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
(505) 827-5800

April 14, 1992

pDEV0020600605
pDEV0020600607

Greenhill Petroleum Corporation
11490 Westheimer Road, Suite 200
Houston, Texas 77077-6841

Attention: Michael J. Newport

RE: Injection Pressure Increase
Lovington Paddock Unit Waterflood Project
Lea County, New Mexico

Dear Mr. Newport:

Reference is made to your request dated March 27, 1992, to increase the surface injection pressure on 22 wells in the Lovington Paddock Unit Waterflood Project. This request is based on a step rate test conducted on these wells between the dates February 22 and March 11, 1992. The results of the test 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
LPU No. 5 660' FSL & 1980' FWL "N" 25-16S-36E	1600 PSIG
LPU No. 7 330' FSL & 330' FEL "P" 25-16S-36E	2000 PSIG

WELL AND LOCATION	MAXIMUM INJECTION SURFACE PRESSURE
LPU No. 12 781' FNL & 660' FWL "D" 31-16S-37E	2000 PSIG
LPU No. 14 940' FNL & 1741' FEL "B" 36-16S-36E	1800 PSIG
LPU No. 16 660' FNL & 660' FWL "D" 36-16S-36E	2000 PSIG
LPU No. 18 2310' FNL & 330' FEL "H" 35-16S-36E	2000 PSIG
LPU No. 20 1830' FNL & 2130' FWL "F" 36-16S-36E	2000 PSIG
LPU No. 22 2080' FNL & 660' FEL "H' 36-16S-36E	2000 PSIG
LPU No. 24 2310' FNL & 1968' FWL "F" 31-16S-37E	2000 PSIG
LPU No. 28 2108' FSL & 624' FWL "L" 31-16S-37E	2000 PSIG
LPU No. 31 1650' FSL & 890' FWL "L" 36-16S-36E	1800 PSIG

WELL AND LOCATION	MAXIMUM INJECTION SURFACE PRESSURE
LPU No. 37 330' FSL & 2290' FWL "N" 31-16S-37E	2000 PSIG
LPU No. 39 810' FSL & 660' FEL "P" 36-16S-36E	2000 PSIG
LPU No. 41 810' FSL & 2130' FWL "N" 36-16S-36E	2000 PSIG
LPU No. 46 660' FNL & 990' FWL "D" 1-17S-36E	2000 PSIG
LPU No. 48 660' FNL & 2080' FEL "B" 1-17S-36E	2000 PSIG
LPU No. 50 660' FNL & 902' FWL "D" 6-17S-37E	2000 PSIG
LPU No. 52 510' FNL & 2190' FEL "B" 6-17S-37E	2000 PSIG
LPU No. 56 1650' FNL & 1733' FWL "F" 6-17S-37E	2000 PSIG
LPU No. 58 1980' FNL & 560' FEL "H" 1-17S-36E	2000 PSIG

WELL AND LOCATION	MAXIMUM INJECTION SURFACE PRESSURE
LPU No. 60 1980' FNL & 2310' FWL "F" 1-17S-36E	2000 PSIG
LPU No. 71 660' FSL & 660' FEL "P" 1-17S-36E	1790 PSIG

All 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.

Sincerely,

William J. LeMay
Director

WJL/DC/jc

cc: Oil Conservation Division - Hobbs
File: WFX-605
WFX-607
D. Catanach
R. Brown

NO WAITING PERIOD

COMPANY: GREENHILL PETROLEUM CORPORATION

ADDRESS: 11490 WESTHEIMER ROAD, SUITE 200

CITY, STATE, ZIP: HOUSTON, TEXAS 77077-6841

ATTENTION: MICHAEL J. NEWPORT

Re: Injection Pressure Increase
LOVINGTON PADDOCK UNIT
WATERFLOOD PROJECT
LEA County, New Mexico

Dear Sir:

Reference is made to your request dated MARCH 27, 1992, to increase the surface injection pressure on 22 WELLS IN THE LOVINGTON PADDOCK UNIT WATERFLOOD PROJECT. This request is based on step rate tests conducted on these wells BETWEEN THE DATES FEBRUARY 22 AND MARCH 11, 1992. 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
LPU No. 5 660' FSL & 1980' FWL "N" 25·16S·36E	1600 PSIG
LPU No. 7 330' FSL & 330' FEL "P" 25·16S·36E	2000 PSIG
LPU No. 12 781' FNL & 660' FWL "D" 31·16S·37E	2000 PSIG
LPU No. 14 940' FNL & 1741' FEL "B" 36·16S·36E	1800 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.

xc: ~~T. GALLEGOS~~ D. CATANACH FILE- WFX-605 WFX-607 OCD- HOBBS

R. BROWN

LPU No. 16 — 2000 PSIG
660' FNL & 660' FWL
"D" 36·16S·36E

LPU No. 18 — 2000 PSIG
2310' FNL & 330' FEL
"H" 35·16S·36E

LPU No. 20 — 2000 PSIG
1830' FNL & 2130' FWL
"F" 36·16S·36E

LPU No. 22 — 2000 PSIG
2080' FNL & 660' FEL
"H" 36·16S·36E

LPU No. 24 — 2000 PSIG
2310' FNL & 1968' FWL
"F" 31·16S·37E

LPU No. 28 — 2000 PSIG
2108' FSL & 624' FWL
"L" 31·16S·37E

LPU No. 31 — 1800 PSIG
1650' FSL & 890' FWL
"L" 36·16S·36E

(OVER)

LPU No. 37 — 2000 PSIG
330' FSL & 2290' FWL
"N" 31·16S·37E

LPU No. 39 — 2000 PSIG
810' FSL & 660' FEL
"P" 36·16S·36E

LPU No. 41 — 2000 PSIG
810' FSL & 2130' FWL
"N" 36·16S·36E

LPU No. 46 — 2000 PSIG
660' FNL & 990' FWL
"D" 1·17S·36E

LPU No. 48 — 2000 PSIG
660' FNL & 2080' FEL
"B" 1·17S·36E

LPU No. 50 — 2000 PSIG
660' FNL & 902' FWL
"D" 6·17S·37E

LPU No. 52 — 2000 PSIG
510' FNL & 2190' FEL
"B" 6·17S·37E

LPU No. 56 — 2000 PSIG
1650' FNL & 1733' FWL
"F" 6·17S·37E

LPU No. 58 — 2000 PSIG
1980' FNL & 560' FEL
"H" 1·17S·36E

LPU No. 60 — 2000 PSIG
1980' FNL & 2310' FWL
"F" 1·17S·36E

LPU No. 71 — 1790 PSIG
660' FSL & 660' FEL
"P" 1·17S·36E

GREENHILL PETROLEUM CORPORATION

11490 WESTHEIMER ROAD, SUITE 200
HOUSTON, TEXAS 77077-6841
TELEPHONE (713) 589-8484
FAX. (713) 589-7892

Incorporated in Delaware, U.S.A.

March 24, 1992

State of New Mexico
Oil Conservation Division
Energy, Minerals and Natural Resources Department
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

Attention: Mr. David Catanach

RE: Lovington Paddock
Wells #5, #7, #12, #14, #16, #18, #20, #22, #24, #28, #31, #37, #39, #41, #46, #48, #50, #52, #56, #58, #60, and #71
Lea County, New Mexico

WFX-607
WFX-605

Gentlemen:

Enclosed please find the step rate test graphs and charts covering Wells #5, #7, #12, #14, #16, #18, #20, #22, #24, #28, #31, #37, #39, #41, #46, #48, #50, #52, #56, #58, #60, and #71. Greenhill hereby requests permission to increase the surface injection pressure on the above listed wells. This request is based upon step rate tests conducted on these wells.

Please contact me in the event I can provide you with additional information.

Very truly yours,

Michael J. Newport

Michael J. Newport
Land Manager--Permian Basin

MJN/jem
92.231

Enc.

LOVINGTON PADDOCK UNIT

STEPRATE TEST RESULTS

WELL IDENTIFICATION	LPU #5	LPU #7	LPU #12	LPU #14	LPU #16	LPU #18
Surface parting pressure/Pslg	1,680	2,320 NR	2,180 NR	1,880	2,280 NR	2,170 NR
Bottom Hole Pressure/Pslg	4,402	4,780	4,760	4,570	4,550	4,870
Midperf depth/ft.	6,190	6,180	6,200	6,175	6,180	6,180
Fracture Gradlent Psl/ft.	0.71	NR	NR	0.74	NR	NR
Requested Injection Pressure/Pslg	1,600	2,000	2,000	1,800	2,000	2,000

NR = not reached

MJN/jem
92.231

03/24/92

LOVINGTON PADDOCK UNIT

STEPRATE TEST RESULTS

WELL IDENTIFICATION	LPU #20	LPU #22	LPU #24	LPU #28	LPU #31	LPU #37
Surface parting pressure/Pslg	2,105 NR	2,180 NR	2,140 NR	2,180 NR	1,860	2,220 NR
Bottom Hole Pressure/Pslg	4,505	4,620	4,810	4,380	4,480	4,800
Midperf depth/ft.	6,160	6,175	6,195	6,150	6,140	6,150
Fracture Gradlent Psl/ft.	NR	NR	NR	NR	0.73	NR
Requested Injection Pressure/Pslg	2,000	2,000	2,000	2,000	1,800	2,000

NR = not reached

MJN/jem
92.231

03/24/92

LOVINGTON PADDOCK UNIT

STEPRATE TEST RESULTS

WELL IDENTIFICATION	LPU #39	LPU #41	LPU #46	LPU #48	LPU #50	LPU #52
Surface parting pressure/Pslg	2,150 NR	2,150 NR	2,080 NR	2,260 NR	2,320 NR	2,150 NR
Bottom Hole Pressure/Pslg	4,720	4,680	4,720	4,880	4,820	4,820
Midperf depth/ft.	6,123	6,150	6,140	6,160	6,120	6,165
Fracture Gradlent Psl/ft.	NR	NR	NR	NR	NR	NR
Requested Injection Pressure/Pslg	2,000	2,000	2,000	2,000	~~2,800~~ 2000	2,000

NR = not reached

MJN/jem
92.231

03/24/92

LOVINGTON PADDOCK UNIT

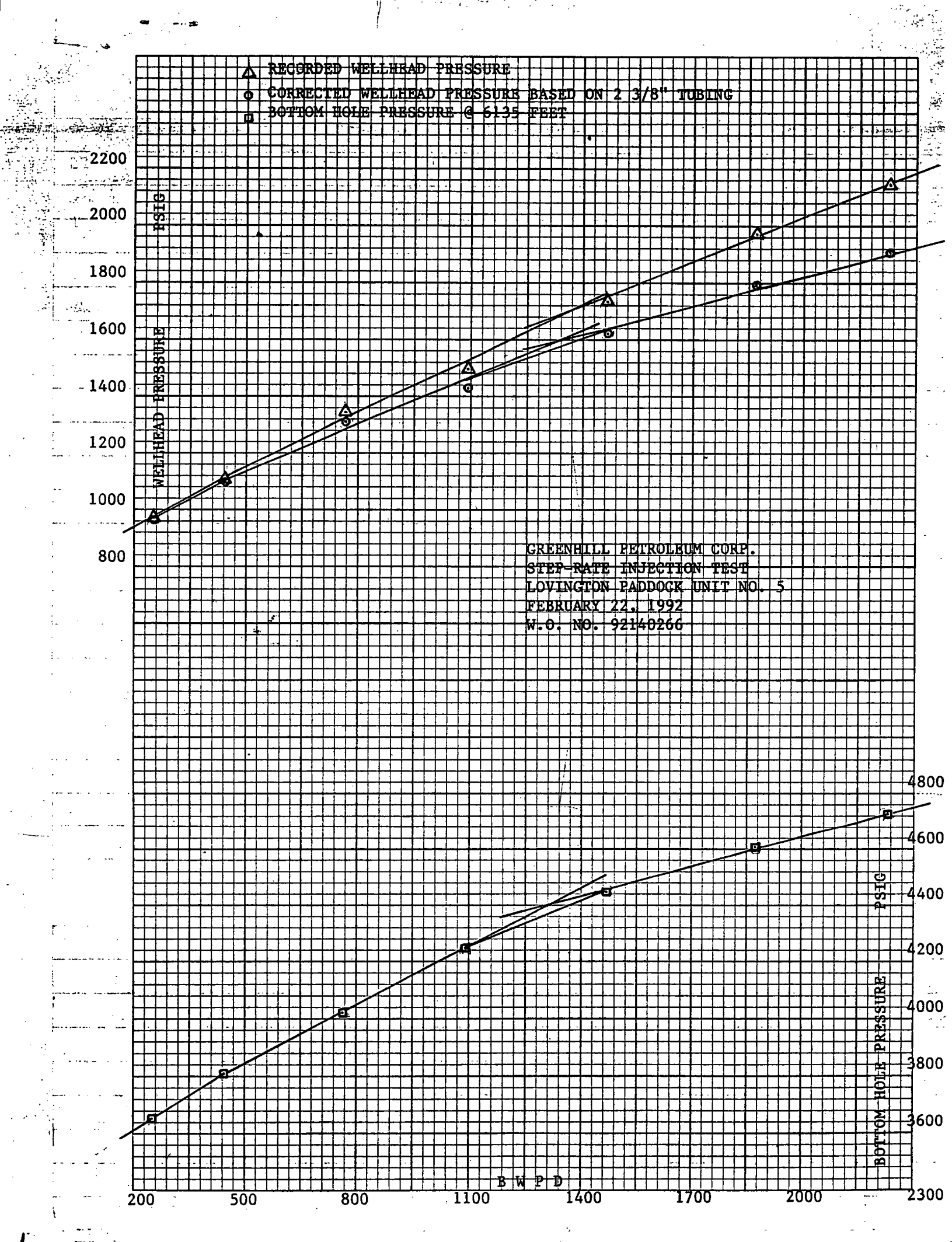
STEPRATE TEST RESULTS

WELL IDENTIFICATION	LPU #56	LPU #58	LPU #60	LPU #71		
Surface parting pressure/Pslg	2,220 NR	2,140 NR	2,180 NR	1,840		
Bottom Hole Pressure/Pslg	4,890	4,730	4,820	4,600		
Midperf depth/ft.	6,180	6,195	6,140	6,230		
Fracture Gradlent Psl/ft.	NR	NR	NR	0.74		
Requested Injection Pressure/Pslg	2,000	2,000	2,000	1,800		

NR = not reached

MJN/jem
92.231

03/24/92


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6135 FEET
WELLHEAD PRESSURE PSIG
2200
2000
1800
1600
1400
1200
1000
800
GREENHILL PETROLEUM CORP.
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT NO. 5
FEBRUARY 22, 1992
W.O. NO. 92140266
4800
4600
4400
4200
4000
3800
3600
BOTTOM HOLE PRESSURE PSIG
B W P D
200
500
800
1100
1400
1700
2000
2300

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CO. NAME: Greenhill Petroleum Corporation

DATE: February 22, 1992

WELL NAME: Lovington Paddock Unit # 5

Lea County, New Mexico

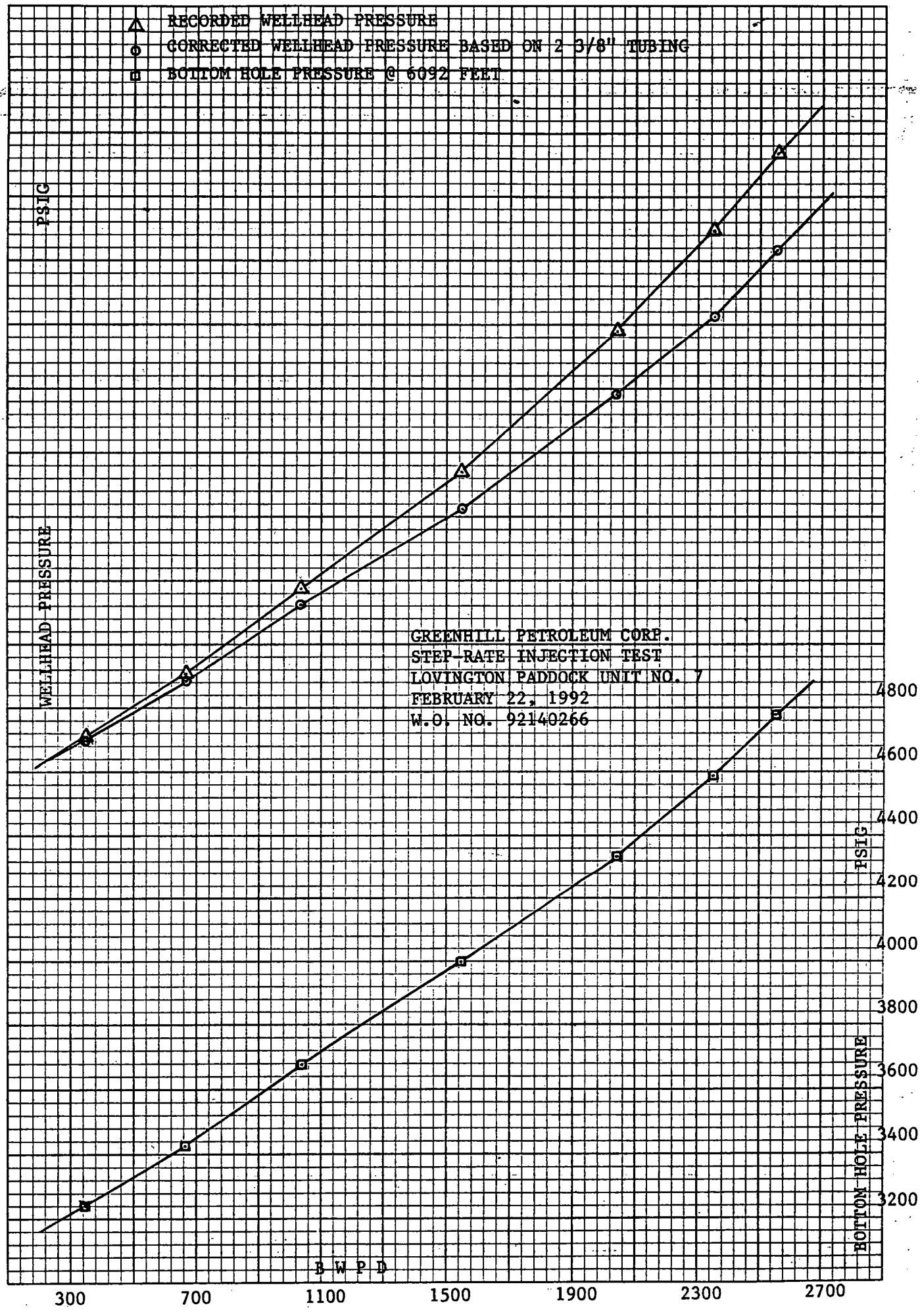
W.O. #92-14-0268

Packer Set @ 6095

BHP GAUGE SET @ 6135

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	826.5				826.5		3511
	8:25	887.2	0.8	230.4	3.501	883.7	6.72	3576
	8:30	932.8	1.7	259.2	4.354	928.4	7.56	3617
1	8:35	965.8	2.6	259.2	4.354	961.4	7.56	3647
				249.6	4.060	-4.1	7.28	
	8:40	1030.4	4.1	432.0	11.202	1019.2	12.60	3714
	8:45	1073.5	5.6	432.0	11.202	1062.3	12.60	3761
2	8:50	1112.9	7.2	460.8	12.623	1100.3	13.44	3802
				441.6	11.667	-11.7	12.88	3802
	8:55	1232.0	9.9	777.6	33.232	1198.8	22.68	3895
	9:00	1296.6	12.6	777.6	33.232	1263.4	22.68	3962
3	9:05	1350.0	15.2	748.8	30.991	1319.0	21.84	4017
				768.0	32.477	-32.5	22.40	4017
	9:10	1451.2	19.0	1094.4	62.537	1388.7	31.92	4108
	9:15	1460.2	22.8	1094.4	62.537	1397.7	31.92	4180
4	9:20	1489.4	26.6	1094.4	62.537	1426.9	31.92	4241
				1094.4	62.537	-62.5	31.92	4241
	9:25	1626.1	31.7	1468.8	107.781	1518.3	42.84	4326
	9:30	1684.4	36.9	1497.6	111.723	1572.7	43.68	4390
5	9:35	1728.8	41.9	1440.0	103.903	1624.9	42.00	4443
				1468.8	107.781	-107.8	42.84	4443
	9:40	1880.7	48.5	1900.8	173.657	1707.0	55.44	4514
	9:45	1921.2	55.0	1872.0	168.821	1752.4	54.60	4566
6	9:50	1965.6	61.4	1843.2	164.047	1801.6	53.76	4606
				1872.0	168.821	-168.8	54.60	4606
	9:55	2098.7	69.2	2246.4	236.543	1862.2	65.52	4657
	10:00	2124.1	77.0	2246.4	236.543	1887.6	65.52	4694
7	10:05	2152.0	84.7	2217.6	230.964	1921.0	64.68	4724

