COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

August 27, 2014

Facilitator's Summary

Facilitator, Emily Plummer; Notes, Tory Hines DS Consulting

The following Facilitator's Summary is intended to capture basic discussion, decisions and actions, as well as point out future actions or issues that may need further discussion at upcoming meetings. These notes are not intended to be the "record" of the meeting, only a reminder for TMT members.

Dworshak Operations

Steve Hall, COE, provided an update on Dworshak operations. He noted that since the last TMT meeting on August 20th, temperatures in the Lower Granite tailwater rose in excess of 68 degrees Fahrenheit due to a storm event and subsequent wind mixing, warming water in the Lower Granite pool at depths up to 20 meters. Average temperatures on August 24th, 25th and 26th exceeded 68 degrees Fahrenheit with temperatures falling below 68 degrees Fahrenheit on Wednesday, August 27th. Steve also noted that the outage of Unit 3 at DWR and thus limited ability to release cool water is contributing to the elevated water temperatures. Currently, Dworshak is discharging 8.7-8.8kcfs with TDG levels at 115%. Steve shared that the model run on 8/25 shows a decrease in water temperature, which he attributed to cooler air temperatures, fewer hours of daylight and more cloud cover. It is expected that next week the Lower Granite pool will return to more consistent water temperatures below 68 degrees. Additionally, the end of August BiOp target elevation of 1,535' will not be met by the end of August (due to the Unit 3 outage). Currently the elevation at Dworshak is 1,546' and is drafting around 1 foot per day. Thus, it will be approximately 11 days until 1,535' elevation is achieved, likely around September 5th.

David Wills, USFWS, stated that he has been in contact with the DWR National Fish Hatchery and operators are not comfortable with TDG increasing above the current levels of 115%. They are concerned that the increased TDG for a sustained amount of time will stress the fish, increasing likelihood of disease. Dave Statler, Nez Perce, noted the need to continue monitoring for impacts on fish, noting that there needs to be a balance as to not compromise the hatchery fish. He also noted that increasing DWR's degassing abilities needs to be considered in order to proactively avoid these situations in the future. Steve informed the group that the Corps is in the process of a systematic upgrade of the degassing system. The 2nd half of the main water supply degassing vacuum system is expected to be completed sometime next summer. Steve also noted that as of Monday, TDG levels were at 103% in the raceway and dissolved nitrogen was at 104.5% as a result of the upgrade earlier this year. Charles Morrill, WA, noted the Salmon Managers appreciate the Corps efforts to address degassing and he hopes they continue to treat it as a priority.

Russ Kiefer, ID, inquired about the summer to fall transition operation at DWR. Steve noted that the operation will have to be coordinated with the DWR Board, however, they expect that once the target 1,535' is reached, the project will return to 110% TDG levels (discharge of around 6.7kcfs) and hold until this revised schedule intercepts with the previous ramp down schedule.

Paul Wagner, NOAA, asked when Unit 3 is expected to return to service. Steve Hall noted that there is no definite return to service date for Unit 3, however, he expects that it will be after the

temperature flow augmentation season. Steve noted the reason for the uncertain timeframe is largely in part because Unit 3 has not been unstacked since 1979, a process which will require great technical finesse. Charlie indicated the Corps is managing the operation well by maintaining a gas cap of 115%. Steve also noted that Unit 3 will need to be completely overhauled eventually and because this is a complicated endeavor, the Corps will utilize this unstacking opportunity for inspections that will provide information for the eventual overhaul.

SOR 2014-2

Paul Wagner, NOAA, shared the final special operation request for the Dworshak Operations, as submitted to the Action Agencies last Wednesday, August 20. The request sought to increase discharge over 7kcfs, with the recognition of the potential impacts of increased TDG levels on the downstream hatcheries. Paul noted that as of this morning the water temperature in the Lower Granite adult trap was around 71 degrees Fahrenheit, preventing the trap from operating, however, the cool pool depth is increasing. Doug Baus, COE, stated the plan is to maintain Dworshak TDG levels of 115% until target elevation 1,535' is reached, likely by September 5th, then revert back to managing DWR outflows not to exceed 110 TDG%. He noted the Corps received a Short Term Activity Exemption of the Total Dissolved Gas Standard from Idaho and Nez Perce for the temporary exceedance of the 110% TDG water quality standard. Doug expressed gratitude to the group for their efforts to develop the SOR and Charlie expressed gratitude to the Corps for their implementation of the operation.

