COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

January 19, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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.

Status of Libby Selective Withdrawal System:

In response to a burbot SOR put forth last year, the COE initiated an investigation on effects on temperature at Bonners Ferry and Libby, and found that reservoir elevations at Libby have more of an effect on release temperatures than atmospheric conditions or flow. Greg Hoffman reported that the COE looked at available data since 1999; handouts were provided, and showed that 'latent heat storage' determined the amount of cool water available. Temperatures were reduced by 1-2° in November from Libby to Bonners Ferry.

Next Steps: Greg will present information from the investigation next week to the Kootenai Valley Resource Initiative burbot sub-committee. A more complete analysis from this investigation will be shared with TMT when it is done, in the next 2-4 weeks.

NW River Forecast Center January Final Water Supply Forecast:

Harold Opitz, NOAA's Northwest River Forecast Center, shared forecast information for 2005. He provided handouts (also linked to the TMT agenda) showing October 1-January 10 precipitation throughout the Columbia Basin region, which shows mostly below normal precipitation. The Dalles forecast predicts 80% of normal water supply this year. The ESP run will be updated weekly and can be used as an additional tool in predicting water supply and making management decisions. The ESP can be used to do 'contingency runs', in MAF, to show different assumptions on the final monthly water supply (e.g. low or high water/temperature years). The Lower Granite forecast predicts 69% of normal water supply this year.

A question was asked why, given other climatologists' predictions that this will be a dry warm year, does the NWFRC assume a normal year from February through September? Harold responded that it is difficult to statistically show a variance from 100%; this in his opinion is the best guess, and he offered that for management purposes, contingency forecasts combined with observed conditions can be used to make management decisions.

COE January Water Supply Forecast for Dworshak and Libby:

Chan Modini, COE, offered information on the COE's water supply forecast for Libby and Dworshak. Handouts can be found as links to today's agenda. The forecast at Libby dropped slightly from November 1 (98.8%) to January 1 (92.6%). Dworshak fluctuated between October 1 (86%), December 1 (90%), and January 1 (72%). Dworshak is currently at 1550.5' and filling to a target of 1557.4'(editor's note: the system flood control elevation is 1557.4' and the local flood control elevation is 1556.3', so 1556.3' is the target) by the end of January.

Chum Update:
Joe Skiliki, USFWS, reported on the results of a model he ran to compare chum redd elevations and flows in spawning areas. Per TMT request, ODFW provided GPS data of redd location to USFWS, who then overlaid the data onto the model.

Next Steps: TMT members had questions and concerns over the specifics of the data and the study, and its implications for future management decisions. The group agreed to the following next steps:

- Continue the current operation, as agreed to and implemented on December 15th, of an 11.9' minimum tailwater at Bonneville, while the salmon managers and other TMT members discuss and evaluate the information from the study (The COE will implement the 11.9' tailwater conservatively to provide protection for chum redds later in the season);
- The COE will communicate with USFWS their specific GPS information needs for discussion at the next TMT meeting;
- TMT members will review documentation of criteria and past decisions on chum operations; and
- All will revisit this issue at the next TMT meeting, scheduled for February 2.

Dworshak:
Flexibility Methodology – Julie Ammann, COE, described the methodology used to determine flexibility at Dworshak: to use ESP to determine if additional releases are likely to be made from January-March 2005, and to reshape releases when power demands are higher while refilling to a March 31 flood control elevation. The COE uses the ResSim model which inputs rules such as flood control and max spill, and weather forecasts to predict the amount of flexibility in water volume that may be used to get to the end of March target. These analyses will be run by the COE at least every other week to monitor changing conditions. A suggestion was made to use selected years that are more representative of the expected water supply for this year, rather than all 44 possibilities.

Dworshak Flexibility Used to Date – Cathy Hlebechuk, COE, provided information on flexibility used so far, a total of 16.9 ksfd from January 1-17th, 2005.

