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Ms. Calvert:

The Public Power Council (PPC) appreciates this opportunity to comment on the proposed modification of water quality standards on the mainstem Columbia River pursuant to Oregon Administrative Rule (OAR) 340-041-0104(3). These potential changes to the numeric criteria for total dissolved gas (TDG) on the Columbia river have significant environmental and public policy implications that affect the multiple uses of the river system.

PPC represents the non-profit, community-owned public utility customers that purchase the output of the Federal Columbia River Power System (FCRPS) from the Bonneville Power Administration (BPA). BPA's wholesale power customers depend on hydropower from the federal system to serve the residents of the Northwest with affordable, reliable, carbon-free power at cost. The wholesale power rates paid by Northwest public power recover the costs of the FCRPS, including extensive fish and wildlife mitigation programs throughout the region. This includes funding for \$82.1 million for mitigation projects in the state of Oregon during FY 2018 alone. Overall, approximately one quarter of the wholesale power costs borne by BPA's preference customers are related to fish and wildlife mitigation. Incremental spill at the federal hydro projects in question has the potential for tens or hundreds of millions of dollars in cost impact to regional consumers.

Based on review of the proposed rule revisions and their underlying purposes, we believe the proposed approach of a temporary, limited modification consistent with the terms of 2019-2021 Spill Operation Agreement (Flexible Spill Agreement) is most prudent. However, the proposed modification should be limited to the higher spill levels for only

16 hours per day consistent with the Flexible Spill Agreement and legally valid 2019 NOAA Fisheries Columbia River System Biological Opinion (2019 BiOp).

First, this approach is the most consistent with the scope and spirit of the Flexible Spill Agreement, which is listed as the primary impetus for the proposed rule change. Second, it mitigates biological uncertainty regarding the proposed increased spill levels. Third, the proposed approach aligns with the timing of the Columbia River System Operations (CRSO) Environmental Impact Statement (EIS) and Endangered Species Act (ESA) consultation process, which are the proper venues for long-term consideration of mitigation actions for environmental impacts of operations on the Columbia River system, including spill levels.

Thank you for your consideration of these comments. A detailed discussion of factors that support the adoption of the proposed approach follows.

Purpose of Rule Changes

The most pressing need for the proposed rule revisions is to support 2020 spring spill operations under the 2019-2021 Spill Operation Agreement (Flexible Spill Agreement). The Flexible Spill Agreement is an arrangement for certain spill operations between BPA, the Army Corps of Engineers, and the Bureau of Reclamation (collectively the federal Action Agencies), along with the states of Oregon and Washington and the Nez Perce Tribe.

This agreement rests on three foundations. The first is providing biological benefits relative to 2018 spring operations. The second is providing federal power system benefits, as determined by BPA, that are equal to or greater than 2018 operations. Last, the agreed upon operations must be feasible for the Corps with the ability to make modifications as needed.

The Flexible Spill Agreement represents an attempt at a novel and collaborative approach to river operations. It is by its nature experimental and, for that reason, limited in timeframe and subject to continued analysis and evaluation of annual results. Indeed, the agreement specifically describes its sole purpose as “intended to avoid litigation until the National Environmental Policy Act remand process ... is completed,” and “is not intended to be used ... as precedent for, or an endorsement of, any operation ...” (2019-2020 Spill Operation Agreement, § II). Consistent with the parties’ intent, the agreement is set to expire upon the completion of the CRSO EIS and ESA processes.

Because the proposed modification sunsets at the end of the spring spill seasons in 2021, it best aligns with the purpose, scope, and timing of the Flexible Spill Agreement.

However, the proposed modification should be limited to 16 hours of spill at the higher levels per day. This is consistent with the spill levels contemplated in the Flexible Spill

Agreement and 2019 BiOp. It will also allow consideration of future, long-term rule changes that align with the outcomes of the CRSO EIS and ESA processes, fulfilling the goal of adaptive management using the best available science into the future.

