WATER QUALITY TEAM MEETING NOTES

April 13, 2004
NOAA Fisheries Offices
Portland, Oregon

1.Introductions and Review of the Agenda.

Mark Schneider of NOAA Fisheries, WQT co-chair, welcomed everyone to the meeting, held April 13 at NOAA Fisheries office in Portland, Oregon. The meeting was facilitated by Robin Harkless and co-chaired by Russell Harding of ODEQ. The meeting agenda and a list of attendees are attached as Enclosures A and B. Please note that some of the enclosures referenced in these meeting notes may be too lengthy to routinely attach to the minutes; please contact Kathy Ceballos (503/230-5420) to obtain copies.

2. Corps Water Quality Management System (CWMS).

Peter Brooks of the Corps led this presentation, explaining that CWMS stands for "Corps Water Management System." He noted that the Corps regulates more than 700 reservoirs nationwide, which translates into a myriad of water quality decisions driven by observed and forecast data. Obviously we need to collect and process this data quickly, he said; some decisions have to be made within 15 minutes. Brooks noted that the idea of a standardized data management system is fairly new to the Corps; much of the old system was generated in the late 1970s, and was based on old Fortran code – CHROMS is one example.

Brooks described the limitations of the Corps' older water management systems; he noted that neither CHROMS nor CWMS is a database – they are merely suites of software that allow interaction with a database. DSS and ORACLE are databases; ORACLE, a relational database, can store time-series data, maps, paired data, spatial data, executable programs and images. Microsoft Access is also a relational database.

So what is CWMS? said Brooks. It is an integrated system of hardware, software and communication resources supporting the Corps' real-time water control and management mission. He described how the system works – data collection, satellite data transmission, data sources, QA/QC and data distribution to end-users such as the Corps, BPA and USBR. The overall purpose of CWMS is to move the data as expeditiously as possible from the sites it's collected to those who need to use it to make real-time decisions, Brooks explained.

Brooks noted that one improvement of CWMS over the old DSS system is its integrated GIS capability; he described the various ways this spatial data capability can used. He put up a sample map showing stream and precipitation gauge locations. Brooks described how the CWMS data is entered, then noted that there are restrictions on what data can and cannot be

released from the CWMS system – proprietary data from many of the system users, such as Idaho Power, for example, is closely guarded.

Brooks described the four CWMS components: data collection, database, data visualization and data dissemination. He noted that the data is turned around very quickly – the system can handle 90,000 values an hour, which is very fast. Brooks noted that his office is in the process of putting together a coordinated model of the entire Columbia Basin, using the RESIM model; the model is expected to be ready for use within a year or so. Brooks went on to describe the various applications of the model.

Brooks then demonstrated how the CWMS system is accessed and how it works. He provided the following email address for anyone who has specific questions or reports they would like from CWMS: http:www.nwd-wc.usace.army.mil/cgi-bin/dataquery.p1. Just be sure to include a point of contact and a phone number, Brooks said.

What will you be doing with the water quality data you're collecting, and how will you integrate CWMS with the USGS and EPA national water quality databases? John Piccininni asked. We don't do anything with it, Jim Adams replied – ORACLE is basically our water quality safety deposit box, and CWMS is the access tool. Anyone is free to request data from CWMS, including USGS and EPA, Brooks added. Is there access to metadata about the quality of data information and data quality procedures? Paul Pickett asked. We're working on it, Brooks replied. He added that today's presentation is available upon request from him or from Mark Schneider. It was agreed that Brooks will return at a future WQT meeting once the system is fully operational to provide an online demonstration of CWMS' capabilities.

3. Gas Exchange at Bonneville 2 Corner Collector.

Mike Schneider led this presentation, noting that his purpose today was to update the WQT on the preliminary findings from the Corps' B2 corner collector study. He explained that the corner collector is now operational, and provides a new passage route for juvenile migrants passing Bonneville. The purpose of the study is to look at the corner collector's effects on TDG levels below Bonneville, Schneider explained. Moving on through his presentation, Schneider touched on:

- A description of the corner collector concept (a rectangular debris chute that passes relatively small volumes of spill over an ogee and into the tailrace)
- The history of corner collector technology (The Dalles prototype)
- The effects of the plunge pool on TDG levels below Bonneville
- The study's goals
- Study approach
- The physical location and design of the B2 corner collector, which is located along the Cascade Island side of the dam
- Various photos of the corner collector in operation
- The location of the water quality monitoring instruments near the corner collector
- Results from the corner collector modeling – TDG loading of the corner collector was consistent with a spill discharge of 50 Kcfs-70 Kcfs, despite the much smaller spill

discharge through the chute, when forebay gas levels are in the 100%-102% range
- Further monitoring results

The group discussed the corner collector monitoring results to date; Paul Pickett asked whether, knowing what they now know about the hydraulics of the corner collector, the Corps might be able to adjust the way it is operated to minimize gas production. I'm not sure we have any control over the flow through the corner collector, without some structural modification, Jim Adams replied – right now, it's either on or it's off.