SOR 2005-1 – The salmon managers put forth the SOR requesting that Dworshak be maintained to the highest elevation within the flood control curve, and that the 50 ksfd not be evacuated as planned by the COE over the next week for power operations. Continue to release minimum discharges of 1.5 kcfs until further notice. The objective was to use caution with flexibility at Dworshak this year, given the current weather supply forecast of warm, dry conditions. The salmon managers recognize that power needs are a priority during cold snaps.

BPA and the COE responded that they are sensitive to the concern with the lower water supply forecast and are committed to using caution at Dworshak. The ramp-up that occurred last week was due to a forecasted arctic front.
ACTION: The COE will use caution with flexibility at Dworshak. If a weather event occurs before the next TMT meeting, the COE will notify TMT if it plans to use flexibility to accommodate power needs because of the weather condition. The action agencies have looked

into other areas for flexibility as well (e.g. Grand Coulee), and will continue to keep TMT apprised that this is happening. It was noted that the news release for anglers in Idaho was helpful in keeping them informed about what is happening at the reservoir.

Transportation/Spill Symposium:
Per discussions at the last TMT meeting, some salmon managers responded to the facilitator that a well thought-out and organized symposium on transportation and spill cannot be put together in time for results to go into the Fish Passage Plan. For now, the salmon managers will review new data and, if any new information stands out as critical for decision-making, will bring this information to TMT for further discussion.

WMP Updates:
The latest draft Fall/Winter Update (January 11, 2005) is on the web, including comments from Washington and CRITFC. The action agencies will finalize the update by the end of January, and will respond to comments at the next TMT meeting on February 2.

ACTION: Cathy Hlebechuk will confirm with Russ Kiefer the schedule for finalization of the Fish Passage Plan, which was thought to be February 10.

Status of Operations:
Reservoirs – Grand Coulee is at elevation 1280.9'. Drum gate maintenance at the project is scheduled to begin April 1 and work will continue for 6 weeks, during which time Grand Coulee will be held at 1255'. Libby will undergo a line test on Thursday, January 20. The COE will operate the project at speed/no load plus spill 1-1.5 kcfs while working to stay within the state TDG standards. Libby is at elevation 2408.3'. Dworshak is at 1550.5'.

Fish – No report.

Power – No report.

Water quality – The final 2004 TDG and Temperature Monitor Report and the draft 2005 Monitoring Plan are available on the web, linked to today's agenda. The WQT will be discussing the 2005 plan at their next meeting, January 24 at NOAA Fisheries.

ACTIONS/NEXT MEETING AGENDA:
Actions from 1/5/05 meeting:
- NOAA management flexibility with new BiOp – to be discussed at the TMT process meeting
- Transport symposium – addressed today
- WMP – response to comments at Feb. 2nd TMT meeting
- Cause of spill at Dworshak – addressed by COE to IDFG off-line
- Dworshak flexibility – addressed today

The facilitation team will provide a handout that tracks themes from previous years by month, to help TMT get ahead this year in addressing recurring issues.

Next TMT meeting, February 2nd, 9am-noon:

- WMP Response to Comments
- Dworshak Operations/Flexibility Discussion
- Chum Redds Information/Operations Discussion
- Status of Operations

Technical Management Team Meeting Notes

January 19, 2005
Brewery Blocks, Portland, OR

1. Greetings and Introductions.

The January 19 TMT meeting was chaired by Cathy Hlebechuk and facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the items discussed and decisions made at this meeting. Anyone with questions about these notes should contact Hlebechuk at 503/808-3942.

