



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



BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

November 21, 1994

CF 10220
R-~~14~~-6906-B

Conoco, Inc.
10 Desta Drive, Suite 100W
Midland, Texas 79705-4500

Attn: Mr. Jerry W. Hoover

**RE: Injection Pressure Increase Warren Blinebry-Tubb Waterflood
Project Lea County, New Mexico**

Dear Mr. Hoover:

Reference is made to your request dated October 6, 1994 to increase the surface injection pressure on 11 wells. This request is based on step rate tests conducted on these wells between July 25 and August 9, 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.

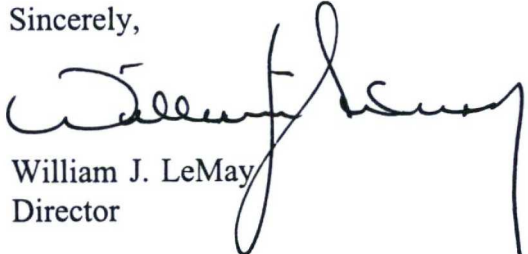
You are therefore authorized to increase the surface injection pressure on the following wells:

Well and Location	Maximum Injection Surface Pressure
Warren Unit Well No.32 Unit P, Section 27,	1670 PSIG
Warren Unit Well No.33 Unit F, Section 27,	1597 PSIG
Warren Unit Well No.37 Unit J, Section 27,	1370 PSIG
Warren Unit Well No.39 Unit B, Section 34,	1210 PSIG

Well and Location	Maximum Injection Surface Pressure
Warren Unit Well No.45 Unit N, Section 26,	1530 PSIG
Warren Unit Well No.48 Unit F, Section 26,	1510 PSIG
Warren Unit Well No.49 Unit J, Section 26,	1670 PSIG
Warren Unit Well No.57 Unit D, Section 26,	1940 PSIG
Warren Unit Well No.59 Unit L, Section 26,	1410 PSIG
Warren Unit Well No.79 Unit D, Section 35,	1510 PSIG
Warren Unit Well No.105 Unit H, Section 27,	1850 PSIG
All wells located in Township 20 South, Range 38 East, 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.

Sincerely,



William J. LeMay
Director

WJL/BES

cc: Oil Conservation Division - Hobbs
File: 4th Quarter PSI-X; Case File No.10220

and



Midland Division
Exploration Production

Conoco Inc.
10 Desta Drive, Suite 100W
Midland, TX 79705-4500
(915) 686-5400

October 6, 1994

Mr. William J. LeMay
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

**RE: Application for Authorization of Higher Surface
Injection Pressures for 11 Warren Unit Blinbry-Tubb
Waterflood Project Wells in the 1st Expansion Area
Which was Approved by Order R-6906-B**

Dear Mr. LeMay:

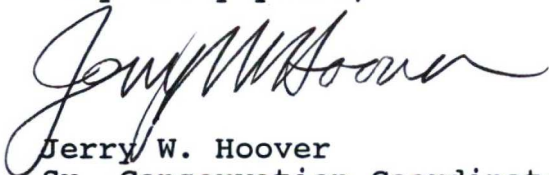
NMOCD Order R-6906-B approved the 1st Expansion Area of the Warren Unit Blinbry-Tubb Waterflood Project in March of 1991 and authorized injection into 21 new injection wells with the surface injection pressure limited to .2 psi per foot of depth from the surface to the top perforation in each well. The entire waterflood project, the 1st Expansion Area, and the subject 11 wells of this application are shown in EXHIBIT A.

As anticipated, it has taken about three years for the reservoir in the 1st Expansion Area to approach fill-up and for the injection wells to begin to pressure up. Also, as expected at this stage of the project, the pressure required to break down the formation in many of these injection wells has increased. As this occurs it is necessary to increase injection pressures in order to continue a balanced injection profile throughout the project.

EXHIBIT B is a table which shows (a) the 11 subject wells, (b) their current injection rate, (c) their current surface injection pressures, (d) the current authorized Maximum surface injection pressures, (e) the current surface injection pressure required to fracture the formation as determined by recent step-rate tests, and (f) the proposed new maximum surface injection pressures based on the results of these tests. Also attached are the plotted results of the step-rate tests showing both surface and bottom hole pressures, and copies of the tabular data acquired by the tests.

Conoco requests that these new maximum surface injection pressures, which are 25 psig below the recorded fracture pressures for each well, be authorized. These increased injection pressures are needed to maintain a balanced fill-up and sweep of the secondary reserves in this pool. Their approval will provide for the efficient recovery of enhanced oil reserves and will not impair any correlative rights.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Jerry W. Hoover".

Jerry W. Hoover
Sr. Conservation Coordinator

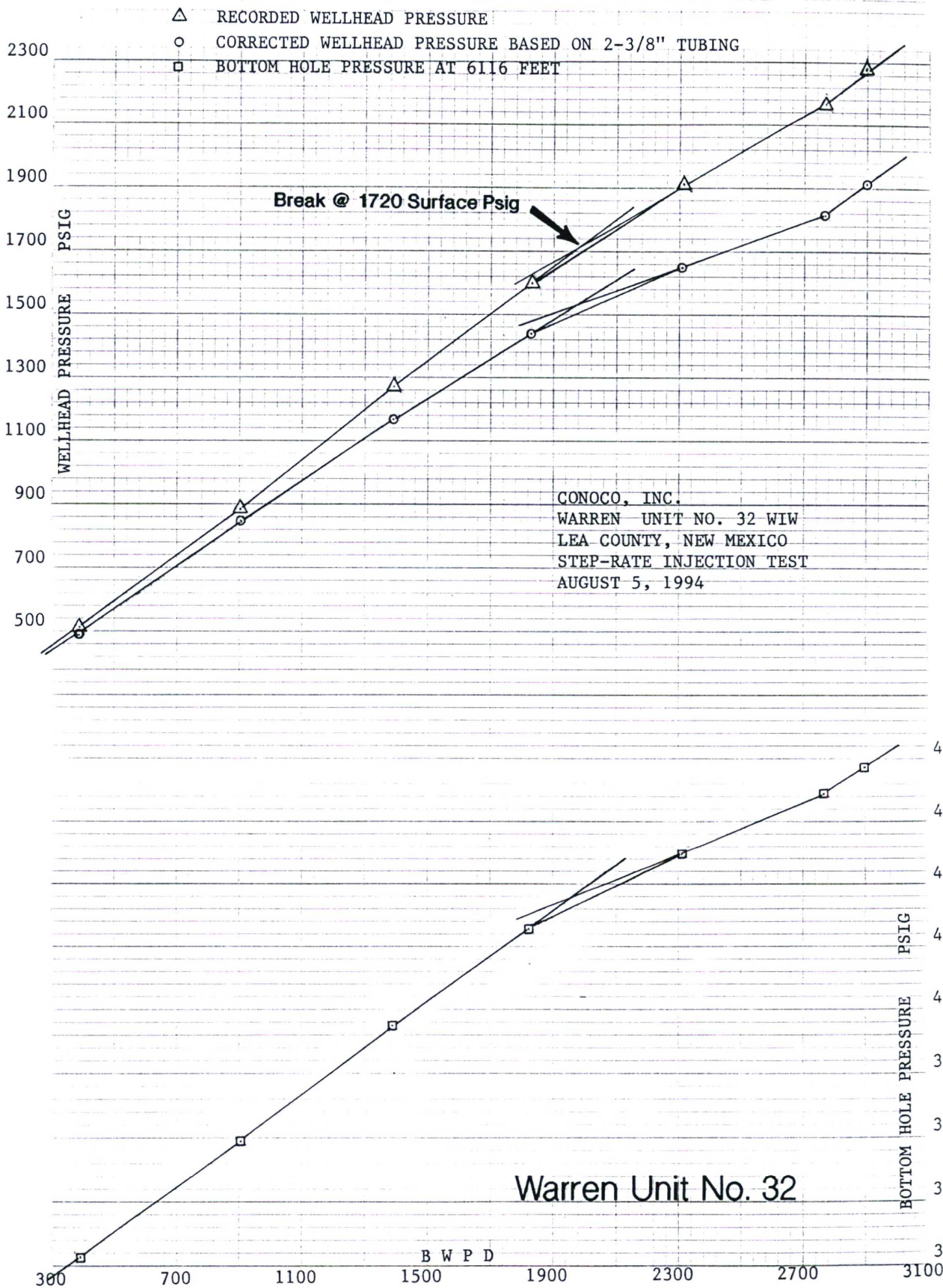
cc: Hobbs District OCD Office

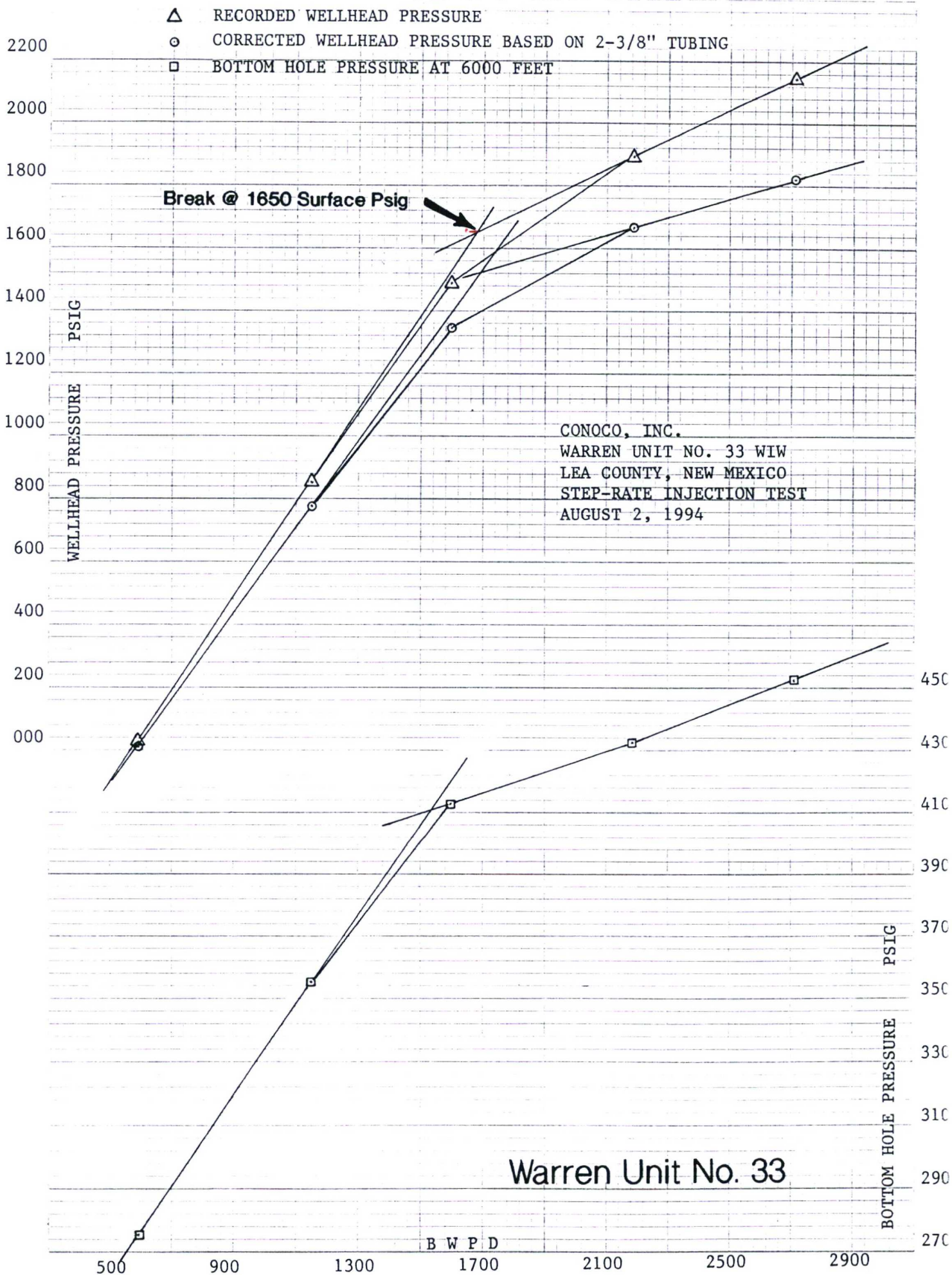
**WARREN UNIT BLINEBRY-TUBB WATERFLOOD PROJECT
STEP-RATE TEST RESULTS AND
PROPOSED SURFACE INJECTION PRESSURE INCREASES**

