CF 9211

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

November 5, 1993

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

Energy Development Corporation
1000 Louisiana, Suite 2900
Houston, TX 77002

Attention: Mr. Steve Yates

RE: Injection Pressure Increase; Twin Lakes San Andres Unit, Chaves County, New Mexico

Dear Mr. Yates:

Reference is made to your request dated September 27, 1993 to increase the surface injection pressure on nine wells in your Twin Lakes San Andres Unit. This request is based on step rate tests conducted on four of these wells between September 14 and September 17, 1993. 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
TLSAU Well No. 35 Section 36, Township 18 South, Range 28 East	1350 psig
TLSAU Well No. 46 Section 36, Township 18 South, Range 28 East	1200 psig
TLSAU Well No. 55 Section 1, Township 19 South, Range 28 East	1200 psig
TLSAU Well No. 57 Section 1, Township 19 South, Range 28 East	1200 psig
TLSAU Well No. 66 Section 1, Township 19 South, Range 28 East	1030 psig
TLSAU Well No. 76 Section 1, Township 19 South, Range 28 East	870 psig

Well and Location	Maximum Injection Surface Pressure
TLSAU Well No. 86 Section 1, Township 19 South, Range 28 East	710 psig
TLSAU Well No. 88 Section 6, Township 19 South, Range 29 East	1350 psig
TLSAU Well No. 91 Section 12, Township 19 South, Range 28 East	710 psig
All wells located in Chaves 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/amg

cc: Oil Conservation Division - Artesia
File: Case File 9211

NO WAITING PERIOD

COMPANY: **ENERGY DEVELOPMENT CORPORTION**

ADDRESS: **1000 LOUISANNA, SUITE 2900**

CITY, STATE, ZIP: **HOUSTON, TEXAS 77002**

ATTENTION: **Mr. Steve Yates**

Re: Injection Pressure Increase
Twin Lakes San Andres Unit
Chaves County, New Mexico

Dear Sir:

Reference is made to your request dated **September 27**, 1993, to increase the surface injection pressure on **9 wells in your Twin Lakes San Andres Unit.** This request is based on step rate tests conducted on **4 of** these wells between **September 14**, and **September 17,** 1993. 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 & Location	Maximum Injection Surface Pressure
TLSAU Well No.35 **Section 36, T18S, R28E**	**1350 psig**
TLSAU Well No.46 **Section 36, T18S, R28E**	**1200 psig**
TLSAU Well No.55 **Section 1, T19S, R28E**	**1200 psig**
TLSAU Well No.57 **Section 1, T19S, R28E**	**1200 psig**
TLSAU Well No.66 **Section 1, T19S, R28E**	**1030 psig**

Well & Location	Surface Pressure
TLSAU Well No.76 **Section 1, T19S, R28E**	**870 psig**
TLSAU Well No.86 **Section 1, T19S, R28E**	**710 psig**
TLSAU Well No.88 **Section 6, T19S, R29E**	**1350 psig**
TLSAU Well No.91 **Section 12, T19S, R28E**	**710 psig**

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.

William J. LeMay
Director

WJL/BES

xc: OCD - **Artesia**
FILE - **Case File 9211**

Memo

From
DAVID CATANACH
Petroleum Engineer

To Ben,

Please write this PI up to show that we gave the following:

Well No.	Max Pres
7 A6	710
9 91	710
6 76	870
5 66	1030
1 35	1350
4 57	1200
8 88	850
2 46	1200
3 55	1200

Oil Conservation Division Santa Fe, New Mexico 87504
(505) 827-5807

N/R

EDC

September 27, 1993

State of New Mexico
Energy Minerals & Natural
Resources
Oil Conservation Division
P. O. Box 2088
State Land Office Building
Santa Fe, NM 87504

Re: Twin Lakes Field
Chaves County, NM
Step-rate Test

Attn: David Catanach

Gentlemen:

Attached for your review are results from the step rate test recently conducted on TLSAU Nos. 35, 66, 86 and 93.

As we have discussed, based on this information, EDC wishes to increase the injection pressures throughout the field in the tighter less permeable areas.

If you have any questions please contact the undersigned at 713/750-7314.

Sincerely,

Steve Yates

Steve Yates
Production Superintendent

SY/kal

w/enclosures

cc: Marion Tebbs

/TL Step Rate Test/SY/kal

Energy Development Corporation
A subsidiary of Public Service Enterprise Group Incorporated