2. Status of Libby Selective Withdrawal System.

Hlebechuk noted that, in 2004, an SOR was submitted requesting lower-temperature releases from Libby in support of burbot spawning; Greg Hoffman headed up the selective withdrawal investigation. Hoffman provided a graph showing the effects of using the Libby selective withdrawal system on water temperatures in the Kootenai River below the project. Montana's concerns was that we might dip below the optimum temperature line; we actually went above the line, Hoffman said. During further investigation, I found that reservoir elevation had more of an impact on water temperature than flow rate or atmospheric conditions, he said. In looking at the data since 1999, this indicated that the volume of water in Libby has more effect than atmospheric conditions or flow rates. The second graph compares 2003 and 2004; I was trying to determine if there was a difference in release temperatures and temperatures at Bonners Ferry. Reservoir elevations in 2004 were higher than in 2003; water temperatures were greater in 2004, due to latent heat retention. Overall, it appears that we can lower temperatures in November by about 1.5 degrees, until we reach an isothermic condition. Once we hit January, atmospheric conditions seem to have the primary impact on water temperatures.

Has this been presented to the Bonners Ferry burbot group? David Wills asked. Yes, Hoffman replied. And what was the difference between release temperatures in 2003 and 2004? Ron Boyce asked. The 2003 information is not available, Hoffman replied; I tried to do a direct comparison, but the 2003 data was missing. So the difference we're seeing could be a result of release temperature, rather than reservoir elevation? Boyce asked. It could be, but it appears to be a multivariate problem, Hoffman replied. Again, what we wanted to do was impact temperatures in November, and it did appear that we were able to lower temperatures at Bonners Ferry by about 2 degrees C, Hoffman said. He added that next year, modeling should give a clearer picture of what is going on with temperature at Libby.

What is the status of the 2005 burbot migration? Paul Wagner asked. I spoke to IDFG yesterday, and to date, they have caught only three burbot all year, so there isn't much going on,

Hoffman replied. He added that he can provide an update on this topic at a future TMT meeting; it was so agreed.

3. January Final Water Supply Forecast.

Harold Opitz began by going to the NOAA website to display a pair of maps of the Pacific Northwest showing weekly precipitation for October 1-January 10 and seasonal precipitation, October 2004-December 2004. As you can see, there is anything from <50% of normal east of the Cascades to 70-90% of normal basinwide. The bottom line is that we're well below normal in terms of precipitation and snowpack across the basin, except for a few pockets of 90-110% and 110-130%, Opitz said.

There are two complementary forecasts – the official forecast and the ESP forecast, Opitz continued. The official 2005 forecast for The Dalles is currently 85.7 MAF, 80% of average. The ESP forecast shows the same. The ESP numbers will be updated weekly, on Tuesday or Wednesday; the official forecast is issued three times per month. Opitz added that in order to achieve average runoff at The Dalles, precipitation over the remainder of the forecast period would need to be 125% of average.

Moving on to the forecast for Grand Coulee, Opitz said the current official forecast is for a January-July water supply of 57.2 MAF, 91% of average; ESP is currently predicting 55.4 MAF. For Lower Granite, the official January-July forecast is 20.7 MAF, 69% of normal; ESP is currently showing 21.8 MAF for the same period. Opitz said the RFC is also going to be putting out regression peak flow data; this data will be available for all of the sites in the domain via the RFC website. He also touched on the most recent data from the Climate Prediction Center (CPC), which is currently showing warm, dry conditions throughout the Northwest for the next few months. In other words, he said, it is unlikely that the below-average runoff forecast will change.

Your water supply forecast assumes average precipitation between now and the end of the forecast period, said Kyle Martin – does your forecast trend in the expected below-normal precipitation? The January final forecast assumes 85% of normal precipitation from here on out, Opitz replied. Our concern, from the fish side, is that your forecast is overly optimistic; we don't want to find out, suddenly, that we're out of water, said Martin. I would suggest that you look at the contingency forecasts and decide which way you think things are going to trend, Opitz replied – there is simply a high degree of uncertainty in the January forecast, and as we get closer to the in-season management picture, we'll have a better idea of what actual conditions will be.

