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December 7, 2018

HEATHER R. BARTLETT  
WATER QUALITY PROGRAM MANAGER  
WASHINGTON STATE DEPARTMENT OF ECOLOGY  
PO BOX 47600  
OLYMPIA, WA 98504-7600

RE: Scope of Environmental Impact Statement for Short-Term Modification to Adjust Total Dissolved Gas Levels in the Columbia and Snake Rivers

Dear Ms. Bartlett,

Thank you for the opportunity to comment on the scope of Ecology's draft Environmental Impact Statement (EIS) concerning the evaluation of potential environmental impacts of a short-term modification to allowable total dissolved gas (TDG) levels on the Columbia and Snake Rivers.

Seattle City Light (City Light) supports an experimental, temporary increase in TDG standards to facilitate testing the potential benefits of increased spill on smolt-to-adult return rates (SARs) and salmonid population recovery. However, we are also concerned that raising the allowable TDG level up to 125 percent may increase the proportion of juvenile salmonids and other native fish species that would suffer sublethal and lethal effects from gas bubble-related trauma. If TDG-related impacts are deemed unacceptably high during the experimental spill period, Ecology should be prepared to lower allowable TDG levels as appropriate to each river reach. There is a fundamental gap in understanding the tradeoffs between the deleterious population-level effect of higher TDG levels and achieving higher SARs for salmon and steelhead that more spill may enable. The Comparative Survival Study (CSS) reported that increased spill could increase SARs, yet the life-cycle model used did not incorporate the impacts of increased rates of stress and mortality due to elevated TDG levels. Furthermore, the CSS did not address ecosystem impacts resulting from elevated TDG levels, including gas bubble trauma impacts to aquatic invertebrates that represent the forage base for juvenile salmonids and adult steelhead. These impacts could have a long-term negative impact on SARs that are not addressed in the current modeling framework.

Specific to the scoping of the EIS, City Light believes Ecology should include an updated literature review concerning the impacts of TDG in the 120% - 125% range to all aquatic life. Ecology published a comprehensive review on TDG impacts on aquatic life in 2008 which formed the basis for the state's TDG criteria. We encourage Ecology to build upon the 2008 review by adding findings of new research and studies conducted over the last decade, including the results of the CSS modeling effort. This updated review will help develop a better understanding of the anticipated impacts of elevated TDG

levels to juvenile salmonids and other aquatic life and provide a basis for developing additional research during the proposed flex-spill test period to fill gaps of knowledge.

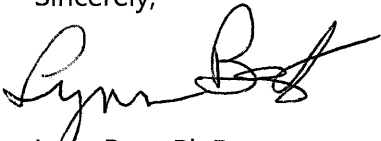
During the three-year experimental flex spill period, City Light believes the opportunity must be taken to evaluate the complexities related to TDG effects and the ecological cost-benefit to salmon populations. We suggest the following studies be considered as part of the flex spill test period:

- Establish a study to quantify the immediate and delayed impacts of elevated TDG values on juvenile salmon mortality, integrating elements of the established body of literature to evaluate stress and mortality as they relate to duration of exposure.
- Compare the ecological cost of elevated mortality rates of juvenile salmonids due to increased TDG levels with the potential benefits of increased SARs while correcting for outside factors such as ocean conditions.
- Consider the importance of coordinating the timing of planned increased spill and the diel pattern of juvenile outmigration.
- Assess impacts to other aquatic life present in the affected portions of the Columbia and Snake rivers, including all life stages of salmonids, other native fishes, and important aquatic invertebrates.

Considerable debate remains over the primary factors determining SARs of Columbia River salmon populations and why wild Snake River spring Chinook salmon populations exhibit much lower SARs compared to other spring Chinook salmon populations lower in the Columbia River. We believe an experimental period allowing flex spill provides an opportunity to build consensus among researchers through the rigorous and objective monitoring and evaluation of elevated TDG levels.

Thank you again for the opportunity to comment.

Sincerely,

A handwritten signature in black ink, appearing to read "Lynn Best". The signature is fluid and cursive, with the first name "Lynn" and the last name "Best" clearly distinguishable.

Lynn Best, Ph.D.  
Chief Environmental Officer  
Seattle City Light