

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM MEETING NOTES January 24, 2001 CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE PORTLAND, OREGON

TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>

### FACILITATOR'S NOTES ON FUTURE ACTIONS

Facilitators: Patricia McCarty and Donna Silverberg

The following is a list of items the Technical Management Team (TMT) discussed at its last meeting that may require future action or discussion.

**Minutes and notes:** TMT has been experimenting with submitting comments and requests for changes to the minutes and facilitator's notes directly to the Corps, rather than reviewing the minutes at the start of each meeting. The nature of TMT comments indicated that the group needs to revisit the issue and clarify the procedure for how comments and changes are handled. Determination of the procedure for finalizing the minutes and notes will be on the next meeting agenda.

**Current system conditions:** Rudd Turner reported that Bonneville Dam has been operating to maintain a tailwater elevation of 11.7 feet, with daily average flows not to exceed 130 Kcfs, except as needed to maintain tailwater elevation or meet power system requirements. Pat McGrane reported that Grand Coulee is still drafting about 1 foot a day, and Hungry Horse has been releasing to maintain a reduced minimum flow at Columbia Falls. The water supply forecast has not changed, although the lack of precipitation in late January is likely to result in lower February forecasts for sub-basins above projects operated by both the Corps and the Bureau. Scott Bettin reported that the power system emergency is ongoing, and that no one knows when a resolution will occur. It was noted that Federal agency executives were meeting and would be developing system priorities that could affect system operations. Members will be informed as decisions are made at the Federal executive level. It was acknowledged again that current operations are an attempt to balance the needs of the power system, the chum and the BiOp priority of spring refill.

**Recommended operations:** NMFS commented that it was unlikely that spring refill levels would be met, and given the conditions, there was not enough biological benefit in choosing gains in spring flow augmentation over protecting chum redds. NMFS recommended continuing the current operation to maintain a tailwater elevation below

Bonneville Dam of 11.7 feet, and a daily average flow at Bonneville of 130 Kcfs, except as needed to maintain tailwater elevation, and not to exceed 160 Kcfs for power needs.

**Water Management Plan:** Rudd reported that the Corps has made some progress on a draft 2001 Water Management Plan but it was not at a point yet to be shared with the group. The 2001 Plan may look different because the draft will reflect the requirements of the 2000 BiOp. The group discussed the idea of writing the 2001 Plan as if it were the first one-year plan under the BiOp, using the priorities in the BiOp as a starting point. This discussion will continue at the next meeting. NMFS suggested that the Plan be written to cover 2001 up to September 1, and that the 2002 Plan encompass September 2002 through August 2003.

Donna Silverberg alerted the group that the Northwest Power Planning Council has expressed an interest in seeing the Water Management Plan, and in seeing the rationale for TMT decisions through the year. She will meet with Council members to clarify what type of information they want, and if their interests can be met with the existing record produced through TMT. She will report back to TMT at the next meeting.

The group began a review of the 2000 Plan to guide the Corps as it drafts the 2001 Plan. The following are some of the suggestions from the group:

- Section I: In the introduction, discuss the transition to a different style to comply with the new BiOp
  - Update the Emergency Protocols appendix
  - Update TMT Goals, Objectives and Triggers appendix (and substitute “Possible Strategies” for Triggers) and move to main body of the Plan; see ACTION item below for more on this
- Section II: restrict the water supply table to those projects mentioned in the BiOp
- Section III: Focus on this winter’s operations
- Section IV: Include the NMFS decision on no dredging on the Lower Snake; modify the MOP section accordingly
  - Modify to reflect the possibility of no flow augmentation for sturgeon
  - Modify to reflect the new BiOp requirement for the action agencies to seek state waivers for TDG for spill operations
- State directly in the Water Management Plan any restrictions on operations decisions, and the factors that contribute to any balancing decisions that must be made this year
- Include a new section that states the priorities for operations decisions this year

**ACTION:** Scott Boyd has compiled a list of the RPAs from the new BiOps that relate to the Water Management Plan. He will share them with Paul Wagner and Bob Hallock. Paul and Bob will prioritize the RPAs under their respective BiOps, and get the prioritized lists back to Scott. These will be available to inform the discussion on the Goals and Objectives section, and the discussion of a section on priorities for decisions.

**ACTION:** Scott Boyd will update the draft 2001 Plan with comments from this meeting, and it will be posted on the TMT web page. All members should review the draft, get comments to the Corps, and be ready to continue the review at the next meeting.

