Spokane DO TMDL Dispute Resolution
Ecology Response to Avista Corp. Dispute

Item A.1—DO water quality data used in the TMDL is mostly older than 2001.
Data used to develop this TMDL is the most current data available. Ecology agrees that further studies and sampling will be done during TMDL implementation to assess progress in meeting Washington's dissolved oxygen standard, as described in the Managed Implementation Plan section of the TMDL.

Item A.2—The DO TMDL makes no mention of the dominant aquatic habitat.
The numeric water quality standard is the target that must be met by the TMDL. The water quality standard for Lake Spokane is: "For lakes, human actions considered cumulatively may not decrease the dissolved oxygen concentration more than 0.2mg/L below natural conditions." This language does not indicate that the standard only applies in the dominant aquatic habitat. Rather, the section of the standards that refers to dominant aquatic habitat is in the section describing where measurements for dissolved oxygen should be taken to ensure that areas most likely to have fish use are not missed when sampling. This is a separate issue from assessing an impairment or determining whether a numeric standard has been met.

Item A.3—The DO TMDL states that Ecology may award water quality offsets for nonpoint source reductions, but not "until the load allocations in Table 6 have been met as determined through data collected for the biennial and ten year assessments."
Washington's Offset Rule and federal trading guidance both require that credits for offsets/trading may not be earned until required reductions are met. In other words, there is nothing to trade until someone has accomplished more water quality protection than they are required to. The whole reason for trading is to allow someone who is "undercontrolling" their effluent to earn credits from someone who is "overcontrolling" theirs. Undercontrolling means not meeting an effluent limit by on-site treatment alone, and overcontrolling means providing cleaner water than is required. In the case of nonpoint, this means that no credits for offsets/trading can accrue until established TMDL load allocations and any other established baseline are met.

The timing issue raised in this question is for Avista to decide, and is really about cost. In evaluating its options to pursue nonpoint improvements, Avista should consider both the overall cost and the cost per credit of an activity. It is possible that doing work in a watershed in which a load allocation must be met before credits will accrue will still be cost effective because the cost per credit might be lower than in a watershed without a load allocation, but where the nonpoint work is much more difficult or expensive to accomplish.

As described in the Managed Implementation Plan section of the TMDL, offset credits cannot be given for water quality improvements in the tributaries as part of a discharger's delta elimination plan until the tributary load allocations are met. However, as stated in the summary response for Part N, there are no percent reduction requirements for some sources to the river mainstem, including stormwater and groundwater (including Lake Spokane watershed ground and surface water) wasteload and load allocations, respectively. Therefore, actions to reduce those sources could provide credit to Avista and the dischargers towards meeting the dissolved oxygen responsibility and the final wasteload allocation, respectively. Modeling, conducted by those parties, would have to show those actions would provide the needed water quality improvement and future monitoring would have to show the action achieved the benefit, as determined through the ten-year assessment.

Item A.4—Table 7 should be revised.
Avista identified a mistake in the table. It has been revised, and a corrected Table 7 sent to EPA. See errata sheet with new table.

Item A.5—The DO TMDL does not consistently refer to Avista's responsibility to implement measures that are "reasonable and feasible."

Avista did not make this comment during the public comment period. However, Ecology feels the TMDL appropriately references Avista's DO responsibility, including use of the terms "reasonable and feasible" on Pages 46 and 69 of the TMDL. In addition, this language is provided in the 401 Water Quality Certification. However, the compliance schedule for dams section in the water quality standards also states that the water quality attainment plan "must ensure compliance with all applicable water quality criteria, as well as any other requirements established by the department (such as through a total maximum daily load)."

Item A.6—Adjustments to the wasteload allocations through the dispute resolution process or other legal action could unfairly shift additional burden onto Avista and its customers.

The phosphorus loading capacity has been set by the TMDL using the best technical judgment of both Ecology and EPA. Adjustments to waste load allocations may or may not affect Avista's responsibility. If Avista's responsibility changes as a result of the dispute resolution process, Ecology will produce a new TMDL.

Spokane DO TMDL Dispute Resolution
Ecology Response to City of Coeur d'Alene Dispute

Item C.1—TMDL assumptions regarding treatment capacity. Coeur d' Alene's WLA is stricter than what can actually be achieved.

These comments concern Ecology's selection of wasteload allocations (and loading assumptions from Idaho) and the technical achievability of those allocations.

The TMDL is required to establish loadings that will achieve water quality standards. This is true even if the standards cannot be met with the application of technology alone. Ecology is required to set water quality based allocations even if it means a discharger has to cease discharging (zero allocation). Fortunately, there is some level of assimilative capacity available in the river to allow for continued discharge (largely resulting from Avista's DO responsibility). Ecology elected to set allocations that push technological achievability while maintaining a reasonable responsibility for Avista. Ecology does not agree that the limits assumed for the Idaho dischargers cannot be achieved. In this TMDL, Ecology and EPA made assumptions about the loads in Idaho and set wasteload allocations in Washington that divided the loading capacity equitably among the dischargers and provided all of them with the possibility of continuing to discharge to the river.

