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See Rule 401 & Rule 1122

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-122
Revised 4-1-1991

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

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator OXY USA, INC.					Lease or Unit Name COUGAR FEDERAL COM				
Test Type ☒ Initial ☐ Annual ☐ Special					Test Date 9-APR-98		Well No. 1		
Completion Date 18-MAR-98		Total Depth 11313		Plug Back TD		Elevation		Unit Ltr - Sec - TWP - Rge.	
Csg. Size 4.500	Wt. 11.600	d 4.000	Set At 11313	Perforation: From 11271 To 11281			County EDDY		
Tbg. Size 2.375	Wt. 4.700	d 1.995	Set At 11157	Perforation: From To			Pool TURKEY TRACK		
Type Well-Single-Bradenhead-G.G. or G.O. Multiple SINGLE						Packer Set At 11132		Formation MORROW	
Producing Thru TUBING		Reservoir Temp.F 175		Mean Annual Temp.F 60		Baro. Pressure 13.20		Connection CONOCO PIPELINE	
L 11276	H 11276	Gg .648	% CO ₂ .63	% N ₂ .39	% H ₂ S	Prover		Meter Run 4.026	Taps FLANGE

FLOW DATA					TUBING DATA		CASING DATA		SIP/FLOW DURATION (HRS.)
NO.	(PROVER) LINE SIZE x ORIFICE SIZE	PRESS. PSIG	DIFF. h _w	TEMP. F	PRESS. PSIG	TEMP. F	PRESS. PSIG	TEMP. F	
SHUT-IN PRESSURE					3139		3936	175	87
1.	4.03 x 2.00	206.00	15.90	40	2760	112	3911	175	1
2.	4.03 x 2.00	214.80	24.80	61	2755	164	3902	175	1
3.	4.03 x 2.00	224.80	53.00	51	2700	168	3869	175	1
4.	4.03 x 2.00	243.30	86.90	49	2640	187	3845	176	1

RATE OF FLOW CALCULATIONS

NO.	COEFFICIENT (24 HOUR)	h _w P _m	PRESSURE P _m	FLOW TEMP. FACTOR F _t	GRAVITY FACTOR F _g	SUPER COMPRESS. FACTOR F _{pv}	RATE OF FLOW (Q) MCFD
1.	20.320	59.036	219.2	1.0193	1.2423	1.0234	1554.5
2.	20.320	75.196	228.0	.9990	1.2423	1.0212	1936.6
3.	20.320	112.312	238.0	1.0080	1.2423	1.0236	2925.1
4.	20.320	149.298	256.5	1.0100	1.2423	1.0258	3904.6

NO.	P _r	TEMP.	T _r	Z
1.	.326	500	1.353	.9549
2.	.339	521	1.409	.9589
3.	.354	511	1.384	.9545
4.	.382	509	1.379	.9503

Gas-Liquid Hydrocarbon Ratio	8.7	Mcf/bbl
API Gravity of Liquid Hydrocarbons	57.000	Deg.
Specific Gravity Separator Gas	.648	
Specific Gravity Flowing Fluid	.959	
Critical Pressure	671 PSIA	656 PSIA
Critical Temperature	369 R	468 R

P _c =	3949.4	P _c ² =	15597.8
NO.	P _w	P _w ²	P _c ² - P _w ²
1.	3924.2	15399	198.415
2.	3915.2	15328	268.969
3.	3882.5	15073	523.954
4.	3858.3	14886	711.281

$$(1) \frac{P_c^2}{P_c^2 - P_w^2} = \frac{21.929}{\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n} = 8.780$$

$$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 34281$$

Absolute Open Flow	34281	Mcf @ 15.025	Angle of Slope - 54.9	Slope, n	.704
Remarks CALCULATED FROM BOTTOMHOLE PRESSURE, CASING DATA IS MEASURED BHP					
Approved By Division:		Conducted By: LARRY DAVIS	Calculated By: BPT System/SCHLUMBERGER	Checked By: D.SYKES-BOOKHAMMER	