

WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: TEXACO EXPLORATION AND PRODUCTION

DATE: DECEMBER 5, 1996

WELL NAME: CENTRAL VACUUM UNIT NO. 72  
LEA COUNTY, NEW MEXICO

WO#: 96-14-1583

PERFS = 4373-4695

PACKER DEPTH = 4320

BHP GAUGE DEPTH = 4534

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) (3)/34.2857	(7) MEASURED BHP (psi)
	9:25	506.6				506.6		2415.3
	9:30	293.4	2.1	604.8	15.428	278.0	17.64	2321.6
	9:35	271.8	4.4	662.4	18.256	253.5	19.32	2300.4
	9:40	264.2	7.0	748.8	22.904	241.3	21.84	2286.8
	9:45	254.0	9.7	777.6	24.560	229.4	22.68	2277.7
	9:50	243.8	12.5	806.4	26.269	217.5	23.52	2268.6
1	9:55	241.3	15.2	777.6	24.560	216.7	22.68	2262.6
				729.6				
	10:00	352.9	20.3	1468.8	79.654	273.2	42.84	2315.5
	10:05	379.5	25.4	1468.8	79.654	299.8	42.84	2332.1
	10:10	390.9	30.5	1468.8	79.654	311.2	42.84	2344.2
	10:15	393.4	35.6	1468.8	79.654	313.7	42.84	2353.3
	10:20	399.7	40.7	1468.8	79.654	320.0	42.84	2359.4
2	10:25	403.5	45.8	1468.8	79.654	323.8	42.84	2365.4
				1468.8				
	10:30	563.4	53.2	2131.2	158.592	404.8	62.16	2431.9
	10:35	593.8	60.6	2131.2	158.592	435.2	62.16	2459.1
	10:40	610.3	68.0	2131.2	158.592	451.7	62.16	2478.8
	10:45	634.4	75.4	2131.2	158.592	475.8	62.16	2495.4
	10:50	649.6	82.8	2131.2	158.592	491.0	62.16	2509
3	10:55	661.0	90.1	2102.4	154.650	506.4	61.32	2519.6
				2126.4				
	11:00	800.6	99.9	2822.4	266.668	533.9	82.32	2589.1
	11:05	832.3	109.6	2793.6	261.656	570.6	81.48	2616.2
	11:10	861.5	119.4	2822.4	266.668	594.8	82.32	2638.9
	11:15	891.9	129.1	2793.6	261.656	630.2	81.48	2660.1
	11:20	922.3	138.9	2822.4	266.668	655.6	82.32	2675.2
4	11:25	912.1	148.7	2822.4	266.668	645.4	82.32	2690.4

