ABSTRAK

PERENCANAAN *CHEMICAL SAND CONSOLIDATION* SUMUR MMR-122, MMR-203, DAN MMR-214 PADA LAPANGAN "J"

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Sand problem menjadi isu utama pada *unconsolidated sandstone reservoir.* Kasus ini dijumpai pada Lapangan "J" dengan riwayat *sand production* mencapai 1.727 kasus. Lapangan "J" telah menerapkan *mechanical sand control,* tetapi *sand problem* tetap terjadi. Penelitian ini bertujuan dalam merencanakan *chemical sand consolidation* untuk meminimalisir *sand problem* yang tidak tertanggulangi secara mekanis pada sumur kandidat Lapangan "J".

Perencanaan *chemical sand consolidation* dimulai dengan pengumpulan data yang tersedia pada Lapangan "J" untuk dianalisis *sand problem* pada Lapangan "J". Kemudian, didapatkan sumur kandidat didasarkan *evidence sand problem* lapisan yang telah diproduksikan sebelumnya. Pada lapisan sumur kandidat yang diajukan, dikumpulkan data kembali terkait *rock properties, well profile,* dan *fluid properties.* Selanjutnya, dilakukan *screening* sumur kandidat berdasarkan *rock properties* dan teknis pelaksanaan *chemical sand consolidation.* Setelah itu, dilakukan perhitungan cadangan, perencanaan *chemical, nodal analysis,* estimasi produksi pascapelaksanaan, dan diakhiri analisis keekonomian.

Sumur kandidat dipilih karena tergolong *unconsolidated sandstone.* Perencanaan digunakan sistem *epoxy resin.* Sumur MMR-122 menghasilkan estimasi produksi pascapelaksanaan, NPV, IRR, *profitability indeks,* dan POT dengan ukuran *choke bean* 38/64 inci berturut-turut sebesar 11,59 Mstb, 84,72 MUSD, 35,23%, 1,26, dan 0,82 *years.* Sumur MMR-203 menghasilkan estimasi produksi pascapelaksanaan, NPV, IRR, *profitability indeks,* dan POT dengan ukuran *choke bean* 38/64 inci berturut-turut sebesar 10,63 Mstb, 85,07 MUSD, 39,28%, 1,30, dan 0,79 *years.* Sumur MMR-214 menghasilkan estimasi produksi pascapelaksanaan, NPV, IRR, *profitability indeks,* dan POT dengan ukuran *choke bean* 48/64 inci berturut-turut sebesar 13,37 Mstb, 71,75 MUSD, 34,11%, 1,23, dan 0,78 *years.*

Kata kunci: *chemical sand consolidation, epoxy resin*, *sand problem, sand production, unconsolidated sandstone*

ABSTRACT

CHEMICAL SAND CONSOLIDATION PLANNING FOR WELLS MMR-122, MMR-203, AND MMR-214 IN THE "J" FIELD

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Sand problems are a major issue in unconsolidated sandstone reservoirs. This problem has been observed in Field "J", where there have been 1.727 instances of sand production. Field "J" has implemented mechanical sand control measures, but sand problems continue to occur. This study aims to develop a chemical sand consolidation plan to minimize sand problems that cannot be controlled mechanically in candidate wells in Field "J".

Planning for chemical sand consolidation begins with the collection of available data from Field "J" to analyze the sand problem in Field "J". Next, candidate wells are identified based on evidence of sand problems in previously produced formations. For the proposed candidate wells, additional data is collected regarding rock properties, well profiles, and fluid properties. Next, the candidate wells were screened based on rock properties and the technical aspects of chemical sand consolidation implementation. Following that, reserve calculations, chemical planning, nodal analysis, and post-implementation production estimates were performed, culminating in an economic analysis.

The candidate well was selected because it consists of unconsolidated sandstone. An epoxy resin system was used in the design. Well MMR-122 yielded post-operation production estimates, NPV, IRR, profitability index, and POT with a 38/64-inch choke bean size of 11,59 Mstb, 84,72 MUSD, 35,23%, 1,26, and 0,82 years, respectively. Well MMR-203 yielded post-completion production estimates, NPV, IRR, profitability index, and POT with a 38/64-inch choke bean size of 10,63 Mstb, 85,07 MUSD, 39,28%, 1,30, and 0,79 years, respectively. Well MMR-214 yielded estimated post-implementation production, NPV, IRR, profitability index, and POT with a 48/64-inch choke bean size of 13,37 Mstb, 71,75 MUSD, 34,11%, 1,23, and 0,78 years, respectively.

Keywords: chemical sand consolidation, epoxy resin, sand problem, sand production, unconsolidated sandstone