

HYDRO OPERATING GUIDANCE FOR TOWNSHEND DAM/EAGLE CREEK HYDRO

Target Pool	Minimum Outflow	MODE 1 (Hydro On, Hydro Controls All Gates)	MODE 2 (Hydro On, Partial COE Control)	MODE 3 (Hydro Off, COE Controls All Gates)
22 feet	<p>The minimum aquatic base flow is the lesser of 140 cfs or inflow from June 1 thru Sept 30, 280 cfs or inflow from Oct 1 thru Mar 31, and 1,100 cfs or inflow from April 1 thru May 31</p>	<ul style="list-style-type: none"> • Turbine flow range = 36 to 648 cfs (Note 1) • Gate 2 max opening = 14 feet (2,900 cfs) (Note 2) • Fish passage max flow = 40 cfs. (Note 3) • Max total outflow = 3,728 cfs (Note 4) 	<ul style="list-style-type: none"> • Turbine flow range = 36 to 648 cfs (Note 1) • Max total outflow = 4,048 cfs with both turbine banks lowered (Note 5) • Max total outflow = 7,124 cfs with one turbine bank raised (Notes 6, 7) 	<ul style="list-style-type: none"> • No flow through turbines. Flow controlled by COE through any or all gates. Turbines raised or lowered. • Channel Capacity = 9,000 cfs

NOTES:

1. At a minimum hydro operating pool of 22 feet each turbine bank can pass between 36 and 270 cfs. At a maximum hydro operating pool of 29 feet, each turbine bank can pass between 46 and 324 cfs.
2. At a max hydro operating pool of 29 feet, the flow through gate 2, open to 14 feet = 2,900 cfs.
3. The fish passage is operable between 22 and 26 feet. Each tube can pass 20 cfs, total = 40 cfs. At 27 feet the fish tubes close.
4. Max total outflow at 29 feet with full hydro control = 3,548 cfs = 2,900 cfs (gate 2 open to 14 feet) + 648 cfs (324 cfs x 2 modules) Fish passage is closed above 27 feet.
5. Max total outflow at 29 foot pool with COE control of gate 2 = 4,048 cfs = 3,400 cfs (gate 2 full open) + 648 cfs (324 cfs x 2 modules). Fish passage is closed above 27 feet.
6. To raise turbine modules, pressure must be equalized across the modules. The modules can be raised at any pool level, however, it is preferable to raise the modules when the operating platform and hoists are accessible below 51.6 feet.
7. Max total outflow with one turbine bank raised and one lowered = 7,124 cfs = 3,400 cfs (gate 2 open to 17 feet) + 3,400 cfs (gate 1 or gate 3 open to 17 feet) + 324 cfs (1 turbine module). Fish passage is closed above 27 feet.