Biological Uncertainty

There is significant uncertainty about the overall biological benefit of the spill operations contemplated for the 2020 spill season for both juvenile and adult salmonids, as well as resident species. Extended operation at 125% TDG is an unprecedented action at these federal projects.

The science on the effects of spill and other migration paths on juvenile salmon is constantly evolving. For example, new research has found that survival and return of juvenile salmon and steelhead is more dependent on size rather than the mechanism of passage through hydroelectric projects. The study found minimal evidence that fish going through bypass systems, turbines, or spillways have substantially different survival or “latent mortality” once size is controlled for.¹ This result calls into question whether spilling additional water to carry more fish through spillways will have meaningful effects on ultimate adult returns.

Oregon has previously recognized that there is a substantial body of science that raises cautionary flags to support an incremental rule change both in timeframe and operational scope. Oregon itself conducted a previous public process examining removal of the 115% TDG forebay standard. In 2009, that process reached the following conclusion:

Ecology decided not to change its 115% TDG forebay water quality criterion for the Columbia and Snake Rivers. Ecology determined that there would be a potential for a small benefit to salmon related to fish spill if the 115% forebay criterion was eliminated, but there would also be the potential for a small increase in harm from increased gas bubble trauma. The weight of all the evidence from available scientific studies clearly points to detrimental effects on aquatic life near the surface when TDG approaches 120%. Based on the information in this document, Ecology does not believe the overall benefits of additional spill versus additional risk of gas bubble trauma are clear and are sufficient for a rule revision.²

¹ Faulkner, J.R., Bellerud, B.L., Widener, D.L. and Zabel, R.W. (2019), Associations among Fish Length, Dam Passage History, and Survival to Adulthood in Two At-Risk Species of Pacific Salmon. *Trans Am Fish Soc*, 148: 1069-1087. doi:[10.1002/tafs.10200](https://doi.org/10.1002/tafs.10200)

² Washington State Department of Ecology and State of Oregon Department of Environmental Quality 2009. Adaptive Management Team Total Dissolved Gas in the Columbia and Snake Rivers: Evaluation of the 115 Percent Total Dissolved Gas Forebay Requirement. Final. January 2009. Publication no. 09-10-002.

Likewise, the current 2019 BiOp that underlies the Flexible Spill Agreement substantially and frequently relies on the short-term duration of 125% spill operation to mitigate the biological uncertainty of the operation. It is also crucial to understand the overall biological impacts of the proposed spill operations to all aquatic species. The biological impacts from the 2019 operations are still being studied and analyzed and the CRSO EIS and ESA processes, which will develop a comprehensive analysis of extended operation at 125% TDG. Results from actual operations during 2020 at the unprecedented 125% level will also be of crucial importance to evaluate long-term changes.

Until these processes are complete, there remains significant uncertainty regarding the biological impacts of extended operation at 125% TDG. A temporary modification based on the timing and constraints of the Flexible Spill Agreement and 2019 BiOp best addresses the biological uncertainty of proposed 2020 spill operations by limiting the timeframe under which 125% TDG spill is permitted to the scope of the Flexible Spill Agreement.

Biological Monitoring

A robust and scientifically-sound fish monitoring program is necessary to correctly evaluate any effect of increased TDG on juvenile and adult fish in the Columbia River System during the period of increased spill. Further, as this rule change and the associated uncertainty result from a Washington state proposal, the State should be prepared to take on incremental costs associated with necessarily robust and scientific monitoring.

The current TDG monitoring is potentially inadequate to assess the incidence of Gas Bubble Trauma (GBT) in fish. First, the current Smolt Monitoring Program (SMP) is designed to only inspect juvenile fish passing five of the eight FCRPS projects in the Lower Snake and Mid-Columbia Rivers. Second, the SMP is designed to inspect juvenile fish collected from the forebay of each of these projects where TDG is likely the lowest. Any acutely affected juvenile fish may be lost before they reach the forebay of each project. In addition, there is currently no juvenile sockeye, adult fish or resident fish monitoring program to inspect for GBT in the FCRPS.

