



NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

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

March 27, 1996

CF 10686

R-9895

EUR-7

PEOR0000072002

Hanson Operating Company, Inc.
P.O. Box 1515
Roswell, New Mexico 88202-1515

Attn: Mr. David Sweeney

**RE: Injection Pressure Increase Benson Shugart Unit
Waterflood Project, Eddy County, New Mexico**

Dear Mr. Sweeney:

Reference is made to your request from a telephone call on March 25, 1996 to reconsider data previously submitted. The original data and request was submitted December 7, 1995 to increase the surface injection pressure on 4 wells in the above referenced waterflood project. This request is based on step rate tests conducted between November 7 and December 5, 1995. After further review by my staff, we feel an increase in injection pressure two of the wells is justified at this time.

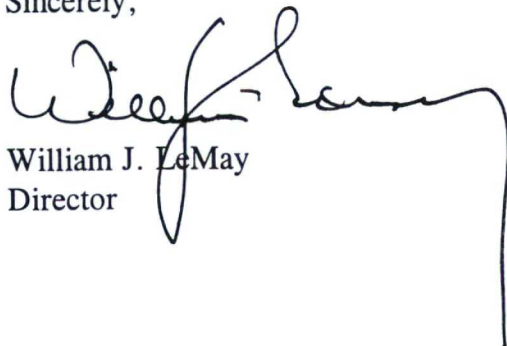
You are therefore authorized to increase the surface injection pressure on the following wells:

Well and Location	Maximum Surface Injection Pressure
Benson Shugart Unit Well No.5, Unit Letter A, Section 26	1090 PSIG
Benson Shugart Unit Well No.15, Unit Letter L, Section 25	1170 PSIG
Located Township 18 South, Range 31 East, Eddy County, New Mexico.	

Benson Shugart Well Nos.6 and 7 shall remain at the injection pressures originally authorized by Division Order No.R-9895.

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

Injection Pressure Increase
Hanson Operating Company, Inc.
March 27, 1996
Page 2

WJL/BES

cc: Oil Conservation Division - Artesia
Files: Case No.10686; EOR-7; PSI-X 3rd QTR 96

OIL CONSERVATION DIVISION

January 17, 1996

Hanson Operating Company, Inc.
P.O. Box 1515
Roswell, New Mexico 88202-1515

Attn: Mr. David Sweeney

**RE: *Injection Pressure Increase Benson Shugart Unit
Waterflood Project, Eddy County, New Mexico***

Dear Mr. Sweeney:

Reference is made to your request dated December 7, 1995 to increase the surface injection pressure on 4 wells in the above referenced waterflood project. This request is based on step rate tests conducted between November 7 and December 5, 1995. The results of the tests have been reviewed by my staff and we feel an increase in injection pressure on one of the wells is justified at this time.

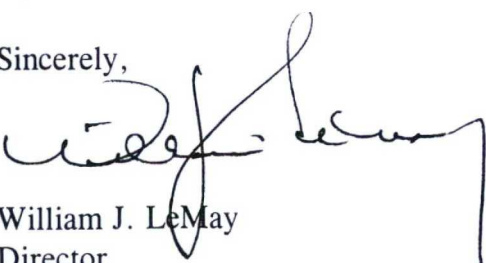
You are therefore authorized to increase the surface injection pressure on the following well:

Well and Location	Maximum Surface Injection Pressure
Benson Shugart Unit Well No.5, Unit Letter A	1090 PSIG
Located Section 26, Township 18 South, Range 31 East, Eddy County, New Mexico.	

Benson Shugart Well Nos.6,7, and 15 shall remain at the injection pressures originally authorized by Division Order No.R-9895.

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

Injection Pressure Increase
Hanson Operating Company, Inc.
January 17, 1996
Page 2

WJL/BES

cc: Oil Conservation Division - Artesia
Files: Case No.10686; PSI-X 3rd QTR 96



HANSON OPERATING COMPANY, INC.

P.O. BOX 1515

ROSWELL, NEW MEXICO 88202-1515

PHONE AC 505-622-7330

December 7, 1995

David Catanach
New Mexico Oil
Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87503

Re: Benson Shugart Waterflood
Case # 10686
Order # R-9895

Dear Mr. Catanach

Enclosed please find step rate test for the Benson Shugart Waterflood Wells #5, 7 & 15. There are two test for each well, one test represents the perforated interval in the 3rd Penrose sand, the other test represents the perforated interval in the 3rd Grayburg sand. Hanson Operating Company Inc. is requesting an increase in pressure for these wells based upon your analysis of these test. Hanson Operating Company is also requesting a pressure increase on the Benson Shugart Waterflood Unit Well #6 (a step rate test was not ran on this well) comparable to the pressure on the BSWU #7 well.

