



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION



BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

October 26, 1993

Texaco Exploration and Production, Inc.
P.O. Box 730
Hobbs, NM 88241

Attention: Darlene de Aragao

**RE: Injection Pressure Increase W.H. Rhodes "B" Federal
NCT-1, Lea County, New Mexico**

Dear Ms. de Aragao:

Reference is made to your request dated September 28, 1993 to increase the surface injection pressure on two wells in your W. H. Rhodes "B" Federal Waterflood Project. This request is based on step rate tests conducted on these wells on August 27 and 28, 1993. The results of the tests have been reviewed by my staff and we feel an increase in injection pressure on these wells is justified at this time.

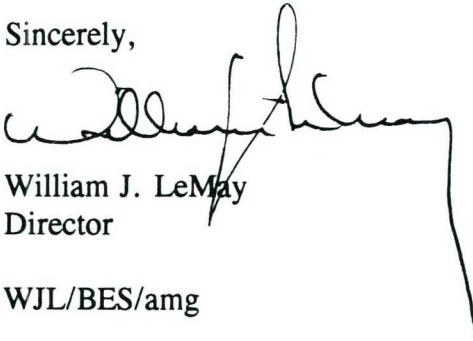
You are therefore authorized to increase the surface injection pressure on the following wells:

Well and Location	Maximum Injection Surface Pressure
W. H. Rhodes "B" Federal NCT-1 Well No. 6 Unit I, Section 27, Township 26 South, Range 37 East	1712 psig
W.H. Rhodes "B" Federal NCT-1 Well No. 13 Unit E, Section 36, Township 17 South, Range 36 East	1110 psig
Both wells located in Lea County, New Mexico.	

Injection Pressure Increase
Texaco Exploration and Production, Inc.
October 26, 1993
Page 2

The Division Director may rescind this injection pressure increase if it becomes apparent that the injected water is not being confined to the injection zone or is endangering any fresh water aquifers.

Sincerely,

A handwritten signature in black ink, appearing to read 'William J. LeMay', with a long horizontal stroke extending to the right and a vertical line dropping down from the end.

William J. LeMay
Director

WJL/BES/amg

cc: Oil Conservation Division - Hobbs
File: Case No. 10572

NO WAITING PERIOD

COMPANY: **Texaco Exploration & Production, Inc.**
ADDRESS: **P.O. Box 730**
CITY, STATE, ZIP: **Hobbs, New Mexico 88241**
ATTENTION: **Mr. T.L. Frazier, Ms. Darlene de Aragao**

Re: **Injection Pressure Increase**
W.H. Rhodes "B" Federal NCT-1
Lea County, New Mexico

Dear Sir:

Reference is made to your requests dated **September 28, 1993**, to increase the surface injection pressure on **2 wells in your W.H. Rhodes "B" Federal Waterflood Project**. This request is based on step rate tests conducted on these wells on **August 27 and 28, 1993**. The results of the tests have been reviewed by my staff and we feel an increase in injection pressure on these wells is justified at this time.

You are therefore authorized to increase the surface injection pressure on the following wells:

<u>Well & Location</u>	<u>Maximum Injection Surface Pressure</u>
W.H. Rhodes "B" Federal NCT-1 Well No.6 Unit I, Section 27-T26S-R37E	1712 psig
W.H. Rhodes "B" Federal NCT-1 Well No.13 Unit E, Section 36, T17S, R36E	1110 psig

The Division Director may rescind this injection pressure increase if it becomes apparent that the injected water is not being confined to the injection zone or is endangering any fresh water aquifers.

William J. LeMay
Director

WJL/BES

xc: **OCD - Hobbs**
FILE- Case No.10572
ref: **R-9847**

Arx N/R

OIL CONSERVATION DIVISION
RECEIVED

'93 OCT 6 AM 9 09

September 28, 1993

New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe N.M. 87504

Attn: Mr. David Catanach
Engineer, New Mexico Oil Conservation Division

Re: PRESSURE INCREASE ON INJECTION WELL
Rhodes B Federal NCT-1 No. 13
Unit O, Section 27
T-26-S, R-37-E
Lea County, New Mexico

Dear David:

Texaco Exploration and Production Inc. requests an increase in the maximum allowable pressure on the above well from 660 psig to 1240 psig. A step rate injection test was ran on the well. Results of the test are attached. 1110

If you have any questions concerning this request, please contact me at 397-0424. Thank you for your assistance in this matter.

