

Pump Stations of Water Reservoirs

Abdiyev Tuychi Gulboyevich

TIAME at the National Research University
Karshi Institute of Irrigation and Agrotechnology,
Trainee teacher of the Department of Irrigation and Land Reclamation

Annotation: *Normal stagnation level* (NSL) is such that when the reservoir is filled to that level, the dam can hold the accumulated water in it for a long time without damage. The accuracy and duration of the normal stagnation level depend on the flow regime of the river and its level of management. Normal stagnation is achieved annually in the river management, and in other perennials only in the year when there is a lot of water.

Useless Volume Level (UVL) the part of the water collected in the reservoir above this level is used. The recurrence of the useless volume level also depends on the flow regime of the river and its level of management. The level of useless volume is observed annually in the seasonal management of river flow. In perennial aging, it is harvested at the end of the dry season.

There are the following views of the volume of water capacity of reservoirs, and each of them is assigned a specific task:

a) *Useful volume or working volume* (V_f);

b) *Useless or dead volume* ($V_{o'}$);

c) *Total or full volume* (V);

g) *Working depth* (h_i).

The useful or working volume will be located between the normal stagnation level and the Useless volume level. The river flow is basically controlled to this extent.

The useless volume is not involved in river flow management, but it is important in the efficient use of water facilities. [In particular](#), the presence of fuzzy mouths ensuring that the person is able to operate the GES with the required pressure is associated with a useless volume measurement.

In the first stag, the following will be taken into account:

1. River water use scheme (system);
2. Geological structure of the place;
3. Topographic conditions of the place;
4. Economic conditions of the place.

Geological and topographic conditions allow determining the location of the structure, the height of the dam, which, in turn, the hydrostatic. More specifically, geological conditions determine the type, size, and consequently the cost of a structure.

In the second stage, ie in the recognition of the location of the reservoir, attention is paid to the areas of usable land that can be flooded, the objects of the national economy; to be located as far away from large settlements as possible (especially if there is a high dam). The choice of the normative stagnation level related to more money and capital investment along with geological and topographic conditions. Apparently, both issues are important. Therefore, they given great importance to the design of water facilities. Since there are many factors that need to be considered when meeting the above requirements, they cannot be. Several options offered to find a solution to this problem and the most optimal one selected from them.

In determining the useless volume level (UVL) and useless volume (UV) of reservoirs, it is necessary to pay attention to: the retention of turbid streams flowing into the river during the entire operation of the water body ;

To provide a minimum pressure for the efficient operation of the HPP; to ensure uninterrupted operation of water intake facilities (canals, pipes, pumping stations) from the reservoir; to ensure uninterrupted movement of water transport; to provide normal sanitary conditions (because the very shallowness of the reservoir creates favourable conditions for the in the hot sum of the year).

The choice of useless volume level also depends on the amount spent. Its value also selected from several options offered. The choice of reservoir size made in the following order. By first selecting the location of the reservoir, the standard stagnation level, we will also determine the full volume of the reservoir and the maximum water level. In turn, we will choose the useful volume. In general, they are interrelated. It is, therefore, necessary to examine them together in the selection. It is recommended to perform the analysis in the following order: 1) the location of the reservoir and the options for normative stagnation let the selected level be in the range of options offered; 2) different variants of the working depth (h_i) are determined for each variant of the standard dimming level. As a result, the useless volume level is determined. Calculations and feasibility studies are conducted for each variant; 3) The feasibility performed for each option is compared. The most optimal option is recognized and the resulting values of the normative stagnation level (NSL), useful volume (V_f), and useless volume (V_o') of the reservoir are determined.

References:

1. "National Encyclopedia of Uzbekistan. - T., National Encyclopedia of Uzbekistan. 2002. Volume 3, page 576. "
2. "Location of wetlands" 1993