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)
				2236.8	234.677	−234.7	65.24	4724
Fall−Off	10:06	1845.6				1845.6		4707
	10:07	1858.3				1858.3		4695
	10:08	1854.5				1854.5		4685
	10:09	1845.6				1845.6		4676
	10:10	1839.3				1839.3		4668
	10:15	1815.3				1815.3		4668
	10:20	1777.7				1777.7		4616


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6092 FEET
PSIG
WELLHEAD PRESSURE
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
GREENHILL PETROLEUM CORP.
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT NO. 7
FEBRUARY 22, 1992
W.O. NO. 92140266
4800
4600
4400
4200
4000
3800
3600
3400
3200
PSIG
BOTTOM HOLE PRESSURE
B W P D
300
700
1100
1500
1900
2300
2700

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: February 22, 1992

WELL NAME: Lovington Paddock Unit #7
Lea County, New Mexico

WO#: 92-14-0266

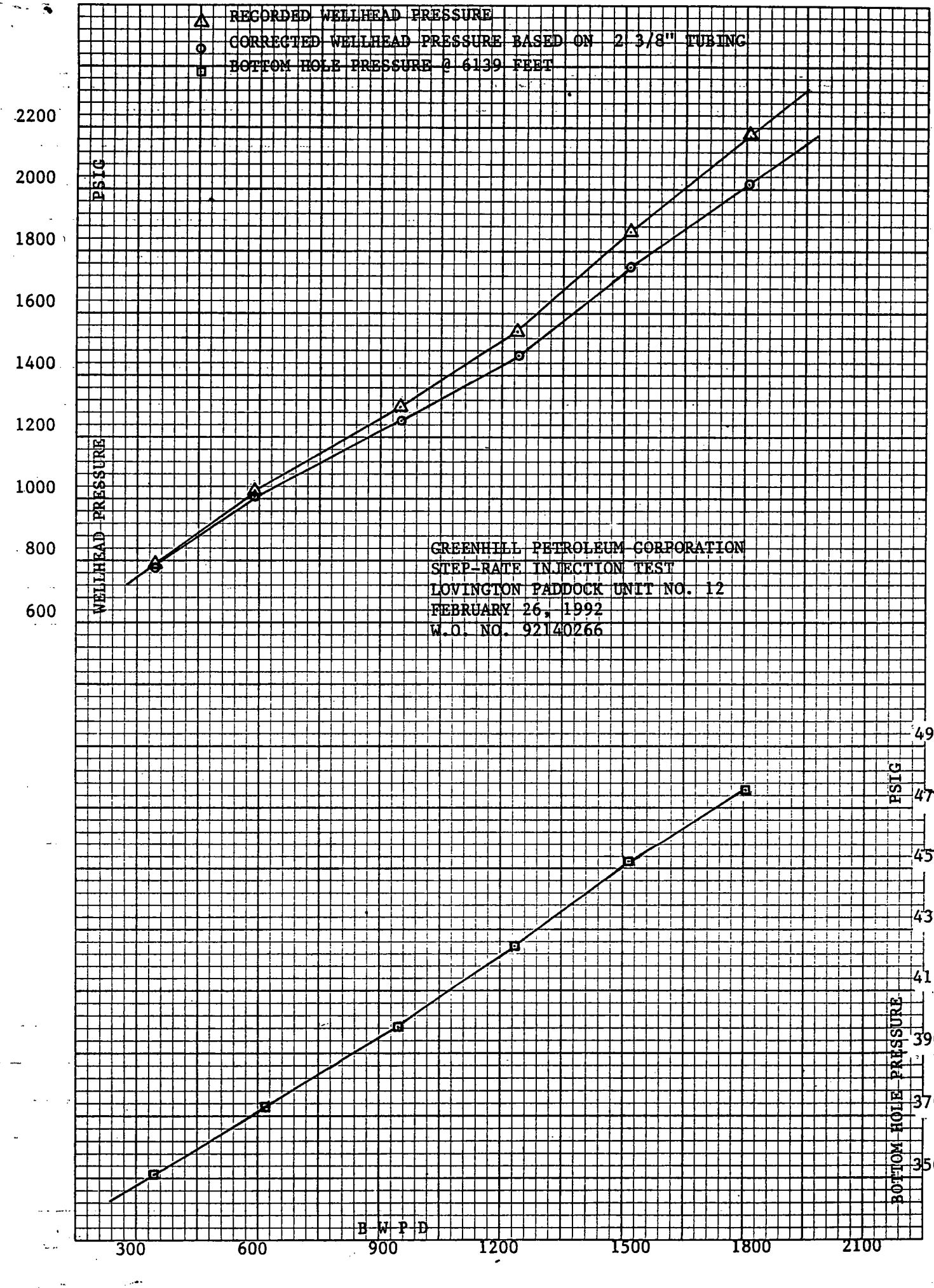
MID-PERFS. =

PACKER DEPTH = 5992

BHP GAUGE DEPTH =6092

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	361.9				361.9		3082
	12:10	441.5	1.2	345.6	7.361	434.1	10.08	3165
	12:15	480.6	2.4	345.6	7.361	473.2	10.08	3210
1	12:20	509.7	3.6	345.6	7.361	502.3	10.08	3240
				345.6				3334
	12:25	618.3	5.9	662.4	24.529	593.8	19.32	3388
	12:30	663.8	8.2	662.4	24.529	639.3	19.32	3432
2	12:35	709.3	10.5	662.4	24.529	684.8	19.32	3432
				662.4				3544
	12:40	858.4	14.1	1036.8	56.188	802.2	30.24	3619
	12:45	916.5	17.7	1036.8	56.188	860.3	30.24	3679
3	12:50	977.2	21.3	1036.8	56.188	921.0	30.24	3679
				1036.8				3823
	12:55	1175.8	26.7	1555.2	118.962	1056.8	45.36	3917
	1:00	1270.8	32.0	1526.4	114.919	1155.9	44.52	3999
4	1:05	1345.4	37.4	1555.2	118.962	1226.4	45.36	3999
				1545.6				4148
	1:10	1594.8	44.5	2044.8	197.383	1397.4	59.64	4250
	1:15	1693.5	51.6	2044.8	197.383	1496.1	59.64	4334
5	1:20	1777.1	58.7	2044.8	197.383	1579.7	59.64	4334
				2044.8				4445
	1:25	1956.8	67.0	2390.4	263.497	1693.3	69.72	4527
	1:30	2021.4	75.1	2332.8	251.871	1769.5	68.04	4591
6	1:35	2088.7	83.2	2332.8	251.871	1836.8	68.04	4591
				2352.0				4671
	1:40	2221.9	92.1	2563.2	299.814	1922.1	74.76	4732
	1:45	2280.3	101.0	2563.2	299.814	1980.5	74.76	4781
7	1:50	2336.1	109.8	2534.4	293.612	2042.5	73.92	4781
				2553.6				4781

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)
Fall-Off	1:51	1698.6				1698.6		4713
	1:52	1675.9				1675.9		4662
	1:53	1635.3				1635.3		4620
	1:54	1799.9				1799.9		4584
	1:55	1767.0				1767.0		4549
	2:00	1637.9				1637.9		4415
	2:05	1540.4				1540.4		4315


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6139 FEET
PSIG
WELLHEAD PRESSURE
2200
2000
1800
1600
1400
1200
1000
800
600
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT NO. 12
FEBRUARY 26, 1992
W.O. NO. 92140266
4900
4700
4500
4300
4100
3900
3700
3500
PSIG
BOTTOM HOLE PRESSURE
B W P D
300
600
900
1200
1500
1800
2100

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation **DATE:** February 26, 1992

WELL NAME Lovington Raddock Unit #12 **WO#:** 92140266

Lea County, New Mexico

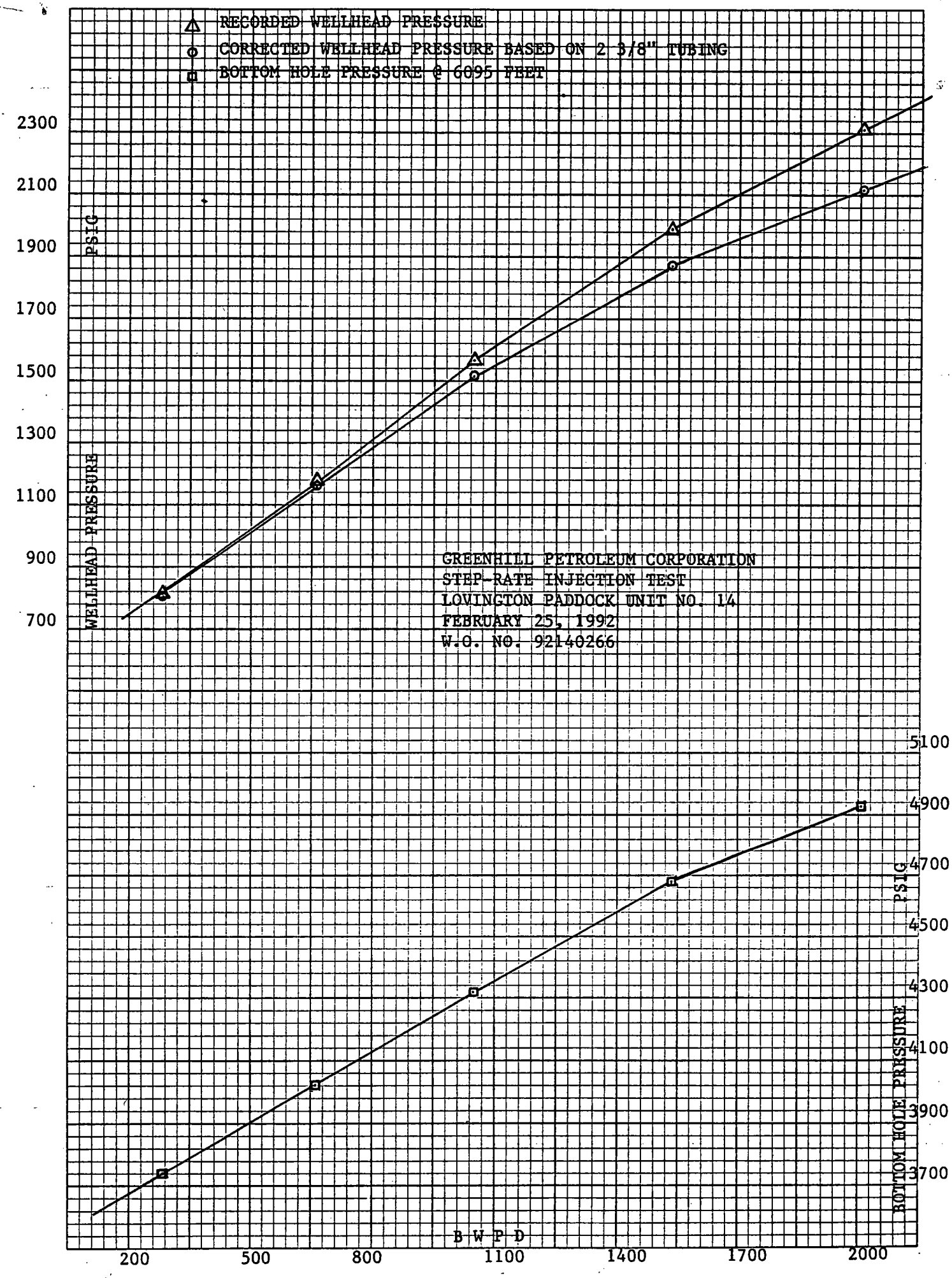
MID-PERFS. =

PACKER DEPTH = 6039

BHP GAUGE DEPTH = 6139

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)
	8:50	614.6				614.6		3322
	8:55	345.6	1.2	345.6	7.418	338.2	10.08	3418
	9:00	345.6	2.4	345.6	7.418	338.2	10.08	3469
1	9:05	345.6	3.6	345.6	7.418	338.2	10.08	3508
		345.6		345.6				
	9:10	604.8	5.7	604.8	20.889	583.9	17.64	3611
	9:15	633.6	7.9	633.6	22.767	610.8	18.48	3675
2	9:20	633.6	10.1	633.6	22.767	610.8	18.48	3730
		624.0		624.0				
	9:25	979.2	13.5	979.2	50.939	928.3	28.56	3841
	9:30	950.4	16.8	950.4	48.202	902.2	27.72	3918
3	9:35	921.6	20.0	921.6	45.535	876.1	26.88	3980
		950.4		950.4				
	9:40	1238.4	24.3	1238.4	78.657	1159.7	36.12	4098
	9:45	1238.4	28.6	1238.4	78.657	1159.7	36.12	4180
4	9:50	1238.4	32.9	1238.4	78.657	1159.7	36.12	4253
		1238.4		1238.4				
	9:55	1526.4	38.2	1526.4	115.805	1410.6	44.52	4366
	10:00	1497.6	43.4	1497.6	111.796	1385.8	43.68	4448
5	10:05	1526.4	48.7	1526.4	115.805	1410.6	44.52	4520
				1516.8				
	10:10	1814.4	55.0	1814.4	159.440	1655.0	52.92	4627
	10:15	1785.6	61.2	1785.6	154.790	1630.8	52.08	4701
6	10:20	1814.4	67.5	1814.4	159.440	1655.0	52.92	4762
		1804.8		1804.8				
Fall-Off	10:21	1932.6				1932.6		4698
	10:22	1884.5				1884.5		4654
	10:23	1842.7				1842.7		4618

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)	4370 INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
	10:24	1813.6				1813.6		
	10:25	1788.3				1788.3		
	10:30	1683.2				1683.2		
	10:35	1606.1				1606.1		


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6095 FEET
WELLHEAD PRESSURE PSIG
2300
2100
1900
1700
1500
1300
1100
900
700
BOTTOM HOLE PRESSURE PSIG
5100
4900
4700
4500
4300
4100
3900
3700
B W P D
200
500
800
1100
1400
1700
2000
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT NO. 14
FEBRUARY 25, 1992
W.O. NO. 92140266

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation **DATE:** February 25, 1992

WELL NAME: Lovington Paddock Unit #14 **W.O.** #92-14-0268

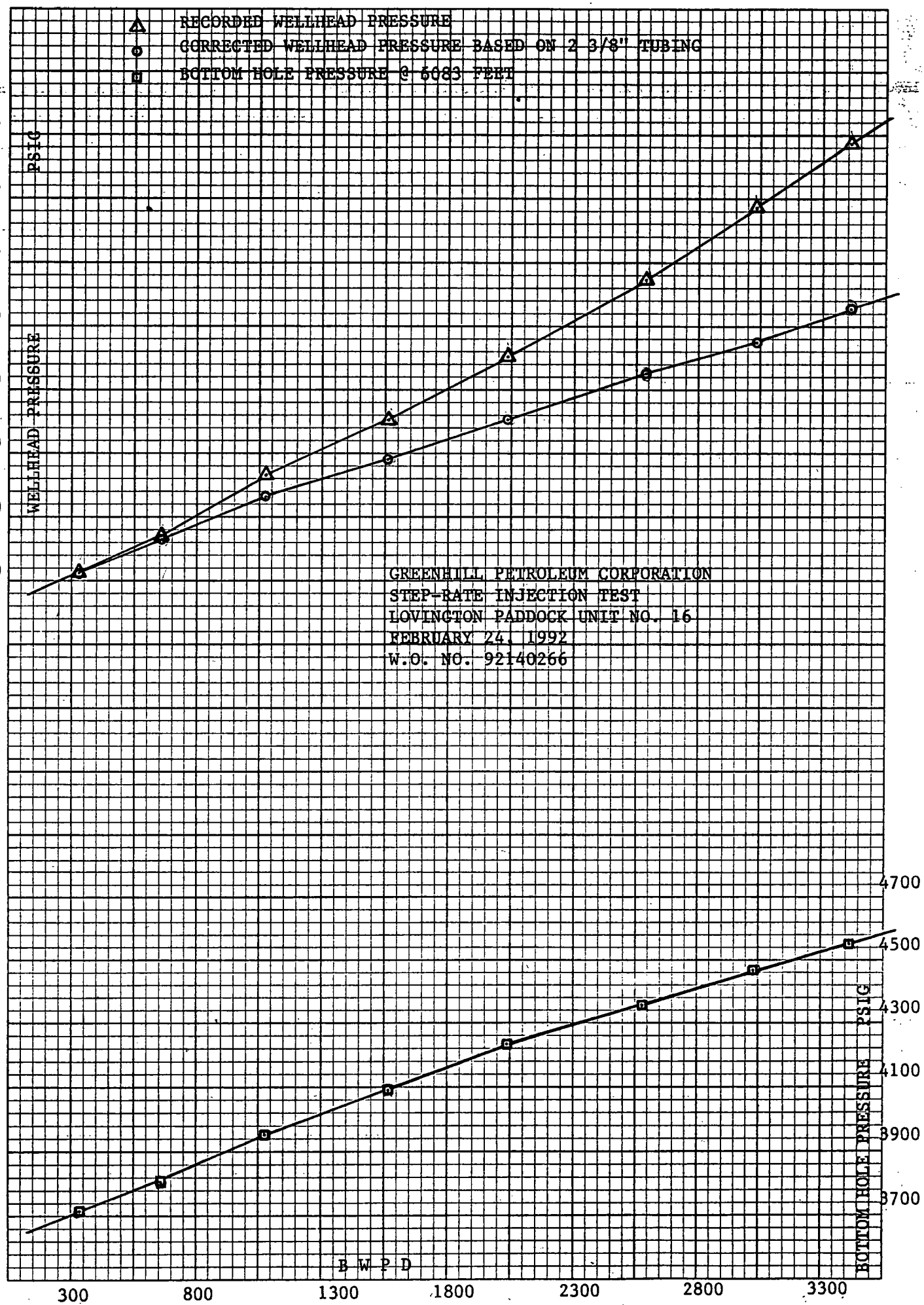
Lea County, New Mexico

PACKER SET AT 5995

BHP GAUGE SET @ 6095'

