NEW MEXICO OIL CONSERVATION COMMSSION

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-58

Type Test: [X] Initial [ ] Annual [ ] Special				Test Date: 6-4-81	
Company: Energy Reserves Group		Connection: To Air			
Pool: (WILDCAT-UNITIZED)		Cisco			Unit
Completion Date: 6-1-81	Total Depth: 8100		Plug Back TD: 7818	Elevation: 4387	Farm or Lease Name: Radcliff
Csg. Size: 4½ / Wt.: 10.6 / d: 4.892 / Set At: 8100			Perforations: From 7647 To 7760		Well: 1
Tbg. Size: 2 7/8 / Wt.: 4.6 / d: 1.995 / Set At: 7625			Perforations: From Open To Ended		Unit: E / Sec.: 30 / Twp.: 5S / Rge.: 33E
Type Well – Single – Bradenhead – G.G. or G.O. Multiple: Single			Packer Set At: 7625		County: Roosevelt
Producing Thru: Tubing	Reservoir Temp. °F: 170 @ 7750	Mean Annual Temp. °F: 60	Baro. Press. – P_a: 13.2		State: N. Mex.

L	H	Gg	% CO_2	% N_2	% H_2S	Prover	Meter Run	Taps
7750	7750	7463	.305	11.060	-0-		3	Flange

NO.	FLOW DATA: Prover Line Size X Orifice Size	Press. p.s.i.g.	Diff. h_w	Temp. °F	TUBING DATA: Press. p.s.i.g.	Temp. °F	CASING DATA: Press. p.s.i.g.	Temp. °F	Duration of Flow
SI					1760		PKR	Choke	24 Hrs.
1.	3" x 1.25	490	9"	60	1570	92		9/64	1 Hr.
2.	3" x 1.25	500	25"	60	1513	86		11/64	3/4 Hr.
3.	3" x 1.25	500	34"	60	1425	88		12/64	3/4 Hr.
4.	3" x 1.25	500	45"	60	1301	88		14/64	3/4 Hr.
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	7.577	67.30	503.2	.9706	1.158	1.045	599
2.	7.577	113.27	513.2	.9759	1.158	1.049	1,017
3	7.577	132.09	513.2	.9741	1.158	1.048	1,183
4.	7.577	151.97	513.2	.9741	1.158	1.048	1,361
5.							

NO.	P_t	Temp. °R	T_r	Z
1	.763	552	1.45	.915
2.	.779	546	1.43	.908
3.	.799	548	1.44	.910
4.	.799	548	1.44	.910
5				

Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons 10-Water=1.0 Deg.
Specific Gravity Separator Gas XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX ,84410
Critical Pressure 659 P.S.I.A. 659 P.S.I.A.
Critical Temperature 381 R 411 R

P_c *1845.4 P_c^2 3405.5

NO	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1		1218.85	1485.6	1919.9
2		1177.3	1374.3	2031.2
3		1110.9	1234.1	2171.4
4		1018.9	1030.2	2367.3
5				

$\frac{P_c^2}{P_c^2 - P_w^2}$ = 1.439 $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n$ = 1.439

