

SUBJECT: Evaluation of changing turbine unit operations at McNary Dam to influence juvenile collection channel temperatures.

1. Temperature monitoring at McNary Dam has shown that surface forebay water temperatures on the south side of the reservoir increase on days with hot air temperatures and calm wind conditions. This results in a thermal gradient across the face of the dam and within the juvenile fish collection system. The warmest water in the forebay, gatewells, and entering the juvenile fish collection channel is at units 1 and 2 under these conditions. Past operations have indicated that turning off the southern most turbine units may result in less surface water being pulled into those gatewells and a lowering of gatewell water temperatures. This normally ends up with water of lower temperature exiting the gatewells into the juvenile collection channel.

2. The objective of this evaluation is to determine if operating turbine units 1 and 2 in a 2 day on versus off mode during the warmest 10 hour period of the day (1200 to 2200 hours) will result in lower water temperatures within parts of the juvenile fish facility. Water temperatures will be measured within the juvenile fish collection/transportation system at 4 locations. These locations are: approximately 15 feet upstream of the primary floor dewatering screen at 2 depths (6 and 12 feet); in the lower end of the transportation flume just upstream of the juvenile fish separator; within the juvenile fish separator; and in raceway 1. These are all locations where juvenile fish either all pass through or are held waiting for barge transportation. The 2-day on versus off modes will match barging days so that complete facility mortality can be estimated for each operation. A 10 hour period off mode is required so that turbine units are not started too early in the evening when warm surface water could be pulled into units 1 and 2, possibly effecting juvenile fish within the facilities.

3. The reservoir will be operated during the test to avoid spill to the extent feasible. Given likely river flows and other forebay restrictions for Tri-Cities hydroplane races and Pelican nesting, some spill may occur on test days, especially when units 1 and 2 are off.

4. Washington Department of Fish and Wildlife (WDFW) personnel at McNary Dam will collect and analyze the water temperature data, summarize it, and prepare a concise evaluation report for review. The report will be included as part of WDFW's weekly temperature report following the completion of the evaluation.

5. The evaluation will take place between July 20 and July 31 with 3 replicates each alternating between turbines 1 and 2 being on continually during the 2-day treatment period and being off for 10 hours each day for 2 days. The schedule for the evaluation is as follows:

Test Period	Unit 1 & 2 Operation	Date Fish Transported
July 20-21	Units on	July 22
July 22-23	Units off	July 24
July 24-25	Units on	July 26
July 26-27	Units off	July 28
July 28-29	Units on	July 30
July 30-31	Units off	August 1