

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

Form C-122
Revised 9-1-65

RECEIVED

Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 1-8-81		JAN 16 1981	
Company Exxon Corporation				Connection To Air		O. C. D. ARTEIA, OFFICE	
Field <i>Durham Road</i>				Location Atoka		B	
Completion Date 8-3-80		Total Depth 12,670		Flow Rate 12,630		Production 3060 GL	
Well Name Gourley Fed. Com.							
Test Size 5 1/2	Wt. 20	d 4.778	Set At 11,652	Perforations From 11,372 To 11,378	Well No. 1		
Test Size 2 3/8	Wt. 4.7	d 1.995	Set At 10,300	Perforations From Open To End	Unit B	Sec. 28	Twp. 22S
Type Well - Single - Bradenhead - G.G. or G.O. Multiple G. G. Dual				Packer Set At 10,300		County Eddy	
Producing Thru Tbg		Reservoir Temp. °F 178 @ 10,408		Mean Annual Temp. °F 60		Baro. Press. - P _a 13.2	
L 10,408		H 10,408	G _g .583	% CO ₂ .44	% N ₂ .76	% H ₂ S	Prover 4
						Meter Run 4	Taps FIG.

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							5585				72 hrs.
1.	4	X	1.00	495	9	111	5436				4 hrs
2.	4	X	1.750	495	18	83	4470				6 hrs
3.	4	X	1.750	500	55	75	3459				3 hr 30 min
4.	4	X	1.750	790	63	74	2635				1 hr 30 min
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	4.753	67.63	508.2	.9543	1.310	1.029	414
2	14.93	95.64	508.2	.9786	1.310	1.036	1896
3	14.93	168.01	513.2	.9859	1.310	1.038	3363
4	14.93	224.95	803.2	.9868	1.310	1.059	4598
5							

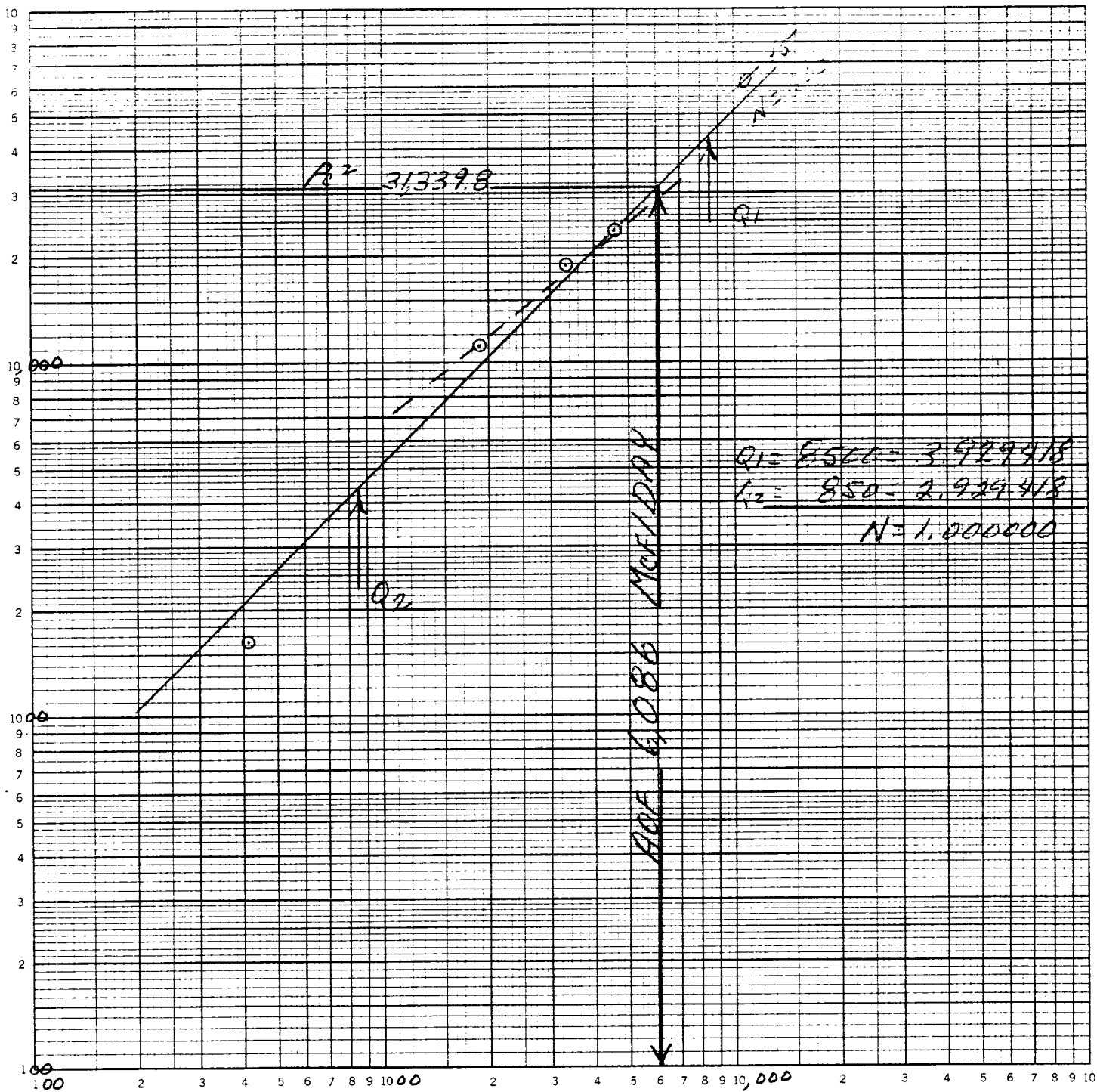
NO.	P _t	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio <u>Dry</u> Mcf/bbl.
1	.76	571	1.63	.945	A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
2	.76	543	1.55	.932	Specific Gravity Separator Gas <u>.583</u> X X X X X X X X
3	.76	535	1.53	.929	Specific Gravity Flowing Fluid X X X X X
4	1.20	534	1.53	.892	Critical Pressure <u>672</u> P.S.I.A. _____ P.S.I.A.
5					Critical Temperature <u>350</u> °R _____ °R