$\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n$ = 1958.4

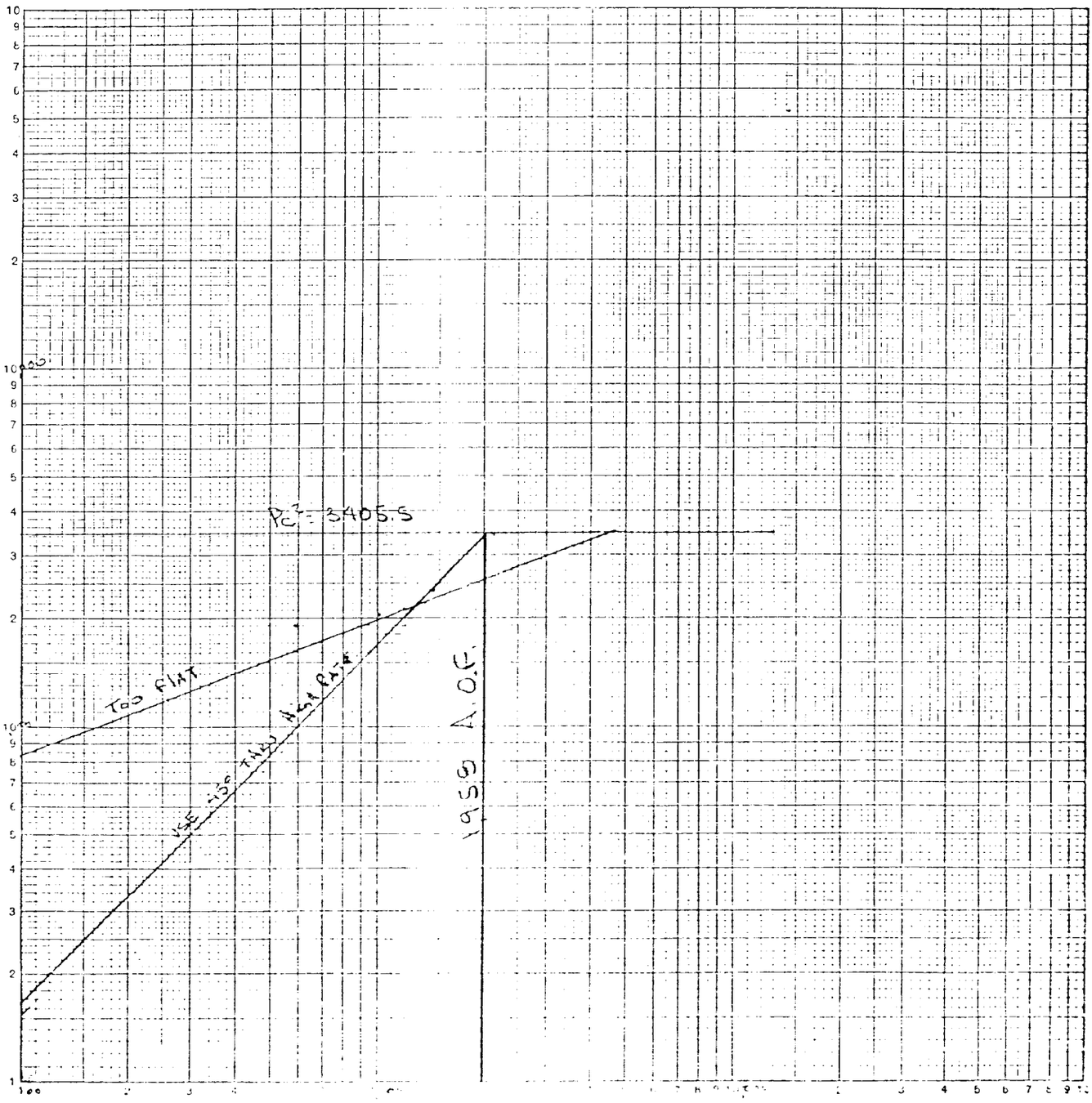
Absolute Open Flow 1958 Mcfd @ 15.025 Angle of Slope θ 45 Slope, n 1.00

Remarks: * Calculated from known Bottom Hole pressures
curve was to flat, used 45° thru high rate

Approved By Commission: _____ Calculated By: M.B. Computed By: M.B. Checked By: M.B.

Energy Recovery Unit

$$1.361\left(\frac{3405.5}{2367.3}\right)^{1.00} = 1.958$$



COMPANY [illegible] LEASE [illegible] WELL NO. 1 DATE 6-4-91

LOCATION: Unit _____ Section _____ Township _____ Range _____

7750 H 7750 L/H 1.000 G .84410 % CO_2 .305 % N_2 11.060 % H_2S -0-

GH 6542 P_{cr} 656 (TABLE IX & X) T_{cr} 411 (TABLE IX & X)

LINE		S.I. 1	S.I. 2	1ST RATE 3	1ST RATE 4	2ND RATE 5	2ND RATE 6	3RD RATE 7	3RD RATE 8
1	T_w (W.H. °R)	538	538	552	552	546	546	548	548
2	[illegible]	636	636	636	636	636	636	636	636
3	[illegible]	597	597	594	594	591	591	592	592
4	[illegible]	.760	.725	.743	.791	.745	.757	.825	.803
5	[illegible]	446	428	471	469	470	465	488	475
6	[illegible]	14.66816	15.35683	13.8895	13.94882	13.91914	14.06891	13.4057	13.77263
7	[illegible]	1.7334	1.77869	1.68346	1.68721	1.655340	1.694535	1.65320	1.67610
8	[illegible]	2461.2	2461.2	1583.2	1583.2	1526.2	1526.2	1435.2	1438.2
9	P_f^2 or P_s^2	6057.51	6057.51	2506.5	2506.5	2329.3	2329.3	2068.4	2068.4
10	$P_c^2 - P_f^2/es$ or $P_w^2 = P_s^2/es$	3494.58	3405.6	1488.91	1485.59	1382.1	1374.4	1251.1	1234.06
11	P_w or P_w	1869.38	1845.43	1220.2	1218.85	1175.63	1172.3	1118.53	1110.9
12	$P = \frac{P_w + P_s}{2}$ or $\frac{P_c + P_f}{2}$	2165.30	2153.3	1401.7	1401.0	1350.9	1349.25	1278.35	1274.6
13	$P_r = (P/P_{cr})$	3.30	3.28	2.14	2.14	2.06	2.06	1.95	1.94
14	$T_r = (T/T_{cr})$	1.43	1.43	1.45	1.45	1.44	1.44	1.44	1.44
15	Z (Table XI)	.725	SAme	.789	.789	.787	.787	.803	.803

