

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

Form C-122
 Revised 9-1-65

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 9-28-87	
Company John L Cox				Connection Enron (Transwestern Pipeline)			
Pool Pitchfork Ranch (Atoka)				Formation Atoka		Unit	
Completion Date 2/26/86		Total Depth 13,975'		Plug Back TD 13,925'		Elevation 3359' GR	
Farm or Lease Name Vaca Ridge "4" Fed. Comm.		Well No. 2		Perforations: From 13896 To 13908		Unit Sec. Twp. Rge. B 4 25-S 34-E	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single		Packer Set At 12230		County Lea		State New Mexico	
Producing Thru Tubing		Reservoir Temp. °F 143 @ 13896		Mean Annual Temp. °F 60		Baro. Press. - P _a 13.2	
L 13896	H 13896	G _g .6401	% CO ₂ 0.397	% N ₂ 0.813	% H ₂ S	Prover	Meter Run _____ 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.	
SI							3900	60	Packer	
1.	3.068	x	1.250	950	4	74	3500	59		2 Hr.
2.	3.068	x	1.250	950	10	74	2400	60		2 Hr.
3.	3.068	x	1.250	950	18	74	1875	59		2 Hr.
4.	3.068	x	1.250	950	26	74	1140	60		2 Hr.
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	7.577	62.071	963.2	.9868	1.250	1.0901	632.40
2	7.577	98.143	963.2	.9868	1.250	1.0901	999.91
3	7.577	131.67	963.2	.9868	1.250	1.0901	1341.5
4	7.577	158.25	963.2	.9868	1.250	1.0901	1612.3
5							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	63695 Mcf/bbl.
1	1.44	534	1.45	.8416	A.P.I. Gravity of Liquid Hydrocarbons	46.0 @ 60 Deg.
2	1.44	534	1.45	.8416	Specific Gravity Separator Gas	.6401
3	1.44	534	1.45	.8416	Specific Gravity Flowing Fluid	.6902
4	1.44	534	1.45	.8416	Critical Pressure	669 P.S.I.A.
5					Critical Temperature	369 R

P _c 3913.2	P _c ² 15313	(1) $\frac{P_c^2}{P_c^2 - P_w^2} = \frac{15313}{12193}$	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.2434$
NO. 1	P _t ² 12343	P _w 3637.6	P _w ² 13232.
2	5824	2621.1	6870.2
3	3565	2256.2	5090.4
4	1330	1766.5	3120.5
5			