Operations Review

Reservoirs: Lisa Wright, COE, reported on Corps projects:

- Libby midnight elevation was 2,451.7ft, with 6.5kcfs inflow and 9kcfs outflow.
- Dworshak midnight elevation was 1,546ft, with 1.6kcfs inflow and 8.6kcfs outflow.
- Lower Granite average inflow was 24.4kcfs.
- McNary average inflow was 144kcfs.
- Bonneville average inflow was 142.1kcfs

Mary Mellema, BOR, reported on Reclamation projects:

- Hungry Horse midnight elevation was 3,555.52ft, with 2.7kcfs outflow; the project will hold this for a 10ft draft by the end of September to reach 3,550ft.
- Grand Coulee elevation was 1,283.3ft; the project is slowly drafting to hit 1,279.7ft by the end of August.

Fish: Paul Wagner, NOAA, reported on fish. For adults, he noted that fall Chinook are near 100% of the 10 year average, with numbers ranging as low as 749 and as high as 5,433 this week. Fall Chinook jacks were steady at 97% of the 10 year average. Steelhead are near their peak and are around 84% of the 10 year average, with wild steelhead fairing a bit better at 110% of the 10 year average. Adult lamprey at BON are at 133% of the 10 year average. Paul noted adult Lamprey numbers are better than years past, with 30,000 past Bonneville and 180% of the 10 year average at The Dalles. Dave Statler, Nez Perce, noted he is pleased to see lamprey numbers increasing with conversions at Bonneville and The Dalles, however the 10 year averages include very poor years and thus are not an indicator of a healthy run; lamprey runs still need improvement. Additionally, Sockeye numbers at Redfish Lake were in excess of 1,000, with a significant proportion of these

fish being natural fish. Paul noted that the NOAA draft Sockeye Recovery Plan has been released.

Paul also reported on juveniles. Sub-yearling runs are nearing the end, with 1,000/day at Lower Granite. Run timing is similar to previous years, however, this year the magnitude of decline has been higher than previous years at Lower Granite and Little Goose. The index at Lower Monumental is 100/day, which is more typical for the numbers observed at this time of year. Moreover, sampling at John Day and Bonneville is limited to every-other-day as a result of the high water temperatures.

Water Quality: Bill Proctor, COE, reported on water quality. In addition to the DWR exceedances previously discussed, he mentioned that the Lower Monumental gauge is non-operational for some hours recently, as well as Camas, however, both are fixed and back online. It was noted that the temperature string in the DWR forebay is off; Bill will look into this.

Lisa Wright, COE, noted that the Final Programmatic Sediment Management Plan EIS has been released and the comment period is from August 22nd to September 22nd. The link to the plan can be found on the TMT website.

Power System: Nothing to report.

The next TMT meeting will be a conference call on September 3rd at 9:00am.

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM – OFFICIAL MINUTES

August 27, 2014
Minutes: Pat Vivian

1. Introduction

Doug Baus, COE, chaired this TMT meeting facilitated by Emily Plummer, DS Consulting. Representatives of the COE, Montana, Idaho, NOAA, USFWS, Washington, Oregon, BOR, CRITFC, Yakama Tribe, Nez Perce Tribe, and others participated. This summary is an official record of the proceedings, not a verbatim transcript.

2. Meeting Minutes – August 20

Paul Wagner, NOAA, has comments on the official minutes which he will send to the COE. TMT will review the revised minutes for August 20 at its next meeting on September 3.

3. Dworshak Operations

Steve Hall, COE Walla Walla, reported. On Friday August 22nd storm winds of approximately 20 mph passed through the Lower Granite Dam area resulting in further mixing of the forebay. The wind mixing of the forebay caused a significant increase in temperatures down to a depth of 20 meters. Over the weekend the Lower Granite tailwater temperature exceeded the 68 degrees F standard and remained there until yesterday (Aug. 26th), finally cooling off at the end of the day. Since August 26 the Lower Granite tailwater has stayed below 68 degrees F.

Several model runs of temperatures in the Lower Granite tailwater are attached to today's agenda. The most recent, August 25, indicates that 8.5 kcfs augmentation flows out of Dworshak will produce a few days of relatively stable temperatures. Shorter days and increased cloud cover will help to keep temperatures down. Dworshak Dam is currently releasing 8.7-8.8 kcfs and producing TDG levels of around 115%. The pool elevation is 1546' with 11' to go before the project reaches elevation 1535'. At the current draft rate of about a foot per day, Dworshak is expected to reach elevation 1535' on about September 5 depending on inflows.

