

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

January 11, 2006

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.

Comments on Notes

No comments on the December TMT notes were provided at this time.

BPA Transmission Business Line

John Wellschlager introduced Mike Viles and stated the objective of the presentation was to share the operational challenges BPA faced Summer 05 as a result of the court-ordered spill. He said the intent was not to make a political statement. Mike Viles, BPA Transmission Business Line, provided a presentation on operation challenges to the power system in 2005 as a result of the summer spill program. He explained that while winter load is typically higher, summer peaks in California require heavy north to south power flows which causes stress on the NW power system. Specific to 2005, summer problem areas were at North of Hanford, Paul-Allston, and Allston-Keeler. Increased spill created challenges with north to south power flow. There is a limit to how much power can be generated on a specific line, and there are rules set forth by the Western Electricity Coordinating Council about exceeding the operational transfer capability (OTC) –the amount of power that can be operated on a specific line. Exceeding the OTC, especially if for more than 30 minutes, causes a risk of unreliable system response. OTC excursions and time above OTC was much higher in the summer of 2005 than in '04. 20 of the 29 incidents that were above OTC required dispatcher action, and in some cases, significant action was taken. “Actions” included: bypassing series capacitors, requesting phase shifter operations, PBL generation re-dispatch, and curtailing schedules.

In summary, the summer of 2005 showed an increase in generation and north to south flow on the NW transmission system; the system operated at a higher risk for unreliable system response, and it required significant dispatcher action to control.

Question: What future actions is TBL considering to address some of the lessons learned from 2005? TBL will look at constraining schedules to decrease problems and at adding new transmission lines (which will be challenging from a political, financial and temporal perspective). Cathy Hlebechuk, COE, noted that the Emergency Protocols in the WMP speak to options as well.

BPA was commended for the success of operating the system with the challenges they faced in

the summer of 2005, and it was noted that there will be more time this year to plan for summer operations in 2006.

January Water Supply Forecast

Harold Opitz, National Weather Service, provided information on precipitation forecasts for 2006. Precipitation was above normal from October-early January in some parts, and slightly below normal to the north. Forecasts to date are as follows: Grand Coulee, 92% of normal; Lower Granite, 105%; and The Dalles, 94%. Many areas at this time are showing normal snow pack but Harold suggested it is too soon to assess snow pack. With a large error band at this point, the forecasts are informative but should be used with caution. Volume and shape are uncertain. Finally, Harold offered that the 90 day climate forecast is leaning toward colder temperatures and no big changes in precipitation.

Cathy Hlebechuk provided the COE's forecasts. The Libby April-August is 87.8%, with a January 31 target elevation of 2426.7'. Dworshak April-July forecast is 98%, targeting 1524.2' by the end of January. Hungry Horse is at 100%, so minimum flows are 900 cfs, and Columbia Falls minimum flows are 3500 cfs to meet bull trout needs. Additional information on objectives for the operation can be found in the WMP and the Bull Trout BiOp.

Chum

Ron Boyce, ODFW, reported on chum spawning population estimates and run timing at Ives Island. Numbers for 2005 are similar to the previous 8 years, around 400 redds. Timing started a bit late but ended on time relative to previous years. No redds were observed above 11.5' as of yesterday, 1/10. Joe Scalicky is plotting the latest information and will post the information on the TMT website.

The latest trends have shown fewer chum in the system. ODFW will be tracking this to try to understand the trend, and will develop a brood table and share it with TMT at a future meeting.

Chum spawning at Hamilton Springs has ended; numbers and timing were similar to 2004. Hardy recently was too water-logged to do surveys, but likely spawning has ended and numbers are similar to 2004.

ACTION: Ron will share a brood table at the next TMT meeting, including a summary of the hatchery program and error bounds around the numbers.

Status of Litigation

Information on the 2004 BiOp remand can be found at www.salmonrecovery.gov. Judge Redden has ordered spill on the Lower Columbia from April 10-June 30 and July 1-August 31; and on the Snake from April 3-June 20 and June 21-August 31. MOP operations will continue and the COE will continue to operate to the upper rule curve. The Action Agencies are putting together an Implementation Plan similar to last year's based on the Judge's orders. This will be added to the 2006 WMP. The plan will undergo an internal review before being shared with the public; Cathy Hlebechuk will provide a status update at the next TMT meeting.

Question: Does the order provide flexibility through the TMT to seek regional consensus and perform adaptive management? This will be clarified at the next TMT meeting.