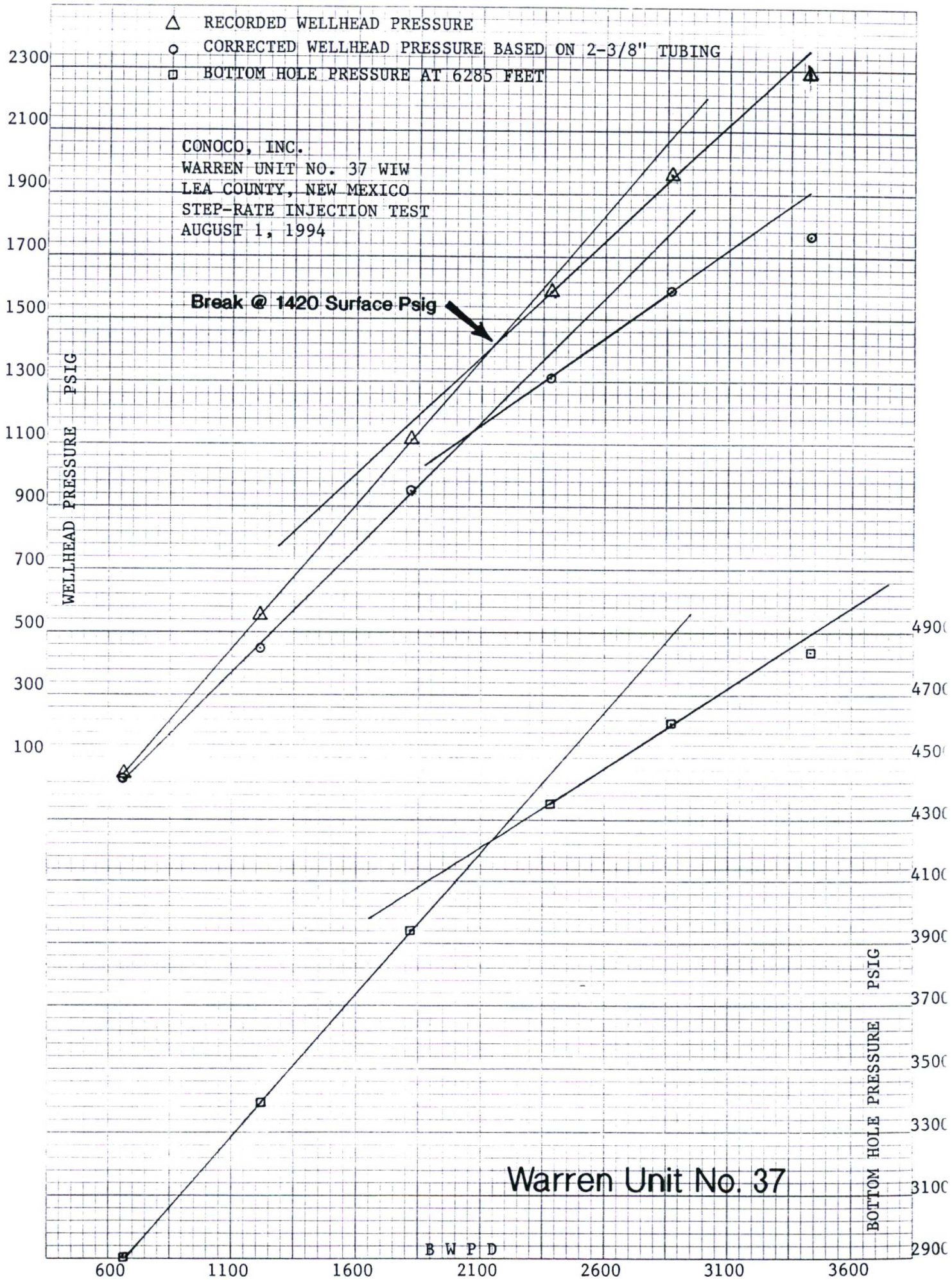
Warren Unit Well No.	Current Injection Rate (BPD)	Current Surface Pressure (PSIG)	Current NMOCD Maximum Surface Injection Pressure (PSIG) *	Step-Rate Break Pressure (PSIG)	PROPOSED NEW MAXIMUM SURFACE INJECTION PRESSURE (PSIG) **
32	309	1130	1191	1670 1720	1670 1695
33	243	7	1181	1647 1650	1647 1597
37	373	456	1175	1420	1370 1395
39	221	811	1175	1260	1210 1235
45	400	1125	1188	1580	1530 1555
48	419	668	1177	1560	1510 1535
49	112	1175	1197	1720	1670 1695
57	129	650	1187	2000	1950 1990
59	239	1140	1187	1460	1410 1435
79	405	1175	1185	1560	1510 1535
105	81	989	1187	1900	1850 1875

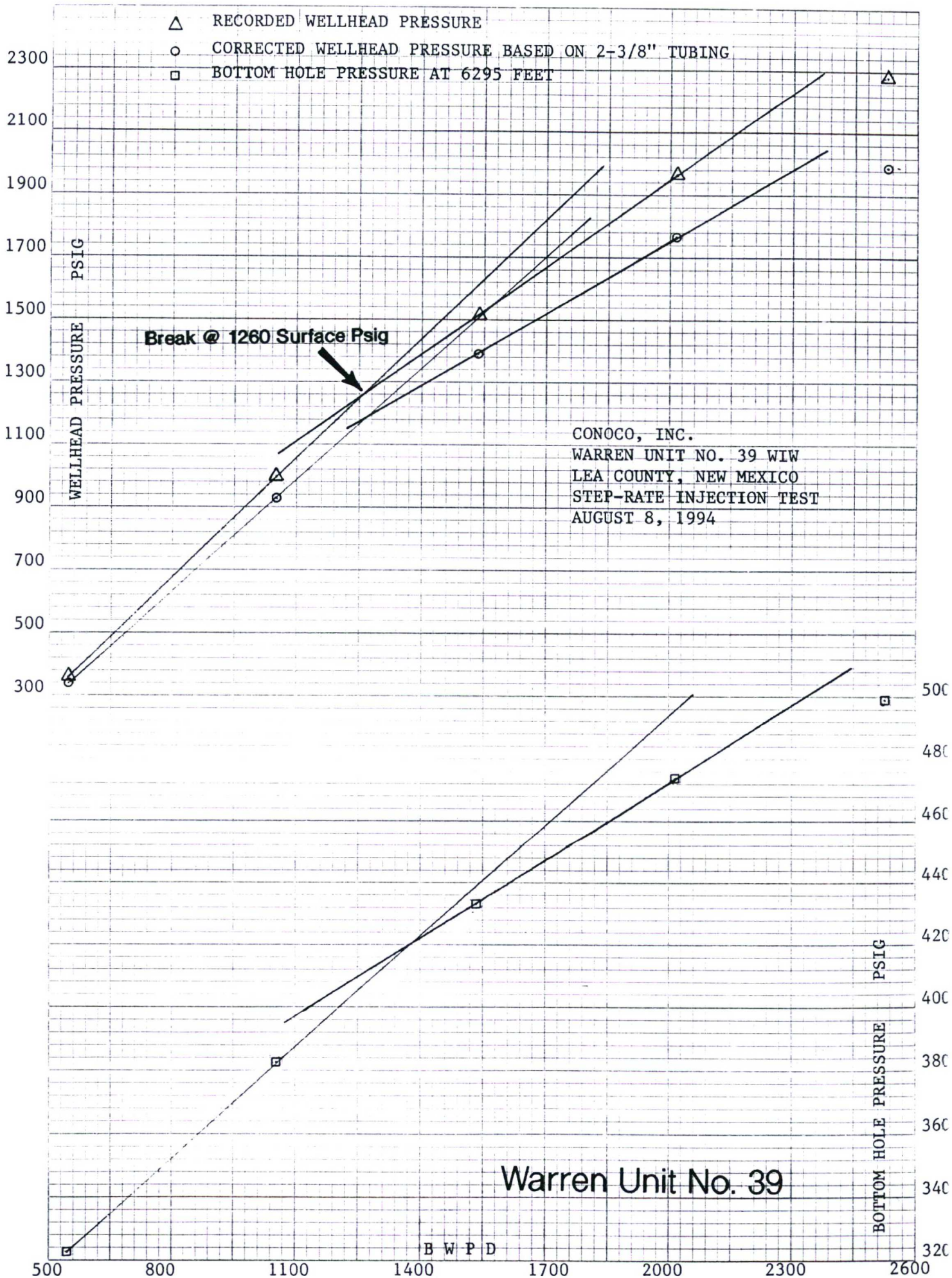
* Limiting Surface Injection Pressure Set by NMOCD Order R-6906-B

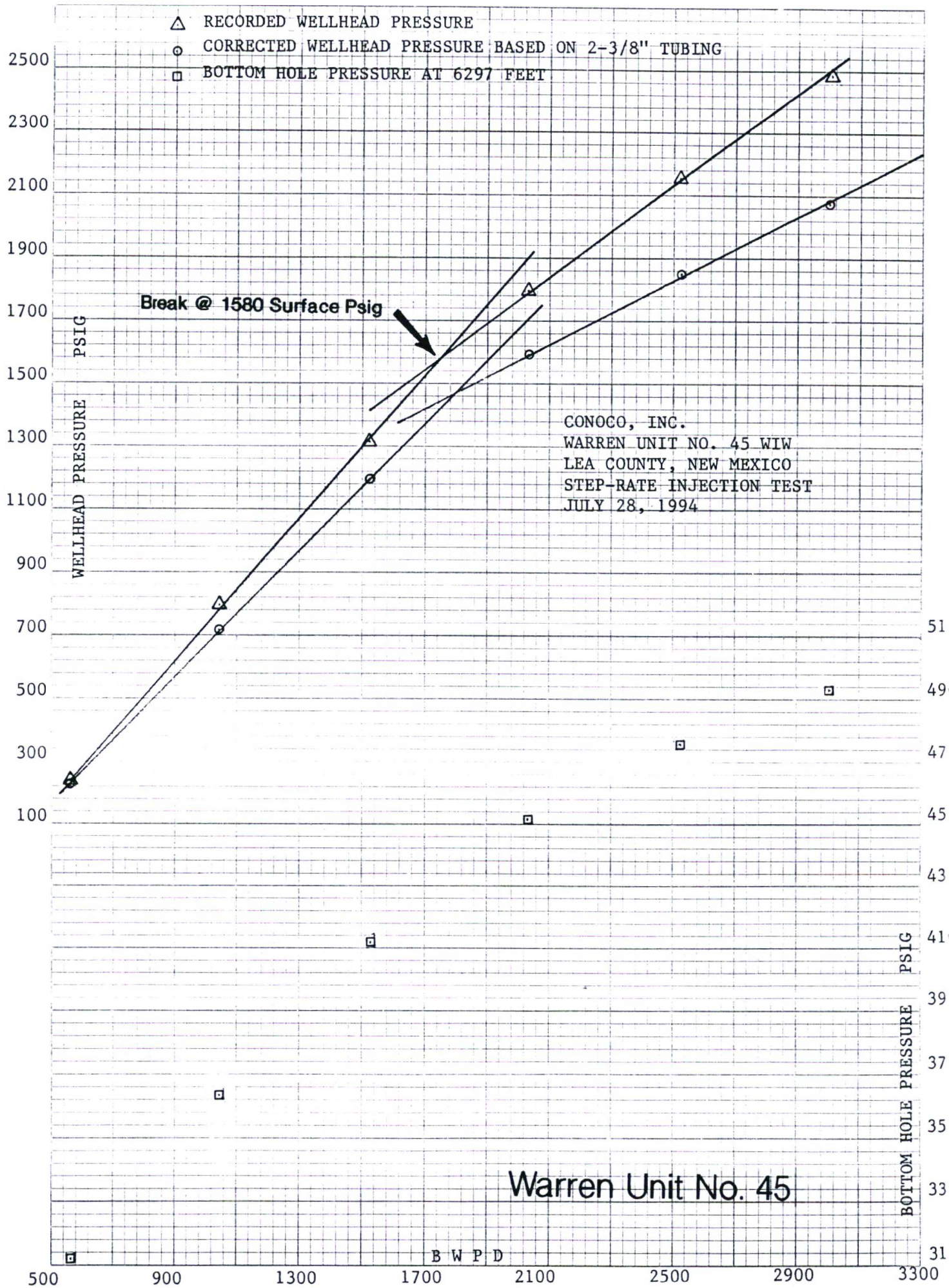
** Proposed Limiting Pressure at 25 Psig Below Step-Rate Break Point