**SSARR modeling visits:** Christine Mallette reported that she has arranged a meeting at the COE to get an overview of the input into the model, and hopes to be able to arrange follow up meetings for a more detailed understanding. The first meeting is scheduled for January 31<sup>st</sup> in the afternoon. Contact Christine to attend.

**Changes to the TMT web page:** Rudd provided a print out of the new TMT home page. Members can look on the home page for the fish and system links for 2001 that used to appear at the bottom of the meeting agenda/minutes page.

**ACTION:** All members should look at the minutes and notes, the fish and system information, and any supporting documents in preparation for the next meeting.

### **Next Meeting and Agenda**

The next meeting is **February 7<sup>th</sup>, 2001, 1-4 p.m.** and will be in-person at the COE.

Agenda:

- Determination of how to handle requested changes to TMT record
- Check-in to see if it is working for members to review information before the meeting, or if meeting time should be given for review
- Current System Conditions and Operations
- Update from Donna Silverberg on the NPPC requests for TMT decision rationale
- Continuation of review of Water Management Plan

## **Meeting Minutes**

### ***1. Greeting and Introductions***

The January 24 meeting of the Technical Management Team, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Patricia McCarty and Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

McCarty welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

### ***2. Current System Conditions.***

Turner reported that the action agencies are operating the system to basically the same parameters outlined at the last TMT meeting, and thus are attempting to maintain a minimum tailwater elevation of 11.7 feet below Bonneville Dam. The 130 Kcfs day-average flow cap is still in place at that project, except as needed to meet power system requirements or the 11.7-foot minimum. BPA declared an emergency late last week for the purpose of meeting Northwest loads, Turner said; the system is still operating in that emergency situation. The current regulation allows instantaneous and day-average flows of up to 160 Kcfs at Bonneville if needed to meet power system needs. The day-average flow at Bonneville on Friday, January 19 was 158 Kcfs, primarily due to the fact that a heavy draft of Grand Coulee earlier in the week had left the lower river reservoirs mostly full. The operating agencies needed to draft those pools down from the upper part of their operating range, hence the higher-than-normal flows at Bonneville on Friday. Since then, the average flow at Bonneville has been in the mid-130 Kcfs range.

It is unclear at this time how long the power system emergency will remain in effect, said Turner; the Federal executives are meeting again this Friday, and will make a decision on whether to continue the operation. To meet power system needs, Dworshak outflow was increased on Monday from 1.3 Kcfs to 6 Kcfs; current elevation at that project is 1515 feet and drafting at a rate of just over half a foot per day. Libby outflows were also increased on Monday, from 4 Kcfs to 9 Kcfs, then up to 10 Kcfs yesterday afternoon. Libby drafted four-tenths of a foot yesterday, said Turner; the current elevation at that project is 2409 feet. These Dworshak and Libby operations are expected to continue at least through this week, and possibly longer, Turner said.

It is expected that both Libby and Dworshak will end the month of January below their flood control elevations, said Turner; Libby's January 31 flood control elevation is 2415.3 feet, and the current SSARR run shows Libby 17-20 feet below flood control through March. To be clear, then, we are operating the system in response to a power system emergency that falls outside the operation called for in the Biological Opinion, said Paul Wagner. [Clarification on operational consistency with the NMFS BiOp: The NMFS view is that the action agencies are operating within the BiOp at this time. NMFS feels that the current operation is outside the fish protection measures called for in the BiOp, due to the power system emergency. This pertains specifically to priority normally given to refill reservoirs for flow augmentation. Refill for spring flow augmentation is not happening, due to power generation requirements. However, NMFS agrees that operation for power system emergencies is allowable. Such operations were contemplated in the BiOp and are recognized as needing to be higher priority than holding water for fish, again in a power system emergency situation. (Telephone conversation, Paul Wagner to Rudd Turner, 1/26/01)]

There are three main factors driving current system operations, Scott Bettin replied – first, the executives are struggling with the power system reliability issue; second, there are the BiOp refill requirements; third, there is the issue of BPA's financial health. We have already spent \$200 million this month to purchase energy, Bettin said, and there is considerable debate at the moment over how deeply into its reserves BPA can afford to go. In other words, he said, it's a real balancing act at the moment. There are also at least some hours when the chum operation is holding river flows higher than they otherwise would be, Turner added. In response to a question, Turner said Arrow

continues to release about 38 Kcfs, an operation that is expected to continue until some time in March, whereupon flows could be reduced.

