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ATTORNEYS

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May 4, 2011

Mr. Ted Sturdevant, Director
Washington State Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Re: Dispute Resolution Request
Pend Oreille River TMDL Report

Dear Mr. Sturdevant:

By email dated April 7, 2011, the Washington Department of Ecology ("Ecology") notified Public Utility District No. 1 of Pend Oreille County ("District") that Ecology had submitted Ecology's Pend Oreille River Temperature Total Maximum Daily Load Water Quality Improvement Report ("TMDL Report") to the U.S. Environmental Protection Agency ("EPA"). See the printed email attached as Exhibit A. The email states that on April 6, 2011, Ecology submitted the TMDL Report to EPA. District recognizes the effort that Ecology has put into completing this TMDL Report.

Despite Ecology's extensive work on the TMDL Report, the District continues to believe that Ecology should make the revisions to the TMDL Report that were previously suggested by the District, the City of Seattle, and others. The District's main concern is that the TMDL Report does not use flow-weighted temperatures but rather uses maximum predicted surface temperatures to determine whether various sections of the river are in compliance with the water quality standards. The focus on only maximum temperatures (which essentially results in only looking at surface water temperatures) fails to recognize that fish use the entire volume of the river, and that native salmonids prefer deeper, cooler waters. Ecology's exclusive reliance on maximum surface temperatures results in substantially overstating the extent of non-compliance with the numeric standards.

By this letter, the District respectfully invokes Ecology's dispute resolution process pursuant to Ecology's Water Quality Program Policy 1-25.

I. Reasons for Dispute

A. Maximum Surface Temperatures Are Not Representative of Conditions in the River and Should Not Be Used To Assess Compliance.

The District respectfully disagrees with Ecology's use of surface daily maximum temperatures to determine whether various sections of the river are in compliance with the water quality standards for temperature. As the District and Ecology have discussed, the District believes that, for the Pend Oreille River TMDL, flow-weighted daily maximum temperature is the appropriate metric for assessing compliance with water quality standards, because it is most representative of the existing conditions in the river relevant to aquatic conditions supportive of native fish species. A flow-weighted analysis: (1) takes the entire water column into account rather than the small portion of the water column at the river's surface; and, (2) recognizes that, within the water column, maximum temperatures typically occur in the surface layers, but these are not representative of conditions throughout the water column. WAC 173-201A-200(1)(c)(vi) requires that temperature measurements used to assess compliance "represent the dominant aquatic habitat." Accordingly, the regulation promotes use of samples from "well mixed portions" of rivers, and discourages use of samples from the surface.

Although DOE states a conclusion in the TMDL that the Pend Oreille River is not stratified and is "well mixed" (Appendix C, Page C-137), data and model results clearly show that deeper water is somewhat cooler than surface waters, especially in the Box Canyon forebay reach. The model results quoted in the TMDL (Table 6, page 41; Table 11, page 73) show a large drop in water temperature from upstream of Box Canyon Dam to downstream of the dam. However, there is no genuine "cooling effect" of the dam, but merely a mixing effect. Even the TMDL report states that this is due to the cooler, deeper waters being mixed with the warmer surface waters in its passage past the dam (pages 42-43). This conclusion is corroborated by results reported in a supporting document referenced on page 20 (Pend Oreille River, Box Canyon Model - Model Development and Calibration, Technical Report EWR-04-06, Department of Civil and Environmental Engineering, Maseeh College of Engineering and Computer Science, Portland State University, November 2006), which shows temperatures approximately 1°C warmer in the top 1m of the Box Canyon forebay reach (Figures 122-125 and Figures 129-131 for Segment 358). Since the non-compliance alleged by the TMDL is 0.95°C, this small difference in deeper water temperature is very important to consider.