Yours very truly,

Darlene de Aragao
Darlene de Aragao
Production Engineer

/ddd
Chrono
Attachments
cc: Jerry Sexton/NMOCD/Hobbs

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: TEXACO EXPLORATION AND PRODUCTION

DATE: AUGUST 27, 1993

WELL NAME: RHODES B FEDERAL NCT-1 NO. 13
Lea County, New Mexico

WO#: 92-14-1591

MID-PERFS. = 3247

PACKER DEPTH = 3088

MDR = 3244

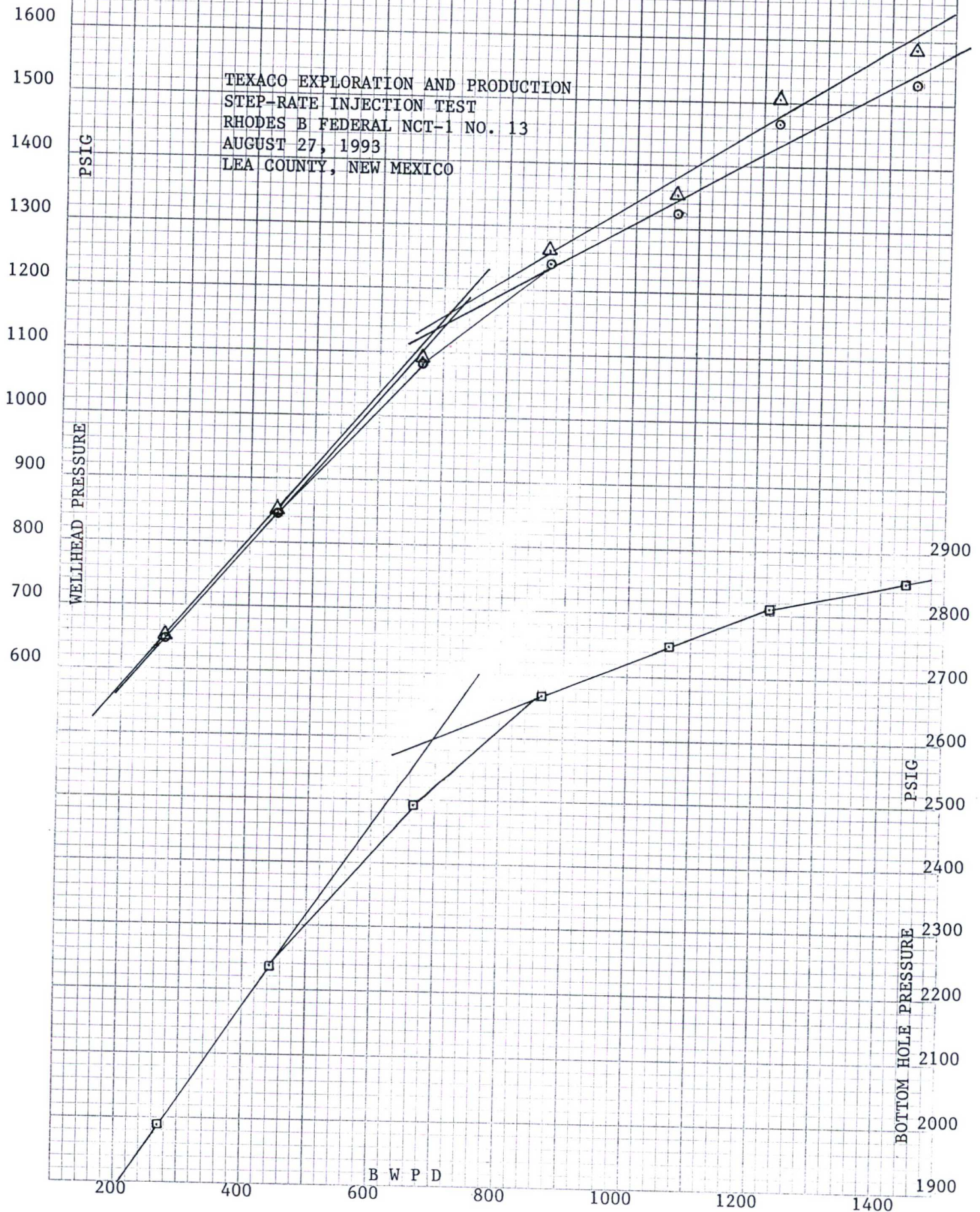
BHP GAUGE DEPTH = 3230

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)-(4)	(6) INJECTION RATE (gpm) (8)/34.2887	(7) MEASURED BHP (psi)
1	9:00	379.0				379.0		1666
	9:05	562.8	1.0	288.0	2.798	560.0	8.40	1848
	9:10	623.0	1.9	259.2	2.302	620.7	7.56	1900
	9:15	663.6	2.8	259.2	2.302	661.3	7.56	1928
	9:20	656.7	3.7	259.2	2.302	654.4	7.56	1849
	9:25	661.4	4.7	288.0	2.798	658.6	8.40	1971
	9:30	652.2	5.6	259.2	2.302	649.9	7.56	1989
				268.8				
	9:35	746.7	7.2	460.8	6.675	740.0	13.44	2114
