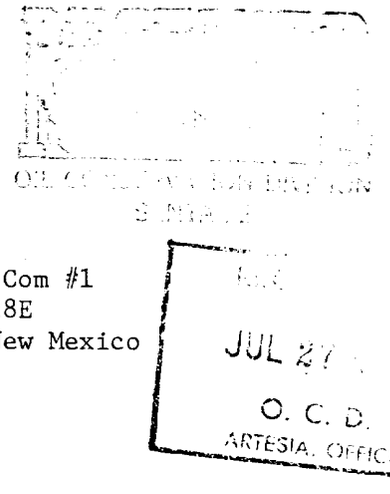
W A I V E R



Re: Artesia State Com #1
Sec 23-T18S-R28E
Eddy County, New Mexico

New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

This is to advise we have been furnished a copy of Gulf Oil Corporation's Application for Multiple Completion of the subject well. We, as an offset operator, have no objections to subject Application.

COMPANY Holly Energy, Inc.

BY: Jerry C. Brown

TITLE: Manager of Reservoir Engineering

DATE June 25, 1984

If agreeable, please sign and forward this Waiver to above address. Enclosed is a self-addressed, stamped envelope for your use.

Gulf Oil Corporation

451
File

NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

RECEIVED BY
MAR 05 1984
O. C. D.
ARTESIA, OFFICE

Type Test: ☒ Initial ☐ Annual ☐ Special			Test Date: 3-2-84		
Company: Gulf Oil Expl. & Prod. ✓	Connection: Air			Unit: G	
Pool: North Turkey Track Morrow	Formation: Morrow				
Completion Date: 2-27-84	Total Depth: 10930	Plug Back TD: 10902	Elevation: GL 3508.6	Farm or Lease Name: Artesia St. Com.	
Csg. Size: 5½ / Wt.: 17# / d: / Set At: 10930		Perforations: From 10678 To 10860		Well No.: 1	
Tbg. Size: 2 7/8 / Wt.: 6.5 / d: / Set At: 10584		Perforations: From To		Unit: G / Sec.: 23 / Twp.: 18S / Rge.: 28E	
Type Well – Single – Bradenhead – G.G. or G.O. Multiple: Single Gas Well		Packer Set At: 10584		County: Eddy	
Producing Thru: Tbg.	Reservoir Temp. °F: 181 @ 10767	Mean Annual Temp. °F: 60	Baro. Press. – P_a: 13.2	State: New Mexico	
L: 10,767 / H: 10,767 / Gg: .655	% CO_2: 4.229	% N_2: .292	% H_2S:	Prover:	Meter Run: 4" / Taps: 2/9

NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	Tubing Press. p.s.i.g.	Tubing Temp. °F	Casing Press. p.s.i.g.	Casing Temp. °F	Duration of Flow
SI							2400				72 hours
1.	4.026	x	.750	610	13	108	2250	75			1 hour
2.	4.026	x	.750	610	24	112	2110	75			1 hour
3.	4.026	x	.750	610	50	118	1810	75			1 hour
4.	4.026	x	.750	610	85	118	1700	75			1 hour
5.											

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1	2.661	90.0	623.2	.9568	1.236	1.044	296
2.	2.661	122.30	623.2	.9535	1.236	1.043	400
3.	2.661	176.52	623.2	.9485	1.236	1.040	573
4.	2.661	230.16	623.2	.9485	1.236	1.040	747
5.							

NO.	P_t	Temp. °R	T_r	Z
1.	.91	568	1.54	.918
2.	.91	568	1.55	.920
3.	.91	578	1.57	.924
4.	.91	578	1.57	.924
5.				

Gas Liquid Hydrocarbon Ratio 12.0 Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons 61 @ 60 Deg.
Specific Gravity Separator Gas .655 XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX
Critical Pressure 687 P.S.I.A. P.S.I.A.
Critical Temperature 368 R R

P_c 2791.6 P_c^2 7793.0

NO	BHP	P_w	P_w^2	$P_c^2 - P_w^2$
1	3455	2641.9	6979.6	813.4
2	3287	2510.6	6303.1	1489.9
3	3006	2291.4	5250.5	2542.5
4	2673	2040.1	4162.0	3631.0
5	3642			

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 2.146$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1.706$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1.274$

Post TD-2 4-84 5-Temp + BK.

Absolute Open Flow 1,233 Mcfd @ 15.025 Angle of Slope θ 55.5 Slope, n .700

Remarks: Calculated from known bottom hole pressures
7 BBLS/condensate made during test

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
	David Bump	J.D. Davis	