Pat McGrane reported that Grand Coulee is currently at elevation 1246, and is expected to be near elevation 1240 by January 31, given the fact that it has been drafting at a rate of about one foot per day. At Hungry Horse, current project elevation is 3512 feet; the target flow at Columbia Falls is 3.4 Kcfs. To achieve that, Hungry Horse is releasing a flat 2.7 Kcfs-2.8 Kcfs – the minimum necessary to maintain 3.4 Kcfs at Columbia Falls.

Turner distributed the most recent weekly precipitation summary, which shows the accumulated precipitation in the Columbia and other Northwest subbasins through January 23. So far this year, those basins have received between 23% and 77% of normal precipitation, Turner said. The January mid-month water supply forecast is now available; it is down from the January final forecast. In other words, said Turner, things don't look any better than the last time we discussed the water supply. McGrane added that there has been little or no snowpack accumulation in the Columbia Basin since the beginning of January; we expect that, when the February final water supply forecast is released, it will drop dramatically in terms of the percent of normal water supply for virtually every basin in the region, he said.

Moving on to current biological information, Wagner said there is some information available about the effects of the 11.7-foot minimum tailwater elevation at Bonneville; some of the Ives Island chum redds are being dewatered, at least during low-tide periods. He noted that the majority – about 70% – of the large number of spawners observed in the Hamilton Springs area have now been identified as males, tempering the early exuberance about the spawner numbers in that system. So far, only 26 redds have been identified in Hamilton Springs, many of which are superimposed, said Howard Schaller – in other words, we won't see the production we would normally get from 26 separate redds, because some of them have been disturbed.

The bottom line, said Wagner, is that, given the importance of the mainstem spawning areas to the chum this year, NMFS is unwilling to consider a tailwater elevation lower than 11.7 feet at Bonneville at this time. Do you have an estimate of the actual number of chum redds in the Ives/Pierce Island area yet? Turner asked. The most recent number I heard was 132 redds, Christine Mallette replied. Schaller added that 132 is based on a visual count, and is a minimum estimate; the actual number of redds is likely to be higher.

Moving on to the status of chum emergence, Jim Nielsen played a voice-mail message indicating that no fry have yet been trapped on the spawning areas; WDFW's field crews will be back out on the river on Friday. In response to a question, Nielsen said the crews had done some digging next to some of the dewatered redds and found that groundwater was present just below the surface of the gravel. In other words, said Bettin, there really are no dewatered redds.

So NMFS is unwilling to agree to a Bonneville tailwater elevation lower than 11.7 feet? Turner asked. Not at this point, Wagner replied – the operations are really very closely linked, and right now, it would be very difficult to say whether the flow level at any given moment was for power, for chum or for reservoir refill.

Turner observed that, while power needs have, much of the time, driven river flows high enough to meet the 11.7-foot minimum tailwater at Bonneville, there are times – weekends and certain nighttime hours – when flows could be lower and still meet power needs. In other words, TMT members are making a conscious choice to protect the chum redds continuously, rather than taking these opportunities to reduce flow and save a little water. Just so people are clear, said Turner, the effect of this choice is that protecting the chum redds has taken priority over refill, at least at this point in the season.

What that recognizes is that spring refill is unlikely this year, given the power demands on the system, whether or not we dewater the chum redds, said Wagner. Even if we were to agree to reduced flows and dewatered chum redds during weekend hours, the small volume of water you would be able to store will not make a significant difference later in the season, Wagner said – it's certainly not going to get us to upper rule curve on April 10.

Your point, Rudd, is simply to draw attention to the fact that we could be saving a little water right now, but are making a conscious decision not to do so? Silverberg asked. That's correct, Turner replied – I'm not claiming it will make a huge difference if we drop the Bonneville tailwater elevation to, say, 11.5 feet, but it might make a little difference, and in a year like this, it may be that a little difference matters.

As we begin to see chum emergence, said Turner, is it possible that there will be an opportunity by mid- to late February to consider a lower tailwater elevation at Bonneville? Bettin observed that the higher redds were, for the most part, deposited later in the season; fry from those redds will likely emerge later, unless the top strata water is warmer. We've been looking for signs of emergence for the past three weeks and have yet to see any, said Nielsen – that doesn't mean there hasn't been any emergence; chum fry are notoriously difficult to sample.

