Franklin Falls Dam

Franklin Falls Dam, located on the principal flood producing tributary and controlling the largest drainage area of 1,000 square miles, is the key dam in the Corps Merrimack River Basin system of five reservoirs.

Franklin Falls Dam was completed in 1943 and is located on the Pemigewasset River approximately 3-miles upstream from where the Winnepausakee River joins the Pemigewasset to form the Merrimack River in the town of Franklin, NH. The reservoir has a storage capacity of about 150,000 acre-feet, equivalent to 2.8 inches of runoff from its drainage area.

The operation of the Franklin Falls Dam (FFD) is different from the operation of other Federal flood control dams in New England for two primary reasons: (1) The FFD is built on a major tributary river with the largest upstream watershed of all Federal flood control dams in New England (other federal dams are located on much smaller tributary rivers) and (2) the FFD has a limited storage capacity - equivalent of 2.8 inches of runoff across the entire watershed while most Federal New England Dams have between 6-8 inches of runoff across their respective, smaller watersheds.

Since the Dam has such an enormous watershed and very limited storage capacity by design, it is operated to reduce downstream maximum peak flows and alter the timing of when peak flows impact downstream properties and populations. Furthermore, because of the limited storage capacity, the rate of outflow must be varied directly with the volume of the flood. That means that while conventional flood storage projects close their flood control gates as storm runoff increases, the Franklin Falls Dam is operated such that releases are increased proportionally to the intensity of storm runoff in order to prevent uncontrolled spillway discharge. If the Dam were to be operated like a conventional flood storage project and releases were minimal during a flood, the dam would quickly fill to its capacity during the early stages of a flood. Once filled, uncontrolled spillway discharge would be eminent. Uncontrolled spillway discharge would then coincide with downstream flooding intensifying the potential for flood damage and defeating the primary purpose for which the flood control structure was built.

Experience has shown that decreases in the outflow from Franklin Falls Dam can be allowed only after the magnitude of the flood on the upstream Pemigewasset River, as well as on the downstream Merrimack and Contoocook Rivers, have been determined. Estimating the magnitude of the flood within the upstream watershed is the critical component of regulating the dam, especially since it is contingent upon volume of flood runoff, snow cover, and weather forecasts. Once a sound determination of these parameters is known, the rate of discharges from the dam can be determined.

Therefore, the FFD is utilized to reduce the amount of flood flow and change the timing of when upper watershed runoff reaches developed downstream areas, but it was not designed nor should be operated to stop these flows completely.