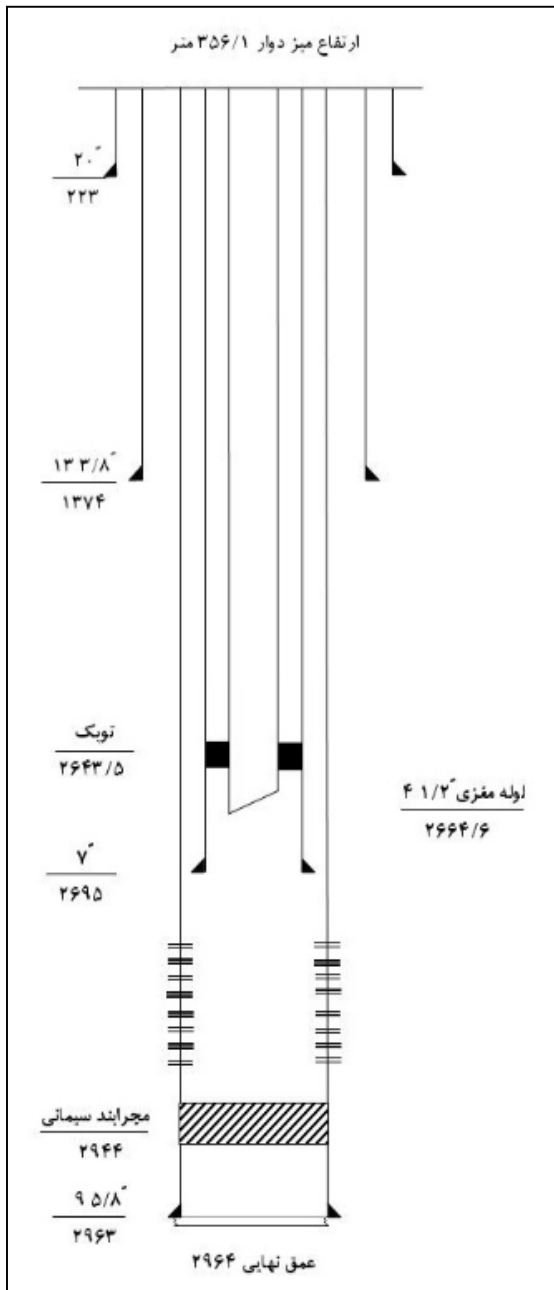


Stimulation Teacher Assistant Class

By: Hamidreza Asaadian

Homework #4

Hw: A gas well with following details is to be acidized with an acid solutions treatment which is described in following tables. The well's producing gas for long time and now it has faced high pressure drop and has low productivity. Simulate the operation with StimCADE software and report that. Optimize the operation.



Reservoir Fluid Parameters	
Reservoir Temperature (F)	251
Gas Gravity (g/cc)	0.63
Fluid Compressibility (psi ⁻¹)	2.28 E-4
Viscosity (cp)	0.0194
Brine Gravity (g/cc)	1.1
Brine Salinity (mg/lit)	105000
Brine Compressibility (psi ⁻¹)	3.35 E-6
Water Saturation (%)	26

Perforation Descriptions	
Perf. Entrance Diameter (in)	0.2
Perf Diameter (in)	0.48
Perf Shot Density (SPF)	12
Perf Phasing (deg)	45
Perf Tunnel Length (in)	2.32

Reservoir Parameters	
Pressure (psi)	3200
Fluid Type	Gas
Spacing (acres)	150
Wellbore Diameter (in)	8.84

Zones Parameters	
Formation Name	Shorijeh
Top (ft)	9359.5
Down (ft)	9543.6
Perforation Top (ft)	9380
Perforation Bottom (ft)	9517
Permeability (md)	10
Porosity (%)	6
Permeability Ratio	2
Fracture Gradient (psi/ft)	0.550
Lithology	Sandstone
Damage Type	Production & Turbulence Flow
Skin	0.377 User Entered
Damage Penetration (in)	24
Total Production (Msm3d)	0.2
BHFP (psi)	1396

Treatment Fluids	
Mud Acid 7.5/1.5 (bbl)	Max 300
HCL 5% (bbl)	Max 180
NH4Cl 5% (bbl)	Max 100

Operation Limitation	
Time (hr)	3
Surface Pressure (psi)	3000
Pumping Rate (bbl/min)	6

DO NOT BREAK THE FORMATION

Quartz	88.5 %	Kaolinite	5.0 %
Mica	0.0 %	Mixed Layer	0.0 %
Calcite	3.0 %	Smectite	0.0 %
Dolomite	0.0 %	Illite	0.0 %
K-Feldspar	3.0 %	Glaucanite	0.0 %
Na-Feldspar	0.0 %	Chlorite	0.5 %
Siderite	0.0 %	Zeolites	0.0 %