To be clear, then, is it fair to say that maintaining flows that will fully or almost-fully protect the spawning area is a higher priority, at this point, than storing as much water as possible for spring refill? Turner asked. I think the current operation is a fair balance between the two, Wagner replied. So in NMFS' view, the amount of water that could be saved by reducing flows is not as biologically significant as maintaining the viability of the chum redds? Turner asked. What the BiOp says on this matter is that spring refill is in general the higher priority, Wagner replied; the question then becomes, what's different about this year? If we were looking at flows of 150 Kcfs vs. 140 Kcfs, that would have a significant impact on our ability to meet the April 10 refill targets at the storage projects. We would also have lots of chum redds established at multiple places in the system – Hamilton and Hardy Creeks, for example, which is not the case this year, when the vast majority of the chum spawning occurred in the mainstem

habitat. The statement in the BiOp is intended to apply to years of average water supply, said Wagner; as we all know, this is shaping up to be an exceptionally poor water supply year.

We completely hear you and understand that keeping those redds covered is critical, said Bettin – we are trying to keep them watered up. And the salmon managers understand the problems Bonneville and the action agencies are facing as well, said Nielsen. Right – it’s a balancing act, said Bettin, and all we can do is keep talking. We’ll keep talking about this operation as new information comes in from the field and the forecasters, said Turner – if there is a point at which most of the fish have emerged, and the risks associated with operating to a lower tailwater elevation at Bonneville diminish, we can explore our options at that time.

Another thing that would really help inform these discussions would be if we can begin to track the probability of refill, and how far off we are, said Jim Litchfield. I think we all understand how unlikely it is that we can meet the system’s April 10 refill targets, he said; the more critical goal is complete system refill by June 30-July 1. It would be helpful if we could see some sort of quantitative measurement of just how likely or unlikely it is that we will be able to achieve refill on June 30, given average or even below-average precipitation assumptions from here on out. We’re working on that, and hope to have it soon, Turner replied. Is that a request for the Corps alone? Silverberg asked. For the Corps, Reclamation and Bonneville, Litchfield replied. At this point, said McGrane, Reclamation is estimating that we have a one in three chance of filling Hungry Horse this year. That’s helpful, said Litchfield – perhaps I could request that that estimate be updated as new forecast information becomes available. Understood, McGrane replied.

What makes this situation interesting, of course, is the fact that, while the TMT is free to discuss the operation and receive input on current physical and biological conditions in the system, it is the executives who will actually be making the call on system operations, Turner said. At Friday’s meeting, they will be discussing whether or not the present emergency will continue, and we will have more than minimum flows from the headwater storage projects through next week. I understand that, said Litchfield, but I need to understand what they intend to do. If their action is going to have a significant impact on the Montana reservoirs, then I need an opportunity to make them aware of that and, possibly, to take action.

As Scott said earlier, the executives have set up three basic criteria to drive the present operation of the system, said Turner – the first is power system reliability; the second is economic sustainability and BPA financial solvency; the third is meeting the fish protection measures laid out in the 2000 BiOp. As far as I know, that isn’t a prioritized list, Turner added; those are simply the three key factors they’re taking into account in their decision. As far as operations at the headwater storage projects – Grand Coulee, Dworshak, Libby and Hungry Horse – the executives may choose to continue the current elevated discharge levels, and they may not, Turner said – that’s a decision that has not yet been made.

We should probably attempt to provide some TMT guidance on our operational priorities for this year, perhaps in a new section of the Water Management Plan, as well as through proposals from NMFS and the other salmon managers, said Turner. In general, though, at this point, the Corps intends to continue to maintain a minimum tailwater elevation of 11.7 feet at Bonneville, and to continue to operate to the 130 Kcfs maximum flow at Bonneville, except as needed to maintain the 11.7-foot tailwater elevation and to ensure power system reliability. If power needs dictate flows more than 130 Kcfs in lower river flow, said Turner, they will not exceed 160 Kcfs at Bonneville. Again, the Federal executives will be defining the operation for at least the next week at their meeting this Friday, Turner said. In response to a question from Mallette, Turner said the executives who will be participating in the meeting include the BPA Administrator, the Corps' Division Commander and the Regional Directors from the Bureau of Reclamation, NMFS and the U.S. Fish and Wildlife Service.

Turner said the Corps has completed an updated HYSSR model run; essentially, he said, this is a study of the probability of refill. We presented this last meeting, and have updated the runs for this meeting, he said. The January final water supply forecast was used in this run, rather than the January early-bird; again, the model runs from February through July, and is driven by the 60-year historic water record and an assumed 80 MAF runoff at The Dalles for 2001.