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)
	2:45	542.3				542.3		3315
	2:50	687.6	1.0	288.0	5.256	682.3	8.40	
	2:55	772.3	2.0	288.0	5.256	767.0	8.40	
1	3:00	817.8	3.0	288.0	5.256	812.5	8.40	3740
				288.0	5.256	-5.3	8.40	
	3:05	1018.7	5.2	633.6	22.604	996.1	18.48	
	3:10	1118.6	7.5	662.4	24.541	1094.1	19.32	
2	3:15	1179.3	9.9	691.2	26.551	1152.7	20.16	4020
				662.4	24.541	-24.5	19.32	
	3:20	1386.8	13.5	1036.8	56.215	1330.6	30.24	4134
	3:25	1499.4	17.2	1065.6	59.138	1440.3	31.08	4238
3	3:30	1569.0	20.8	1036.8	56.215	1512.8	30.24	4312
				1046.4	57.182	-57.2	30.52	
	3:35	1815.2	26.2	1555.2	119.021	1696.2	45.36	4505
	3:40	1910.7	31.5	1526.4	114.975	1795.7	44.52	4606
4	3:45	1984.0	36.8	1526.4	114.975	1869.0	44.52	4679
				1536.0	116.317	-116.3	44.80	
	3:50	2195.6	43.7	1987.2	187.312	2008.3	57.96	4817
	3:55	2261.5	50.8	2044.8	197.480	2064.0	59.64	4884
5	4:00	2305.8	57.7	1987.2	187.312	2118.5	57.96	4930
				2006.4	190.674	-190.7	58.52	
Fall-Off	4:01	2011.7				2011.7		4849
	4:02	1977.6				1977.6		4793
	4:03	1933.2				1933.2		4747
	4:04	1895.3				1895.3		4707
	4:05	1857.3				1857.3		4669
	4:06	1823.1				1823.1		4633

STEP NO. & REMARKS	TIME	(2) SURFACE TUBING PRESS. (psig)	(3) CUMMULATIVE VOL. INJECTED (bbls)	(4) INJECTION RATE (bbls/day)	(5) FRICTION HEAD LOSS (psi)	(6) CORRECTED TUBING PRESS. (psi) (1)-(5)	(7) INJECTION RATE (gpm) (3)/34.2857	(8) MEASURED BHP (psi)
	4:07	1790.2				1790.2		4599
	4:08	1761.1				1761.1		4569
	4:09	1733.2				1733.2		4540
	4:10	1706.7				1706.7		4513
	4:11	1680.1				1680.1		4487
	4:12	1657.3				1657.3		4463
	4:13	1635.8				1635.8		4440
	4:14	1614.2				1614.2		4419
	4:15	1594.0				1594.0		4399


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6083 FEET
PSIG
WELLHEAD PRESSURE
2300
2100
1900
1700
1500
1300
1100
900
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT NO. 16
FEBRUARY 24, 1992
W.O. NO. 92140266
4700
4500
4300
4100
3900
3700
BOTTOM HOLE PRESSURE PSIG
B W P D
300
800
1300
1800
2300
2800
3300

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: February 24, 1992

WELL NAME: Lovington Paddock Unit #16

Lea County, New Mexico

WO#: 92140266

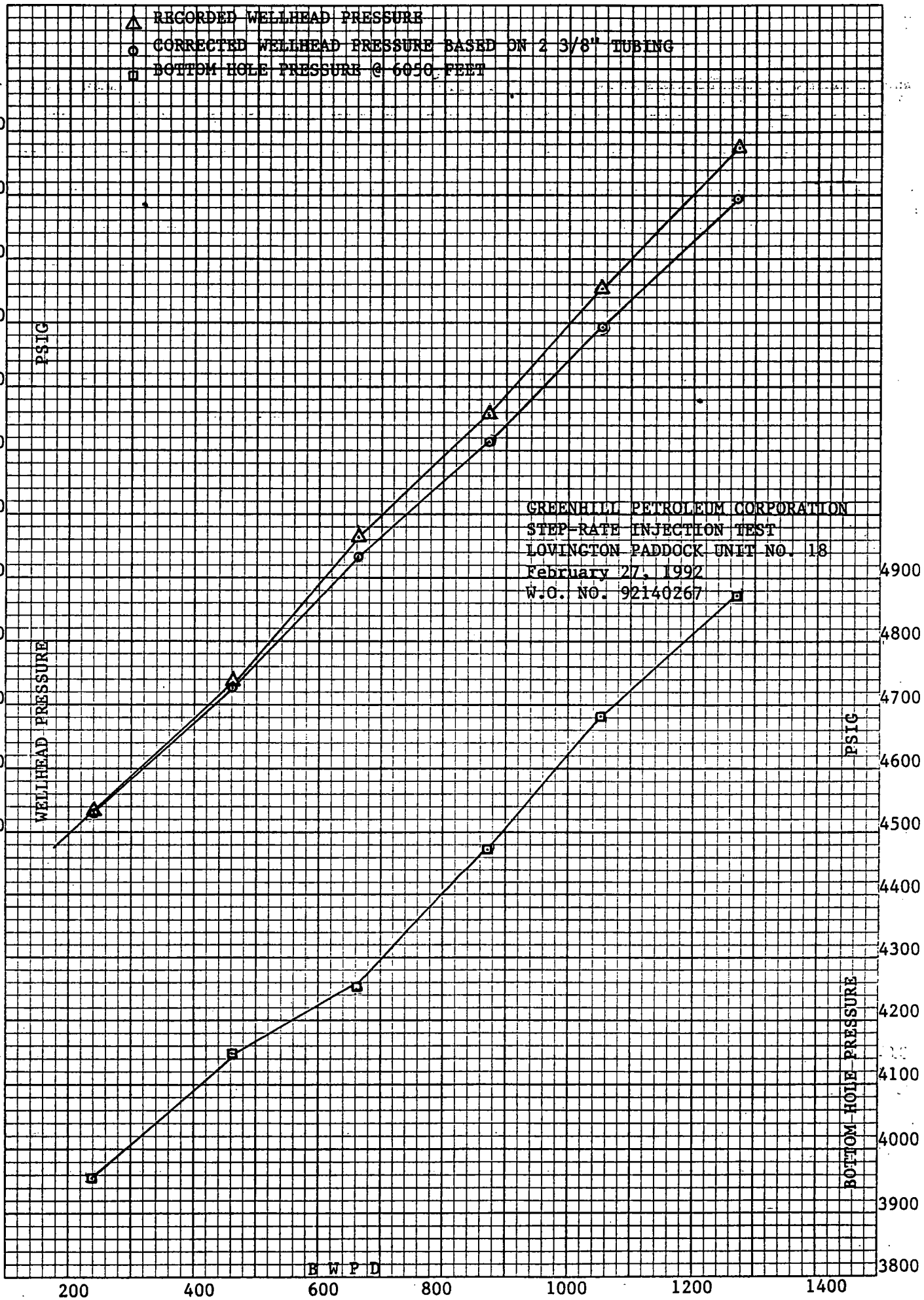
MID-PERFS. =

PACKER DEPTH = 5983

BHP GAUGE DEPTH = 5000 Corrected to 6083

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)
	11:25	856.0				856.0		3634
	11:30	901.5	1.1	316.8	5.144	896.4	9.24	3678
	11:35	921.7	2.3	345.6	6.042	915.7	10.08	3702
1	11:40	933.1	3.5	345.6	6.042	927.1	10.08	3708
				336.0				
	11:45	1001.3	5.8	662.4	20.132	981.2	19.32	3763
	11:50	1035.5	8.1	662.4	20.132	1015.4	19.32	3795
2	11:55	1049.4	10.3	633.6	18.543	1030.9	18.48	3816
				652.8				
	12:00	1151.9	14.0	1065.6	48.514	1103.4	31.08	3880
	12:05	1193.7	17.8	1094.4	50.967	1142.7	31.92	3922
3	12:10	1222.8	21.5	1065.6	48.514	1174.3	31.08	3956
				1075.2				
	12:15	1336.7	26.9	1555.2	97.638	1239.1	45.36	4019
	12:20	1377.3	32.4	1584.0	101.009	1276.3	46.20	4063
4	12:25	1411.5	37.8	1555.2	97.638	1313.9	45.36	4095
				1564.8				
	12:30	1548.3	44.9	2044.8	162.001	1386.3	59.64	4157
	12:35	1585.0	52.0	2044.8	162.001	1423.0	59.64	4196
5	12:40	1609.1	59.1	2044.8	162.001	1447.1	59.64	4231
				2044.8				
	12:45	1782.5	68.0	2563.2	246.072	1536.4	74.76	4292
	12:50	1819.3	77.0	2592.0	251.212	1568.1	75.60	4326
6	12:55	1847.1	86.0	2592.0	251.212	1595.9	75.60	4356
				2582.4				
	1:00	2010.4	96.5	3024.0	334.111	1676.3	88.20	4409
	1:05	2038.3	107.1	3052.0	339.857	1698.4	89.02	4440
7	1:10	2065.0	117.6	3024.0	334.111	1730.9	88.20	4465
				3033.6				

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS (psig)	(2) CUMMULATIVE VOL INJECTED (bbls)	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)
	1:15	2205.5	129.5	3427.2	421.166	1784.3	99.96	4507
	1:20	2236.0	141.3	3398.4	414.641	1821.4	99.12	4530
8	1:25	2266.0	153.1	3398.4	414.641	1851.4	99.12	4553
				3408.0				
Fall−Off	1:21	1597.0				1597.0		3941
	1:22	1619.3				1619.3		3940
	1:23	1616.7				1616.7		3934
	1:24	1611.1				1611.1		3927
	1:25	1607.9				1607.9		3922
	1:26	1604.0				1604.0		3916
	1:27	1600.3				1600.3		3912
	1:28	1597.7				1597.7		3907
	1:29	1594.0				1594.0		3903
	1:30	1591.4				1591.4		3899
	1:31	1587.6				1587.6		3895
	1:32	1585.1				1585.1		3892
	1:33	1582.5				1582.5		3888
	1:34	1578.7				1578.7		3885
	1:35	1576.2				1576.2		3881


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6050 FEET
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT NO. 18
February 27, 1992
W.O. NO. 92140267
WELLHEAD PRESSURE
PSIG
BOTTOM HOLE PRESSURE
PSIG
B W P D
2200
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
4900
4800
4700
4600
4500
4400
4300
4200
4100
4000
3900
3800
200
400
600
800
1000
1200
1400

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: February 27, 1992

WELL NAME: Lovington Paddock No. 18

Lea County, New Mexico

WO#: 92140267

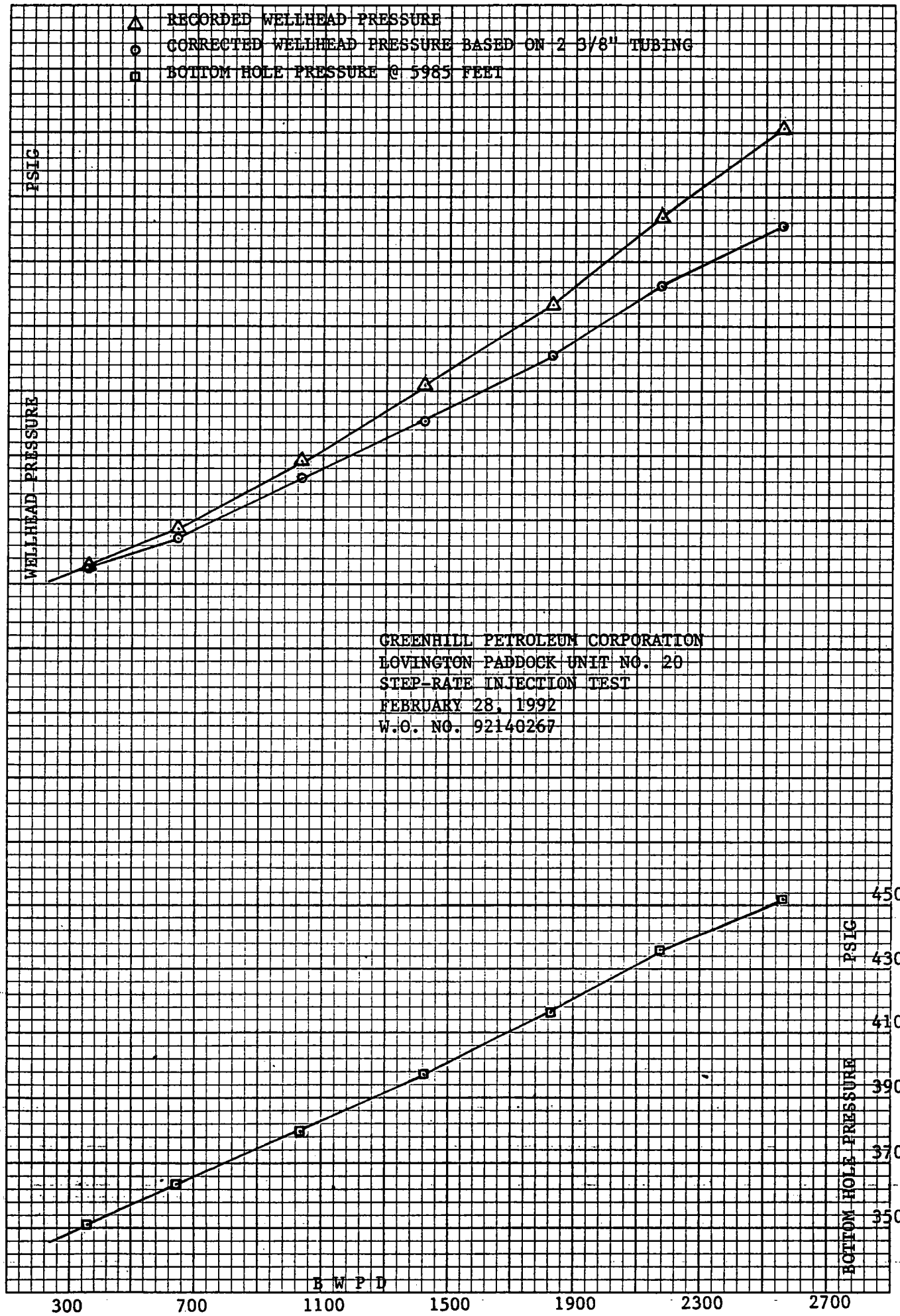
MID-PERFS. =

PACKER DEPTH =

BHP GAUGE DEPTH = 6060

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)
	8:55	996.3				996.3		3707
	9:00	1072.2	0.8	230.4	3.453	1068.7	6.72	3778
	9:05	1102.6	1.6	230.4	3.453	1099.1	6.72	3820
1	9:10	1133.1	2.5	259.2	4.294	1128.8	7.56	3858
				240.0				
	9:15	1234.1	4.1	460.8	12.448	1221.7	13.44	3938
	9:20	1281.3	5.7	460.8	12.448	1268.9	13.44	3994
2	9:25	1338.3	7.3	460.8	12.448	1325.9	13.44	4045
				460.8				
	9:30	1437.1	9.7	691.2	26.355	1410.7	20.16	4133
	9:35	1517.0	11.9	633.6	22.437	1494.6	18.48	4198
3	9:40	1561.3	14.2	662.4	24.360	1536.9	19.32	4253
				662.4				
	9:45	1670.2	17.3	892.8	42.315	1627.9	26.04	4346
	9:50	1729.8	20.3	864.0	39.825	1690.0	25.20	4413
4	9:55	1757.7	23.3	864.0	39.825	1717.9	25.20	4474
				873.6				
	10:00	1847.6	27.0	1065.6	58.702	1788.9	31.08	4560
	10:05	1906.0	30.6	1036.8	55.800	1850.2	30.24	4625
5	10:10	1955.3	34.3	1065.8	58.722	1896.6	31.09	4681
				1056.0				
	10:15	2057.9	38.7	1267.2	80.884	1977.0	36.96	4761
	10:20	2120.1	43.2	1296.0	84.318	2035.8	37.80	4821
6	10:25	2178.4	47.6	1267.2	80.884	2097.5	36.96	4874
				1276.8				
Fall-Off	10:26	2063.1				2063.1		4839
	10:27	2028.9				2028.9		4817
	10:28	2012.4				2012.4		4798

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	4661 MEASURED BHP (psi)
	10:29	1998.5				1998.5		4783
	10:30	1985.8				1985.8		4769
	10:35	1932.7				1932.7		4709
	10:40	1891.0				1891.0		4661


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 5985 FEET
2100
1900
1700
1500
1300
1100
900
700
PSIG
WELLHEAD PRESSURE
GREENHILL PETROLEUM CORPORATION
LOVINGTON PADDOCK UNIT NO. 20
STEP-RATE INJECTION TEST
FEBRUARY 28, 1992
W.O. NO. 92140267
4500
4300
4100
3900
3700
3500
PSIG
BOTTOM HOLE PRESSURE
B W P D
300
700
1100
1500
1900
2300
2700