	9:40	763.2	8.7	432.0	5.923	757.3	12.60	2154
2	9:45	773.3	10.3	460.8	6.675	766.6	13.44	2181
	9:50	800.0	11.8	432.0	5.923	794.1	12.60	2205
	9:55	817.6	13.3	432.0	5.923	811.7	12.60	2220
	10:00	850.7	14.8	432.0	5.923	844.8	12.60	2239
				441.6				
	10:05	1003.9	17.2	691.2	14.132	989.8	20.16	2371
	10:10	1042.2	19.5	662.4	13.062	1029.1	19.32	2406
	10:15	1067.8	21.8	662.4	13.062	1054.7	19.32	2432
	10:20	1066.5	24.1	662.4	13.062	1053.4	19.32	2456
	10:25	1079.2	26.4	662.4	13.062	1066.1	19.32	2476
3	10:30	1093.3	28.7	662.4	13.062	1080.2	19.32	2493
				667.2				
	10:35	1185.4	31.8	892.8	22.689	1162.7	26.04	2582
	10:40	1201.9	34.8	864.0	21.354	1180.5	25.20	2605
	10:45	1230.0	37.8	864.0	21.354	1208.6	25.20	2625
	10:50	1224.8	40.8	864.0	21.354	1203.4	25.20	2643
	10:55	1252.9	43.8	864.0	21.354	1231.5	25.20	2662
	11:00	1260.6	46.7	835.2	20.056	1240.5	24.36	2669
				864.0				