As evidence for this request, an evaluation was ran on the Benson Shugart Waterflood Unit #6 & 7 well logs. This indicates a comparable net pay and porosity for each zone. Also enclosed is a set of maps showing structures, permeability limits and production. As shown by these maps the BSWU #6 & 7 wells are in the most prolific part of the unit.

If you need any further information or any questions regarding this matter, please feel free to call.

Thank You,

David Sweeney
Drilling & Production Superintendent

DS/bs

Brian
466-8120

RECEIVED
CONSERVATION DIVISION
DEC 8 1995

Psixy N/R

X-REF
5 - GIN 17 - 1090
6 - GIN 18 - 615
7 - GIN 19 - 615
15 - Known Fed #6 - 1170
Betsy
CALLED
12-23-95
1-17-96



PROPOSED WATERFLOOD UNIT BOUNDARY

BEFORE EXAMINER STOOGER
OIL CONSERVATION DIVISION
Hanson
CASE NO. 10685 + 10686
12

Ull, M Bbls
Prod. Zones
Y - YATES
7 - 7 RIVERS
Q - QUEEN
P - PENROSE
G - GRAYBURG
M - MID-GRAYBURG



HANSON OPERATING COMPANY, INC.
P. O. BOX 1515 ROSWELL, NEW MEXICO 88203-1515

PRODUCTION
Seven Rivers - Queen - Grayburg
BENSON SHUGART
PROPOSED WATERFLOOD UNIT
SHUGART FIELD
EDDY COUNTY, NEW MEXICO

Arrowhead Oil

Kersey & Co.

J. A. Yates

Chevron

23 - Creek

Yates

24

Hanson

Shugart E

19

Len Major

T
18
S

Green-Grayburg Permian

Ginsberg Fm
Yates

4,575.5⁷ Limit

62 P 5 4,767 4

63,846

64 P 2

54,733 Creek AI 69

33 33

33,075

Creek AL

28.932

Gulf

Gates

Ray Westall

3
8893

1

075

Featherstone

La Rue Hanson
Gates Jones

5

Fed.

Fed. - N

not prod.

156

Hanson
Seven Rivers
Permeability
Ray W
12,980

8,286 State
Arco RD Arco Hon
Queen Permeability

In Flood

In Flood

Ult, M Bbls
Prod. Zones

~~PROPOSED WATERFLOOD UNIT BOUNDARY~~

BEFORE EXAMINER STOGNER

BEFORE EXAMINEE

OIL CONSERVATION

Hanson EXHIBIT NO. 13

CASE NO. 10685 + 10686

- YATES
- 7 RIVERS
- QUEEN
- PENROSE
- GRAYBURG
- MID-GRAYBURG

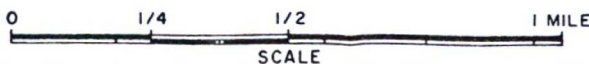


HANSON OPERATING COMPANY, INC.

P. O. BOX 1816 ROSWELL, NEW MEXICO 80202-1816

BENSON SHUGART
SR-QN-GRYB PRODUCTION
WITH PERMEABILITY LIMITS

HANSON
PROPOSED WATERFLOOD UNIT
SHUGART FIELD
EDDY COUNTY, NEW MEXICO



WEST - TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: HANSON OPERATING COMPANY, INC.

