



NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

CF 10932
R-10094

December 20, 1996

The Wiser Oil Company
P.O. Box 3232
Carlsbad, New Mexico 88221-3232

Attn: Mr. Stephen C. Gilbert

*RE: Injection Pressure Increase,
Caprock Maljamar Unit Waterflood Project,
Lea County, New Mexico*

Dear Mr. Gilbert:

Reference is made to your request dated November 22, 1996 to increase the surface injection pressure on 5 wells. This request is based on step rate tests conducted on these wells between October 22 and 25, 1994. 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 five wells:

<i>Well</i>	<i>Maximum Injection Pressure</i>
Caprock Maljamar Unit Well No.13	2187 PSIG
Caprock Maljamar Unit Well No.23	2309 PSIG
Caprock Maljamar Unit Well No.24	2063 PSIG
Caprock Maljamar Unit Well No.25	1932 PSIG
Caprock Maljamar Unit Well No.67	1962 PSIG
All wells located in Lea County, New Mexico.	

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.

Injection Pressure Increase
The Wiser Oil Company
December 20, 1996
Page 2

Sincerely,

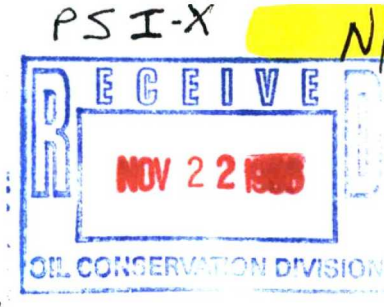
A handwritten signature in dark ink, appearing to read 'William J. LeMay', with a long horizontal stroke extending to the right and a vertical line dropping down from the end.

William J. LeMay
Director

WJL/BES

cc: Oil Conservation Division - Hopbs
File: 1st 97 Quarter PSI-X; Case File No.10932

and



THE WISER OIL COMPANY

8115 PRESTON ROAD, SUITE 400, DALLAS, TX 75225

(Phone) 214-265-0080

(Fax) 214-373-3610

November 21, 1996

TO: Mr. David Catanach
State UIC Director
New Mexico Oil Conservation Division
2040 South Paciteco
Santa Fe, N.M.--87505

RE: Petition for Higher Surface Injection Pressures for Maljamar
WIW's--Wiser-Operated
Lea and Eddy Counties, N.M.

Dear Mr. Catanach:

As per your suggestion and our phone conversation from about a month ago, Wiser has run step-rate tests on 5 WIW's in the Caprock Maljamar Unit after 10-15 wells had been converted in the new development. The results of these tests are enclosed with this letter for your review. Results for well #24 (1-point test) could not be validated because of a packer failure during the test. On well #67 no bomb was run in the hole so the BHP data was extrapolated. Also, the first test data on well #23 was thrown out since the information was not representative of field performance.

The results show what was predicted and known about the Grayburg and San Andres Vacuum reservoirs in terms of frac gradients and parting pressures. It is also known that the formations are tight and not much water can effectively be injected at pressures much below parting pressures. For the waterfloods to perform as projected in the expansion of the 3 Units, water injection volumes of 150-250 BWPD must be injected at each injection site.

Currently, the State only allows max surface injection pressure to be calculated @ .2 psi/ft X well depth. This typically gives us 820-860 psi max surface pressure, depending. We can only achieve injection volumes of 50-60 BWPD into formation at these 800 psi pressures. We also know, and have gotten confirmation from step-rate testing data on representative water injection wells, that the downhole parting pressure equates to a 2150 psi

surface pressure and .96 frac gradient for commingled Grayburg/Vacuum production.

Wiser respectfully requests that a new injection gradient of .50 psi/ft. X well depth be used by the State to calculate and by which to set max surface injection pressures for WIW's. This new gradient is much more representative for well conditions @ Maljamar vs. the .2 psi/ft. This improved gradient would allow injection to be made at each injection site commensurate with project development volumetrics and consequent waterflood performance.

Please call if more data is necessary and that information will be supplied.

Wiser hopes for timely relief in this area and an expedited decision since our injection volume ramp-up is currently underway with the conversion wellwork programs being implemented.

Thanks for your assistance and support.



Stephen C. Gilbert
Lead Well Engineer,
Halliburton,
for
The Wiser Oil Company

214-360-3564
FAX: 214-891-964

ATTACHMENTS

CC: Bonnie Jones
Matt Eagleston
Tom Cook
Mike Jones
Glen Dayle Howard
Rex Smith
Sandra White



22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

"Quik-Look" @ SIRT

SCG

RESULTS

(11/11/2019)

CML TESTS

DEPTH To

MID-PODS

Pressure
SURFACE
downhole

WELL

CML # 13

4195'

2187

2240 psi

4025 psi

CML # 23
(1st Test)

4165'

1799

1800 psi

3400 psi

(The 600' difference in this test)

CML # 23
(2nd Test)

4165'

2309

2360 psi

4000 psi

CML # 24

4125'

2063

PACKED FAILURE

CML # 25

4175'

1932

1975 psi

3025 psi

CML # 67

4315'