An analogous situation occurs in relation to the alleged non-compliances in the Skookum and Tiger reaches, where Table 6 (p. 41) suggests existing temperatures can be increased by as much as 0.5°C and 0.8°C, respectively (also illustrated in Figures 122-125 and Figures 129-131, segments 102 and 300, in the Portland State report). Both the Tiger and Skookum reaches have a large slough associated with them that could skew results. However, these sloughs existed prior to the construction of Box Canyon Dam. These results were not discussed or analyzed in the report to provide a valid explanation of these predictions. For example, on page 42, third paragraph, the report states that by the time you reach the Tiger and Box Forebay reaches, "the average velocity has been slowed sufficiently to lead to the increased heating," but no analysis is

presented to support this statement, and no velocity measurements are provided to demonstrate that the difference in velocity was "slowed sufficiently" to cause the heating. One should expect the temperatures to increase slowly in each reach as you move downstream, but this is not what the model predicts. Instead, it predicts that temperatures increase in the Skookum reach and then apparently cool off in the next three reaches downstream. This is inconsistent with the "slowed sufficiently" concept. These modeling inconsistencies were not addressed in the TMDL report.

The regulatory requirement (to use well mixed samples) is based on Washington's Data Credibility Act, which requires that, for purposes of establishing compliance with water quality standards and developing TMDLs, the data that are collected and analyzed (i.e., data that are measured and/or modeled) must be representative of water quality conditions (RCW 90.48.585(1)(b)). Data that is not representative of water quality conditions cannot be used in a TMDL for margin of safety or otherwise. For other projects, including TMDLs and Washington State 401 certification for hydropower projects, Ecology and EPA have used volume- and flow-weighted averaging to assess compliance with temperature water quality standards (see Ecology's 401 Certification for Rocky Reach Hydroelectric Facility; EPA's Willamette Basin TMDL Report; EPA's Draft Columbia/Snake River TMDL Report). Whereas the surface maximum ignores the vast majority of water in the Box Canyon Reservoir, the flow-weighted maximum takes the entire water column into account. This same methodology should be used on the Pend Oreille River.

In the case of the Box Canyon Dam forebay reach, the surface layer in Ecology's model is 1-2 meters (3.3-6.6 feet) deep, and its cross-sectional area is roughly 5-10 percent of the total water column cross-sectional area. Limiting the TMDL analysis to this small volume does not present a representative picture of the full water volume. Analysis of flow-weighted temperatures is also appropriate for Box Canyon Reservoir, because this water body is mostly well-mixed, except for the top 1-2m. There is relatively small vertical variation in temperature, unlike other reservoirs formed by high-head dams or lakes with long retention times that can show significant temperature stratification. The modeling of the Box Canyon forebay reach shows only a small difference in temperatures from the surface waters to the bottom waters, but this difference is very significant, and is evidence that the waters are not "well-mixed". Even during the times of maximum temperature gradient, the difference in temperature from top to bottom was about 2.0°C – a modest amount, but enough to make a difference from a compliance standpoint. This is clear evidence of the invalidity of emphasizing the surface water temperature in the TMDL, and is evidence that the waters are not "well mixed" throughout the water column.

B. Ecology has no clear plan for judging success of future implementation measures employed toward meeting water temperature allocations.

The non-compliance is based entirely on results of computer modeling done to compare the existing situation to natural (pre-project) conditions. Computer modeling is subject to variations depending on assumptions used in the model, which could lead to inaccuracy. As steps are taken to address temperature issues in the reservoir in the future, it is unclear what will be used as the measure of success toward meeting the allocation goals. The TMDL does not

include a process to assess the effects of measures taken by the District or others to ameliorate temperature effects on the reservoir. The TMDL does call for temperature monitoring to be done by Ecology and various stakeholders, but does not state how that monitoring data can be used to establish compliance with water quality standards, other than stating that the model would be re-run. However, if it takes an entire cycle of model calibration and scenario testing, it will be months or possibly even years before results of any management efforts can be interpreted. Effective adaptive management requires clear and timely measures of success toward improvement goals, but the TMDL does not currently include such a process.