Ecology has explained repeatedly why modeling Scenario #1 was chosen. The short answer is that it provides the most protection of water quality and also provides achievable allocations for the dischargers.

Item C. 2—The selection of model Scenario # 1 is arbitrary and capricious.

<u>Selection of TMDL Scenario (wasteload allocations)</u>

Ecology has been very clear and deliberate in providing the specific reasons for its selection of TMDL Scenario #1 (which defines the wasteload allocations). The following text appears in the *Modeling Selection, Results, and Discussion* section of the TMDL and in an earlier memo to the stakeholders sent by Ecology on August 11, 2009.

From the *Modeling Selection, Results, and Discussion* section of the 2009 draft TMDL:

> In selecting a TMDL scenario, Ecology must choose a scenario that achieves compliance with water quality standards. Based on all of the available information and considerations for this TMDL, Ecology believes TMDL Scenario #1 is appropriate and proposes the load and wasteload allocations based on this scenario for the following reasons:

- The point source reductions resulted in an average total phosphorus concentration in the riverine portion of Lake Spokane (model segment 154) of 10 µg/L from June through September.
- TMDL Scenario #1 reduced the average total phosphorus concentration entering Lake Spokane from the mainstem (model segment 154) by approximately 66 percent from March to October under TMDL Scenario #1 (equivalent to 85% reduction of the human caused load).
- TMDL Scenario #1 represented an average of approximately 6 lbs/day less total phosphorus entering Lake Spokane (model segment 154) compared to TMDL Scenario #2 from June through September considering sources in both Washington and Idaho. Lower phosphorus levels benefit dissolved oxygen in Lake Spokane and Tribal waters downstream.

- TMDL Scenario #1 results in an average of approximately 0.04 mg/L more dissolved oxygen in Lake Spokane than TMDL Scenario #2 from June through September. Avista would be responsible for approximately 30 more reservoir segments that would be below the water quality standard.

In reality, there are an infinite number of ways to divide the available loading (i.e., to slice the pie). In the end, Ecology and EPA selected an option that is ambitious, reasonable, and equitable.

Item C.3—Idaho dischargers have minimal impact on dissolved oxygen levels in Washington.

The final PSU report described the "Idaho only" source assessment modeling scenario, which showed that Idaho discharges have a significant impact. In this scenario, all Washington pollution sources (point sources, stormwater, CSOs, groundwater, and tributaries) were set to the same conditions as the no source modeling scenario, which estimates the natural condition of the watershed by eliminating all human-caused point and non-point sources of pollution. All Idaho sources (Coeur d'Alene, Hayden, Post Falls, and stormwater) were set to the same conditions as the TMDL alternative #1 modeling scenario, which incorporates the assumptions about Idaho loading that were made in the draft TMDL. See the PSU (2009) at Page 24. In general, the dissolved oxygen decrease in Lake Spokane resulting from only the Idaho pollution sources is 0.10 mg/L or less, although there was one instance where the dissolved oxygen decrease was 0.15 mg/L. See the final PSU report at Tables 14 and 15.

Dissolved oxygen decreases caused by current (or currently permitted) discharges from the Idaho point sources would be much larger. Modeling conducted in support of the draft Idaho NPDES permits issued for public review by EPA in February 2007 predicted that the levels of discharge allowed by the 1999 permits (which are currently administratively continued under 40 CFR 122.6) could decrease dissolved oxygen concentrations in Lake Spokane by as much as 1.1 mg/L at certain depths and by 0.43 mg/L as an average over the depth of the lake, which is greater than the 0.2 mg/L dissolved oxygen decrease allowed by the applicable water quality criterion (Cope 2006). Therefore, the Idaho dischargers' impact on dissolved oxygen levels in Washington's Lake Spokane is not minimal, as demonstrated through the "Idaho only" scenario (PSU 2010). Once loading from Idaho dischargers was determined to be significant, Ecology used the same monthly average permit limit used for all dischargers to establish their waste load allocation.

Why were the 2007 draft TMDL wasteload assumptions from Idaho abandoned (seasonal average of 50 ppb total phosphorus versus 10 ppb for Washington dischargers)?

Because EPA did not interpret Washington water quality standards appropriately in the development of draft permits for Idaho. This caused EPAs request for Ecology to postpone delivery of the 2008 draft TMDL for the current effort (see 9/26/08 letter from EPA).

Item C.4—Idaho allocation improperly assumes that effluent offsets are available in Idaho.

Ecology made no assumptions about whether or not offsets are available in Idaho in choosing modeling Scenario #1. Ecology chose to base the draft TMDL on Scenario #1 for the reasons stated on Page 21 of the draft TMDL. The draft TMDL does not state that Ecology assumes that effluent offsets are available in Idaho and Ecology has made no such assumption.