1962

2000 psi

3620 psi

EXTRAPOLATED - NO PODS
IN NOISE JUNCTION TEST

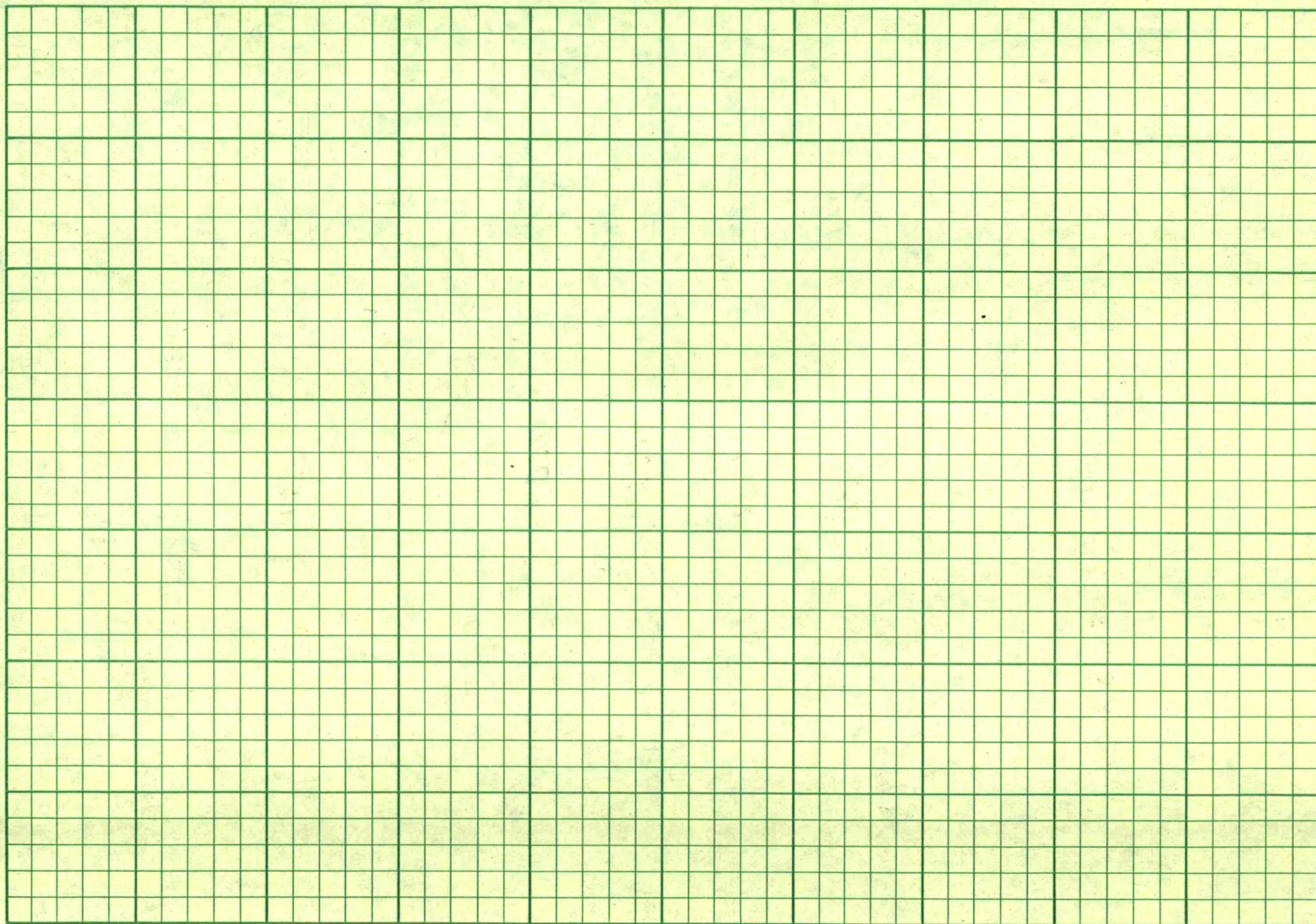
AVERAGES

4215'

2150 psi

3950 psi

2110 AVG. = 5 PSI/FT.





22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

FLUID PRESSURES @
CHU (AKEN) FROM
STIMULATION TREATMENTS

SCF
(11/29/80)

$$F.P. = \cancel{181P} + \cancel{149 \text{ PSI}} \left(\frac{422 \text{ PSI}}{F_t} \right) (4215')$$

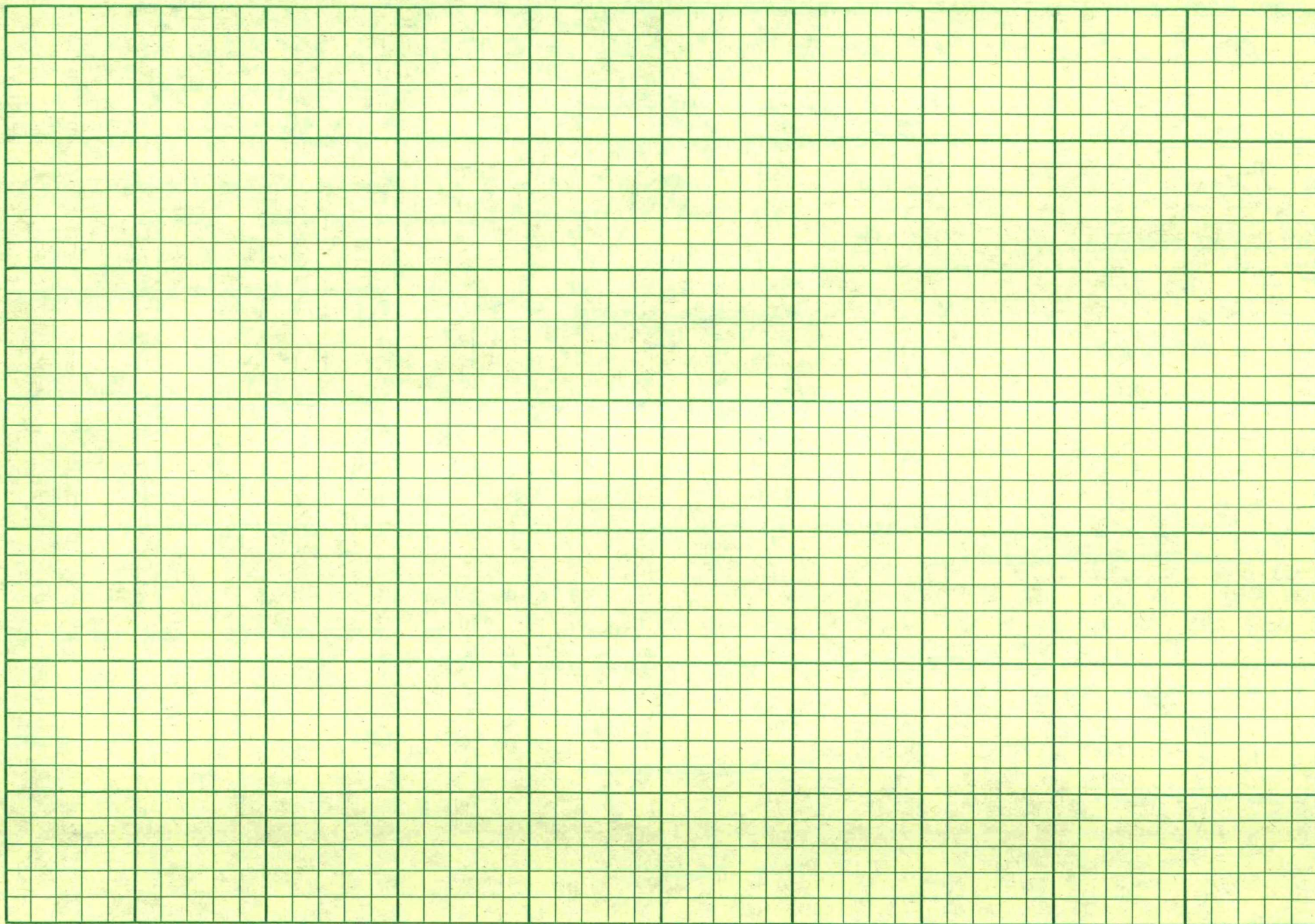
Well Depth → 4215'