P _c <u>5598.2</u>	P _c ² <u>31,339.8</u>	(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.324$	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.324$
NO.	P _t ²	P _w	P _w ²
1	5450.2	29704.7	1635.1
2	4498.8	20239.2	11,100.6
3	3526.5	12436.2	18,903.6
4	2767.9	7661.3	23,678.5
5			

Absolute Open Flow <u>6,086</u> Mcfd @ 15.025		Angle of Slope <u>45</u>	Slope, n <u>1.00</u>
Remarks: _____			
Approved By Commission:	Conducted By: Otis Engineering	Calculated By: Otis Engineering	Checked By: <i>S. H. Lowe</i>

$P_{w2} = P_{w1} \cdot 1.467400$

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



$$Q = MCF/D$$

EXXON COMPANY, U.S.A.
POST OFFICE BOX 1800 • MIDLAND, TEXAS 79702

MIDCONTINENT PRODUCTION DIVISION
FIELD DIVISION
DRILLING MANAGER

July 22, 1980

LISTED BELOW ARE THE DEVIATION TESTS TAKEN ON OUR GOURLEY FEDERAL #1

<u>DEPTH</u>	<u>DEGREES OF DEVIATION</u>
142	1/4
290	1/4
385	1/4
534	1/4
944	1/2
1,362	1/2
1,577	1/4
1,793	1/2
2,097	3/4
2,281	1
2,518	1
2,640	1-1/4
3,136	3/4
4,128	3/4
4,650	1/2
5,150	1/2
5,664	1/2
6,085	3/4
6,588	3/4
7,093	1-1/4
7,456	1-1/4
7,761	1-3/4
8,132	2-1/4
8,655	2-1/4
9,143	1-3/4
9,631	1/4
10,130	1-3/4
10,653	2-1/4
10,890	1/2
10,964	1-1/2
11,590	1
11,630	1-1/2
11,970	1-1/4
12,431	2-1/4
12,660	2-1/4