Ecology has no jurisdiction in Idaho, and therefore cannot offer tools such as the Target Pursuit Actions (which are available to Washington point sources) to the Idaho point sources. However, EPA may consider such tools in the development of its permits. Idaho dischargers may separately develop an alternative scenario specific to Idaho sources, which demonstrates an equivalent impact on dissolved oxygen as found in the Idaho only source assessment scenario. This evaluation includes stormwater loading in Idaho.

Item C.5—Ecology improperly rejected EPA's proposed allocation to Idaho dischargers.
The "proposed allocation to Idaho dischargers" described in the city of Coeur d'Alene's comment letter is not materially different from the assumptions made regarding Idaho point sources in the draft TMDL. The phosphorus, ammonia, and ultimate carbonaceous biochemical oxygen demand ($CBOD_{ult}$) levels in the City's letter (Table Y of Exhibit 8) are identical to those used in the "TMDL alternative #1" modeling scenario that the draft TMDL, including its assumptions about Idaho loading, is based upon (see the PSU Report at Table 2).

Ecology assumes that the city of Coeur d'Alene is referring to the language under the heading "NPDES Permits for Idaho Point Sources" in Exhibit 8 to the city of Coeur d'Alene's comment letter, which reads, in relevant part "the total loadings of phosphorus, ammonia, and CBOD discharged in Idaho could be different than those presented… as long as the cumulative dissolved oxygen sag does not exceed 0.XX mg/L. Since all three constituents contribute to dissolved oxygen depletion, any increase in a given constituent would require compensating reductions in other constituents." At the time that Exhibit 8 was written, the "Idaho only" source assessment model run, which computed the cumulative dissolved oxygen sag attributable to Idaho sources, had not yet been completed, which is why a placeholder is used for the total dissolved oxygen sag attributable to Idaho sources.

Ecology's assumptions regarding the future permitted levels of oxygen demanding pollution from the Idaho point sources (i.e. the modeling inputs for those sources) are listed in Table 2 of PSU (2009). The results of the "Idaho only" source assessment model run are now complete, and the results are summarized in Tables 14 and 15 of the PSU report. The total dissolved oxygen sag in Lake Spokane attributable to the Idaho point sources, under the TMDL alternative #1 modeling scenario, is generally less than or equal to 0.1 mg/L (see summary response for Part G). Ecology would consider alternative NPDES permit limits for Idaho point sources to be consistent with the TMDL if they do not increase the dissolved oxygen sag in Lake Spokane relative to the TMDL alternative #1 modeling scenario, as quantified by the "Idaho only" source assessment model run. See summary responses to Parts G and R regarding Ecology's recommendation for coordinated follow-up modeling runs with other dischargers.

Item C.6 and C.7—The use of ecoregion criteria in the TMDL is arbitrary and capricious. Lake Spokane is not an oligotrophic water body.

These comments both concern the perception that Ecology adopted new nutrient criteria for Lake Spokane, which it did not.

The ecoregional criteria is used to quantify Long Lake Dam's contribution to impairments in Long Lake because it represents riverine conditions minimally impacted by human activities. The ecoregional criteria do not establish a new total phosphorus standard in the TMDL.

The approach used by Ecology, with support from EPA, to quantify the dam's contribution to the Lake's low dissolved oxygen levels was to model reductions of upstream anthropogenic loading of oxygen demanding pollution to levels that are typical of other nearby rivers, and that represent minimal human impact. The EPA has assessed in-stream nutrient data throughout the United States, and has developed "ecoregional criteria," which represent lake and riverine conditions minimally impacted by human activities (EPA 2002). Using this criterion to model upstream anthropogenic sources does not presume that upstream anthropogenic sources of pollution (or lake-side non-point sources) are eliminated; rather, it assumes pollutants are at a level that is typical of other rivers in the same ecoregion. The hydrologic model was then used to determine the impairments that would occur in the lake if typical ecoregional levels of phosphorus entered the lake. Impairments in Long Lake that result from these modeled loads are caused by the dam and are the responsibility of the dam operator, since the levels of pollutants entering the impoundment are unimpaired, and represent minimal human impact. This approach is referred to as the "riverine assessment" approach in the TMDL.

Based on assessment of water bodies in the same geographical area, 10 µg/L phosphorus was selected as the riverine assessment point. As noted in the summary response for Part T, this benchmark does not establish new nutrient criteria in Lake Spokane. This is a typical phosphorus value for any river entering a lake in this ecoregion, and is EPA's Clean Water Act Section 304(a) recommended criterion for total phosphorus in Ecoregion II (EPA 822-B-00-015, Table 2). The hydrologic model used to develop this indicates that the TMDL, when implemented, will reduce the upstream anthropogenic sources such that the average concentration of phosphorus entering Long Lake is approximately 10 µg/L during the critical season (March to October). The riverine assessment point is located in the upstream, riverine end of Lake Spokane; and while the dissolved oxygen standards are currently being met at this location (model segment 154), phosphorus levels are far above natural background levels (See Figure 3). The elevated phosphorus levels at this location, and the dissolved oxygen depleting impact of this phosphorus on the dissolved oxygen in the downstream reservoir compels development of a reduction of phosphorus to 10 µg/L (at model segment 154) in order to reasonably allocate responsibility for the dissolved oxygen depletion, and to meet the dissolved oxygen criterion in the reservoir by the end of the ten year compliance schedule.

