

MULTIPOINT AT ONE POINT BACK PRESSURE TEST OR GAS WELL

RECEIVED

☐ Initial ☐ Annual ☒ Special FOUR POINT ☒ Special
 Test Date 11-30-81

Company READ & STEVENS, INC. ✓ Connection EL PASO NATURAL GAS COMPANY
 Pool Buffalo Valley Penn Formation ATOKA

Completion Date 9-8-81 Total Length 9033 Plug Back TD 8775 8840 Elevation 3520 KB
 Unit P O. C. D. ARTESIA, OFFICE
 Farm or Lease Name HARRIS FEDERAL
 Well No. 4

Csg. Size 4.500 Wt. 11.6 d 4.000 Set At 9033 Perforations: From 8728 To 8746
 Tbg. Size 2.375 Wt. 4.7 d 1.995 Set At 8659 Perforations: From OPEN To ENDED
 Unit Sec. Twp. Rge. P 26 15S 27E
 County CHAVES State NEW MEXICO

Type Well - Single - Drdthead - G.G. or G.O. Multiple Packer Set At NONE
 Producing Thru TUBING Reservoir Temp. °F 147° Mean Annual Temp. °F 60° Baro. Press. - P_a 13.2
 L 8737 H 8737 Cg .655 % CO₂ .843 % N₂ .595 % H₂S Prover Meter Run 4" Taps FLANGE

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	of Flow
SI							1719				72 HRS.
1.	4.000	X	.875	552	1.6	83	1660	78			1
2.	4.000	X	.875	554	2.3	76	1619	72			1
3.	4.000	X	.875	557	4.3	73	1456	63			1
4.	4.000	X	.875	557	6.0	73	1204	52			1
5.											

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	3.7230	27.83	302.5	.9786	1.2356	1.0265	129
2	3.7230	40.00	302.5	.9850	1.2356	1.0276	186
3	3.7230	76.15	302.5	.9877	1.2356	1.0292	356
4	2.7230	106.25	302.5	.9877	1.2356	1.0292	497
5							

NO.	H _g	Temp. °R	T _g	Z	Gas Liquid Hydrocarbon Ratio	Mcft/bbl.
1	.45	543	1.46	.949	A.P.I. Gravity of Liquid Hydrocarbons	Deg.
2	.45	536	1.44	.947	Specific Gravity Separator Gas .6550	XXXXXX XXX
3	.47	533	1.44	.944	Specific Gravity Flowing Fluid XXXXX	.6550
4	.47	533	1.44	.944	Critical Pressure 673 P.S.I.A.	673 P.S.I.A.
5					Critical Temperature 371 R	371 R

$P_c = 2262.2$ $P_w = 5117.5$

NO.	P _c	P _w	P _c ²	P _w ²	P _c ² - P _w ²
1		2194.2	4814.5	303	
2		2135.2	4559.1	558	
3		1913.2	3660.3	1457	
4		1587.2	2519.2	2598	
5					

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.9698$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.5389$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 764.8$

