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State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-122
Revised 4-1-91

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator AMOCO PRODUCTION COMPANY						Lease or Unit Name SOUTH EMPIRE DEEP UNIT					
Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 6/9/93		Well No. 6			
Completion Date		Total Depth		Plug Back TD 10,765		Elevation		Unit Ltr. - Sec. - TWP - Rgc P 1 18 28			
Csg. Size 5 1/2"	Wt. 	d 	Set At 	Perforations: From: 10,230 To: 10,364				County EDDY			
Tbg. Size 2 7/8"	Wt. 6.5	d 2.441	Set At 10,091	Perforations: From: To: 				Post SOUTH BARRA AREA DEEP <i>Atoka</i>			
Type Well - Single - Bradenhead - G.G. or G.O. Multiple SINGLE						Packer Set At 10091		Formation ATOKA			
Producing Thru TBG		Reservoir Temp. °F 174.9@10091		Mean Annual Temp. °F 60°		Baro. Press - P _a 13.2		Connection VENTED			
L 10091	H 10091	G _s .698	% CO ₂ 0.35	% N ₂ 1.49	% H ₂ S 	Prover		Meter Run 3.068		Taps FLG	

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.		Temp. °F
SI							706				48 HRS
1.	3	X	.500	44	26.00	74	682				1 HR
2.	3	X	.500	52	60.00	70	651				1 HR
3.	3	X	.500	62	93.00	68	600				1 HR
4.	3	X	1.000	69	11.00	65	296				2 3/4 HRS
5.											

RATE OF FLOW CALCULATIONS							
NO.	COEFFICIENT (24 HOUR)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor F _{sp}	Rate of Flow Q, Mcfd
1.	1.183	38.56	57.2	.9868	1.197	1.002	54
2.	1.183	62.54	65.2	.9905	1.197	1.002	88
3.	1.183	83.62	75.2	.9924	1.197	1.003	118
4.	4.789	30.06	82.2	.9952	1.197	1.005	165
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	DRY GAS	Mcft/bbl
1.	.085	534	1.38	.997	A.P. I Gravity of Liquid Hydrocarbons	DRY	Deg.
2.	.097	530	1.37	.996	Specific Gravity Separator Gas	.698	XXXXXXXXXX
3.	.112	528	1.35	.995	Specific Gravity Flowing Fluid	XXXXXX	
4.	.123	525	1.36	.990	Critical Pressure	668	P.S.I.A. P.S.I.A.
5.					Critical Temperature	385	R R

P _c 719.2		P _c ² 517.2	
NO.	P _i ²	P _w	P _w ²
1.	699.2	488.9	28.3
2.	668.1	446.3	70.9
3.	616.8	380.4	136.8
4.	311.1	96.8	420.5
5.			

1) $\frac{P_c^2}{P_c^2 - P_w^2} = \frac{18.28}{}$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^* = \frac{231}{}$