AOF = Q	$\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2005$
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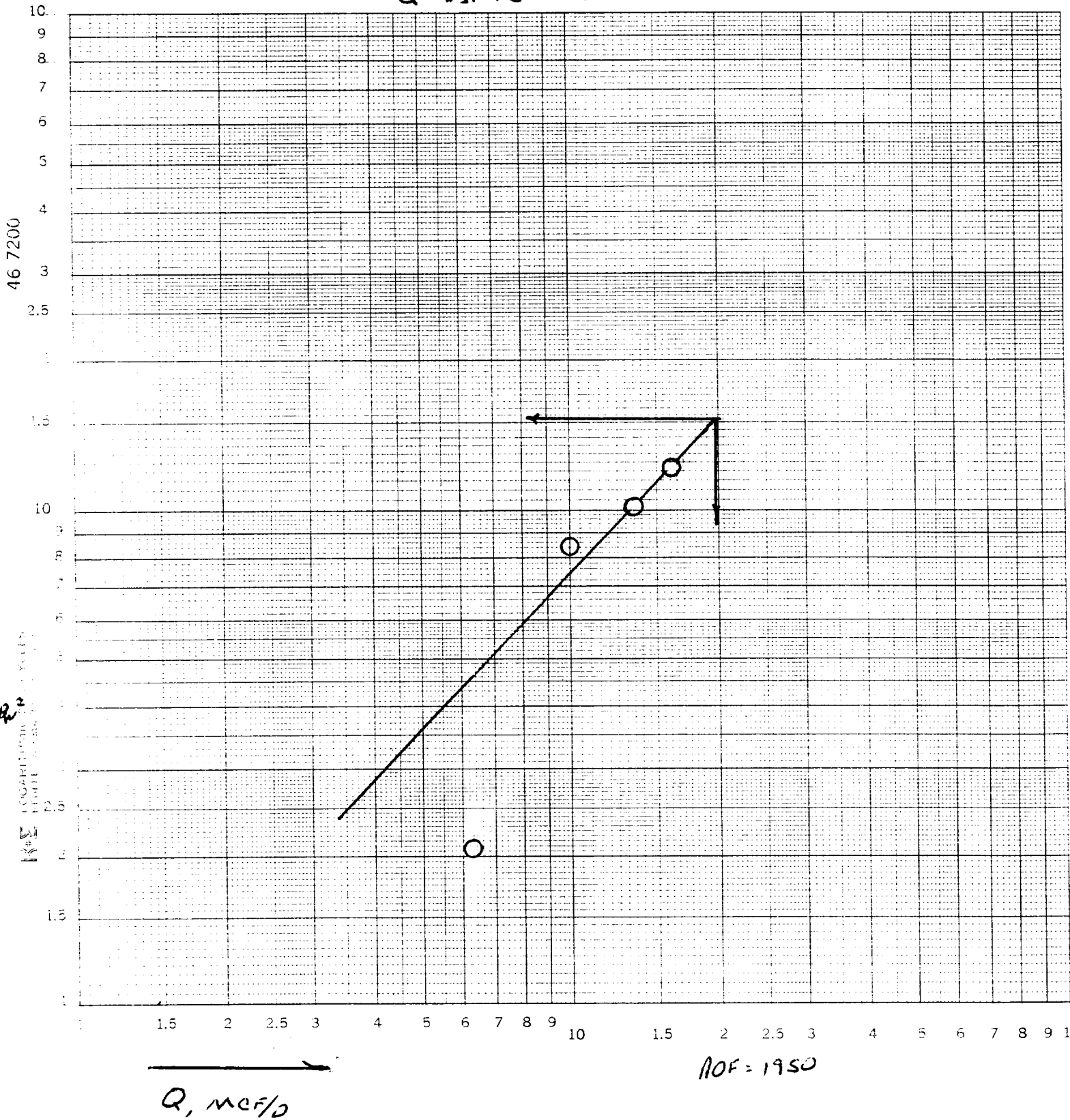
Absolute Open Flow	2005 Mcfd @ 15.025	Angle of Slope	46.3	Slope, n	.956
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Remarks:	6.0 BBLS of Distillate produced during test
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ORIGINAL SIGNED BY JERRY SEXTON

DISTRICT SUPERVISOR	Conducted By:	Calculated By:	Checked By:
OCT 23 1987		Dan R. Fleeman	

Q vs. $P_c^2 - P_w^2$



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1st Floor RARE

DATE 9-28-81

LEAST UACA RIDGE FELD NO. 2

John L Cox

13896	13896	1	6902	397	813	
2323	0.094	63240	75509x10 ³	668	385	
3826	003245	20521x10 ³				
0	6948	12230				12230
0	179832	316543				316543
35132	43712	43702	43692	50202	50232	50262
526	657	656	654	752	752	753
519	569	569	569	595	595	595
135	148	148	148	155	155	155
759	890	888	888	966	966	967
89185	86712	86515	86492	87343	87395	87447
07954						07639
755x10 ³						2052x10 ³
08709	08277	08240	08236	08233	08394	08402
102404	104799	104995	105018	105031	104180	104095
878	868	857	856	851	654	657
207203	209794	210013	210055	209217	208309	208224
						136770
						179807
						179807
						316577

P.P. 4 $3(3256H) = 35732 + 3 \times 37.5 \times 16902 \times 12230$
 $103404 + 4 \times 105037 \times 104078 = 5028.7 @ 12230$

$$\begin{aligned} \Delta F &= \frac{113956}{1.04127} \\ \Delta F &= 109409.11489 + 110.409 = 113956 + 43114.89 + 110.409 = 113956 + 43225.30 = 157181.30 \end{aligned}$$