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: February 28, 1992

WELL NAME: Lovington Paddock Unit No. 20
Lea County, New Mexico

WO#: 92140267

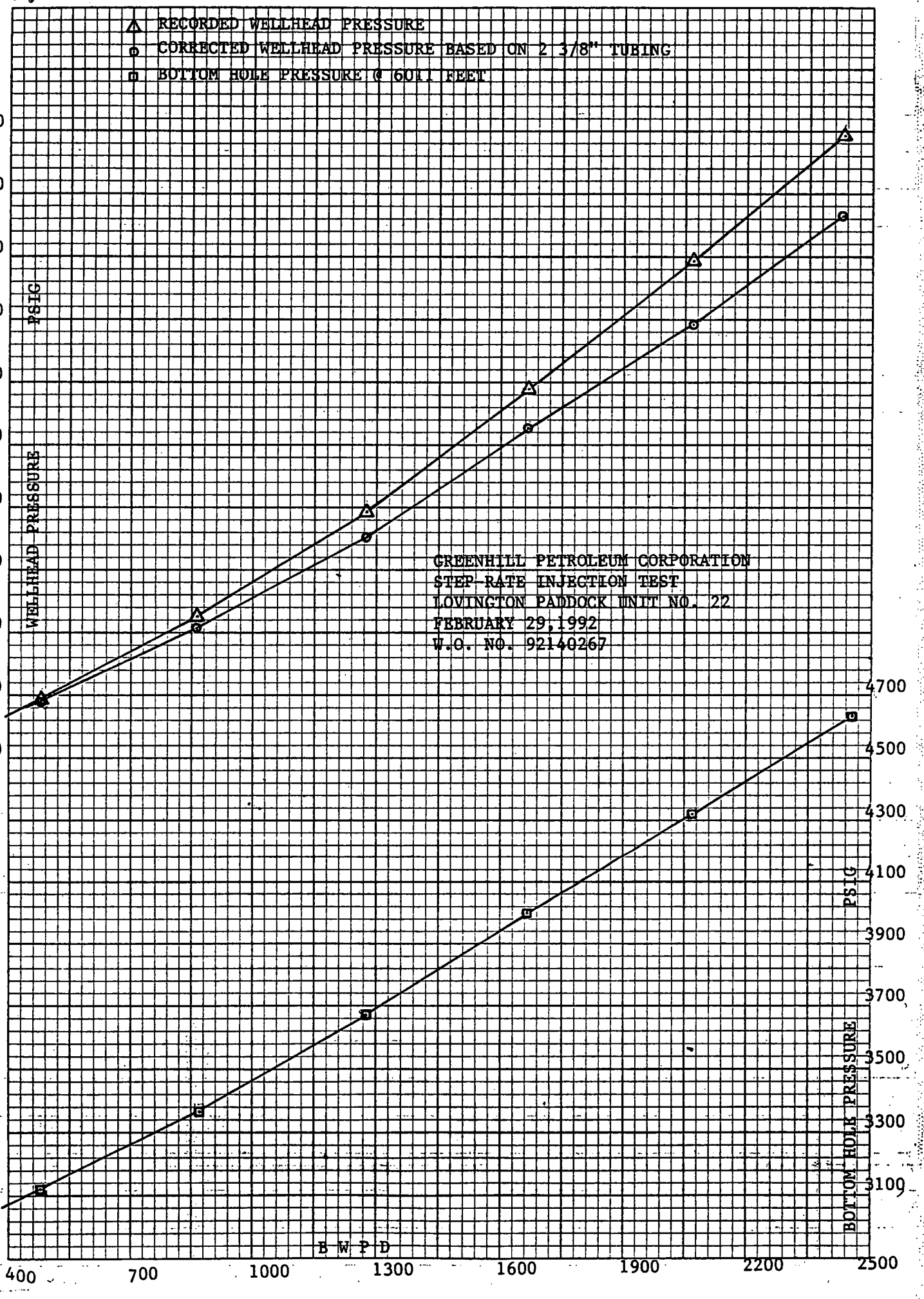
MID-PERFS. =

PACKER DEPTH =

BHP GAUGE DEPTH = 5985

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)
	2:05	610.0				610.0		3406
	2:10	679.5	1.2	345.6	7.232	672.3	10.08	3445
	2:15	705.9	2.5	374.4	8.386	697.5	10.92	3481
1	2:20	753.9	3.7	345.6	7.232	746.7	10.08	3504
				355.2				
	2:25	801.9	6.0	662.4	24.098	777.8	19.32	3556
	2:30	844.8	8.3	662.4	24.098	820.7	19.32	3598
2	2:35	863.8	10.5	633.6	22.196	841.6	18.48	3630
				652.8				
	2:40	993.8	14.1	1036.8	55.201	938.6	30.24	3733
	2:45	1041.9	17.7	1036.8	55.201	986.7	30.24	3757
3	2:50	1082.4	21.3	1036.8	55.201	1027.2	30.24	3791
				1036.8				
	2:55	1212.8	26.4	1468.8	105.145	1107.7	42.84	3876
	3:00	1267.2	31.1	1353.6	90.400	1176.8	39.48	3932
4	3:05	1312.7	36.1	1440.0	101.363	1211.3	42.00	3978
				1420.8				
	3:10	1472.1	42.5	1843.2	160.036	1312.1	53.76	4063
	3:15	1527.7	48.7	1785.6	150.907	1376.8	52.08	4122
5	3:20	1575.8	55.1	1843.2	160.036	1415.8	53.76	4169
				1824.0				
	3:25	1740.4	62.6	2160.0	214.609	1525.8	63.00	4250
	3:30	1789.8	70.2	2188.8	219.933	1569.9	63.84	4315
6	3:35	1840.4	77.8	2188.8	219.933	1620.5	63.84	4351
				2179.2				
	3:40	2010.0	86.7	2563.2	294.548	1715.5	74.76	4422
	3:45	2063.2	95.6	2563.2	294.548	1768.7	74.76	4474
7	3:50	2108.9	104.5	2563.2	294.548	1814.4	74.76	4518
				2563.2				

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)
Fall–Off	3:51							
	3:52							
	3:53	1621.4				1621.4		
	3:54	1607.4				1607.4		
	3:55	1587.0				1587.0		
	4:00	1507.3				1507.3		
	4:05	1444.0				1444.0		


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6011 FEET
WELLHEAD PRESSURE PSIG
BOTTOM HOLE PRESSURE PSIG
B W P D
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
4700
4500
4300
4100
3900
3700
3500
3300
3100
400
700
1000
1300
1600
1900
2200
2500
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT NO. 22
FEBRUARY 29,1992
W.O. NO. 92140267

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: February 29, 1992

WELL NAME: Lovington Paddock Unit No. 22
Lea County, New Mexico

WO#: 92140267

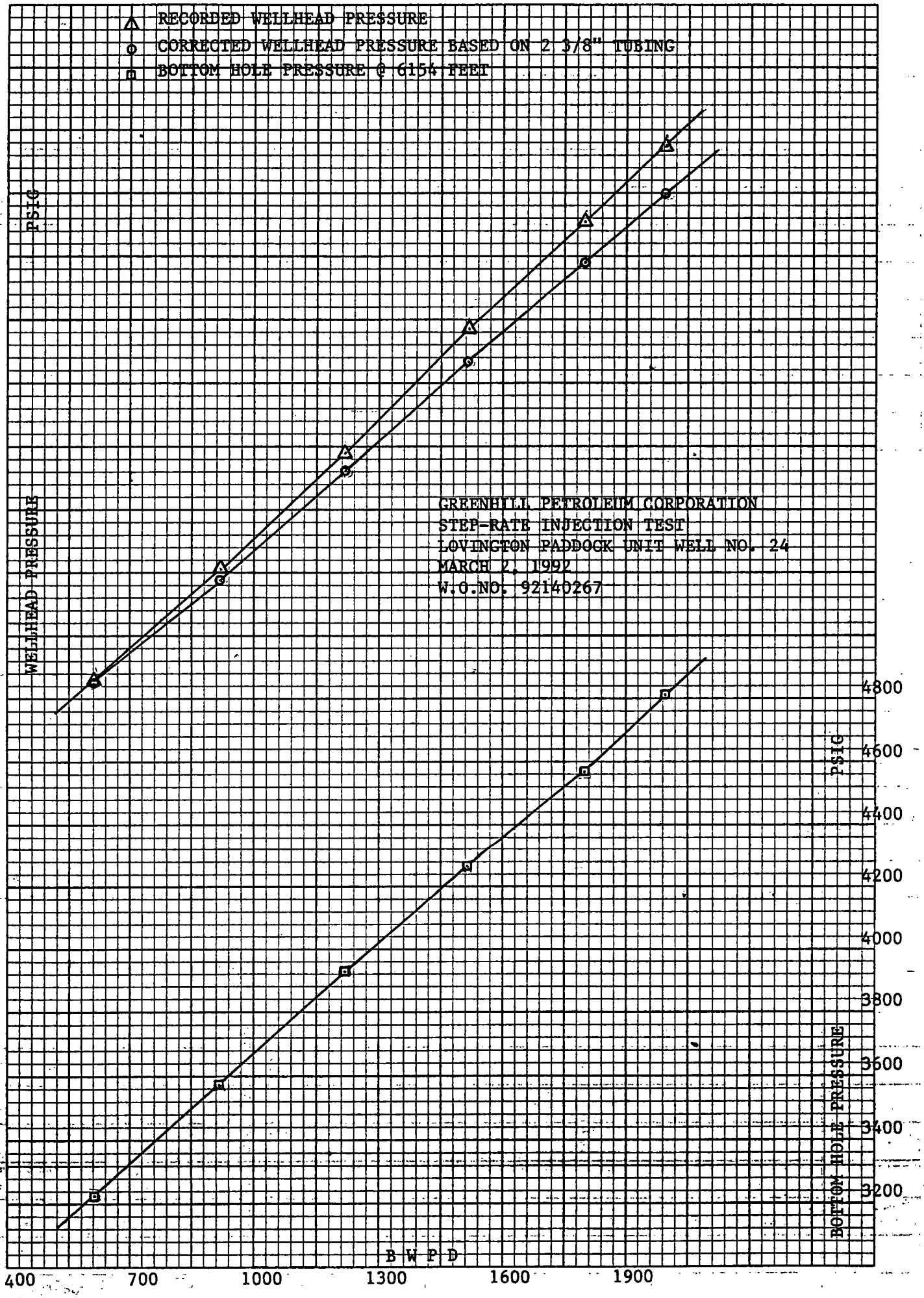
MID-PERFS. =

PACKER DEPTH = 6011

BHP GAUGE DEPTH = 6011

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)
	9:05	181.7				181.7		2948
	9:10	275.3	1.7	489.6	13.836	261.5	14.28	3016
	9:15	327.2	3.3	460.8	12.368	314.8	13.44	3075
1	9:20	385.3	5.0	489.6	13.836	371.5	14.28	3120
				480.0				
	9:25	509.2	8.0	864.0	39.568	469.6	25.20	3218
	9:30	581.2	11.0	864.0	39.568	541.6	25.20	3292
2	9:35	649.5	14.0	864.0	39.568	609.9	25.20	3374
				864.0				
	9:40	820.0	18.5	1296.0	83.774	736.2	37.80	3481
	9:45	909.7	22.9	1267.2	80.363	829.3	36.96	3578
3	9:50	988.0	27.3	1267.2	80.363	907.6	36.96	3663
				1276.8				
	9:55	1196.8	33.2	1699.2	138.275	1058.5	49.56	3790
	10:00	1294.4	38.9	1641.6	129.729	1164.7	47.88	3907
4	10:05	1380.5	44.7	1670.4	133.971	1246.5	48.72	3993
				1670.4				
	10:10	1604.6	52.0	2104.4	205.390	1399.2	61.38	4128
	10:15	1707.1	59.1	2044.8	194.758	1512.3	59.64	4231
5	10:20	1793.3	66.3	2073.6	199.863	1593.4	60.48	4321
				2073.6				
	10:25	2032.5	74.9	2476.8	277.645	1754.9	72.24	4448
	10:30	2121.2	83.4	2448.0	271.702	1849.5	71.40	4549
6	10:35	2194.7	91.9	2448.0	271.702	1923.0	71.40	4632
				2457.6				

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)
Fall−Off	10:36	1803.5				1803.5		4565
	10:37	1746.3				1746.3		4521
	10:38	1707.4				1707.4		4484
	10:39	1674.5				1674.5		4450
	10:40	1647.9				1647.9		4422
	10:45	1537.7				1537.7		4308
	10:50	1455.5				1455.5		4224


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6154 FEET
WELLHEAD PRESSURE
PSIG
2300
2100
1900
1700
1500
1300
1100
900
700
500
BOTTOM HOLE PRESSURE
PSIG
4800
4600
4400
4200
4000
3800
3600
3400
3200
B W P D
400
700
1000
1300
1600
1900
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT WELL NO. 24
MARCH 2, 1992
W.O.NO. 92140267

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation **DATE:** March 8, 1992

WELL NAME: Lovington Paddock Unit No. 24 **WO#:** 92140267

Lea County, New Mexico

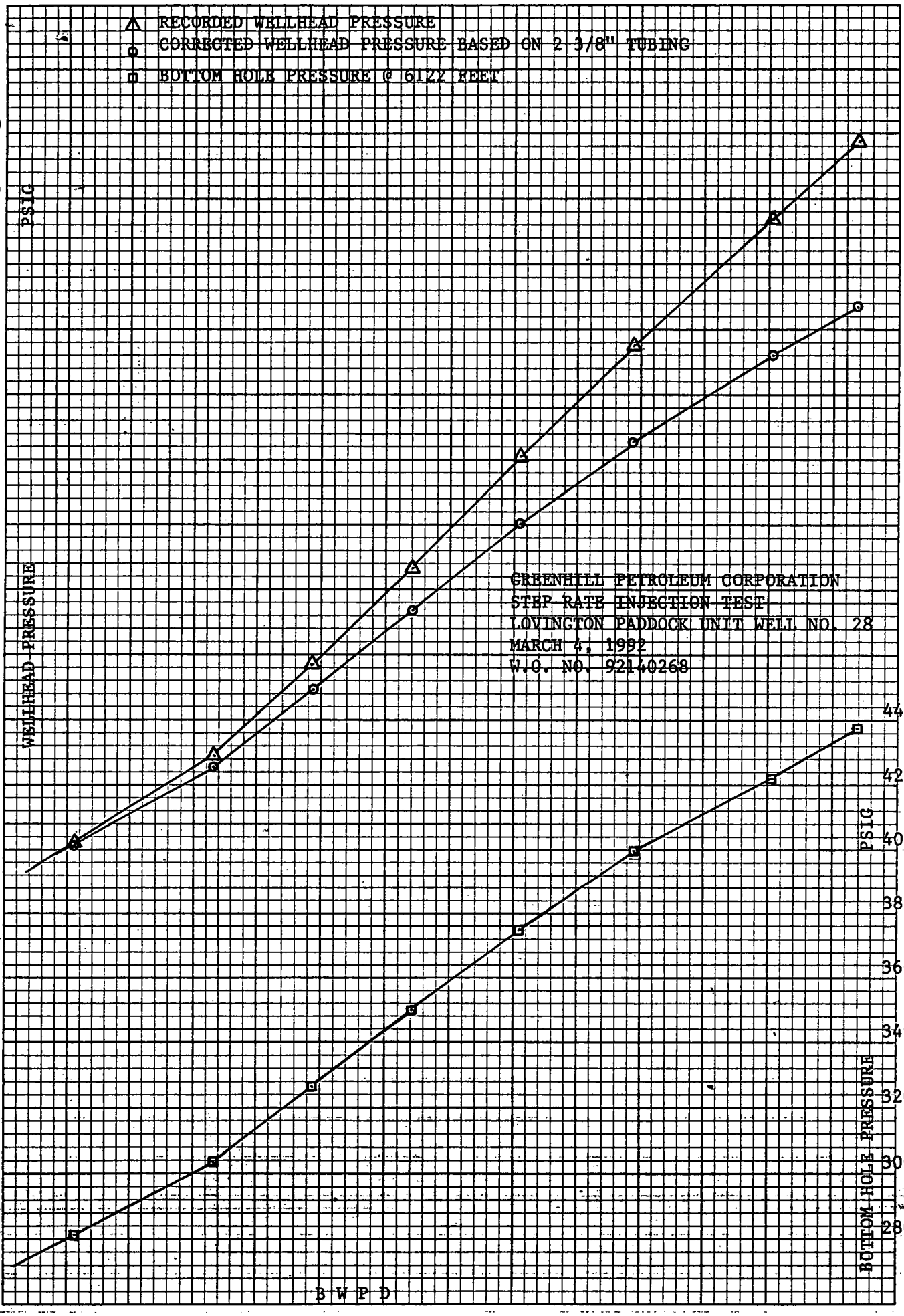
MID-PERFS. =

PACKER DEPTH = 6054

BHP GAUGE DEPTH = 6154

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)
	9:45	193.4				193.4		2889
	9:50	384.5	1.5	432.0	11.182	373.3	12.60	3029
	9:55	483.2	3.2	489.6	14.096	469.1	14.28	3133
1	10:00	562.8	4.8	460.8	12.600	550.2	13.44	3224
				460.8				
	10:05	728.2	7.4	748.8	30.935	697.3	21.84	3354
	10:10	826.7	10.1	777.6	33.173	793.5	22.68	3458
2	10:15	905.0	12.8	777.6	33.173	871.8	22.68	3565
				768.0				
	10:20	1092.1	16.5	1065.6	59.420	1032.7	31.08	3692
	10:25	1194.7	20.2	1065.6	59.420	1135.3	31.08	3816
3	10:30	1280.8	23.9	1065.6	59.420	1221.4	31.08	3923
				1065.6				
	10:35	1474.6	28.7	1382.4	96.173	1378.4	40.32	4046
	10:40	1574.7	33.4	1353.6	92.499	1482.2	39.48	4153
4	10:45	1664.6	38.1	1353.6	92.499	1572.1	39.48	4270
				1363.2				
	10:50	1844.5	43.9	1670.4	136.489	1708.0	48.72	4400
	10:55	1930.6	49.6	1641.6	132.167	1798.4	47.88	4492
5	11:00	2014.3	55.3	1641.6	132.167	1882.1	47.88	4563
				1651.2				
	11:05	2138.6	61.8	1872.0	168.518	1970.1	54.60	4677
	11:10	2202.0	68.2	1843.2	163.753	2038.2	53.76	4748
6	11:15	2257.7	74.5	1814.4	159.051	2098.6	52.92	4805
				1843.2				

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)
Fall-Off	11:16	2004.0				2004.0		4726
	11:17	1960.2				1960.2		4669
	11:18	1915.9				1915.9		4626
	11:19	1879.2				1879.2		4587
	11:20	1831.1				1831.1		4539
	11:25	1708.4				1708.4		4411
	11:30	1607.1				1607.1		4308


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6122 FEET
PSIG
WELLHEAD PRESSURE
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
000
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT WELL NO. 28
MARCH 4, 1992
W.O. NO. 92140268
4400
4200
4000
3800
3600
3400
3200
3000
2800
PSIG
BOTTOM HOLE PRESSURE
B W P D
300
800
1300
1800
2300
2800
3300

