

Transboundary Gas Group Meeting Notes
October 19-20, 2005
Trail, British Columbia

1. *Greetings and Introductions.*

Transboundary Gas Group co-chair Dan Millar welcomed everyone to today's meeting, held October 19-20, 2005 in Trail, B.C. 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 Kathy Ceballos at 503/230-5420.

2. *Box Canyon Dam Total Dissolved Gas Abatement Plan.*

Jean Parodi of WDOE described the physical location and history of Box Canyon Dam; she noted that it is a medium-sized, 60 MW hydroelectric dam with a 55-mile-long reservoir. The project is undergoing FERC relicensing; as part of that process, its operators are required to obtain water quality certification from the Idaho and Washington state water quality agencies. A draft TDG abatement plan has recently been filed for Box Canyon, which produces gas levels as high as 140% during certain times of the year. The goal of the plan is to meet the state water quality standard of 110% for the Pend Oreille River at the dam, even during a 7Q10 high flow, she said.

Another requirement of both the old and new license is that the operators cannot back up water more than two feet at the face of Albeni Falls Dam, Parodi continued. These two requirements, taken together, mean that, once flows reach about 68 Kcfs, the PUD has to start lifting the gates on Box Canyon Dam. At just under 90 Kcfs, all of the gates are up – they are no longer spilling or producing power, and have little control over the river. Was Box Canyon built before Boundary Dam? one participant asked. Yes, Parodi replied.

The Box Canyon TDG abatement plan is still in draft form, but is very close to a document we can accept, Parodi continued. The contractor on the project is in the process of responding to our most recent comments, but at this point, we're talking about details, not major elements of the plan. These elements include upgraded turbines, which the Pend Oreille PUD needs to do anyway, for reasons which have nothing to do with gas. A second element is an auxiliary spillway bypass, similar to the one that was installed at Cabinet Gorge. The PUD will also be modifying their spillway gate settings to reduce dissolved gas production. By law, the PUD is required to have all of these elements in place within 10 years of our signing off on their plan, which should be very soon, Parodi said. In response to a question, she said the current powerhouse at Box Canyon simply passes whatever TDG comes into it – it doesn't increase or decrease TDG levels.

There are currently fixed monitoring stations in the forebay and tailwater at Box Canyon, Parodi continued; the stations are operated from April through mid-July. We're talking with the PUD about beginning monitoring in March; they will likely be required to continue monitoring at the project until they have demonstrated compliance with the full range of expected flows, although we're still negotiating that point. The tailwater station is located about 0.6 miles downstream of the powerhouse; there is some powerhouse flow mixed into the spill at that site, but it's mostly spill. The PUD has some safety concerns about the downstream monitoring, particularly if we try to get more information about TDG in the spill vs. the powerhouse flow.

In response to a question, Parodi said the PUD's gas abatement plan is expected to bring Box Canyon into compliance 95-98% of the time; the rest of the time, it is expected that the gate settings will take it the rest of the way. They may do better than the model, but it's possible that we won't be able to get that last two or three percent, she said. Idaho will need to work with Albeni Falls to get that project's gas production down, she added. Do you know what the capital cost will be? asked another participant. It's about \$10.7 million, Parodi replied. She added that any TGG comments on the Box Canyon dissolved gas abatement plan or monitoring plans are welcome.

3. Update on Brilliant Expansion, Arrow Lakes Generating Station and Waneta Expansion Projects.

Llewellyn Mathews, of Columbia Power Corporation, said he wanted to provide a brief update at today's meeting, starting with the Arrow Lakes Generating station. As most of you are aware, there is no ongoing TGP monitoring at the station, which is adjacent to Keenleyside Dam, he said; however, a TGP production model has been developed for Arrow Lakes and Keenleyside. We did do some monitoring below the project in 2002 to confirm the model's accuracy, said Mathews; I presented the results from that study at a previous TGG meeting, he added.

We did have a failure at the intake channel in 2004, Mathews continued; we did some temporary repairs at the time, and are now proceeding with a permanent repair. During this time, the power plant will be shut down, and we will be building a cofferdam across the intake channel so that it can be dewatered. We will be ripping up the temporary patch and restoring the channel lining to its original design, as well as installing some design improvements to the channel to ensure that the problem does not recur.