Turner went briefly through some of the other assumptions used in these model runs, then noted that, according to this study, it appears that Libby has approximately 250 Ksfd available above minimum outflow between February 1 and April 30 if a 75% refill probability is maintained at that project – the equivalent of just over 8 Kcfs in additional flow for 30 days. Again, said Turner, this is based on the January final forecast; given our experience in recent months, it may be an optimistic estimate. Similarly, Dworshak was estimated to have approximately 325 Ksfd available above minimum flow between February 1 and April 30 if a 75% refill probability is to be maintained for that project – an additional 11 Kcfs for 30 days. Turner added that the current elevation at Hungry Horse is so low that there is virtually no additional volume available for release if that project is to maintain a 75% refill probability on June 30.

The bottom line, said Turner, is that if we operate the system to meet regional load, there is only a 2% probability that Dworshak will refill by the end of June. If we assume that Grand Coulee will be drafted to empty to provide a flow of 130 Kcfs at Bonneville, then refill through April and May, there is a 97% chance that Dworshak will refill by June 30. Under the “meet load” scenario, average flow at McNary is forecast to be 183 Kcfs in May, 196 Kcfs in June and 148 Kcfs in July; under the “meet Bonneville flow” scenario, the model forecasts average McNary flows of 209 Kcfs in May, 212 Kcfs in June and 145 Kcfs in July.

I don't understand the philosophy behind the scenarios, said Litchfield – one seems to say we will meet load, and the other seems intended to produce a flat flow at

Bonneville. That's correct, Turner replied – the two scenarios are intended to be bookends, and actual operations will likely fall somewhere in between the two.

After a few minutes of additional discussion, Litchfield said he needs a bit more time to review the model runs to evaluate whether or not they meet the TMT's needs. We can have some additional discussion on the modeling next meeting, said Turner; in the meantime, if folks have some additional modeling needs, please let us know.

### ***3. New System Operational Requests.***

No new SORs were submitted prior to today's meeting.

### ***4. Recommended Operations.***

Recommended operations were covered during Agenda Item 2.

### ***5. Review of the Water Management Plan.***

Turner said this is the time the TMT traditionally begins brainstorming on the Water Management Plan for the coming year. He distributed copies of the final 2000 Water Management Plan, then said Scott Boyd is in the process of updating the numbers in the 2000 WMP to reflect current water supply forecast information. Boyd said he should be finished updating those numbers by tomorrow.

Turner said the action agencies also have begun the development of the one- and five-year implementation plans called for in the 2000 FCRPS Biological Opinion. An outline of these plans is nearly ready, and the action agencies have scheduled a meeting for next week with NMFS and USFWS to discuss it. Turner went briefly through the elements that will be included in the 2001 Water Management Plan, particularly those elements that will need to be included in order to satisfy the BiOp requirements. It is unclear at this point whether or not the five-year implementation plan will need to be incorporated into the 2001 Water Management Plan; Turner touched on some of the elements that will need to be covered in the five-year implementation plan as well.

I'm still confused, said Litchfield – it seems to me that the Water Management Plan is the guts of what needs to be in the one-year implementation plan, at least as far as the operational side of things. It seems a bit confusing that the one-year plan is going to be finished later than the five-year plan; given the fact that this is shaping up to be a very poor water year, we should get going on it. We need to hear, from the action agencies, what they think they need to do to meet the RPA, he said. And that is our intention, said Boyd.

The second piece of this is the fact that the BiOp lays out some pretty clear priorities, said Litchfield – it prescribes some fairly specific directions, and it seems to me that that should be the starting-point for the development of the 2001 Water Management Plan. I'm asking the action agencies, basically, to give us a draft of the 2001

Water Management Plan that covers the priorities laid out in the 2000 BiOp, so that we can start discussing the tradeoffs that will need to be made this year, Litchfield said. Again, that's what I'm trying to do, in beginning to revise the 2000 Water Management Plan, Boyd replied.

Our thinking, at least in-house, is that the 2001 Water Management Plan will run through September 30, said Chris Ross; the one-year implementation plan would then lay out our strategies and priorities for the fall and winter period. I think the intent is that we will have a 2001 Water Management Plan, said Cindy Henriksen; it will address what we know now about the water supply forecast in the context of the priorities laid out in the 2000 BiOp. The 2001 Water Management Plan and the one-year implementation plan will lay out our strategies for dealing with what looks like it will be a low water year; the overall priorities for system operation will be laid out in the five-year plan. There was general agreement that the first one-year implementation plan will cover the period October 1, 2001-September 30, 2002.