$$= .96 \frac{\text{PSI}}{\text{FT}}$$

WATER TEMPERATURES TO
4045 PSI INDIANAPOLIS

Average Inducible Fracturing Pressure = 3950 PSI

UNIT 20: UNIT 20
UNIT 20: UNIT 20
UNIT 20: UNIT 20



WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: THE WISER OIL COMPANY

DATE: OCTOBER 22, 1996

WELL NAME: CAPROCK MALJAMAR UNIT 13
LEA COUNTY, NEW MEXICO

WO#: 96-14-1331

PERFS = 4362-4029

TUBING = 3930

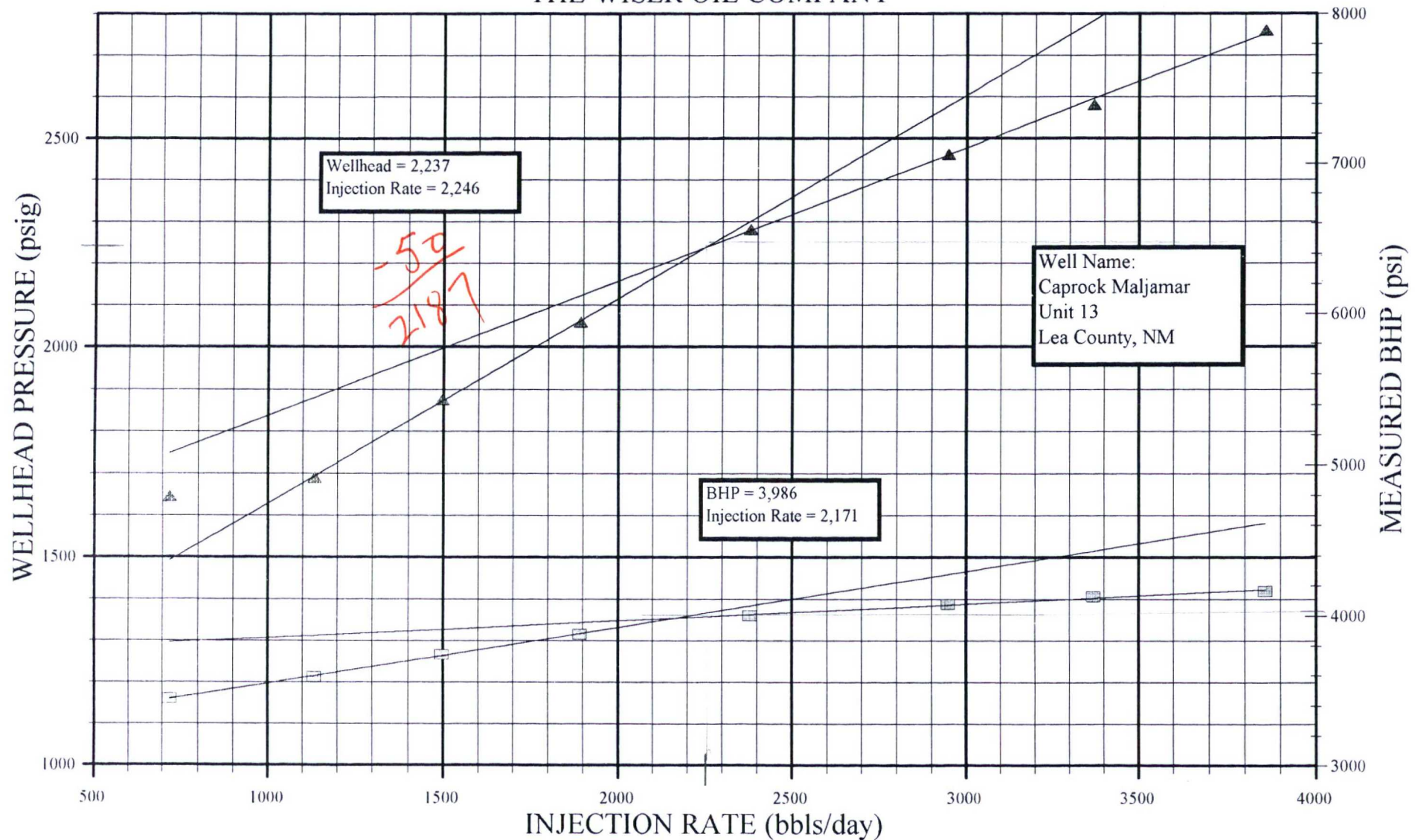
BHP GAUGE DEPTH = 4195

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)
1	11:10	1486.9				1486.9		3215.0
	11:15	1641.6	2.2	633.6	15.557	1626.0	18.48	3334.5
	11:20	1685.9	5.0	806.4	24.305	1661.6	23.52	3399.6
	11:25	1646.6	7.5	720.0	19.708	1626.9	21.00	3445.1
				720.0				
2	11:30	1633.9	11.5	1152.0	47.018	1586.9	33.60	3505.7
	11:35	1656.7	15.4	1123.2	44.867	1611.8	32.76	3554.2
	11:40	1691.0	19.3	1123.2	44.867	1646.1	32.76	3593.6
3				1132.8				
	11:45	1806.3	24.5	1497.6	76.394	1729.9	43.68	3658.7
	11:50	1846.9	29.8	1526.4	79.134	1767.8	44.52	3705.7
	11:55	1877.3	34.9	1468.8	73.698	1803.6	42.84	3743.6
				1497.6				
4	12:00	1992.7	41.5	1900.8	118.743	1874.0	55.44	3804.2
	12:05	2037.1	48.0	1872.0	115.436	1921.7	54.60	3845.1
	12:10	2061.3	54.6	1900.8	118.743	1942.6	55.44	3877.0
				1891.2				
5	12:15	2211.4	62.5	2275.2	165.601	2045.8	66.36	3930.0
	12:20	2253.2	71.0	2448.0	189.617	2063.6	71.40	3971.0
	12:25	2283.7	79.4	2419.2	185.511	2098.2	70.56	4001.3
				2380.8				
6	12:30	2421.0	89.7	2966.4	270.522	2150.5	86.52	4042.3
	12:35	2447.6	99.9	2937.6	265.683	2181.9	85.68	4065.1
	12:40	2462.8	110.1	2937.6	265.683	2197.1	85.68	4080.3
				2947.2				
7	12:45	2373.7	122.0	3427.2	353.358	2020.3	99.96	4106.1
	12:50	2574.6	134.1	3484.8	364.423	2210.2	101.64	4121.8
	12:55	2583.4	145.2	3196.8	310.671	2272.7	93.24	4128.9
				3369.6				

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)
8 FALLOFF	1:00	2725.9	158.5	3830.4	434.089	2291.8	111.72	4150.1
	1:05	2739.8	171.8	3830.4	434.089	2305.7	111.72	4160.8
	1:10	2761.4	185.4	3916.8 3859.2	452.376	2309.0	114.24	4165.3
	1:11	2148.1				2148.1		4113.7
	1:12	2116.3				2116.3		4087.9
	1:13	2095.9				2095.9		4065.1
	1:14	2078.1				2078.1		4046.8
	1:15	2061.6				2061.6		4030.1
	1:16	2046.3				2046.3		4013.5
	1:17	2033.6				2033.6		3999.8
	1:18	2020.8				2020.8		3986.2
	1:19	2009.4				2009.4		3974.1
	1:20	1999.2				1999.2		3963.5
	1:25	1952.3				1952.3		3916.6
	1:30	1918.0				1918.0		3881.8

STEP RATE INJECTION TEST

THE WISER OIL COMPANY



▲ RECORDED WELLHEAD PRES.