While this is happening, all of the flow which would have been going through Arrow Lakes will instead be flowing through Keenleyside, so that project will revert to its original TGP status, Mathews said. This should result in a minor increase in TGP in the Columbia River, but as this work will occur at a time – December to May -- when the reservoir is low, there shouldn't be much of an increase. We expect TGP to stay below 110%, although the values may creep up in May.

Moving on to the Brilliant expansion, Mathews said that project is now well underway. A tailrace berm has been built, although they have discovered that there is a buried river channel in that area, so it hasn't been possible to achieve a complete seal – there is a significant amount of seepage occurring. Some of the tailrace improvements you have heard discussed previously were completed in 2004, Mathews said; they are currently building a rock-filled berm that will deepen the tailrace. That deepening is going to create some TGP reduction below the project, he said. The Brilliant expansion will be completed in late 2006, so by 2007, we should start to see those benefits occurring. They will be drilling through the rock-filled berms to allow for white sturgeon passage, said Mathews.

Gate 1 is being used over the winter for safety purposes, he continued; unfortunately, Gate 4 is preferred for wintertime use, because Gate 1 has the highest TGP production. Typically, this time of year, we have to spill about 10 Kcfs periodically throughout the day, because it isn't possible to buffer all of the load factoring that occurs upstream in the Brilliant forebay. At 10 Kcfs through Gate 1, you can expect to see TGP go from about 107% to about 110%, he said. As Kootenai Lake begins to refill to its winter level, and flows consequently increase through the Kootenay system, we might see TGP levels of up to 117% this winter, said Mathews.

We will be doing post-project monitoring in 2007 to study the benefits of the Brilliant expansion project, said Mathews; it may be necessary to adjust the production curves for each spillway gate once we have that data. And how much will the spillway depth change? Schneider asked. It will be about 1.5 meters deeper, Mathews replied. In response to a question, Mathews said he will describe the 2007 monitoring plans at Brilliant one of the TGG's next two meetings.

Moving on to the Waneta expansion project, Mathews noted that this is a joint venture between the Columbia Power Corporation and the Columbia Basin Trust. We will be expanding the generating capacity at that project, he said. Our rights to do the expansion take priority over the rights of Cominco, the project owner, to upgrade; that means that once we build the expansion, the water going through the upgrades will be lower-priority than the water going through the expansion. That will have some impact on the eventual operation of Waneta, Mathews explained.

The proposal is to build a powerhouse on the left bank, looking upstream, Mathews explained. The environmental assessment we're doing is for a 435 MW plant, which will bring the system into hydraulic balance – our plant plus the original base Waneta plant. That will mean that BC Hydro will be able to operate the entire Pend Oreille system as a coordinated system, which will allow them to maximize the value of the water in that system. Being in hydraulic balance should mean that they are passing boundary flows, in essence; Waneta, which has been a bottleneck, will no longer need to spill at times that Boundary and Sevenmile are not spilling, which will have obvious TGP production benefits. The proposed schedule is that we hope to begin construction in 2007, and be operational by December 2010.

We are currently going through the provincial and federal environmental assessment processes, Mathews continued. There is a harmonization agreement between the two, and this application is undergoing a harmonized review. Our EACA – short for Environmental Assessment Certificate Application, the Canadian equivalent of an EIS – is expected to be submitted by the end of November. Once that happens, the provincial Environmental Assessment Office has 30 days to decide whether to accept it or not. If they accept it, there will be a 180-day review period, during which to make a recommendation to the Minister after consulting publicly with various provincial and federal agencies and the State of Washington. There is a separate, harmonized federal process, during which the federal government will make an independent decision and write a comprehensive study based on the documentation presented during the EACA process. It is a very open process, with literally every document submitted posted to the B.C. EAO website, Mathews said.

Dana Schmidt, of Golder Associates, led a more detailed discussion of the Waneta expansion project. He noted that, in terms of TGP production, Waneta is essentially benign; that doesn't mean, however, that it will meet the 110% standard under a 7Q10 flow. He described Waneta operation under high-flow conditions, noting that in general, unless exceptionally high flows occur, TGP below the project stays below 115%.

As Llewellyn said, once the Waneta expansion comes on-line in 2010, the project will no longer be the bottleneck, or a significant producer of TGP from the Kootenay upstream facilities, Dana said. Boundary is currently the major TGP generator into the Kootenay system, as it is currently configured. We did some monitoring for B.C. Hydro during the 1997 high-flow period, Dana said, and the highest value we measured in the Sevenmile forebay was 153%, still our record for general spill-produced TGP.

