

ABSTRAK

ANALISIS *PROBLEM* KEPASIRAN DAN REKOMENDASI PENANGGULANGANNYA MENGGUNAKAN METODE MEKANIS PADA SUMUR DV-11 LAPANGAN RANTAU

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Sumur DV-11 merupakan salah satu sumur produksi yang terletak di Lapangan Rantau, Cekungan Sumatra Utara. Sumur ini memiliki laju produksi harian sebesar 583 BPD dengan nilai *water cut* mencapai 96,4%. Berdasarkan hasil pengamatan lapangan, sumur tersebut mengalami permasalahan kepasiran, yaitu terproduksinya pasir bersama fluida ke permukaan. Sumur DV-11 belum menggunakan *sand control* untuk mengurangi produksi pasir ke permukaan. Oleh karena itu, dilakukan analisis dan pemberian rekomendasi penanggulangan masalah kepasiran pada sumur ini guna mengendalikan produksi pasir.

Penelitian ini diawali dengan pengumpulan berbagai data termasuk data sumur, produksi, formasi dan ukuran butiran pasir melalui *sieve analysis*. Selanjutnya dilakukan analisis terhadap parameter terjadinya kepasiran yang mencakup nilai sementasi batuan, kekuatan formasi, nilai *vclay* dan laju alir kritis. Berikutnya dilakukan analisa ukuran distribusi pasir dan pemilihan *sand control* yang tepat pada sumur ini. Setelah desain *sand control* sudah di dapatkan lalu dilakukan evaluasi produktivitas sumur dengan perhitungan IPR sebelum dan sesudah pemasangan *sand control*

Hasil analisa menunjukan Sumur DV-11 cenderung mengalami masalah kepasiran. Di buktikan dengan nilai sementasi sebesar 1,53, Nilai Kekuatan formasi sebesar $0,512 \times 10^{12}$ psi², Nilai Vclay sebesar 26% dan laju produksi actual 583 BPD sudah melebihi laju produksi kritis sebesar 102 BPD. Rekomendasi *sand control* yang paling tepat untuk sumur ini adalah *sand screen* dengan ukuran mesh 70. Setelah pemasangan *sand control* laju produksi turun dari 583 BPD menjadi 559 BPD.

Kata kunci: kepasiran, *sand control*, *sand screen*, *sand management*

ABSTRACT

ANALYSIS OF SAND PRODUCTION PROBLEM AND ITS MITIGATION RECOMMENDATION USING MECHANICAL METHODS IN WELL DV-11 RANTAU FIELD

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Well DV-11 is one of the production wells located in the Rantau Field, North Sumatra Basin. This well has a daily production rate of 583 BPD with a water cut of 96.4%. Based on field observations, the well is experiencing sand production issues, in which formation sand is being produced to the surface along with the fluids. Currently, Well DV-11 has not been equipped with any sand control system to reduce sand production to the surface. Therefore, an analysis and recommendation for sand production mitigation were conducted on this well to control sand production.

This study began with the collection of various data, including well data, production data, formation data, and grain size analysis through sieve analysis. Subsequently, an evaluation of sand production parameters was carried out, including rock cementation, formation strength, V_{clay} , and critical production rate. Sand grain size distribution analysis and the selection of appropriate sand control methods were then performed. After designing the sand control system, an evaluation of well productivity was conducted using IPR calculations before and after sand control installation.

The analysis results indicate that Well DV-11 is prone to sand production problems. This is demonstrated by the cementation factor value of 1.53, formation strength of 0.512×10^{12} psi², V_{clay} value of 26%, and an actual production rate of 583 BPD which exceeds the critical production rate of 102 BPD. The most suitable sand control recommendation for this well is a sand screen with a mesh size of 70. After sand control installation, the production rate decreased from 583 BPD to 559 BPD.

Keywords: *sand production, sand control, sand screen, sand management*