

SYSTEM OPERATIONAL REQUEST: #2004-1

The following State, Federal, and Tribal Salmon Managers have participated in the preparation and support this SOR: U.S. Fish & Wildlife Service, Idaho Department of Fish and Game, Washington Department of Fish and Wildlife, Columbia River Inter Tribal Fish Commission, and the Oregon Department of Fish and Wildlife.

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FROM: David A. Wills, Chairperson, Salmon Managers

DATE: March 16, 2004

SUBJECT: Turbine Operations at McNary Dam

SPECIFICATIONS: Operate McNary turbine units within the 1% of peak efficiency range during spring and summer 2004 as described in RPA Measure 58 in the 2000 Biological Opinion.

JUSTIFICATION: In a comprehensive review of the 1% of peak efficiency operating criterion described in RPA Measure 58 in the NOAA Fisheries 2000 Biological Opinion, salmon managers found no evidence to support changing the criterion (attached). This review, which primarily focused on turbine survival, estimated a 1.1% direct turbine mortality increase associated with operations outside of the 1% limits based on the data published in Skalski et al. (2002).

In addition to the 1.1% increase in direct turbine mortality, several other factors associated with operations beyond the 1% limits would also increase mortality imposed upon ESA-listed and non-listed fish encountering the operation. Increasing the proportion of flow routed to the turbines will decrease the proportion and number of fish passing over the spillway during involuntary spill periods. The spillway passage route is widely accepted as the passage route associated with highest survival and least delay. Additionally, smolt-to-adult return data (CSS status report 2001) indicate that smolt-to-adult return rates for bypassed smolts are lower than those that passed through spillways. Increasing volume of flow routed to the turbines will also result in deterioration of fish passage conditions in the gatewells, on the vertical barrier screens,

and in the tailrace. Studies in 1997 and 1998 at McNary Dam indicated descaling rates under low load (60 MW) were less than half those under high load (80 and 75 MW), 6.7% versus 17.0%, respectively.

Based on the available information, there is significant biological risk associated with operating turbines outside the 1% of peak efficiency range described in RPA Measure 58 in the NOAA Fisheries 2000 Biological Opinion. It is clear that operations beyond the limits will increase the immediate and delayed mortality imposed upon ESA-listed and non-listed fish by the FCRPS.