CHAPTER I
INTRODUCTION

A. BACKGROUND

The water avaibility in Indonesia is abundant, however the rapid development in the irrigation field needs to be managed properly, so that water functions can be utilized optimally. One of the water infrastructures is used to optimize water resources usage is a weir.

Weir ones waterworks built across the river to elevate the river water level and stem the river flow so that the river flow can be tapped and channeled by gravity to the needed area .

The elevation of river water level velocity and the water depth reduce results the rapids flow at downstream of the weir. In the stilling basin occurs the change flow type, from subcritical to supercritical, cause hydraulic jump. The length of the hydraulic jump depends on the velocity, discharge of the flow, channel bed slope and channel roughness. The hydraulic jump result loss of energy flow, so that the velocity of downstream becomes lower. But the reality on the ground are often scour the riverbed downstream the stilling basin. In order to reduce energy flow, length hydraulic jump and turbulence of flow, then added parabolaida and half-tube baffle block in stilling basin. Placement of baffle blocks, it is expected the energy flow, length of hydraulic jump water become lower and scouring at the downstream stilling basin is getting smaller.

This aim this study is to know the double baffle block half tube and parabolaida composition which most optimal in reduce the energy flow, and the length of hydraulic jump.

B. RESEARCH QUESTION

The problem states presented as follows:

1. Effect the performance parabolaida concave baffle block, and the half-tubes baffle block to reduce the turbulence of flow on a stilling basin USBR II.
2. Effect the performance parabolaida concave baffle block, and the half-tube baffle block to reduce the length of hydraulic jump on a stilling basin USBR II.
3. Effect the performance parabolaida concave baffle block, and the half-tubes baffle block to reduce the energy flow.

C. RESEARCH OBJECTIVES

The purpose of this research is to determine the type and placement half-tube or parabolaida of baffle blocks most effective to reduce the flow of energy, water turbulence and the length of hydraulic jump on a stilling basin USBR II.

D. LIMITATION OF PROBLEM

To limit the scope of the object of this research that systematic and purposeful, it is necessary limitations problem as follows:

1. The experiments in this study are conducted at the Laboratory of Hydraulics Civil Engineering Program Faculty of Engineering, University of Muhammadiyah Surakarta by using a channel / flume of flexy glass material which becomes an open channel model with a size of 30 cm x 60 cm x 1000 cm.
2. The flume is considered waterproof and resistant to erosion.
3. Slope of the flume is 0,0058.
4. The type of flow is steady uniform flow
5. Roughness models and channels were not reviewed.
6. The kinematic viscosity following being equal.

7. Experiment only use four variations of discharge: 3500 cm^3/s, 4000 cm^3/s, 4500 cm^3/s, 5000 cm^3/s, 5500 cm^3/s and 6000 cm^3/s
8. Experiment using only one kind of slope variation of the downstream using ogee spillway
9. Experiment using 4 variation of placement of 2 layers of baffle blocks, parabolaida and half tube.
10. Stilling basin USBR II with the addition of parabolaida and half tube baffle block.

E. BENEFITS OF THE RESEARCH

The benefits of this research trials are expected as follows:

1. Being considerations in planning spillway weir especially on models with stilling basin USBR II
2. Being reference baffle arrangement blocks the use of the most effective and economical as energy absorbers.