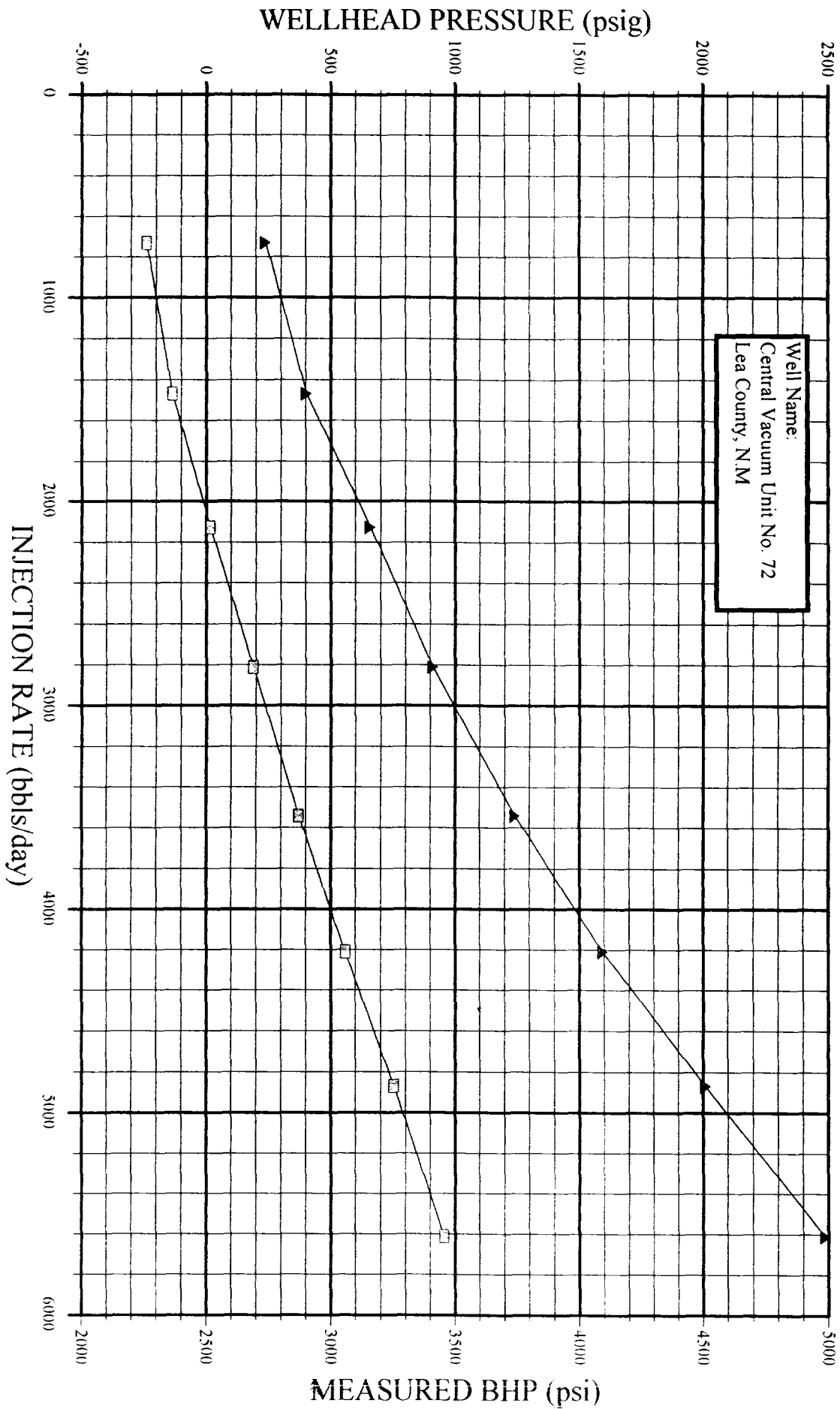
2812.8

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) (3)/34.2857	(7) MEASURED BHP (psi)	
5	11:30	1141.6	161.0	3542.4	406.001	735.6	103.32	2759.9	
	11:35	1173.3	173.4	3571.2	412.128	761.2	104.16	2790.2	
	11:40	1193.5	185.6	3513.6	399.915	793.6	102.48	2814.3	
	11:45	1216.3	198.0	3571.2	412.128	804.2	104.16	2835.5	
	11:50	1232.8	210.3	3542.4	406.001	826.8	103.32	2853.7	
	11:55	1244.2	222.5	3513.6	399.915	844.3	102.48	2871.8	
				3542.4					
	12:00	1502.7	237.2	4233.6	564.598	938.1	123.48	2944.4	
	12:05	1550.9	251.8	4204.8	557.513	993.4	122.64	2979.2	
	12:10	1552.2	266.3	4176.0	550.470	1001.7	121.80	3000.4	
6	12:15	1585.1	281.0	4233.6	564.598	1020.5	123.48	3023	
	12:20	1583.9	295.6	4204.8	557.513	1026.4	122.64	3042.7	
	12:25	1595.4	310.2	4204.8	557.513	1037.9	122.64	3059.4	
				4209.6					
	12:30	1875.6	327.2	4896.0	738.810	1136.8	142.80	3135	
	12:35	1913.7	344.0	4838.4	722.811	1190.9	141.12	3166.8	
	12:40	1988.5	360.7	4809.6	714.871	1273.6	140.28	3195.6	
	12:45	2008.7	377.6	4867.2	730.790	1277.9	141.96	3215.2	
	12:50	2007.4	394.6	4896.0	738.810	1268.6	142.80	3233.3	
	12:55	2011.1	411.6	4896.0	738.810	1272.3	142.80	3252.9	
7				4867.2					
	1:00	2322.7	431.1	5616.0	952.284	1370.4	163.80	3327	
	1:05	2349.3	450.5	5587.2	943.269	1406.0	162.96	3361.8	
	1:10	2414.2	469.9	5587.2	943.269	1470.9	162.96	3396.6	
	1:15	2418.0	489.5	5644.8	961.338	1456.7	164.64	3416.2	
	1:20	2423.0	508.9	5587.2	943.269	1479.7	162.96	3437.4	
	1:25	2490.4	528.5	5644.8	961.338	1529.1	164.64	3458.5	
				5611.2					
	8								
		OUT							
FALLOFF		1:26	1202.0			1202.0		3272.4	
		1:27	1146.2			1146.2		3204.3	
		1:28	1095.5			1095.5		3152.8	
		1:29	1053.7			1053.7		3092.3	
		1:30	1018.2			1018.2		3074.2	
		1:35	886.2			886.2		2942.6	
		1:40	792.3			792.3		2848.9	
		1:45	717.4			717.4		2774.8	

# STEP RATE INJECTION TEST

## TEXACO EXPLORATION AND PRODUCTION

Well Name:  
Central Vacuum Unit No. 72  
Lea County, N.M



▲ RECORDED WELLHEAD PRES.      □ BOTTOM HOLE PRESSURE (4,534)