C. The TMDL establishes temperature goals that are unachievable by any reasonable means.

The TMDL sets an allocation requiring a reduction of 1.13°C in the Box Canyon forebay reach (Table 15, page 80). As an implementation strategy, the TMDL suggests tributary enhancement and shoreline and tributary shading (page 87). However, Ecology's modeling of scenarios that include such measures indicates a potential improvement of only 0.08-0.12°C (in the Box Canyon forebay reach) with natural potential vegetation on both the mainstem and tributaries (0.04-0.06°C each for mainstem and tributary shading, from Table 9, page 60). The TMDL does not make any additional suggestions for possible methods to achieve the required allocation. Furthermore, the TMDL states (p. 61):

The vast majority of the Pend Oreille River's flow is introduced at its origin, the outflow from Lake Pend Oreille, with relatively minor tributary additions through the reaches. Regarding the study area, the temperature conditions of the river following the discharge from Albeni Falls first establishes a base temperature condition, and that condition is largely buffered from modification due to the river's now changed hydraulics: primarily associated with the greater channel storage (deeper water column) as a consequence of the Box Canyon and Boundary hydroelectric facilities.

This statement essentially admits the futility of most any practical approach to temperature reduction in the Box Canyon Project.

The District incorporates herein by reference its earlier comments on these issues as provided in the District's letter to Ecology and other addressees dated November 23, 2010.

D. The TMDL Report does not properly take into account the normal water temperatures, flow rates, seasonal variations, and existing sources of heat input as required by 33 U.S.C. § 1313(d)(1)(D).

The Box Canyon Project was constructed prior to 1956 and has been operated continuously and in the same manner since 1962. No material changes in the operation of the Box Canyon Project during the low flow periods (July, August and September of each year) have been made by the District. As previously stated, and as recognized in the TMDL Report, the Box Canyon Project has had the effect of cooling the water of the Pend Oreille River. If Ecology had

used the flow-weighted temperatures instead of using the maximum surface temperatures in determining the TMDL Report for the Pend Oreille River upstream from the Box Canyon Project, Ecology would have determined that the Pend Oreille River does not exceed the water quality standards for temperatures in the Pend Oreille River.

II. How the District Raised These Concerns in the TMDL Report Process

The District was an early and committed participant in the TMDL Report development process. Ecology issued a draft TMDL Report for public comment in October 2010. The District participated in the process prior to and throughout this period. The administrative record, demonstrates that the District has taken every opportunity, both prior and subsequent to the issuance of the October 2010 draft TMDL Report, to communicate its concerns to Ecology. The District has submitted public comments, participated in Ecology-led workgroups, and has repeatedly met in person with Ecology representatives. Most recently, the District raised these issues in a detailed comment letter to Ecology of November 23, 2010 regarding the draft TMDL Report. A copy of that letter is included in the administrative record. Each of the foregoing reasons for dispute resolution has been raised formally and informally with Ecology.

III. Applicable Laws, Regulations, and Policies

Washington Statutes: RCW 90.48.260 (Ecology designated state agency to exercise federal Clean Water Act powers); RCW 43.21A.130 (Right of concerned individuals to participate in TMDL process); RCW 90.48.575 – 90.48.590 (Data requirements for TMDLs); RCW ch. 34.05 (Washington Administrative Procedures Act).

Washington Administrative Regulations: WAC 173-201A-200 (Fresh water designated uses and criteria); WAC 173-201A-510 (Implementation of Water Quality Standards.

Federal Statutes: Clean Water Act § 303(d); 33 U.S.C. § 1313(d); 5 U.S.C. § 500 *et seq.* (federal Administrative Procedure Act).

Federal Regulations: 40 C.F.R. § 130.7.

Ecology Policies and Guidelines: Ecology Water Quality Program Policy 1-11 (September 2006).

EPA Policies and Guidelines: EPA Memorandum, "Establishing TMDL 'Daily' Loads in Light of the Decision by the U.S. Court of Appeals for the D.C. Circuit in *Friends of the Earth, Inc. v. EPA, et al.*, No. 05-5015 (April 25, 2006) and Implications for NPDES Permits" (November 15, 2006), at http://www.epa.gov/owow/tmdl/pdf/anacostia_memo111506.pdf.