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: March 4, 1992

WELL NAME: Lovington Paddock Unit Well No. 28
Lea County, New Mexico

WO#: 92140268

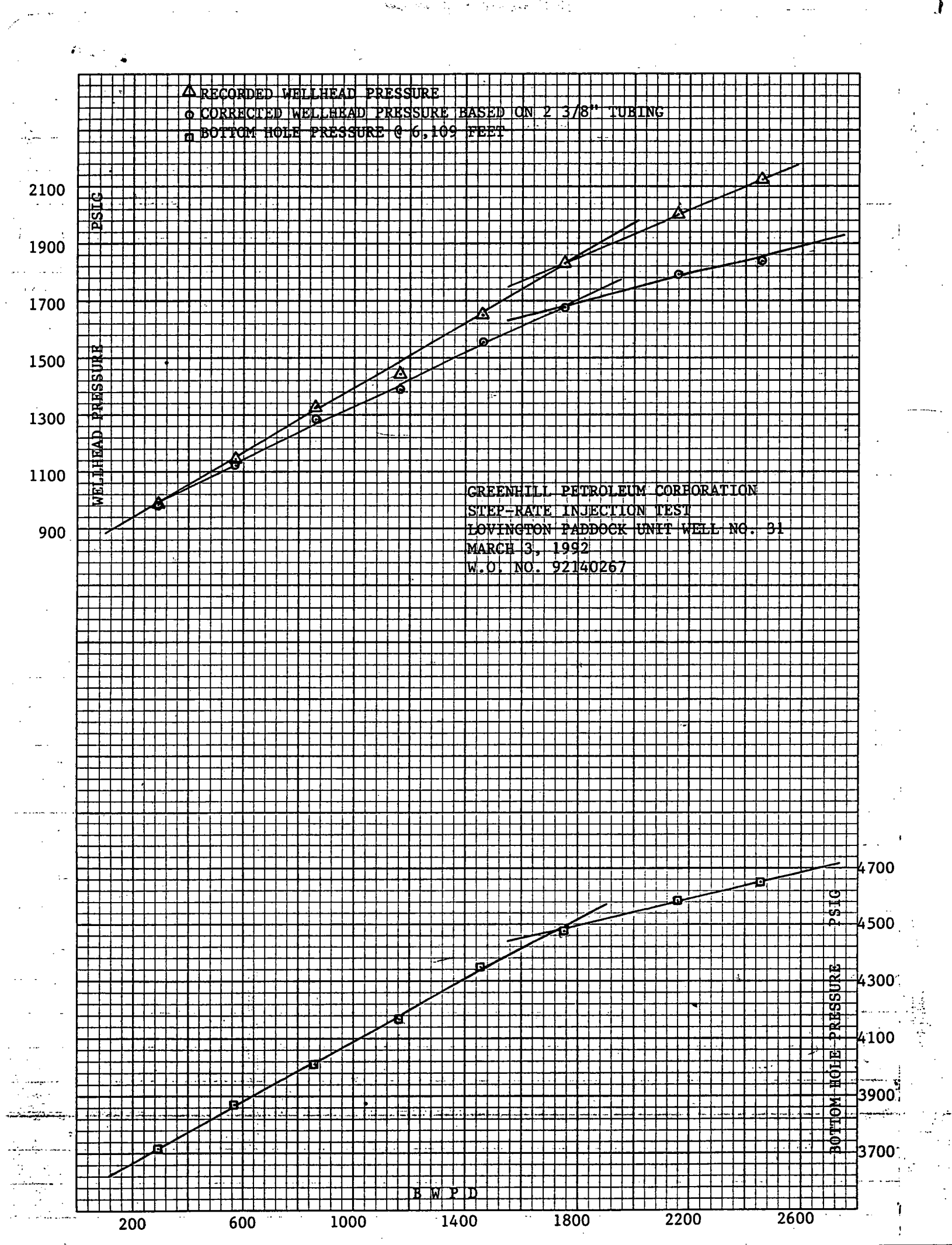
MID-PERFS. =

PACKER DEPTH = 6022

BHP GAUGE DEPTH = 6122

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)
	8:25							2795
	8:30	17.1	1.3	374.4	8.578	8.5	10.92	2801
	8:35	19.6	2.4	316.8	6.298	13.3	9.24	2805
1	8:40	19.5	3.5	316.8	6.298	13.2	9.24	2808
				336.0				
	8:45	176.2	6.6	892.8	42.819	133.4	26.04	2912
	8:50	243.2	9.6	864.0	40.298	202.9	25.20	2980
2	8:55	287.4	12.7	892.8	42.819	244.6	26.04	3036
				883.2				
	9:00	454.3	17.1	1267.2	81.847	372.5	36.96	3147
	9:05	518.9	21.5	1267.2	81.847	437.1	36.96	3214
3	9:10	569.5	25.9	1267.2	81.847	487.7	36.96	3266
				1267.2				
	9:15	749.0	31.6	1641.6	132.124	616.9	47.88	3381
	9:20	810.9	37.3	1641.6	132.124	678.8	47.88	3449
4	9:25	870.3	43.1	1670.4	136.445	733.9	48.72	3505
				1651.2				
	9:30	1080.3	50.3	2073.6	203.554	876.7	60.48	3624
	9:35	1149.9	57.5	2073.6	203.554	946.3	60.48	3696
5	9:40	1204.4	64.7	2073.6	203.554	1000.8	60.48	3755
				2073.6				
	9:45	1438.8	73.5	2534.4	295.058	1143.7	73.92	3873
	9:50	1503.5	82.3	2534.4	295.058	1208.4	73.92	3943
6	9:55	1554.2	91.1	2534.4	295.058	1259.1	73.92	3998
				2534.4				

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)
	10:00	1821.4	101.7	3052.8	416.323	1405.1	89.04	4107
	10:05	1873.4	112.4	3081.6	423.618	1449.8	89.88	4171
7	10:10	1935.5	123.0	3052.8	416.323	1519.2	89.04	4221
				3062.4				
	10:15	2113.0	134.8	3398.4	507.687	1605.3	99.12	4297
	10:20	2155.0	146.6	3398.4	507.687	1647.3	99.12	4343
8	10:25	2177.8	158.4	3398.4	507.687	1670.1	99.12	4380
				3398.4				
Fall-Off	10:26							4250
	10:27							4186
	10:28							4139
	10:29							4098
	10:30							4063
	10:31							4031
	10:32							4001
	10:33							3974
	10:34							3949
	10:35							3925


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6,109 FEET
WELLHEAD PRESSURE PSIG
2100
1900
1700
1500
1300
1100
900
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT WELL NO. 31
MARCH 3, 1992
W.O. NO. 92140267
BOTTOM HOLE PRESSURE PSIG
4700
4500
4300
4100
3900
3700
B W P D
200
600
1000
1400
1800
2200
2600

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: MARCH 3, 1992

WELL NAME: LOVINGTON PADDOCK UNIT NO. 31

Lea County, New Mexico

WO#: 92140267

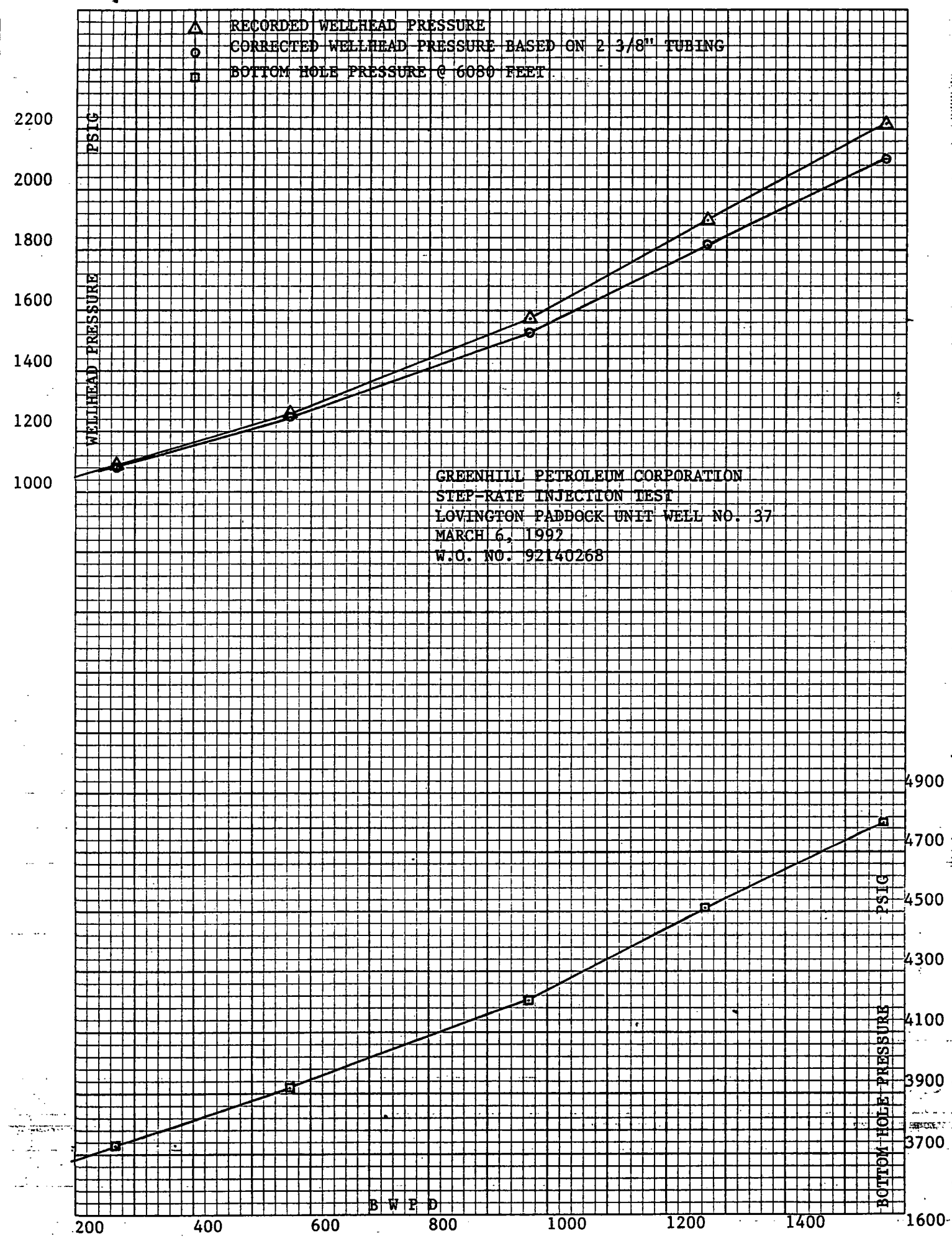
MID-PERFS. =

PACKER DEPTH = 6009

BHP GAUGE DEPTH = 6109

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)
	9:55	871.1				871.1		3614
	10:00	936.9	1.0	288.0	5.269	931.6	8.40	3669
	10:05	967.4	2.0	288.0	5.269	962.1	8.40	3702
1	10:10	982.8	3.0	288.0	5.269	977.5	8.40	3718
				288.0				
	10:15	1070.2	4.9	547.2	17.274	1052.9	15.96	3796
	10:20	1109.5	6.9	576.0	18.993	1090.5	16.80	3832
2	10:25	1141.0	8.9	576.0	18.993	1122.0	16.80	3864
				566.4				
	10:30	1247.3	11.9	864.0	40.213	1207.1	25.20	3929
	10:35	1289.1	14.9	864.0	40.213	1248.9	25.20	3981
3	10:40	1323.2	17.9	864.0	40.213	1283.0	25.20	4016
				864.0				
	10:45	1414.0	22.0	1180.8	71.671	1342.3	34.44	4085
	10:50	1419.7	26.0	1152.0	68.470	1351.2	33.60	4133
4	10:55	1450.3	30.0	1152.0	68.470	1381.8	33.60	4176
				1161.6				
	11:00	1572.0	35.1	1468.8	107.324	1464.7	42.84	4247
	11:05	1612.7	40.1	1440.0	103.463	1509.2	42.00	4296
5	11:10	1655.6	45.2	1468.8	107.324	1548.3	42.84	4342
				1459.2				
	11:15	1760.6	51.3	1756.8	149.469	1611.1	51.24	4404
	11:20	1796.0	57.4	1756.8	149.469	1646.5	51.24	4443
6	11:25	1825.0	63.5	1756.8	149.469	1675.5	51.24	4475
				1756.8				
	11:30	1955.4	71.0	2160.0	219.056	1736.3	63.00	4533
	11:35	1985.6	78.5	2160.0	219.056	1766.5	63.00	4560
7	11:40	2005.7	86.0	2160.0	219.056	1786.6	63.00	4581
				2160.0				

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)
	11:45	2094.4	94.5	2448.0	276.132	1818.3	71.40	4614
	11:50	2109.6	103.0	2448.0	276.132	1833.5	71.40	4627
8	11:55	2119.8	111.6	2476.8	282.172	1837.6	72.24	4639
				2457.6				
Fall−off	11:56	1800.7				1800.7		4591
	11:57	1758.9				1758.9		4574
	11:58	1748.8				1748.8		4558
	11:59	1736.1				1736.1		4545
	12:00	1724.7				1724.7		4532
	12:05	1670.3				1670.3		4475
	12:10	1624.8				1624.8		4427


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6080 FEET
PSIG
WELLHEAD PRESSURE
2200
2000
1800
1600
1400
1200
1000
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT WELL NO. 37
MARCH 6, 1992
W.O. NO. 92140268
4900
4700
4500
4300
4100
3900
3700
1600
PSIG
BOTTOM HOLE PRESSURE
B W P D
200
400
600
800
1000
1200
1400

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: March 6, 1992

Lovington Paddock Unit Well No. 97

Lea County, New Mexico

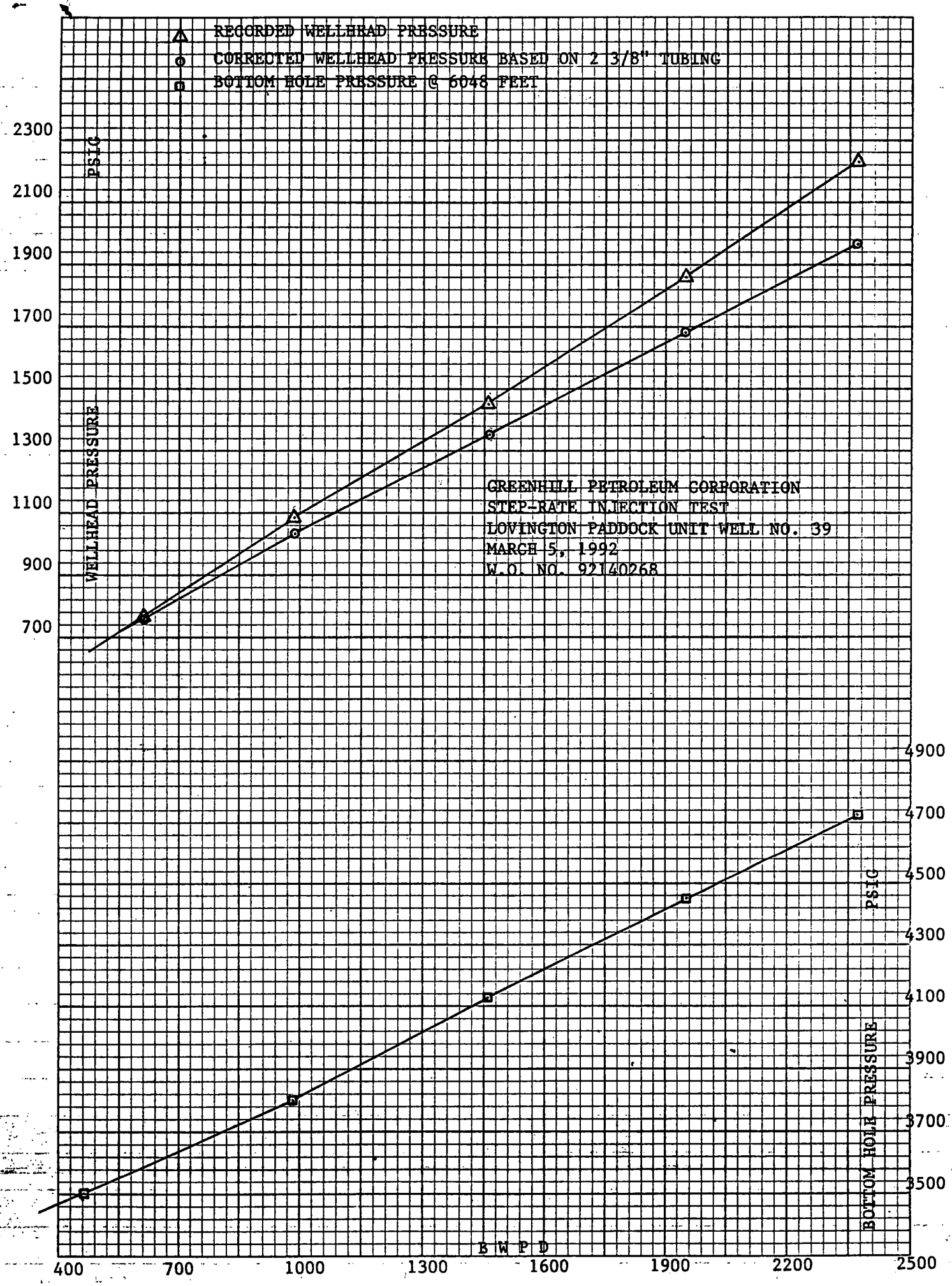
WO#: 92140268

MID-PERFS. =

PACKER DEPTH = 5980

BHP GAUGE DEPTH = 6080

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)
	8:00	943.9				943.9		3597
	8:05	1016.1	0.9	259.2	4.315	1011.8	7.56	3663
	8:10	1030.0	1.9	288.0	5.244	1024.8	8.40	3702
1	8:15	1082.0	2.8	259.2	4.315	1077.7	7.56	3733
				268.8				
	8:20	1170.7	4.8	576.0	18.903	1151.8	16.80	3816
	8:25	1227.7	6.8	576.0	18.903	1208.8	16.80	3873
2	8:30	1261.9	8.7	547.2	17.192	1244.7	15.96	3918
				566.4				
	8:35	1424.0	12.1	979.2	50.450	1373.6	28.56	4044
	8:40	1502.5	15.5	979.2	50.450	1452.1	28.56	4132
3	8:45	1569.6	18.8	950.4	47.739	1521.9	27.72	4206
				969.6				
	8:50	1725.4	23.2	1267.2	81.285	1644.1	36.96	4329
	8:55	1816.6	27.6	1267.2	81.285	1735.3	36.96	4425
4	9:00	1893.9	32.0	1267.2	81.285	1812.6	36.96	4505
				1267.2				
	9:05	2043.3	37.5	1584.0	122.827	1920.5	46.20	4625
	9:10	2133.4	42.8	1526.4	114.692	2018.7	44.52	4715
5	9:15	2219.7	48.3	1584.0	122.827	2096.9	46.20	4801
				1564.8				
Fall-Off	9:16	2045.9				2045.9		4745
	9:17	2013.0				2013.0		4709
	9:18	1980.1				1980.1		4675
	9:19	1953.5				1953.5		4648
	9:20	1932.0				1932.0		4625
	9:25	1847.2				1847.2		4538
	9:30	1784.2				1784.2		4475


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6048 FEET
PSIG
WELLHEAD PRESSURE
2300
2100
1900
1700
1500
1300
1100
900
700
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT WELL NO. 39
MARCH 5, 1992
W.O. NO. 92140268
4900
4700
4500
4300
4100
3900
3700
3500
PSIG
BOTTOM HOLE PRESSURE
B W P D
400
700
1000
1300
1600
1900
2200
2500