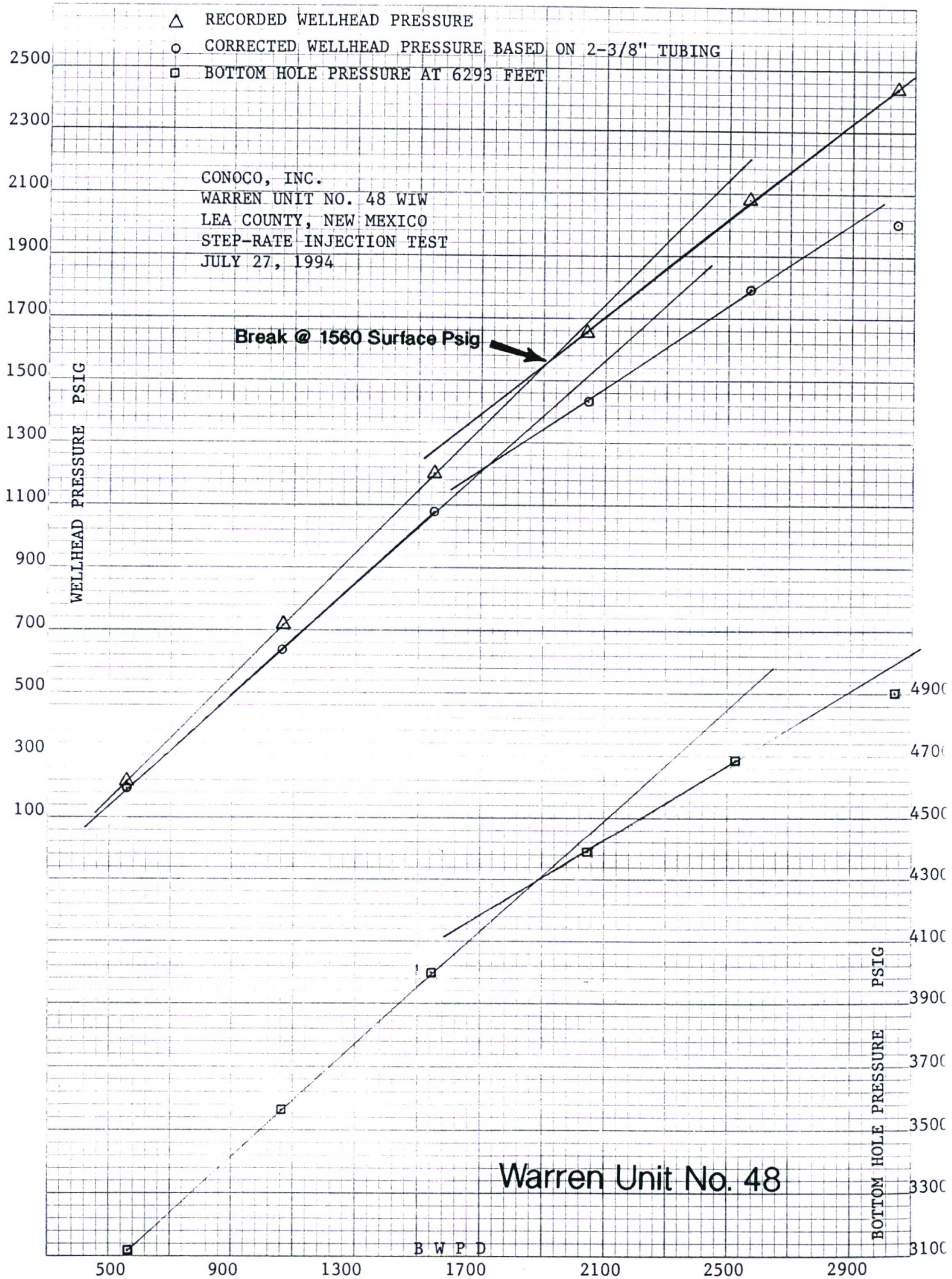










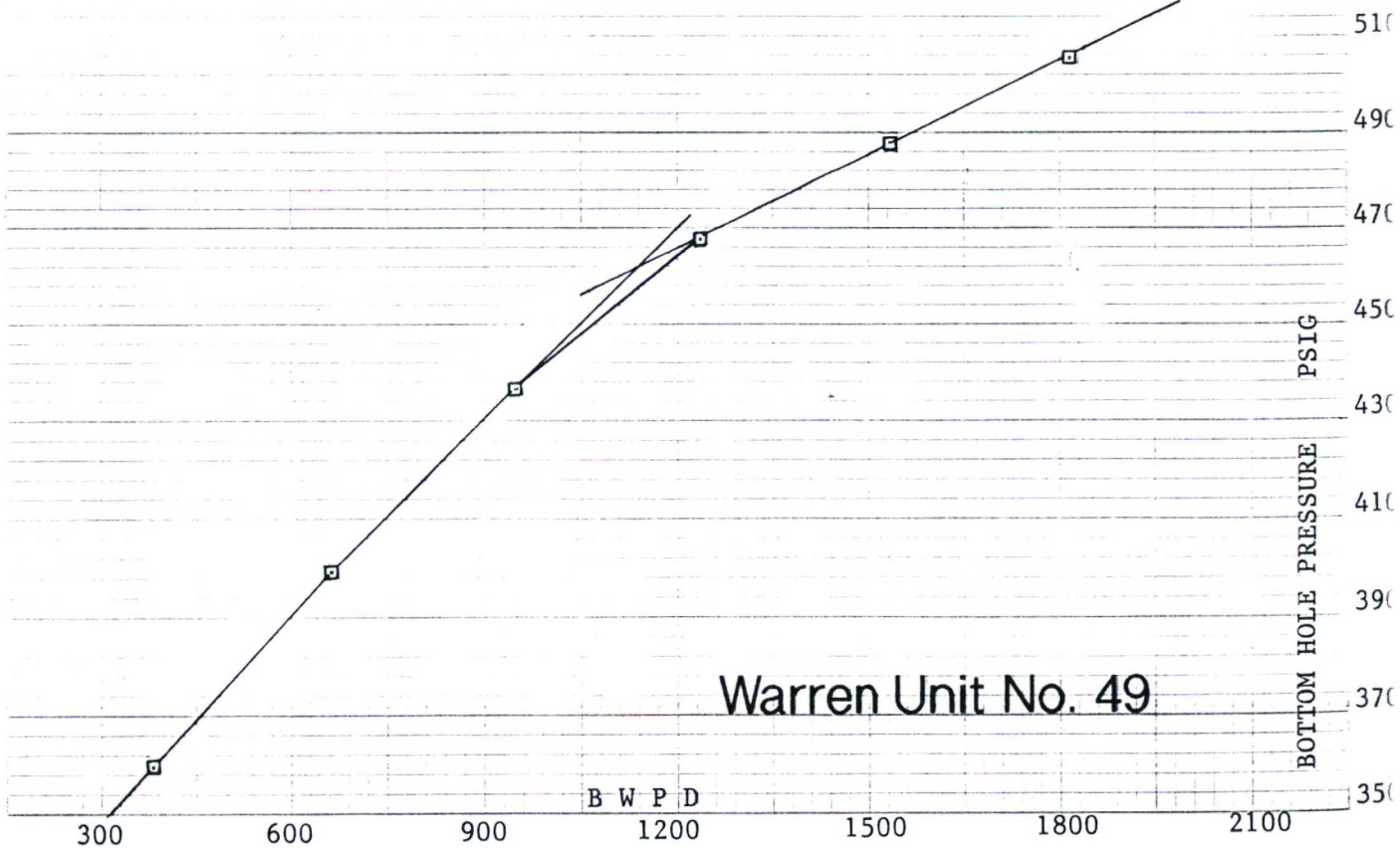


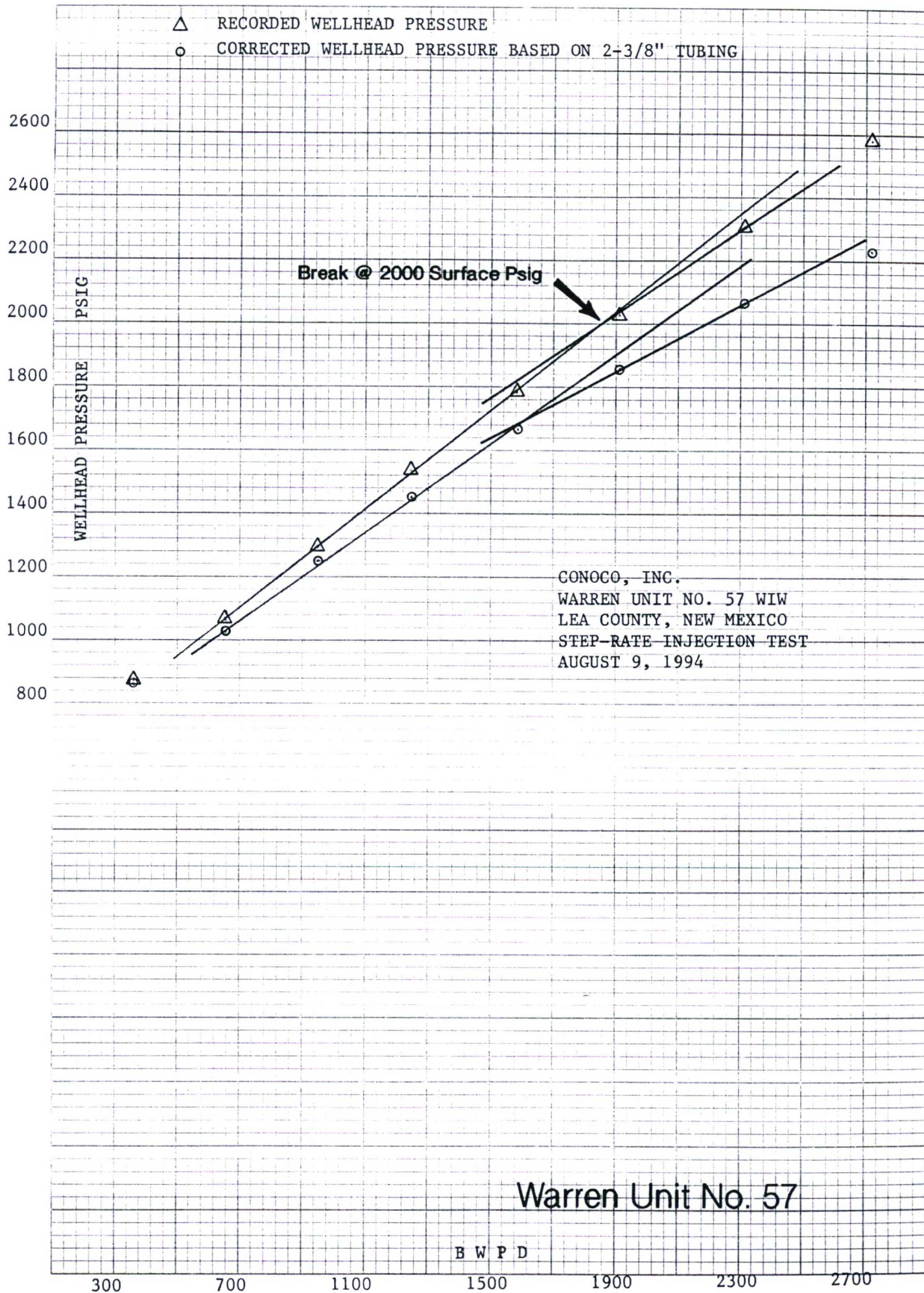
- △ RECORDED WELLHEAD PRESSURE
- CORRECTED WELLHEAD PRESSURE BASED ON 2-3/8" TUBING
- BOTTOM HOLE PRESSURE AT 6332 FEET