The standard we are trying to meet with the TMDL is for dissolved oxygen, not phosphorus in the reservoir (on which nutrient criteria would apply).

Item C.8—The TMDL is based on inequitable translator factors from assumed monthly maximum averages to long term averages in the TMDL model.

In short, Ecology does not have direct jurisdiction or influence over Idaho NPDES permits.
The modeling scenario chosen used 50 ug/l as the monthly effluent concentration limit for all facilities, and then calculated waste load allocations based on each facility's operations. As discussed previously, NPDES permit limits for Idaho facilities will be considered consistent with the TMDL if they do not result in an increased DO sag in Lake Spokane relative to the TMDL alternative #1 modeling scenario, as quantified by the "Idaho only" source assessment model run.

Spokane DO TMDL Dispute Resolution
Ecology Response to Inland Empire Paper Co. Dispute

Item I.1 and I.7—Ecology has erroneously determined that treatment technology is available to IEP that can achieve a 36 ug/L seasonal average of phosphorus in its discharges. IEP should not be treated the same as the POTWs.

These comments both echo the concern that Ecology must consider technical achievability for treatment plants in general and differences between municipal and industrial effluent in particular.

Ecology did not determine that treatment technology is available to IEP that can achieve the concentration limit specified in the TMDL. Ecology is required by the Clean Water Act to produce TMDLs that will result in compliance with state water quality standards. Ecology did so by setting wasteload allocations for phosphorus for the Washington dischargers and by assigning a dissolved oxygen responsibility to Avista. The selection of strategies to meet wasteload allocations is left up to the dischargers.
Regardless of whether the discharger is industrial or municipal, Ecology feels it is necessary to distribute the wasteload equally amongst all dischargers in both states (in proportion to flows) while also balancing a proportionate level of DO responsibility for Avista. This is what Ecology did in issuing this TMDL.

Item I.2—IEP has asked Ecology in several public and private meetings to identify where credits for nonpoint source reductions are available for IEP to achieve its proposed allocation. Ecology has been unable to identify any legitimate opportunities that would provide IEP with certainty that the delta can be achieved.

The TMDL provides regulatory certainty for IEP by clearly establishing the amount of phosphorus it will be allowed to discharge into the Spokane River. IEP received an equitable share, based on the loading capacity of the river and the number of dischargers. Under the Clean Water Act a zero load allocation can be given to meet water quality standards. We have tried to make an equitable decision that allows each point source discharger to still use the river to manage their wastewater.Ecology has repeatedly informed IEP of the options available (see correspondence between IEP and Ecology).

Item I.3 - I.6—Ecology can not rely on the EPA memorandum, TMDL Appendix J, to conclude that treatment technology available to IEP can routinely achieve a seasonal average of 36ug/L. IEP also objects to both the reliance on and use of the Region 10 report on treatment technology principally authored by David Ragsdale: *Advanced Wastewater Treatment to Achieve Low Concentrations of Phosphorus* (Region 10, April 2007). IEP also objects to the biased use of discharge monitoring data in the 2009 EPA memorandum. Ecology has not addressed concerns that they used marketing statements as a basis for TMDL decisions.

These comments all concern the perceived notion that past memos that reviewed treatment technologies (in particular a Dave Ragsdale (EPA) authored report and a report authored by Brian Nickel (EPA) in Appendix J of the TMDL) were the sole basis for determining wasteload allocations.

These documents were reference material however neither of these documents was used in developing the final wasteload allocations in the TMDL.

Item I.8—Ecology has unlawfully applied dissolved oxygen criteria for natural water bodies to Lake Spokane, which is a reservoir.

Washington's water quality standards are quite clear on this point. Reservoirs that have a retention time of 15 days or more are considered lakes and must meet the lake criteria.

Item I.9—Ecology has violated state and federal law by adopting new phosphorus criteria for the Spokane River without rule making or federal approval of changes to the state water quality standards.

The ecoregional criteria is used to quantify Long Lake Dam's contribution to impairments in Long Lake because it represents riverine conditions minimally impacted by human activities. The ecoregional criteria do not establish a new total phosphorus standard in the TMDL.

Item I.10—Final TMDL and response summary failed to address specific comments provided by IEP.

Ecology provided appropriate and thorough responses to IEP's comments.

Spokane DO TMDL Dispute Resolution
Ecology Response to City of Post Falls and HARSB

Item PF.1—The allocations of phosphorus by Ecology are unlawful because allowing Spokane County as a new point source violates Friends of Pinto Creek v. EPA, septic tanks are not accounted for as point sources, there is no nonpoint allocation for Idaho, and the TMDL unlawfully gives Ecology approval authority of Idaho allocations.