Isn't it true that you don't know what's going to happen from here on out, in terms of precipitation? John Wellschlager asked. In other words, realistically, it could go either way at this point. Our ability to predict future above- or below-average precipitation is limited, Opitz replied; however, you can lean one way or another, based on probability distributions, and unless we get hellacious amounts of precipitation between now and June, this is going to be a below-normal runoff year.

Russ Kiefer noted that, at a climate symposium a couple of months ago, the prediction, pretty much across the board, was for a dry year in 2005. NOAA Fisheries, the University of Washington and CRITFC have all consistently predicted the same thing. My question is, can the climatologists help us do a better job of decision-making, for the purposes of water management? It has been frustrating, for the salmon managers, because the first priority should be for flood control, the second should be for power generation, and the third should be to provide water for listed salmon species. When we use some of our storage to make money while prices are good, it always seems as if the runoff predictions are more optimistic than they are later, when the salmon managers are asking for water for fish, Kiefer said.

Wellschlager said he hd never said 2005 wasn't going to be a below-average runoff year; his point was that we had not yet reached a crisis point. To suggest that we can build our reservoir operations around what climatologists believe in October is simply unworkable, he said.

It's true that we climatologists could do a better job; first of all, we should be able to better inform your decisions about how much risk you're willing to take, said Opitz. We need to approach it from a statistical sense and tell you, here are the bounds I'm comfortable within; it will then be up to you to decide how much risk you're comfortable with. Opitz added that, in 2001, the early-season forecasts, which called for above-average snowpack and precipitation, were completely wrong; by January, the forecast had turned around 180 degrees. I agree that we need to do whatever we can do to get an improvement, however, Opitz said. In terms of telling you where all of this will end up in June or July, I can't do it right now, Opitz said.

My point is simply that I am not convinced that the Corps' decision to release water from Dworshak last week was a prudent one, said Kiefer – I think that, in forecast below-average years, we need to be more, rather than less, conservative.

4. January Final Water Supply Forecast for Libby and Dworshak.

Chan Modini provided a presentation on the Corps' January final forecasts for Libby and Dworshak. At Libby, the current April-August forecast is 5.8 MAF, just under 93% of average. At Dworshak, the Corps' January 31 flood control elevation is 1557.4 feet, and the final April-July forecast is 1.91 MAF, 72% of normal, down from 2.37 MAF, 90% of normal, in the Corps' December final forecast. The group devoted a few minutes of discussion to how the Corps developed these estimates, including the impact of the Southern Oscillation Index (SOI) trend. Modini noted that January is the first month in which on-the-ground Sno-Tel data is available; hence the generally greater accuracy of the January final forecast.

In response to a question, Modini said Dworshak's end-of-February flood control elevation, if this forecast holds true, would be 1561.5; its March 31 flood control elevation would be 1573 feet, and its April 15 flood control elevation would be 1577.3. The current elevation at the project is 1550 and filling, said Hlebechuk. Modini added that, in response to Kiefer's concern about including climate information in the forecasts, the Corps does include SOI data in its Dworshak and Libby forecasts.

5. Chum Update – Elevation of Redds and Preliminary Return Numbers.

Wills noted that, at the last TMT meeting, the salmon managers were asked to provide information on chum redd elevations in the Ives complex area to take a look at the Bonneville operation, to ensure that the redds were being adequately protected. Joe Skalicki from the Fish and Wildlife Service developed this information; he noted first that, in 2004, 658 redds were observed by field personnel, down from 1,072 in 2003. The other important thing to consider is where these fish spawn, he said; there are now three main sites: the Ives Island complex, the downstream complex near the falls, and the third is all the way downstream at the I-205 bridge. In 2004, at Ives Island, 244 redds were surveyed; at Site 2, 105 redds, and at Site 3, 309 redds.