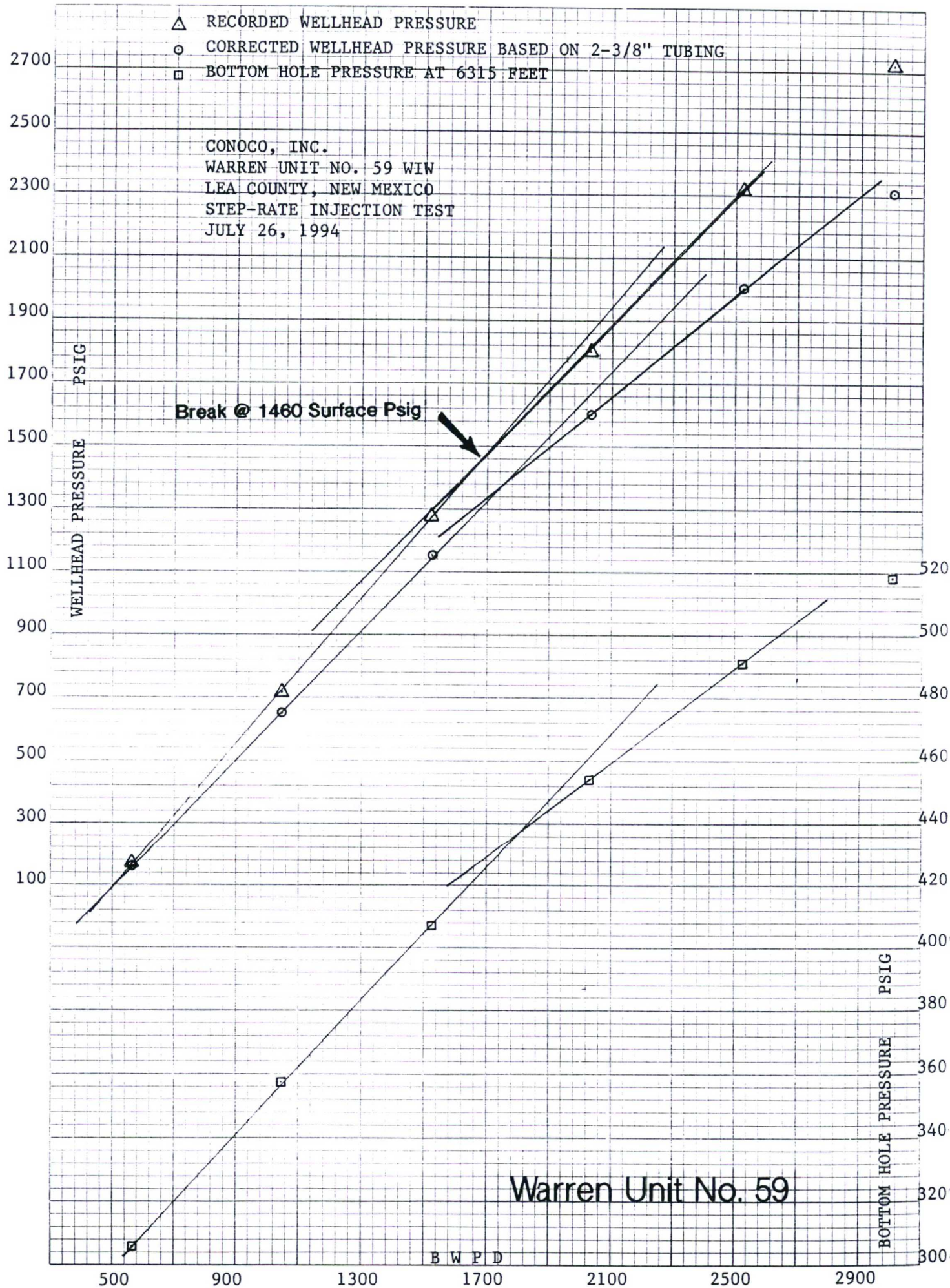
WELLHEAD PRESSURE
PSIG

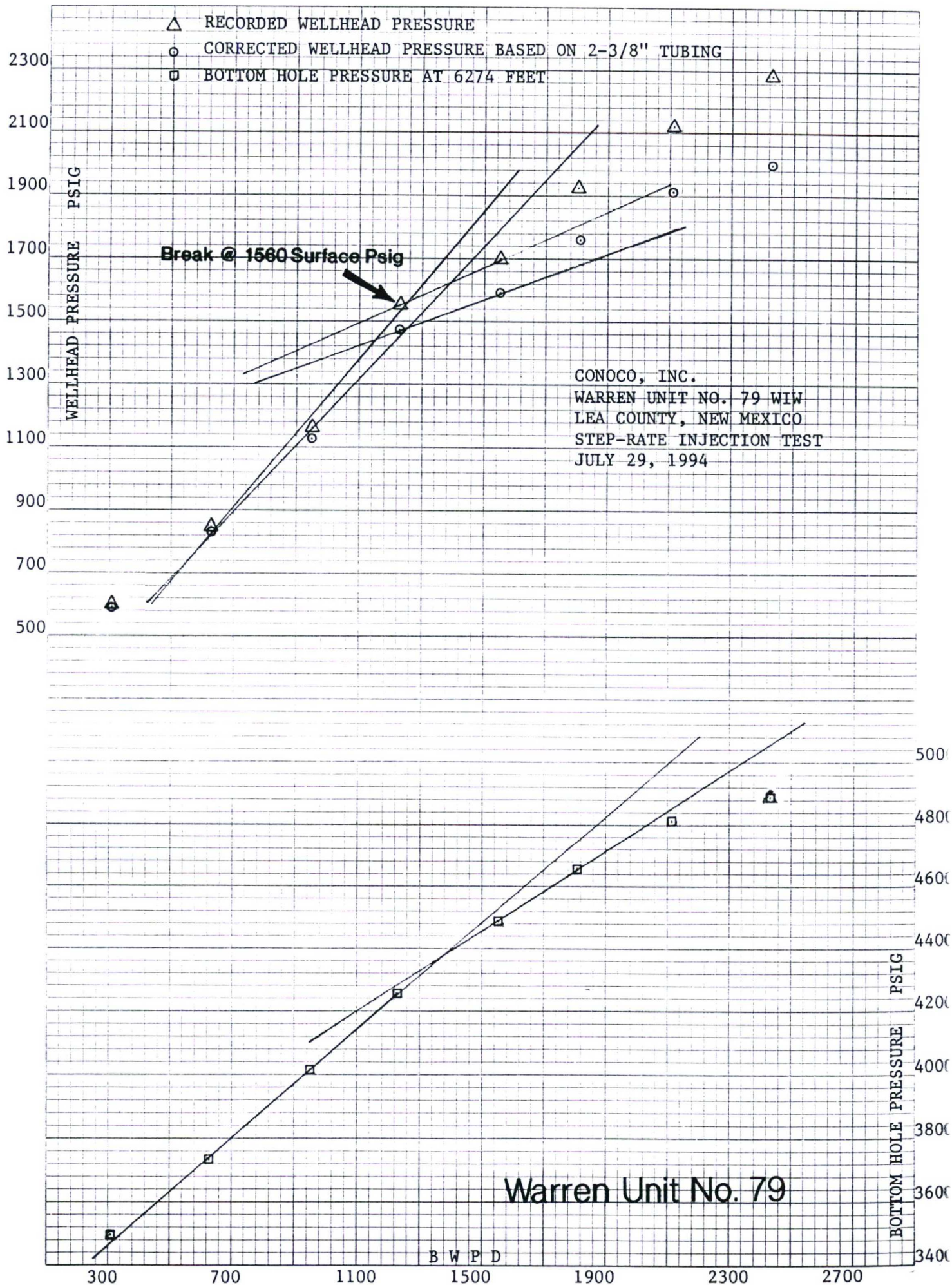
Break @ 1720 Surface Psig

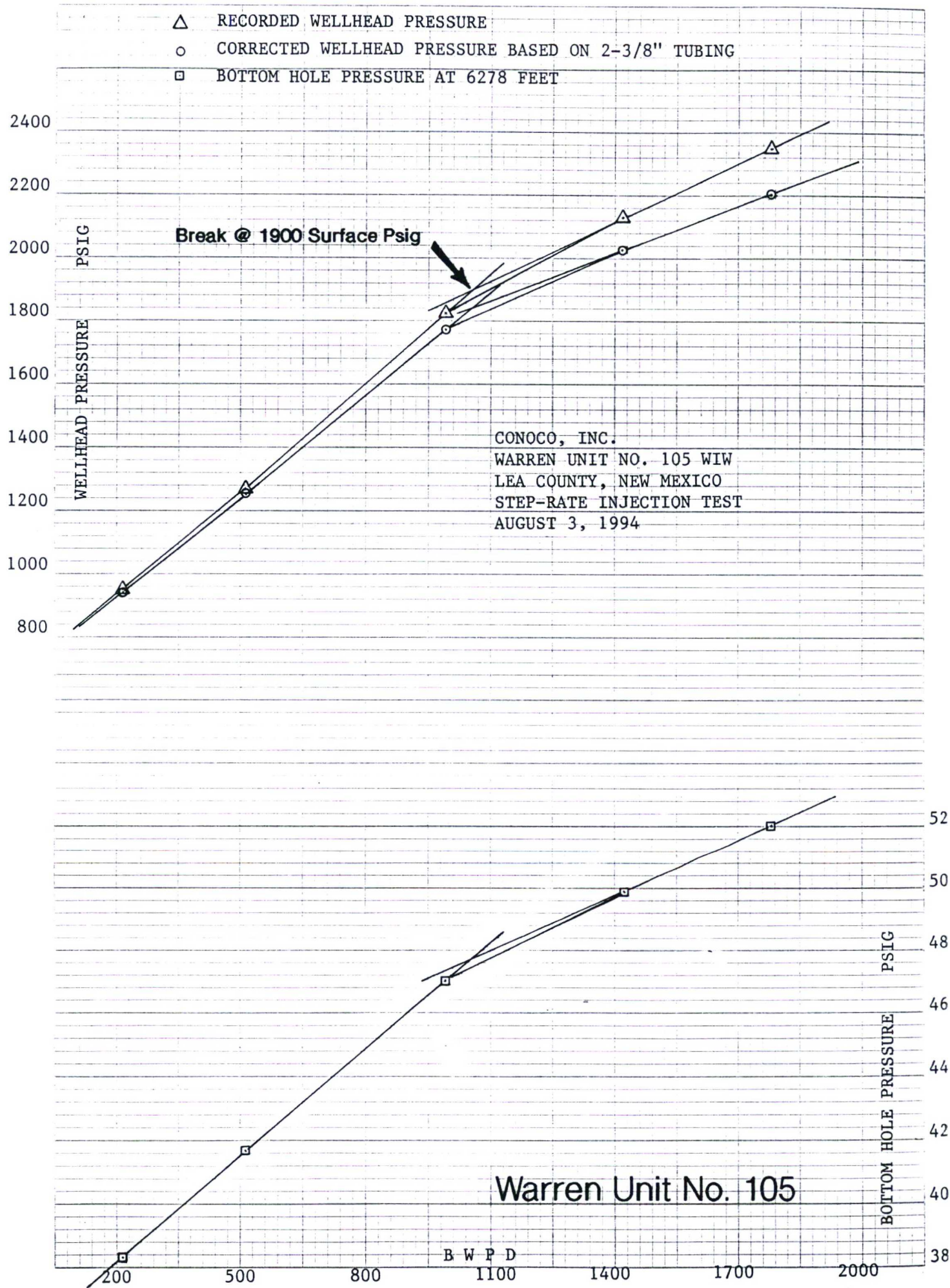
CONOCO, INC.
WARREN UNIT NO. 49 WIW
LEA COUNTY, NEW MEXICO
STEP-RATE INJECTION TEST
JULY 25, 1994