By: D. L. Clemmer
D. L. CLEMMER

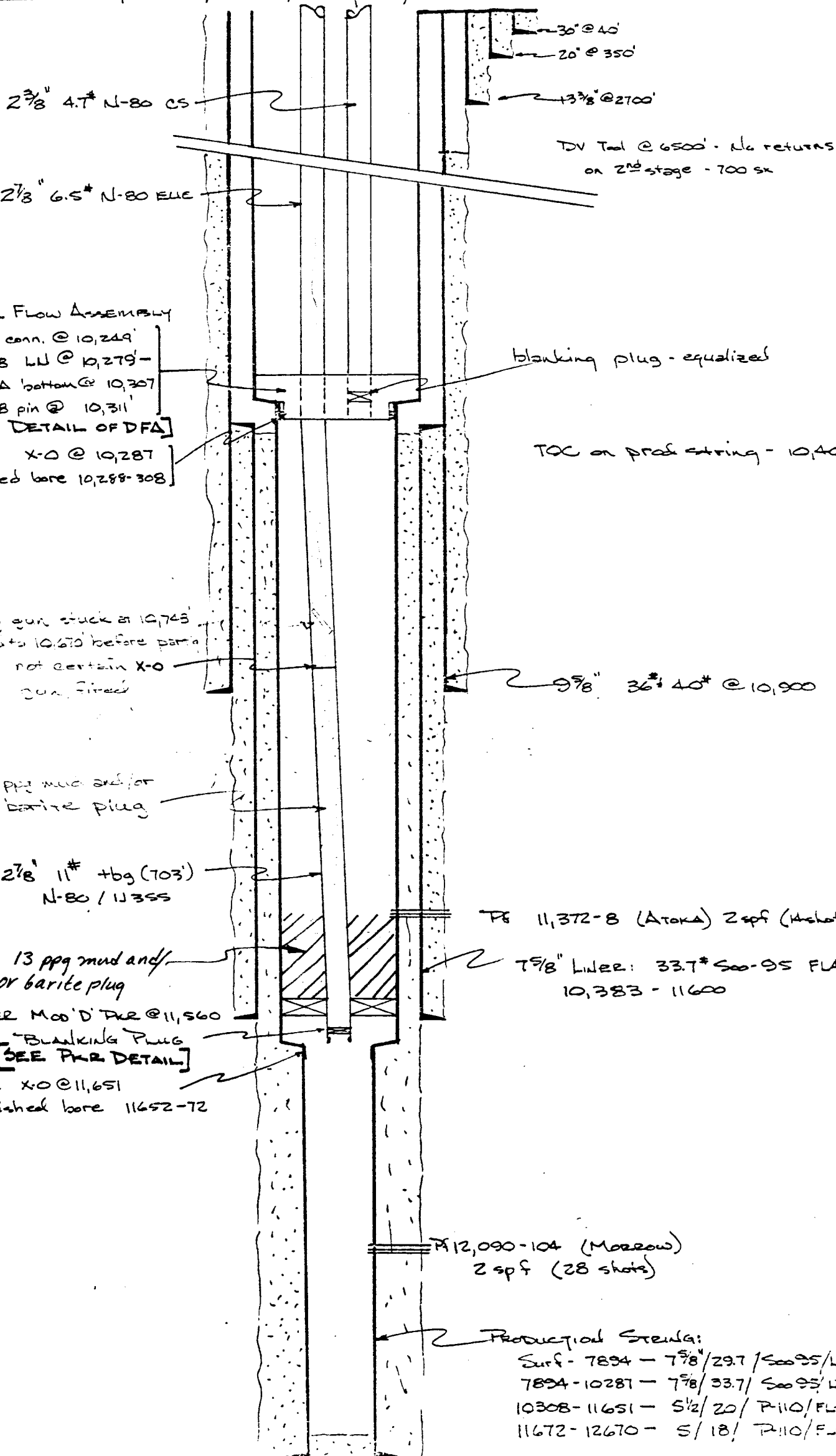
SWORN TO and subscribed before me this 28 day of July, 1980

