Indian Standard

CRITERIA FOR HYDRAULIC DESIGN OF SURGE TANKS

PART 4 MULTIPLE SURGE TANKS

1. SCOPE

1.1 This standard (Part 4) lays down the criteria for the hydraulic design of more than one surge tank on the water conductor system upstream of the turbine.

FOREWORD

0.1 This Indian Standard (Part 4) was adopted by the Indian Standards Institution on 27 December 1983, after the draft finalized by the Water Conductor Systems Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 This standard-relates to design of multiple surge tanks, provided when the water conductor system has two or more shafts, with free surface upstream of power station (see Fig. 1). Multiple surge tanks occur usually in the following cases:

a) The conduit conveying water from the main source to the power house may admit water enroute from other sources, for which suitable shafts (vertical or inclined) will be necessary. These will serve as components of multiple surge system.

b) Where the head race tunnel is required to pass in the form of a siphon, a shaft may be necessary to avoid air locks. Such a shaft can form a component of multiple surge system.

c) When the capacity of the existing power station is proposed to be increased and it is not possible to increase the capacity of the existing surge tank, one or more additional surge tanks at suitable economical places may be provided.

d) Sometimes construction conveniences requires vertical construction shaft which can be utilized ultimately as part of the multiple surge tank system.

0.3 This standard forms part of a series of Indian Standards on surge tanks. Other standards in the series are as follows:

IS : 7396 Criteria for hydraulic design of surge tanks:

(Part 1)-1974	Simple, restricted orifice and differential surge tanks
(Part 2)-1975	Tail race surge tanks
(Part 3)	Special surge tanks (*under preparation*)