WEST-TEST, INC.
A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: CONOCO, INC.

DATE: AUGUST 5, 1994

WELL NAME: WARREN UNIT NO. 32 WIW
LEA COUNTY, NEW MEXICO

WO#: 94-14-1201

PERFS = 5953-6278

PACKER DEPTH = 5867

BHP GAUGE DEPTH = 6116

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	10:05	252.2				252.2		3070.3
	10:10	380.2	1.3	374.4	8.570	371.6	10.92	3182.9
	10:15	411.4	2.6	374.4	8.570	402.8	10.92	3219.4
	10:20	432.8	3.9	374.4	8.570	424.2	10.92	3248.3
	10:25	457.0	5.2	374.4	8.570	448.4	10.92	3274.9
	10:30	488.2	6.6	403.2	9.829	478.4	11.76	3308.0
	10:35	503.9	8.1	432.0	11.168	492.7	12.60	3329.8
				388.8				
	10:40	688.7	11.2	892.8	42.777	645.9	26.04	3476.9
	10:45	751.2	14.4	921.6	45.364	705.8	26.88	3543.3
2	10:50	818.0	17.6	921.6	45.364	772.6	26.88	3594.0
	10:55	835.1	20.8	921.6	45.364	789.7	26.88	3633.2
	11:00	867.8	23.9	892.8	42.777	825.0	26.04	3667.0
	11:05	892.0	26.9	864.4	40.293	851.7	25.21	3697.2
				902.3				
	11:10	1081.2	31.8	1411.2	99.782	981.4	41.16	3837.1
	11:15	1131.0	36.7	1411.2	99.782	1031.2	41.16	3900.1
	11:20	1178.0	41.6	1411.2	99.782	1078.2	41.16	3949.0
	11:25	1205.1	46.3	1353.6	92.378	1112.7	39.48	3988.3
	11:30	1236.4	51.1	1382.4	96.047	1140.4	40.32	4024.3
3	11:35	1270.5	55.9	1382.4	96.047	1174.5	40.32	4056.6
				1391.9				
	11:40	1434.1	62.1	1785.6	154.210	1279.9	52.08	4164.5
	11:45	1481.1	68.5	1843.2	163.539	1317.6	53.76	4216.9
	11:50	1515.3	74.9	1843.2	163.539	1351.8	53.76	4259.2
	11:55	1546.7	81.2	1814.4	158.843	1387.9	52.92	4293.7
	12:00	1573.7	87.5	1814.4	158.843	1414.9	52.92	4324.8
	12:05	1599.3	93.9	1843.2	163.539	1435.8	53.76	4350.9
				1823.9				

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	12:10	1770.1	101.8	2275.2	241.434	1528.7	66.36	4438.4
	12:15	1805.7	109.9	2332.8	252.863	1552.8	68.04	4480.2
	12:20	1838.4	118.0	2332.8	252.863	1585.5	68.04	4516.5
	12:25	1865.4	126.1	2332.8	252.863	1612.5	68.04	4546.3
	12:30	1889.6	134.1	2332.8	252.863	1636.7	68.04	4573.4
	12:35	1909.5	142.2	2332.8	252.863	1656.6	68.04	4597.1
				2318.4				
	12:40	2050.3	151.6	2707.2	333.024	1717.3	78.96	4656.1
	12:45	2090.1	161.1	2726.0	337.315	1752.8	79.51	4691.1
	12:50	2118.4	170.8	2793.6	352.952	1765.4	81.48	4721.5
6	12:55	2136.9	180.5	2793.6	352.952	1783.9	81.48	4745.2
	1:00	2155.4	190.2	2793.6	352.952	1802.4	81.48	4765.5
	1:05	2171.1	199.9	2793.6	352.952	1818.1	81.48	4783.8
				2769.5				
	1:10	2226.5	210.1	2937.6	387.346	1839.2	85.68	4808.4
	1:15	2236.5	220.1	2880.0	373.412	1863.1	84.00	4825.2
	1:20	2245.1	230.2	2908.8	380.350	1864.8	84.84	4840.5
	1:25	2255.0	240.3	2908.8	380.350	1874.7	84.84	4852.2
	1:30	2270.6	250.3	2880.0	373.412	1897.2	84.00	4863.9
	1:35	2284.7	260.3	2880.0	373.412	1911.3	84.00	4873.0
7 FALLOFF				2899.1				
	1:36	1845.6				1845.6		4809.8
	1:37	1831.4				1831.4		4780.0
	1:38	1805.8				1805.8		4754.9
	1:39	1787.3				1787.3		4734.1
	1:40	1768.8				1768.8		4714.9
	1:45	1689.1				1689.1		4626.3
	1:50	1622.3				1622.3		4553.8

WEST - TEST, INC.
A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: CONOCO, INC.

DATE: AUGUST 2, 1994

WELL NAME: WARREN UNIT NO. 33 WIW
LEA COUNTY, NEW MEXICO

WO#: 94-14-1202

PERFS = 5906-6682

PACKER DEPTH = 5856

BHP GAUGE DEPTH = 6000

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	9:35	22.2				22.2		2735.9
	9:40	20.8	2.4	691.2	26.137	-5.3	20.16	2740.7
	9:45	20.8	4.6	633.6	22.251	-1.5	18.48	2745.5
	9:50	22.3	6.7	604.8	20.416	1.9	17.64	2749.5
	9:55	22.3	8.7	576.0	18.654	3.6	16.80	2750.0
	10:00	22.3	10.6	547.2	16.965	5.3	15.96	2751.6
	10:05	22.3	12.4	518.4	15.351	6.9	15.12	2753.1
				595.1				
	10:10	399.3	16.4	1152.0	67.249	332.1	33.60	3067.9
	10:15	554.1	20.4	1152.0	67.249	486.9	33.60	3225.1
2	10:20	650.7	24.4	1152.0	67.249	583.5	33.60	3333.9
	10:25	717.5	28.4	1152.0	67.249	650.3	33.60	3409.0
	10:30	794.2	32.4	1152.0	67.249	727.0	33.60	3488.0
	10:35	848.3	36.4	1152.0	67.249	781.1	33.60	3549.6
				1152.0				
	10:40	1139.8	41.9	1584.0	121.211	1018.6	46.20	3767.6
	10:45	1242.4	47.5	1612.8	125.320	1117.1	47.04	3885.9
	10:50	1312.2	53.0	1584.0	121.211	1191.0	46.20	3965.8
	10:55	1389.1	58.5	1584.0	121.211	1267.9	46.20	4032.7
	11:00	1441.7	64.1	1612.8	125.320	1316.4	47.04	4089.1
3	11:05	1481.6	69.7	1612.8	125.320	1356.3	47.04	4133.1
				1598.4				
	11:10	1740.8	77.3	2188.8	220.484	1520.3	63.84	4273.6
	11:15	1779.4	84.5	2073.6	199.497	1579.9	60.48	4314.5
	11:20	1839.2	92.3	2246.4	231.338	1607.9	65.52	4359.5
	11:25	1853.5	100.0	2217.6	225.881	1627.6	64.68	4386.3
	11:30	1883.5	107.6	2188.8	220.484	1663.0	63.84	4406.4
	11:35	1892.1	115.2	2188.8	220.484	1671.6	63.84	4424.7
				2183.9				

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbbls)	(3) INJECTION RATE (bbbls/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 FALLOFF	11:40	2121.0	124.7	2736.0	333.166	1787.8	79.80	4493.5
	11:45	2128.1	134.1	2707.2	326.707	1801.4	78.96	4501.5
	11:50	2135.3	143.5	2707.2	326.707	1808.6	78.96	4513.5
	11:55	2146.7	153.0	2736.0	333.166	1813.5	79.80	4522.1
	12:00	2142.5	162.3	2678.4	320.306	1822.2	78.12	4529.4
	12:05	2152.4	171.7	2707.2	326.707	1825.7	78.96	4537.6
				2711.9				
	12:06	1560.7				1560.7		4418.7
	12:07	1468.2				1468.2		4335.6
	12:08	1397.1				1397.1		4258.7
	12:09	1330.2				1330.2		4186.7
	12:10	1267.6				1267.6		4121.1
	12:15	995.9				995.9		3833.1
	12:20	782.8				782.8		3605.3

WEST-TEST, INC.
A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: CONOCO, INC.

DATE: AUGUST 1, 1994

WELL NAME: WARREN UNIT NO. 37 WIW
LEA COUNTY, NEW MEXICO

WO#: 94-14-1203

PERFS = 5875-6894

PACKER DEPTH = 5825

BHP GAUGE DEPTH = 8285

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	10:15							2922.5
	10:20		2.3	662.4	25.306	-25.3	19.32	2888.7
	10:25		4.8	720.0	29.527	-29.5	21.00	2891.0
	10:30		7.1	662.4	25.306	-25.3	19.32	2894.5
	10:35		9.4	662.4	25.306	-25.3	19.32	2896.2
	10:40		11.6	633.6	23.308	-23.3	18.48	2897.5
	10:45	46.4	13.7	604.8	21.386	25.0	17.64	2900.0
				657.6				
	10:50	312.6	18.0	1238.4	80.527	232.1	36.12	3152.9
	10:55	383.7	22.2	1209.6	77.097	306.6	35.28	3228.0
2	11:00	430.6	26.5	1238.4	80.527	350.1	36.12	3280.1
	11:05	467.6	30.7	1209.6	77.097	390.5	35.28	3320.0
	11:10	498.1	34.8	1180.8	73.735	424.4	34.44	3355.2
	11:15	528.7	39.0	1209.6	77.097	451.6	35.28	3386.5
				1214.4				
	11:20	848.5	45.3	1814.4	163.232	685.3	52.92	3639.1
	11:25	925.2	51.6	1814.4	163.232	762.0	52.92	3723.9
	11:30	977.7	57.9	1814.4	163.232	814.5	52.92	3779.7
	11:35	1020.3	64.1	1756.8	153.775	866.5	51.24	3827.6
	11:40	1075.7	70.5	1843.2	168.058	907.6	53.76	3882.7
3	11:45	1105.6	76.8	1814.4	163.232	942.4	52.92	3920.5
				1814.4				
	11:50	1390.1	85.1	2390.4	271.845	1118.3	69.72	4098.3
	11:55	1429.9	93.4	2390.4	271.845	1158.1	69.72	4159.0
	12:00	1469.8	101.8	2419.2	277.935	1191.9	70.56	4205.8
	12:05	1509.7	110.0	2361.6	265.816	1243.9	68.88	4248.1
	12:10	1561.0	118.4	2419.2	277.935	1283.1	70.56	4293.2
	12:15	1588.4	126.7	2390.4	271.845	1316.6	69.72	4325.6
				2395.1				

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	12:20	1805.6	136.7	2880.0	383.730	1421.9	84.00	4441.6
	12:25	1841.1	146.7	2880.0	383.730	1457.4	84.00	4485.8
	12:30	1872.4	156.7	2880.0	383.730	1488.7	84.00	4521.1
	12:35	1897.9	166.5	2822.4	369.653	1528.2	82.32	4554.5
	12:40	1952.0	176.5	2880.0	383.730	1568.3	84.00	4590.6
	12:45	1974.8	186.5	2880.0	383.730	1591.1	84.00	4618.6
				2870.4				
	12:50	2192.3	198.5	3456.0	537.665	1654.6	100.80	4705.7
	12:55	2229.3	210.4	3427.2	529.405	1699.9	99.96	4746.3
	1:00	2250.6	222.4	3456.0	537.665	1712.9	100.80	4772.8
6	1:05	2263.4	234.3	3427.2	529.405	1734.0	99.96	4800.9
	1:10	2283.1	246.2	3427.2	529.405	1753.7	99.96	4820.8
	1:15	2297.5	258.1	3427.2	529.405	1768.1	99.96	4840.4
				3436.8				
FALLOFF	1:16	1669.1				1669.1		4695.1
	1:17	1606.5				1606.5		4630.9
	1:18	1562.4				1562.4		4581.1
	1:19	1522.5				1522.5		4537.3
	1:20	1485.6				1485.6		4498.1
	1:25	1326.2				1326.2		4329.9
	1:30	1192.4				1192.4		4188.1

WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: CONOCO, INC.

DATE: AUGUST 8, 1994

WELL NAME: WARREN UNIT NO. 39 WIW
LEA COUNTY, NEW MEXICO

WO#: 94-14-1204

PERFS = 6716-5875

PACKER DEPTH = 5827

BHP GAUGE DEPTH = 6295

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbis)	(3) INJECTION RATE (bbis/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	9:30	13.4				13.4		2896.1
	9:35	14.9	2.0	576.0	19.571	-4.7	16.80	3036.5
	9:40	14.9	3.9	547.2	17.800	-2.9	15.96	3095.3
	9:45	274.2	5.9	576.0	19.571	254.6	16.80	3135.7
	9:50	295.6	7.7	518.4	16.105	279.5	15.12	3168.0
	9:55	336.8	9.6	547.2	17.800	319.0	15.96	3203.9
	10:00	355.3	11.4	518.4	16.105	339.2	15.12	3230.6
				547.2				
	10:05	685.1	15.1	1065.6	61.079	624.0	31.08	3520.6
	10:10	763.2	18.8	1065.6	61.079	702.1	31.08	3604.1
2	10:15	835.7	22.5	1065.6	61.079	774.6	31.08	3681.8
	10:20	888.2	26.1	1036.8	58.060	830.1	30.24	3747.7
	10:25	939.3	29.9	1094.4	64.168	875.1	31.92	3789.1
	10:30	983.4	33.4	1008.0	55.112	928.3	29.40	3826.1
				1056.0				
	10:35	1253.6	38.8	1555.4	122.956	1130.6	45.37	4066.5
	10:40	1325.0	44.1	1526.4	118.748	1206.3	44.52	4132.7
	10:45	1373.0	49.4	1526.4	118.748	1254.3	44.52	4188.6
	10:50	1442.6	54.8	1555.2	122.926	1319.7	45.36	4249.1
	10:55	1485.3	60.1	1526.4	118.748	1366.6	44.52	4293.6
3	11:00	1508.0	65.5	1555.2	122.926	1385.1	45.36	4337.2
				1540.8				
	11:05	1761.2	72.5	2016.0	198.677	1562.5	58.80	4507.3
	11:10	1823.7	79.5	2016.0	198.677	1625.0	58.80	4586.2
	11:15	1869.2	86.5	2016.0	198.677	1670.5	58.80	4637.7
	11:20	1914.7	93.6	2044.8	203.960	1710.7	59.64	4683.5
	11:25	1951.7	100.5	1987.2	193.458	1758.2	57.96	4723.2
	11:30	1977.3	107.6	2044.8	203.960	1773.3	59.64	4747.3
				2020.8				

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 FALLOFF	11:35	2132.4	116.3	2505.6	297.048	1835.4	73.08	4825.1
	11:40	2190.7	125.1	2534.4	303.396	1887.3	73.92	4880.0
	11:45	2223.4	133.9	2534.4	303.396	1920.0	73.92	4919.7
	11:50	2246.1	142.7	2534.4	303.396	1942.7	73.92	4949.7
	11:55	2268.9	151.6	2563.2	309.805	1959.1	74.76	4976.0
	12:00	2288.9	160.3	2505.6	297.048	1991.9	73.08	4998.0
				2529.6				
	12:01	2288.9				2288.9		4898.0
	12:02	1799.6				1799.6		4778.6
	12:03	1749.8				1749.8		4726.6
	12:04	1705.7				1705.7		4680.8
	12:05	1664.5				1664.5		4639.2
	12:10	1508.0				1508.0		4473.6
	12:15	1392.7				1392.7		4349.7

WEST-TEST, INC.
A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: CONOCO, INC.

DATE: JULY 28, 1994

WELL NAME: WARREN UNIT NO. 45 WIW
LEA COUNTY, NEW MEXICO

WO#: 94-14-1206

PERFS = 6655-5939

PACKER DEPTH = 5887

BHP GAUGE DEPTH = 6297

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	8:50	17.1				17.1		2912.9
	8:55	100.3	1.9	547.2	17.805	82.5	15.96	2986.1
	9:00	137.2	3.9	576.0	19.578	117.6	16.80	3019.0
	9:05	174.2	5.8	547.2	17.805	156.4	15.96	3049.6
	9:10	184.2	7.7	547.2	17.805	166.4	15.96	3069.0
	9:15	211.3	9.7	576.0	19.578	191.7	16.80	3100.6
	9:20	239.8	11.7	576.0	19.578	220.2	16.80	3122.0
				561.6				
	9:25	507.1	15.3	1036.8	58.078	449.0	30.24	3346.7
	9:30	599.5	19.0	1065.6	61.098	538.4	31.08	3435.8
2	9:35	663.6	22.7	1065.6	61.098	602.5	31.08	3507.2
	9:40	704.9	26.3	1036.8	58.078	646.8	30.24	3556.8
	9:45	741.9	29.9	1036.8	58.078	683.8	30.24	3595.7
	9:50	790.3	33.6	1065.6	61.098	729.2	31.08	3643.6
				1051.2				
	9:55	1077.5	39.0	1555.2	122.965	954.5	45.36	3852.1
	10:00	1138.7	44.3	1526.4	118.786	1019.9	44.52	3932.6
	10:05	1206.9	49.7	1555.2	122.965	1083.9	45.36	3995.6
	10:10	1251.0	55.0	1526.4	118.786	1132.2	44.52	4046.4
	10:15	1276.6	60.3	1526.4	118.786	1157.8	44.52	4085.3
3	10:20	1312.1	65.6	1526.4	118.786	1193.3	44.52	4117.7
				1536.0				
	10:25	1593.7	72.7	2044.8	204.025	1389.7	59.64	4284.6
	10:30	1644.9	79.7	2016.0	198.740	1446.2	58.80	4347.1
	10:35	1686.1	86.7	2016.0	198.740	1487.4	58.80	4396.5
	10:40	1727.4	93.8	2044.8	204.025	1523.4	59.64	4437.6
	10:45	1757.2	100.8	2016.0	198.740	1558.5	58.80	4468.8
	10:50	1784.3	107.8	2016.0	198.740	1585.6	58.80	4502.5
				2025.6				

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)
5	10:55	2026.1	116.6	2534.4	303.492	1722.6	73.92	4608.7
	11:00	2065.9	125.4	2534.4	303.492	1762.4	73.92	4652.6
	11:05	2105.7	134.1	2505.6	297.143	1808.6	73.08	4688.7
	11:10	2127.0	142.9	2534.4	303.492	1823.5	73.92	4715.9
	11:15	2139.8	151.8	2563.2	309.903	1829.9	74.76	4737.7
	11:20	2166.8	160.4	2476.8	290.855	1875.9	72.24	4761.0
				2524.8				
	11:25	2429.7	170.9	3024.0	420.780	2008.9	88.20	4838.2
	11:30	2426.8	181.3	2995.2	413.396	2013.4	87.36	4869.1
	11:35	2459.5	191.8	3024.0	420.780	2038.7	88.20	4892.4
6	11:40	2480.8	202.3	3024.0	420.780	2060.0	88.20	4913.5
	11:45	2495.1	212.8	3024.0	420.780	2074.3	88.20	4926.8
	11:50	2496.5	223.2	2995.2	413.396	2083.1	87.36	4940.1
				3014.4				
	11:51	1764.3				1764.3		4805.6
	11:52	1721.6				1721.6		4750.9
	11:53	1681.8				1681.8		4709.1
	11:54	1649.1				1649.1		4676.2
	11:55	1620.6				1620.6		4645.0
	12:00	1496.8				1496.8		4514.9
FALLOFF	12:05	1392.9				1392.9		4404.4

WEST-TEST, INC.
A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: CONOCO, INC.

DATE: JULY 27, 1994

WELL NAME: WARREN UNIT NO. 48 WIW
LEA COUNTY, NEW MEXICO

WO#: 94-14-1207

PERFS - 5885-6701

PACKER DEPTH - 5822

BHP GAUGE DEPTH - 6293

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	8:50	28.1				28.1		2920.5
	8:55	81.6	1.9	547.2	17.794	63.8	15.96	2967.9
	9:00	109.8	3.8	547.2	17.794	92.0	15.96	2996.5
	9:05	148.1	5.9	604.8	21.413	126.7	17.64	3033.9
	9:10	168.1	7.8	547.2	17.794	150.3	15.96	3060.5
	9:15	196.5	9.8	576.0	19.565	176.9	16.80	3086.6
	9:20	219.2	11.8	576.0	19.565	199.6	16.80	3108.9
				566.4				
	9:25	446.6	15.5	1065.6	61.059	385.5	31.08	3283.8
	9:30	513.6	19.1	1036.8	58.041	455.6	30.24	3358.0
2	9:35	583.3	22.8	1065.6	61.059	522.2	31.08	3423.4
	9:40	616.1	26.5	1065.6	61.059	555.0	31.08	3471.6
	9:45	674.4	30.1	1036.8	58.041	616.4	30.24	3518.3
	9:50	708.5	33.9	1094.4	64.147	644.4	31.92	3563.2
				1060.8				
	9:55	947.2	39.3	1555.2	122.887	824.3	45.36	3728.8
	10:00	1015.5	44.7	1555.2	122.887	892.6	45.36	3808.1
	10:05	1075.4	50.1	1555.2	122.887	952.5	45.36	3865.9
	10:10	1122.5	55.3	1497.6	114.600	1007.9	43.68	3915.8
	10:15	1165.2	60.7	1555.2	122.887	1042.3	45.36	3966.1
3	10:20	1202.2	66.1	1555.2	122.887	1079.3	45.36	4006.7
				1545.6				
	10:25	1455.6	73.2	2044.8	203.895	1251.7	59.64	4148.9
	10:30	1508.3	80.3	2044.8	203.895	1304.4	59.64	4220.2
	10:35	1555.4	87.4	2044.8	203.895	1351.5	59.64	4265.9
	10:40	1585.3	94.5	2044.8	203.895	1381.4	59.64	4309.5
	10:45	1625.1	101.6	2044.8	203.895	1421.2	59.64	4349.7
	10:50	1659.2	108.8	2073.6	209.240	1450.0	60.48	4384.2
				2049.9				

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	10:55	1910.9	117.6	2534.4	303.299	1607.6	73.92	4498.0
	11:00	1946.4	126.4	2534.4	303.299	1643.1	73.92	4549.0
	11:05	2000.5	135.2	2534.4	303.299	1697.2	73.92	4592.6
	11:10	2034.6	144.0	2534.4	303.299	1731.3	73.92	4631.5
	11:15	2063.1	152.9	2563.2	309.706	1753.4	74.76	4663.8
	11:20	2095.7	161.7	2534.4	303.299	1792.4	73.92	4692.7
				2539.2				
	11:25	2320.2	172.3	3052.8	427.951	1892.2	89.04	4768.5
	11:30	2345.8	182.8	3024.0	420.512	1925.3	88.20	4803.6
	11:35	2384.2	193.4	3052.8	427.951	1956.2	89.04	4835.6
6	11:40	2399.8	203.9	3024.0	420.512	1979.3	88.20	4859.8
	11:45	2432.5	214.5	3052.8	427.951	2004.5	89.04	4882.1
	11:50	2446.7	225.2	3081.6	435.450	2011.2	89.88	4901.2
				3048.0				
FALLOFF	11:51	1737.1				1737.1		4768.3
	11:52	1690.1				1690.1		4717.1
	11:53	1651.7				1651.7		4674.8
	11:54	1616.2				1616.2		4637.3
	11:55	1584.8				1584.8		4604.4
	12:00	1455.4				1455.4		4467.7
	12:05	1347.3				1347.3		4354.4

WEST-TEST, INC.
A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: CONOCO, INC.

DATE: JULY 25, 1994

WELL NAME: WARREN UNIT NO. 49 WIW
LEA COUNTY, NEW MEXICO

WO#: 94-14-1208

PERFS = 5983-6682

PACKER DEPTH = 5926

BHP GAUGE DEPTH = 6332

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)/54.2857	(7) MEASURED BHP (psi)
1	9:00	288.4				288.4		3206.3
	9:05	474.7	1.5	432.0	11.562	463.1	12.60	3380.0
	9:10	540.1	2.8	374.4	8.873	531.2	10.92	3441.1
	9:15	581.3	4.1	374.4	8.873	572.4	10.92	3496.5
	9:20	621.1	5.5	403.2	10.177	610.9	11.76	3539.1
	9:25	655.2	6.8	374.4	8.873	646.3	10.92	3571.1
	9:30	666.6	8.0	345.6	7.652	658.9	10.08	3597.3
				384.0				
	9:35	835.6	10.4	691.2	27.584	808.0	20.16	3731.8
	9:40	902.4	12.7	662.4	25.495	876.9	19.32	3805.5
2	9:45	963.4	15.0	662.4	25.495	937.9	19.32	3859.7
	9:50	997.5	17.2	633.6	23.482	974.0	18.48	3907.0
	9:55	1030.1	19.5	662.4	25.495	1004.6	19.32	3949.7
	10:00	1078.4	21.8	662.4	25.495	1052.9	19.32	3986.3
				662.4				
	10:05	1241.4	25.1	950.4	49.718	1191.7	27.72	4134.7
	10:10	1293.2	28.4	950.4	49.718	1243.5	27.72	4182.9
	10:15	1342.9	31.7	950.4	49.718	1293.2	27.72	4236.0
	10:20	1394.1	35.0	950.4	49.718	1344.4	27.72	4289.2
	10:25	1421.1	38.4	979.2	52.541	1368.6	28.56	4331.4
3	10:30	1475.1	41.7	950.4	49.718	1425.4	27.72	4370.9
				955.2				
	10:35	1608.8	46.0	1238.4	81.129	1527.7	36.12	4469.3
	10:40	1658.6	50.3	1238.4	81.129	1577.5	36.12	4526.2
	10:45	1695.6	54.6	1238.4	81.129	1614.5	36.12	4572.2
	10:50	1731.1	58.9	1238.4	81.129	1650.0	36.12	4610.4
	10:55	1755.2	63.2	1238.4	81.129	1674.1	36.12	4645.0
	11:00	1783.7	67.4	1209.6	77.674	1706.0	35.28	4677.1
				1233.6				

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)/24.2857	(7) MEASURED BHP (psi)
5	11:05	1907.4	72.7	1526.4	119.446	1788.0	44.52	4744.9
	11:10	1941.5	78.1	1555.2	123.649	1817.9	45.36	4784.2
	11:15	1970.0	83.4	1526.4	119.446	1850.6	44.52	4818.2
	11:20	1985.6	88.7	1526.4	119.446	1866.2	44.52	4842.5
	11:25	2014.0	94.1	1555.2	123.649	1890.4	45.36	4866.4
	11:30	2032.5	99.4	1526.4	119.446	1913.1	44.52	4888.8
				1536.0				
	11:35	2136.4	105.7	1814.4	164.453	1971.9	52.92	4930.3
	11:40	2157.8	112.1	1843.2	169.315	1988.5	53.76	4954.4
	11:45	2170.6	118.4	1814.4	164.453	2006.1	52.92	4971.5
6	11:50	2179.1	124.7	1814.4	164.453	2014.6	52.92	4988.9
	11:55	2194.2	131.0	1814.4	164.453	2029.7	52.92	5004.9
	12:00	2214.7	137.3	1814.4	164.453	2050.2	52.92	5019.2
				1819.2				
FALLOFF	12:01	1938.6				1938.6		4977.6
	12:02	1924.4				1924.4		4962.5
	12:03	1913.0				1913.0		4949.2
	12:04	1901.6				1901.6		4936.8
	12:05	1890.2				1890.2		4926.3
	12:10	1844.7				1844.7		4877.7
	12:15	1802.0				1802.0		4832.6

WEST-TEST, INC.
A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: CONOCO, INC.

DATE: AUGUST 9, 1994

WELL NAME: WARREN UNIT NO. 57 WIW
LEA COUNTY, NEW MEXICO

WO#: 94-14-1210

PERFS = 5933-6726

PACKER DEPTH = 5888

CENTERLINE OF PERFS = 6330

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)/34.2657	(7) MEASURED BHP (psi)
1	8:45	614.5				614.5		
	8:50	714.1	1.3	374.4	8.870	705.2	10.92	
	8:55	741.2	2.5	345.6	7.649	733.6	10.08	
	9:00	779.6	3.8	374.4	8.870	770.7	10.92	
	9:05	812.4	5.0	345.6	7.649	804.8	10.08	
	9:10	806.8	6.3	374.4	8.870	797.9	10.92	
	9:15	872.2	7.6	374.4	8.870	863.3	10.92	
				364.8				
	9:20	927.7	9.9	662.4	25.487	902.2	19.32	
	9:25	943.4	12.2	662.4	25.487	917.9	19.32	
2	9:30	981.8	14.5	662.4	25.487	956.3	19.32	
	9:35	1017.4	16.8	662.4	25.487	991.9	19.32	
	9:40	1017.4	19.0	633.6	23.475	993.9	18.48	
	9:45	1051.7	21.3	662.4	25.487	1026.2	19.32	
				657.6				
	9:50	1147.1	24.7	979.2	52.524	1094.6	28.56	
	9:55	1181.3	28.0	950.4	49.702	1131.6	27.72	
	10:00	1215.5	31.4	979.2	52.524	1163.0	28.56	
	10:05	1235.4	34.7	950.4	49.702	1185.7	27.72	
	10:10	1262.4	37.9	921.6	46.952	1215.4	26.88	
3	10:15	1295.0	41.2	950.4	49.702	1245.3	27.72	
				955.2				
	10:20	1384.6	45.6	1267.2	84.628	1300.0	36.96	
	10:25	1418.7	50.0	1267.2	84.628	1334.1	36.96	
	10:30	1461.4	54.4	1267.2	84.628	1376.8	36.96	
	10:35	1486.9	58.7	1238.4	81.104	1405.8	36.12	
	10:40	1518.2	63.1	1267.2	84.628	1433.6	36.96	
	10:45	1525.3	67.4	1238.4	81.104	1444.2	36.12	
				1257.6				

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)
5	10:50	1650.5	72.9	1584.0	127.878	1522.6	46.20	
	10:55	1681.7	78.2	1526.4	119.408	1562.3	44.52	
	11:00	1703.0	83.5	1526.4	119.408	1583.6	44.52	
	11:05	1735.7	88.9	1555.2	123.610	1612.1	45.36	
	11:10	1762.7	94.2	1526.4	119.408	1643.3	44.52	
	11:15	1782.6	99.5	1526.4	119.408	1663.2	44.52	
				1540.8				
	11:20	1919.2	106.2	1929.6	184.231	1735.0	56.28	
	11:25	1954.8	112.8	1900.8	179.176	1775.6	55.44	
	11:30	1979.0	119.5	1929.6	184.231	1794.8	56.28	
	11:35	2003.1	126.1	1900.8	179.176	1823.9	55.44	
	11:40	2021.6	132.7	1900.8	179.176	1842.4	55.44	
	11:45	2035.8	139.2	1872.0	174.186	1861.6	54.60	
				1905.6				
	11:50	2196.5	147.3	2332.8	261.711	1934.8	68.04	
6	11:55	2224.9	155.4	2332.8	261.711	1963.2	68.04	
	12:00	2253.3	163.4	2304.0	255.765	1997.5	67.20	
	12:05	2276.1	171.4	2304.0	255.765	2020.3	67.20	
	12:10	2300.2	179.4	2304.0	255.765	2044.4	67.20	
	12:15	2317.3	187.4	2304.0	255.765	2061.5	67.20	
				2313.6				
	12:20	2475.2	196.9	2736.0	351.490	2123.7	79.80	
	12:25	2490.8	206.3	2707.2	344.676	2146.1	78.96	
	12:30	2522.1	215.8	2736.0	351.490	2170.6	79.80	
	12:35	2545.0	225.2	2707.2	344.676	2200.3	78.96	
7	12:40	2563.5	234.7	2736.0	351.490	2212.0	79.80	
	12:45	2582.1	244.1	2707.2	344.676	2237.4	78.96	
				2721.6				
	12:46	2099.9				2099.9		
	12:47	2099.9				2099.9		
	12:48	2087.2				2087.2		
	12:49	2077.2				2077.2		
	12:50	2067.3				2067.3		
	12:55	2029.0				2029.0		
	1:00	1997.8				1997.8		
8								
FALLOFF								

WEST-TEST, INC.
A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: CONOCO, INC.