Water Management Plan Fall/Winter Update

Drafts of the Fall/Winter update and WMP are on the TMT web page. The COE will make some minor changes to the plan, notify TMT when the new draft is on the web for a final review, and the team will finalize the document at the next TMT meeting.

Operations Review

Reservoirs – Hungry Horse is at 3590’ and operating to meet Columbia Falls minimums. Grand Coulee is at 1288.6’, near full. Libby is at 2411.4’ and operating at minimum flow, targeting 2426.7’ by the end of January. Dworshak is at 1529.3’, targeting a 1540.7’ end of January flood control elevation.

Wire rope removal work has begun at The Dalles at bays 1-9, causing a reduction in spillway capacity. Between now and March 2, 6 bays are out of service; three will be back on by April 10 for spring spill, and the other three will be back on by May 15.

Work to install flow deflectors at Chief Joseph has begun and expects to be completed by November 2008.

Lower Snake dredging began in December ’05; work will continue 24-hours a day, 7 days a week, until completion which is expected by the end of February this year. This will allow for MOP operations this spring. Water is being monitored for ammonia, dissolved oxygen, ph and turbidity and so far no impact from the dredging has been found. The project is 40% complete.

Fish – Kokanee survival estimates were at 9% as predicted with the higher lake level in the winter of 2004-05. Predation by lake trout and rainbow trout is posing a challenge to the fish. IDFG is hoping to develop and use a decision tree to determine Lake Pend Oreille operations for this year. If it is a dry year, there will likely be a lower lake level. IDFG hopes to have the decision tree complete by spring.

Power system – Nothing to report at this time.

Water quality – Nothing to report at this time.

TMT Meeting Schedule: TMT meetings were scheduled for February 1 and 22, March 8 and 22, and April 5 and 19. These dates are subject to change. Check the TMT web page for updates.

Wednesday, February 1 agenda items include:

- Chum Information
- Litigation Update – Status of Implementation Plan
- WMP Fall/Winter Update

Technical Management Team Meeting Notes

January 11, 2006

1. Greetings and Introductions.

Today's meeting of the Technical Management Team was chaired by Cathy Hlebechuk and facilitated by Donna Silverberg. 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 503-808-3942.

2. BPA Transmission Business Line Presentation on Effect of Summer Spill on System Stability.

The objective of this presentation is to share the operational challenges we faced this past summer as a result of the court-ordered spill program, said John Wellschlager; the intent is not to make a political statement. He introduced Mike Viles, a TBL engineer, who led this presentation, titled "NW Transmission System Bottlenecks and Impacts of 2005 Summer Operation." Using the overhead projector, Viles touched on the following major topics:

- Transmission loading characteristics – NW load peaks in winter; California peaks in summer
- NW paths and seasonal direction of power flow (map). During the summer, the primary flow of power is north to south.
- Summer 2005 problem areas – North of Hanford path (two 500-kV lines east of the Cascades), Paul-Allston path (two 500 kV lines between Olympia and Longview), Allston-Keeler path
- Transmission impacts of increased spill on Lower Snake and Lower Columbia projects – reduced generation at the Lower Snake and Lower Columbia plants, increases north to south flow across problem paths, reduces the transfer capability from the Northwest to California.
- North of Hanford path – actual power flows, June 1-September 15, in MW
- Peak generation changes between June 17 and June 21, 2005 (flow chart) – summer 2005 increased spill operations resulted in greatly increased power flow from north to south over key constrained transmission paths
- Problems: exceeding the Operational Transfer Capability (OTC) of these tasks. Operating above an OTC creates risk of unreliable system response to critical contingencies. WECC requires that the actual flow on these paths gets below the OTC within 30 minutes. The amount of OTC excursions and time above OTC was significantly higher in summer 2005 than in summer 2004.
- Path flows over OTC, June-August 2004 vs. June-August 2005 (bar chart) – 174 individual five-minute readings total in 2005, compared to 18 in 2004.
- Time above OTC, by path, 2004 vs. 2005 – much longer durations in 2005.
- Response to OTC excursions – in August 2005, there were 29 periods when the OTC of one of these paths was exceeded for at least five minutes; 20 of those OTC excursions required the dispatcher to take action to reduce the flow on the path. In some cases, the dispatcher action was significant.
- OTC excursions and response actions, in August 2005 (table).
- Dispatcher actions, August 2005 (table).
- Summary: increased spill changes generation patterns and increased north to south flow on the NW transmission system; the transmission system was operated “closer to the edge” in summer 2005 than in summer 2004 (i.e., significantly more OTC excursions); OTC excursions can result in significant dispatcher action to control.