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS (psig) (1)-(4)	(6) INJECTION RATE (gpm) (8)/34.2857	(7) MEASURED BHP (psig)
5	11:05	1320.6	50.4	1065.6	31.476	1289.1	31.08	2707
	11:10	1325.8	54.1	1065.6	31.476	1294.3	31.08	2720
	11:15	1349.1	57.8	1065.6	31.476	1317.6	31.08	2733
	11:20	1344.2	61.5	1065.6	31.476	1312.7	31.08	2739
	11:25	1355.4	65.2	1065.6	31.476	1323.9	31.08	2743
	11:30	1353.9	68.9	1065.6	31.476	1322.4	31.08	2750
				1065.6				
	11:35	1433.4	73.2	1238.4	41.564	1391.8	36.12	2792
	11:40	1458.1	77.5	1238.4	41.564	1416.5	36.12	2798
	11:45	1484.2	81.8	1238.4	41.564	1442.6	36.12	2805
6	11:50	1492.9	86.0	1209.6	39.794	1453.1	35.28	2803
	11:55	1498.6	90.2	1209.6	39.794	1458.8	35.28	2806
	12:00	1504.5	94.4	1209.6	39.794	1464.7	35.28	2811
				1224.0				
	12:05	1585.0	99.4	1440.0	54.941	1530.1	42.00	2851
	12:10	1587.4	104.4	1440.0	54.941	1532.5	42.00	2853
	12:15	1591.3	109.4	1440.0	54.941	1536.4	42.00	2862
	12:20	1582.5	114.4	1440.0	54.941	1527.6	42.00	2853
	12:25	1581.2	119.4	1440.0	54.941	1526.3	42.00	2852
	12:30	1585.4	124.4	1440.0	54.941	1530.5	42.00	2856
7 FALLOFF				1440.0				
	12:31	1321.8				1321.8		2707
	12:32	1284.8				1284.8		2672
	12:33	1261.8				1261.8		2650
	12:34	1243.9				1243.9		2631
	12:35	1231.1				1231.1		2618
	12:40	1182.6				1182.6		2567
	12:45	1145.3				1145.3		2528

- △ RECORDED WELLHEAD PRESSURE
- CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
- BOTTOM HOLE PRESSURE @ 3244 FEET

TEXACO EXPLORATION AND PRODUCTION
 STEP-RATE INJECTION TEST
 RHODES B FEDERAL NCT-1 NO. 13
 AUGUST 27, 1993
 LEA COUNTY, NEW MEXICO



OIL CONSERVATION DIVISION
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September 28, 1993

New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe N.M. 87504

Attn: Mr. David Catanach
Engineer, New Mexico Oil Conservation Division

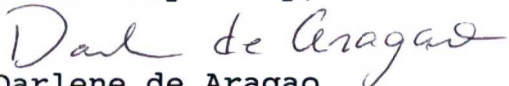
Re: PRESSURE INCREASE ON INJECTION WELL
Rhodes B Federal NCT-1 No. 6
Unit I, Section 27
T-26-S, R-37-E
Lea County, New Mexico

Dear David:

Texaco Exploration and Production Inc. requests an increase in the maximum allowable pressure on the above well from 660 psig to 1740 psig. A step rate injection test was ran on the well. Results of the test are attached.

If you have any questions concerning this request, please contact me at 397-0424. Thank you for your assistance in this matter.

Yours very truly,


Darlene de Aragao
Production Engineer

/ddd
Chrono
Attachments
cc: Jerry Sexton/NMOCD/Hobbs

1712

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: TEXACO EXPLORATION AND PRODUCTION

DATE: AUGUST 28, 1993

WELL NAME: RHODES B FEDERAL NCT-1 NO. 6

WO#: 83-14-1582

Lea County, New Mexico

MID-PERF8. = 3115

PACKER DEPTH = 3016

BHP GAUGE DEPTH = 3115

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)-(4)	(6) INJECTION RATE (gpm) (8)/34.2857	(7) MEASURED BHP (psi)
1	8:15	235.7				235.7		1530
	8:20	581.7	1.0	288.0	2.686	579.0	8.40	1921
	8:25	695.2	1.7	201.6	1.389	693.8	5.88	2033
	8:30	742.2	2.3	172.8	1.044	741.2	5.04	2078
	8:35	781.7	2.8	144.0	0.745	781.0	4.20	2114
	8:40	807.0	3.3	144.0	0.745	806.3	4.20	2141
	8:45	828.6	3.8	144.0	0.745	827.9	4.20	2155
				182.4				
	8:50	1027.7	4.7	259.2	2.211	1025.5	7.56	2346
	8:55	1094.1	5.6	259.2	2.211	1091.9	7.56	2412
2	9:00	1163.0	6.4	230.4	1.778	1161.2	6.72	2470
	9:05	1183.3	7.3	259.2	2.211	1181.1	7.56	2517
	9:10	1198.5	8.2	259.2	2.211	1196.3	7.56	2548
	9:15	1212.4	9.1	259.2	2.211	1210.2	7.56	2576
				254.4				
	9:20	1368.4	10.4	374.4	4.365	1364.0	10.92	2727
	9:25	1420.7	11.7	374.4	4.365	1416.3	10.92	2787
	9:30	1456.4	12.9	345.6	3.764	1452.6	10.08	2830
	9:35	1487.0	14.2	374.4	4.365	1482.6	10.92	2863
	9:40	1511.1	15.4	345.6	3.764	1507.3	10.08	2892
3	9:45	1527.6	16.6	345.6	3.764	1523.8	10.08	2913
				360.0				
	9:50	1613.1	18.3	489.6	7.170	1605.9	14.28	2998
	9:55	1637.2	19.9	460.8	6.409	1630.8	13.44	3021
	10:00	1653.7	21.5	460.8	6.409	1647.3	13.44	3033
	10:05	1662.6	23.1	460.8	6.409	1656.2	13.44	3041
	10:10	1690.7	24.7	460.8	6.409	1684.3	13.44	3052
	10:15	1686.7	26.3	460.8	6.409	1680.3	13.44	3060
				465.6				