Most of you were at the recent Implementation Team meeting, where the Council requested that they be allowed to see the 2001 Water Management Plan as well, said Silverberg. They also talked about their desire to see some documentation of the discretionary decisions that are made by this group, including a cost/benefit analysis. We need some additional understanding about what the Council has in mind, in terms of both what constitutes adequate documentation and what they consider to be discretionary, she said; I will be meeting with the Council to obtain some additional clarity on these issues. At this point, however, I wanted to give you a heads-up that there is a desire, on the Council's part, for additional documentation of the rationale behind the decisions the TMT makes during the in-season management period.

What the Council seems to want is a week-by-week incremental decision analysis of the decisions made by the TMT, said Nielsen. My intention is to coordinate a meeting between the Council, the action agencies and FPAC to get a clear idea of what the Council wants and when they want it, said Silverberg. Litchfield said it probably makes sense to request that an appropriate Council staffer attend the TMT meetings for the foreseeable future; if they're that interested in the rationale behind the TMT's decisions, he said, they ought to be willing to make that commitment. My understanding is that the Council has been discussing that suggestion, said Silverberg, and that they agree that that would be appropriate.

The discussion then turned to the format for the 2001 Water Management Plan; Turner went briefly through the components the Corps envisions that the revised document will contain. In response to a suggestion, Boyd said he will incorporate the appropriate language from the 2000 FCRPS BiOp into the introduction of the 2001 Water Management Plan. The BiOp also specifies that we need to lay out some operational priorities reflecting the BiOp's requirements, said Turner. The BiOp is very clear about what those requirements are, said Litchfield – it seems to me that that is an appropriate starting-point for the contents of the 2001 WMP, and we can then argue about how those requirements should be met, in this particular water year.

The group then turned to a page-by-page discussion of the final 2000 Water Management Plan, offering a variety of additional comments and suggestions. Boyd said he will incorporate these comments into the draft 2001 Water Management Plan, and will post the new draft to the TMT homepage as soon as it is available, probably within the next few days.

Turner asked that any additional comments on the 2001 Water Management Plan be emailed directly to him or to Henriksen by close of business Friday, January 26.

**6. Discussion of TMT Decision-Making Process.**

It was agreed to defer this agenda item until the next TMT meeting on February 7.

**7. Other.**

***A. Desired Reports and Site Visits – Power System (BPA), SSARR Modeling (Reservoir Control Center and River Forecast Center), Water Supply and Flow Forecasting (RFC).***

Christine Mallette said she has arranged for an opportunity for the TMT to visit the Reservoir Control Center to review the development of the weekly SSARR runs on the afternoon of Wednesday, January 31; during that visit, RCC personnel will provide a general overview of the model inputs used to develop the SSARR run. Any interested TMT participants are invited to attend.

Scott Bettin asked that any specific presentations or questions for BPA regarding the power system or power marketing be provided directly to him.

**8. Next TMT Meeting Date.**

The next face-to-face meeting of the Technical Management Team was set for Wednesday, February 7 from 1 p.m. to 4 p.m. Meeting notes prepared by Jeff Kuechle, BPA contractor.

**TMT PARTICIPANT LIST**

**JANUARY 24, 2001**

Ruth Abney	COE	503/808-3939
Dan Bedbury	EWEB	541/341-1887

Scott Bettin	BPA	503/230-4573
Scott Boyd	COE	503/808-3943
Dick Cassidy	COE	503/808-3938
Russ George	Water Management Consultants	503/253-1553
Richelle Harding	D. Rohr & Associates	503/771-7754
Tim Heizenrater	Enron Americas	503/464-7462
Cindy Henriksen	COE	503/808-3945
Aida Kelsau	BPA	503/230-5487
Jim Litchfield	Montana Consultant	503/222-9480
Christine Mallette	ODFW	503/872-5252 x 5352
Trish McCarty	Facilitator	503/248-4703
Kevin Nordt	PGE	503/464-7240
Mike O'Bryant	Columbia Basin Bulletin	503/281-9102
Chris Ross	NMFS	503/230-5416
Howard Schaller	USFWS	360/696-7605
Donna Silverberg	Facilitator	503/248-4703
Glen Traeger	AVISTA Energy	509/456-4818
Rudd Turner	COE	503/808-3935
Paul Wagner	NMFS	503/231-2316

**On Phone:**

<b>Name</b>	<b>Affiliation</b>	<b>Phone</b>
Jim Gaspard	B.C. Hydro	
Bob Hallock	USFWS	
Nengjin Liu	Idaho Power Co.	
Pat McGrane	Reclamation	
Jim Nielsen	WDFW	