Paul Wagner, NOAA, asked about the effects of 115% TDG on the Nez Perce Tribe hatchery and Dworshak National Fish Hatchery. David Wills, USFWS, reported that hatchery managers do not want TDG saturation to go above the current 115% level. Dave Statler, Nez Perce Tribe, said care must be taken not to harm hatchery fish with high TDG levels and asked about the status of improving degassing capabilities at Dworshak Hatchery. Hall reported that degassing equipment is in the process of being upgraded. The first phase was completed several years ago. Degassing work over the past year has dramatically improved water quality in the hatchery. On August 23 the raceways had 103% TDG and 104.5% total dissolved nitrogen levels, a significant improvement over

previous operations. The final phase of degassing work is scheduled for construction in summer 2015. **Washington**, **Idaho**, and the **Nez Perce Tribe** fishery managers expressed strong appreciation and support for the COE's degassing efforts and said the issue is of high importance to the region. Charles Morrill, Washington, thanked the COE for the successful Dworshak operation to 115% TDG.

Russ Kiefer, Idaho, asked about the Dworshak Board's (Board) plans for the 200 KAF of Nez Perce water during the month of September. Hall said the BiOp operation is to draft DWR to 1535' by August 31, but due to the unplanned outage of unit 3 the Corps would not be able to draft DWR to 1535' by August 31 while concurrently adhering to the additional BiOp requirement to comply with the State of Idaho water quality standard to manage DWR outflows not to exceed 110% TDG (~7kcfs). Subsequently the Corps received SOR 2014-2 that requested the Corps acquire a waiver from the State of Idaho and the Nez Perce in order to increase DWR outflows at a rate that could exceed the State of Idaho 110% TDG water quality standard. The Corps received a "Short Term Activity Exemption of the Total Dissolved Gas Standard" (Exemption) from the State of Idaho and the Nez Perce Tribe allowing for the operation of DWR outflows not to exceed 120% (~10 kcfs) TDG until DWR drafted to 1535'.

As identified in the SOR the Corps consulted with the DWR National Fish Hatchery and Nez Perce hatcheries and received feedback that operating DWR to 120% TDG would adversely impact hatchery operations but the hatcheries would be willing to tolerate impacts on hatchery operations for this short duration operating DWR to 115% TDG (~8 kcfs). Therefore as identified in the Exemption it was the Corps current plan to operate DWR outflows to 115% TDG until DWR forebay achieved 1535' which is currently estimated to occur on September 5th. At this time the Exemption would end and subsequently the Corps would resume normal DWR operations that manage DWR outflows not to exceed 110%. Due to these recent issues associated the uplanned outage of unit 3, modified operation associated with implementing the operation identified in the SOR and subsequent Exemption, the Corps will be consulting with the Board as the current plan is no longer implementable. After the Corps has finalized a revised operation with the Board regarding the Board's operation the Corps will provide the TMT with an update.

Wagner asked when unit 3 might come back on line. The unit hasn't been unstacked since 1979 so the work will be extensive and time-consuming, Hall said. It includes repairing the ground fault as well as extensive testing after the unit is put back together to ensure that all equipment is working properly. Not only does unit 3 need repairs to the head cover, at some point in time in the future the entire unit will need to be overhauled. Erick Van Dyke, Oregon, asked whether unit 3 will be back in service in time for 2015 flow augmentation season. The intent is to restore service by fall 2014, however due to the possibility of unknown issues associated with repairing the unit, it is impossible to guarantee a return to service this year. Hall emphasized he could not give a definite return to service date.

Statler asked about the maintenance needs of Dworshak units 1 and 2. All three units have been in operation since the 1970s and need overhauling, Hall said. Unit 3 is the most in need of repair, but unit 2 is also in precarious condition. Options for performing the renovation range from an extended outage of a year or more to delaying the overhaul and installing a fourth unit at Dworshak, which would also be a lengthy process. The region will face some difficult decisions when major repairs of aging equipment become unavoidable.

Wagner asked whether Dworshak is spilling from the regulating outlets. Yes because the COE avoids spilling through the spillway gates when the forebay elevation drops below 1550', Hall replied. TMT will revisit Dworshak operations at its next meeting September 3.

4. SOR 2014-2

This SOR for increased augmentation flows from Dworshak was submitted to the COE at 3 pm on August 20 with most of the region's fishery agencies as signatories, Wagner reported. The SOR was implemented to the extent possible in light of hatchery concerns that limited TDG levels to 115% downstream. Restoration of the full 10 kcfs of Dworshak flow augmentation wasn't possible due to hatchery concerns, but discharges were increased which was the goal of the SOR. NOAA Fisheries does not operate the LWG adult trap at temperatures of 69 degrees F and above and consequently the adult trap is not operating as today's temperatures were 71 degrees F. The objective is to get the trap running again but temperatures continue to be a limiting factor.