LEASE Radar WELL NO. 1 DATE [illegible]

:ATION: Unit ______ Section ______ Township ______ Range ______

______ H ______ L/H ______ G ______ % CO_2 ______ % N_2 ______ % H_2S ______

GH ______ P_{cr} ______ (TABLE IX & X) T_{cr} ______ (TABLE IX & X)

E	1	2	3	4	5	6	7	8
T_w(W.H. °R)	548	548						
T_s(B.H. °R)	636	636						
$T = (\frac{T_w + T_s}{2})$	592	592						
Z (Est.)	.813	.815						
[illegible]	481	482						
[illegible]	13.6008	13.57261						
e^s (Table XIV)	1.66534	1.66358						
P_f or P_s	1314.2	1314.2						
P_f^2 or P_s^2	1727.1	1727.1						
$P_c^2 = P_f^2/e^s$ or $P_w^2 = P_s^2/e^s$	1037.1	1038.2						
P_c or P_w	1018.38	1018.9						
$P = (\frac{P_w + P_s}{2})$ or $(\frac{P_c + P_f}{2})$	1166.3	1166.6						
$P_r = (P/P_{cr})$	1.78	1.78						
$T_r = (T/T_{cr})$	1.44	1.44						
Z (Table XI)	.815	.815						

[illegible] District Office (Work copy acceptable)

NEW-TEX LAB
P. O. BOX 1161
HOBBS, N.M. 88240

No. 5103
Run No.
Date of Run 6-8-81
Date Secured 6-4-81

CERTIFICATE OF ANALYSIS

Sample of Energy Reserves Group Radcliff #1
Secured from West Engineering
412 N. Dal Paso
Hobbs, NM 88240
Secured by
Time Date
Sampling conditions Press
Temp.

FRACTIONAL ANALYSIS

Percentage Composition

	MOL %	LIQ. %	G.P.M.
Carbon Dioxide	.305		
Air			
Nitrogen	11.062		
Oxygen			
Hydrogen sulfide			
Hydrogen			
Methane	72.131		
Ethane	8.277		2.207
Propane	4.763		1.307
Hexanes			
Iso-Butane	.538		.176
N-Butane	1.868		.587
Hexanes			
Iso-Pentane	.286		.104
N-Pentane	.392		.142
Hexanes	.237		.097
Heptanes	.141		.065
Octanes			
TOTAL	100.000		4.685

Calc. Sp. Gr. — 0.7463
Calc. A.P.I. —
Calc. Vapor Press. — PSIA
Sp. Gr.
Mol. Wt. 21.62

LIQUID CONTENT (GAL./MCF)

Propane Calc. G.P.M.	1.307
Butanes Calc. G.P.M.	.763
Pentanes Plus G.P.M.	.408
Ethane Calc. G.P.M.	2.207
Reid RVP Gasoline G.P.M.	

B.T.U. Cu. Ft. @ 14.696 P.S.I.A.