2ND Flow Rate

WATER RESOURCES CONSULTANTS, INC.
10000 W. 10TH AVE. SUITE 100
DENVER, CO 80231
TEL: 333-8888 FAX: 333-8889

WELL NO. 2 DATE 9-28-87

13896 13896 1 6902 397 668 385

TUBING 2.323 0.0194 99991 1.1939 x 10⁻² 668 385

CASING 3826 0.03245 3.2447 x 10⁻³

0 6948 12230 12230 13896

0 179832 316543 316543 359463

2413.2 3189.2 3195.2 3202.2 3203.2 3804.2 3812.2 3821.2 3806.3 3975.3

3.61 4.77 4.78 4.79 4.80 5.69 5.71 5.72 5.70 5.95

520 569 569 569 569 595 595 595 595 603

1.35 1.48 1.48 1.48 1.48 1.55 1.55 1.55 1.55 1.57

6.73 791 791 792 792 861 862 863 862 880

6.8956 70859 70992 71058 71080 74258 74328 74417 74213 74915

0.4755 0.5071 1.194 x 10⁻² 0.5949

115.915 114.016 113.833 113.819 113.796 110.698 110.631 110.545 127.251 126.189

776 782 789 790 601 609 618 169

229.931 227.849 227.652 227.615 224.494 221.329 221.176 253.44

179816 179816 316503 316543

P. 2 + 3 * 375 * 6902 * 12230 = 3806.3 @ 12230

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HOBBS OFFICE

DATE: 9-28-87
LEASE: UACA RIDGE F224 WELL NO. 2

Section	1	2	3	4	5	6	7	8	9	10
Flow Rate	3976.3	3977.3	3977.3	3184.3	3271.3	3334.3	3323.3	3321.3	3320.3	
Flow Rate	5.95	5.15	5.95	4.77	4.90	4.99	4.98	4.97	4.97	
Flow Rate	603	603	603	569	569	569	569	569	569	
Flow Rate	1.57	1.57	1.57	1.48	1.48	1.48	1.48	1.48	1.48	
Flow Rate	.880	.880	.880	.791	.796	.800	.800	.799	.799	
Flow Rate	7.4934	7.4953	7.4953	7.0750	7.2226	7.3249	7.3007	7.3055	7.3033	
Flow Rate	0.5940	0.5942	0.5942	1.13417	1.41343	1.38454	1.36520	1.36972	1.36883	1.36924
Flow Rate	126.160	126.132	126.132	-793	-706	-643	-654	-656	-657	
Flow Rate	170	171	171	254.260	279.797	274.974	273.492	273.855	273.807	
Flow Rate	252.349	252.282	252.282	43142						
Flow Rate	359685	359685	359685	359663						
Flow Rate	179772	179772	179772	179772						

LEASE JOHN L. COX UACA Ridge FED 4 WELL NO. 2 DATE 9-28-87

Section	Beginning	End
1	1000	1000
2	1000	1000
3	1000	1000
4	1000	1000
5	1000	1000
6	1000	1000
7	1000	1000
8	1000	1000
9	1000	1000
10	1000	1000
11	1000	1000
12	1000	1000
13	1000	1000
14	1000	1000
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2000

[illegible][illegible]

$$D - P - \underline{3(37.564)} = 3977.3 - 3320.3 = 2621.1$$

320 Flow Rate

WORK SHEET FOR COMPUTING CALCULATION
FOR ESTIMATING FLOW RATE
WELL NO. 2

Form C-100-2
Revised 1-1-68

COMPANY John L Cox LEASE UACA RIDGE Fld 4 WELL NO. 2 DATE 9-28-87

SECTION 1 TOWNSHIP 6902 RANGE 813 N. 10. S.

13896 13896 1 6902 813 10S
TUBING 2.323 0.1194 1.3415 16018 x 10⁻² 668 385
Casing 3.826 0.03245 4.3532 x 10⁻³

WELL	1	2	3	4	5	6	7	8	9	10
	0	6948							12230	
	0	179842							316543	

1888.2	2641.2	2656.2	2672.2	2674.2	2675.2	32274.2	3285.2	3296.2	3297.2
283	395	398	400	400	400	4.90	4.92	4.93	4.94
519	569	569	569	569	569	595	595	595	595
1.35	1.48	1.48	1.48	1.48	1.48	1.55	1.55	1.55	1.55
672	763	764	764	764	764	824	825	825	826

5.4139	6.0832	6.1102	6.1470	6.1576	6.1539	6.6782	6.6925	6.7149	6.7088
02931									
1602 x 10 ⁻²									

