hungry Horse, Priest Rapids and Grand Coulee. A question was asked about the salmon managers' preferred operation for refilling Grand Coulee or maintaining high Priest Rapids flows. They were also asked to state their preference for higher Priest Rapids flows – in the first part or the last part of June.

ACTION: The salmon managers will discuss this at FPAC and be prepared for discussion at the next TMT meeting.

Fish:
It was noted that the Dalles spill was not at 40% but ranged between 36-39%. There was an agreement reached in 2004 for the COE to operate the project at 40%, ±1%. The COE will update the teletype to reflect this.

Adults – Paul Wagner shared the positive news that returning adults at Bonneville are up to 79,000, close to the pre-season forecast of 80,000.

Juveniles – This year's juvenile numbers are comparing well with historic numbers. There may be another peak with the upcoming runoff increases.

Power System:
John Day T-1 Outage – Testing is slightly ahead of schedule. So far, testers have found that just the bushings were damaged, which is good news.

Water Quality:
From April 1- May 16, 220 TDG exceedances have occurred at all the projects. High flows resulting in involuntary spill; unit outages at Lower Granite, Bonneville and John Day causing additional involuntary spill; new spill patterns; and high tailwater elevations at Bonneville all added to the complexities this year. The COE has been working to assess why there have been issues. Spill caps and exceedances were posted on the TMT web page under Water Quality-Spill.

TMT Meeting Schedule
Wednesday, May 31 agenda items include:
- Priest Rapids Update
- Libby Operations Update/Scenarios (COE and Montana)
- Grand Coulee Refill vs. Priest Rapids Flows Priority (Salmon Managers)
- Permit Process – Marine Mammals (Oregon and Washington)
- Adult Population Analysis of Chum – Error bounds (Oregon)
- Introduction to Dworshak Summer Operations (Nez Perce?)
    - Possible SOR
- System Operations Review – All
- June Schedule: The COE room is not available on June 14, nor is a phone line. There will not be a regular TMT meeting on that day. The June schedule will be discussed at the May 31 TMT meeting.

May 17, 2006

1. Greetings and Introductions.

Donna Silverberg welcomed everyone to the May 17 Technical Management Team meeting, which was chaired by Cathy Hlebechuk. The following is a summary, not a verbatim transcript, of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these notes should contact Hlebechuk at 503-808-3936.

2. Priest Rapids Update.

Russell Langshaw said he had provided an updated report for today's meeting, available via hot-link from today's agenda on the TMT homepage. Please refer to this document for full details of his presentation. Langshaw went briefly through this information; he said the 60 Kcfs flow band was exceeded on May 9 for about an hour, due to operator miscommunication; the mistake was quickly detected and corrected.

We're at approximately 1080 temperature units today, so we need another 320 before the protection flows end, Langshaw said, They're accumulating at a rate of 10 per day, currently, so I would say we're about two and a half weeks out, he added.

3. Libby Operations.

There was a request for some additional modeling scenarios at the last TMT meeting, said Silverberg. Libby started ramping up outflow last Sunday, and is now at 25 Kcfs, Hlebechuk said. We may need to reduce Libby flows somewhat, to stay below the critical elevation at Bonners Ferry. This operation will continue for two weeks, at which point outflow will probably be ramped down to 20 Kcfs, she said.

Touching on the model results, Hlebechuk said the Corps had used various runoff volume assumptions above and below Libby's current forecast of 6.18 MAF to generate projections. The first model run, which assumes a somewhat lower runoff volume at Libby, shows that a flat outflow of 14.4 Kcfs would be needed to reach elevation 2439 by August 31. Scenario 2 shows the project reaching 3 feet from full in the first week in July, then running 17 Kcfs out through the end of August. The third ESP trace uses a higher forecast volume; under this scenario, the project would reach full in mid-July and release full load through the end of August.

Brian Marotz asked about an additional model run that took Libby to 10 feet from full by August 31, then provided some additional flow in September. One scenario shows a flat 11.8 Kcfs outflow from Libby from mid-July through the end of September,

Hlebechuk said; the project would reach elevation 2439 by September 30. The intent of the latter scenario is to avoid a sudden drop in Libby outflow at the end of August, to extend the in-river growing season and provide increased productivity, Marotz explained. At about 9 Kcfs outflow, most of the riffle habitat below the dam is wetted; however, flows above 9 Kcfs provide diminishing returns. So your desired operation would be 9 Kcs during the biologically productive season? Hlebechuk asked. Ideally, but of course that isn't possible in this water year, Marotz replied.