■ BOTTOM HOLE PRESSURE (depth 4195)

WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: THE WISER OIL COMPANY

DATE: OCTOBER 23, 1996

WELL NAME: CAPROCK MALJAMAR UNIT NO. 23
LEA COUNTY, NEW MEXICO

WO#: 96-14-1170

PERFS = 4047-4164

TUBING = 3950

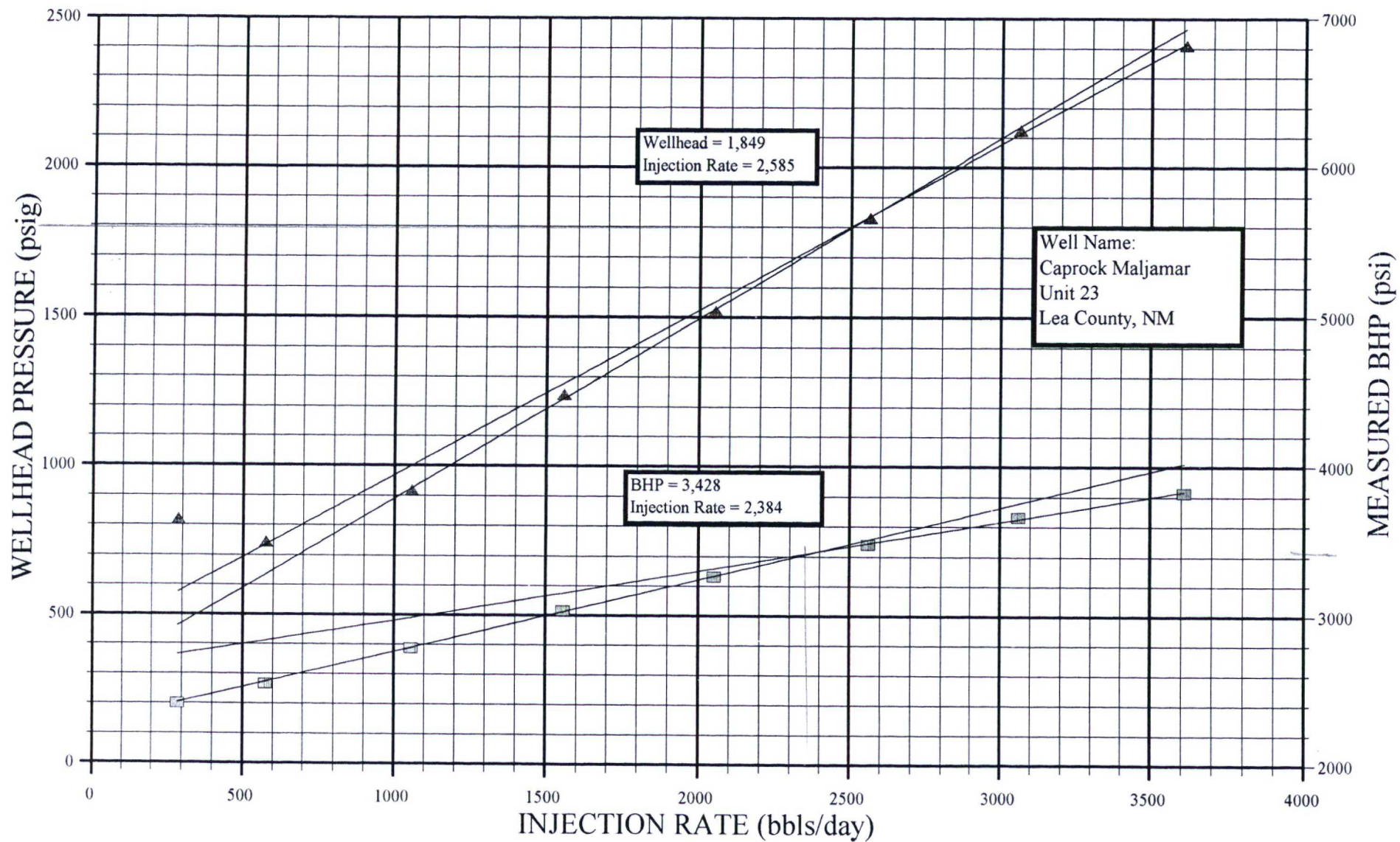
BHP GAUGE DEPTH = 4105

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)
1	10:00	825.7				825.7		2289.8
	10:05	858.7	1.0	288.0	3.540	855.2	8.40	2348.7
	10:10	839.6	2.0	288.0	3.540	836.1	8.40	2377.5
	10:15	821.8	3.0	288.0	3.540	818.3	8.40	2400.1
2				288.0				
	10:20	820.5	5.0	576.0	12.763	807.7	16.80	2463.6
	10:25	788.7	7.0	576.0	12.763	775.9	16.80	2495.4
	10:30	746.8	9.0	576.0	12.763	734.0	16.80	2536.2
3				576.0				
	10:35	800.1	12.7	1065.6	39.830	760.3	31.08	2655.6
	10:40	868.6	16.4	1065.6	39.830	828.8	31.08	2725.3
	10:45	919.3	20.0	1036.8	37.861	881.4	30.24	2778.3
4				1056.0				
	10:50	1077.8	25.3	1526.4	77.436	1000.4	44.52	2888.7
	10:55	1171.5	30.7	1555.2	80.161	1091.3	45.36	2970.5
	11:00	1241.1	36.2	1584.0	82.929	1158.2	46.20	3032.6
5				1555.2				
	11:05	1408.3	43.4	2073.6	136.490	1271.8	60.48	3137.1
	11:10	1470.3	50.5	2044.8	133.003	1337.3	59.64	3208.3
	11:15	1522.1	57.6	2044.8	133.003	1389.1	59.64	3264.3
6				2054.4				
	11:20	1717.2	66.5	2563.2	202.025	1515.2	74.76	3362.7
	11:25	1776.7	75.5	2592.0	206.245	1570.5	75.60	3427.9
	11:30	1831.1	84.3	2534.4	197.846	1633.3	73.92	3480.9
7				2563.2				
	11:35	2030.2	95.0	3081.6	284.050	1746.2	89.88	3567.2
	11:40	2084.8	105.6	3052.8	279.158	1805.6	89.04	3623.1
	11:45	2125.5	116.2	3052.8	279.158	1846.3	89.04	3668.5
				3062.4				

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)
8	11:50	2355.7	128.7	3600.0	378.719	1977.0	105.00	3739.6
	11:55	2391.4	141.3	3628.8	384.344	2007.1	105.84	3789.5
	12:00	2411.7	153.8	3600.0	378.719	2033.0	105.00	3830.4
				3609.6				
	12:05	2619.0	168.2	4147.2	492.045	2127.0	120.96	3883.3
	SHUT DOWN -- FILTER PLUGGED		PUMP TROUBLE OFF					
	FALLOFF							
	12:10	2420.6				2420.6		3900.0
	12:11	1928.5				1928.5		3860.6
	12:12	1919.6				1919.6		3841.0
	12:13	1903.1				1903.1		3825.8
	12:14	1887.9				1887.9		3809.2
	12:15	1873.9				1873.9		3795.6
	12:20	1819.3				1819.3		3739.6
	12:25	1771.1				1771.1		3691.2

STEP RATE INJECTION TEST

THE WISER OIL COMPANY



▲ RECORDED WELLHEAD PRES.