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: March 5, 1992

WELL NAME: Lovington Paddock Unit Well No. 99

Lea County, New Mexico

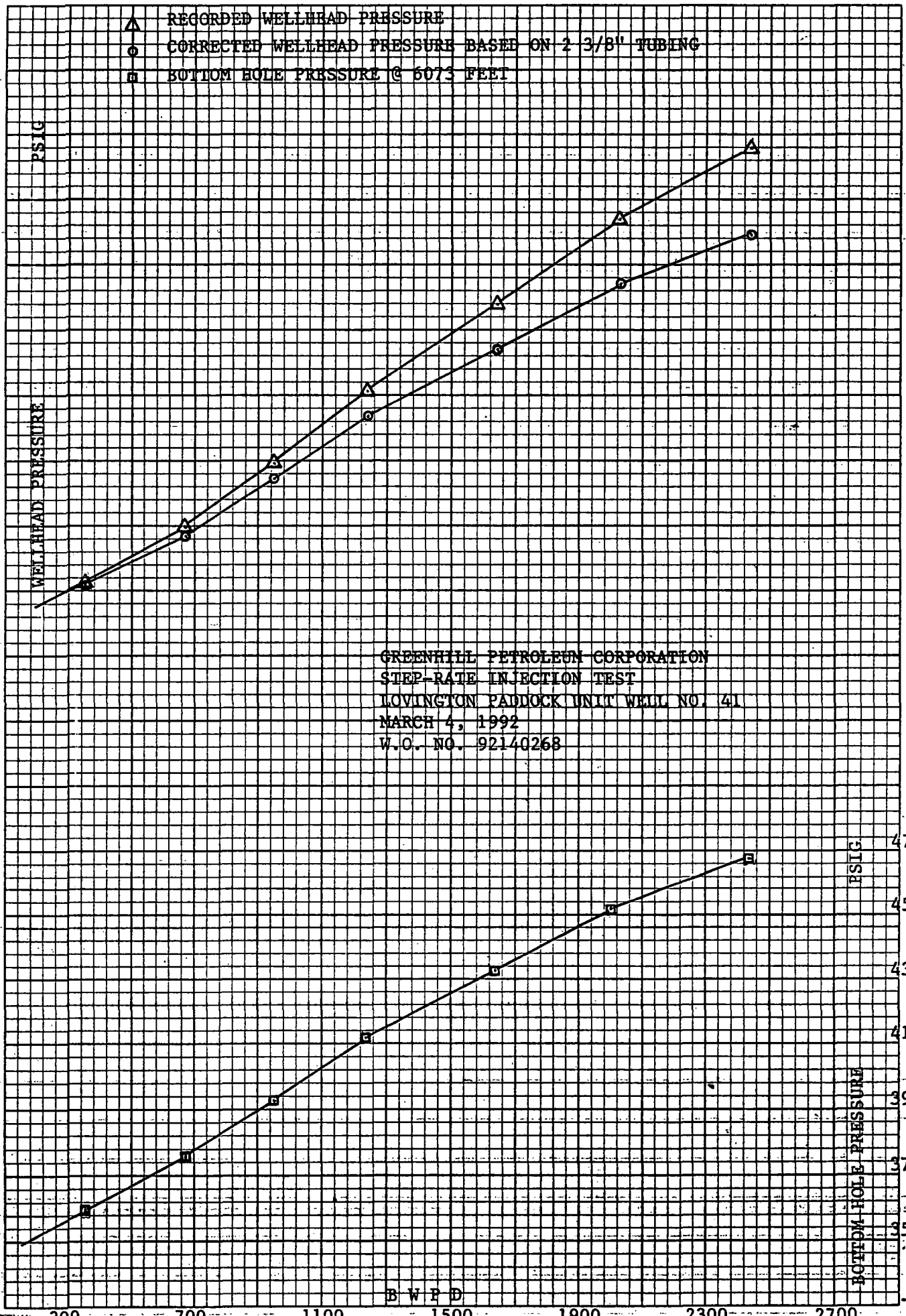
WO#: 92140268

MID-PERFS. =

PACKER DEPTH =5948

BHP GAUGE DEPTH = 6048

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)
	8:25	550.4				550.4		3285
	8:30	678.3	1.6	460.8	12.444	665.9	13.44	3408
	8:35	743.0	3.3	489.6	13.921	729.1	14.28	3462
1	8:40	771.0	4.8	432.0	11.043	760.0	12.60	3500
				460.8				
	8:45	954.4	8.2	979.2	50.184	904.2	28.56	3655
	8:50	1030.4	11.7	1008.0	52.949	977.5	29.40	3735
2	8:55	1085.0	15.1	979.2	50.184	1034.8	28.56	3799
				988.8				
	9:00	1300.3	20.1	1440.0	102.430	1197.9	42.00	3956
	9:05	1375.1	25.2	1468.8	106.252	1268.8	42.84	4048
3	9:10	1457.4	30.3	1468.8	106.252	1351.1	42.84	4125
				1459.2				
	9:15	1700.5	37.2	1987.2	185.868	1514.6	57.96	4282
	9:20	1794.2	44.0	1958.4	180.915	1613.3	57.12	4378
4	9:25	1860.0	50.7	1929.6	176.024	1684.0	56.28	4458
				1958.4				
	9:30	2083.0	59.0	2390.4	261.594	1821.4	69.72	4584
	9:35	2166.7	67.2	2361.6	255.793	1910.9	68.88	4667
5	9:40	2226.4	75.4	2361.6	255.793	1970.6	68.88	4734
				2371.2				
Fall-Off	9:41	1822.2				1822.2		4617
	9:42	1753.9				1753.9		4549
	9:43	1703.3				1703.3		4501
	9:44	1664.0				1664.0		4461
	9:45	1629.9				1629.9		4425
	9:50	1505.8				1505.8		4297
	9:55	1421.1				1421.1		4211


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6073 FEET
PSIG
WELLHEAD PRESSURE
2200
2000
1800
1600
1400
1200
1000
800
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT WELL NO. 41
MARCH 4, 1992
W.O. NO. 92140268
PSIG
BOTTOM HOLE PRESSURE
4700
4500
4300
4100
3900
3700
3500
B W P D
300
700
1100
1500
1900
2300
2700

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation **DATE:** March 4, 1992

WELL NAME: Lovington Paddock Unit Well No. 41 **WO#:** 92140268

Lea County, New Mexico

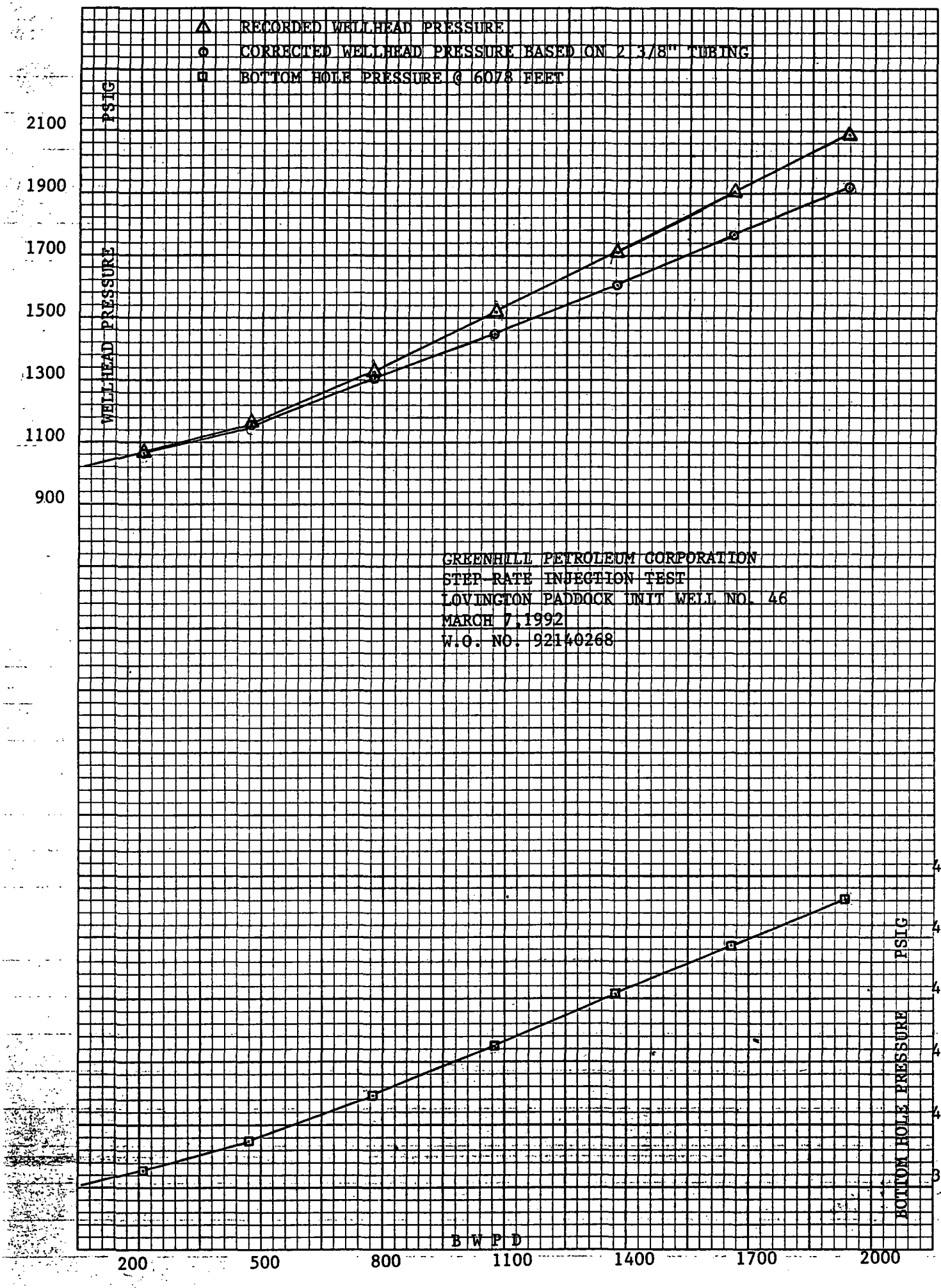
MID-PERFS. =

PACKER DEPTH = 5973

BHP GAUGE DEPTH =6073

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	688.4				688.4		3478
	12:50	768.0	1.2	345.6	7.339	760.7	10.08	3533
	12:55	781.9	2.5	374.4	8.510	773.4	10.92	3572
1	1:00	823.7	3.7	345.6	7.339	816.4	10.08	3595
				355.2				
	1:05	912.0	6.0	662.4	24.452	887.5	19.32	3656
	1:10	966.4	8.3	662.4	24.452	941.9	19.32	3708
2	1:15	997.8	10.7	691.2	26.455	971.3	20.16	3751
				672.0				
	1:20	1099.0	14.0	950.4	47.684	1051.3	27.72	3832
	1:25	1164.7	17.3	950.4	47.684	1117.0	27.72	3881
3	1:30	1194.0	20.6	950.4	47.684	1146.3	27.72	3933
				950.4				
	1:35	1311.8	24.9	1238.4	77.811	1234.0	36.12	4000
	1:40	1363.5	29.2	1238.4	77.811	1285.7	36.12	4068
4	1:45	1412.9	33.5	1238.4	77.811	1335.1	36.12	4120
				1238.4				
	1:50	1572.5	39.2	1641.6	131.067	1441.4	47.88	4216
	1:55	1625.6	44.9	1641.6	131.067	1494.5	47.88	4280
5	2:00	1678.8	50.6	1641.6	131.067	1547.7	47.88	4331
				1641.6				
	2:05	1835.8	57.6	2016.0	191.671	1644.1	58.80	4416
	2:10	1881.1	64.6	2016.0	191.671	1689.4	58.80	4472
6	2:15	1930.6	71.7	2044.0	196.625	1734.0	59.62	4517
				2025.6				
	2:20	2086.4	80.1	2419.2	268.560	1817.8	70.56	4587
	2:25	2133.4	88.7	2476.8	280.509	1852.9	72.24	4632
7	2:30	2158.7	97.1	2419.2	268.560	1890.1	70.56	4666
				2438.4				

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)
Fall−Off	2:31	1830.6				1830.6		4614
	2:32	1788.8				1788.8		4582
	2:33	1766.0				1766.0		4560
	2:34	1747.0				1747.0		4540
	2:35	1725.0				1725.0		4523
	2:40	1666.1				1666.1		4455


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6078 FEET
WELLHEAD PRESSURE PSIG
2100
1900
1700
1500
1300
1100
900
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT WELL NO. 46
MARCH 7,1992
W.O. NO. 92140268
BOTTOM HOLE PRESSURE PSIG
4800
4600
4400
4200
4000
3800
B W P D
200
500
800
1100
1400
1700
2000

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation, **DATE:** March 7, 1992

WELL NAME: Lovington Paddock Unit Well No. 46 **WO#:** 92140268
Lea County, New Mexico

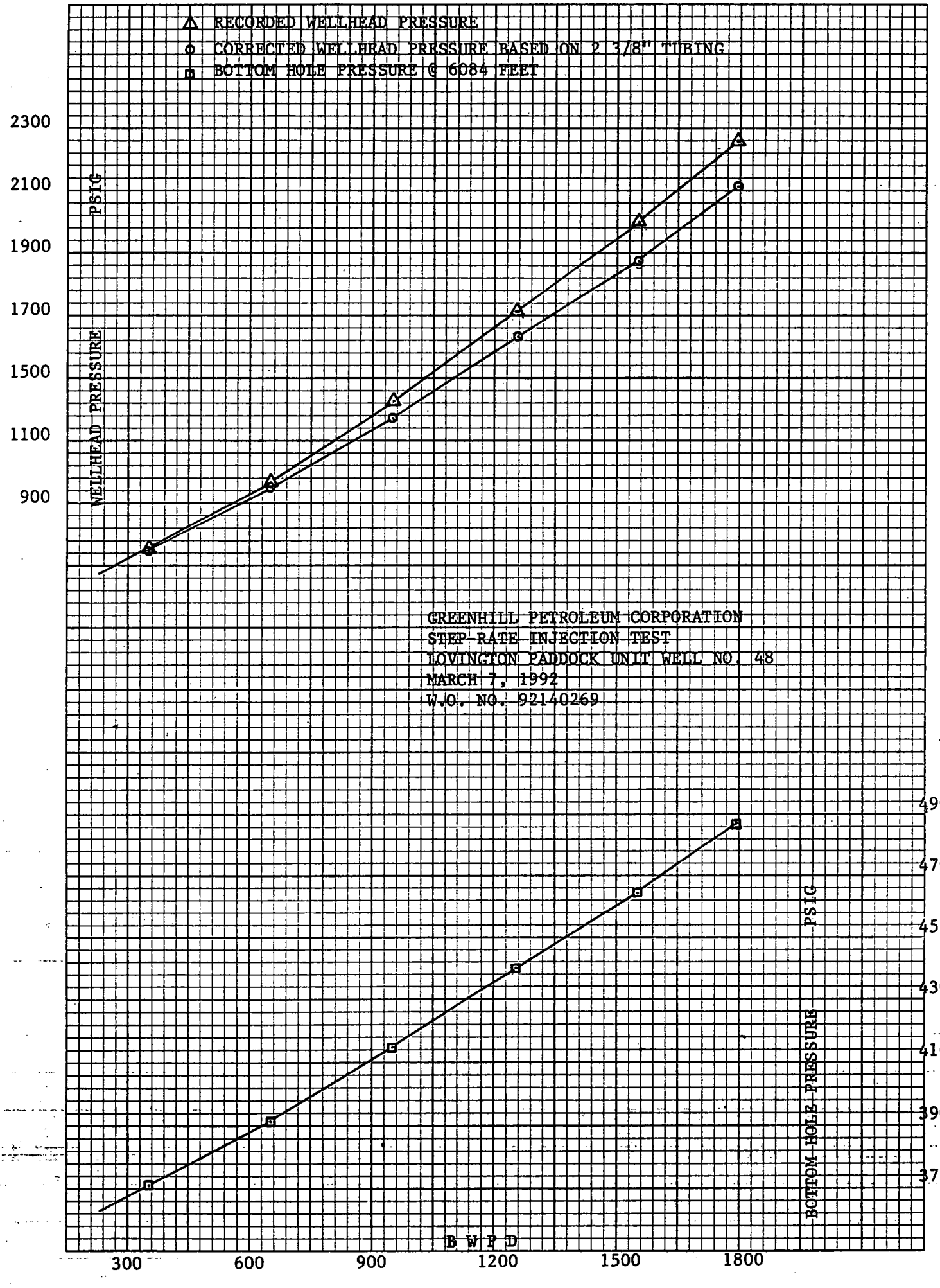
MID-PERFS. =

PACKER DEPTH = 5978

BHP GAUGE DEPTH = 6078

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)
	8:00	978.4				978.4		3769
	8:05	1029.1	0.9	259.2	4.314	1024.8	7.56	3811
	8:10	1053.2	1.7	230.4	3.469	1049.7	6.72	3835
1	8:15	1063.4	2.5	230.4	3.469	1059.9	6.72	3854
				240.0				
	8:20	1119.2	4.2	489.6	13.990	1105.2	14.28	3896
	8:25	1154.7	5.8	460.8	12.506	1142.2	13.44	3926
2	8:30	1162.3	7.4	460.8	12.506	1149.8	13.44	3950
				470.4				
	8:35	1251.0	10.1	777.6	32.923	1218.1	22.68	4012
	8:40	1304.2	12.8	777.6	32.923	1271.3	22.68	4052
3	8:45	1334.6	15.5	777.6	32.923	1301.7	22.68	4087
				777.6				
	8:50	1430.9	19.3	1094.4	61.956	1368.9	31.92	4154
	8:55	1479.1	23.0	1065.6	58.973	1420.1	31.08	4202
4	9:00	1512.1	26.7	1065.6	58.973	1453.1	31.08	4242
				1075.2				
	9:05	1608.4	31.5	1382.4	95.450	1512.9	40.32	4312
	9:10	1665.4	36.3	1382.4	95.450	1569.9	40.32	4362
5	9:15	1702.1	41.0	1353.6	91.804	1610.3	39.48	4405
				1372.8				
	9:20	1809.8	46.8	1670.4	135.464	1674.3	48.72	4474
	9:25	1860.5	52.6	1670.4	135.464	1725.0	48.72	4524
6	9:30	1901.1	58.3	1641.6	131.175	1769.9	47.88	4567
				1660.8				
	9:35	2013.8	65.1	1958.4	181.812	1832.0	57.12	4632
	9:40	2055.6	71.8	1929.6	176.897	1878.7	56.28	4681
7	9:45	2094.9	78.5	1929.6	176.897	1918.0	56.28	4720
				1939.2				

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)
Fall−Off	9:46	1846.7				1846.7		4681
	9:47	1841.7				1841.7		4651
	9:48	2816.4				2816.4		4628
	9:49	1796.1				1796.1		4605
	9:50	1778.4				1778.4		4587
	9:55	1707.4				1707.4		4513
	10:00	1654.2				1654.2		4459


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6084 FEET
WELLHEAD PRESSURE
PSIG
2300
2100
1900
1700
1500
1100
900
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT WELL NO. 48
MARCH 7, 1992
W.O. NO. 92140269
BOTTOM HOLE PRESSURE
PSIG
4900
4700
4500
4300
4100
3900
3700
B W P D
300
600
900
1200
1500
1800