The group devoted a few minutes of discussion to the preferred operational scenario at Libby this summer. The main thing, for the Corps, is that the BiOp calls for elevation 2439 by the end of August, said Hlebechuk, and this is what the Corps is planning on doing. She noted if all parties agree to do something different different, we must document the reasons for that decision, involve our legal people, and Department of Justice must write a letter to Judge Redden, which is the process followed with the staggered fish transportation start dates. Jim Litchfield and Marotz discussed the optimal Libby operation, from Montana's standpoint; Marotz was very clear that Montana wants to avoid any kind of double peak once the spring freshet begins to decline. Instead, a gradual reduction in flow would be preferred by Montana.

Some concern was expressed about the possibility of having to fill and spill at Libby in this water year; Hlebechuk suggested that it may make sense to hold the current 25 Kcfs rate of outflow for a little longer than planned to create some head room in the reservoir, in case inflow suddenly increases. Bettin said that, at yesterday's Sturgeon Recovery Team meeting, the intent is to run flows up to 1764 and hold flows as high as possible – about 60 Kcfs at Bonners Ferry. The hatchery has nine females at this time; five are ready to spawn. They have been unable to catch any flowing males, however. In other words, conditions are almost perfect for spawning right now, Bettin said, as long as temperatures cooperate.

The group devoted a few minutes of discussion to the preferred 2006 Libby operation; Litchfield noted that today's discussion was something of a warm-up, and an SOR will probably be submitted at the next TMT meeting. Wagner noted that this year's sturgeon operation started about two weeks later than normal. Litchfield emphasized that Montana will be pushing for full implementation of the Libby operational recommendation in the Council's Mainstem Amendment in 2006; he said he will provide further information about how, exactly, that operation would be shaped in this water year at the next TMT meeting. It was agreed to revisit the Libby operation at that time.

4. Finalized Spring/Summer Update.

We added the research operations table Paul Wagner requested to the final spring/summer update, Hlebechuk said; the group briefly reviewed it. The other thing that is different about this version of the update is that I have added the May final forecast information, Hlebechuk said, adding that the 2006 spring/summer update was

finalized on May 3.

One interesting thing for the future is the comparison between acoustic tags and PIT tags for juvenile research, said Wagner – the acoustic tag is showing potential as the tag of the future for juvenile research, because it provides data all the way down to the estuary and near-ocean. It gives a better picture of performance, he said, explaining that acoustic tags make noise – they ping – and do not have an antenna, unlike the older radio-tag technology. The acoustic tags are still fairly large, but shrinking, Wagner added.

5. Finalized Water Management Plan.

Hlebechuk went briefly through the changes made to this version of the 2006 WMP; she said she believes she has now incorporated all of the comments submitted. I would like to finalize this document today, she said, although it is a living document, and comments are still being accepted. No objections were raised to considering the 2006 Water Management Plan final at this point. Silverberg noted that the Fish and Wildlife Service, Oregon and Washington are not represented at today's meeting but it was brought up the reps knew the WMP was to be finalized at this meeting and the reps could have provided concerns prior to the meeting.

6. Operations Review.

Hlebechuk said she wanted to go on record to correct her statement at the last TMT meeting that there were seven spill reductions for the tow boaters since April 19 – in fact, there were only three reductions for the tow-boaters during that period. Flows are starting to come up again – they're 150 Kcfs currently at Lower Granite, and should increase to 180-200 Kcfs in the next few days – so there may be more reductions coming up. The other spill reductions were for the fish transportation barges, she said.

Norris said Grand Coulee is at elevation 1235 this morning; the project is operating to maintain 135 Kcfs at Priest. The current elevation is 3520 at Hungry Horse; project outflow will drop down to 300 cfs outflow today for flood control, from about 4 Kcfs this morning. Inflows are 21 Kcfs and increasing due to warmer weather; we expect the remaining snow pack to come off quickly, he said. The reason for the outflow reduction is to keep the stage at Columbia Falls below 13 feet; it is currently at 10.6 feet, up a foot from yesterday, Hlebechuk added.

We're still expecting the 487 kaf in flow augmentation volume from the Upper Snake his year; the salmon augmentation water will start coming out in the third week in June, once flood control operations end, Norris said.

Libby was at 2428.3 feet last night, 31 feet from full, with 31 Kcfs in. Albeni Falls is at 2057.4, releasing 58 Kcfs. Dworshak is at elevation 1552.8, with 20 Kcfs in and full load out, about 10 Kcfs. Tomorrow night, outflow will be reduced to 5 Kcfs to improve the probability of refill, because there is only 52 percent residual runoff at this point, the

Corps said. The snowpack is coming off very quickly right now, Dave Statler observed.