Absolute Open Flow 764.8 Mcfd @ 15.025 Angle of Slope 57.6 Slope, n .6358

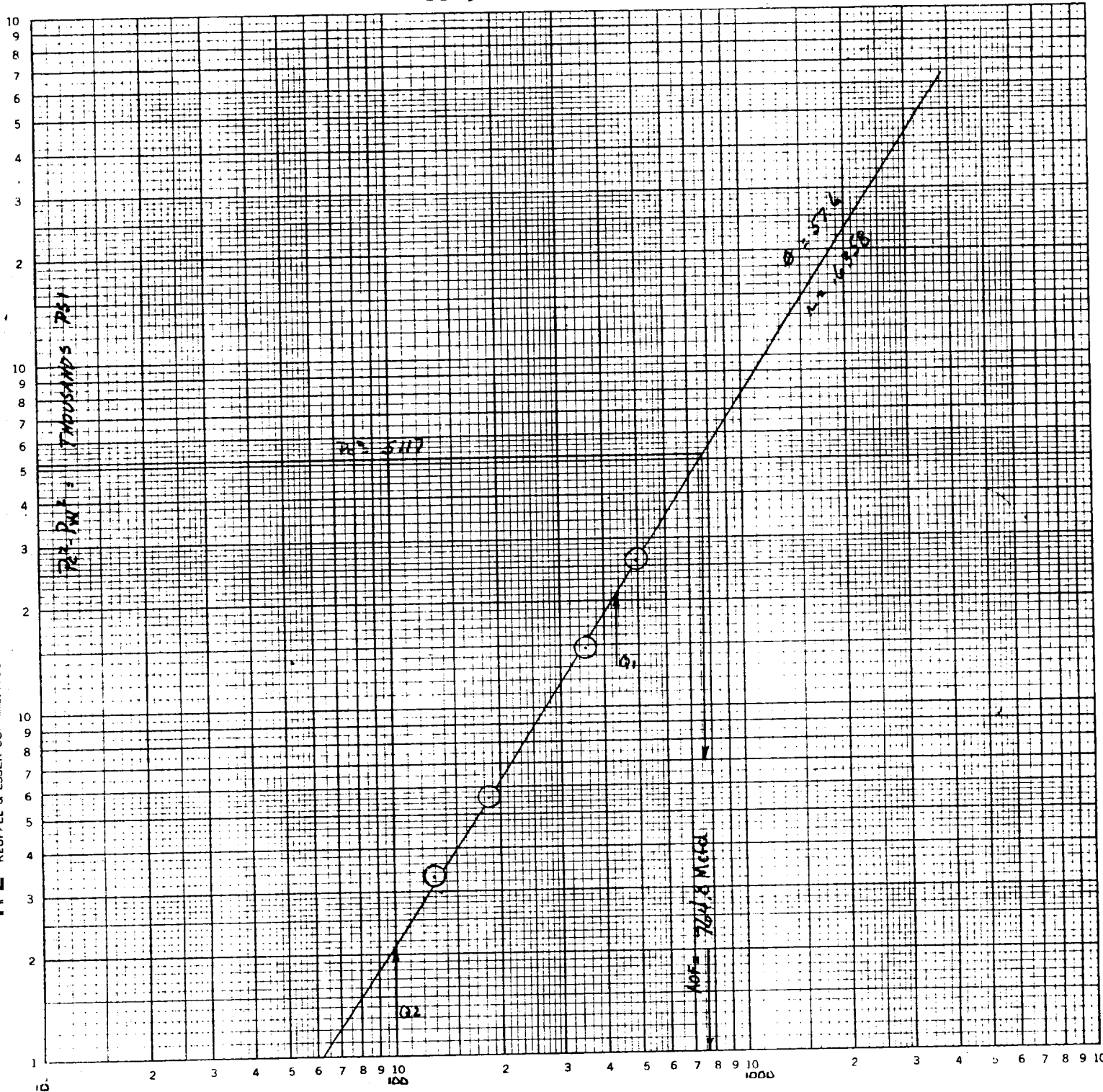
Remarks: BOTTOM HOLE PRESSURE MEASURED WITH AMERADA PRESSURE GUAGES.

Approved By Division Conducted By: RICHARD TOWNLEY Calculated By: WOHLFORD & JENKINS Checked By:

READ & STEVENS
HARRIS FEDERAL #4
P 26 155 27E
CHAVES COUNTY
NEW MEXICO
11-30-81

46 7400

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



$$\overline{AP}^2 =$$

$$\overline{AP}^2 =$$

$$Q_1 = 432.3$$

$$Q_2 = 100$$

Q, Mcfd

$$\text{LOG } Q_1 = 2.63578$$

$$\text{LOG } Q_2 = 2.00006$$

$$n = .63578 = .6358$$

ELEMENT NUMBER	RPG3 #21121N	RANGE	0-5,000 LBS.
CLOCK NUMBER	B3443	RANGE	12 HOURS
TIME WELL SHUT IN	1335 HOURS	11-27-81	
TIME CLOCK STARTED	1201 HOURS		
DEAD WEIGHT ELEMENT ON SURFACE	1732		LBS.
TIME ELEMENT REACHED BOTTOM	1314 HOURS		
DEAD WEIGHT ELEMENT ON BOTTOM	1732		LBS.
ELEMENT SET AT	8737		FEET.
TEMPERATURE	8737	FT.	147 °F.
DEAD WEIGHT AT THE END OF	71	HOURS	40 MINUTES.
FOUR POINT BACK PRESSURE TEST			

Bryan Printers & Stationers, Inc.