With respect to redd elevations and the adequacy of the current Bonneville incubation flow operation, Skalicki noted that the I-205 spawning site is 20 miles downstream from Bonneville; the model that is currently available to USFWS does not include this site, but in general, more redds will be exposed at the I-205 site at a Bonneville tailwater elevation of 12 feet than will be exposed at the Ives Island spawning area, the closest spawning site to the dam. He drew the group's attention to a table of Ives Island redd depths at three tailwater elevations (12.0, 11.5 and 11.0), noting that, based on field measurements at a Bonneville discharge of 130 Kcfs, the model figures are quite accurate. At a tailwater elevation of 12 feet, with Hamilton Creek running 97 cfs, a total of 8 chum redds would be exposed; at a Bonneville tailwater depth of 11.5 feet, 12 redds would be exposed; at 11 feet, 19 redds would be exposed. With zero flow from Hamilton Creek, the number of redds exposed increased to 31 at an 11-foot Bonneville tailwater depth.

In response to a question from Hlebechuk, Boyce said ODFW marked the location of each redd using a highly-accurate GPS instrument. We then take the 2-D location of each redd and apply a 3-D location and water surface elevation in the model, Skalicki said. So the model is saying that a tailwater elevation of 12 feet, and a Hamilton Creek discharge of 97 cfs, eight redds would be exposed – has that been verified? Cindy Henriksen asked. No, Skalicki replied. What you wanted was a GPS location for each redd; that data has now been overlaid with the model, which includes a finely-detailed 3-D bathymetric map of the Ives Island area, said Wills. The model also takes into account flows and tailwater elevation from Bonneville, as well as tributary flows from the Willamette and other systems. In other words, said Skalicki, this is the best available science, and we're pretty confident in its accuracy.

After a few minutes of further discussion, Silverberg observed that it is obvious that the Corps has serious concerns about the GPS redd information, but it is not very obvious what those concerns are. She suggested that it might be beneficial for the Corps to sit down with the salmon managers to alleviate those concerns. Wellschlager observed that, based on this data, it appears that more than two-thirds of the chum spawners are spawning well below Bonneville; he said it may make sense to revisit the current philosophy of Bonneville operations prior to next year's chum operation.

Boyce said it would be appropriate for the TMT to revisit the current Bonneville tailwater elevation, in light of the information that the current operation will leave some redds high and dry. It was agreed to take a caucus break to discuss this.

When the meeting resumed, Wills said that, from the salmon managers' perspective, it was not their intention to request more water at this time; they need some additional time to digest and discuss it. For now, we continue to endorse the existing Bonneville tailwater SOR, he said, which stipulates a minimum tailwater elevation of 11.9 feet.

One follow-up question, said Wellschlager – a couple of weeks ago, it was suggested that 11.5 feet would be the incubation elevation. Yet when we look at this information, it shows that up to 32 redds would be exposed at an 11.9-foot incubation elevation – that's 64 fish spawning above a level that you said was safe, said Wellschlager. What happened in the intervening two weeks? The 32 redds have at least some water – up to a foot – over the top, Skalicki replied – those are not the redds that would be exposed. I would also point out that, on December 15, you committed to maintain a minimum tailwater elevation of 11.9 feet through incubation, said Boyce. No, I committed to maintain 11.9 feet through the end of spawning, Wellschlager replied. Hlebechuk said the notes from that meeting bear out Wellschlager's contention.

After a few minutes of further discussion, it was agreed that, for now, the action agencies will maintain a minimum Bonneville tailwater depth of 11.9 feet until the next TMT meeting, at which this topic will be revisited. At that point, we can talk about next steps, Silverberg said. Is the goal to keep all redds watered up, or is there a percentage of redds that we're willing to allow to dry up? Kiefer asked. We're trying to evaluate all of those questions, Wills replied. Wagner said that, in the past, NOAA Fisheries has made that call; in 2001 and 2003, for example, NOAA made the call to reduce protection levels in light of poor water supply forecasts. Margaret Filardo requested that Bonneville operate in the most conservative manner possible in order to conserve water for the February-March incubation period.