Hlebechuk noted that Appendix 1 of the Water Management Plan, Emergency Protocols, addresses handling of emergencies.

This was very informative, but as we look ahead, what is BPA doing to define potential remedial actions, given the fact that summer spill is likely to continue in the future? Rich Domingue asked. Further information will help us, as will the Schultz-Wahtoma line, which was completed in November, Viles replied.

Additional transmission lines could help improve the situation, but the reality is, new transmission lines are very complex, very expensive, and no one wants one in their back yard, Wellschlager added.

In the Water Management Plan emergency protocols, there is a list of actions to be taken if transmission system emergencies occur, said Hlebechuk. I would like to commend BPA for the job you did last summer, under difficult conditions, said Russ Kiefer; with the additional transmission system capacity, a little more water and the slightly reduced spill planned in 2006, hopefully, things will be a little easier for you this summer.

3. January Final Water Supply Forecasts, Precipitation Data and Climate Predictions.

Harold Opitz from the River Forecast Center led this presentation, touching on the following major points:

- Monthly precipitation, December 2005: 130% of normal+ across the majority of the basin; above-average everywhere else except parts of Canada
- Seasonal accumulated precipitation, October 1-January 9 – again, well above average over most of the Columbia Basin
- Columbia, Grand Coulee, forecasts for water year 2006 – 57.8 MAF, 92% of average
- Lower Granite forecasts for water year 2006 – 31.6 MAF or 105% of average, January-July
- The Dalles forecasts for water year 2006 – 101 MAF, or 94% of average, January-July

As the rain keeps coming here, is precipitation likely to increase on the east side? Paul Wagner asked. We are obtaining snow pack on the east side, with higher value than we've seen for the past several years, Opitz replied.

Moving on to the Climate Prediction Center's 90-day forecasts, Opitz said conditions are currently ENSO-neutral but leaning toward a weak La Niña – colder than average, with equal chances of above-average or below-average precipitation – as we move into the spring. It's too early to make any predictions about what might happen in April, May and June, however, Opitz said. I would add that it's still very early in the season, said Wellschlager – if we get a warming trend, a lot of what we're seeing now could melt.

Hlebechuk noted that much of today's discussion focused on the volume of the predicted 2006 runoff; she reminded the group, however, that the shape of the runoff is just as important as its volume, from a flood control perspective.

Hlebechuk and Norris then presented information on the current Libby, Dworshak and Hungry Horse forecasts.

- Libby: 5.48 MAF, or 87.8% of normal, January 31 elevation target: 2426.7 feet
- Dworshak: 2.6 MAF, 98% of normal.
- Hungry Horse: 100% of normal, with a Columbia Falls minimum flow of 3.5 Kcfs

4. Chum.

Ron Boyce said the first live chum were seen at the Ives Island area on October 28. No redds were observed until November 15. Contrary to what we thought previously, the 2005 chum spawning population at Ives Island, just over 400, is about average for the last five years. Spawning started a bit late but ended at about the normal time, said Boyce. Kyle Dittmer noted that 2005's was the latest onset of chum spawning in the historical record. Tributary spawning numbers have not yet been tabulated, but will be presented at a future TMT meeting, added Boyce. In response to a question, Boyce and Wills said they have not heard of any redds being deposited above the 11.5-foot level.

Any idea why the number of spawners has declined from 4,200+ in 2002 to the numbers we're seeing now, in the 400-500 range? Dittmer asked. We don't know why that trend has occurred, but we are concerned, Boyce replied. A similar trend has been observed in the tributaries, he added. Are most of your spawners two- and three-ocean fish? Larry Beck asked. Three- and four-year-olds, primarily, Boyce replied, although we don't have that data for this year. In response to a question, LeFleur said most adult returns from the banner 2002 spawning year would be expected to return in 2005 (as two-ocean fish) and 2006 (as three-ocean fish).

In response to another question, Wills said spawning is now over in Hamilton Springs; Hardy Creek has been too full of water for the survey crews to access. However, it is believed that spawning has ended in that system as well. The 2005 spawner numbers are roughly similar in both Hamilton Springs and Hardy Creek to what they were in 2004.

It was agreed to have a further chum discussion at the next TMT meeting.