All of these claims exhibit a misunderstanding of the legal basis for the TMDL and of the TMDL itself. The Pinto Creek decision determined that a new point source cannot be allowed to discharge a pollutant into a water body impaired by that pollutant unless all of the facilities discharging that pollutant have been identified and are subject to compliance schedules that will bring the water body into compliance with standards. This TMDL is the first step in that process.

It is not possible to separate the nonpoint phosphorus loads by specific use, and even if it was possible, the TMDL would not give septic tanks a wasteload allocation. The TMDL provides incentives to eliminate septic tanks, and indeed makes it possible to do so by providing compliance schedules for all dischargers that will allow room in the river for the new Spokane County wastewater treatment plant.

It is reasonable and appropriate for Ecology to make assumptions in the TMDL regarding the loads of phosphorus, CBOD, and ammonia that will be discharged in Idaho, because establishing a single, or even three, loading assumptions at the Washington-Idaho border would not necessarily provide assurance that water quality standards would be met in Lake Spokane. Furthermore, it would be impossible to determine through monitoring if the assumptions were being met. The impact of these loading assumptions upon dissolved oxygen concentrations in Lake Spokane is quantified by the "Idaho only" source assessment modeling scenario (see PSU (2009) at Tables 14 and 15).

Nothing in the TMDL gives Ecology any authority over wasteload allocations or permits in Idaho.

Item PF.2, PF.3, and PF.5—Washington dischargers and entities receive special treatment not accorded to Idaho dischargers. Ecology's approach to the reductions imposed on the Idaho dischargers is flawed. The TMDL's load and wasteload allocations need to be reallocated because the current loading assumptions deny Post Falls and HARSB equal protection under the law, are arbitrary and capricious, and fail to provide Idaho dischargers with sufficient allocations for future growth.

All of these comments concern equitability in wasteload distribution between Washington and Idaho

Developing equitable allocations and loading assumptions for Washington and Idaho point sources is a core goal for this project. Ecology believes the assumptions regarding loading from sources in Idaho (which were developed jointly with EPA) and the load and wasteload allocations for sources in Washington are equitable in their consideration of treatment levels (discharge concentrations), population growth projections, achievability, and proportional responsibility, as discussed below. It should also be noted that equitability needs to be defined relative to flow from each discharger and not strictly based on mass loading differences. In other words, all dischargers will need to reduce their phosphorus discharge by roughly 90% relative to their flow.

Idaho has a misleading argues that they have very little in terms of mass loading compared to the City of Spokane (1.5 lbs/day for Post Falls versus 17.81 lbs/day for Spokane) but the design flow for Spokane is ten times greater for Post Falls so the relative reduction in loading is approximately equivalent for both.

Spokane will be reducing its overall loading from nearly 100 lbs/day to 17.81 lbs/day.

Equity in effluent concentration for municipal sources

Ecology believes it is fair and equitable to assume that Idaho point sources will be required by their NPDES permits to achieve the same monthly effluent phosphorus concentration as similar Washington point sources (see the TMDL at Table 5 [Table 4 in draft TMDL]). This "equal effluent concentration" approach is one of several methods suggested for equitably distributing loading capacity among several point sources in EPA's *Protocol for Developing Nutrient TMDLs.* None of the suggested approaches in the *Protocol* consider attenuation or geography (see Page 7-4 of *Protocol*). This is reasonable because phosphorus is a persistent pollutant in the environment. While phosphorus changes form in the aquatic environment (e.g., dissolved to/from particulate forms, inorganic to/from organic forms), total phosphorus is not readily removed from the system by physical, chemical, and biological processes.

Equity in population growth and effluent flow allowance

Each facility's assumed load is based on projected effluent flow rates for the year 2027. In the case of the Idaho dischargers, these flow rates were provided by the utilities themselves (for Post Falls in particular, see responses to comments 36 – 38, Part G of TMDL response summary [email from Post Falls indicating discharge numbers to use for modeling]).

Achievability and proportional responsibility

As explained in the TMDL, Ecology recognizes that Long Lake impairments are caused both by upstream dischargers and by the Long Lake Dam, and has sought to develop a TMDL that assigns allocations (and responsibility for Avista) to dischargers that reflect proportional responsibility. Through this process, Washington point sources have received WLAs for phosphorus that are among the lowest ever required in a TMDL and are achieved only at the highest-performing wastewater treatment plants in the United States.

Commenters state, however, that increasing the phosphorus concentrations for Idaho point sources relative to those assumed in the TMDL would result in small additional, incremental decreases in dissolved oxygen concentrations, and that "Idaho dischargers can be allocated (100 µg/L total phosphorus) without adversely affecting the wasteloads granted to Washington point sources or the obligations placed on Avista Utilities." However, as explained below, this statement is contradicted by the modeling results referenced by the commenters.

Specifically, model runs submitted by the commenters predict that doubling the TMDL's assumed loading of phosphorus for Idaho dischargers (the "TP = 100 µg/L scenario) will add to the overall dissolved oxygen decrease in Lake Spokane by 0.011 mg/L, and that quadrupling the assumed loading of phosphorus (the "TP = 200 µg/L scenario) will add to the overall dissolved oxygen decrease by 0.045 mg/L (see LinmoTech memo at Table 2). These additions to the overall dissolved oxygen decrease are significant. Once determined to be significant Ecology applied the same methodology to all dischargers.

