KAJIAN KARAKTERISTIK HIDROGRAF BANJIR INFLOW WADUK WONOGIRI TERHADAP KINERJA PENGENDALIAN BANJIR (STUDI KASUS BANJIR BENGAWAN SOLO DESEMBER 2007)

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07/262419/PMU/5208

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ABSTRACT

The Wonogiri reservoir was built with a primary function as flood control, especially in areas prone to flooding along the Bengawan Solo River. To find out the performance of the Wonogiri reservoir in flood control of Bengawan Solo, a study was conducted on flood hydrograph characteristics of the reservoir inflow by considering the contribution inflow from all sub-watersheds in the reservoir catchment area, at the end of December 2007.

Calculation analysis flood hydrograph of Wonogiri Reservoir inflow is done with the calibration of Wuryantoro and Keduang sub-watersheds. Results of the calibration were then used reference to simulate flood hydrograph inflow in each sub-watershed catchment areas. Tracing the reservoir flood is done with the assumption that the inflow of the reservoir was left to face up a height of water in the reservoir 135.3 m (the lower flood control limit) and 138.3 m (the upper flood control limit) and then the spillway gates full-opening.

Results of this research indicate that the maximum discharge inflow into the reservoir on the event of Wonogiri flood at the end of December 2007 ranged from 3,331 to 4,993 m3/s, which occurred on December 26, 2007, between 04:00 - 06:00 am. The most dominant flood hydrograph contribution into the reservoir was derived from Keduang sub-watershed. The flood in the reservoir was simulated as that the spillway gates were closed until water level of reservoir reached the minimum height of 135.3 m and 138.3 m and only until then the spillway gates fullopening. The reservoir water level reached 135.48 m on December 26, 2007 at 6:00 am and outflow was generated when the gates opened to reach 550 m3/s and then increased up to 642 m3/s at 14:00 after then it gradually decreases. The water level simulation was unable to reach 138.3 m because up to December 27, 2007 at 23:00 the water level reservoir reaches only 136.44 m. The Wonogiri reservoir flood control function still can run well and is able to reduce the peak flood of 85%.

Keywords:
flood hydrograph inflow, Wonogiri Reservoir, flood control