5. Status of Litigation.

Hlebechuk noted that a complete list of declarations is now available via the www.salmonrecovery.gov website. The judge has ordered us to spill beginning April 3 in the Lower Snake, and April 10 in the Lower Columbia, Hlebechuk said. Spill in both systems will continue through August 31, with continued MOP and URC operations. The action agencies are preparing a spill

implementation plan, based on the judge's opinion, which will become a part of the WMP. When the spill management plan will be available for review is unknown at this time,

How much flexibility is there for the TMT to conduct adaptive management by consensus, given the court order? Kiefer asked. What if conditions turn dry, the river gets hot, and it becomes advantageous to alter the river operation from the one ordered by the court? I don't think there is much flexibility, given the specificity of Judge Redden's order, said Wellschlager. We could approach the plaintiffs as a group, but the effective timeline for such negotiations might be problematic.

6. Water Management Plan and Fall/Winter Update Comments.

Hlebechuk said the drafts are out there for review; she said the Corps is in the process of filling in some of the blanks. Few, if any, comments have been received to date. There is also a spring/summer update draft available, but it is probably premature to discuss it. Do we need to sit down and talk about what needs to change in the WMP, because of the litigation? Silverberg asked. We can discuss that, said Hlebechuk; in the interim, I would ask that any comments be submitted by next week so we can finalize the WMP and the fall/winter update at our next meeting.

7. Operations Review.

Norris said Hungry Horse is currently at elevation 3590, operating to meet the Columbia Falls minimum. The elevation is 1288.6 feet at Grand Coulee, currently, which is very full for this time of year.

Hlebechuk said Libby is at 2411.4 feet, currently, releasing minimum flow, with 2426.7 feet the January 31 target. Dworshak is at 1529.3 feet, targeting 1540.7 on December 31. Operationally, the Dalles wire rope replacement work is going on right now – bays 1-9. This reduces spillway capacity to 630 Kcfs, with total project capacity of 800 Kcfs+. Six bays will be out of service until March 3; all six should be back on line by early April. Bays 7-9 will be on-line by mid-May. The flow deflector in-water work will start this month at Chief Joseph Dam; that work will be completed by May 2008. We cannot spill while the contractor is in the water.

Dredging work began in December at the Lower Snake projects and should be completed by the end of February, Hlebechuk said; the navlock approaches at Lower Granite and Lower Monumental have already been done. The contractor is working 24 hours a day, seven days a week. All projects will be able to operate at MOP once that work is completed. A variety of water quality parameters are being monitored in conjunction with the dredging project, including turbidity. Overall, they're about 40% done with the dredging project, she added.

Wagner said there is little to report, from a fish perspective. Kiefer said he has some good news – the estimated kokanee fry survival percentage in Lake Pend Oreille was about 9%, which is very good. The bad news is that we’re having a hard time getting those fry past the lake trout/rainbow trout/bull trout predation bottleneck, Kiefer said, adding that his recollection is that there were about 120,000 kokanee spawners this year. Do you know what the Lake Pend Oreille winter elevation is likely to be next year? Hlebechuk asked. Not yet – everyone’s been pretty overwhelmed with the BiOp remand, Kiefer replied. The plan is to develop a decision tree that will help us make that determination, he added; we’d like to get it done before the spring migration season if possible.

Wellschlager said there is nothing to report, from a power system perspective – the system is moving a lot of water, currently.

8. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, February 1. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT Participant List
January 11, 2006**

Name	Affiliation
Cathy Hlebechuk	COE
Kyle Dittmer	CRITFC
Larry Beck	COE
Tim Heizenrater	PPM
John Wellschlager	BPA
Tony Norris	USBR
Donna Silverberg	Facilitation Team
Nic Lane	BPA
Dan Spear	BPA
Robin Harkless	Facilitation Team
Tom Haymaker	PNGC

Mike Viles	BPA
Russ Kiefer	IDFG
Jim Adams	COE
Paul Wagner	NMFS
Russ George	WMCI
Cindy LeFleur	WDFW
Ron Boyce	ODFW
David Wills	USFWS
Paul Koskie	COE
Ruth Burris	PGE
Todd Cook	PPM
Guy Fielding	COE
Rich Domingue	NMFS
Barry Espenson	CBB
Don Coffee	Snohomish PUD
Lee Garnett	OPB
Bruce MacKay	Cnsultant
Lee Corum	PNUCC
Scott Bettin	BPA
Tom Le	PSE
Richelle Beck	D. Rohr & Associates
Shane Scott	PPC
Mike Buchko	Powerex
Harold Opitz	RFC