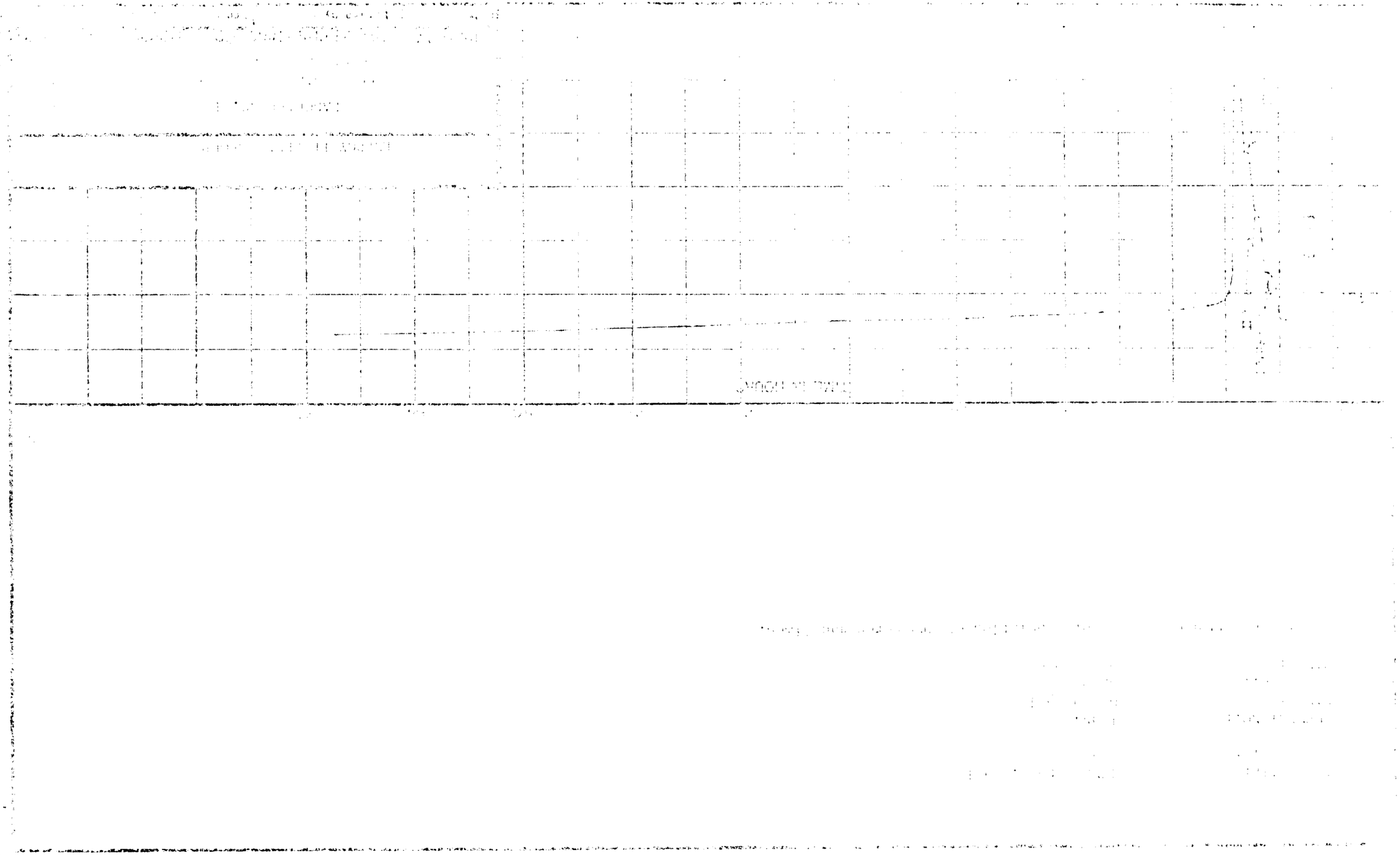
Dry Basis	1119
Wet Basis	1099

Sulfur Analysis by Titration
Gr. 100 Cu. Ft.

Hydrogen Sulfide	
Mercaptans	
Sulfides	
Residual Sulfur	
Total Sulfur	

Run by Deane Simpson Checked by Approved by

Additional Data and Remarks



ENERGY RESERVES GROUP, INC.
RADCLIFF NO. 1
Bottom Hole Pressure Build-Up Test
and 4-Point Back Pressure Test
Tabulation of Pressure and Time

TEST DATE: June 4 to 7, 1981
TEST DEPTH: 7750 Feet
ELEMENT NO.: 18054
OPERATOR: M.R.

DATE	TIME	CUM.HRS./MIN.	PSIG @ 7750 FEET
6-4-81	10:15a.m.		2448 Gauge reached 7750'
	10:20		2448 Open choke to light heater
	10:45	00 hrs. 00Min	2443 9/64 choke
	11:00	00 15	2392
	11:15	00 30	2367
	11:30	00 45	2362
	11:45a.m.	01 00	2360 End Rate I
	12:00noon	01 15	2285 11/64 choke
	12:15p.m.	01 30	2259
	12:30p.m.	01 45	2246 End Rate II
	12:45	02 00	2057 12/64 choke
	1:00	02 15	2140
	1:15	02 30	2137 End Rate III
	1:30	02 45	2057 14/64 choke
	1:45	03 00	2016
	2:00 p.m.	03 15	2009 End Rate IV, Shut in
	2:00 p.m.	00 hrs. 00 min.	2009 Begin Build-Up
		00 15	2356
		00 30	2398
		00 45	2411
	3:00	01 00	2416
	4:00	02 00	2421
	5:00	03 00	2423
	6:00	04 00	2427
6-4-81	7:00p.m.	05 00	2429
6-5-81	12:00MN	10 00	2434
	10:00a.m.	20 00	2445
6-5-81	8:00p.m.	30 00	2453
6-6-81	6:00a.m.	40 00	2459
6-6-81	4:00p.m.	50 00	2464
6-7-81	2:00a.m.	60 00	2471
6-7-81	8:45a.m.	66 45	2475 Gauge out, End Test