Mike Schneider said that, in his view, the take-home message is that the corner collector is a source of additional gas; it is likely to have an impact on spill volume up to the gas cap at Bonneville, although exactly what that impact is is still under investigation. However, I would caution anyone against jumping to conclusions about the corner collector, said Adams -- we need to get some additional data in before we can compare the benefits and impacts of its operation. What we end up doing will depend on what those benefits are, he said. Mark Schneider said that, as the Corps obtains further information about the corner collector's hydraulics and dissolved gas impacts, it would be helpful if the WQT can receive additional updates.

4. Chief Joseph Spillway Deflectors (RPA 136).

Joe Wright, the Chief Joseph spillway deflector project manager, provided an overview of this project. Using the overhead projector, he touched on the following major topics:

- An overview of the Chief Joseph project
- Erosion issues at the project
- The purpose of the project
- The spill swap with Grand Coulee
- Construction costs
- Deflector design and placement
- An overview of the $1.6 million design/modeling phase (Phase I)
- Phase II (construction) – to begin in February 2005; scheduled for completion in November 2007; total cost $32 million

Mark Schneider thanked Wright for the update, who promised further updates for the WQT as construction proceeds.

5. Grant County PUD TMDL Issue.

Cliff Sears of Grant County PUD said he had an issue he wanted to bounce of the WQT. He noted that one of the tables in the Mid-Columbia TDG TMDL addresses remedial actions to be taken when forebay TDG levels exceed 115%. Those remedial actions include meeting the 115% TDG standard in the forebay of the next dam downstream, and meeting 115% in the tailwater, ensuring that TDG levels in the downstream forebay do not exceed those in the upstream forebay. The draft TDG TMDL proposes a tailrace criteria, during periods of fish spill, of 115%. But in instances where the gas levels in the river system are elevated, I'm scratching my head over how a run-of-the-river project might affect that situation, said Sears.

For example, in a situation where TDG levels entering the project are at 123%, we might be asked to somehow de-gas the river to achieve 115% TDG in the tailrace, while at the same time being permitted to gas the forebay of the next dam downstream up to 123%, said Sears. We're concerned about how those requirements might be reconciled with the need to spill for fish passage, he said, and were wondering if the WQT might have any insights on that issue.

Pickett noted that the public comment period on the Mid-Columbia TDG TMDL has now closed; this is one of the issues we will be addressing when we respond to those comments, he said. Our challenge is to develop a TMDL that EPA will approve, and that also meets the needs of the fish agencies. We have pondered the question of what to do when incoming TDG levels exceed 115%, said Pickett; the approach we came up with was to say that the project should try to meet 120% in the tailrace and 115% in the downstream forebay. Basically, our idea was that projects would attempt to manage their tailrace TDG to 115%, said Pickett; we considered this a compromise that would allow spill to continue for fish passage while recognizing that some reduction in spill may be needed to avoid worsening the problem downstream. So this is essentially a water quality enhancement operation? one participant asked. Under certain conditions, it could be, Pickett replied.

Essentially, we're saying, in this unusual situation, if you're spilling to 120% in your tailrace but you're not meeting the 115% downstream forebay standard, you would reduce spill to achieve 115% in your tailrace, Pickett said. If you do that, and you're still not meeting the 115% in the downstream forebay, you wouldn't have to drop your spill any lower than 115% – that's where you stop, regardless of what TDG levels are downstream. At that point, you won't be held accountable if the downstream standard is exceeded, Pickett explained. After a few minutes of further discussion, Pickett said he would welcome any further input Sears would like to provide on this question. There was general agreement that this situation will not occur frequently, and it may make sense to address it outside the TMDL. Schneider noted that the Canadians have made great strides in the gas abatement arena in recent years, so it may be even more rare in future years.

6. Next WQT Meeting Date.

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