IV. Related Documents

See the administrative record containing all of the documents relevant to the District's request for dispute resolution. The documents are held by Ecology.

V. Relief Requested

The District respectfully requests that the Dispute Resolution Panel direct Ecology to revise the TMDL to use a flow-weighted daily maximum temperature to measure compliance rather than surface daily maximum temperature. Ecology must modify the determination of non-compliance and load allocations accordingly.

VI. Request for Oral Presentation

The District does seek an opportunity to make an oral presentation to the Dispute Resolution Panel.

We appreciate your consideration of our concerns and look forward to working with you to achieve prompt resolution. Please feel free to contact me or other representatives of the District as indicated below if you have any questions:

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Very truly yours,

PAINE HAMBLEN LLP

Jerry K. Boyd
Attorney for Public Utility District No. 1 of Pend Oreille County

Jerry K. Boyd

To: Jerry K. Boyd
Subject: FW: Pend Oreille River temperature TMDL - status update

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From: Mark Cauchy [mailto:mcauchy@popud.org]
Sent: Thursday, April 07, 2011 12:48 PM
To: Dennis Schult; Pat Buckley; Jerry K. Boyd; snyder@eesconsulting.com
Subject: FW: Pend Oreille River temperature TMDL - status update

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From: Baldwin, Karin K. (ECY) [mailto:KBAL461@ECY.WA.GOV]
Sent: Thursday, April 07, 2011 12:08 PM
To: John Sugden; Al Solonsky; Bill Love; Brock Morgan; Christine Pratt; Diane Wear; Barbara Greene; Jim Marthaller; Kent Easthouse; Brad Bardwell; Kim Pate; Kody Van Dyk; arsw7ifo@surf1.ws; Lori Burchett; Marc Brinkmeyer; Mike Lithgow; Pat Buckley; Patty Perry; Paul Van Middlesworth; Ray King; Todd Johnson; Bonnie Anderson; Ted Runberg; Ken Clark; Lincoln Loehr; Stasney, Bryony; Brian W. Bolles; Scott Jungblom; Kate Wilson; Greg Becker; Tom Worden; Charlie Holderman; David White; Gary Wescott; Tarang Khangaonkar; Bruce Vogelsinger; Jennifer Hickenbottom; Kent Doughty; Tim Closson; Diane Williams; Mark Brown; Rob Lawler; Whiley, Tony (ECY); Mangold, Marcie (ECY); Pickett, Paul (ECY); Don Martin; Helen Rueda; Robert.Steed@deq.idaho.gov; Kristin Keith; Cope.Ben@epamail.epa.gov; Ken Merrill; Todd Kennedy; Kristin Keith; Joe Maroney; david.egerton@email.wsu.edu; cmack@wsu.edu; djmolvik1968@gmail.com; BGillespie@pendoreille.org; waterman@povn.com; cusick@itss.net; dickb@parade-of-lakes.com; arsw7ifo@surf1.ws; mycotrope@wildblue.net; tsquare@povn.com; geostuivenga@juno.com; guyathomas@povn.com; jhickenbottom@fs.fed.us; jsayre@netchd.org; jhankey@pendoreille.org; jkinney@selkirk.k12.wa.us; ninebark@povn.com; kellyd@povarr.com; ssorby@pendoreille.org; Jay.Shepherd@dfw.wa.gov; susanh@msn.com; chewinthefat@potc.net; THedtke@pendoreille.org; Tom Shuhda; POCD; Deane Osterman; john_patrouch@urscorp.com; Mark Cauchy
Subject: Pend Oreille River temperature TMDL - status update

Hello everyone.

I am happy to announce that after responding to comments and editing the Pend Oreille temperature TMDL, Ecology submitted the final TMDL to EPA yesterday. The TMDL is available on the internet at www.ecy.wa.gov/biblio/1010065.html. Ecology's responses to the comments we received are located in the final appendix of the TMDL. After I receive copies of the TMDL, I will mail a copy to everyone who submitted comments.

If anyone has any questions, please let me know.
Karin

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EXHIBIT A