

model ventje

Schlumberger

Based on Model Verified Interpretation  
Of a Schlumberger Well Test

COMPANY: THORNTON OPERATING COMPANY		WELL: SEAGULL MIDCON FEDERAL #1	
TEST IDENTIFICATION		WELL LOCATION	
Test Type .....	OH-DST	Field .....	WILDCAT
Test No. ....	THREE	County .....	CHAVES
Formation .....	DEVONIAN	State .....	NEW MEXICO
Test Interval (ft) .....	9142 to 9172	Sec/Twn/Rng .....	S6-13S-29E
Depth Reference .....	GROUND LEVEL	Elevation (ft) .....	3674
HOLE CONDITIONS		MUD PROPERTIES	
Total Depth (MD/TVD) (ft) ....	9172	Mud Type .....	SALTGEL/STARCH
Hole Size (in) .....	7.875	Mud Weight (lb/gal) .....	9.4
Casing Size O.D. (in) .....	8.625	Mud Resistivity (ohm.m) .....	0.099 @ 80F
Tested Interval/Net Pay (ft) ..	30 / 10	Filtrate Chlorides (ppm) .....	65000
INITIAL TEST CONDITIONS		TEST STRING CONFIGURATION	
Initial Hydrostatic (psi) ....	4629	Pipe Length (ft)/I.D. (in) ...	8265 / 3.826
Gas Cushion Type .....	NONE	Collar Length (ft)/I.D. (in) ..	827 / 2.25
Surface Pressure (psi) .....	--	Packer Depths (ft) .....	9136, 9142
Liquid Cushion Type .....	NONE	Bottomhole Choke Size (in) ...	0.50
Cushion Length (ft) .....	--	Gauge Depth (ft)/Type .....	9084/SB-20319
NET PIPE RECOVERY		NET SAMPLE CHAMBER RECOVERY	
Volume	Fluid Type	Properties	
470 ft	HEAVY OIL &	Rw .12 @75F 56K ppm	
	GAS CUT MUD	API 44@60F	
INTERPRETATION RESULTS		ROCK/FLUID/WELLBORE PROPERTIES	
Model of Behavior .....	HOMOGENEOUS	Oil Density (deg. API) .....	44
Fluid Type Used for Analysis..	TOTAL FLUID	Gas Gravity .....	0.65
Reservoir Pressure (psi) ....	3222 @ 9084 Ft	GLR (scf/STB) .....	68
Transmissibility (md.ft/cp) ..	13.7 (TOTAL)	Water Cut (%) .....	0
Effective Permeability (md) ..	0.97 (to Oil)	Viscosity (cp) .....	1.022 (O) 0.013 (G)
	(md) .. 0.005 (to Gas)	Total Compressibility (1/psi) ..	7.182E-05
Skin Factor .....	8.0	Porosity (%) .....	6
Radius of Investigation (ft) ..	29	Reservoir Temperature (F) ....	146
		Form.Vol.Factor (bbl/STB) ....	1.053 (O)
			(bbl/SCF) .... 0.015 (G)

PRODUCTION RATE DURING TEST: 30 BOPD Q-Avg / 16 BOPD Q-Last

COMMENTS:

DURING THIS DST, 2.3 BBLS OF HEAVY GAS AND OIL CUT MUD WAS PRODUCED INTO THE TEST STRING. ANALYSIS OF THE FINAL SHUTIN DIAGNOSTIC LOG-LOG PLOT OF PRESSURE AND DERIVATIVE INDICATES THE PRESENCE OF SKIN AND CHANGING WELLBORE STORAGE EFFECTS FOR MUCH OF THE BUILDUP PERIOD. THE BUILDUP WAS MATCHED USING A HOMOGENEOUS, SKIN AND VARIABLE WELLBORE STORAGE RESERVOIR MODEL (SEE ANALYSIS PLOTS, PAGES 2-5). BASED ON THE MATCH, THE TESTED INTERVAL HAS LOW EFFECTIVE PERMEABILITY AND A BADLY DAMAGED WELLBORE CONDITION AT THE TIME OF THE TEST. SKIN SENSITIVITY (NODAL) PLOTS WERE GENERATED TO PREDICT PRODUCTION POTENTIAL WITH VARIOUS VALUES OF SKIN. TWO CASES WERE EXAMINED; FIRST WITH A NET THICKNESS OF 10 ft, AND AGAIN WITH NET THICKNESS INCREASED TO 50 ft. SEE NODAL PLOTS, PAGES 11-14. FOR QUESTIONS ABOUT THIS REPORT, PLEASE CONTACT DEBORA HALLFORD AT (303) 375-8118.