6. Methodology to Determine Dworshak Operational Flexibility, January-March.

Julie Ammann said there have been a lot of questions recently about operational flexibility at Dworshak, specifically, about how the decision was made last week to increase Dworshak outflow in response to the cold snap. She went through the methodology used to arrive at this decision, touching on the following topics:

- Purpose
- Dworshak ESP inflows, December 1-July 31 (graph showing 44 ESP model runs)
- Volumes – historical vs. ESP forecast volumes, April-July, 1948-1991
- Flood control elevations – storage reservation diagram (graph) showing 44 different flood control drafts at Dworshak
- The ResSim model, a new product that is replacing HEC-5
- Single-year ResSim results, showing additional flexibility – the volume above minimum flow needed to achieve Dworshak's March 31 flood control elevation – in other words, the volume it would be possible to release between now and March 31 and still achieve Dworshak's March 31 flood control elevation (graph)
- Additional volume available (graph)
- Summary: the goal is to provide some flexibility through the system while meeting the March 31 shifted flood control elevations; additional analysis will be done at least every other week to monitor changing conditions.

It would be nice to see where the current Dworshak water year is falling, in terms of its rank within the historic average, said Wagner. If you look at the historic vs. forecast ESP values, 2005 would be number 39 out of 44 – in other words, it would be one of the five lowest years in the 44-year record, Ammann replied. Martin suggested that PDO phase and ENSO signal should be incorporated in this analysis for maximum accuracy.

7. Dworshak Flexibility Used to Date – Historical End-of-December Elevations.

Hlebechuk said that last week, when Dworshak flows were increased, 17 Ksfd were used above minimum outflow from Dworshak. She presented a chart showing how this compares to previous years' Dworshak operations, including the project's December 31 elevation. She noted that Dec 2004 elevation of 1548.4' was the second highest end of December elevation since 1993, when the Dworshak summer draft started.

8. SOR 2005-1: Dworshak Reservoir Operations.

On January 12, the action agencies received SOR 2005-1. This SOR, supported by USFWS, IDFG, ODFW, WDFW, NOAA Fisheries, the Nez Perce Tribe, the Shoshone-Bannock tribes and CRITFC, requests the following specific operations:

- Maintain Dworshak reservoir to the highest elevation possible within the flood control rule curves. Do not evacuate 50 Ksfd (99.2 KAF) as planned by COE over the next week for power operations. Continue to release minimum discharge (1.5 Kcfs) until further notice.

The full text of this document is available via hot-link from the today's agenda on the TMT homepage; please refer to this document for further details. Wills went briefly through its contents, noting that this SOR resulted from the salmon managers' deep concern about the RFC's steadily-declining water supply forecast across the basin, as well as about the action agencies' reliance on the ESP model. The action last week has already been taken, said Kiefer, but the SOR still has relevance given the possibility of future cold weather events. We recognize that the reliability of the power system has the highest priority, but given the fact that most climatologists are predicting warmer, dryer

conditions for the coming months, we urge the action agencies to be as conservative as possible in their water releases.

Wellschlager said the Corps, Bonneville and the Bureau always try to be judicious about water use at this time of year; we are cognizant that the 2005 water supply forecast is below normal. Dworshak outflow was ramped up Monday and Tuesday in anticipation of the arrival of an arctic front; Dworshak outflow was then ramped back down until the front actually appeared over the weekend. Again, said Wills, we're not going to argue the need for the power when these cold snaps occur; our concern is the reliability of the model runs used to decide that flexibility exists, now or in the future. We need to have agreement about the reliability of the tools used to reach such a conclusion, he said, and we're not there yet.