PPC supports a GBT monitoring program that evaluates both adult and juvenile life stages of resident and anadromous fish occurring in the FCRPS. In addition to any forebay collections, fish must be collected from the tailrace of each project to assess the incidence of GBT. Also, fish must be sampled from each tailrace more frequently than the suggested weekly schedule. The levels of TDG can vary significantly throughout the day. Any biological sampling plan must adequately survey conditions experienced by fish in the FCRPS.

The TDG Biological Monitoring Plan must also be comprehensive and statistically sound. The Draft Implementation Plan allows fish data collected from multiple facilities within one segment of the river to be pooled to meet fish size samples. This potentially jeopardizes an effective GBT monitoring program because each project will be generating distinct TDG concentrations and measures to reduce TDG will be taken at each individual project. Therefore, GBT must be monitored at each project to assess the specific effects of TDG levels at that project, and then the effects of any corrective measures. It also should be further noted that in the implementation of the Flex Spill Agreement, certain immediate adjustments had to be made at John Day, The Dalles, and Lower Granite projects because of adverse impacts the heightened spill levels were having at these projects. This demonstrates why data collected at individual projects should not be pooled.

Measurement

PPC supports alignment of measurement of tailrace TDG concentrations between the states of Washington and Oregon. As a practical matter, the specific details of measurement criteria under consideration are unlikely to have a substantial impact on actual operations. The Corps of Engineers must manage an array of forecast uncertainties and operational constraints in real time. These realities are more impactful on actual operations than retrospective comparisons of measurement criteria with perfect hindsight. Washington's proposal for measurement criteria is reasonable and does not undermine the potential scientific value of measuring the effects of higher spill levels on aquatic species.

Columbia River System Operations EIS and ESA Consultation Processes

It is crucial to place this proposed modification in the current context of long-term efforts to manage the Columbia River System instead of considering it in isolation. As discussed above, the federal Action Agencies are conducting the CRSO EIS and ESA consultation processes, which are expected to produce a comprehensive evaluation of options to balance the multiple uses of the river, including protection of endangered species.

The federal Action Agencies are uniquely positioned to conduct this evaluation as those with both the most direct expertise and statutory responsibility for management of river operations. Specifically, one of the alternatives under consideration in the CRSO EIS process features spill operations at 125% TDG at eight lower Snake and Columbia projects from March 1 to August 31. This CRSO alternative is likely to produce

information that would undoubtedly inform any future modifications or rule changes.

Oregon should not make a permanent rule change adopting higher TDG standards until the CRSO EIS and ESA consultation processes are completed. The federally led and Northwest state-advised processes present the proper venue for consideration of a long-term mitigation strategy of impacts from operations, including spill and TDG levels at the federal projects, and should inform future state decisions.

Legally-Valid Endangered Species Act Consultation

Modifications to allowed TDG concentrations in the Columbia River should only be made in accordance with a legally valid Endangered Species Act consultation for the operation of the federal projects. This is crucial to the long-term protection of aquatic life and habitat given the current scientific uncertainty around the benefits and risks of 125% TDG for hydro operations on the Columbia River System.

Consistency with the Flexible Spill Agreement and the underlying, legally valid 2019 BiOp dictate a modification limited in duration to the term of the Flexible Agreement and to increased spill levels for only 16 hours per day.

This approach also mitigates biological uncertainty regarding the proposed increased spill levels and allows development of a better scientific record to explain any future modifications that may be contemplated. That record, arguably, cannot be complete without examining the scientific information developed and analyzed during the CRSO EIS and ESA consultation processes. Moreover, the operation contemplated by the Flexible Spill Agreement is specifically covered by a legally-valid BiOp, but any unanticipated extensions of that operation would have no such legal coverage. By allowing the CRSO EIS and ESA consultation processes to run their course and considering those comprehensive findings in its future rulemakings, the State will be better positioned to adopt legally defensible rule changes in the future as needed.

Thank you again for your consideration of these comments.