Water Quality Team Meeting Notes

May 18, 2006

1. Greetings and Introductions.

Robin Harkless welcomed everyone to today's meeting, held at McNary Dam. 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 minutes should contact Kathy Ceballos at 503-230-5420.

2. TDG Monitoring, Data Quality Criteria, Field Visit Procedure.

The group discussed a recent water quality monitoring problem that led to missing total dissolved gas monitoring data at one of the projects. Jim Adams said he had first noticed the anomoly on Monday morning, when he came into work, and reported it to the USGS. A lengthy discussion of the Corps' response to this incident ensued, with the group providing a variety of clarifying questions and comments.

In response to a comment from Margaret Filardo, Adams said that, under the 2006 TDG monitoring plan of action and the TDG data quality criteria approved by the WQT, a malfunctioning instrument will be responded to within 24 to 48 hours. It was noted that the WQT would prefer that the Corps monitor the data over the weekend, if possible, so that such problems are detected earlier. The problem is that, on the weekend, I don't have anyone I can call if a gauge problem occurs, Adams replied. He further explained that the contracts to the USGS, which does the actual TDG monitoring, are issued by the Corps' Walla Walla District to the USGS' Pasco office for the Walla Walla projects, and by the Portland District of the Corps to the USGS's Portland office for the Lower Columbia projects. I am not the contracting officer for those projects, he explained, and I cannot call the USGS and issue instructions to them – that has to be done by the individual districts and contract managers.

Could you call those contract managers in an emergency situation? Harkless asked. That would be one solution, Adams agreed.

Mark Schneider noted that the Corps' own action plan says that, if there is uncertainty about an abnormal reading at a water quality monitoring station, the Corps will notify the WQT as soon as possible. This current monitoring station went out Friday

night, and you could have sent me an email by Monday morning, Schneider said – that would have helped. I would ask that, if this happens in the future, you send me an email, Schneider said. The next step is that the WQT would develop a recommendation to the TMT and to the IT, if necessary. If the Corp plans to change fish passage actions based on an uncertainty such as the one that just occurred, they should notify both the TMT and the WQT of the proposed change, Schneider said. That didn't happen in this instance; if it had, we would have been able to convene a TMT/WQT conference call and develop a recommended course of action.

Is there a clause in the contracts between the Corps and USGS that would allow the USGS to respond to an emergency over the weekend? Filardo asked. Not under the current contracts, was the response.

I'm hearing two requests, said Harkless – one that the WQT be notified if something like this occurs in the future, and second, for the Corps to include a clause in its contracts with the USGS so that there are field personnel available to investigate and resolve these types of incidents over the weekend. One participant observed that, in his view, it is unfair to expect the Corps to be responsible to ensure that a USGS team be available over the weekend; that is a 24-hour charge, he said, and it doesn't come cheap. Still, perhaps you could investigate that alternative, and report back to the WQT as to how it might work and what it would cost, Harkless said.

So you first noticed the anomoly when you came into work on Monday morning, and reported it to the USGS, Filardo said. Would it be possible, in the future, for such anomolies to be noted on the weekend, so that the USGS is notified first thing Monday morning? We actually do check the data as soon as we arrive on Monday, and if there is a problem, we go out into the field on Monday morning, replied Dwight Tanner of the USGS. Still, it would be preferable if the Corps could check the data over the weekend, so the USGS could get started on the problem as early as possible, Schneider said. I arrive at work at 6:30 a.m., and if I call the USGS that early, all I'll get is Dwight Tanner's answering machine, Adams replied. He said he will investigate who, in the USGS' Pasco office, should be contacted in case of future emergencies. And if you could email Agnes Lut and I as early as possible, that would also be helpful, Schneider said.

A USGS representative noted that there is one new feature to the monitoring system – when data do not come in, we will receive an emergency email that a transmission has been missed. That was added in response to the recent problems, he said. We will also get emailed if dissolved gas shows up as too low or too high, he said. It's not uncommon to get one missed transmission; it's when we then miss the second transmission, and those data are not back-filled, that we start getting concerned. Perhaps you could simply modify the system such that Agnes and I receive those emails as well, Schneider suggested – then there would be no problem. That would be possible, the USGS representative replied, as long as you realize that we receive a lot of these emails, and they don't necessarily indicate a problem, unless you're getting multiple emails from a particular site.

