THE IMPLEMENTATION OF MESHLESS LOCAL PETROV GALERKIN (MLPG) METHOD FOR DETERMINE POLLUTANT SOURCES IN BRANTAS RIVER

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ABSTRACT

Pollution in the river often occur and can be threaten for aquatic organisms and humans. Polluted river has negative impacts for people around of the Brantas River. Pollutants entering into the river can be derived from industrial and non-industrial. Based on these problems, the authors conducted a study and analyze the location of pollutant sources by mathematical approach. To find the location of the pollutant sources is not easy, with applying the Meshless Local Petrov Galerkin method (MLPG) we can determine the distance of the point source of pollutant from sample point monitoring Perum Jasa Tirta. The MLPG method does not use a grid that can be used for domains that are not continuous or move. Pollutant source location obtained from the simulation results that the position of 700m to 1000m which is the fluctuation of the position of the concentration of COD, BOD, DO and TSS were lower. This indicates that there is contamination in the highest position of 700m to 1000m.

Keywords: MLPG, concentration, pollutant