Dana described the current configuration and gassing characteristics at Sevenmile, noting that the design of that project is fairly unique – it is probably the most effective I've seen, in terms of actually stripping, rather than producing, gas, he said.

Dana noted that Waneta was built in 1954; three of its four turbine units have been recently upgraded. The fourth unit is also being considered for upgrade. If that occurs, the hydraulic capacity of the project would be increased from 710 to 932. The expansion could add capacity up to 764 on top of that, so as Llewellyn said, the project will be brought into hydraulic balance with the rest of the system.

Dana described the modeling work he has done regarding flow vs. gas at Waneta, using concepts developed by Larry Fiddler. Fiddler's methodology has previously been used successfully at Arrow Lakes Generating Station, the Keenleyside spillway, and the Brilliant Dam expansion. Dana said he has prepared a report for CRIEMP showing the outcome of his modeling work; he noted that this report, as well as all of the equations he used in his modeling, is readily available if any TGG participants are interested. He noted that data was collected in 2004 that verified the model results. Basically, our objectives in this work were to determine the current contribution of Waneta to TGP

production in the Kootenay system, and to estimate the benefits of the Waneta expansion project, Dana said.

He went on to describe the location of the monitoring locations used to verify the Waneta model: Fort Shepherd Eddy, Waneta forebay, CRTW and Northport. He then provided a detailed overview of the data gathered during the monitoring period: flow, forebay TGP levels, tailrace TGP levels and TGP production at the Waneta spillway. Dana then described the expected results, in terms of TGP reduction from current levels, of the Waneta expansion: relatively small until forebay TGP values are reduced from upstream facilities – Boundary and Box Canyon.

In summary, this expansion will bring Waneta into hydraulic balance with the rest of the Pend Oreille system, and will reduce the typical spills that occur throughout the year at Waneta, Dana said. The main limitation, from a Canadian perspective, is that the Waneta TGP levels are currently related to Boundary and Box Canyon Dams, in particularly the high levels that are seen at the border. As these upstream facilities lower their TGP levels, we will see much larger benefits from the Waneta expansion, he said.

Llewellyn and I have been corresponding about the possibility of the TGG making its opinion, as a group, known about the Waneta expansion project, as it has about various projects in the past, said Schneider. We wanted to talk about that today, he said – is the TGG willing to draft a statement of support for the Waneta expansion project?

A lengthy discussion of the ability of the TGG's participants' ability to sign such a letter ensued. Ultimately, Birch requested a show of hands from those who would be in favor of the TGG drafting such a letter; there were no dissenting votes, with the understanding that no TGG members be identified specifically as signatories representing their agencies. It was agreed that Schneider will draft this letter and distribute it to the TGG membership for comment by the end of November.

I will draft this letter, and will send it out to the participants in today's meeting, said Mark Schneider. I will ask each TGG participant whether or not they can sign the letter. I will attach the signatures of those who agree to sign the letter; if no other TGG members are able to do so on behalf of the agencies or entities they represent, and I am the only signatory, I will sign it, as TGG chair, to indicate the TGG's support for the Waneta expansion project. If we can do it as a series of signatories, so much the better, but I won't know until you have a chance to confer with others in your agencies, Schneider said.

4. *TGG Process Discussion.*

It's been a couple of years since we have discussed the overall direction of the TGG, said Gary Birch, of BC Hydro; given the fact that there are now about 20 dedicated participants, it seemed timely to discuss the value of our continued existence.

Chris Maynard, Washington Department of Ecology, briefly recapped the TGG's history, which includes twice-yearly meetings since 1998. He noted that that history includes the blessing of the B.C./Washington Environmental Cooperation Council, whose members change every two years. Those new members are about to meet at the end of this month, he said, and will hopefully learn a little about this group and will endorse it once again.

This is a technical, not a policy, group, said Maynard. If policy issues arise, we can bring them before the B.C./Washington ECC and, hopefully, resolve them. We have agreed that we are focused on TDG, not temperature, sediments or toxics, at least in the transboundary area. We aren't a regulatory body; we don't try to force anyone to do anything on either side of the border. We try to make progress through education, coordination and cooperation, in short, Maynard said. This group actually has fairly high standing in the minds of many in the region, for those reasons; that's the baseline from which I wanted to work today, he said.

