

Abstract

Population increase and human communities development have caused increasing water use and more demand for agricultural productions. In this regard, increasing of water transfer efficiency in irrigation and drainage network is very essential in dry and semi-dry zones. Chahnime reservoirs have had a basic role in sistan plain existence in recent droughts. Exit canal of forth chahnime reservoir with length of 13 km is designed to agricultural development in drought periods of Sistan plain. In this study, HEC-RAS model that has good ability in open channel hydraulic calculations in steady and unsteady flow was used to simulate this exit canal. In this regard, hydraulic structures of exit canal such as transitions, culverts and covered conduit were defined to model after entering of cross sections. Then results of different operation scenarios of exit canal were analyzed in different boundary conditions of upstream reservoir and downstream river. Finally, receivable maximum capacity of exit canal was determined $84\text{m}^3/\text{sec}$. Results also show that whereas flow height in Sistan river increase to 4.5 m, capacity of exit canal is affected by river.

Keywords: *Channel, Water Surface Profile, HEC-RAS, Chahnimeh Reservoir.*



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The Thesis Submitted for the Degree of Master of Science

(in the field of Water Resource Engineering)

*Hydraulic evaluation of fourth Chahnimeh reservoir outlet
channel using HEC-RAS model*

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JUNE 2014