NOTARY PUBLIC

GOURLEY FEDERAL #1
DEVIATION TESTS
July 22, 1980
Page 2

Hilda C. Lincee
Notary Public
Midland, Texas

My commission expires: 3/19/84



MPANY EXXON CORPORATION LEASE GOURLEY FED. COM. WELL NO. #1 DATE 1-9-81

CATION: Unit B Section 28 Township 22S Range 28E

10,408 H 10,408 LN 1.000 G .583 %CO₂ .44 %N₂ .76 %H₂S 0

d 1.995 F_r 0.0823 Q_m .414 M₂cid (L/H) (F₁Q_m)² .00056 P_{cf} 672 T_{cf} 350

TABLE 10 B

RATE: 1

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		D	5204		10408						
2	GII		D	3034		6068						
3	37-SGII		0	113,772		227,545						
4	P _c or P _n		54492	6031.2	6013.4	6576.5	6546.8					
5	P _r		8.11	897	895	9,79	9,79					
6	T		534	586	586	638	638					
7	T _r		1.53	1.67	1.67	1.82	1.82					
8	Z		1878	1,070	1,069	1,124	1,122					
9	P/2 P/2	7-8	5460.1	5636.6	5135.3	5850.9	5834.9					
10	P/12	9-6	10,325	9,119	9,599	9,171	9,146					
11	(P/T _r) ² /1000	(11) 2/101	1804503	1033520	1072149	1082102	1083343					
12	L/H(F ₁ Q _m) ²		.000056	.000056	.000056	.000056	.000056					
13		11+12	104605	1033526	1072205	1084158	1083319					
14	I _n	10+13	97,748	103,500	104,110	108,920	109,228					
15	M=P _n ·P _{n-1}			582	564	563	533					
16	N=I _n +I _{n-1}			201,648	201,858	213,081	213,828					
17	M x N	15x16			113,890		113,814					
18	Σ (M x N)	Σ 17			113,655							

ANY EXXON CORPORATION LEASE GOURLEY FED. COM. WELL NO. #1 DATE 1-9-81

UNIT: B Section 28 Township 223 Range 28E

10,408 H 10,408 LNI 1,000 G .583 %CO₂ .44 %N₂ .76 %H₂S 0

d 1.995 F_r 0.0823 Q_m 1.896 M₂cid (L/H) (F_rQ_m)² 1.00194 P_{cf} 672 T_{cf} 550

TABLE 18.8

RATE: 2

IE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		D	5204		10408						
2	GII		D	3034		6068						
3	37.5GII		D	113,772		227,545						
4	P _c or P _n		4493.2	5000.6	5001.5	5519.3	5400.8		5489.7			
5	P _r		6.67	7.47	7.44	8.21	8.17					
6	T		534	586	586	638	638					
7	T _r		1.53	1.67	1.67	1.82	1.82					
8	Z		901	989	987	1,043	1,041					
9	P/2.P/2	7.5	4995.8	5076.4	5067.4	5291.4	5294.5					
0	P/12	9.5	9,318	8,163	8,147	8,291	8,267					
1	(P/T _r) ² /1000	(II) 2/101	105.824	107.543	1074778	1068286	1068349					
2	L/H(F _r Q _m) ²		.001194	.001194	.001194	.001194	.001194					
3		II + I2	1088018	1076737	1075972	1065380	1063547					
4	I _n	IO + I3	105.864	113.628	113.823	118.515	118.807					
5	M = P _n · P _{n-1}			537	518	517	489					
6	N = I _n + I _{n-1}			218.492	219.687	232.332	220.705					
7	M × N	I5 × I6			113.873		113.851					
8	Σ (M × N)	Σ I7			113.672							

ANY EXXON CORPORATION LEASE GOURLEY FED. COM. WELL NO. #1 DATE 1-9-81

LOCATION: Unit B Section 28 Township 22S Range 28E

10,408 H 10,408 L/H 1.000 G .583 %CO₂ .44 %N₂ .76 %H₂S 0

d 1.995 F_r .01823 b_m 3.363 M₂acid (L/H) (F_rQ_m)² .003759 P_{CF} 672 T_{CF} 550

TABLE IN B

RATE: 3

IE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		D	5204		10408						
2	GII		D	2034		6068						
3	37.5GII		D	113,772		227,545						
4	P ₂ or P _n		3472.2	3951.3	3936.0	4398.7	H3772.2		4373.7			
5	P _r		5.17	5.86	5.86	6.55	6.51					
6	T		534	586	586	638	638					
7	T _r		1.53	1.67	1.67	1.83	1.83					
8	Z		.818	.912	.911	.968	.966					
9	P/2 P/2	7-8	4244.7	4320.5	4320.6	4544.1	4531.2					
10	P/12	9-6	7.9490	7.3924	7.3730	7.1224	7.1023					
11	(P/12)2/1000	(10)2/101	.063185	.054662	.054360	.050720	.050412					
12	L/H(F, Q _m) ²		.003759	.003759	.003759	.003759	.003759					
13		11+12	1066444	1058421	1058119	1054467	1054201					
14	I _n	10+13	118.737	126.553	126.859	130.716	131.035					
15	M=P _n ·P _{n-1}			479	464	463	441					
16	N=I _n +I _{n-1}			245.292	245.510	257.570	257.881					
17	M x N	15x16			113,914		113,772					
18	Σ(M x N)	Σ17			113,631							