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: March 7, 1992

WELL NAME: Lovington Paddock Unit No. 48
Lea County, New Mexico

WO#: 92130269

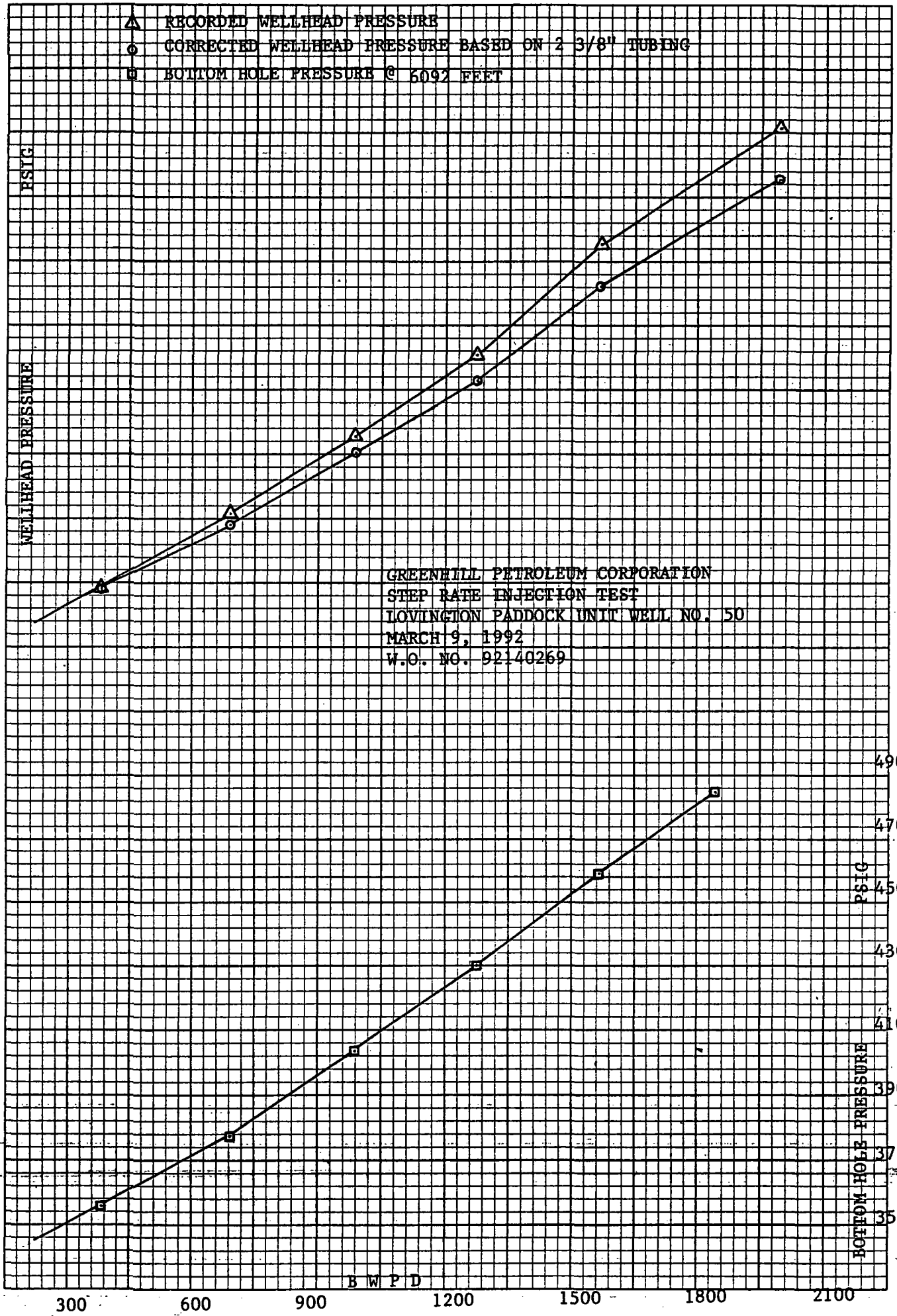
MID-PERFS. =

PACKER DEPTH = 5984

BHP GAUGE DEPTH = 6084

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)
	11:20	767.1				767.1		3516
	11:25	868.2	1.2	345.6	7.352	860.8	10.08	3616
	11:30	921.1	2.5	374.4	8.525	912.6	10.92	3668
1	11:35	950.5	3.7	345.6	7.352	943.1	10.08	3706
				355.2				
	11:40	1066.7	6.0	662.4	24.497	1042.2	19.32	3803
	11:45	1127.4	8.2	633.6	22.563	1104.8	18.48	3861
2	11:50	1171.7	10.5	662.4	24.497	1147.2	19.32	3909
				652.8				
	11:55	1298.3	13.8	950.4	47.771	1250.5	27.72	4017
	12:00	1379.1	17.1	950.4	47.771	1331.3	27.72	4088
3	12:05	1423.8	20.4	950.4	47.771	1376.0	27.72	4145
				950.4				
	12:10	1580.9	24.8	1267.2	81.339	1499.6	36.96	4261
	12:15	1644.3	29.2	1267.2	81.339	1563.0	36.96	4336
4	12:20	1712.6	33.5	1238.4	77.952	1634.6	36.12	4400
				1257.6				
	12:25	1859.5	39.0	1584.0	122.908	1736.6	46.20	4508
	12:30	1930.5	44.3	1526.4	114.768	1815.7	44.52	4584
5	12:35	1995.2	49.7	1555.2	118.806	1876.4	45.36	4645
				1555.2				
	12:40	2133.3	56.0	1814.4	158.012	1975.3	52.92	4740
	12:45	2190.3	62.3	1814.4	158.012	2032.3	52.92	4807
6	12:50	2258.8	68.4	1756.8	148.857	2109.9	51.24	4866
				1795.2				

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)
Fall−Off	12:51	2006.7				2006.7		4801
	12:52	1982.7				1982.7		4754
	12:53	1940.9				1940.9		4713
	12:54	1908.0				1908.0		4679
	12:55	1866.3				1866.3		4636
	1:00	1762.5				1762.5		4529
	1:05	1678.9				1678.9		4444


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6092 FEET
WELLHEAD PRESSURE PSIG
2300
2100
1900
1700
1500
1300
1100
900
700
GREENHILL PETROLEUM CORPORATION
STEP RATE INJECTION TEST
LOVINGTON PADDOCK UNIT WELL NO. 50
MARCH 9, 1992
W.O. NO. 92140269
4900
4700
4500
4300
4100
3900
3700
3500
BOTTOM HOLE PRESSURE PSIG
B W P D
300
600
900
1200
1500
1800
2100

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation **DATE:** March 9, 1992

WELL NAME: Lovington Paddock Unit Well No. 50 **WO#:** 92140269

Lea County, New Mexico

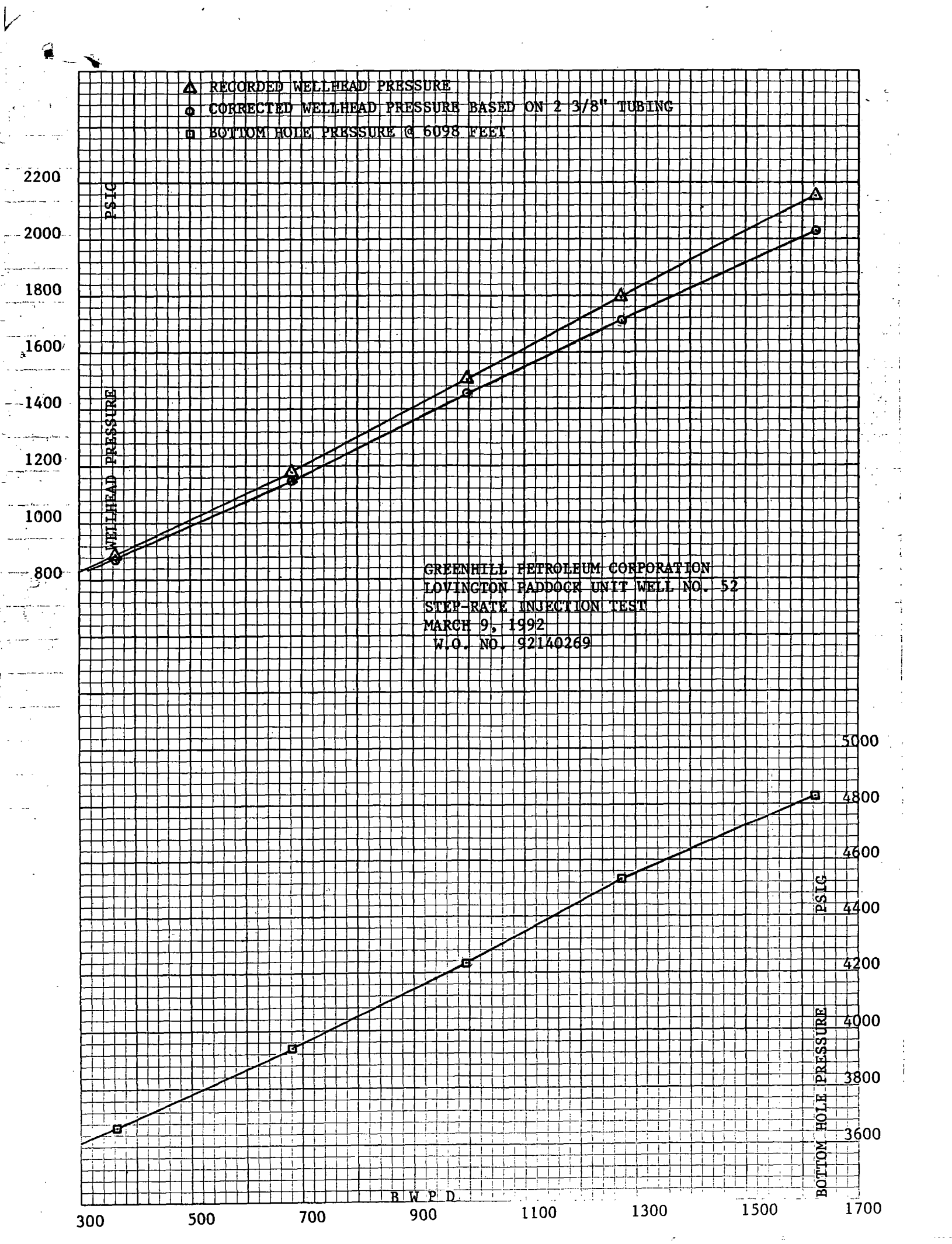
MID-PERFS. =

PACKER DEPTH = 5992

BHP GAUGE DEPTH = 6092

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	701.1				701.1		3364
	8:20	807.4	1.3	374.4	8.536	798.9	10.92	3468
	8:25	850.4	2.7	403.2	9.791	840.6	11.76	3518
1	8:30	888.4	4.0	374.4	8.536	879.9	10.92	3558
				384.0				
	8:35	997.2	6.5	720.0	28.620	968.6	21.00	3660
	8:40	1049.1	8.8	662.4	24.529	1024.6	19.32	3725
2	8:45	1108.7	11.2	691.2	26.538	1082.2	20.16	3778
				691.2				
	8:50	1236.6	14.6	979.2	50.549	1186.1	28.56	3892
	8:55	1297.4	18.1	1008.0	53.334	1244.1	29.40	3968
3	9:00	1350.6	21.5	979.2	50.549	1300.1	28.56	4032
				988.8				
	9:05	1486.0	25.9	1267.2	81.446	1404.6	36.96	4149
	9:10	1553.2	30.4	1296.0	84.903	1468.3	37.80	4231
4	9:15	1610.2	34.8	1267.2	81.446	1528.8	36.96	4300
				1276.8				
	9:20	1768.5	40.2	1555.2	118.962	1649.5	45.36	4421
	9:25	1860.9	45.6	1555.2	118.962	1741.9	45.36	4507
5	9:30	1943.2	51.1	1584.0	123.070	1820.1	46.20	4584
				1564.8				
	9:35	2123.2	57.5	1843.2	162.897	1960.3	53.76	4696
	9:40	2226.0	63.9	1843.2	162.897	2063.1	53.76	4780
6	9:45	2312.3	70.3	1843.2	162.897	2149.4	53.76	4854
				1843.2				

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)
Fall−Off	9:46	2032.0				2032.0		4762
	9:47	1966.1				1966.1		4708
	9:48	1928.1				1928.1		4666
	9:49	1895.2				1895.2		4632
	9:50	1866.1				1866.1		4604
	9:55	1761.1				1761.1		4495
	10:00	1686.4				1686.4		4419


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6098 FEET
PSIG
WELLHEAD PRESSURE
2200
2000
1800
1600
1400
1200
1000
800
GREENHILL PETROLEUM CORPORATION
LOVINGTON PADDOCK UNIT WELL NO. 52
STEP-RATE INJECTION TEST
MARCH 9, 1992
W.O. NO. 92140269
5000
4800
4600
4400
4200
4000
3800
3600
PSIG
BOTTOM HOLE PRESSURE
B W P D
300
500
700
900
1100
1300
1500
1700

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: March 9, 1992

WELL NAME: Lovington Paddock Unit Well No. 52
Lea County, New Mexico

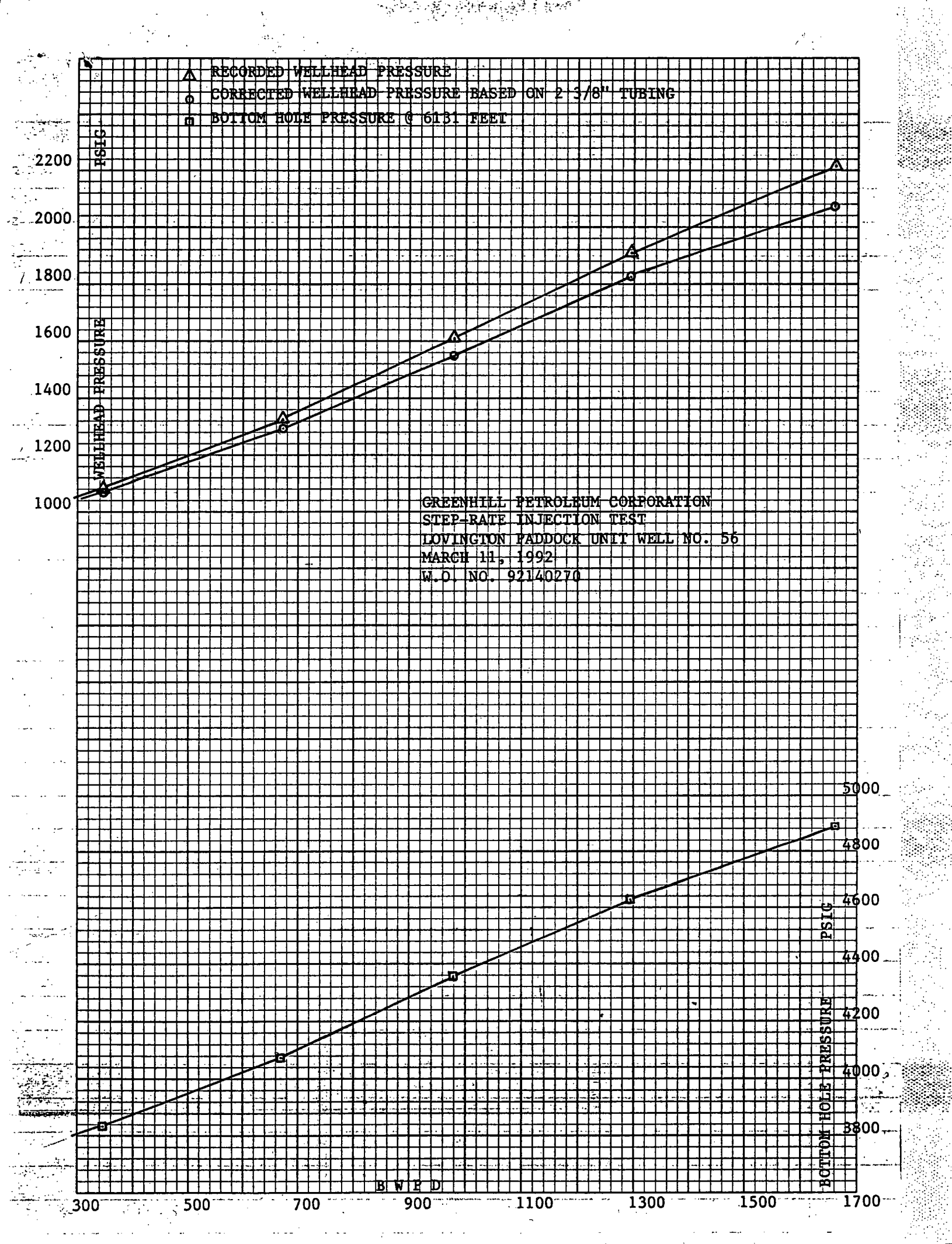
WO#: 92140269

MID-PERFS. =

PACKER DEPTH = 5998

BHP GAUGE DEPTH = 6098

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	639.1				639.1		3432
	11:55	781.8	1.3	374.4	8.545	773.3	10.92	3567
	12:00	838.9	2.6	374.4	8.545	830.4	10.92	3630
1	12:05	880.9	3.8	345.6	7.369	873.5	10.08	3671
				364.8				
	12:10	1040.1	6.2	691.2	26.564	1013.5	20.16	3804
	12:15	1111.0	8.6	691.2	26.564	1084.4	20.16	3881
2	12:20	1171.7	10.9	662.4	24.553	1147.1	19.32	3943
				681.6				
	12:25	1343.8	14.4	1008.0	53.387	1290.4	29.40	4082
	12:30	1418.3	17.8	979.2	50.599	1367.7	28.56	4165
3	12:35	1503.1	21.3	1008.0	53.387	1449.7	29.40	4238
				998.4				
	12:40	1648.6	25.7	1267.2	81.526	1567.1	36.96	4365
	12:45	1733.3	30.2	1296.0	84.987	1648.3	37.80	4455
4	12:50	1797.9	34.6	1267.2	81.526	1716.4	36.96	4526
				1276.8				
	12:55	1981.5	40.2	1612.8	127.367	1854.1	47.04	4663
	1:00	2076.5	45.9	1641.6	131.606	1944.9	47.88	4753
5	1:05	2156.5	51.5	1612.8	127.367	2029.1	47.04	4831
				1622.4				
Fall-Off	1:06	1924.6				1924.6		4731
	1:07	1853.7				1853.7		4669
	1:08	1803.1				1803.1		4619
	1:09	1763.9				1763.9		4580
	1:10	1731.0				1731.0		4546
	1:15	1608.3				1608.3		4420
	1:20	1524.7				1524.7		4335


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6131 FEET
PSIG
WELLHEAD PRESSURE
2200
2000
1800
1600
1400
1200
1000
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT WELL NO. 56
MARCH 11, 1992
W.O. NO. 92140270
5000
4800
4600
4400
4200
4000
3800
PSIG
BOTTOM HOLE PRESSURE
B W P D
300
500
700
900
1100
1300
1500
1700