04533	05303	05335	05380	05386	05389	06061	06080	06111	06103
119438	114725	114526	114250	114215	114198	110172	110061	109886	109934
753	768	784.0	786	787	787	599	610	621	622
234.163	229.251	228.776	228.465	228.443	228.433	224.370	220.133	219.947	219.820
						179761			136728
						179761			316489

$P = 1888.2 + \frac{3 \times 37.5 \times 12230 \times 6.902}{18.1170 + 114.198 + 109.934} = 3272.2 \text{ PSI} @ 12230$

Calculation to be filed in District Office (Note: Copy attached)

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RD Flow Rate
(PAGE 2)

10-10-87
PAGE 11A OF 12
DATE 9-28-87

NOV	SOURCE	1	2	3	4	5	6	7	8	9	10
		12730	13896					13896	6948		
		316543	359663					359663	179832		
		32722	34682	3449.2	3433.2	3432.2		3432.2	2823.2	2838.2	2852.2
		4.90	5.19	5.16	5.14	5.14		5.14	4.28	4.25	4.27
		595	603	603	603	603		603	569	569	569
		1.55	1.57	1.57	1.57	1.57		1.57	1.48	1.48	1.48
		.824	.843	.841	.841	.841		.841	.772	.773	.771
		6.6741	6.8227	6.8015	6.7700	6.7680		6.7680	6.4437	6.4528	6.5015
		.04454	.04655					0			
		1.602x10 ⁻²	4.35x10 ⁻³					0			
		.06056	.05090	.05061	.05019	.05015		0			
		110.204	134.034	134.380	134.899	134.931		147.751	155.181	154.770	153.811
			196	177	160	161		609	602	594	580
		244.238	268.414	269.279	269.830			302.943	310.159		308.781
								778.008			
		316543	Σ					359663			

DATE	DESCRIPTION	AMOUNT	BALANCE
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$$2. - 2 \quad \lambda P = 2432.2 - 3*37.5*13896*1.602 = 2256.2$$

4th Flow Rate

WORK SHEET FOR PRODUCTION CALCULATION (PAGE 1)
 (SEE PAGE 2 FOR PRODUCTION CALCULATION)
 DATE 9-28-87

LEASE JOHN L Cox WACH RIDGE WELL NO. 2 DATE 9-28-87

Section	1	2	3	4	5	6	7	8	9	10
13896	13896	1	0.6902	0.002	397	0.813	0.405			
Turnout	2.323	0.0194	1.6123	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Casings	3826	0.00345								
	0	6948								
	0	179834								
	1153.2	2010.2	1975.2	1943.2	1942.2	2542.2	2548.2	2554.2	2555.2	2555.8
	1.73	3.01	2.96	2.91	2.91	3.81	3.81	3.82	3.83	3.84
	520	569	569	569	569	595	595	595	595	595
	1.35	1.48	1.48	1.48	1.48	1.55	1.55	1.55	1.55	1.55
	763	764	766	767	767	795	795	795	795	795
	2.9065	4.6242	4.5318	4.4526	4.4503	5.3743	5.3870	5.3997	5.4018	5.4242
	0.08448									0.2942
	1.925x10 ⁻²									5.2319x10 ⁻³
	0.2770	0.4063	0.3979	0.3908	0.3906	0.4813	0.4827	0.4841	0.4843	0.3465
	104.934	113.801	113.898	113.945	113.947	111.652	111.600	111.546	111.537	156.524
	857	822	790	789	789	600	606	612	613	
	218.735	227.699	227.843	227.892	225.511	223.252	223.146	223.083		
						179807				
						179807				
										316543

3 * 37.5 * 12230 * 0.902 = 2525.80

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2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020