(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^* = \frac{4.275}{}$

Absolute Open Flow 231 Mcfd @ 15.025	Angle of Slope θ 63.5	Slope, n .500
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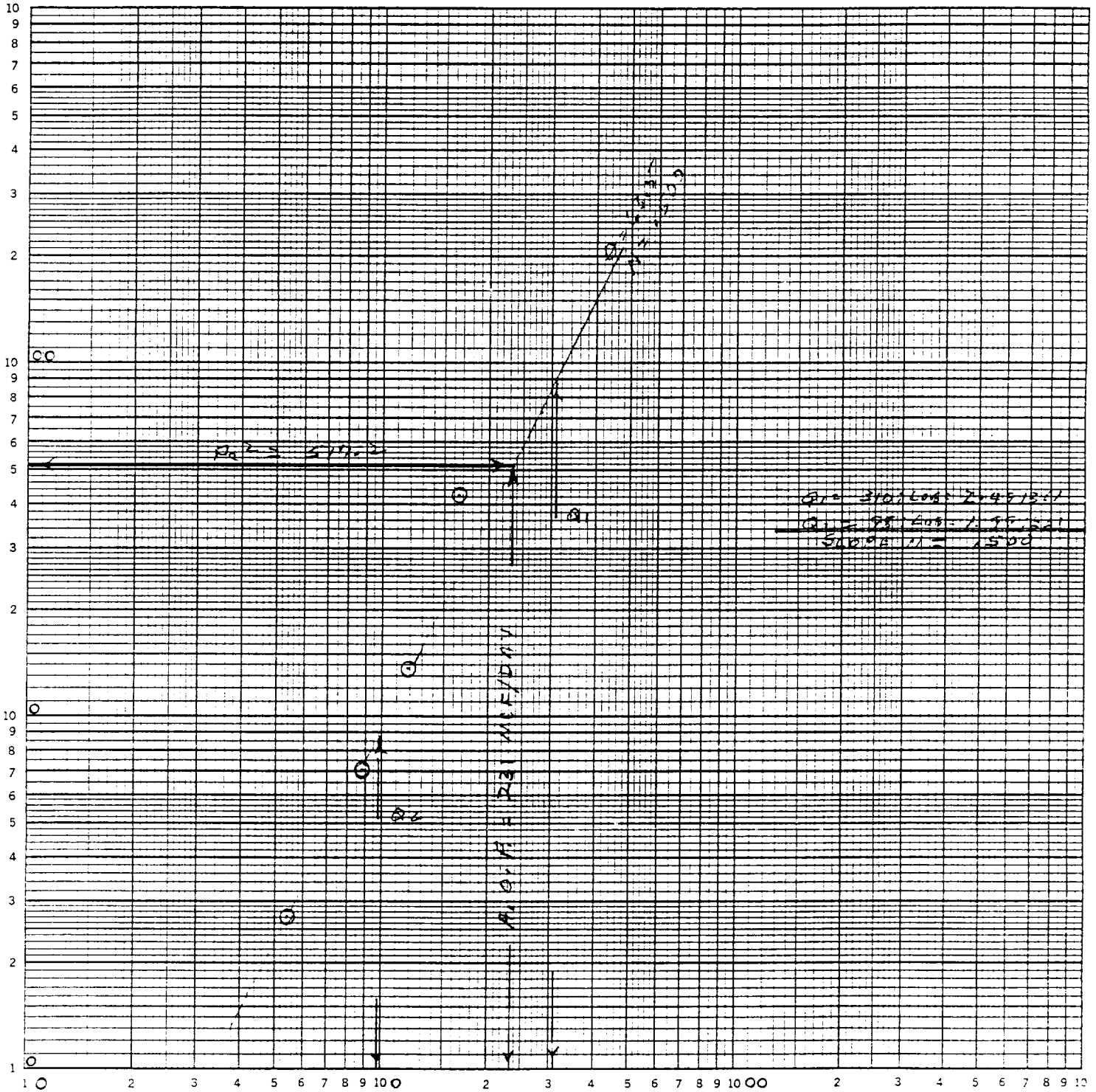
Remarks: **NO FLUID PRODUCED DURING TEST**

Approved By Division	Conducted By: JOHN WEST ENGINEERING	Calculated By: GW	Checked By: BM
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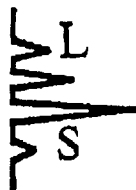
AMOCO PRODUCTION COMPANY
 SOUTH EMPIRE DEEP UNIT WELL NO. 6
 Unit P, SEC. 1, TWP. 18, RGE. 28
 JUNE 9, 1993
 EDDY COUNTY, NEW MEXICO

PC²-PW² TESTS
 487486

LOGARITHMIC 3 X 3 CYCLES
 KEUFFEL & ESSER CO. MADE IN U.S.A.