IPANY EXXON CORPORATION LEASE GOURLEY FED. COM. WELL NO. #1 DATE 1-9-81

SECTION: Unit B Section 28 Township 223 Range 28E

10,408 H 10,408 LAH 1.000 G .583 % CO₂ .44 % N₂ .76 % H₂S 0

d 1.995 F_r .01823 b_m 4.548 M₂ cfd (L/H) (F_r Q_m)² .007026 P_{cr} 672 T_{cr} 350

TABLE 18 B. 9

RATE: 4

NE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		D	5204		10408						
2	GII		D	3034		6068						
3	37.5GII		D	113,772		227,545						
4	P _c or P _n		2648.2	3074.7	3066.6	3418.6	3474.2		3472.0			
5	P _r		3.94	4.58	4.56	5.19	5.17					
6	T		534	586	586	638	638					
7	T _r		1.53	1.67	1.67	1.82	1.82					
8	Z		.775	.866	.865	.919	.918					
9	P/Z, P/Z	T-8	3417.0	3550.4	3545.2	3791.7	3784.5					
10	P/Z	Y-6	6.3489	6.0588	6.0498	5.9431	5.9318					
11	(P/TZ) ² /1000	(11) 2/101	.0440416	.036708	.036600	.035320	.035186					
12	L/H(F _r Q _m) ²		.007026	.007026	.007026	.007026	.007026					
13		11 + 12	.047972	.043774	.043626	.042546	.042212					
14	I _n	10 ÷ 13	133.385	138.535	138.674	140.745	140.523					
15	M = P _n · P _{n-1}			426	416	418	4108					
16	N = I _n + I _{n-1}			271.423	272.061	279.019	279.197					
17	M × N	15 × 16			113,830		113,786					
18	Σ (M × N)	Σ 17			113,715							

151

DATE 1-9-81

ANY EXON CORPORATION LEASE 60URLEY FCO.COM. WELL NO. #1

ATION: Unit B Section 28 Township 22 S Range 28 E

10,408 H 10,408 L/H 1,000 G 583 %CO₂ 44 %N₂ 76 %H₂S 0

d 1.995 F_r 0.018231 Q_m 0 M²cid (L/H) (F_{Qm})² 0 P_{cf} 672 T_{cf} 350

TABLE 10 B 9

RATE 1

ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
H		10408	5204		0						
GII		6068	30301		0						
37.SGII		227,545	113,772		0						
P _c or P _n		6544.1	6544.1	6011.1	5478.8	5447.3	5448.41	P _{ci} =	5450.2		
P _i		9.74	8.96	8.95	8.15	8.11	8.11				
T		638	581	586	534	534	534				
T _i		1.82	1.67	1.67	1.53	1.53	1.53				
Z		1,122	1,070	1,069	1.00	1.00	1.00				
P/Z P/Z	4=8	5832.5	5620.9	5623.1	5478.8	5458.3	5459.3				
P/TZ	9=5	9,142	9,607	9,596	10,260	10,221	10,223				
(P/TZ) ² /1000	(10) ² /101										
L/H(F _i Q _m) ²											
I _n	II + I2										
M = P _n · P _{n-1}	IO + I3	109,386	104,086	104,212	97,467	97,833	97,815				
N = I _n + I _{n-1}			520	533	532	564	563				
M × N			213,472	213,598	201,619	202,045	202,27				
Σ (M × N)	I5 × I6			113,839			113,835				
	Σ I7			113,705							