Therefore, if Idaho point sources discharged higher phosphorus concentrations than Washington point sources Avista Corporation and/or Washington point and non-point sources would be responsible for offsetting these additional dissolved oxygen decreases. Washington dischargers have already been assigned WLAs that are achieved only at the best-performing wastewater treatment plants in the United States. Increasing Idaho's phosphorus loads beyond those assumed in the TMDL would be inequitable to both the Washington dischargers and to Avista Corporation.

The modeling presented by Idaho dischargers fails to demonstrate attenuation

The modeling analysis presented by the commenters demonstrates that the additional, incremental impact of increased phosphorus upon dissolved oxygen in Lake Spokane is small relative to the total dissolved oxygen decrease from all sources in both States, which is a maximum of 1.4 mg/L (see PSU 2009 at Page 21). However, the analysis presented does not demonstrate that phosphorus or its impact upon dissolved oxygen in Lake Spokane is significantly attenuated between the Idaho dischargers' outfalls and Lake Spokane. That is, the commenters' analysis does not investigate whether increases in phosphorus loads equivalent to those they propose for Idaho sources would not cause similar dissolved oxygen decreases, if they were allowed to occur at a source located closer to Lake Spokane (e.g. the City of Spokane's

AWWTP). While it is theoretically possible to quantify the attenuation of phosphorus (if any) for each of the point sources along the Spokane River, the commenters did not conduct this analysis. As a result, there is no technical basis for an increase in Idaho phosphorus concentrations to the commenters' recommended values (100 µg/L or 200 µg/L).

Ecology and EPA disagree with the statement that there is a relevant "difference in assimilative capacity that occurs throughout the riverine portion of this waterbody." The goal of the TMDL is to achieve water quality standards for dissolved oxygen in Lake Spokane. All anthropogenic sources of phosphorus to the Spokane River upstream of Lake Spokane contribute to dissolved oxygen depletion in Lake Spokane, regardless of whether those sources are located in Idaho or Washington. Thus, there is a single, aggregate assimilative capacity for oxygen demanding pollution (i.e. phosphorus, ammonia, and CBOD) from all anthropogenic sources in both Idaho and Washington.

In summary, Ecology believes the proposed TMDL assumptions for Idaho sources and WLAs for Washington sources provide a more equitable plan for point sources than the commenters' modeling proposals. The equal discharge concentration approach used in the TMDL sets aside an equitable portion of the assimilative capacity for each point source, including those in Idaho, and is consistent with EPA guidance for equitably allocating loading capacity to point sources in nutrient TMDLs.

Modeling Idaho point source dissolved oxygen impacts

Without the incorporation of Avista, there would be no loading capacity for oxygen-demanding pollution available for point source dischargers. The incorporation of Avista's dissolved oxygen responsibility in this latest TMDL effort creates enough loading capacity to allow for slightly higher point source wasteload allocations than in past drafts (which were around 10 µg/L total phosphorus).

Contrary to comments that follow, the Idaho dischargers' impact on dissolved oxygen levels in Washington is not minimal when one considers the impact of the Idaho sources relative to the Washington dissolved oxygen standard for Lake Spokane. The Washington standard allows only a 0.2 mg/L decrease from all human actions considered cumulatively (WAC 173-201A-200(i)(d)(ii)). This includes Washington and Idaho sources combined. Idaho's impact upon dissolved oxygen levels in Lake Spokane, once the reductions in pollution assumed in the TMDL have occurred, is a decrease of up to 0.10 – 0.15 mg/L.

The above quantification of the Idaho sources impact upon dissolved oxygen in Lake Spokane was based on the "Idaho only" source assessment modeling scenario described in the final PSU report. In this scenario, all Washington pollution sources (point sources, stormwater, CSOs, groundwater, and tributaries) were set to the same conditions as the no source modeling scenario, which estimates the natural condition of the watershed by eliminating all human-caused point and non-point sources of pollution. All Idaho sources (Coeur d'Alene, Hayden, Post Falls, and stormwater) were set to the same conditions as the TMDL alternative #1 modeling scenario, which incorporates the assumptions about Idaho loading that were made in the draft TMDL. See the PSU (2009) at Page 24. In general, the dissolved oxygen decrease in Lake Spokane resulting from only the Idaho pollution sources is 0.10 mg/L or less, although there was one instance where the dissolved oxygen decrease was 0.15 mg/L. See the final PSU report at Tables 14 and 15.