■ BOTTOM HOLE PRESSURE (depth 4105)

WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: THE WISER OIL COMPANY

DATE: OCTOBER 23, 1996

WELL NAME: CAPROCK MALJAMAR UNIT NO. 23 (2ND TEST)
LEA COUNTY, NEW MEXICO

WO#: 96-14-1170

PERFS = 4047-4164

TUBING = 3950

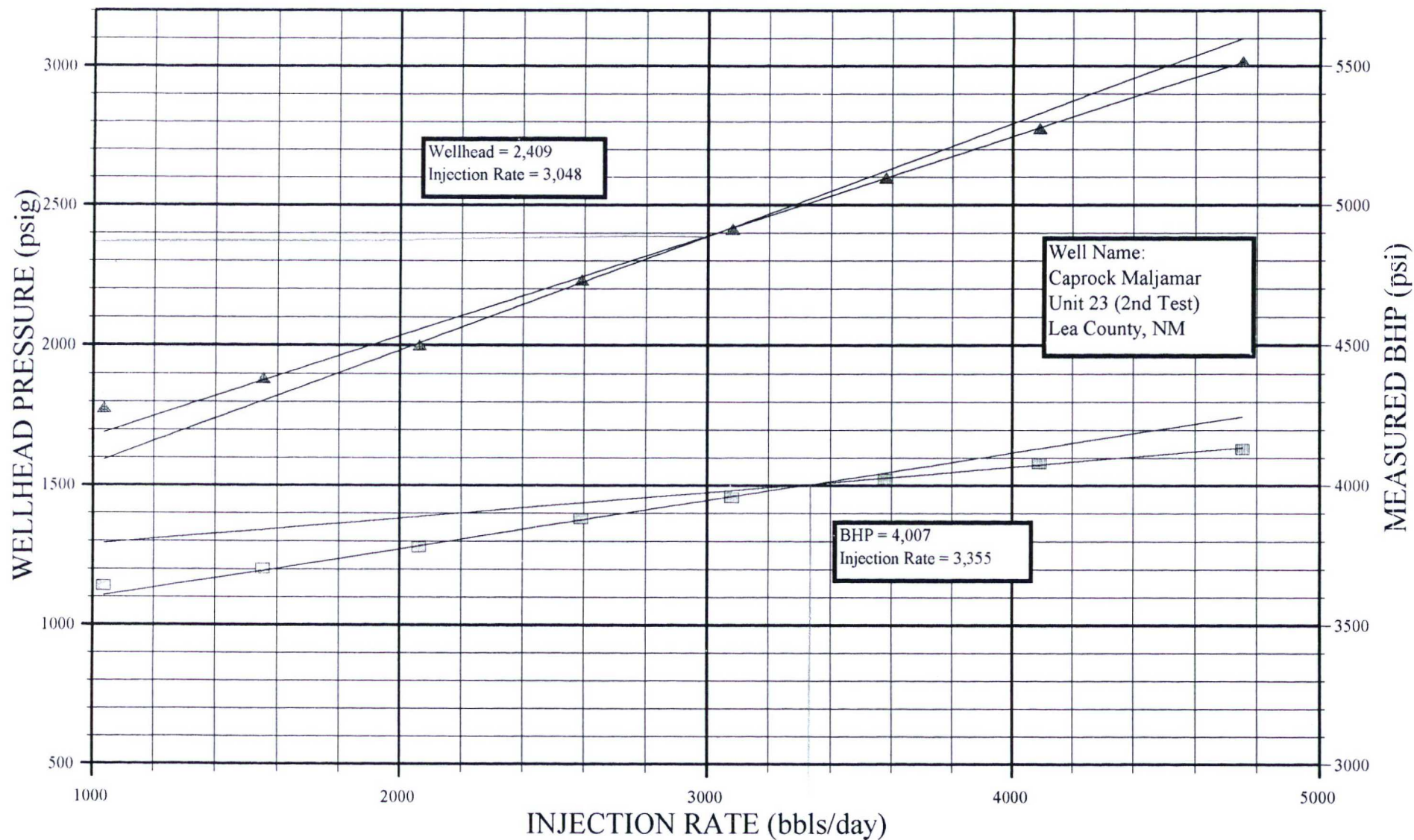
BHP GAUGE DEPTH = 4105

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)
1	12:30	1724.2				1724.2		3639.8
	12:35	1790.1	3.6	1036.8	37.861	1752.2	30.24	3645.8
	12:40	1785.0	7.2	1036.8	37.861	1747.1	30.24	3642.7
	12:45	1778.6	10.8	1036.8	37.861	1740.7	30.24	3641.1
2				1036.8				
	12:50	1862.3	16.2	1555.2	80.161	1782.1	45.36	3671.4
	12:55	1873.8	21.6	1555.2	80.161	1793.6	45.36	3689.6
	1:00	1883.9	27.0	1555.2	80.161	1803.7	45.36	3703.2
3				1555.2				
	1:05	2001.9	34.2	2073.6	136.490	1865.4	60.48	3742.6
	1:10	2022.2	41.4	2073.6	136.490	1885.7	60.48	3769.8
	1:15	2004.3	48.5	2044.8	133.003	1871.3	59.64	3780.0
4				2064.0				
	1:20	2188.8	57.6	2620.8	210.504	1978.3	76.44	3833.4
	1:25	2215.6	66.5	2563.2	202.025	2013.6	74.76	3860.7
	1:30	2234.7	75.5	2592.0	206.245	2028.5	75.60	3881.8
5				2592.0				
	1:35	2371.0	86.3	3110.4	288.980	2082.0	90.72	3916.6
	1:40	2386.2	96.9	3052.8	279.158	2107.0	89.04	3937.8
	1:45	2416.8	107.6	3081.6	284.050	2132.8	89.88	3956.0
6				3081.6				
	1:50	2559.3	120.1	3600.0	378.719	2180.6	105.00	3986.2
	1:55	2579.6	132.5	3571.2	373.134	2206.5	104.16	4007.4
	2:00	2600.0	144.9	3571.2	373.134	2226.9	104.16	4024.1
7				3580.8				
	2:05	2754.1	159.1	4089.6	479.477	2274.6	119.28	4051.4
	2:10	2778.3	173.3	4089.6	479.477	2298.8	119.28	4068.1
	2:15	2778.3	187.5	4089.6	479.477	2298.8	119.28	4081.8
				4089.6				