COMPANY :AMOCO PROD. CO.		LEASE :S. EMPIRE DEEP		WELL NO. : 6		Pc = 719.2		Pc2 = 517.2	
UNIT : P		SECTION : 1		TOWNSHIP : 18					
L : 10091		H : 10091		L/H : 1 6/GMIX : 0.698		Pt2 = 483.3		Pw = 699.2	
%CO2 : 0.35		%N2 : 1.49		H2S :		DATE : 6/9/93		441.2	
d : 2.441		Fr :0.010763		GH : 7043.5		RANGE : 28		376.0	
								95.6	
								311.1	
VOL 1 : 682		PSIA 1 : 695.2		RESV.TEMP 174.9		Pc2-Pw2= 28.3		Pw2 = 488.9	
VOL 2 : 651		PSIA 2 : 664.2				70.9		446.3	
VOL 3 : 600		PSIA 3 : 613.2		SHUT-IN PR= 719.2		136.8		380.4	
VOL 4 : 296		PSIA 4 : 309.2				420.5		96.8	
		PCR : 668				n = 1.000			
		TCR : 385							
						Pc2/(Pc2-Pw2) = 18.265			
LINE		RATE 1		RATE 2		RATE 3		RATE 4	
		'1ST		'2ND		'1ST		'2ND	
1 QM		0.682		0.682		0.651		0.651	
2 TW		534		534		534		534	
3 Ts		634.9		634.9		634.9		634.9	
4 T		584.5		584.5		584.5		584.5	
PR (est)		1.04		0.99		0.92		0.46	
5 Z(est)		0.881		0.868		0.885		0.872	
6 TZ		514.9		507.2		517.2		509.8	
7 GH/TZ		13.679		13.888		13.618		13.815	
8 eS		1.670		1.683		1.666		1.679	
9 1-e-S		0.401		0.406		0.400		0.404	
10 Pt		695.2		695.2		664.2		664.2	
11 Pt2 /1000		483.3		483.3		441.2		441.2	
12 Fr		0.010763		0.010763		0.010763		0.010763	
13 Fc=FrTZ		5.542		5.459		5.567		5.487	
14 FcQm		3.78		3.72		3.62		3.57	
15 L/H(FcQm)		14.3		13.9		13.1		12.8	
16 Fw		15.732520		15.626503		15.252493		15.159759	
17 Pw2		489.0		488.9		446.4		446.3	
18 Ps2		816.8		823.0		743.9		749.3	
19 Ps		903.8		907.2		862.5		865.6	
20 P		799.5		801.2		763.3		764.9	
21 Pr		1.20		1.20		1.14		1.15	
22 Tr		1.52		1.52		1.52		1.52	
23 Z		0.868		0.868		0.872		0.872	



Laboratory Services

1331 Tasker Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

FOR: John West Engineering
Attention: Mr. Buzz Thomason
412 N. Dal Paso
Hobbs, New Mexico 88240

SAMPLE Empire South Deep
IDENTIFICATION: Unit #6
COMPANY: Amoco Production
LEASE:
PLANT:

SAMPLE DATA: DATE SAMPLED: 6-9-93 3:30 PM GAS (XX) LIQUID ()
ANALYSIS DATE: 06-10-93 SAMPLED BY: John West Engineering
PRESSURE - PSIG 70.00 ANALYSIS BY: Vickie Walker
SAMPLE TEMP. °F
ATMOS. TEMP. °F
REMARKS: Atoka Formation

COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM
Hydrogen Sulfide (H2S)		
Nitrogen (N2)	1.49	
Carbon Dioxide (CO2)	0.35	
Methane (C1)	83.19	
Ethane (C2)	7.86	2.089
Propane (C3)	3.55	0.974
I-Butane (IC4)	0.64	0.208
N-Butane (NC4)	1.38	0.432
I-Pentane (IC5)	0.49	0.175
N-Pentane (NC5)	0.38	0.135
Hexane (C6)	0.67	0.288
Heptanes Plus (C7+)	0.00	0.000
	100.00	4.301
BTU/CU.FT. - DRY	1201	MOLECULAR WT. 20.2147
AT 14.650 DRY	1197	
AT 14.650 WET	1172	26# GASOLINE - 0.742
AT 15.025 DRY	1228	
AT 15.025 WET	1233	
SPECIFIC GRAVITY -		
CALCULATED	0.698	
MEASURED		