DATE: NOVEMBER 7, 1995

WELL NAME: B.S.W.U. NO.5 (PENROSE - UPPER ZONE)
EDDY COUNTY, NEW MEXICO

WO#: 95-14-1730

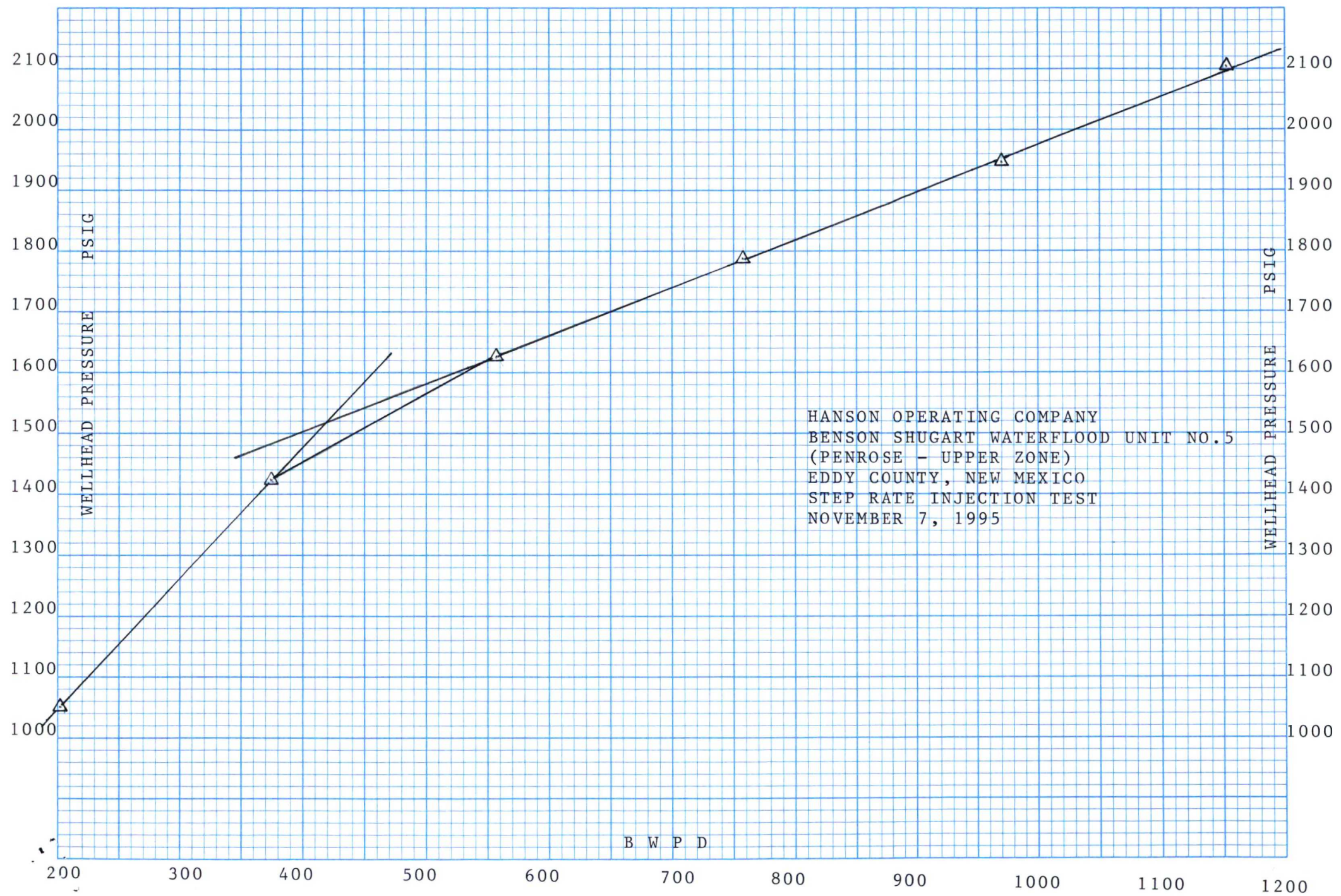
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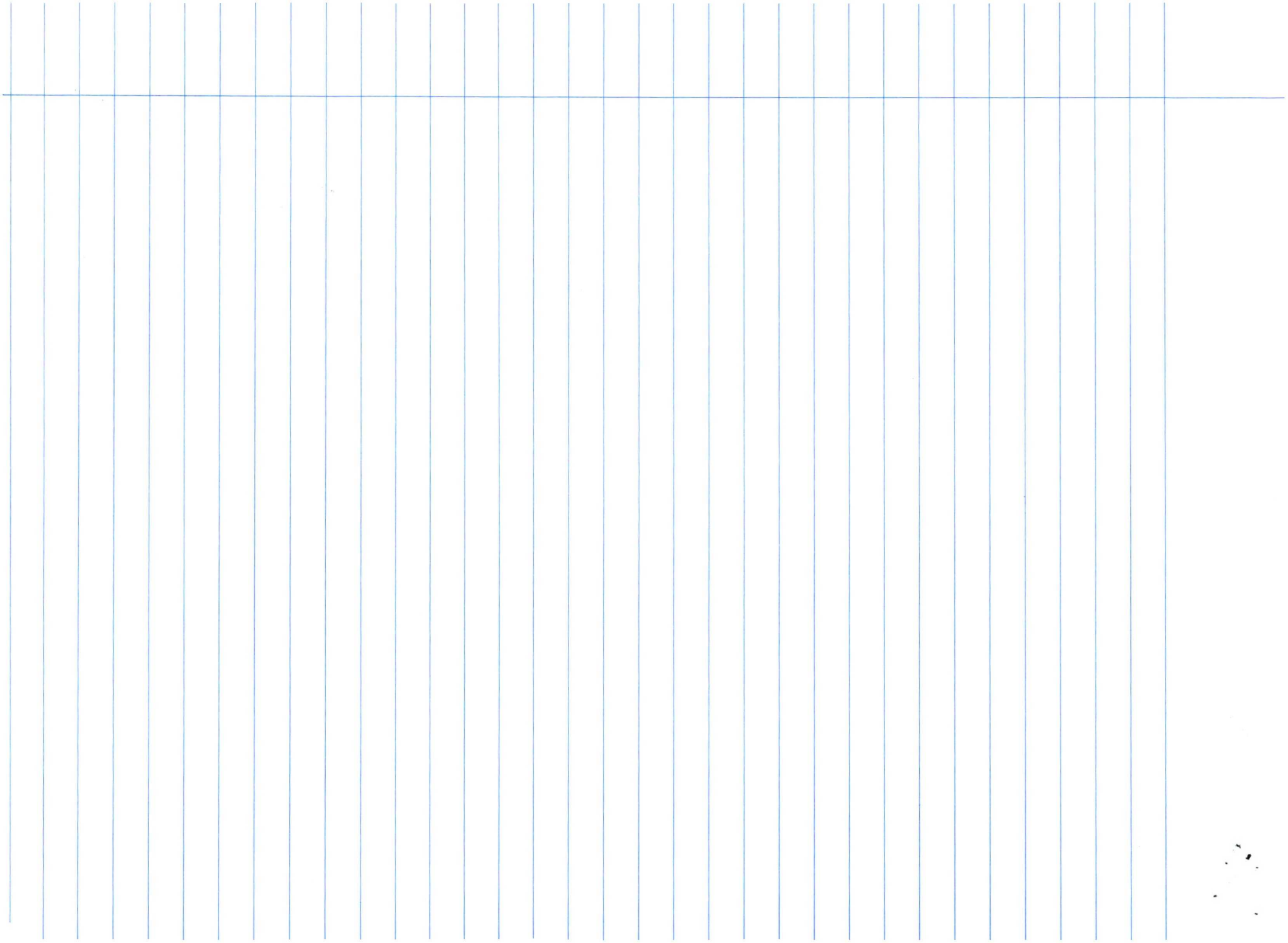
PACKER DEPTH = 3064

