ABSTRACT

PT. PJB Unit Pembangkit Gresik is a company which operates power station and maintain supply energy for Java and Bali and having annual production at approximate 10859 GWh with 2255 MW power installed. PT PJB had a 24 hour non-stop production process which makes warehouses of PLTU, PLTG and PLTGU parts are very important because the demand of efficiency. 5th warehouse function is keeping machine parts, daily needs and mobile crane, forklift fuel.

Reviewing hazard and risk in 5th warehouse can be done by review its HIRARC made by PT. PJB UP Gresik. In designing High Expansion foam, first we decide the foam generator capacity, which capacity is able to produce sufficient foam in order to floods the warehouse by 4.6 meter high in 3 minutes. Foam solution total will be known by multiply the number of foam generator by its total foam requirement. Proportioner is chosen by consider flow in main pipe. The sum of foam concentrate is given by multiplying foam solution total with time of operation and foam concentrate percentage. Pump power can be known by calculate its piping system losses.

The extinguisher media uses high expansion foam because extinguishing process is faster, and integrated with equipment such as heat detector, fire alarm control panel, alarm, manual pull station, bladder tank, proportioner, deluge valve and foam generator. From calculation, the minimum capacity of foam generator is 1681.8497 m³/min, the requirement of foam concentrate is 1680 liters, total water needs is 82320 liters, piping system uses galvanized iron pipe with minimum thickness on main pipe is 4.474 inch, suction pipe is 5.563 inch and branch pipes are 2.974 inch and the pump power is 226.03 hp.

Keywords: Integrated System, Warehouse, High Expansion Foam, Fire