

RESERVOIR STORAGE**(a) Approximate Slope - Area Method****(1) Storage Volume**

For those structures where the preparation of a topographic map is not required, it is possible to estimate segments of storage, such as detention storage volume of a reservoir, by using the "Approximate Slope-Area Method". This storage may be estimated using the following empirical formula. This formula is based on the assumption that the volume of storage in a reservoir, between two parallel planes, takes the form of a frustum of a cone.

$$VS = ad + \frac{0.85 d^2 \sqrt{a}}{s}$$

Where:

VS = Volume of storage in acre-feet between two given elevations

a = Water surface area (in acres) of the plane at the lower elevation. Example: at elevation of crest of principal spillway

d = Average depth of water between the two elevations (planes). Example: depth of water between crest of principal spillway and crest of emergency spillway

s = Average slope of banks of reservoir, through the range of depth "d", in percent