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)
8 FALLOFF	2:20	3022.6	204.0	4752.0	632.965	2389.6	138.60	4109.2
	2:25	3011.1	220.5	4752.0	632.965	2378.1	138.60	4122.8
	2:30	3017.5	237.0	4752.0	632.965	2384.5	138.60	4133.5
				4752.0				
	2:31	2162.5				2162.5		4090.9
	2:32	2159.9				2159.9		4078.8
	2:33	2149.7				2149.7		4069.7
	2:34	2140.8				2140.8		4060.6
	2:35	2133.2				2133.2		4051.4
	2:40	2096.3				2096.3		4015.0
	2:45	2070.8				2070.8		3987.7

STEP RATE INJECTION TEST

THE WISER OIL COMPANY



▲ RECORDED WELLHEAD PRES.

■ BOTTOM HOLE PRESSURE (depth 4105)

WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: THE WISER OIL COMPANY

DATE: OCTOBER 24, 1996

WELL NAME: CAPROCK MALJAMAR UNIT NO. 24
LEA COUNTY, NEW MEXICO

WO#: 96-14-1171

PERFS = 3976-4271

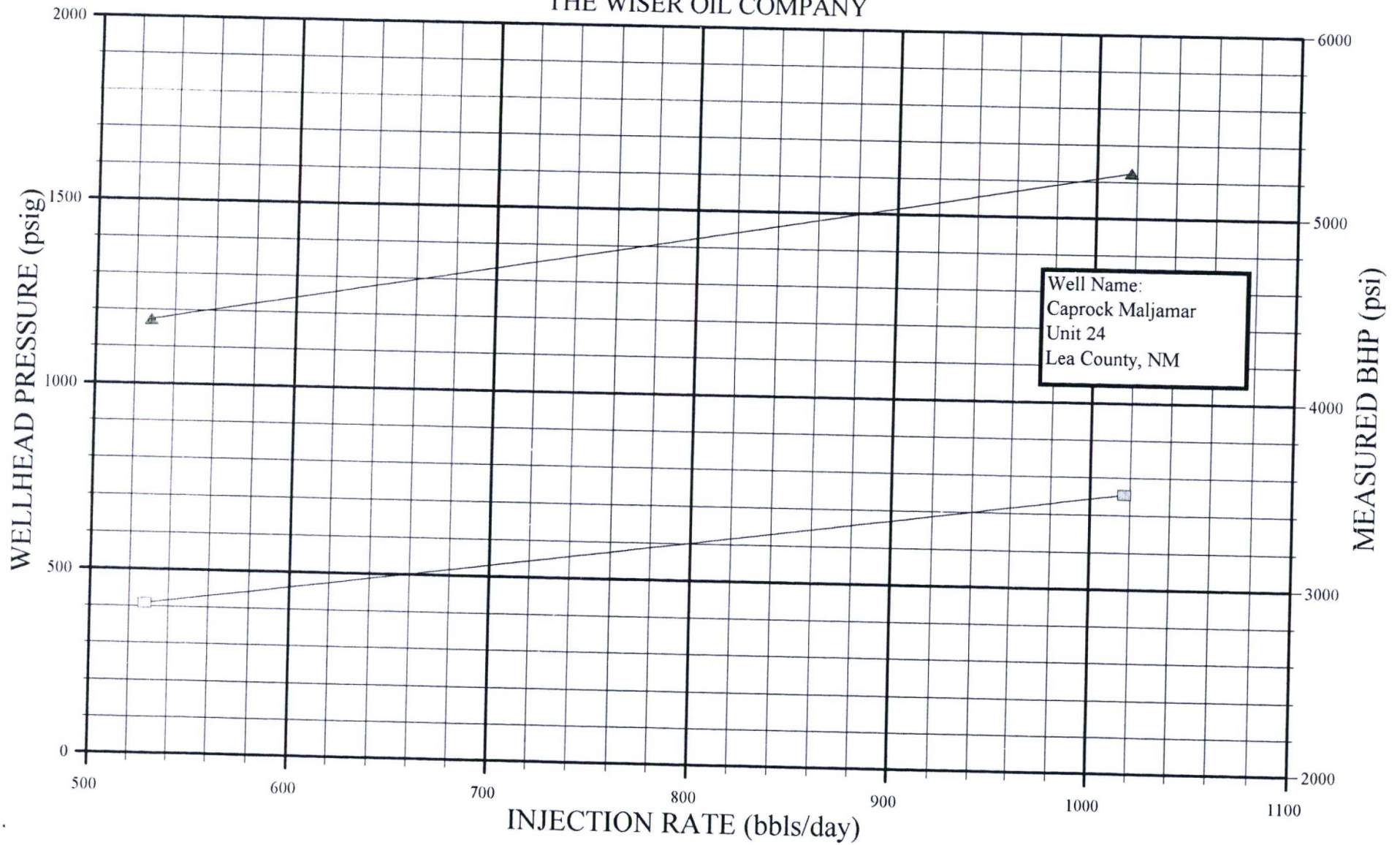
PACKER DEPTH = 3900

BHP GAUGE DEPTH = 4123

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)
1	9:45	654.2				654.2		2144.7
	9:50	1005.9	1.8	518.4	10.548	995.4	15.12	2522.6
	9:55	1113.8	3.7	547.2	11.658	1102.1	15.96	2700.9
	10:00	1174.7	5.5	518.4	10.548	1164.2	15.12	2818.8
				528.0				
2	10:05	1514.6	8.8	950.4	32.373	1482.2	27.72	3218.0
	10:10	1622.4	12.5	1065.6	40.004	1582.4	31.08	3431.3
	10:15	1624.9	16.1	1036.8	38.027	1586.9	30.24	3510.0
				1017.6				
FALLOFF	SHUT DOWN ---	PACKER		LEAKING				
	10:16	1468.9				1468.9		3393.5
	10:17	1391.6				1391.6		3320.9
	10:18	1333.2				1333.2		3260.3
	10:19	1281.2				1281.2		3210.4
	10:20	1236.9				1236.9		3165.8
	10:25	1074.5				1074.5		3001.7

STEP RATE INJECTION TEST

THE WISER OIL COMPANY



—▲— RECORDED WELLHEAD PRES.

