



MEMORANDUM

May 9, 2007

TO: Dispatch
Wanapum Dam Control Room
Priest Rapids Dam Control Room

VIA: Stephen Brown, Natural Resources Director
Tom Dresser, Fish, Wildlife, and Water Quality Manager

FROM: Curt Dotson, Sr. Biologist

Purpose: Turbine Operations "**Exceptions**" During Spring Fish Out-Migration,

Background: A memorandum dated April 19, 2007 was distributed to Dispatch, the Priest Rapids Dam Control Room, and the Wanapum Dam Control Room addressing the topic of operating both dams (turbines/powerhouse) in "fish mode" during the salmon smolt out-migration.

Discussion: During this spring fish out-migration season, in an effort to meet its required obligations regarding safe downstream passage for out-migrating juvenile salmonids, Grant PUD has been operating all turbine units (both Wanapum and Priest Rapids dams) in "fish mode" at all times when that turbine unit is on-line.

In addition to operating each turbine in "fish mode", the powerhouse has been operated in such a manner as to "gang" units together – both of these practices showing documented improvement to juvenile survival through our Project.

With all turbines at both plants operating in "fish mode", the available capacity of the dams, for power sales, will need to be confined to within the parameters of "fish mode" for each plant. These will be 15.7 kcfs (approx. 88 MW) per unit at Wanapum and 17.5 kcfs (approx. 84 MW) per unit at Priest Rapids.

During times that river flows have exceeded our present powerhouse hydraulic capacity, inadvertent spill has taken place (in addition to required fish spill). In an effort to manage this inadvertent spill, which has the potential to elevate total dissolved gas

(TDG) levels, Dispatch has determine needed spill amounts for Wanapum and Priest Rapids dams through forebay elevation control.

Recent river flows (during specific hours) have exceeded 230 kcfs. It is during these hours of very high river flows that the volume of inadvertent spill at Wanapum Dam has caused the Wanapum tailrace and Priest Rapids forebay to exceed the water quality standards for TDG that are put in place by Washington State Department of Ecology, 120.0% and 115.0% respectfully.

In an effort to help combat these elevated TDG levels seen when high river flows (hourly) are observed at Wanapum Dam, “exceptions” to maintaining “fish mode” at Wanapum Dam will be put in place. The “exception” to “fish mode” will be implemented when inadvertent spill exceeds 84 kcfs. The “exception” will be the systematically taking of turbine units out of “fish mode” and passing a larger volume of water through the turbine. This would translate into a turbine unit in “exception mode” of passing 16 to18+ kcfs, instead of the 15.7 kcfs (max.) seen while that turbine unit is in “fish mode” This systematically taking of a turbine out of “fish mode” would be in response to keeping inadvertent spill from exceeding 84 kcfs. When inadvertent spill is at 84 kcfs, all turbines not needed to keep inadvertent spill at 84 kcfs should be in “fish mode”.

Turbine Operations at Wanapum and Priest Rapids Dams:

<u>Hydro Project</u>	<u>Inadv Spill < 84 kcfs</u>	<u>Inadv Spill > 84 kcfs</u>	<u>Duration</u>
Wanapum Dam	All turbine in “fish mode”	Turbines start using “exception mode”	24 hours/day
Priest Rapids Dam	N/A	N/A	24 hours/day

Please give Curt Dotson a call (509-750-1999) if you have any questions.