## *ABSTRACT*

*Kawengan is an mature oil field which was first discovered in 1923. This Kawengan has 40 wells with a production of 11587 BLPD / 568 BOPD with a background of paraffin problems in the production wells leading to the Collecting Station so that it will slow down the production process. The problem formulation is a simulation of handling paraffin problems using electric heat traces in an mature field. The purpose of this paper is to determine the condition of paraffin in the flow pipe with Multiflash and OLGA simulation using the heat method. While the purpose of writing this thesis is to find out how the formation of paraffin in the flow pipe, the effect of paraffin in oil production, validation of the calculation of the distribution of the temperature drop in the flow pipe in manual wells against software simulations, simulation of determining the point of electric heaters and the economics of handling paraffin using heat treatment.*

*The methodology used is paraffin simulation for optimal identification in multiflash and OLGA software applications. The multiflash application has been able to qualitatively analyze the tendency of paraffin formation as indicated by the C20+ component. The temperature of paraffin formation from this fluid is at a temperature of 58$^{o}$C and the rate of paraffin formation is based on a decrease in temperature when the fluid temperature is below 36$^{o}$C, the magnitude of the decrease in flow temperature is 21.65$^{o}$C. While the laboratory test data obtained the results of the well oil analysis as follows: Density @ 15$^{o}$C = 0.8502 gr/cc, SG @ 60 F/60 F = 0.8506, API @ 60 F = 34.97. After analysis using multiflash, the results of the analysis will be entered into OLGA as the basis for the fluid flowing in the pipe. This production scheme contains inlet, flowline, outlet and other production equipment. Furthermore, running simulations are carried out during existing conditions for 30 days which are expected to represent the state of the pipe when it is produced.*

*The results of the simulation of cumulative production from the "X" well for 30 days with the existing conditions are 2891.01 BLPD; cumulative production with scenario 1 is 2891.34 BLPD; cumulative production with scenario 2 is 2896.94; cumulative production with scenario 3 is 2893.94 BLPD; cumulative production with scenario 4 is 2891.80; cumulative production with scenario 5 is 2894.71 BLPD. From the simulation results, it can be said that the installation of heat traces in each scenario succeeded in overcoming paraffin formation. However, the use of heat trace in the downstream area (scenario 2) will be more effective because paraffin will not be formed again in the flowline. In contrast to the placement of heat traces at the beginning and in the middle where paraffin will be formed again in the flowline.*



Keywords : *flow assurance; paraffin; electric heat trace;*OLGA; *Multi Flash*