

RINGKASAN

Sumur H-01, H-02, dan H-03 merupakan sumur minyak yang berada di Lapangan “HPS”, Abu Dhabi. Sumur H-01, H-02, dan H-03 mulai diproduksi pada September 2010 secara *natural flow* dengan produksi gas yang cukup tinggi yakni mencapai 3.07 MMSCFd. Sumur H-01, H-02 dan H-03 merupakan sumur dengan kategori *High Gas Oil Ratio*, dimana ada kecenderungan untuk terjadinya endapan *asphaltene*. Analisis fluida formasi di laboratorium menyatakan bahwa terdapat endapan material organik dan inorganik yang terkandung dalam fluida produksi. Endapan material tersebut merupakan indikasi kuat bahwa terdapat *problem* endapan *asphaltene* di dalam sumur H-01, H-02, dan H-03. Frekuensi penurunan laju produksi cukup tinggi akibat endapan *asphaltene* pada sumur H-01, H-02, dan H-03. Program Injeksi *Asphaltene Inhibitor* melalui *Coiled Tubing* didesain untuk mengatasi *problem* endapan *asphaltene* dan meningkatkan laju produksi minyak di sumur H-01, H-02, dan H-03.

Analisis dimulai dengan melakukan inventarisasi dan *quality control* data performa produksi, data sumuran, data analisis fluida reservoir, dan data *asphaltene inhibitor*; analisis performa produksi; identifikasi *problem* endapan *asphaltene*; evaluasi potensi sumuran; desain, pelaksanaan, dan *monitoring* program *asphaltene inhibitor*; serta evaluasi program *asphaltene inhibitor* dari aspek teknik, produksi, dan keekonomian.

Endapan *asphaltene* sebagai penyebab penurunan laju produksi pada sumur H-01, H-02, dan H-03 dibuktikan dengan ditemukannya endapan *asphaltene* pada *gauge catcher slickline* yang divalidasi dengan data laboratorium. Sumur H-01, H-02, dan H-03 memiliki cadangan sisa yang cukup potensi untuk diproduksi dengan program optimasi produksi. Program *asphaltene inhibitor* dilakukan dengan *coiled tubing* dan berhasil mengurangi kandungan *asphaltene*, meningkatkan laju produksi, serta memberikan nilai indikator keekonomian yang baik untuk sumur H-01, H-02, dan H-03.

Peningkatan produksi yang signifikan menghasilkan nilai keekonomian yang menguntungkan yang terbukti untuk sumur H-01 dengan POT 2 hari, sumur H-02 dengan POT 4 hari dan sumur H-03 dengan POT 6 hari. Hasil dari program ini juga bisa menjadi acuan untuk sumur lain yang memiliki masalah yang sama.

Kata kunci: *high gas oil ratio, asphaltene inhibitor, coiled tubing, quality control*, data performa produksi, keekonomian

ABSTRACT

H-01, H-02, and H-03 are oil wells in the "HPS" Field, Abu Dhabi. H-01, H-02, and H-03 began production in September 2010 in the natural flow stage with quite high gas production, reaching 3.07 MMSCFd. H-01, H-02 and H-03 was categorized as high gas oil ratio, which is potentially to have asphaltene precipitation and deposition. Analysis of the formation fluid in the laboratory stated that there were deposits of organic and inorganic material contained in the production fluid. Deposition of this material is a strong indication that the asphaltene problem occurs in wells H-01, H-02, and H-03. The frequency of production rate declining is quite high due to asphaltene precipitation in wells H-01, H-02, and H-03. Asphaltene Inhibitor injection program through Coiled Tubing is designed to overcome the problem and increase the rate of oil production in wells H-01, H-02, and H-03.

The analysis begins by carrying out an inventory and quality control production performance data, well data, reservoir fluid analysis data, and asphaltene inhibitor data ; production performance analysis; asphaltene problem identification ; evaluation of potential wells (remaining reserve); design, implementation, and monitoring of asphaltene inhibitor program ; and asphaltene inhibitor program evaluation from technical, production and economic aspects.

Precipitation of asphaltene as the cause of the decrease in production rates in wells H-01, H-02, and H-03 as evidenced by the discovery of deposits of asphaltene on gauge catcher slickline validated with laboratory data. Wells H-01, H-02, and H-03 have residual reserves with sufficient potential to be produced using a production optimization program. Program Asphaltene inhibitor performed with coiled tubing and succeeded in reducing the content of asphaltene, increasing production rates, and providing good economic indicator values for wells H-01, H-02, and H-03. Oil production rate was increased significantly as the POT for H-01 was 2 days, H-02 was 4 days and H-03 was 6 days. The results of this program will become as a reference for others which have same issue.

Keywords: *high gas oil ratio, asphaltene inhibitor, coiled tubing, quality control, production data, economics*