



Nechako Reservoir Licensed Minimum Water Level

20 October 2020

The licensed minimum water level in the Nechako Reservoir is about 2770 ft (the precise number is 2769.5 ft, often rounded to 2770 ft). This level is derived from the terms of the Final Water License granted to Rio Tinto by the Province, which state that “the maximum quantity of water which may be stored is 23,850 cubic-hectometers, of which 7100 cubic-hectometers are live storage”.

In general terms, live storage is defined as that portion of the reservoir capacity which is used for operational purposes, as opposed to dead storage which is the volume of water that cannot be drained by gravity through an outlet (powerhouse or spillway).

The 23,850 cubic-hectometers of total storage referred to in the Water License represents the total volume of water stored at the maximum operational level of 2800 ft (853,44 m), and it is understood that the granted live storage is the top portion of that volume that may be used for operational purposes. Therefore the licensed minimum water level is that at which the volume of water is 23,850 minus 7100 hm³, or 16,750 hm³.

To determine this minimum reservoir level, we need to use a stage-storage curve that defines the relationship between the depth of water and storage volume, based on the topography of the terrain below the waterline. Such a curve was developed for the Nechako Reservoir in the early stages of the project in the 1950’s, and is shown in Figure 1 below.

This curve was digitized and the volume units converted from billion cubic feet to cubic hectometers in Figure 2 below.

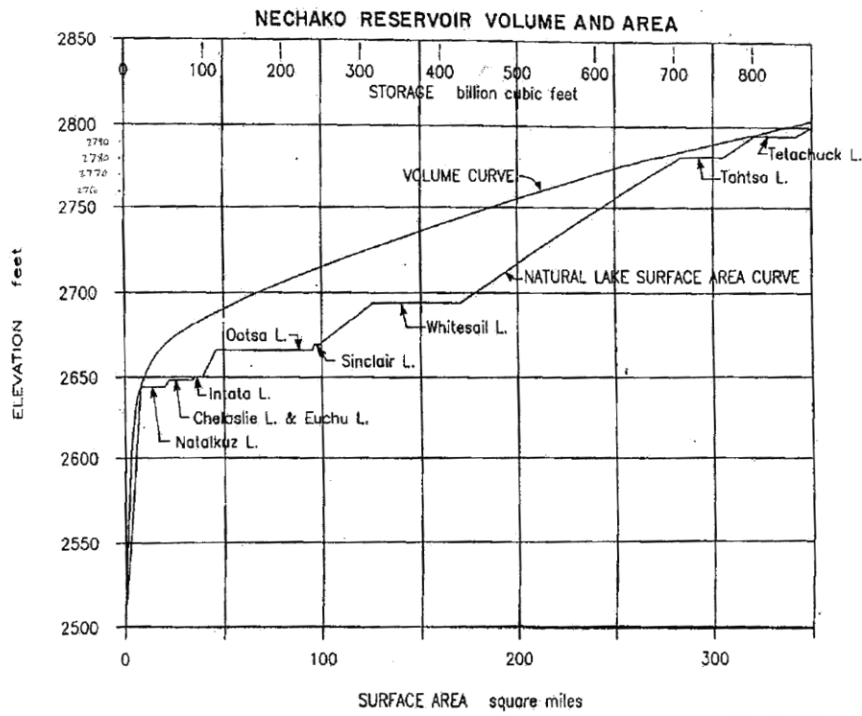


Figure 1 Original Stage-Storage curve

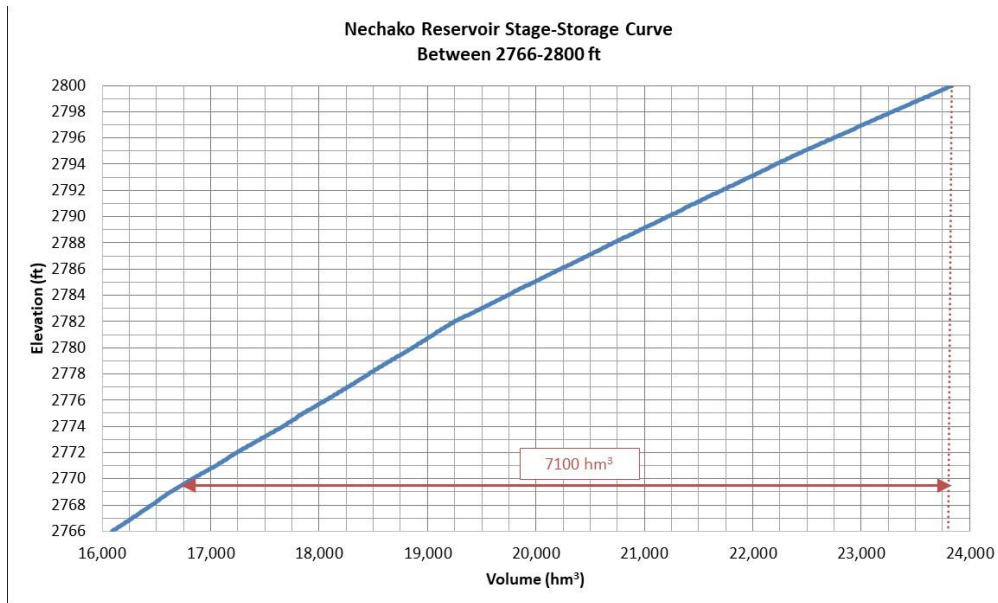


Figure 2 Stage-Storage Curve between 2766-2800 feet, with volume units converted to hm³