Do the monitoring stations, such as the one at The Dalles, continue to record data even when the data is not being transmitted? Schneider asked. Generally, yes, even in the most recent incident, was the reply. Heather from our office was there at 10:30 in the evening, and we had several people working on the situation throughout the day. She was looking for voltage drops in the midst of a transmission; it was only going from 12.8 to 12.2. Everything looked really good at this site, and we were stymied until we caught one transmission where only half of the data were transmitted, he said. That suggested to us that it was a battery problem; however, the drop in battery voltage during the transmission was not revealing. Even so, Heather changed the battery, and lo and behold, it started working properly, he explained.

After a few minutes of additional discussion, it was agreed to revisit this topic at the June WQT meeting.

3. Bonneville Spillway TDG Monitoring.

Schneider said that, at its last meeting, the WQT was discussing the anomolous TDG monitoring data that were being recorded at the Cascades Island fixed monitoring station, when spill didn't seem to be the source of that gas. It was determined that those readings were being affected by the TDG levels in the discharge of the upstream fish ladder, Schneider said. We have been looking at that gauge since the last meeting, and it doesn't appear to be particularly useful in management – it is being influenced by the spill pattern, the amount of spill and a number of other things, Schneider said. How should we deal with that?

This isn't really a new issue, Adams said; we have discussed it before at WQT. At previous meetings, we presented data showing the bias of the Cascades Island gauge with respect to reading TDG at varying rates of spill. We believe the data showed that, at higher spill levels, when TDG is above 120%, Cascades Island is underestimating the net production of gas across the entire spillway channel, Adams said. The higher the spill, the greater the bias – by the time you're spilling 170 Kcfs, the average cross-sectional TDG percentage is actually 3-4% higher than what is being read at Cascades Island. What we asked at the time was, how should we manage spill at those higher levels in order to satisfy the waiver requirements, he said. We've already been through that, and we probably don't have time to talk about it now.

The problem is that, no matter where you put the tailwater gauge at Bonneville, it's going to have certain level of bias with respect to what the total average cross-sectional TDG is, Adams said. You can't measure gas at any one site, and have it accurately represent the total production. There isn't single suitable location – you would need to use multiple gauges, and average those values. Our proposal at the time was to continue to utilize the Cascades Island gauge and do a mathematical correction, Adams said – that was specified in the TMDL as something we can do.

They changed the spill pattern at Bonneville this year, due to problems the fish

managers saw in juvenile egress, Adams said. The new pattern, during spill levels of 80-92 Kcfs, emphasizes spill in the outer bays – bays 1-4 and 16-19. It's basically a concave spill pattern, and it intensified the concave nature of the spill pattern. As a result, we've been seeing very high TDG values at Cascades island when spill is in the high 80s and low 90s, said Adams – up to 124% at 90 Kcfs. The bottom line is, when you develop a mathematical estimate of the bias in the monitoring system, when the salmon managers decide to change the pattern, all bets are off – we don't have the data anymore, Adams said. We don't know how to correct for the true cross-sectional average.

So what are you doing at Bonneville now? Harkless asked. From a management perspective, we've been avoiding spill between 80 Kcfs and 95 Kcfs entirely, Adams replied. At 92 Kcfs, we switch back to the flatter pattern called for under the Fish Passage Plan, and what's being read at the gauge goes down. The bottom line is that the waiver requires us to manage spill based on the Cascades Island gauge, so we're looking for some guidance as to how we should be managing it, Adams said.

I don't think we really have time to resolve that question at today's meeting, but I wanted to get it out on the table, Schneider said. However, in response to your comment about the fact that the Cascades Island gauge under-represents the amount of gas that is actually in the tailrace under certain spill levels, that doesn't really occur until the spill levels are considerably above the levels called for in the BiOp. The most recent implementation plan submitted to the court to provide operational guidance to the Corps states that we are to provide spill at Bonneville to the spill cap, up to 100 Kcfs, Adams replied. If the level of spill we think will reach 120% at Cascades Island, or 115% at Camas/Washougal, is below 100 Kcfs, we will voluntarily spill up to that cap, said Adams. If the spill cap would take us above 100 Kcfs, they will spill at 100 Kcfs, voluntarily.

I think Mark is trying to point out that there isn't agreement on the correction at the 120% gas level, Fialrdo observed. We believe that the Cascades Island gauge is fairly representative of the cross-sectional average of TDG at 100 Kcfs, Adams replied. I agree, said Schneider. And how do you make the decision as to whether to spill 80 Kcfs or 100 Kcfs? Filardo asked. Spill pattern, Adams replied – we spill at the highest rate that will keep us within criteria.