1000 Louisiana, Suite 2900, Houston, Texas 77002 (713) 750-7300

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: ENERGY DEVELOPEMENT CORP

DATE: SEPTEMBER 14, 1993

WELL NAME: TWIN LAKES SAN ANDRES UNIT 93
CHAVES COUNTY, NEW MEXICO

WO#: 93-14-1753

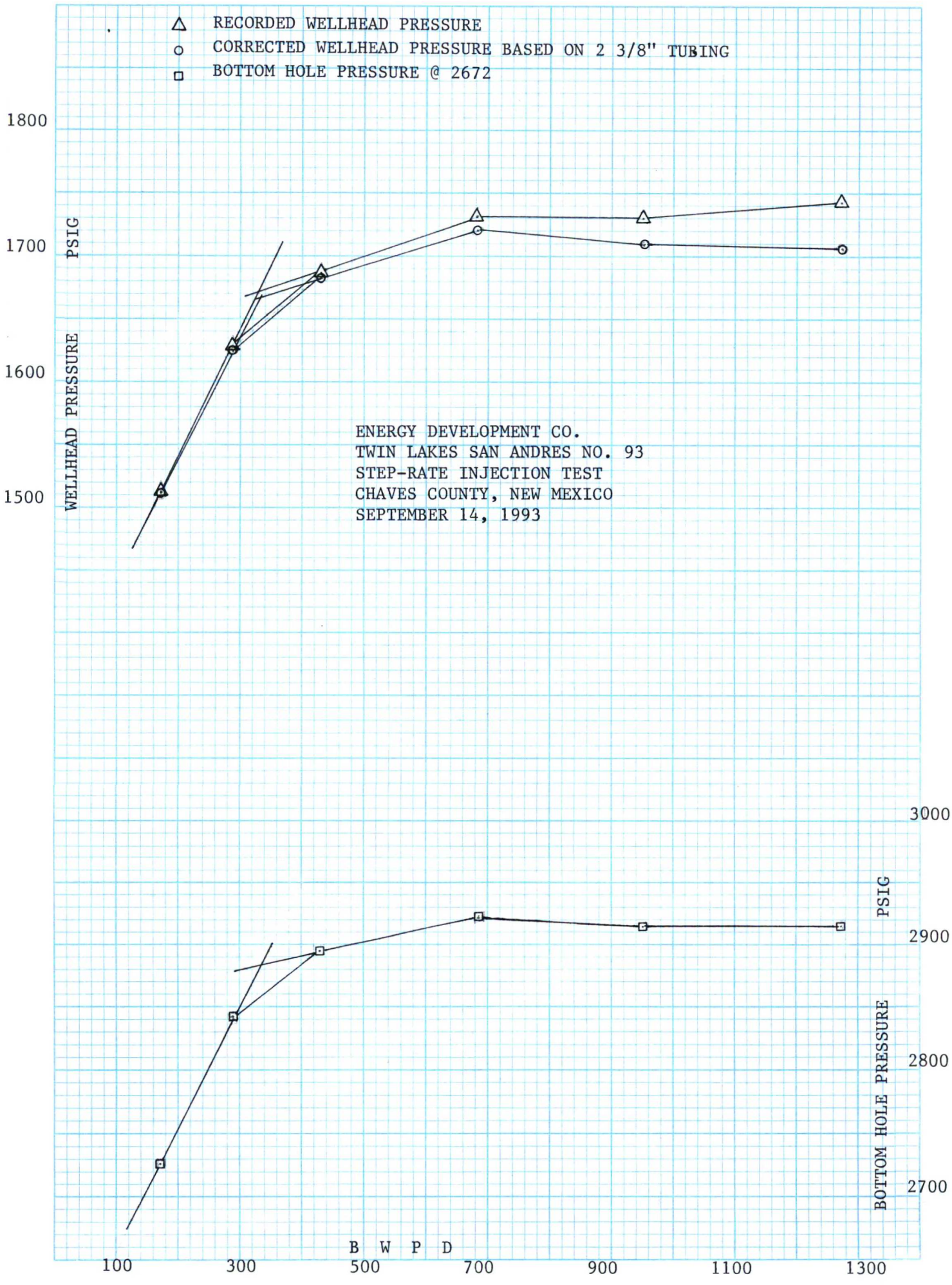
MID-PERFS. = 2655 - 2690

PACKER DEPTH = 2619

BHP GAUGE DEPTH = 2672

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)
	8:15	389.4				389.4		1597
	8:20	1411.2	0.6	172.8	0.896	1410.3	5.04	2626
	8:25	1491.8	1.2	172.8	0.896	1490.9	5.04	2694
1	8:30	1512.2	1.8	172.8	0.896	1511.3	5.04	2727
				172.8				
	8:35	1608.2	2.8	288.0	2.304	1605.9	8.40	2817
	8:40	1621.0	3.8	288.0	2.304	1618.7	8.40	2833
2	8:45	1628.6	4.8	288.0	2.304	1626.3	8.40	2841
				288.0				
	8:50	1666.9	6.2	403.2	4.294	1662.6	11.76	2876
	8:55	1679.6	7.8	460.8	5.498	1674.1	13.44	2887
3	9:00	1687.2	9.3	432.0	4.879	1682.3	12.60	2897
				432.0				
	9:05	1714.0	11.7	691.2	11.640	1702.4	20.16	2916
	9:10	1734.4	14.0	662.4	10.759	1723.6	19.32	2920
4	9:15	1731.7	16.4	691.2	11.640	1720.1	20.16	2921
				681.6				
	9:20	1754.7	19.7	950.4	20.980	1733.7	27.72	2940
	9:25	1734.2	23.0	950.4	20.980	1713.2	27.72	2923
5	9:30	1730.2	26.3	950.4	20.980	1709.2	27.72	2913
				950.4				
	9:35	1753.2	30.7	1267.2	35.723	1717.5	36.96	2922
	9:40	1747.9	35.1	1267.2	35.723	1712.2	36.96	2916
6	9:45	1742.6	39.6	1296.8	37.282	1705.3	37.82	2913
				1276.8				