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: March 11, 1992

WELL NAME: Lovington Paddock Unit Well No. 56
Lea County, New Mexico

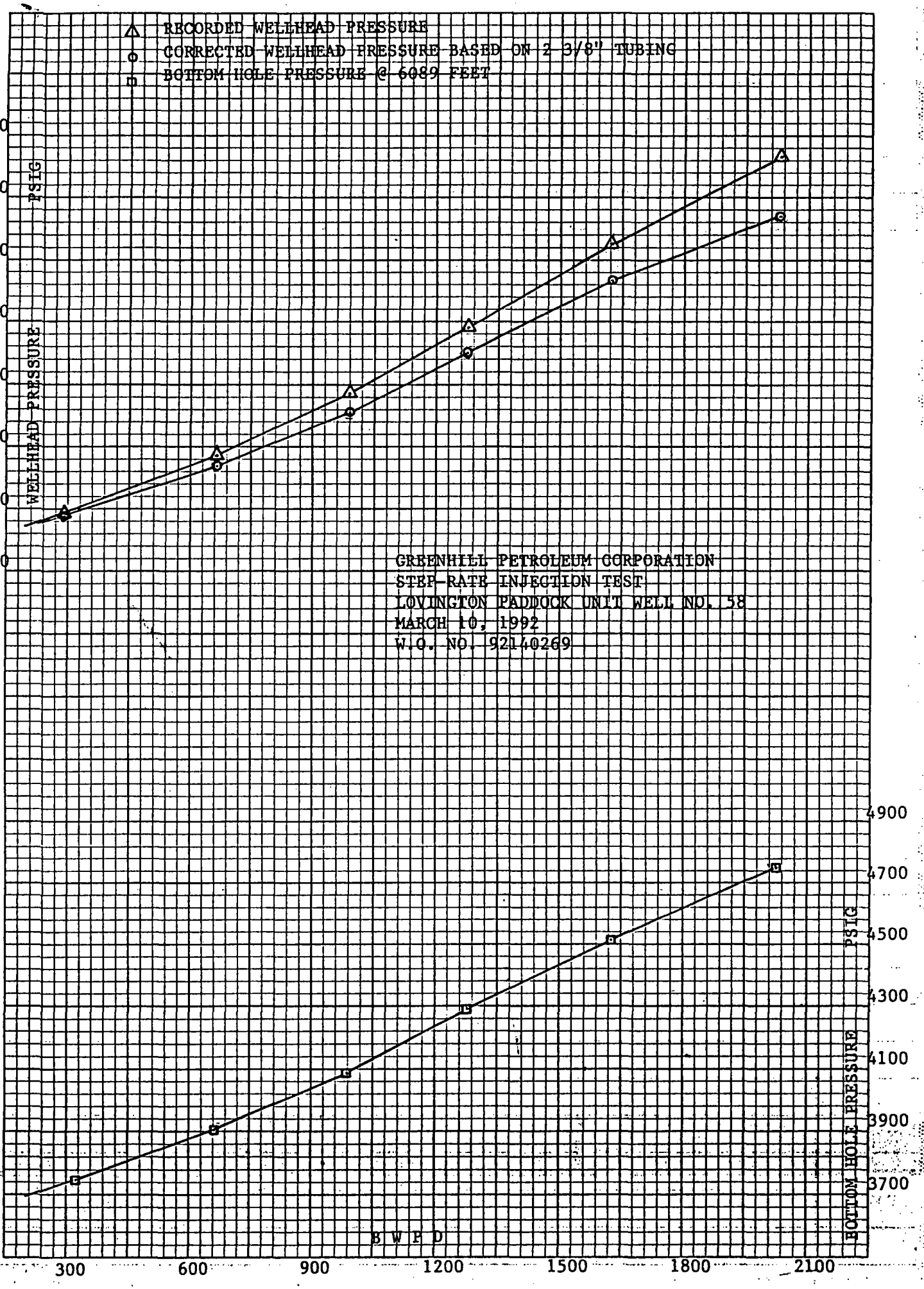
W.O. No. 92140270

MID-PERFS. =

PACKER DEPTH = 6091

BHP GAUGE DEPTH = 6131

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)
	8:30	888.3				888.3		3665
	8:35	990.7	1.2	345.6	7.409	983.3	10.08	3757
	8:40	1036.3	2.4	345.6	7.409	1028.9	10.08	3802
1	8:45	1079.4	3.6	345.6	7.409	1072.0	10.08	3835
				345.6				
	8:50	1194.7	6.0	691.2	26.708	1168.0	20.16	3949
	8:55	1274.5	8.2	633.6	22.737	1251.8	18.48	4018
2	9:00	1320.1	10.6	697.2	27.139	1293.0	20.34	4077
				672.0				
	9:05	1479.6	14.0	979.2	50.873	1428.7	28.56	4203
	9:10	1550.6	17.4	979.2	50.873	1499.7	28.56	4286
3	9:15	1603.8	20.8	979.2	50.873	1552.9	28.56	4354
				979.2				
	9:20	1768.4	25.3	1296.0	85.447	1683.0	37.80	4477
	9:25	1844.4	29.9	1324.8	88.993	1755.4	38.64	4561
4	9:30	1910.3	34.3	1267.2	81.967	1828.3	36.96	4627
				1296.0				
	9:35	2075.0	40.1	1670.4	136.645	1938.4	48.72	4744
	9:40	2156.3	45.8	1641.6	132.319	2024.0	47.88	4821
5	9:45	2215.9	51.6	1670.4	136.645	2079.3	48.72	4882
				1660.8				
Fall-Off	9:46	2011.7				2011.7		4822
	9:47	1952.2				1952.2		4779
	9:48	1918.1				1918.1		4742
	9:49	1886.4				1886.4		4709
	9:50	1857.3				1857.3		4679
	9:55	1743.5				1743.5		4561
	10:00	1657.4				1657.4		4474


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6089 FEET
WELLHEAD PRESSURE PSIG
2200
2000
1800
1600
1400
1200
1000
800
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT WELL NO. 58
MARCH 10, 1992
W.O. NO. 92140269
4900
4700
4500
4300
4100
3900
3700
BOTTOM HOLE PRESSURE PSIG
B W P D
300
600
900
1200
1500
1800
2100

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: March 10,1992

WELL NAME: Lovington Paddock Unit Well No. 58

Lea County, New Mexico

WO#: 92140269

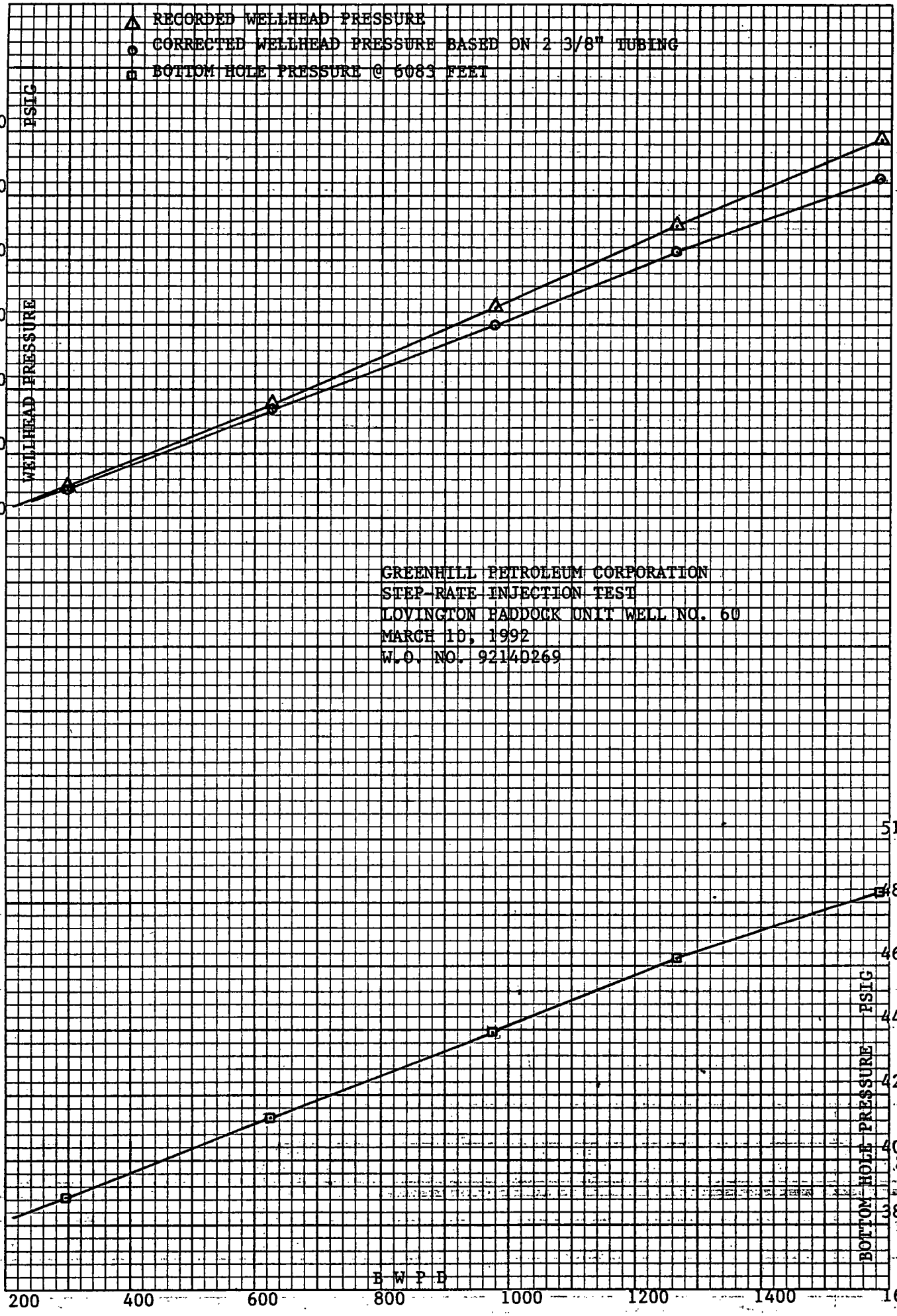
MID-PERFS. =

PACKER DEPTH = 5989

BHP GAUGE DEPTH = 6089

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)
	12:10	858.0				858.0		3623
	12:15	931.3	1.1	316.8	6.264	925.0	9.24	3686
	12:20	965.4	2.3	345.6	7.358	958.0	10.08	3718
1	12:25	988.2	3.4	316.8	6.264	981.9	9.24	3744
				326.4				
	12:30	1069.2	5.7	662.4	24.517	1044.7	19.32	3815
	12:35	1114.7	8.0	662.4	24.517	1090.2	19.32	3862
2	12:40	1165.3	10.3	662.4	24.517	1140.8	19.32	3903
				662.4				
	12:45	1265.3	13.8	1008.0	53.308	1212.0	29.40	3985
	12:50	1131.1	17.2	979.2	50.525	1080.6	28.56	4041
3	12:55	1365.4	20.6	979.2	50.525	1314.9	28.56	4089
				988.8				
	1:00	1471.8	25.0	1267.2	81.406	1390.4	36.96	4178
	1:05	1530.0	29.5	1296.0	84.861	1445.1	37.80	4242
4	1:10	1579.4	33.9	1267.2	81.406	1498.0	36.96	4296
				1276.8				
	1:15	1726.3	39.5	1612.8	127.179	1599.1	47.04	4394
	1:20	1784.5	45.2	1641.6	131.412	1653.1	47.88	4460
5	1:25	1848.9	50.8	1612.8	127.179	1721.7	47.04	4519
				1622.4				
	1:30	2009.7	57.9	2044.8	197.285	1812.4	59.64	4621
	1:35	2061.7	65.0	2044.8	197.285	1864.4	59.64	4688
6	1:40	2132.6	72.0	2016.0	192.176	1940.4	58.80	4747
				2035.2				

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)
Fall-Off	1:41	1872.9				1872.9		4676
	1:42	1836.2				1836.2		4638
	1:43	1805.8				1805.8		4608
	1:44	1781.8				1781.8		4583
	1:45	1760.3				1760.3		4560
	1:50	1679.3				1679.3		4476
	1:55	1622.4				1622.4		4415


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6083 FEET
PSIG
WELLHEAD PRESSURE
2200
2000
1800
1600
1400
1200
1000
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT WELL NO. 60
MARCH 10, 1992
W.O. NO. 92140269
5100
4800
4600
4400
4200
4000
3800
1600
BOTTOM HOLE PRESSURE PSIG
E W P D
200
400
600
800
1000
1200
1400
1600

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation **DATE:** March 10, 1992

WELL NAME: Lovington Paddock Unit No. 60 **W.O. No.** 92140269

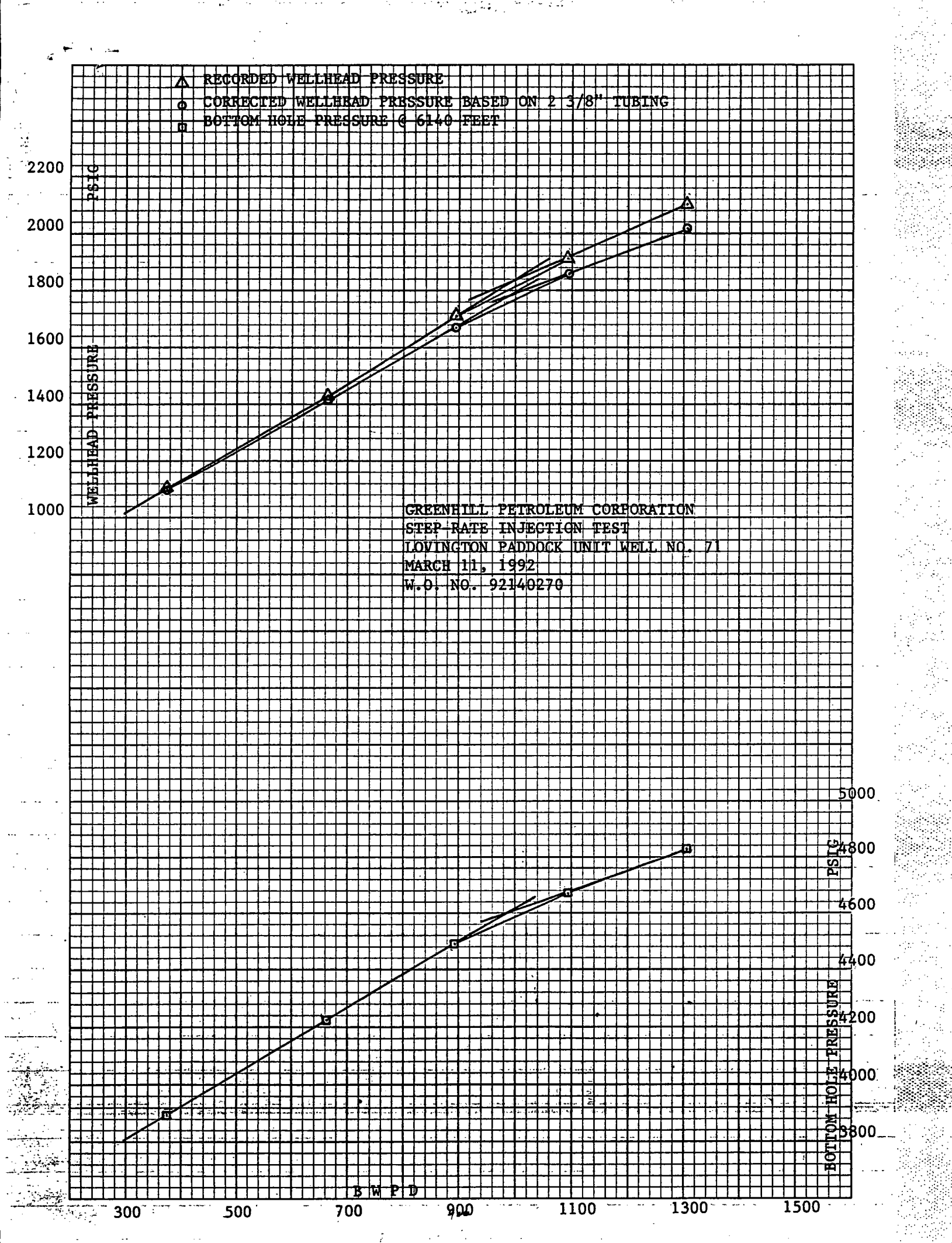
Lea County, New Mexico

MID-PERFS. =

PACKER DEPTH = 5983

BHP GAUGE DEPTH = 6083

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)
	9:05	812.7				812.7		3607
	9:10	996.0	1.0	288.0	5.246	990.8	8.40	3763
	9:15	1023.9	2.0	288.0	5.246	1018.7	8.40	3815
1	9:20	1096.2	3.1	316.8	6.258	1089.9	9.24	3885
				297.6				
	9:25	1240.6	5.3	633.6	22.559	1218.0	18.48	4014
	9:30	1320.4	7.4	604.8	20.699	1299.7	17.64	4078
2	9:35	1355.9	9.6	633.6	22.559	1333.3	18.48	4128
				624.0				
	9:40	1538.3	13.0	979.2	50.475	1487.8	28.56	4275
	9:45	1606.7	16.4	979.2	50.475	1556.2	28.56	4343
3	9:50	1649.8	19.8	979.2	50.475	1599.3	28.56	4396
				979.2				
	9:55	1809.4	24.2	1267.2	81.325	1728.1	36.96	4508
	10:00	1870.2	28.7	1296.0	84.778	1785.4	37.80	4572
4	10:05	1910.7	33.0	1238.4	77.939	1832.8	36.12	4626
				1267.2				
	10:10	2062.7	38.5	1584.0	122.888	1939.8	46.20	4724
	10:15	2118.6	44.0	1584.0	122.888	1995.7	46.20	4786
5	10:20	2171.9	49.5	1584.0	122.888	2049.0	46.20	4835
				1584.0				
Fall-Off	10:21	1972.9				1972.9		4755
	10:22	1904.5				1904.5		4704
	10:23	1862.7				1862.7		4660
	10:24	1827.3				1827.3		4623
	10:25	1795.7				1795.7		4592
	10:30	1683.1				1683.1		4475
	10:35	1608.5				1608.5		4399


RECORDED WELLHEAD PRESSURE
CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
BOTTOM HOLE PRESSURE @ 6140 FEET
WELLHEAD PRESSURE PSIG
2200
2000
1800
1600
1400
1200
1000
GREENHILL PETROLEUM CORPORATION
STEP-RATE INJECTION TEST
LOVINGTON PADDOCK UNIT WELL NO. 71
MARCH 11, 1992
W.O. NO. 92140270
BOTTOM HOLE PRESSURE PSIG
5000
4800
4600
4400
4200
4000
3800
BWPD
300
500
700
900
1100
1300
1500

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation **DATE:** March 11, 1992

WELL NAME: Lovington Paddock Unit Well No. 71 **WO#:** 92140270
Lea County, New Mexico

MID-PERFS. =

PACKER DEPTH = 6040

BHP GAUGE DEPTH = 6140

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)
	11:40	715.3				715.3		3515
	11:45	952.7		403.2	9.868	942.8	11.76	3746
	11:50	1032.4		345.6	7.420	1025.0	10.08	3831
1	11:55	1102.1		374.4	8.604	1093.5	10.92	3896
				374.4				
	12:00	1285.7		662.4	24.722	1261.0	19.32	4071
	12:05	1394.6		662.4	24.722	1369.9	19.32	4163
2	12:10	1437.6		662.4	24.722	1412.9	19.32	4227
				662.4				
	12:15	1606.0		892.8	42.945	1563.1	26.04	4359
	12:20	1664.2		892.8	42.945	1621.3	26.04	4431
3	12:25	1717.4		892.8	42.945	1674.5	26.04	4485
				892.8				
	12:30	1839.0		1094.4	62.588	1776.4	31.92	4580
	12:35	1882.1		1094.4	62.588	1819.5	31.92	4637
4	12:40	1916.2		1094.4	62.588	1853.6	31.92	4675
				1094.4				
	12:45	2023.8		1296.0	85.572	1938.2	37.80	4750
	12:50	2073.2		1296.0	85.572	1987.6	37.80	4799
5	12:55	2104.9		1324.8	89.123	2015.8	38.64	4833
				1305.6				
Fall-Off	12:56	1950.4				1950.4		4759
	12:57	1882.0				1882.0		4709
	12:58	1841.5				1841.5		4666
	12:59	1806.1				1806.1		4629
	1:00	1774.4				1774.4		4597
	1:05	1645.3				1645.3		4466
	1:10	1550.4				1550.4		4370