We appreciate your concerns about being as conservative as possible, and about developing a better understanding of the analysis, said Hlebechuk. We are trying to be cautious about how that flexibility is used; we, too, are concerned about refill. There is no forecast of cold weather in the immediate future, she added; however, you never know when that might change. My plan would be to send out email notification to the other TMT members if that change occurs, Hlebechuk said. Kiefer noted that there is still a significant amount of steelhead fishing in the lower Clearwater; he thanked the Corps for their prompt notification of the change in Dworshak operations last week, because it is a matter of fisherman safety.

9. Transportation/Spill Symposium Discussion.

Wills said that, after the last TMT meeting, the salmon managers were asked to provide thoughts and ideas as to how this symposium might transpire; while not all salmon managers were able to participate, basically, we recommended that a well-thought-out and planned symposium would be the best way to approach this topic. It will not be possible to do that in a short time-frame. We are going to conduct a salmon managers review of the available information; if there is something that strikes us as important, from a management perspective, we will bring it to TMT for evaluation and discussion, Wills said.

10. Water Management Plan Fall/Winter Update Comments.

Hlebechuk said the latest WMP and fall/winter update drafts have now been posted to the TMT homepage. Washington, CRITFC and Idaho have now submitted comments. Our plan is to finalize the plan by the end of January; we will respond to comments received at the next TMT meeting, she said. Is there still time to provide comments to the Fish Passage Plan? Kiefer asked. That will be finalized during the second week in February, said Jim Adams; I would think that you have until around February 1 to submit comments. Hlebechuk said she will check on that and report back to Kiefer.

11. Status of Operations.

Tony Norris said Coulee is at 1280.9 feet; the plan is to draft to elevation 1255 for 6 weeks of drum gate maintenance beginning April 1. We don't want to run the risk of drafting below elevation 1255 prior to that, so we are taking a cautious approach, he said. So Grand Coulee will be passing inflow, essentially, from April 1-mid May? Kiefer asked. Yes, Norris replied.

At Libby, we're having a line test on Thursday, which means all five units will be running speed-no-load, plus 1-1.5 Kcfs of spill, Hlebechuk said. Dworshak has filled two feet since December 31, to 1550. Libby is at 2408.3. We have received money for the Bonneville spillway rating curve work, she added. Norris said the current Hungry Horse elevation is 3541.2; the January-July water supply forecast for that project is 1.96 MAF, 90% of normal.

Wellschlager said that, from a power system perspective, the recent arctic event wasn't as bad as was feared. From a water management perspective, the 2004 TDG and temperature monitoring report and 2005 monitoring plan are now available via the TMT website, said Adams.

12. Other.

Silverberg reminded the group that it was agreed, at the last TMT meeting, that TMT would attempt to develop a list of recurring issues for discussion "ahead of the curve." That process is ongoing, she said.

13. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, February 2. It was agreed that the annual TMT process meeting will be held in the afternoon, following this meeting. Meeting summary prepared by Jeff Kuechle.

TMT Participant List
January 19, 2005

Name	**Affiliation**
Donna Silverberg	Facilitation Team
Robin Harkless	Facilitation Team
Cathy Hlebechuk	COE
Tony Norris	USBR
John Wellschlager	BPA
David Wills	USFWS
Paul Wagner	NOAAF
Cindy Henriksen	COE

Russ Kiefer	IDFG
Tom Haymaker	PNGC
Jim Adams	COE
Laura Hamilton	COE
Kyle Martin	CRITFC
Julie Ammann	COE
Steve Hayseker	USBR
Russ George	WMCI
Ruth Burris	PGE
Tim Heizenrater	PPL
Karl Kanbergs	COE
Ray Gonzales	COE
Harold Opitz	NWS
Todd DeCook	PPM
Don Faulkner	COE
Chan Modini	COE
Ron Boyce	ODFW
Cindy LeFleur	WDFW
Cara Lambert	EWEB
Margaret Filardo	FPC
Greg Hoffman	COE
Mike O'Bryant	CBB
Glenn Traeger	Avista
Bruce MacKay	Consultant
David Benner	FPC