Artesia, New Mexico 88210
SUB SURFACE PRESSURE MEASUREMENTS

COMPANY READ & STEVENS WELL NAME HARRIS FEDERAL WELL NO. 4
DATE OF TEST 11-27-81 TO 11-30-81 FORMATION ATOKA PAGE 1 OF 1

CHART READINGS AND CALCULATIONS FOR BUILDUP OR DRAWDOWN TEST

ELEMENT NUMBER RPG3 #21125N RANGE 0-5,000 LBS.
CLOCK NUMBER 19040 RANGE 72 HOURS
TIME WELL SHUT IN 1335 HOURS 11-27-81
TIME CLOCK STARTED 1249 HOURS
DEAD WEIGHT ELEMENT ON SURFACE 1033 FLOWING LBS.
TIME ELEMENT REACHED BOTTOM 1331 HOURS
DEAD WEIGHT ELEMENT ON BOTTOM 1033 FLOWING LBS.
ELEMENT SET AT 8737 FEET.
TEMPERATURE 8737 FT. 147 °F.
1732 PSIA DEAD WEIGHT AT THE END OF 71 HOURS 40 MINUTES.

DATE	HOUR	TIME	DEFLECTION in/inches	CALCULATED PRESSURE psig	CORRECTION P ± PC psig	CORRECTED PRESSURE psia	PRESSURE AT MID-POINT OF PERFORATIONS psia
11-27-81	0	1335		1656	13.2		1669
	1/4	1350		1795	13.2		1808
	1/2	1405		1920	13.2		1933
	3/4	1420		1969	13.2		1982
	1	1435		1992	13.2		2005
	1-1/4	1450		2004	13.2		2017
	1-1/2	1505		2016	13.2		2029
	1-3/4	1520		2025	13.2		2038
	2	1535		2030	13.2		2043
	2-1/2	1605		2035	13.2		2048
	3	1635		2039	13.2		2052
	3-1/2	1705		2045	13.2		2058
	4	1735		2051	13.2		2064
	4-1/2	1805		2056	13.2		2069
	5	1835		2061	13.2		2074
	6	1935		2068	13.2		2081
	7	2035		2074	13.2		2087
	8	2135		2081	13.2		2094
	9	2235		2088	13.2		2101
	10	2335		2092	13.2		2105
	11	2435		2097	13.2		2110
11-28-81	12	0135		2102	13.2		2115
	13	0235		2106	13.2		2119
	14	0335		2112	13.2		2125
	15	0435		2115	13.2		2128
	20	0935		2135	13.2		2148
	25	1435		2150	13.2		2163
11-29-81	30	1935		2164	13.2		2177
	35	2435		2184	13.2		2197
	40	0535		2194	13.2		2207
	45	1035		2207	13.2		2220
	50	1535		2216	13.2		2229
	55	2035		2227	13.2		2240
11-30-81	60	0135		2237	13.2		2250
	65	0635		2243	13.2		2256
	69 1/2	1105		2248	13.2		2261

NEW-TEX LAB

P.O. BOX 1161

HOBBS NM 88241-1161

505-393-3561

ANALYSIS NUMBER: 6130

DATE OF RUN: 12 1 81

DATE SECURED: 11 30 81

ANALYSIS CERTIFICATE

SAMPLE IDENT: READ & STEVENS - HARRIS FEDERAL #4

CLIENT: BENNETT - CATHEY

ADDRESS: BOX 787

CITY: STATE: ARTESIA NM 88210

SAMPLING PRESS: 0 PSIG

SAMPLING TEMP: 0 DEG F

STATION NUMBER:

***** GAS ANALYSIS *****

	MOLE PERCENT	GAL/ HOP
NITROGEN	0.5950110	
CARBON DIOXIDE	0.8432251	
METHANE	87.1044154	
ETHANE	7.2086387	1.9220000
PROPANE	2.5507837	0.7930000
ISO-BUTANE	0.3045390	0.8472711
NORMAL BUTANE	0.6299503	0.1900560
ISO-PENTANE	0.1974251	0.0720799
NORMAL PENTANE	0.1815194	0.0651011
HEXANES	0.1276743	0.0523720
HEPTANES PLUS	0.2486153	0.1140130
TOTAL	100.0000000	3.2260000

PROPANE GPM:	0.70	BUTANES GPM:	0.30
ETHANE GPM:	1.92	PENTANES PLUS GPM:	0.30

SPECIFIC GRAV (CALC):	.6547
MOLE WEIGHT:	18.98

HHV-BTU/CU FT	PRESSURE (PSIA)	WET	DRY
14.696		1117	1137
14.650		1114	1134
14.730		1120	1140
14.735		1120	1140

ANALYZED BY:

APPROVED BY:

