

ABSTRACT

HANDLING OF SAND PROBLEMS IN WELL “MR-14” FIELD “RUS”

By
Muhammad Rusli Alwies
NIM: 113180030
(*Petroleum Engineering Undergraduated Program*)

The RUS field is an oil field located in the Jambi sub-basin, part of the South Sumatra basin. One of the wells in the RUS field is the MR-14 well, which has not yet undergone evaluation. The effective layer of this well is in the Talang Akar Formation, which consists of sandstone which tends to easily separate from the formation. This well experienced problems related to sand. This is proven by the presence of some sand produced on the surface and examination of the sand parameters shows that the well probably contains sand with an actual flow rate of 45 BFPD.

In this thesis, the author designs a plan for the MR-14 well using gravel to overcome the problem of sand appearing in the well. When planning the gravel pack method, use the saucier method, then determine the screen and then determine the production rate before and after installing the gravel pack. Next, a sand analysis was carried out which included the degree of cementation using the Archie method, formation strength, formation clay content, and critical flow rate. The gravel pack was then planned to overcome the sand problem, including determining the size of the gravel and screen and the impact of the gravel on formation productivity.

Based on the calculation results, the factor for the rock cementation process (m) is 1,75 the formation clay content (V_{clay}) is 35,7%, the formation strength is $5,1048 \times 10^{12} \text{ psi}^2$, and the actual well production rate is 45 BFPD which has exceeded the critical flow of sand (Q_z) is 36,53 BFPD. When planning Gravel, the size of gravel that can be used is 16-30 US Mesh or 0,035 in. Meanwhile, the size of the opening screen that will be used is 0,010 in.

Installing gravel in the MR-14 well will cause a decrease in the production rate to 33 BFPD with a critical sand flow rate of 36,53 BFPD, so there will be no sand problems and a productivity index (PI) of 0,1788 Bbl/D/Psi. by using a perforation density of 8 SPF.

Keywords: sand problem, gravelpack, sieve analysis.