—■— BOTTOM HOLE PRESSURE (depth 4123)

WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: THE WISER OIL COMPANY

DATE: OCTOBER 24, 1996

WELL NAME: CAPROCK MALJAMAR UNIT NO. 25
LEA COUNTY, NEW MEXICO

WO#: 96-14-1172

PERFS = 4061-4294

TUBING = 4000

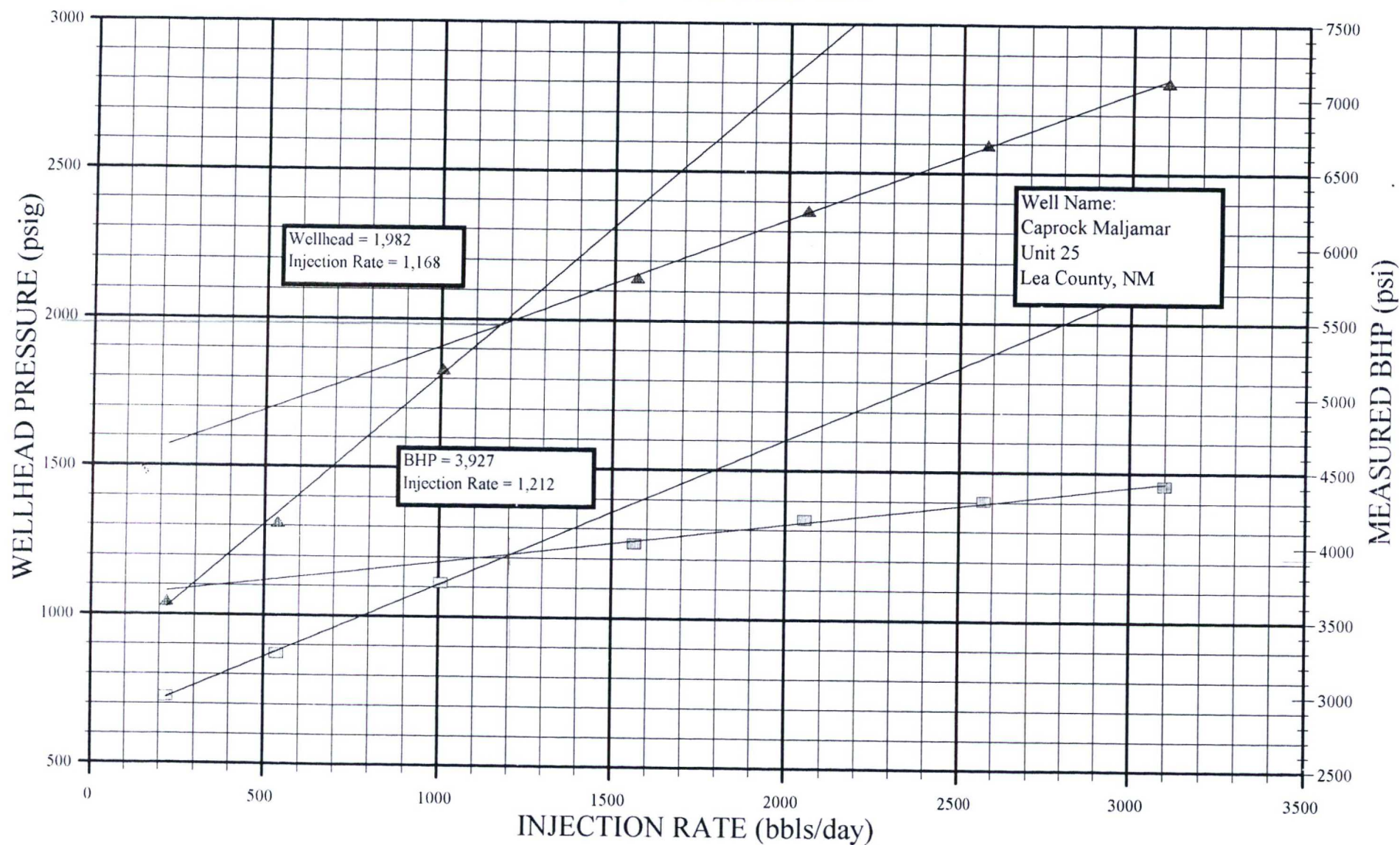
BHP GAUGE DEPTH = 4177

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)
	11:50	797.9				797.9		2701.1
	11:55	928.5	0.8	230.4	2.384	926.1	6.72	2846.1
	12:00	970.2	1.4	172.8	1.400	968.8	5.04	2885.4
1	12:05	1047.6	2.3	259.2	2.964	1044.6	7.56	2951.9
				220.8				
	12:10	1212.3	4.1	518.4	10.687	1201.6	15.12	3127.3
	12:15	1293.4	6.0	547.2	11.811	1281.6	15.96	3193.9
2	12:20	1313.7	7.9	547.2	11.811	1301.9	15.96	3245.4
				537.6				
	12:25	1672.5	11.4	1008.0	36.569	1635.9	29.40	3566.2
	12:30	1775.2	14.9	1008.0	36.569	1738.6	29.40	3670.6
3	12:35	1833.5	18.4	1008.0	36.569	1796.9	29.40	3729.7
				1008.0				
	12:40	2054.2	23.8	1555.2	81.567	1972.6	45.36	3903.8
	12:45	2110.2	29.3	1584.0	84.383	2025.8	46.20	3959.9
4	12:50	2144.6	34.7	1555.2	81.567	2063.0	45.36	4002.3
				1564.8				
	12:55	2329.1	41.8	2044.8	135.336	2193.8	59.64	4114.7
	1:00	2358.3	49.0	2073.6	138.883	2219.4	60.48	4146.7
5	1:05	2373.6	56.1	2044.8	135.336	2238.3	59.64	4172.6
				2054.4				
	1:10	2561.9	65.1	2592.0	209.862	2352.0	75.60	4266.9
	1:15	2581.0	74.0	2563.2	205.569	2375.4	74.76	4289.8
6	1:20	2597.5	82.9	2563.2	205.569	2391.9	74.76	4309.6
				2572.8				
	1:25	2784.6	93.7	3110.4	294.049	2490.6	90.72	4388.7
	1:30	2801.1	104.5	3110.4	294.049	2507.1	90.72	4403.9
7	1:35	2810.0	115.2	3081.6	289.032	2521.0	89.88	4416.1
				3100.8				

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)
FALLOFF	1:36	2247.7				2247.7		4204.8
	1:37	2210.8				2210.8		4165.3
	1:38	2186.6				2186.6		4141.0
	1:39	2168.8				2168.8		4122.7
	1:40	2154.8				2154.8		4109.1
	1:45	2103.9				2103.9		4057.4
	1:50	2064.5				2064.5		4016.3

STEP RATE INJECTION TEST

THE WISER OIL COMPANY



▲ RECORDED WELLHEAD PRES.