Baus said the COE will continue to manage DWR outflows to 115% TDG as identified in SOR 2014-2 based on feedback from the hatcheries. At this time the Corps anticipates maintaining DWR outflows of 115% TDG until DWR achieves 1535' currently estimated to occur on approximately September 5. On approximately September 6 the Exemption will expire and the Corps will revert back to managing DWR operation to comply with State of Idaho water quality requirements not to exeed 110%. Due to the uplanned outage of unit 3, operations described in SOR 2014-2, requirements identified in the Exemption, the previously coordinated operation in September with the Board is not longer implementable. The Corps will re-coordinate with the Board on these recent events and update the September operations plan. Once the Board finalizes the September operation the Corps will provide the TMT with an update.

5. Operations Review

a. Reservoirs. Hungry Horse is at elevation 3555.52', releasing 2.7 kcfs and heading for the 10-foot draft down to 3550' at the end of September.

Grand Coulee is at elevation 1283.2', operating to an end of August elevation of 1279.7'.

Dworshak is at elevation 1546' with inflows of 1.5 kcfs and releases of 8.6 kcfs. Libby is at elevation 2451.7' with inflows of 6.5 kcfs and releases of 9 kcfs.

Lower Granite daily average inflows are 24.4 kcfs, McNary daily average inflows are 144 kcfs, and Bonneville daily average inflows are 142.1 kcfs.

e. Fish. Paul Wagner, NOAA, reported.

Adults: Fall chinook numbers are slowly increasing, with a low daily count of 749 and a high of 5,433 passing Bonneville over the past week. Fall chinook passage at Bonneville to date is 100% of the 10-year average; jack passage is 97% of the 10-year average. The predicted stellar fall chinook returns are yet to arrive. Steelhead passage has probably peaked for the season at 110% of the 10-year average for wild fish and 84% of the 10-year average for the run at large. Adult lamprey conversion has been better this year than in the past, with 133% of the 10-year average at Bonneville and 180% of the 10-year average at The Dalles. However, Wagner said, it's questionable how well these counts capture actual lamprey passage. Dave Statler said the improvements in lamprey conversion rates are good news, but lamprey returns over the past 10 years have been near the edge of extinction and lamprey passage at Bonneville is still challenging. Wagner agreed the 10-year average for lamprey includes some very poor years. Russ Kiefer, Idaho, said he likes the design of the new lamprey adult passage structure at McNary.

More than 1,000 adult sockeye have made it all the way up to Redfish Lake in Idaho, Wagner reported. Sockeye counts at Lower Granite Dam are still increasing. He added that NOAA recently released its draft recovery plan for sockeye. Kiefer said Idaho is tracking steelhead passage at Little Goose and Lower Granite dams because steelhead tend to overwinter below Lower Granite and migrate upstream in spring.

Juveniles: Passage is nearing the end of the run. Counts are 1,000 fish per day at Lower Granite and Little Goose, and 100 fish per day at Lower Monumental, which is an improvement over previous years. Sampling frequency at McNary, John Day and Bonneville dams has been reduced due to high water temperatures.

c. Water Quality. Bill Proctor, COE, reported that Lower Monumental gage and Camas Washougal gage below Bonneville were been out of service. Kiefer said the temperature string in the Dworshak forebay seems to be malfunctioning; Proctor will follow up on that.

Wright invited TMT members to comment on the final Lower Snake River Programmatic Sediment Management Plan, which is posted to the TMT web page. Comments are due September 22.

d. Power System. There was nothing to report today.

7. Next TMT Meeting

The next TMT meeting will be in person September 3.

Name	***Affiliation***
Russ Kiefer	Idaho
Jim Litchfield	Montana
Lisa Wright	COE
Paul Wagner	NOAA
David Wills	USFWS
Charles Morrill	Washington
Doug Baus	COE
Bill Proctor	COE
Tori Hines	DSC
Erick Van Dyke	Oregon
Karl Kanbergs	COE
Phone:	
Brian Marotz	Montana
Scott Bettin	BPA
Mary Mellema	BOR
Robyn MacKay	BPA
Erick Croswell	BOR
Steve Hall	COE Walla Walla
John Heitstuman	COE Walla Walla
Kathryn Kostow	Oregon
Shane Scott	PPC
Tom Lorz	CRITFC
Tom Iverson	Yakama
Barry Espenson	CBB
Margaret Filardo	FPC
Dave Benner	FPC
Dave Statler	Nez Perce