# Optimasi Produksi Kondensat Dari Sumur Gas Lapangan A Untuk Produksi Berkelanjutan = Optimization of Condensate Production from Gas Wells Field A for Sustainable Production

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Abstrak

Empat sumur gas lapangan A memproduksi gas dan kondensat, setiap sumur memiliki kemampuan produksi yang berbeda. Optimasi kondensat dilakukan terhadap produksi kepala sumur di WHP dan proses stabilisasi pada unit kondensat stabilizer di FPSO. Perlu dilakukan uji penyaluran gas dan analisis nodal sumur untuk menentukan hubungan laju alir produksi kondensat yang optimum. Kondisi unit pemrosesan kondensat di FPSO juga mengalami perubahan umpan dan penurunan kinerja alat, hal ini perlu dilakukan simulasi optimasi dengan menggunakan perangkat lunak HYSYS versi legal yang diperoleh secara formal. Upaya optimasi produksi harus memperhatikan aspek kesehatan, keselamatan, keamanan dan lingkungan (K3L) kerja terkait bahaya gas beracun H2S dan gas mudah terbakar. Hal ini perlu dilakukan oleh tim yang professional dan tersertifikasi serta ditunjang oleh prosedur operasional yang baku. Uji laboratorium terhadap fluida sumur dan kondensat dilakukan oleh laboratorium yang terakreditasi oleh KAN (Komite Akreditasi Nasional) untuk memenuhi aspek teknis dan etika profesi. Berdasarkan hasil optimasi di area sumur saat ini produksi kondensat di 4469 bpd dengan produksi sour gas 90 mmscfd. Sumur A1 direkomendasikan untuk di non aktifkan karena tumpukan kondensat (condensate banking). Sumur A2 dibatasi laju aliran gas dengan bukaan choke valve 24% dengan gas flowrate 15 mmscfd dan kondensat 672 bpd. Sumur A3 dengan bukaan choke valve di 47% gas flowrate 40 mmscfd, 2145 bpd kondensat dan sumur A4 dengan bukaan choke valve 50 % gas flowrate 35 mmscfd dan 1652 bpd kondensat. Terkait optimasi pada unit kondensat stabilisasi dapat disimpulkan bahwa suhu kerja reboiler optimal berada pada suhu 169°C. Pada laju umpan untreated kondensat 4469 bpd, hasil simulasi menghasilkan kondensat sebesar 4226 bpd pada suhu reboiler 169°C dan RVP sebesar 8,2 Psia. Kondisi aktual pabrik saat dilakukan proses dengan suhu reboiler 173°C, laju volume kondensat 4213 bpd, RVP 7,8 Psia. Perbedaan volume kondensat antara simulasi optimasi dan uji coba pabrik adalah 13 bpd, suhu menurun hingga 4°C, RVP sangat mendekati persyaratan pembeli yaitu < 9 Psia pada 7,8.

.....Gas field A have four wells that produced gas and condensate, each well has a different production capacity.Condensate optimization is carried out on the wellhead area in the WHP and the stabilization process in the Condensate Stabilizer Unit (CSU) in the FPSO. Gas delivery tests and well Nodal Analysis are required to determine the gas and condensate production flow rate relationship. The condition of the condensate processing unit in the FPSO also experienced changes in feed and decreased equipment performance, this needs to be optimized simulation using HYSYS legal software which is obtained formally . Production optimization activities must be followed to Health, Safety, Security and Environment (HSSE) aspects related to the hazards of H2S toxic gas and flammable gas. This shall be performed by professional and certified team and supported by standard operational procedures. Laboratory tests of well fluids and condensates are carried out by laboratories accredited by KAN (National Accreditation Committee) to meet the technical and ethical aspects of the profession. Based on the optimization results in the current well area, condensate production is at 4469 bpd with sour gas production of 90 mmscfd. Well A1 is recommended to

be deactivated due to condensate banking. Well A2 is limited to a gas flow rate of 24% with a gas flow rate of 15 mmscfd and 672 bpd of condensate. Well A3 with a choke valve opening of 47% with a gas flow rate of 40 mmscfd, 2145 bpd of condensate and well A4 with a choke valve opening of 50% with a gas flow rate of 35 mmscfd and 1652 bpd of condensate. Regarding the optimization of the condensate stabilization unit, it can be concluded that the optimal reboiler working temperature is at 169°C. At an untreated condensate feed rate of 4469 bpd, the simulation results produce condensate of 4226 bpd at a reboiler temperature of 169°C and an RVP of 8.2 Psia. The actual condition of the plant when the process is carried out with a reboiler temperature of 173°C, a condensate volume rate of 4213 bpd, and an RVP of 7.8 Psia. The difference in condensate volume between the optimization simulation and the plant trial is 13 bpd, the temperature decreases by 4°C, and the RVP is meet to the buyer's requirements of <9 Psia at 7.8.