■ BOTTOM HOLE PRESSURE (depth 4177)

WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: THE WISER OIL COMPANY

DATE: OCTOBER 25, 1996

WELL NAME: CAPROCK MALJAMAR UNIT NO. 67
LEA COUNTY, NEW MEXICO

WO#: 96-14-1333

PERFS = 4024-4603

TUBING = 3950

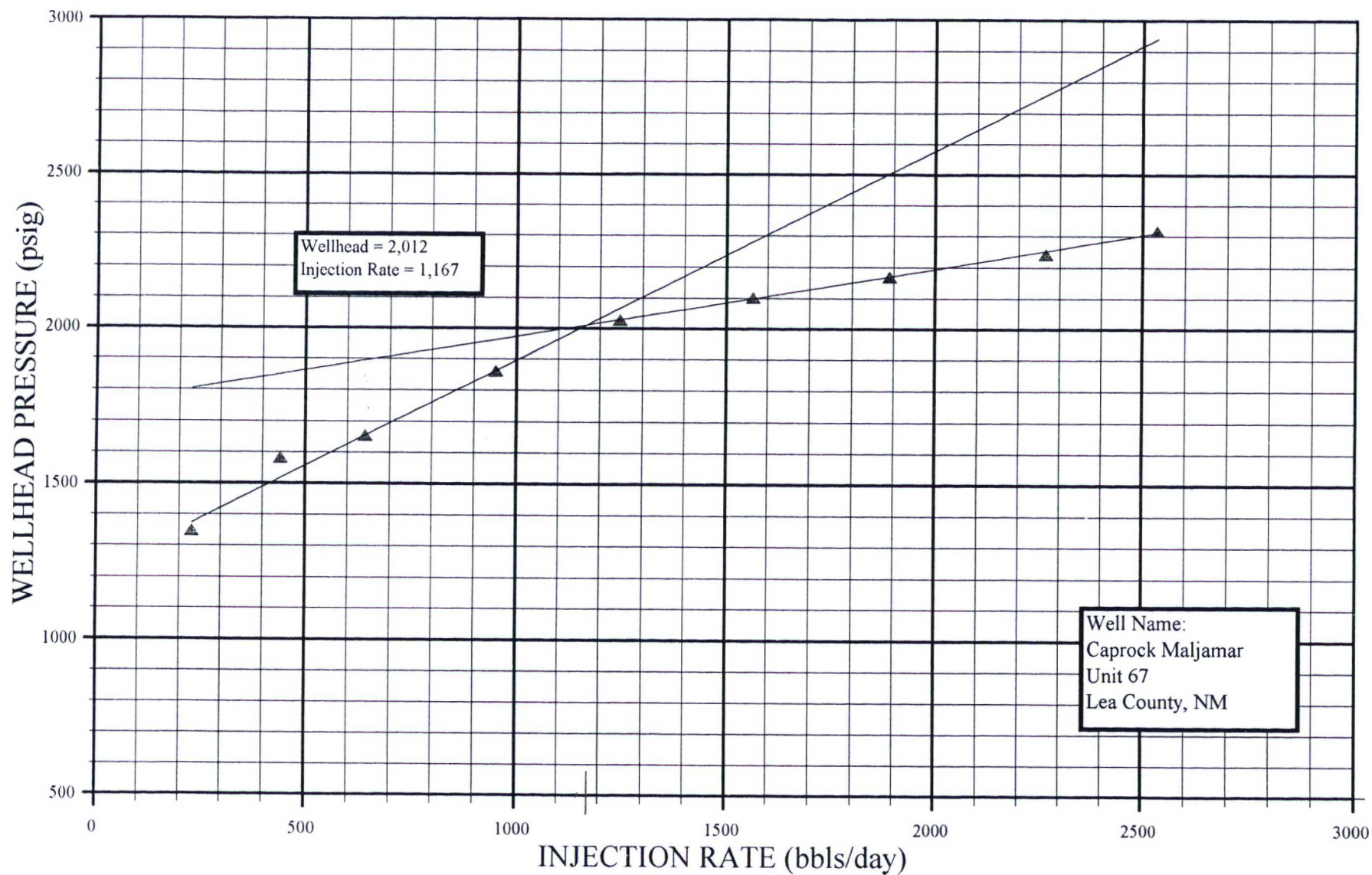
BHP GAUGE DEPTH = SURFACE ONLY

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)
1	9:40	1048.2				1048.2		
	9:45	1257.4	0.9	259.2	3.061	1254.3	7.56	
	9:50	1310.6	1.7	230.4	2.462	1308.1	6.72	
	9:55	1349.9	2.4	201.6	1.923	1348.0	5.88	
2				230.4				
	10:00	1510.9	3.9	432.0	7.875	1503.0	12.60	
	10:05	1571.7	5.5	460.8	8.874	1562.8	13.44	
	10:10	1584.3	7.0	432.0	7.875	1576.4	12.60	
3				441.6				
	10:15	1655.2	9.2	633.6	15.995	1639.2	18.48	
	10:20	1655.2	11.5	662.4	17.366	1637.8	19.32	
	10:25	1655.1	13.7	633.6	15.995	1639.1	18.48	
4				643.2				
	10:30	1766.6	17.0	950.4	33.865	1732.7	27.72	
	10:35	1821.1	20.4	979.2	35.788	1785.3	28.56	
	10:40	1864.2	23.6	921.6	31.991	1832.2	26.88	
5				950.4				
	10:45	1975.7	28.0	1267.2	57.662	1918.0	36.96	
	10:50	2006.0	32.3	1238.4	55.261	1950.7	36.12	
	10:55	2028.8	36.6	1238.4	55.261	1973.5	36.12	
6				1248.0				
	11:00	2092.4	42.0	1555.2	84.223	2008.2	45.36	
	11:05	2093.6	47.4	1555.2	84.223	2009.4	45.36	
	11:10	2103.0	52.9	1584.0	87.131	2015.9	46.20	
7				1564.8				
	11:15	2161.0	59.4	1872.0	118.683	2042.3	54.60	
	11:20	2167.3	66.0	1900.8	122.083	2045.2	55.44	
	11:25	2169.8	72.6	1900.8	122.083	2047.7	55.44	
				1891.2				

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)
8	11:30	2243.5	80.4	2246.4	166.294	2077.2	65.52	
	11:35	2247.2	88.3	2275.2	170.259	2076.9	66.36	
	11:40	2242.1	96.2	2275.2 2265.6	170.259	2071.8	66.36	
9	11:45	2303.1	105.0	2534.4	207.871	2095.2	73.92	
	11:50	2310.7	113.8	2534.4	207.871	2102.8	73.92	
	11:55	2319.5	122.6	2534.4 2534.4	207.871	2111.6	73.92	
FALLOFF	11:56	2056.2				2056.2		
	11:57	2051.1				2051.1		
	11:58	2040.9				2040.9		
	11:59	2032.0				2032.0		
	12:00	2023.1				2023.1		
	12:05	1982.6				1982.6		
	12:10	1943.3				1943.3		

STEP RATE INJECTION TEST

THE WISER OIL COMPANY



▲ RECORDED WELLHEAD PRES.

■ BOTTOM HOLE PRESSURE (NOT RECORDED)