In response to another question, Adams said the operation prescribed at John Day is the same as it's been in previous years – zero spill during the day and 60% at night. Because of the high flows this year, however, we have been spilling around the clock, which has been gassing up the river all the way downstream, he said.

In response to another question, Adams said The Dalles tailwater readings rarely limit spill at The Dalles. The other criteria, of course, is 115% in the forebay at Bonneville. However, if you're spilling up to 120% at The Dalles, the gas levels that are coming into the Bonneville forebay shouldn't be any different than they've been in previous years, Filardo observed. Not true, said Adams – the difference is the 115% vs.

the 120%. The other problem is that gas levels are holding steady around the clock – they're not coming up, then going down again, so the system has no chance to reset. Travel time is also shorter, so the gas is having less of an opportunity to dissipate, added Jim Irish.

Filardo noted that Bradford Island was originally considered as a possible site for the Bonneville tailwater station, but was rejected because of satellite communication problems and because it was located on public access land. Might Bradford Island be a more suitable choice, in terms of its ability to provide more representative readings? Filardo asked. We have done the same analysis with the Bradford Island gauge, Adams replied; the algorithms were slightly different, but the conclusion was essentially the same – we still saw bias.

The group devoted a few minutes of additional discussion to this topic, offering several clarifying questions and comments. Ultimately, Schneider said he had placed this item on today's agenda to give the WQT a better understanding of why the region is seeing the readings it is seeing at Cascades Island. That being the case, how should we manage from here on out? Schneider asked. That's probably a question for our next meeting, but again, I wanted to get it out on the table, he said.

4. Spill Management/State Water Quality Waivers/BiOp Requirements.

Adams provided a brief overview of how the Corps manages spill in order to meet its state water quality waiver and BiOp responsibilities – essentially, what he and his staff do on a daily basis: data review, SYSTDG modeling, review of exceedences and current river and weather conditions, to set a spill cap at each of the projects. We're looking to create a reasonable expectation that we will not exceed the relevant criteria, he explained.

Mark sent us an email in which he essentially questioned that practice, said Adams; I think the issue comes down, essentially, to how close we should be targeting spill to achieve the criteria. What we've found is that, when we try to target 120% exactly, we wind up with a 12-hour average that exceeded the 120% about 50% of the time, he explained; it is our understanding, from the states, that that is not an acceptable exceedence rate. This being the case, we target something slightly less than 120%, such that there is a reasonable expectation that the standard will not be exceeded.

Filardo noted that, from a fishery manager's perspective, a slight exceedence of the 120% standard isn't really a problem. I do understand that, from the perspective of the Corp and the state water quality agencies, 120% is 120%, she added; I know you're in the predicament of having to meet that standard. I also understand that Mark's concern is the endangered species, and making sure the Corps does in fact spill up to 120%, she said. I know you get calls every day from others in the Corps and at the water quality agencies if you exceed the standard, but I'm sure Mark gets just as many calls from other fishery managers asking why NMFS isn't holding the Corps to the BiOp

standard as well, Filardo said. Agnes Lut noted that the standard is actually a calendar-day standard, based on the average of the 12 highest hourly averages within those 24 hours, and not to exceed 125% TDG in the two highest hours – in other words, there is some management flexibility, she said.

We are managing according to the state criteria, and we're treating that 120% as a cap, Adams said – in other words, we tell our operators, thou shall not exceed. We manage the system so that we have reasonable assurance that we will not exceed 120% TDG. But if the average is going to be 120%, at some point in those 12 hours, you've got to hit 120%, Schneider said. We understand that, Adams said. Yet I never see 120% as an average, when I look at the data, said Schneider, except when involuntary spill occurs. I disagree, said Adams, adding that it would be helpful to get the perspective of the state water quality agencies about how we should be managing spill. I don't think it's up to us to tell you how to do that, Lut replied – you have a waiver from us, and you can manage spill at your discretion, within the waiver limits. I don't think that's really the issue, Harkless observed – I think the issue is, what, exactly, does the waiver you gave the Corps mean? How should the Corps interpret the language in the waiver?

There is obviously more to talk about here, said Schneider; we'll revisit this topic at the June WQT meeting.

5. Next WQT and SCT Meeting Dates.

The next meeting of the Water Quality Team was set for Tuesday, June 13. The next meeting of the System Configuration Team was set for Thursday, June 15. Meeting summary prepared by Jeff Kuechle, BPA contractor.