The McNary seasonal average flow so far is 314 Kcfs, Hlebechuk said; since April 3, it has averaged 124 Kcfs at Lower Granite. At Priest Rapids, the average flow has been 170 Kcfs since April 10. Lower Granite flow is really coming up due to local flows from un-dammed tributaries. Lower Granite outflow increased from 132 Kcfs yesterday to 150 Kcfs, currently; again, it's expected to increase to 180-200 Kcfs over the next few days. Grand Coulee flow is then expected to begin to recede fairly sharply.

The group then discussed the most recent ESP augmentation volume forecasts for Libby, Hungry Horse and Dworshak. The Corps reiterated that these graphs, available via hot-link from today's agenda on the TMT homepage, show expected augmentation volumes at these projects, based on 44 historic water years, under 30 percent, 50 percent and 70 percent probability of refill. The group offered a few clarifying questions and comments.

Moving on to Priest Rapids flow objectives and the need for balance with Grand Coulee storage operations, Hlebechuk said the goal, in this kind of water year, is to maintain more storage space in Grand Coulee for a longer period, and refill later in the season. It may not be possible to maintain the 135 Kcfs flow objective throughout the month of June, she said. Hlebechuk asked whether the salmon managers would prefer higher flows at Priest rapids earlier or later in June. You don't have to tell us right now, she said, but you may want to discuss this question at FPAC: which is more important – refilling Grand Coulee by July 1, or maintaining somewhat higher flows at Priest Rapids later into June? Also, when do you want to see those higher flows at Priest Rapids – earlier or later in June? We'll discuss that at FPAC and report back, Wagner replied. Hlebechuk noted to meet the BiOp seasonal average target of 135 kcfs April 10 – June 30, Priest rapids flows would only need to average about 106 kcfs May 17 – June 30.

The discussion turned to spill operations at The Dalles; it was noted that the goal is to stay within 1 percent of the 40 percent spill target. It was noted that BPA would like to issue a teletype to the project operators to that effect. After a brief discussion, no objections were raised to updating the teletype.

The discussion then moved on to fish. Wagner said adults are continuing to move upstream, and the news is good – we actually got a positive surprise. Year-to-date adult spring chinook passage has now reached 79,000 at Bonneville, very close to the pre-season estimate of 80,000 fish. The jack count is 1,691, on the low side, but close to what we saw last year on this date. Perhaps the jacks are also late this year, and the jack count will continue to increase, Wagner said – historically jacks tend to arrive later than the adults. On this date in 2005, only 57,000 adult spring chinook had passed, Wagner added; in other words, what looked like a horrible spring chinook year has now come around. The group discussed the role of water temperature in triggering the onset of the adult migration; it was noted that the presence of pinnipeds, odor and

turbidity may also play a role.

Moving on to juvenile passage, Wagner said the indices peaked at Lower Granite about a week ago, but have remained relatively high. The run is slightly earlier than normal this year. Juvenile steelhead passage has shown a similar trend; the upcoming increase in flow may trigger a second peak. In the Lower Columbia, juvenile passage has also peaked and is now declining somewhat. According to DART, cumulative steelhead passage is now in the 90 percent range for the season. The forecast for steelhead at Lower Granite Dam is that 92 percent of the run has now passed. The estimate for yearling chinook at Lower Granite is that 80 percent of the run has now passed, Wagner added.

Wellschalger said there are no power system issues to report at this time.

Don Faulkner said there is nothing new to report on the John Day T1 outage; the first two phases checked out OK, and they're verifying C phase now, Faulkner said. The only damage found so far is to the external bushings.

Laura Hamilton provided a brief overview of water quality issues; from April 1-May 16 there were 200 exceedences, an average of five per day, at the 8 FCRPS projects. They have been caused by four basic factors, she said – high flows causing involuntary spill, unit outages at Lower Granite, John Day and Bonneville, the new spill patterns implemented this year, especially at Bonneville, and fourth, high tailwater elevations at Bonneville. Hamilton provided a brief overview of the more detailed water quality information available from the Corps' NWD homepage.

7. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for May 31. Meeting summary prepared by Jeff Kuechle, BPA contractor.

Technical Management Team Meeting Partcipant List
May 17, 2006

Name	**Affiliation**
Paul Wagner	NOAAF
Donna Silverberg	Facilitation Team
Robin Harkless	Facilitation Team
Cathy Hlebechuk	COE
Russell Langshaw	Grant PUD
Tom Le	PSE

Lance Elias	PPL Montana
Scott Bettin	BPA
Brian Marotz	Montana
Dave Statler	NPT
Jim Litchfield	Montana
John Wellschlager	BPA
Tony Norris	USBR
Richelle Beck	D. Rohr & Associates
Jeff Laufle	COE
Shane Scott	Consultant
Russ George	Consultant
Don Faulkner	COE
Russ Kiefer	IDFG