



Pend Oreille County Public Utility District

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October 19, 2007

Ms. D. Marci Mangold
Water Quality Program
Eastern Regional Office
Washington Department of Ecology
4601 N Monroe Street
Spokane, WA 99205-1295

Mr. Robert Steed
Idaho Department of Environmental Quality
2110 Ironwood Parkway
Coeur d' Alene, ID 83814

Re: Pend Oreille River temperature TMDL

Dear Ms. Mangold and Mr. Steed:

The Pend Oreille Public Utility District No. 1 of Pend Oreille County (District) provides these comments on the draft TMDL for the Pend Oreille River with the understanding that the process for the development of the TMDL is ongoing with cooperative participation by the District, the agencies, the tribe and other involved parties. The District owns and operates the Box Canyon Hydroelectric Project. The TMDL should be consistent with State and Federal laws and be scientifically supported.

The District believes that the TMDL incorrectly allocates heat load allocation to Box Canyon Dam (and reservoir). Contributions of the heat load sources upstream of Box Canyon Reservoir are not properly incorporated into the heat load allocation. The District should not be held accountable to achieving a summer temperature regime in the Box Canyon reach that is less than natural conditions nor should it be responsible for mitigating upstream sources of temperature exceedences.

The TMDL is based on exceedance of the water quality criteria of 20°C for the daily maximum temperature. There is substantial evidence that the natural maximum daily temperature of the Box Canyon reach of the Pend Oreille River is warmer than 20°C. Historical data prior to the construction of Box Canyon dam report temperatures in excess of 20°C. The CE-QUAL-W2 model for natural conditions demonstrates that the summer maximum temperature is in excess of 20°C. The draft TMDL assigns 97% of the source contribution above the criteria to Box Canyon Dam with a goal of reducing the heat load contribution by 10%. WAC 173-201A-602 states that when a water body's temperature is warmer than the criteria and that condition is due to natural

conditions, no temperature increase will be allowed that raises the temperature of the receiving water by more than 0.3°C, nor shall such temperature increases, at any time, exceed $t = 34/(T+9)$ where T = the background temperature. The allowable heat load for the Box Canyon reach should be based on the natural annual maximum temperature as predicted by the model and not an arbitrarily selected numeric criteria. It is neither the purpose of a TMDL nor an obligation of affected entities to achieve a condition better than natural conditions.

The existing condition model scenario uses existing temperature data for the upstream branch inflow temperature. The natural condition model scenario; however, uses the output from the upstream model for the inflow temperatures. This discrepancy results in much of the heat load that occurs upstream of Albeni Falls being allocated to the Box Canyon Dam. The Box Canyon reach model is most sensitive to headwater inflow temperatures. The model scenarios must use the same approach for developing initial conditions and inflow boundary conditions.

Washington State law establishes that the supporting data must be representative of water quality conditions. The TMDL allowable temperatures and heat load allocations must also be representative of the water quality conditions. The TMDL establishes the existing temperature condition based on the maximum temperature impairment that occurred on one day, August 24, 2004. The maximum temperature is only representative of the upper layer (0.5m) in the lowermost model segment. Washington water quality regulations note that temperature measurements should be collected in, and representative compliance points set at, locations representing the dominant aquatic habitat, which would include the entire water column for the reservoir.

The Quality Assurance Plan for the Pend Oreille TMDL notes the importance that temperature data should be representative of the vertical water profile. The model results document that the majority of the water column upstream of Box Canyon Dam is actually cooler with the Dam in place than natural conditions. Figure 22 of the model scenario simulations report¹ shows that the daily maximum temperatures for the outflow from Box Canyon Dam were warmer in the summer for natural conditions than for existing conditions. The dam outflow is representative of the entire water column. Figure 21 of that same report shows that on some dates in the summer, temperatures for natural conditions just upstream of the dam are cooler than those for existing conditions in the upper half meter of water only. Temperatures for the bulk of the water column are the same for both natural and existing conditions. The occurrence of a warmer surface layer upstream of Box Canyon Dam may also be an ephemeral condition with wind induced mixing minimizing the difference in vertical temperature gradients. The District has documented that the temperatures in the Box Canyon forebay (near surface) are statistically the same as temperatures downstream of the dam (turbine outflow is representative of the entire water column)². A volume weighted maximum temperature that accounts for the entire water column and representative of the dominant aquatic habitat should be used to define the existing maximum temperature for establishing TMDL temperature exceedances. We believe other commenters on the draft report have also indicated this concern.

¹ Portland State University. 2007. Pend Oreille River, Box Canyon Model – Model Simulation Scenarios. Tech Rpt. EWR-03-07. July 2007

² Pend Oreille Public Utility District No. 1 of Pend Oreille County. 2000. Box canyon Hydroelectric Project Application for New License. FERC No. 2042. Newport WA.

The heat load allocation is based on the maximum temperature impairment of 22.22°C, which occurred at Rm 34.6 on August 24, 2004 according to model results. The statement in the draft TMDL that seasonal variation has been accounted for is not consistent with applying the temperature impairment for a single day to the entire summer. Air temperatures began a cooling trend beginning on August 22, 2004 following a very warm period. Cool air temperatures continued through the 24th. Flows dropped slightly on August 24. The larger mass of water with impoundment is slower to respond to cooling conditions. This combination of climate and flow conditions occurs infrequently. There are other times during the summer portion of the modeled period, when the existing condition with the Box Canyon Dam resulted in cooler temperatures than for natural conditions.

Water temperatures throughout Box Canyon Reservoir are largely governed by the temperature of the Pend Oreille River flowing into the reservoir from Idaho. The TMDL states that Idaho must comply with Washington standards at the State border. The State line is also identified as a water quality compliance point. Load allocations; however, are not established at the State line. The TMDL does not recognize the well established position that upstream states must comply with downstream water quality standards.

The District submits these comments on the draft TMDL with the understanding that an ongoing and cooperative dialog is essential to a successful TMDL that is equitable to all parties, establishes realistic and manageable objectives and consistent with state and federal water quality regulations

Sincerely,



Mark Cauchy

Director, Regulatory & Environmental Affairs

cc: Ruth Watkins, Tri State WQC
POC –WAG Members