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psf)	(5) CORRECTED TUBING PRESS. (psf) (1) - (4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psf)
5	10:20	1760.9	28.3	576.0	9.685	1751.2	16.80	3118
	10:25	1785.1	30.2	547.2	8.808	1776.3	15.96	3130
	10:30	1773.4	32.1	547.2	8.808	1764.6	15.96	3141
	10:35	1795.0	34.1	576.0	9.685	1785.3	16.80	3126
	10:40	1772.0	36.0	547.2	8.808	1763.2	15.96	3142
6	10:45	1789.8	37.9	547.2	8.808	1781.0	15.96	3165
				556.8				
	10:50	1982.8	40.6	777.6	16.873	1965.9	22.68	3337
	10:55	2000.6	43.2	748.8	15.735	1984.9	21.84	3356
	11:00	1836.9	45.8	748.8	15.735	1821.2	21.84	3199
7	11:05	1816.3	48.4	748.8	15.735	1800.6	21.84	3181
	11:10	1820.2	51.1	777.6	16.873	1803.3	22.68	3181
	11:15	1809.1	53.7	748.8	15.735	1793.4	21.84	3177
				758.4				
	11:20	1857.6	57.0	950.4	24.458	1833.1	27.72	3197
8	11:25	1814.2	60.3	950.4	24.458	1789.7	27.72	3150
	11:30	1796.7	63.7	979.2	25.847	1770.9	28.56	3142
	11:35	1812.2	67.0	950.4	24.458	1787.7	27.72	3151
	11:40	1808.0	70.4	979.2	25.847	1782.2	28.56	3155
	11:45	1801.1	73.7	950.4	24.458	1776.6	27.72	3159
FALLOFF				960.0				
	11:50	1842.7	77.7	1152.0	34.913	1807.8	33.60	3171
	11:55	1844.7	81.7	1152.0	34.913	1809.8	33.60	3175
	12:00	1849.5	85.7	1152.0	34.913	1814.6	33.60	3178
	12:05	1853.2	89.6	1123.2	33.316	1819.9	32.76	3180
8	12:10	1855.6	93.6	1152.0	34.913	1820.7	33.60	3181
	12:15	1867.4	97.6	1152.0	34.913	1832.5	33.60	3182
				1147.2				
	12:16	1718.8				1718.8		3118
	12:17	1703.5				1703.5		3102
FALLOFF	12:18	1690.6				1690.6		3089
	12:19	1680.3				1680.3		3078
	12:20	1667.5				1667.5		3065
	12:25	1634.0				1634.0		3033
	12:30	1610.7				1610.7		3010

- △ RECORDED WELLHEAD PRESSURE
- CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
- BOTTOM HOLE PRESSURE @ 3115 FEET

TEXACO EXPLORATION AND PRODUCTION
 STEP-RATE INJECTION TEST
 RHODES B FEDERAL NCT-1 NO. 6
 LEA COUNTY, NEW MEXICO
 AUGUST 28, 1993

