



Oregon

Tina Kotek, Governor

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sent via electronic mail to: peter.d.dickerson@usace.army.mil

Mr. Peter D. Dickerson, P.E.
U.S. Army Corps of Engineers
Acting Chief of Columbia Basin Water Management
1201 NE Lloyd Blvd. Ste. 400
Portland, OR 97232

Dear Mr. Dickerson,

On March 15, 2023, the U.S. Army Corps of Engineers (the Corps) requested DEQ provide written clarification prior to March 2024 on the applicability of the 105 percent total dissolved gas (TDG) criterion described under Oregon Administrative Rules (OAR) 340-041-0031(2) in the mainstem Columbia River. The request followed the Corps' communication at the March 8, 2023, Columbia River Forum Technical Management Team meeting that its legal team determined it may be necessary to reduce TDG concentration below Bonneville Dam to meet the 105 percent TDG concentration limit to protect chum salmon redds submerged under two feet of water or less due to low tailwater elevations. This letter serves as DEQ's written response to the Corps' request for clarification.

The current TDG water quality criteria are listed at OAR 340-041-0031:

1. Waters will be free from dissolved gases, such as carbon dioxide hydrogen sulfide, or other gases, in sufficient quantities to cause objectionable odors or to be deleterious to fish or other aquatic life, navigation, recreation, or other reasonable uses made of such water.
2. Except when stream flow exceeds the ten-year, seven-day average flood, the concentration of total dissolved gas relative to atmospheric pressure at the point of sample collection may not exceed 110 percent of saturation. However, in hatchery-receiving waters and other waters of less than two feet in depth, the concentration of total dissolved gas relative to atmospheric pressure at the point of sample collection may not exceed 105 percent of saturation.

DEQ has determined that the 105 percent TDG concentration criterion does not apply on the mainstem Columbia River. The 110 percent TDG concentration criterion is in effect, except during periods TDG in the mainstem Columbia River has been modified by Oregon Environmental Quality Commission (EQC) Order.

In making its determination, DEQ considered the plain language of the text, the materials and rationale presented to the EQC when it adopted the TDG criteria in 1979, and the 2002 *Total Maximum Daily Load (TMDL) for Lower Columbia River Total Dissolved Gas* (TDG TMDL). In a 1977 letter, U.S. Environmental Protection Agency (EPA) conditioned their full approval of Oregon's water quality standards adopted in 1976 upon the state making changes in three key sections, including the relaxation of the Oregon's 105 percent TDG concentration criterion to align with Washington and Idaho's 110 percent TDG concentration limits in their common waters. DEQ's recommendation to the EQC was that two TDG criteria were required: one for hatchery and other shallow water bodies where fish are unable to compensate

by sounding (moving deeper in the water column) and another where sufficient depth is available for fish to sound. In its evaluation and recommendation to the EQC, DEQ explicitly identified that in streams deeper than two feet, such as the Columbia and Snake Rivers, fishes are able to compensate for high gas levels by sounding to deeper waters, and thus it is technically justified to relax the TDG criterion from 105 percent to 110 percent, as called for by EPA. Additionally, the TDG TMDL – prepared jointly by DEQ and the Washington State Department of Ecology in 2002 and approved by EPA Region 10 – identified the applicable water quality standards related to TDG on the mainstem from the mouth to the Snake River confluence. The document emphasized (*italics in original*): “[t]he water quality standards for both Oregon and Washington have an identical TDG criterion: *110 percent of saturation not to be exceeded at any point of measurement.*”

We look forward to working with the Corps on the adaptive management of total dissolved gas concentrations in the mainstem Columbia River. If you have any questions or would like additional information about the TDG water quality standards and criteria, please contact David Gruen, Columbia River Coordinator, at (503) 719-2282 or at david.gruen@deq.oregon.gov.

Sincerely,



[Jennifer Wigal \(Jan 29, 2024 14:00 PST\)](#)

Jennifer Wigal
Water Quality Administrator

Cc: Dan Turner, U.S. Army Corps of Engineers
Steve Mrazik, Oregon DEQ
David Gruen, Oregon DEQ