LEASE Jones L Cox UACA Road & Ferry WELL NO. 2 DATE 2-28-87

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5. Flora and Fauna	5	5
6. Population	6	6
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8. Culture	8	8
9. Education	9	9
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11. Transportation	11	11
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14. Government	14	14
15. International Relations	15	15
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13836	13837	13838	13839	13840	13841	13842	13843	13844	13845	13846	13847	13848	13849	13850	13851	13852	13853	13854	13855	13856	13857	13858	13859	13860	13861	13862	13863	13864	13865	13866	13867	13868	13869	13870	13871	13872	13873	13874	13875	13876	13877	13878	13879	13880	13881	13882	13883	13884	13885	13886	13887	13888	13889	13890	13891	13892	13893	13894	13895	13896	13897	13898	13899	13900	13901	13902	13903	13904	13905	13906	13907	13908	13909	13910	13911	13912	13913	13914	13915	13916	13917	13918	13919	13920	13921	13922	13923	13924	13925	13926	13927	13928	13929	13930	13931	13932	13933	13934	13935	13936	13937	13938	13939	13940	13941	13942	13943	13944	13945	13946	13947	13948	13949	13950	13951	13952	13953	13954	13955	13956	13957	13958	13959	13960	13961	13962	13963	13964	13965	13966	13967	13968	13969	13970	13971	13972	13973	13974	13975	13976	13977	13978	13979	13980	13981	13982	13983	13984	13985	13986	13987	13988	13989	13990	13991	13992	13993	13994	13995	13996	13997	13998	13999	14000
13836	13837	13838	13839	13840	13841	13842	13843	13844	13845	13846	13847	13848	13849	13850	13851	13852	13853	13854	13855	13856	13857	13858	13859	13860	13861	13862	13863	13864	13865	13866	13867	13868	13869	13870	13871	13872	13873	13874	13875	13876	13877	13878	13879	13880	13881	13882	13883	13884	13885	13886	13887	13888	13889	13890	13891	13892	13893	13894	13895	13896	13897	13898	13899	13900	13901	13902	13903	13904	13905	13906	13907	13908	13909	13910	13911	13912	13913	13914	13915	13916	13917	13918	13919	13920	13921	13922	13923	13924	13925	13926	13927	13928	13929	13930	13931	13932	13933	13934	13935	13936	13937	13938	13939	13940	13941	13942	13943	13944	13945	13946	13947	13948	13949	13950	13951	13952	13953	13954	13955	13956	13957	13958	13959	13960	13961	13962	13963	13964	13965	13966	13967	13968	13969	13970	13971	13972	13973	13974	13975	13976	13977	13978	13979	13980	13981	13982	13983	13984	13985	13986	13987	13988	13989	13990	13991	13992	13993	13994	13995	13996	13997	13998	13999	14000

[illegible][illegible]

2. 2705-8

John L Cox LEASE UACB Ridge Ford 4 WELL NO. 2 DATE 9-28-87

SECTION	Township	Range
1	14 N	10 E
2	14 N	10 E
3	14 N	10 E
4	14 N	10 E
5	14 N	10 E
6	14 N	10 E
7	14 N	10 E
8	14 N	10 E
9	14 N	10 E
10	14 N	10 E
11	14 N	10 E
12	14 N	10 E
13	14 N	10 E
14	14 N	10 E
15	14 N	10 E
16	14 N	10 E
17	14 N	10 E
18	14 N	10 E
19	14 N	10 E
20	14 N	10 E
21	14 N	10 E
22	14 N	10 E
23	14 N	10 E
24	14 N	10 E
25	14 N	10 E
26	14 N	10 E
27	14 N	10 E
28	14 N	10 E
29	14 N	10 E
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67	14 N	10 E
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69	14 N	10 E
70	14 N	10 E
71	14 N	10 E
72	14 N	10 E
73	14 N	10 E
74	14 N	10 E
75	14 N	10 E
76	14 N	10 E
77	14 N	10 E
78	14 N	10 E
79	14 N	10 E
80	14 N	10 E
81	14 N	10 E
82	14 N	10 E
83	14 N	10 E
84	14 N	10 E
85	14 N	10 E
86	14 N	10 E
87	14 N	10 E
88	14 N	10 E
89	14 N	10 E
90	14 N	10 E
91	14 N	10 E
92	14 N	10 E
93	14 N	10 E
94	14 N	10 E
95	14 N	10 E
96	14 N	10 E
97	14 N	10 E
98	14 N	10 E
99	14 N	10 E
100	14 N	10 E

[illegible]
$$\begin{array}{r} 1110 \\ 3 \times 375 = 1125 \\ \hline 1110 \\ \hline 15 \end{array}$$

One copy to be filed in District Office. Work copy destroyed.