Dissolved oxygen decreases caused by current (or currently permitted) discharges from the Idaho point sources would be much larger. Modeling conducted in support of the draft Idaho NPDES permits issued for public review by EPA in February 2007 predicted that the levels of discharge allowed by the 1999 permits (which are currently administratively continued under 40 CFR 122.6) could decrease dissolved oxygen concentrations in Lake Spokane by as much as 1.1 mg/L at certain depths and by 0.43 mg/L as an average over the depth of the lake, which is greater than the 0.2 mg/L dissolved oxygen decrease allowed by the applicable water quality criterion (Cope 2006). Therefore, the Idaho dischargers impact on dissolved oxygen levels in Washington's Lake Spokane is not minimal as demonstrated through the "Idaho only" scenario (PSU 2010).

TMDL tools / additional modeling for Idaho dischargers

Ecology cannot offer tools such as the Target Pursuit Actions (which are available to Washington point

sources) to the Idaho point sources. However, EPA may consider such tools in the development of its permits.

Rather than conduct individual modeling of alternative wasteload allocations, which are described above, Ecology recommends Idaho and Washington dischargers work together and with Avista to develop alternative scenarios that demonstrate an equivalent impact on dissolved oxygen in all of Lake Spokane as found in modeling scenario #1 (this suggestion has been made on several occasions to the dischargers, starting with a letter from Ecology dated August 11, 2009).

Alternatively, Idaho dischargers may separately develop an alternative scenario specific to Idaho sources, which demonstrates an equivalent impact on dissolved oxygen as found in the Idaho only source assessment scenario. Without such cooperation, Ecology and EPA cannot consider new permit limits that place a disproportionate burden on the other dischargers and Avista.

Nonpoint load reductions

The tributary load allocations are calculated by taking the loading above the natural load (human caused nonpoint source load) and applying the percent reductions identified in Tables 3 and 6 to the human caused nonpoint source load. For the Hangman watershed, these percentage reductions are the outcome of applying the WARMF model to scenarios before and after full implementation of best management practices (BMP's) specified in the total suspended solids (TSS) section of the Hangman Creek water quality improvement report (TMDL) (Joy et al. 2009, also Appendix M). The Little Spokane River reductions are based on considering existing land uses and extent of implementation of BMP's compared to similar watersheds. The Hangman Creek dissolved oxygen and pH TMDL remains under development and is expected to be complete in 2011. This TMDL may further differentiate the amount of nutrient loading in these tributaries that is naturally-occurring from that which is human-caused. Further refinement of expected seasonal load reductions is also expected. The detailed implementation plans expected from this TMDL will also outline BMP's needed to meet load reductions specified for Coulee Creek. These should be very similar to the BMPs specified in the Hangman Creek TMDL TSS section.

These overall load reductions only apply to the 2001 modeling year. That year was a critical low-flow year for the Spokane River but was a more typical flow year for the tributaries. Recent monitoring of the tributaries has shown nutrient concentrations close to the allocation concentrations in this table over the past several years. Therefore, the allocation concentrations should be achievable in typical flow years, especially upon implementation of needed BMPs in those watersheds (as required by the tributary TMDLs) but still may be difficult during high flow years. These percent reductions were developed by considering the modeling results for the tributary TMDL efforts that determined the best potential water quality at the tributary mouths after several years of BMP implementation (see modifications to *Load Allocation* and *Reasonable Assurance* sections and Appendix M).

As described in the *Managed Implementation Plan* section of the TMDL, offset credits cannot be given for water quality improvements in the tributaries as part of a discharger's delta elimination plan until the tributary load allocations are met. However, as stated in the summary response for Part N, there are no percent reductions required for some sources to the river mainstem, including stormwater and groundwater (including Lake Spokane watershed ground and surface water) wasteload and load allocations, respectively. It is currently unknown how much reduction could be met from these sources (and where individual sources exist) to assign reasonable expected reductions. Therefore, actions to quantify and reduce those sources could provide credit to Avista and the Washington dischargers towards meeting the dissolved oxygen responsibility and the final wasteload allocation, respectively. Modeling, conducted by those parties, would have to show those actions would provide the needed water quality improvement and future monitoring would have to show the action achieved the benefit, as determined through the ten-year assessment. Any efforts to reduce nonpoint sources does not relieve Washington dischargers of the responsibility of first employing advanced wastewater treatment to the maximum extent possible in order to meet the wasteload allocations.

"Avista receives benefit of "pristine" water before it has to do anything"

This is in reference to the perception that new nutrient criteria are being adopted in Lake Spokane (for Oligotrophic, or "pristine" water by their definition). They are not. Ecology has not "adopted" EPA's eco-regional criteria as a criterion in the river. Instead the 10 µg/L concentration is an estimate of typically occurring natural concentrations that are used in the TMDL to help determine a reasonable division of responsibility (between point sources and Avista) for dissolved oxygen impairments in Long Lake. The water quality standard to be met is for dissolved oxygen, as stated on page 9 of the TMDL.

Item PF.4—The overall reductions required by the TMDL are arbitrary and capricious and not supported by the record. The phosphorus limit is an illegal water quality standard, and Ecology was arbitrary in its final assumptions and decisions regarding the Idaho dischargers.

