

WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: TEXACO EXPLORATION AND PRODUCTION

DATE: DECEMBER 10, 1996

WELL NAME: CENTRAL VACUUM UNIT NO. 99
LEA COUNTY, NEW MEXICO

WO#: 96-14-1585

PERFS = 4315-4712

TUBING DEPTH = 4271

BHP GAUGE DEPTH = 4200

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)
	9:20	889.6				889.6		2329.3
	9:25	959.4	1.9	547.2	11.876	947.5	15.96	2368.9
	9:30	993.7	3.8	547.2	11.876	981.8	15.96	2371.9
	9:35	1008.9	5.8	576.0	13.058	995.8	16.80	2381.1
	9:40	1010.1	7.7	547.2	11.876	998.2	15.96	2387.2
	9:45	1031.7	9.7	576.0	13.058	1018.6	16.80	2390.2
1	9:50	1032.9	11.6	547.2	11.876	1021.0	15.96	2393.3
				556.8				
	9:55	1206.6	15.9	1238.4	53.813	1152.8	36.12	2429.9
	10:00	1245.9	20.1	1209.6	51.521	1194.4	35.28	2460.3
	10:05	1263.6	24.4	1238.4	53.813	1209.8	36.12	2481.7
	10:10	1285.1	28.7	1238.4	53.813	1231.3	36.12	2496.9
	10:15	1308.0	33.0	1238.4	53.813	1254.2	36.12	2509.1
2	10:20	1306.7	37.2	1209.6	51.521	1255.2	35.28	2521.3
				1228.8				
	10:25	1541.2	43.8	1900.8	118.885	1422.3	55.44	2564.0
	10:30	1566.6	50.4	1900.8	118.885	1447.7	55.44	2600.6
	10:35	1632.5	57.2	1958.4	125.635	1506.9	57.12	2634.1
	10:40	1642.6	64.0	1958.4	125.635	1517.0	57.12	2655.5
	10:45	1670.5	70.8	1958.4	125.635	1544.9	57.12	2676.8
3	10:50	1683.1	77.7	1987.2	129.075	1554.0	57.96	2698.1
				1944.0				
	10:55	1973.4	87.1	2707.2	228.695	1744.7	78.96	2765.2
	11:00	2016.5	96.6	2736.0	233.216	1783.3	79.80	2795.7
	11:05	1982.3	105.9	2678.4	224.215	1758.1	78.12	2814.0
	11:10	1988.6	115.1	2649.6	219.775	1768.8	77.28	2829.2
	11:15	1992.4	124.3	2649.6	219.775	1772.6	77.28	2844.5
4	11:20	1997.4	133.5	2649.6	219.775	1777.6	77.28	2859.7
				2678.4				

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	11:25	2352.3	145.0	3312.0	332.094	2020.2	96.60	2929.8
	11:30	2370.1	156.9	3427.2	353.779	2016.3	99.96	2954.2
	11:35	2358.7	168.8	3427.2	353.779	2004.9	99.96	2963.4
	11:40	2348.5	180.6	3398.4	348.299	2000.2	99.12	2963.4
	11:45	2330.6	192.4	3398.4	348.299	1982.3	99.12	2975.6
	11:50	2328.1	204.4	3456.0	359.299	1968.8	100.80	2993.9
					3403.2			
	11:55	2695.7	218.3	4003.2	471.572	2224.1	116.76	3045.7
	12:00	2711.0	232.2	4003.2	471.572	2239.4	116.76	3054.9
	12:05	2698.2	246.1	4003.2	471.572	2226.6	116.76	3061.0
6	12:10	2722.4	260.1	4032.0	477.867	2244.5	117.60	3073.2
	12:15	2726.2	274.1	4032.0	477.867	2248.3	117.60	3079.3
	12:20	2716.0	288.1	4032.0	477.867	2238.1	117.60	3094.5
					4017.6			
	12:25	3175.9	304.5	4723.2	640.371	2535.5	137.76	3152.4
	12:30	3205.3	320.9	4723.2	640.371	2564.9	137.76	3152.4
	12:35	3168.2	337.4	4752.0	647.613	2520.6	138.60	3152.4
	12:40	3219.3	353.9	4752.0	647.613	2571.7	138.60	3152.4
	12:45	3204.0	370.4	4752.0	647.613	2556.4	138.60	3152.4
	7	12:50	3234.7	387.0	4780.8	654.893	2579.8	139.44
				4747.2				
FALLOFF	12:51	1402.7				1402.7		
	12:52	1374.8				1374.8		
	12:53	1362.1				1362.1		
	12:54	1350.7				1350.7		
	12:55	1341.8				1341.8		
	1:00	1310.1				1310.1		
	1:05	1277.7				1277.7		

STEP RATE INJECTION TEST

TEXACO EXPLORATION AND PRODUCTION

Well Name:
 Central Vacuum
 Unit No 99
 Lea County, N.M