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	9:46	1645.3				1645.3		2864
	9:47	1629.9				1629.9		2849
	9:48	1618.3				1618.3		2837
	9:49	1609.3				1609.3		2827
	9:50	1600.4				1600.4		2818
	9:55	1561.8				1561.8		2779
	10:00	1524.5				1524.5		2742


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 2672
1800
1700
1600
1500
WELLHEAD PRESSURE PSIG
ENERGY DEVELOPMENT CO.
TWIN LAKES SAN ANDRES NO. 93
STEP-RATE INJECTION TEST
CHAVES COUNTY, NEW MEXICO
SEPTEMBER 14, 1993
3000
2900
2800
2700
BOTTOM HOLE PRESSURE PSIG
B W P D
100
300
500
700
900
1100
1300

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: ENERGY DEVELOPEMENT CORP

DATE: SEPTEMBER 16, 1993

WELL NAME: TWIN LAKES SAN ANDRES UNIT 66
CHAVES COUNTY, NEW MEXICO

WO#: 93-14-1751

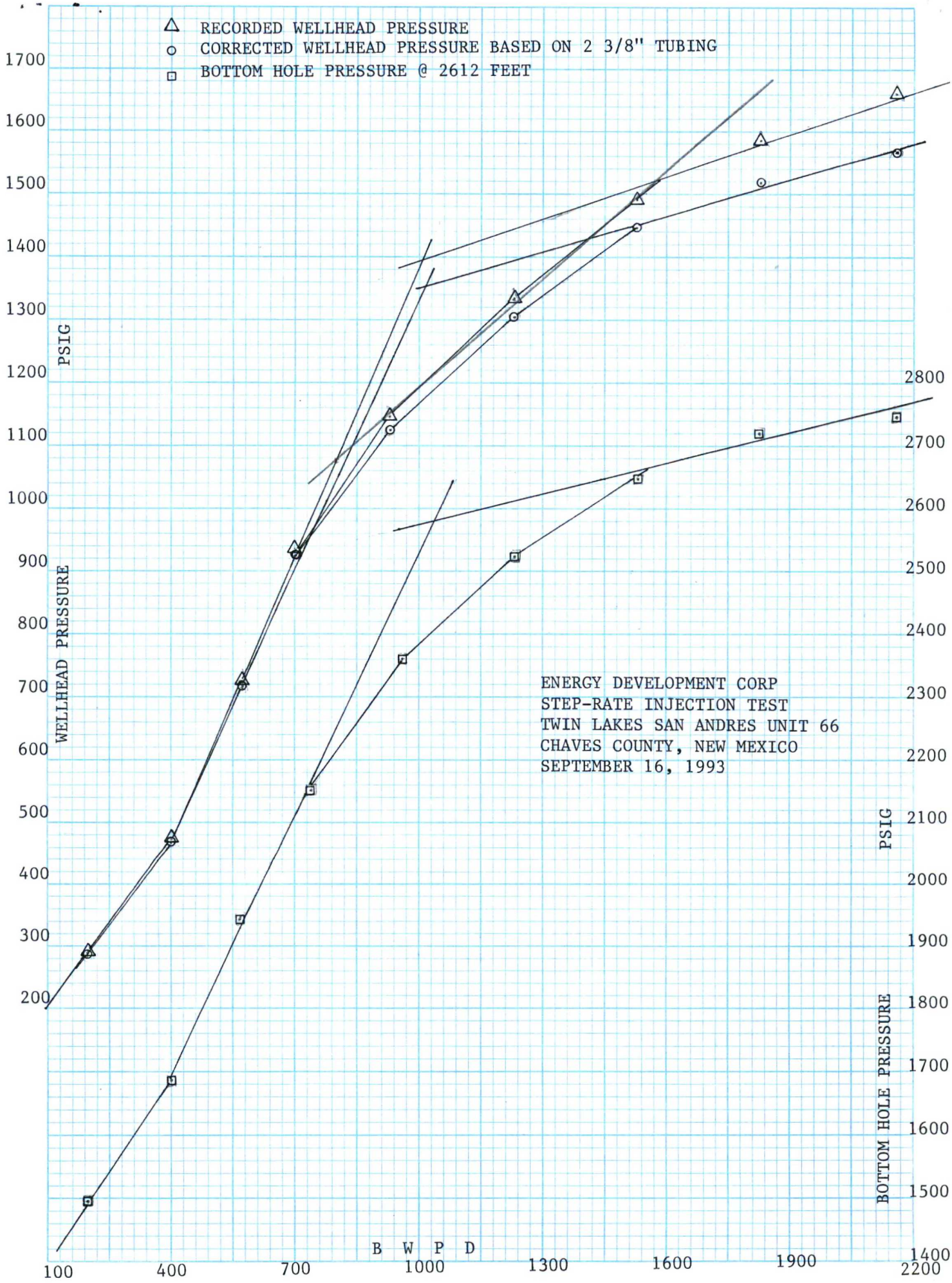
MID-PERFS. = OPEN HOLE 2775-2650

PACKER DEPTH =

BHP GAUGE DEPTH = 2612

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)
	12:05	102.8				102.8		1309
	12:10	223.2	24.0	164.6	0.800	222.4	4.80	1435
	12:15	259.8	54.0	205.7	1.209	258.6	6.00	1472
1	12:20	288.9	85.0	212.6	1.285	287.6	6.20	1496
				194.3				
	12:25	401.2	146.0	418.3	4.493	396.7	12.20	1616
	12:30	446.6	203.0	390.9	3.964	442.6	11.40	1657
2	12:35	474.4	260.0	390.9	3.964	470.4	11.40	1686
				399.9				
	12:40	637.1	2.0	576.0	8.121	629.0	16.80	1846
	12:45	678.7	4.0	576.0	8.121	670.6	16.80	1901
3	12:50	722.9	6.0	576.0	8.121	714.8	16.80	1945
				576.0				
	12:55	837.7	8.7	777.6	14.149	823.6	22.68	2059
	1:00	893.2	11.3	748.8	13.195	880.0	21.84	2113
4	1:05	936.1	13.8	720.0	12.271	923.8	21.00	2152
				748.8				
	1:10	1073.7	17.2	979.2	21.674	1052.0	28.56	2272
	1:15	1121.8	20.5	950.4	20.509	1101.3	27.72	2322
5	1:20	1144.6	23.8	950.4	20.509	1124.1	27.72	2360
				959.9				
	1:25	1263.6	28.2	1267.2	34.921	1228.7	36.96	2448
	1:30	1311.7	32.5	1238.4	33.467	1278.2	36.12	2493
6	1:35	1335.7	36.8	1238.4	33.467	1302.2	36.12	2521
				1247.9				
	1:40	1426.9	42.2	1555.2	51.006	1375.9	45.36	2583
	1:45	1463.6	47.6	1555.2	51.006	1412.6	45.36	2617
7	1:50	1496.5	52.9	1576.4	52.300	1444.2	45.98	2647
				1545.6				

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)
	1:55	1572.4	59.2	1814.4	67.838	1504.6	52.92	2689
	2:00	1588.9	65.7	1872.0	71.876	1517.0	54.60	2706
8	2:05	1586.4	72.0	1814.4	67.838	1518.6	52.92	2720
				1833.6				
	2:10	1645.8	79.6	2188.8	95.984	1549.8	63.84	2742
	2:15	1653.4	87.0	2131.2	91.364	1562.0	62.16	2747
9	2:20	1659.7	94.5	2160.0	93.661	1566.0	63.00	2746
				2160.0				
FALLOFF	2:21	1463.6				1463.6		2705
	2:22	1430.7				1430.7		2682
	2:23	1419.3				1419.3		2663
	2:24	1399.1				1399.1		2645
	2:25	1383.9				1383.9		2608
	2:30	1301.6				1301.6		2551
	2:35	1242.2				1242.2		2480


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 2612 FEET
WELLHEAD PRESSURE PSIG
BOTTOM HOLE PRESSURE PSIG
B W P D
ENERGY DEVELOPMENT CORP
STEP-RATE INJECTION TEST
TWIN LAKES SAN ANDRES UNIT 66
CHAVES COUNTY, NEW MEXICO
SEPTEMBER 16, 1993
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
2800
100
400
700
1000
1300
1600
1900
2200

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: ENERGY DEVELOPMENT CORP. DATE: SEPTEMBER 17, 1993

WELL NAME: TWIN LAKES SAN ANDRES UNIT 35 WO#: 93-14-1750
CHAVES COUNTY, NEW MEXICO

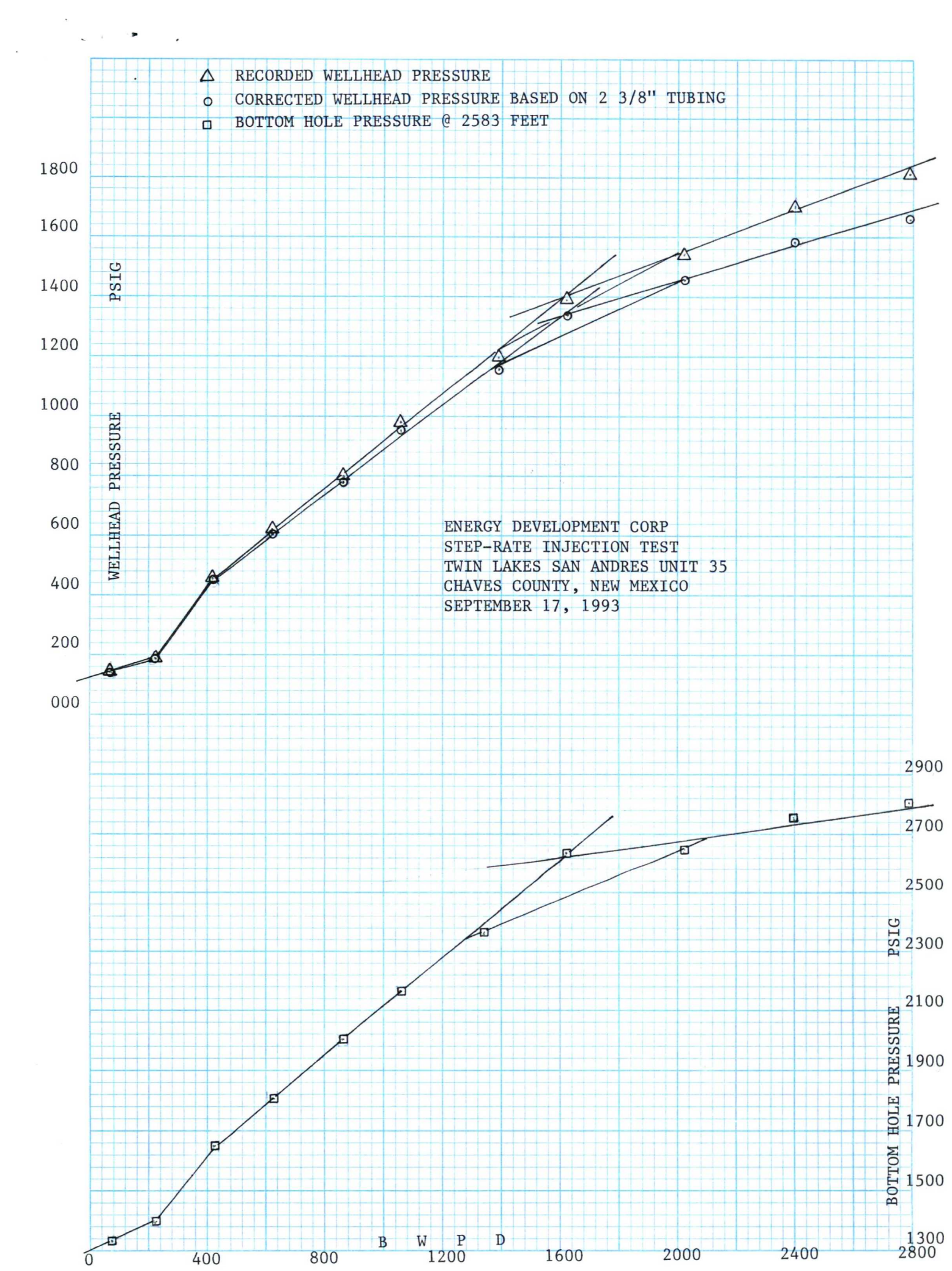
MID-PERFS. = 2563 - 2603

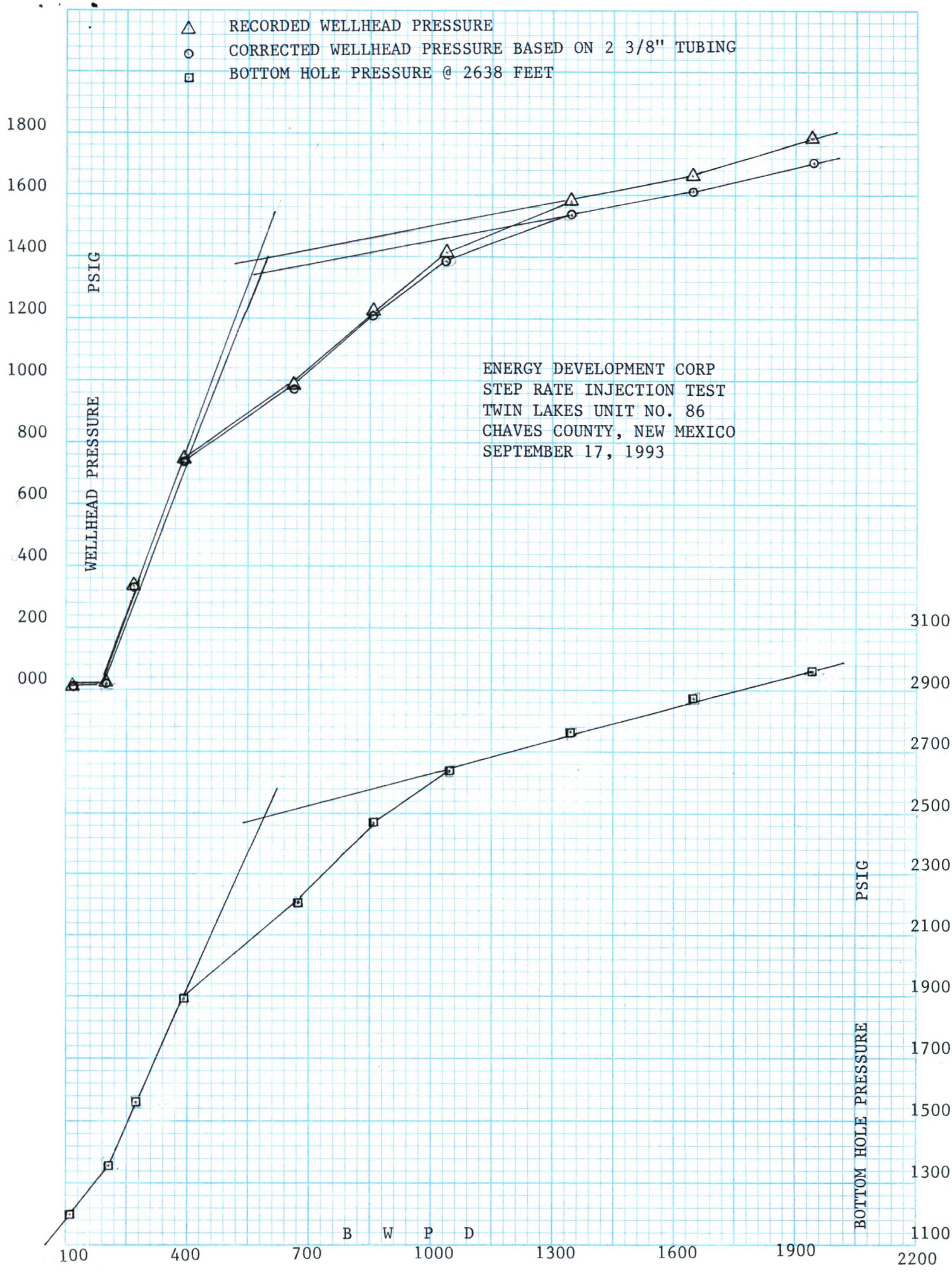
PBTD = 2611

BHP GAUGE DEPTH = 2583

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)
	8:20	101.6				101.6		1293
	8:25	145.8	0.3	77.8	0.200	145.6	2.27	1336
	8:30	142.2	0.6	83.5	0.228	142.0	2.44	1334
1	8:35	142.5	0.8	74.9	0.186	142.3	2.18	1336
				78.72				
	8:40	180.5	1.6	216.0	1.322	179.2	6.30	1374
	8:45	188.3	2.4	230.4	1.490	186.8	6.72	1384
2	8:50	194.8	3.2	236.2	1.560	193.2	6.89	1392
				227.52				
	8:55	369.3	4.7	420.8	4.541	364.8	12.27	1564
	9:00	422.6	6.1	426.4	4.654	417.9	12.44	1617
3	9:05	449.3	7.6	423.4	4.593	444.7	12.35	1650
CHANGE	METER		RE-ZERO	423.36				
	9:10	560.6	2.1	604.8	8.885	551.7	17.64	1748
	9:15	582.1	4.3	633.6	9.683	572.4	18.48	1786
4	9:20	622.4	6.5	633.6	9.683	612.7	18.48	1815
				623.9				
	9:25	728.4	9.5	864.0	17.187	711.2	25.20	1917
	9:30	766.4	12.5	864.0	17.187	749.2	25.20	1966
5	9:35	799.3	15.5	864.0	17.187	782.1	25.20	1999
				864.0				
	9:40	910.6	19.1	1036.8	24.082	886.5	30.24	2093
	9:45	952.4	22.8	1065.6	25.334	927.1	31.08	2135
6	9:50	979.0	26.5	1065.6	25.334	953.7	31.08	2169
				1056.0				
	9:55	1104.3	31.1	1324.8	37.899	1066.4	38.64	2275
	10:00	1156.3	35.8	1353.6	39.437	1116.9	39.48	2326
7	10:05	1198.1	40.5	1353.6	39.437	1158.7	39.48	2363
				1344.0				

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)
	10:10	1326.1	46.2	1641.6	56.350	1269.7	47.88	2464
	10:15	1366.7	51.7	1584.0	52.747	1314.0	46.20	2503
8	10:20	1392.1	57.4	1641.6	56.350	1335.7	47.88	2635
				1622.4				
	10:25	1518.8	64.4	2016.0	82.406	1436.4	58.80	2619
	10:30	1512.4	71.3	1987.2	80.241	1432.2	57.96	2640
9	10:35	1542.9	78.5	2073.6	86.815	1456.1	60.48	2638
				2025.6				
	10:40	1622.6	86.8	2390.4	112.933	1509.7	69.72	2693
	10:45	1646.7	95.1	2390.4	112.933	1533.8	69.72	2721
10	10:50	1701.1	103.5	2419.2	115.463	1585.6	70.56	2745
				2400.0				
	10:55	1803.6	113.2	2793.6	150.680	1652.9	81.48	2783
	11:00	1799.8	122.9	2793.6	150.680	1649.1	81.48	2803
11	11:05	1810.0	132.6	2793.6	150.680	1659.3	81.48	2810
				2793.6				
FALLOFF	11:06	1530.2				1530.2		2770
	11:07	1518.9				1518.9		2750
	11:08	1501.1				1501.1		2732
	11:09	1482.2				1482.2		2715
	11:10	1467.0				1467.0		2697
	11:15	1375.8				1375.8		2601
	11:20	1254.3				1254.3		2492


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 2583 FEET
WELLHEAD PRESSURE PSIG
1800
1600
1400
1200
1000
800
600
400
200
000
ENERGY DEVELOPMENT CORP
STEP-RATE INJECTION TEST
TWIN LAKES SAN ANDRES UNIT 35
CHAVES COUNTY, NEW MEXICO
SEPTEMBER 17, 1993
BOTTOM HOLE PRESSURE PSIG
2900
2700
2500
2300
2100
1900
1700
1500
1300
0
400
800
1200
1600
2000
2400
2800
B W P D


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 2638 FEET
ENERGY DEVELOPMENT CORP
STEP RATE INJECTION TEST
TWIN LAKES UNIT NO. 86
CHAVES COUNTY, NEW MEXICO
SEPTEMBER 17, 1993
WELLHEAD PRESSURE
PSIG
1800
1600
1400
1200
1000
800
600
400
200
000
3100
2900
2700
2500
2300
2100
1900
1700
1500
1300
1100
PSIG
BOTTOM HOLE PRESSURE
B W P D
100
400
700
1000
1300
1600
1900
2200

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: ENERGY DEVELOPMENT CORP

DATE: SEPTEMBER 17, 1993

WELL NAME: TWIN LAKES UNIT NO. 86

WO#: 93-14-1752

CHAVES COUNTY, NEW MEXICO

MID-PERFS. =

PACKER DEPTH =

BHP GAUGE DEPTH = 2638

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)
	12:45	7.9				7.9		1162
	12:50	8.0	0.3	86.4	0.245	7.8	2.52	1175
	12:55	9.3	0.7	123.8	0.477	8.8	3.61	1186
1	1:00	8.1	1.2	123.8	0.477	7.6	3.61	1195
				111.4				
	1:05	8.1	2.0	253.4	1.795	6.3	7.39	1211
	1:10	9.4	2.9	247.6	1.720	7.7	7.22	1224
2	1:15	9.4	3.7	227.5	1.471	7.9	6.64	1246
				242.9				
	1:20	189.2	4.9	339.8	3.089	186.1	9.91	1401
	1:25	267.5	6.0	325.4	2.852	264.6	9.49	1483
3	1:30	331.8	7.1	319.7	2.760	329.0	9.32	1548
				328.3				
	1:35	466.8	8.6	420.5	4.582	462.2	12.26	1685
	1:40	582.8	10.0	420.5	4.582	578.2	12.26	1803
4	1:45	672.4	11.2	322.6	2.806	669.6	9.41	1896
CHANGE	METER		RE-ZERO	387.8				
	1:50	798.5	2.4	691.2	11.492	787.0	20.16	2039
	1:55	904.5	4.7	662.4	10.622	893.9	19.32	2135
5	2:00	987.7	7.0	662.4	10.622	977.1	19.32	2209
				672.0				
	2:05	1107.8	10.0	864.0	17.365	1090.4	25.20	2328
	2:10	1168.5	12.9	835.2	16.309	1152.2	24.36	2400
6	2:15	1233.0	16.0	892.8	18.451	1214.5	26.04	2462
				864.0				
	2:20	1330.4	19.6	1036.8	24.331	1306.1	30.24	2546
	2:25	1379.8	23.3	1065.6	25.596	1354.2	31.08	2601
7	2:30	1411.4	26.9	1036.8	24.331	1387.1	30.24	2642
				1046.4				

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)
	2:35	1488.6	31.9	1440.0	44.678	1443.9	42.00	2717
	2:40	1521.5	36.4	1296.0	36.765	1484.7	37.80	2741
8	2:45	1572.1	41.1	1353.6	39.845	1532.3	39.48	2773
				1363.2				
	2:50	1626.6	46.9	1670.4	58.795	1567.8	48.72	2825
	2:55	1663.3	52.6	1641.6	56.933	1606.4	47.88	2853
9	3:00	1672.1	58.3	1641.6	56.933	1615.2	47.88	2875
				1651.2				
	3:05	1732.9	65.2	1987.2	81.071	1651.8	57.96	2913
	3:10	1759.5	72.0	1958.4	78.911	1680.6	57.12	2932
10	3:15	1783.4	78.8	1958.4	78.911	1704.5	57.12	2950
				1968.0				
FALLOFF	3:16	1616.4				1616.4		2880
	3:17	1602.5				1602.5		2864
	3:18	1593.6				1593.6		2853
	3:19	1582.2				1582.2		2843
	3:20	1577.1				1577.1		2834
	3:25	1537.8				1537.8		2802
	3:30	1525.2				1525.2		2777

August 18, 1993

State of New Mexico
Energy Minerals & Natural
Resources Oil Cons. Div.
P. O. Box 2088
State Land Office Bldg.
Santa Fe, NM 87504

Re: Twin Lakes Field
Chaves County, NM
San Andres Waterflood
File Case No. 9211

Attn: David Catanach

Gentlemen:

Attached you will find a plat of our Twin Lakes field operations as per our discussion. As I explained, EDC has certain injection wells in specific areas of the field which inject very little water at the current injection pressures, while other injectors take water on a vacuum, apparently in a fractured system. I have posted the current injection pressures and rates in the central and southwestern area for your reference.

After your review, please inform me as to which wells could be increased to 1200 psi maximum wellhead injection pressure, administratively without further testing, preferably in the southwest area of the field. A field-wide permit may not be needed at this time however, I understand that in the future, we may be required have to run step-rate test on at least 1/2 of the injectors that are approved for higher pressures.

Attached is a copy of our permit to increase the injection pressure on three (3) wells in 1991.

Since our purchase in 1989, we have performed several acid and acid frac stimulations with good initial rates only to decline to pretreatment rates. If this trend continues with inadequate injection, recovery of secondary reserves may be limited.

Thank you for your cooperation. If you have any questions, please call me at 713-750-7314.

Sincerely,

Steve Yates

Steve Yates
Production Superintendent

FAX # 713-750-7585

SY/kal

w/attachments

/TLSAU #9211/SY/kal

Energy Development Corporation
A subsidiary of Public Service Enterprise Group Incorporated

1000 Louisiana, Suite 2900, Houston, Texas 77002 (713) 750-7300

-750-7314

ENERGY, ...NERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

August 28, 1991

Energy Development Corporation
1000 Louisiana, Suite 2900
Houston, Texas 77002

Attention: Marion Tebbs

RE: Injection Pressure Increase
Twin Lakes SA Waterflood Project
Chaves County, New Mexico

Dear Ms. Tebbs:

Reference is made to your request dated June 20, 1991, to increase the surface injection pressure on three wells within the Twin Lakes San Andres Unit Waterflood Project. This request is based on step rate tests conducted on these wells during April, 1991. 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
TLSAU Well No. 59 Unit C, Section 6, T-9 South, R-29 East, NMPM	1185 PSIG
TLSAU Well No. 68 Unit E, Section 6, T-9 South, R-29 East, NMPM	1400 PSIG

WELL AND LOCATION	MAXIMUM INJECTION SURFACE PRESSURE
TLSAU Well No. 78 Unit K, Section 6, T-9 South, R-29 East, NMPM	890 PSIG

All in Chaves 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

cc: Oil Conservation Division - Artesia
R. Brown
File: Case No. 9211
D. Catanach

August 18, 1993

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Energy Minerals & Natural
Resources Oil Cons. Div.
P. O. Box 2088
State Land Office Bldg.
Santa Fe, NM 87504

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Chaves County, NM
San Andres Waterflood
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Sincerely,

Steve Yates

Steve Yates
Production Superintendent

SY/kal

w/attachments

/TLSAU #9211/SY/kal

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STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
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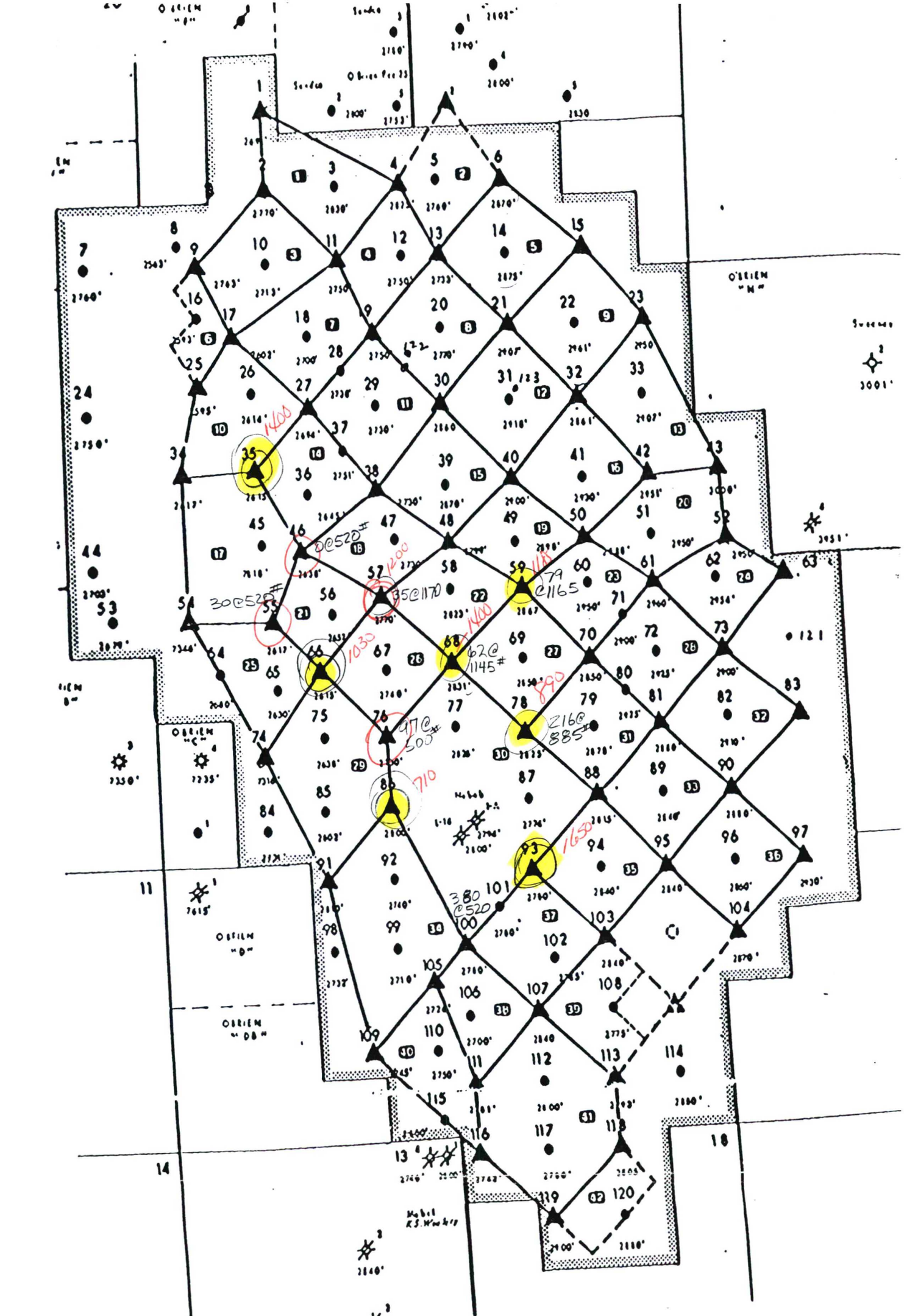
Sincerely,

William J. LeMay
Director

cc: Oil Conservation Division - Artesia
R. Brown
File: Case No. 9211
D. Catanach


1400
30@520#
35@1170
1200
1035
62@
1145#
890
97@
505#
710
380
@520
1650
Energy Development
Twin Lakes Fld.
Chaves Co., N.M.