There are two questions we wanted to ask of the participants at today's meeting, said Maynard. First, are our organizations supportive of our continued membership in the TGG? I think the first thing we should take note of is that the fisheries agencies are, said Birch. Is there a document that encapsulates what the TGG is intended to accomplish, and who the participants are? asked another participant. Yes – it's called the Columbia River TGG Framework Plan of 2000, and it's available from the TGG homepage on the www.nwr.noaa.gov website, Schneider replied.

One participant noted that there was a lengthy list, when the TGG initially formed, of TDG abatement actions that needed to be undertaken from the Canadian side of the border down to the Columbia River estuary. Many of those issues have subsequently been addressed, he said. I would remind the group that the question currently before us is, are our organizations supportive of continued membership in the TGG? said Maynard.

In my conversations with some of the Canadian participants, part of the reason they don't come here too often is that they are put on the spot too often to say ye or nay to something, said Larry Fidler of Aspen Applied Sciences, Inc. Without the agencies here, you're really crippled in what you can accomplish, he said – I'm just wondering whether it would be more effective, in terms of agency participation, if the group was to sponsor technical workshops, and the development of technical papers. That would constitute a technical information exchange in a positive sense, in a less-formal environment.

My organization's primary interest in attending these meetings is information exchange, said another participant. We want to know what's going on with the other agencies, and what they're doing in the water quality arena – to me, that informal exchange of information is the real value of these meetings. I would add that it may make sense for this group to make an effort to formalize its membership, he said.

The idea that this group looks at the overall system, on both sides of the border, as a system, has value, said another participant. Other critics are welcome, however, he added.

It surprises me that Fidler would say that this is the type of body that would get together and force its participants to make some sort of statement one way or another, said Schneider – I would suggest that this group has changed in what it does and how it views its value to the region. We have gone through this same sort of self-inspection a couple of times over the years, and have evolved to become an information-sharing group, rather than a position-taking group. We get together and talk about things that have taken place within our agencies since the last time we've gotten together – that's pretty much what we're doing today.

As far as responding to Llewellyn's request about the Waneta expansion, said Schneider, I went through the TGG's meeting notes and found that the last time we responded to a similar request for group endorsement was 2003 – that's quite a long time between such requests. I would suggest that that is not the major purpose of this group, Schneider said.

Paul Pickett observed that, at least from his perspective, there will likely come a point where the TDG improvements in the system as a whole have been accomplished to an extent to which his personal participation will no longer be needed. To me, he said, the answer to the first question is, does this group need to continue to meet, or are things starting to be sorted out?

That brings us to the question of what is the appropriate frequency of TGG meetings? Maynard said. After a lengthy discussion, in which several TGG participants expressed concern about the travel costs of twice-yearly meetings, it was agreed that there is value in continued TGG meetings. The group supported continuing to meet twice per year. However, consideration should be given to one of the meetings being a single formally-scheduled annual, information sharing meeting. The second meeting, either in conjunction with another event such as the Lake Roosevelt Forum, or on an as-needed basis as the agenda for a second meeting dictates.

Maynard said the TGG steering committee will take the various comments and suggestions made during this agenda item under advisement, and will contact the TGG membership with a proposed next meeting date and location.

5. *Mica Fish Flush Results.*

Larry Fidler, Aspen Applied Sciences, Inc., said he had been startled to the extreme by the report that, upon occasion, during synchronous condense operations, TGP levels of 200% had been reported near Mica Dam. Who has ever reported 200% TGP in any manmade or natural water body in the world? he asked. I agreed to look at the data, which was reported in 1997, 1998 and 2000. The more I looked at the data, the more I

realized that they were pretty consistent, he said, and that the people who had done the monitoring were pretty competent.