2ND

1-9-81

EXXON CORPORATION LEASE 600RLEY FCO.COM

WELL NO. #1

DATE

UNIT: Unit B Section 28 Township 22 S Range 28 E

10,408 H 10,408 L/H 1,000 G .583 %CO₂ .44 %N₂ .76 %H₂S 0

d 1.995 F₁ 0.1823 Q_m 0 M₂cid (L/H) (F₁Q_m)² 0 P_{CF} 672 T_{CF} 350

TABLE IS IN

RATE 2

IE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		10408	5204		0						
2	GII		6068	3031		0						
3	37.5GII		227,545	113,772		0						
4	P ₂ or P _n		5487.0	5017.0	5006.1	4525.7	4494.9	4495.7				
5	P ₁		8.17	7.47	7.45	6.73	6.69	6.69				
6	T		638	581	586	534	534	534				
7	T _r		1.82	1.67	1.67	1.53	1.53	1.53				
8	Z		1,041	.989	.968	.905	.902	.902				
9	P/2 P/2	7-8	5270.9	5072.8	5066.9	5000.7	4983.2	4984.2				
10	P/2	9-6	8.2616	8.6567	8.6465	9.3647	9.3319	9.3337				
1	(P/T ₂) ² /1000	(10) 2/101										
2	L/H(F ₁ Q _m) ²											
3		11 + 12										
4	I _n	10-13	121.042	115.517	115.654	106.784	107.160	107.139				
5	M=P _n -P _{n-1}			470	1131	1180	511	510				
6	N=I _n +I _{n-1}			246.559	236.186	222.438	222.814	222.115				
7	M x N	15 x 16			113,707			113,617				
8	Σ (M x N)	Σ 17			113,707							

3212

DATE 1-9-81

WELL NO. #1

600 RLEY FCO. CO.

ANY EXON CORPORATION

Range 28E

22S

Township

28

Section

Unit

10,408 H 10,408 L/H 1,000 G 583 %CO₂ 44 %N₂ 76 %H₂S 0

d 1.995 F₁ 0.0823 Q_m 0 M₂cid (L/H) (F₁Q_m)² 0 P_{cf} 672 T_{cf} 350

TABLE 18-B

RATE 3

ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
H		10408	5204		0						
GII		6068	3034		0						
37.5GII		227,545	113,772		0						
P _c or P _n		4323.7	3970.0	3960.9	3519.2	3522.3	3523.4				
P _i		6151	591	589	528	524	524				
T		638	586	586	534	534	534				
T _r		1.82	1.67	1.67	1.53	1.53	1.53				
Z		.966	.913	.913	.824	.822	.822				
P/Z P/Z	7-8	4527.6	4343.3	4336.4	4307.2	4285.0	4286.3				
P/TZ	9-6	70966	74203	74035	80661	80244	80264				
(P/TZ) ² /1000	(11) 2/101										
L/H(F ₁ Q _m) ²											
I _n	11 + 12										
M = P _n - P _{n-1}	10 + 13	140.912	134.765	135.071	129.976	124.620	124.580				
N = I _n + I _{n-1}			404	413	412	439	438				
M x N			275.677	275.903	259.047	259.611	259.650				
Σ (M x N)	15 x 16			113.898			113.890				
	Σ 17			113.647							