Nutrient reductions required by TMDL are arbitrary and capricious:

As described in the *Load and Wasteload Allocation* section of the TMDL, the goals of this TMDL effort are embodied in the following statements:

- The limited loading capacity of the river requires that point sources, nonpoint sources and Avista significantly reduce their impact on water quality impairments;
- Point source reductions should be equitably distributed among point sources, with a goal of establishing achievable reductions.

Ecology feels these goals were met by establishing modeled wasteload allocations based on a maximum monthly average concentration of 50 µg/L total phosphorus (equivalent mass value) for all dischargers in both states. In the Foundational Concepts, Ecology and the dischargers agreed that currently available treatment technologies could achieve a seasonal average concentration of 50 µg/L total phosphorus. Since then further advancements in treatment technologies are demonstrating that the permit limitations based on the WLA (monthly average of 50ug/l) can be met. This lower loading results in improvements to the river as discussed in response C.2.

There is some debate and confusion on how there can be equity with different modeled wasteload allocations expressed as an average monthly limit. Because effluents are not constant and fluctuate, facilities must have an average discharge that is less than their effluent permit limits, in order to consistently comply with those limits. The extent to which the average discharge must be below the average monthly limit in order to ensure compliance depends on two things: 1) the effluent variability and 2) the sampling frequency. Ecology and EPA assumed the same variability for all of the dischargers (a coefficient of variation or relative standard deviation of 60%). It's the assumed sampling frequency that's different, for different point sources. If two otherwise identical facilities each have an effluent limit of 50 μg/L, as a monthly average, but one facility samples less frequently than the other, the facility that samples less frequently must achieve a lower long-term average discharge, in order to consistently comply with their limit. This is because there's more uncertainty inherent in a smaller sample size. If the facility samples every day, this reduces the uncertainty. A facility that samples more frequently can operate somewhat closer to its effluent limit and still maintain compliance. Based on this assumed sampling frequency and effluent variability, there is increased confidence that the City of Spokane can meet a monthly average of 50 μg/L P with a seasonal average of 42 μg/L P. Other dischargers, with less frequent sampling and a higher degree of uncertainty, were given lower seasonal average WLAs to meet the same monthly average of 50 μg/L.

As stated in previous versions of the TMDL, there is currently no capacity for point source nutrient and oxygen demand loading to Lake Spokane. Accordingly, wasteload allocations for total phosphorous were set at background water quality levels (~10 µg/L) in the previous TMDLs. The incorporation of Avista's dissolved oxygen responsibility creates enough loading capacity to allow for slightly higher point source wasteload allocations in the current draft.

Many of the dischargers have separately run the model to demonstrate a higher wasteload allocation is appropriate for a single discharger. In order to remain equitable to all other dischargers and Avista, Ecology cannot raise a wasteload allocation for one discharger at the expense of the others and Avista for the TMDL or permits. Ecology has informed the dischargers that during implementation, they should coordinate through the TMDL advisory group (see summary response for Part N) on one set of revised model inputs with variable wasteload allocations. If all parties are agreeable to these variable wasteload allocations, Ecology will consider these changes in future NPDES permit cycles and in the ten-year assessment. In other words, the dischargers and Avista can cut the wasteload allocation pie in different proportions as long as there is agreement that some will have larger and smaller pieces than under the TMDL and the resulting impacts in Lake Spokane are equivalent to the TMDL. See also the summary response for Part G.

The NPDES permits will be released for draft public comment following approval of the TMDL. The permits will provide the details many comments request on how the wasteload allocations will be averaged into permit limits.

The phosphorus limit [in Lake Spokane] is an illegal water quality standard

As stated in the *Avista's Dissolved Oxygen Responsibility* section of the TMDL and in the summary response to Part A, the ecoregional criteria is used to quantify Long Lake Dam's contribution to impairments in Long Lake because it represents riverine conditions minimally impacted by human activities. The ecoregional criteria do not establish a new total phosphorus standard in the TMDL.

Ecology has not "adopted" EPA's eco-regional criteria as a criterion in the river. Instead the 10 µg/L concentration is an estimate of typically occurring natural concentrations that are used in the TMDL to help determine a reasonable division of responsibility (between point sources and Avista) for dissolved oxygen impairments in Long Lake. The water quality standard to be met is for dissolved oxygen, as stated on page 9 of the TMDL.

Spokane DO TMDL Dispute Resolution
Ecology Response to Sierra Club

Item SC.1 and SC.2

Both comments concern the Spokane County treatment plant potential discharge

This TMDL does not provide a permit for the county nor does it approve of any delta credits such as for septic tank elimination. Whether or not septic tank elimination is accepted towards meeting the county's phosphorus wasteload allocation will be determined following approval of the TMDL and when the county applies for a permit. If a permit is issued, Spokane County will not have a ten year compliance schedule as the other Dischargers will, but must be in compliance with the water quality based permit limit (based on the TMDL wasteload allocation) when it is first operational. Ecology is aware of recent case law on this issue. If a permit is issued to the County for discharge to the Spokane River, it will comply with legal requirements.