



# Oregon

John A. Kitzhaber, M.D., Governor

Department of Environmental Quality

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March 12, 2002

Michael B. White  
Director Civil Works and Management  
U.S. Army Corps of Engineers  
P.O. Box 2870  
Portland, OR 97208-2870

**Re: Total Dissolved Gas Standard Variance**

Dear Mr. White:

I refer to your letter of December 28, 2001 in which you request a variance to the State's water quality standard for total dissolved gas. The Oregon Environmental Quality Commission met on March 8, 2002 to consider your request and during that meeting approved a variance. Details are contained in the attached Commission Order.

I appreciate the assistance of Dave Ponganis and Dick Cassidy of your office in presenting this item to the Commission. Dave and I committed to returning to the Commission later this year with a proposal for a multi-year variance. I look forward to working with you on this.

If you have any questions concerning the Order, the Commission's action or its requests for information, please contact me at (503) 229-5284.

Sincerely,

Russell Harding  
Columbia River Coordinator  
Water Quality Division

Order Approving the U.S Army Corps of Engineer's Request

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

In the matter of the U.S. Army Corps )  
of Engineer's request to spill water ) ORDER  
to assist out-migrating threatened )  
and endangered salmon smolts )

WHEREAS the Department of Environmental Quality received a request from the U.S. Army Corps of Engineers dated December 31, 2001, to adjust the Total Dissolved Gas Standard as necessary to spill water over McNary, John Day, The Dalles and Bonneville Dams on the Lower Columbia River to assist out-migrating threatened and endangered salmon smolts, for the period from April 1, 2002 to August 31, 2002; and

WHEREAS the public was notified of the request on January 25, 2002, and given the opportunity to provide testimony at 7:00 p.m. on February 25, 2002 and the opportunity to provide written comments until 5:00 p.m. on February 27, 2002; and

WHEREAS the Environmental Quality Commission met on March 8, 2002 and considered the request, justification and public comment.

THEREFORE the Environmental Quality Commission orders as follows:

1. Acting under OAR 340-41-205, 445, 485 and 525(2)(n), the Commission finds that:
  - (i) failure to act will result in more salmonid passage via hydroelectric dam turbines. Estimated mortalities from fish passing through turbines is between 10 and 15 percent. Fish passing over spillways as a result of spill experience two to three percent mortality;
  - (ii) the balance of risk of impairment to migrating salmonids, resident fish, and other aquatic life due to elevated dissolved gas levels needs to be balanced against migrating juvenile salmonid mortality from turbine passage. Resident fish and aquatic invertebrates in the Columbia River downstream of Bonneville Dam were monitored by NMFS for signs of gas bubble disease in 1993, 1994, 1995, 1996, 1997 and 1998. There was a

low incidence of gas bubble disease (less than one percent) in resident fish examined in 1993 and 1995 while in 1994, 1997 and 1998 none of the fish observed had signs of gas bubble disease. There were no signs of gas bubble disease observed in the aquatic invertebrates examined. Signs of gas bubble disease were prevalent in 1996 but this was a high flow year with large volumes of involuntary spill and total dissolved gas levels above 115 percent in the forebays and 120 percent in the tail races of dams. There is a low incidence of gas bubble disease in migrating juvenile and adult salmonids when the total dissolved gas levels are at or below 115 percent in the dam forebays and 120 percent in the tailraces. The low incidence of gas bubble disease observed has been regarded as a low risk for mortality from gas bubble disease. Total dissolved gas levels of between 130 to 140 percent from involuntary spill, resulted in an increased incidence of gas bubble disease and is regarded as an increased risk of mortality from gas bubble disease. Given the past monitoring of gas bubble disease, the levels requested in this petition seem to be a reasonable balance between increased survival due to reduced turbine mortality and the risk of mortality from gas bubble disease;

- (iii) The Corps has submitted a physical monitoring plan. Physical monitoring will be conducted at Camas/Washougal, and the Bonneville Dam forebay and in the forebay and tailraces of McNary, John Day, and The Dalles Dams. Hourly data will be available on the Corp's Internet World Wide Web pages. Implementation of the physical monitoring plan will ensure that data will exist to determine compliance with the standards for the voluntary spill program; and
- (iv) The Corps has submitted a biological monitoring plan. Juvenile salmonids will be collected at Bonneville and McNary Dams and examined for signs of gas bubble disease on non-paired fins, eyes, and lateral lines.

2. The Environmental Quality Commission approves a modification to the Total Dissolved Gas standard for spill over McNary, John Day, The Dalles and Bonneville Dams on the Lower Columbia River, subject to the following conditions:

- (i) a revised total dissolved gas standard for the Columbia River for the period from midnight on April 1, 2002 to midnight on August 31, 2002;
- (ii) a total dissolved gas standard for the Columbia River of a daily (12 highest hours) average of 115 percent as measured in the forebays of McNary, John Day, The Dalles, and Bonneville Dams and at the Camas/Washougal monitoring stations;

- (iii) a cap on total dissolved gas for the Columbia River during the spill program of 120 percent measured in the tailraces of McNary, John Day, The Dalles, and Bonneville Dams' monitoring stations, based on the highest 12 highest hourly measurements per calendar day; and
- (iv) a cap on total dissolved gas for the Columbia River during the spill program of 125 percent, based on the highest two hours during the 12 highest hourly measurements per calendar day during these times;
- (v) a requirement that if 15 percent of the juvenile fish examined show signs of gas bubble disease in their non-paired fins where more than 25 percent of the surface area of the fin is occluded by gas bubbles, the Director will terminate the variance; and
- (vi) a requirement that the Corps incorporate the following conditions into its program:
  1. The Corps must provide written notice to the Department within 24 hours of any violations of the conditions in the variance as it relates to voluntary spill. Such notice shall include actions proposed to reduce total dissolved gas levels or the reason(s) for no action;
  2. The Corps shall provide a report of the spill program for 2002. The report should be completed by December 31, 2002 and supply information on the levels of total dissolved gas, the fish monitored and incidence and severity of gas bubble disease; and
  3. Any request for this operation in 2003 must be received by the Department no later than December 31, 2002.

Dated: 3-8-02

ON BEHALF OF THE COMMISSION

Stephanie Hollock  
Director