DATE: JULY 26, 1994

WELL NAME: WARREN UNIT NO. 59 WIW
LEA COUNTY, NEW MEXICO

WO#: 94-14-1211

PERFS = 5937-6693

PACKER DEPTH = 5865

BHP GAUGE DEPTH = 6315

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	10:55	22.9				22.9		2915.7
	11:00	62.3	2.0	576.0	19.634	42.7	16.80	2949.1
	11:05	79.2	4.0	576.0	19.634	59.6	16.80	2967.4
	11:10	104.6	5.9	547.2	17.856	86.7	15.96	2994.4
	11:15	130.1	7.9	576.0	19.634	110.5	16.80	3020.7
	11:20	148.6	10.0	604.8	21.488	127.1	17.64	3042.4
	11:25	164.3	11.9	547.2	17.856	146.4	15.96	3058.0
				571.2				
	11:30	458.5	15.6	1065.6	61.273	397.2	31.08	3293.6
	11:35	541.0	19.3	1065.6	61.273	479.7	31.08	3381.5
2	11:40	593.6	22.9	1036.8	58.244	535.4	30.24	3439.7
	11:45	615.0	26.5	1036.8	58.244	556.8	30.24	3478.2
	11:50	669.0	30.1	1036.8	58.244	610.8	30.24	3533.7
	11:55	717.4	33.8	1065.6	61.273	656.1	31.08	3575.4
				1051.2				
	12:00	1031.6	39.2	1555.2	123.317	908.3	45.36	3805.9
	12:05	1099.9	44.6	1555.2	123.317	976.6	45.36	3893.1
	12:10	1165.3	49.9	1526.4	119.125	1046.2	44.52	3954.1
	12:15	1205.1	55.2	1526.4	119.125	1086.0	44.52	3995.3
	12:20	1229.3	60.6	1555.2	123.317	1106.0	45.36	4041.1
3	12:25	1270.0	65.8	1497.6	115.001	1155.0	43.68	4077.8
				1536.0				
	12:30	1593.6	72.8	2016.0	199.308	1394.3	58.80	4286.6
	12:35	1659.1	79.9	2044.8	204.608	1454.5	59.64	4358.6
	12:40	1699.0	87.0	2044.8	204.608	1494.4	59.64	4416.0
	12:45	1753.1	94.0	2016.0	199.308	1553.8	58.80	4464.4
	12:50	1788.6	101.0	2016.0	199.308	1589.3	58.80	4505.2
	12:55	1812.7	108.1	2044.8	204.608	1608.1	59.64	4543.5
				2030.4				

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	1:00	2109.9	116.8	2505.6	297.992	1811.9	73.08	4706.1
	1:05	2180.9	125.6	2534.4	304.360	1876.5	73.92	4774.5
	1:10	2227.8	134.5	2563.2	310.789	1917.0	74.76	4816.5
	1:15	2254.8	143.3	2534.4	304.360	1950.4	73.92	4857.4
	1:20	2283.2	152.0	2505.6	297.992	1985.2	73.08	4891.6
	1:25	2310.2	160.8	2534.4	304.360	2005.8	73.92	4919.3
				2529.6				
	1:30	2602.0	171.3	3024.0	421.983	2180.0	88.20	5041.8
	1:35	2639.2	181.7	2995.2	414.578	2224.6	87.36	5085.2
	1:40	2660.7	192.2	3024.0	421.983	2238.7	88.20	5119.2
	1:45	2672.1	202.6	2995.2	414.578	2257.5	87.36	5145.3
	1:50	2717.8	213.2	3052.8	429.448	2288.4	89.04	5172.3
	1:55	2733.5	223.6	2995.2	414.578	2318.9	87.36	5195.0
				3014.4				
6 FALLOFF	1:56	1878.1				1878.1		4926.2
	1:57	1819.7				1819.7		4860.6
	1:58	1779.9				1779.9		4817.2
	1:59	1742.9				1742.9		4778.2
	2:00	1710.1				1710.1		4745.5
	2:05	1580.6				1580.6		4607.7
	2:10	1479.5				1479.5		4499.8

WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: CONOCO, INC.

DATE: JULY 29, 1994

WELL NAME: WARREN UNIT NO. 79 WIW
LEA COUNTY, NEW MEXICO

WO#: 94-14-1212

PERFS = 5924-6624

PACKER DEPTH = 5885

BHP GAUGE DEPTH = 6274

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	9:00	410.4				410.4		3321.2
	9:05	505.7	1.1	316.8	6.454	499.2	9.24	3409.2
	9:10	518.6	2.1	288.0	5.411	513.2	8.40	3433.4
	9:15	542.9	3.2	316.8	6.454	536.4	9.24	3455.0
	9:20	572.8	4.3	316.8	6.454	566.3	9.24	3467.0
	9:25	569.9	5.3	288.0	5.411	564.5	8.40	3479.9
	9:30	592.7	6.4	316.8	6.454	586.2	9.24	3496.1
				307.2				
	9:35	747.6	8.6	633.6	23.267	724.3	18.48	3613.5
	9:40	768.9	10.8	633.6	23.267	745.6	18.48	3653.5
2	9:45	800.1	13.0	633.6	23.267	776.8	18.48	3680.0
	9:50	814.3	15.2	633.6	23.267	791.0	18.48	3700.7
	9:55	838.4	17.3	604.8	21.349	817.1	17.64	3721.2
	10:00	852.6	19.4	604.8	21.349	831.3	17.64	3737.4
				624.0				
	10:05	1025.9	22.6	921.6	46.536	979.4	26.88	3865.3
	10:10	1077.1	25.9	950.4	49.262	1027.8	27.72	3912.4
	10:15	1108.3	29.3	979.2	52.060	1056.2	28.56	3947.6
	10:20	1125.3	32.5	921.6	46.536	1078.8	26.88	3975.2
	10:25	1150.9	35.8	950.4	49.262	1101.6	27.72	3997.3
3	10:30	1172.0	39.1	950.4	49.262	1122.7	27.72	4016.8
				945.6				
	10:35	1321.5	43.4	1238.4	80.386	1241.1	36.12	4122.3
	10:40	1340.0	47.7	1238.4	80.386	1259.6	36.12	4156.7
	10:45	1375.6	51.8	1180.8	73.606	1302.0	34.44	4185.0
	10:50	1389.9	56.0	1209.6	76.962	1312.9	35.28	4210.6
	10:55	1431.2	60.3	1238.4	80.386	1350.8	36.12	4240.9
	11:00	1545.1	64.6	1238.4	80.386	1464.7	36.12	4264.3
				1224.0				

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. (psi) (1) - (4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
5	11:05	1599.1	70.0	1555.2	122.516	1476.6	45.36	4362.2
	11:10	1627.5	75.4	1555.2	122.516	1505.0	45.36	4396.1
	11:15	1651.6	80.8	1555.2	122.516	1529.1	45.36	4423.5
	11:20	1664.3	86.2	1555.2	122.516	1541.8	45.36	4447.1
	11:25	1681.3	91.6	1555.2	122.516	1558.8	45.36	4467.7
	11:30	1701.2	96.9	1526.4	118.352	1582.8	44.52	4486.4
				1550.4				
	11:35	1842.0	103.2	1814.4	162.947	1679.1	52.92	4559.7
	11:40	1860.5	109.5	1814.4	162.947	1697.6	52.92	4589.7
	11:45	1876.1	115.8	1814.4	162.947	1713.2	52.92	4613.1
6	11:50	1901.7	122.1	1814.4	162.947	1738.8	52.92	4634.3
	11:55	1908.7	128.4	1814.4	162.947	1745.8	52.92	4650.8
	12:00	1928.7	134.8	1843.2	167.764	1760.9	53.76	4667.3
				1819.2				
	12:05	2066.7	142.1	2102.4	214.000	1852.7	61.32	4725.5
	12:10	2076.6	149.4	2102.4	214.000	1862.6	61.32	4748.0
	12:15	2093.7	156.8	2131.2	219.454	1874.2	62.16	4767.3
	12:20	2106.5	164.1	2102.4	214.000	1892.5	61.32	4783.2
	12:25	2110.7	171.4	2102.4	214.000	1896.7	61.32	4794.4
	12:30	2120.7	178.7	2102.4	214.000	1906.7	61.32	4802.5
7				2107.2				
	12:35	2260.2	187.1	2419.2	277.448	1982.8	70.56	4844.5
	12:40	2263.1	195.5	2419.2	277.448	1985.7	70.56	4854.2
	12:45	2265.9	204.0	2448.0	283.590	1982.3	71.40	4862.3
	12:50	2268.8	212.4	2419.2	277.448	1991.4	70.56	4870.5
	12:55	2275.9	220.8	2419.2	277.448	1998.5	70.56	4879.8
	1:00	2287.3	229.2	2419.2	277.448	2009.9	70.56	4886.8
				2424.0				
FALLOFF	1:01	1742.4				1742.4		4754.1
	1:02	1695.4				1695.4		4706.1
	1:03	1659.9				1659.9		4668.6
	1:04	1631.4				1631.4		4637.0
	1:05	1604.4				1604.4		4610.5
	1:10	1509.1				1509.1		4506.9
	1:15	1442.2				1442.2		4436.2

WEST-TEST, INC.
A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: CONOCO, INC.

DATE: AUGUST 3, 1994

WELL NAME: WARREN UNIT NO. 105 WIW
LEA COUNTY, NEW MEXICO

WO#: 94-14-1213

PERFS = 5938-6620

PACKER DEPTH = 5853

BHP GAUGE DEPTH = 6278

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	10:40	566.7				566.7		3528.4
	10:45	663.3	0.5	144.0	1.502	661.8	4.20	3531.1
	10:50	835.3	1.0	144.0	1.502	833.8	4.20	3726.1
	10:55	887.9	2.0	288.0	5.414	882.5	8.40	3774.6
	11:00	937.6	2.9	259.2	4.455	933.1	7.56	3799.0
	11:05	934.7	3.7	230.4	3.583	931.1	6.72	3823.4
	11:10	956.1	4.5	230.4	3.583	952.5	6.72	3834.1
				216.0				
	11:15	1119.6	6.3	518.4	16.062	1103.5	15.12	3997.2
	11:20	1162.3	8.1	518.4	16.062	1146.2	15.12	4044.5
2	11:25	1105.0	9.8	489.6	14.450	1090.5	14.28	4076.9
	11:30	1220.6	11.5	489.6	14.450	1206.1	14.28	4099.7
	11:35	1261.9	13.3	518.4	16.062	1245.8	15.12	4138.3
	11:40	1276.1	15.2	547.2	17.752	1258.3	15.96	4163.2
				513.5				
	11:45	1617.6	18.6	979.2	52.093	1565.5	28.56	4477.5
	11:50	1664.5	22.1	1008.0	54.963	1609.5	29.40	4523.8
	11:55	1677.3	25.5	979.2	52.093	1625.2	28.56	4544.5
	12:00	1711.5	29.0	1008.0	54.963	1656.5	29.40	4581.1
	12:05	1745.6	32.3	950.4	49.294	1696.3	27.72	4625.5
3	12:10	1828.1	35.9	1036.8	57.903	1770.2	30.24	4699.4
				993.6				
	12:15	2071.4	40.9	1440.0	106.325	1965.1	42.00	4902.7
	12:20	2021.6	45.9	1440.0	106.325	1915.3	42.00	4873.5
	12:25	2042.9	50.9	1440.0	106.325	1936.6	42.00	4905.1
	12:30	2096.9	55.7	1382.4	98.591	1998.3	40.32	4952.8
	12:35	2104.0	60.6	1411.2	102.425	2001.6	41.16	4963.3
	12:40	2128.2	65.4	1382.4	98.591	2029.6	40.32	4986.9
				1425.6				

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)/34.2837	(7) MEASURED BHP (psi)
5 FALLOFF	12:45	2312.8	71.6	1785.6	158.295	2154.5	52.08	5137.2
	12:50	2339.8	77.7	1756.8	153.604	2186.2	51.24	5169.8
	12:55	2358.3	83.9	1785.6	158.295	2200.0	52.08	5200.6
	OUT OF WATER							
	12:56	1907.8				1907.8		4876.7
	12:57	1812.5				1812.5		4778.5
	12:58	1768.4				1768.4		4729.8
	12:59	1735.6				1735.6		4696.5
	1:00	1795.8				1795.8		4666.0
	1:05	1600.5				1600.5		4556.8