

DAFTAR ISI

LEMBAR PENGESAHAN	ii
PERNYATAAN KEASLIAN KARYA ILMIAH	iii
HALAMAN PERSEMBAHAN	iv
PRAKATA	v
RINGKASAN	vi
<i>ABSTRACT</i>	<i>vii</i>
DAFTAR ISI.....	viii
DAFTAR GAMBAR	xii
DAFTAR TABEL.....	xiii
DAFTAR LAMPIRAN	xiv
DAFTAR SINGKATAN DAN LAMBANG.....	xiv
BAB I PENDAHULUAN	1
1.1 Latar Belakang	1
1.2 Maksud dan Tujuan	1
1.3 Batasan Masalah	2
1.4 Metodologi	2
1.5 Sistematika Penulisan	3
BAB II TINJAUAN UMUM LAPANGAN	4
II.1 Letak Geografis Lapangan PAS.....	4
II.2 Struktur Geologi Lapangan PAS	4
II.2.1 Stratigrafi Cekungan Sumatera Selatan.....	4
II.2.1.1 Kelompok Pra tersier	5

II.2.1.2 Formasi Lahat	6
II.2.1.3 Formasi Lemat	6
II.2.1.4 Formasi Talang akar	7
II.2.1.5 Formasi Batu Raja	7
II.2.1.6 Formasi Telisa (Gumai)	7
II.2.1.7 Formasi Lower Palembang	8
II.2.1.8 Formasi Middle Palembang	8
II.2.1.9 Formasi Upper Palembang (Kasai).....	9
II.3 Permasalahan Utama Pada Lapangan PAS	9
II.4 <i>Petroleum System</i>	9
II.4.1 Batuan Induk (<i>Source Rock</i>)	10
II.4.2 Batuan Reservoir.....	10
II.4.3 Batuan Penyekat (<i>Seal</i>)	10
II.4.4 Perangkap (<i>Trap</i>)	10
II.4.5 Migrasi (<i>Migration</i>)	11
BAB III DASAR TEORI PENYEMENAN.....	12
III.1 Definisi <i>Remedial Cementing</i>	10
III.1.1 Sifat-Sifat Semen Pemboran.....	12
III.1.1.1 <i>Strength</i>	12
III.1.1.2 <i>Water Cement Ratio</i>	15
III.1.1.3 Densitas	16
III.1.1.4 <i>Thickening Time</i>	17
III.1.1.5 <i>Plastic Viscosity</i> dan <i>Yield Point</i>	17
III.1.1.6 <i>Filtration Loss</i>	18
III.1.1.7 Permeabilitas Semen	19
III.1.1.8 <i>Sulfate Resistance</i>	19
III.1.1.9 <i>Waiting on Cement</i>	20
III.1.2 Aditif Semen	20
III.1.2.1 <i>Accelarator</i>	20
III.1.2.2 <i>Retarder</i>	20
III.1.2.3 <i>Extender</i>	21
III.1.2.4 <i>Antifoam Agents</i>	21
III.1.2.5 <i>Weigting Agents</i>	21
III.1.2.6 <i>Dispersant</i>	21
III.1.2.7 <i>Fluid Loss Control Agents</i>	22
III.1.2.8 <i>Lost Circulating Agents</i>	22
III.1.2.9 <i>Gas Block</i> Aditif	22
III.1.2.10. Special Aditif.....	22
III.2 Teknik <i>Squeeze Cementing</i>	23

III.2.1 <i>Low Pressure Squeeze Cementing</i>	23
III.2.2 <i>High Pressure Squeeze Cementing</i>	24
III.2.3 Metode Penempatan Bubur Semen	25
III.2.3.1 Metode Bradenhead.....	25
III.2.3.2 Metode <i>Squeeze Packer</i>	26
III.2.4 Metode Pemompaan.....	28
III.2.4.1 Metode <i>Running Squeeze Pumping</i>	28
III.2.4.2 Metode <i>Hesitation Squeeze Pumping</i>	28
III.3 Perencanaan Pekerjaan <i>Squeeze Cementing</i>	29
III.3.1 Fluida Dalam Sumur.....	29
III.3.2 Desain Bubur Semen.....	29
III.3.2.1 Suhu dan Tekanan	29
III.3.2.2 Jenis Semen	30
III.3.2.3 Volume Bubur Semen	30
III.3.2.4 Pengendalian Filtrasi.....	30
III.3.3 Tekanan <i>Squeeze</i>	31
III.3.4. Waktu Pemompaan	31
III.3.5. <i>Compressive Strength</i>	31
III.3.6. <i>Injectivity Test</i>	32
III.3.7. Peralatan Penyemenan	32
III.4. Perhitungan Untuk Pekerjaan <i>Squeeze Cementing</i>	35
III.4.1 Perhitungan Volume Bubur Semen	35
III.4.2 Perhitungan <i>Injectivity Factor</i>	36
III.4.3 Perhitungan Volume Aditif.....	36
III.4.4 Perhitungan Ketinggian Kolom Semen	37
III.4.5 Perhitungan Tekanan	37
III.4.6 Perhitungan Tekanan Pompa Maksimum	38
BAB IV PERENCANAAN PROGRAM <i>SQUEEZE CEMENTING</i>.....	39
IV.1 Program <i>Squeeze cementing</i> pada Sumur AN-1.....	41
IV.1.1 Perencanaan <i>Squeeze cementing</i> Sumur AN-1	41
IV.1.1.1 Kondisi Sumur AN-1	41
IV.1.1.2 Inovasi Desain <i>Squeeze Cementing</i>	43
IV.1.1.3 Data Desain Pekerjaan <i>Squeeze Cementing</i>	45
IV.1.2 Perhitungan <i>Squeeze Cementing</i> Sumur AN-1	47
IV.1.2.1 Perhitungan <i>Volume Cement Slurry</i>	47
IV.1.2.2 Perhitungan <i>Volume Aditif</i>	49
IV.1.2.3 Perhitungan Ketinggian Kolom Semen.....	51
IV.1.2.4 Perhitungan Tekanan <i>Squeeze</i>	52
IV.1.2.5 Perhitungan Tekanan Maksimum Pompa	53
IV.1.3 Hasil Desain Program <i>Squeeze Cementing</i> Sumur AN-1	54

IV.2 Perhitungan Biaya Ekonomi Program <i>Squeeze Cementing</i>	56
IV.2.1 Perhitungan Biaya Sewa Rig	56
IV.2.2 Estimasi Biaya Total Program <i>Squeeze Cementing</i>	57
BAB V KESIMPULAN	60
V.1 Kesimpulan	60
V.2 Saran.....	60
DAFTAR RUJUKAN	61
LAMPIRAN	62