Obviously there was something odd going on during synchronous condense operations at Mica Dam, the presenter said. Given the fact that synchronous condense operations are conducted at many dams around the world, we thought it might be a good idea to get to the bottom of what was happening at Mica. We therefore reviewed the data and conducted some additional monitoring; this afternoon, I will provide an overview of what we found. Using a series of overheads, the presenter touched on the following major topics:

- Mica's geographic location and physical configuration, including the fact that powerhouse discharge exits via draft tubes, into a manifold area, thence to Revelstoke reservoir below the project
- Only units 1 and 2 have synchronous condense capability. During synchronous condense operations, cooling water is applied to the bearings and other parts; that cooling water then mixes with the powerhouse discharge.
- How is it possible to achieve TGP levels of 210%? The turbine chamber is pressurized initially to 100 psi to drive the water out; the pressure is then moderated to 16 psi, which is equivalent to about 1.2 atmospheres above atmospheric pressure, or 2.2 atmospheres of total gas pressure, 220%. The water in that chamber is exposed to that pressure; the turbine is spinning rapidly, and the water is forced down the draft tube.
- Specific TGP readings from the draft tubes, their outlets and in Revelstoke Reservoir – ranging from 200% at the draft tube outlets to 120% in the reservoir downstream.
- Kokanee salmon mortalities were observed in the Mica Dam tailrace in 1997; as a result, synchronous condense operations were limited to 11.5 hours per day.
- Even so, TGP levels sometimes exceeded the capacity of the instruments to measure.
- The reasons for synchronous condense operations
- 2005 monitoring results – TGP values measured in the turbine housings were 190%+ at Unit 1 and off the scale in Unit 2 – 210%+. TGP measured in the draft tube galleries was similarly high and did not vary with water depth – apparently the entire tube is supersaturated. The turbine cooling water plays a major role. Because this water is discharged into the deep waters of Revelstoke Reservoir, there isn't a lot of TGP dissipation to the atmosphere – there is strong evidence that the gas is coming out in solution.
- A culvert downstream from Mica may have influenced TGP readings during the study period.

In response to a question, the presenter said it is the cooling water that is pushing the flow down the tailrace tunnel. The fact that the cooling water is coming in downstream from the turbine outlet, where the high gas is, tells you that there is a strong circulation going on in the turbine chamber.

There is a law of nature that says that, if you're going to run a wheelbarrow, you have to be smarter than the wheelbarrow, said the presenter. When it comes to understanding fish, I think the same law applies. Why do I say this? Because one evening, as I and some of my associates were looking at the TGP numbers, we saw about 50 big bull trout swimming around in an area where we were measuring TGP on the order of 150%. They were swimming around and occasionally surfacing; we began to wonder, why are they there? Were they waiting for the turbines to start, and for their free lunch to arrive? Were they oxygen junkies? Was it a temperature effect, in which TGP and temperature were stratified? We don't really know why they were there, but they were there, apparently with no ill effects.

The question then becomes, how do we fix this? the presenter said. Some of the options under consideration include reducing or re-routing the cooling water to the end of the tunnel, to yield a higher dilution; increasing the frequency of generation; continuous generation using at least one unit; introducing bubbles to the draft tube to encourage gas dissipation, running the units dry, and installing independent synchronous condensing units to absorb energy without shocking the grid, at a cost of about \$50 million each. Those are the available options, at this point.

Birch noted that, two years ago, B.C. Hydro excavated several kilometers below Revelstoke Dam to increase degassing and power efficiencies. Revelstoke is B.C. Hydro's main load-following plant. As a condition of that, we were asked to monitor gas saturation for a year, at sites on either side of the tailwater, at either side of the spillway plunge pool, and at a site about 5 km downstream, just above the town of Revelstoke. We recently had the data from that study re-analyzed to pull out the synchronous condense aspects; that re-analysis shows that we have a similar thing happening at Revelstoke.

During most of the summer, Revelstoke is turned on in the morning, off during the day, on again during the evening and off again at night – it is very definitely a load-following plant, Birch said. When the project is turned off, two units are in synchronous condense mode. There is about 600 cfs leakage through the plant, which flows out immediately downstream of the unit outflow. At the unit outflow, even during these very short period of synchronous condense, we're seeing TGP levels of about 160%, Birch said, with levels of 120-130% at the plunge pool.

The take-home message from all of this is that if you had asked me a year ago where BC Hydro was, with respect to controlling gas supersaturation, I would have been pretty pumped, Birch said. We basically have a policy that says limit spill to the greatest extent possible now, and have done a very good job of manipulating the plants to almost eliminate spill. In other words, we were pretty proud of ourselves, said Birch. However, our biggest issue now is synchronous condense, and how to control gas saturation as a result of synchronous condense operations. This will very likely be one of the topics identified for consideration during our long-term water use planning activities, he added.