411

1-9-81

DATE

WELL NO. #1

600 RLEY FCO.COM

LEASE

SECTION

28

TOWNSHIP

22S

Range

28E

UNIT

10,408

H

10,408

G

583

%CO₂

0

76

%H₂S

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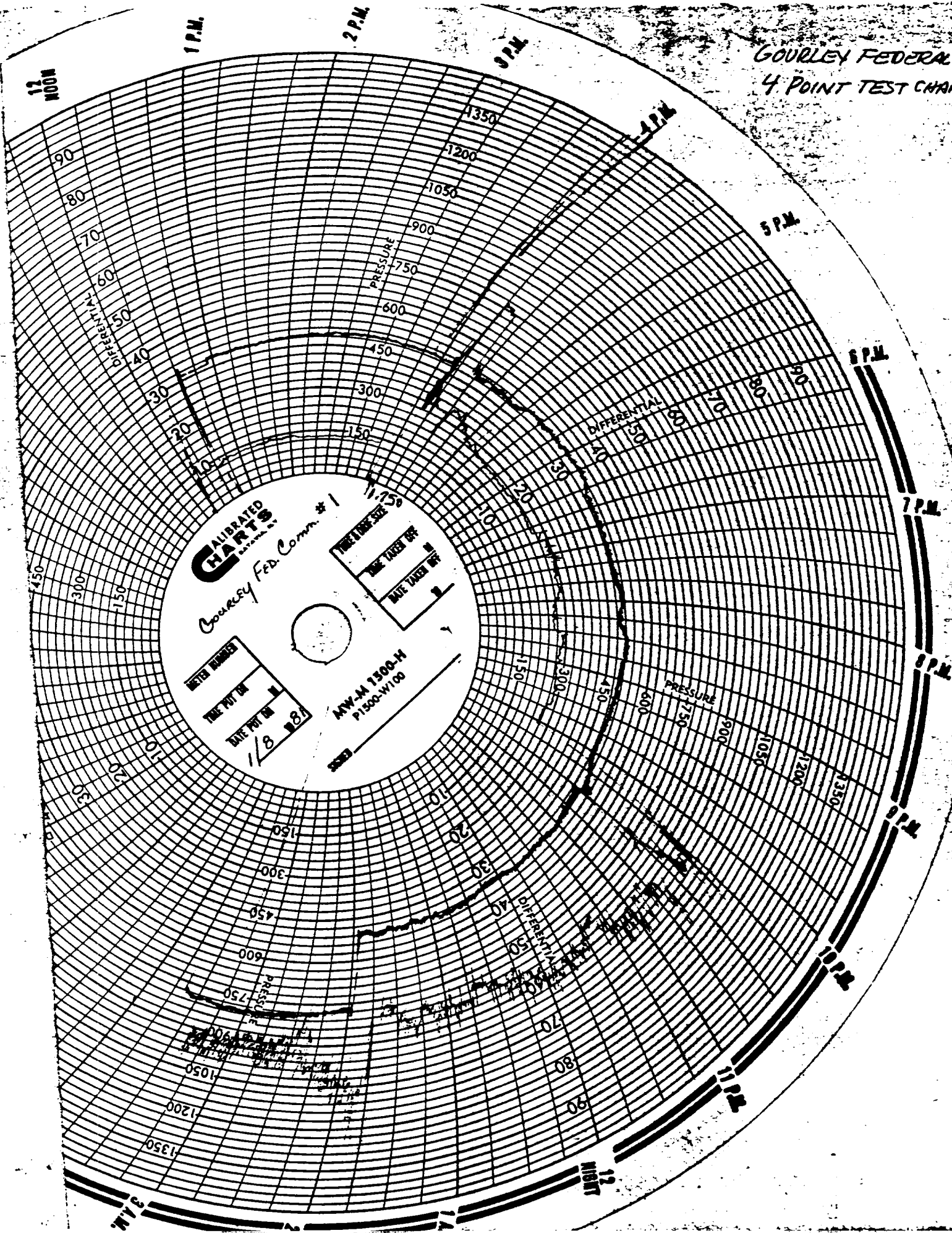
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RATE 4

NE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		10408	5204		0						
2	GII		6068	2034		0						
3	37.SGII		227,545	113,772		0						
4	P _c or P _n		3472.0	3124.8	3128.2	2785.1	2764.1	2765	5767.4			
5	P _r		5.17	4.66	4.66	4.14	4.11	4.11				
6	T		638	586	586	534	534	534				
7	T _r		1.82	1.67	1.67	1.53	1.53	1.53				
8	Z		918	868	868	780	779	779				
9	P/Z P/Z	7-8	3782.1	3611.5	3603.9	3570.7	3548.3	3549.7				
10	P/TZ	9-6	5,928	6,163	6,150	6,687	6,645	6,647				
11	(P/TZ) ² /1000	(II) ² /1000										
12	L/H(F _r Q _m) ²											
13		II + IZ										
14	I _n		168,688	162,260	162,600	149,550	150,495	150,435				
15	M = P _n - P _{n-1}			337	344	343	364	363				
16	N = I _n + I _{n-1}			330,948	331,288	312,150	313,095	313,035				
17	M x N	IS x I6			113,889			113,635				
18	Σ (M x N)	Σ I7			113,889							

One copy to be filed in District Office (With copy acceptable)

GOURLEY FEDERAL
4 POINT TEST CHART



GOURLEY FEDERAL #1
PACKER LEAKAGE
TEST CHART

