

WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: TEXACO EXPLORATION AND PRODUCTION

DATE: DECEMBER 4, 1996

WELL NAME: CENTRAL VACUUM UNIT NO. 56
LEA COUNTY, NEW MEXICO

WO#: 96-14-1582

PERFS = 4710-4341

PACKER DEPTH = 4239

BHP GAUGE DEPTH = 4525

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)/24,2857	(7) MEASURED BHP (psi)
	9:40	507.7				507.7		2555.7
	9:45	706.9	1.9	547.2	12.795	694.1	15.96	2717.5
	9:50	774.1	3.9	576.0	14.068	760.0	16.80	2781.0
	9:55	807.1	5.9	576.0	14.068	793.0	16.80	2814.2
	10:00	836.3	8.0	604.8	15.397	820.9	17.64	2840.0
	10:05	823.6	9.9	547.2	12.795	810.8	15.96	2843.0
1	10:10	840.0	11.9	576.0	14.068	825.9	16.80	2855.1
				571.2				
	10:15	1008.0	15.7	1094.4	46.125	961.9	31.92	2973.0
	10:20	1046.7	19.4	1065.6	43.905	1002.8	31.08	3010.8
	10:25	1084.7	23.1	1065.6	43.905	1040.8	31.08	3038.1
	10:30	1102.4	26.9	1094.4	46.125	1056.3	31.92	3057.8
	10:35	1120.2	30.7	1094.4	46.125	1074.1	31.92	3072.9
2	10:40	1141.7	34.3	1036.8	41.735	1100.0	30.24	3085.0
				1075.2				
	10:45	1274.7	39.5	1497.6	82.404	1192.3	43.68	3178.8
	10:50	1326.7	44.7	1497.6	82.404	1244.3	43.68	3224.2
	10:55	1379.8	50.0	1526.4	85.359	1294.4	44.52	3268.1
	11:00	1411.5	55.3	1526.4	85.359	1326.1	44.52	3293.8
	11:05	1441.9	60.6	1526.4	85.359	1356.5	44.52	3316.5
3	11:10	1465.9	66.0	1555.2	88.363	1377.5	45.36	3337.7
				1521.6				
	11:15	1692.8	73.4	2131.2	158.277	1534.5	62.16	3461.7
	11:20	1752.4	80.6	2073.6	150.454	1601.9	60.48	3502.5
	11:25	1786.6	87.8	2073.6	150.454	1636.1	60.48	3534.3
	11:30	1790.4	95.0	2073.6	150.454	1639.9	60.48	3572.1
	11:35	1809.4	102.1	2044.8	146.611	1662.8	59.64	3596.2
4	11:40	1832.2	109.1	2016.0	142.814	1689.4	58.80	3622.0
				2068.8				

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	11:45	2028.7	117.8	2505.6	213.526	1815.2	73.08	3688.6	
	11:50	2044.0	126.8	2592.0	227.346	1816.7	75.60	3684.0	
	11:55	2047.8	135.8	2592.0	227.346	1820.5	75.60	3678.0	
	12:00	2040.2	144.9	2620.8	232.042	1808.2	76.44	3682.5	
	12:05	2014.8	154.0	2620.8	232.042	1782.8	76.44	3685.6	
	12:10	2037.7	163.0	2592.0	227.346	1810.4	75.60	3697.7	
					2587.2				
	12:15	2296.0	173.8	3110.4	318.547	1977.5	90.72	3765.8	
	12:20	2326.6	184.5	3081.6	313.112	2013.5	89.88	3791.5	
	12:25	2340.7	195.0	3024.0	302.371	2038.3	88.20	3812.7	
6	12:30	2363.7	205.8	3110.4	318.547	2045.2	90.72	3839.8	
	12:35	2387.9	216.4	3052.8	307.720	2080.2	89.04	3856.5	
	12:40	2399.5	227.1	3081.6	313.112	2086.4	89.88	3874.6	
					3076.8				
	12:45	2579.0	239.5	3571.2	411.310	2167.7	104.16	3918.5	
	12:50	2624.8	251.9	3571.2	411.310	2213.5	104.16	3942.6	
	12:55	2655.4	264.4	3600.0	417.468	2237.9	105.00	3960.8	
	1:00	2618.6	276.7	3542.4	405.195	2213.4	103.32	3965.3	
	1:05	2650.4	289.0	3542.4	405.195	2245.2	103.32	3972.9	
	7	1:10	2621.1	301.5	3600.0	417.468	2203.6	105.00	3978.9
					3571.2				
1:15		2887.1	315.8	4118.4	535.440	2351.7	120.12	4010.7	
1:20		2866.7	329.6	3974.4	501.321	2365.4	115.92	4022.8	
1:25		2871.8	343.5	4003.2	508.062	2363.7	116.76	4032.0	
1:30		2874.4	357.4	4003.2	508.062	2366.3	116.76	4038.2	
1:35		2892.2	371.4	4032.0	514.845	2377.4	117.60	4041.4	
8		1:40	2957.1	385.3	4003.2	508.062	2449.0	116.76	4044.5
						4022.4			
FALLOFF		1:41	1746.8				1746.8		3940.0
	1:42	1698.6				1698.6		3891.6	
	1:43	1663.1				1663.1		3855.3	
	1:44	1632.7				1632.7		3823.5	
	1:45	1606.1				1606.1		3794.7	
	1:50	1490.7				1490.7		3676.6	
	1:55	1390.5				1390.5		3575.2	

STEP RATE INJECTION TEST

TEXACO EXPLORATION AND PRODUCTION