Are you planning any biological studies? asked one participant. Right now we're scratching our heads over that one, Birch replied – we have a bit of an issue with our funding, because we're shifting over to water use plans implementation as our primary objective for the region. We're in the process of developing an OMA plan and justifying it for funding; part of that process will involve building a long-term gas saturation monitoring plan, which may include a biological component.

6. *Corps of Engineers Summer Spill Program.*

Jim Adams, Portland District U.S. Army Corps of Engineers, led this presentation, noting that 2005 was an interesting summer spill season, from the Corps of Engineers perspective. We spilled water for juvenile fish passage in the Lower Columbia and Snake Rivers, as a result of the court order; this was unlike any other spill season we've ever had, he said. Adams touched on the following major topics:

- 2005 guidelines for spill for juvenile fish passage (spring and summer)
- Seasonal spill and water quality data, by project, summer, 2005.

Adams noted that all projects were operated as closely as possible to the TDG caps during the summer of 2005. One thing to consider is that, as a result of the court ruling on the 2004 BiOp, dam removal is now on the table, said Jim Irish. Adams noted that Judge Redden is dictating the spill and lost revenue from generation, lost recreational activities, irrigation problems – those can be quantified, said Adams, but I don't know of any effort to quantify specifically, and how much, the court-ordered spill actually benefited salmon.

We're looking for wetter, warmer conditions in 2006, which should result in higher river flows, Adams said. Depending on what Judge Redden orders, 2006 could be an interesting year, from a snow pack perspective. It was noted that this presentation, like all of the others from today's meeting, will be posted to the NOAA Fisheries website.

7. *Boundary Dam Re-Licensing.*

Kim Pate of Seattle City Light provided this presentation. She noted that the project is in the relicensing process, and asked the group for their comments on Boundary's integrated licensing process. It is a highly-scheduled process, she said; we are in the process of meeting with stakeholders to get their input on study plans and issues. Much of this has to roll in with our Pre-Application Document (PAD), the first step in the relicensing process. The PAD has to lay out everything we can possibly compile on our project, in terms of existing information – terrestrial, aquatic, water quality and cultural.

Included in the preliminary document, which will come out in May, are the study plans, Pate said. FERC will then take that information, after a 90-day study period, and issues a scoping document, including study plans for the project in 2007-'08. We're extremely busy within that process; with respect to TDG, other than working with WDOE on the TMDL, the Pend Oreille is pretty much in an incubation phase. We don't have a lot of

new information on TDG at this point, other than the fact that we are installing a new probe in our tailrace.

There was a workshop in early August in which we attempted to reach out to the public regarding Boundary's impacts on specific resources of concern, Pate said. Another workshop is scheduled for November 30 in Spokane, on water quality, aquatic, terrestrial, land use, recreational and research issues. Down the road, it is likely that we'll get into work groups, but that's where we are right now.

Hopefully, in the near future, we'll be able to report more of our TDG efforts to WDOE, in consultation with our partners at BC Hydro and CBC, said Pate.

Will your plan of action be published to a website? Schneider asked, Yes – we will have a relicensing website for Boundary, Pate replied. It should be live by mid-November; I will take email addresses from the signup sheet for today's meeting, she said.

Will WDOE be developing any sort of adaptive management plan to deal with Boundary? asked one participant. Internally, we have looked at what a lot of different projects have tried to do in terms of TDG abatement, Pate replied. It's a challenge, given Boundary's design and configuration – it doesn't lend itself to the design configurations that work at other dams.

Could Hungry Horse store water in a better regime to avoid spill at Boundary? another participant asked. With Hungry Horse at the top of our system, implementing VARQ... perhaps the Bureau representatives could more effectively address that question, Pate replied.

8. *Rock Island Dam Over/Under Spill Configuration.*

George Velazques of Chelan County PUD led this presentation [his presentation started, but then disappeared, from the tape. The tape then re-started with...]

9. *Next TGG Meeting Date and Location.*

It was agreed that the next meeting of the Transboundary Gas Group will take place on April 18-19, in conjunction with the Lake Roosevelt Conference in Spokane, Washington. Meeting summary prepared by Jeff Kuechle, Bonneville Power Administration contractor.