BHP GAUGE DEPTH = SURFACE ONLY

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1) - (4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
1	2:25	49.4				49.4		
	2:30	775.3	0.7	201.6	1.393	773.9	5.88	
	2:35	1069.5	1.4	201.6	1.393	1068.1	5.88	
	2:40	1049.5	2.1	201.6	1.393	1048.1	5.88	
2				201.6				
	2:45	1478.1	3.4	374.4	4.378	1473.7	10.92	
	2:50	1441.8	4.7	374.4	4.378	1437.4	10.92	
	2:55	1420.5	6.0	374.4	4.378	1416.1	10.92	
3				374.4				
	3:00	1597.9	7.9	547.2	8.833	1589.1	15.96	
	3:05	1611.6	9.8	547.2	8.833	1602.8	15.96	
	3:10	1621.5	11.8	576.0	9.713	1611.8	16.80	
4				556.8				
	3:15	1790.1	14.4	748.8	15.781	1774.3	21.84	
	3:20	1788.7	17.1	777.6	16.922	1771.8	22.68	
	3:25	1783.7	19.7	748.8	15.781	1767.9	21.84	
5				758.4				
	3:30	1958.5	23.0	950.4	24.529	1934.0	27.72	
	3:35	1954.6	26.4	979.2	25.922	1928.7	28.56	
	3:40	1943.2	29.8	979.2	25.922	1917.3	28.56	
6				969.6				
	3:45	2110.4	33.8	1152.0	35.014	2075.4	33.60	
	3:50	2106.5	37.8	1152.0	35.014	2071.5	33.60	
	3:55	2102.6	41.8	1152.0	35.014	2067.6	33.60	
				1152.0				

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
STEP NO. & REMARKS	TIME	SURFACE TUBING PRESS. (psig)	CUMMULATIVE VOL. INJECTED (bbls)	INJECTION RATE (bbls/day)	FRICTION HEAD LOSS (psi)	CORRECTED TUBING PRESS. (psi) (1) - (4)	INJECTION RATE (gpm) (3)/34.2857	MEASURED BHP (psi)
FALLOFF	3:56	1127.2				1127.2		
	3:57	1042.3				1042.3		
	3:58	963.7				963.7		
	3:59	874.0				874.0		
	4:00	771.8				771.8		
	4:05	360.6				360.6		
	4:10	130.2				130.2		





WEST – TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: HANSON OPERATING COMPANY, INC.

DATE: NOVEMBER 7, 1995

WELL NAME: B.S.W.U. NO.5 (GRAYBURG – LOWER ZONE)
EDDY COUNTY, NEW MEXICO

WO#: 95-14-1730

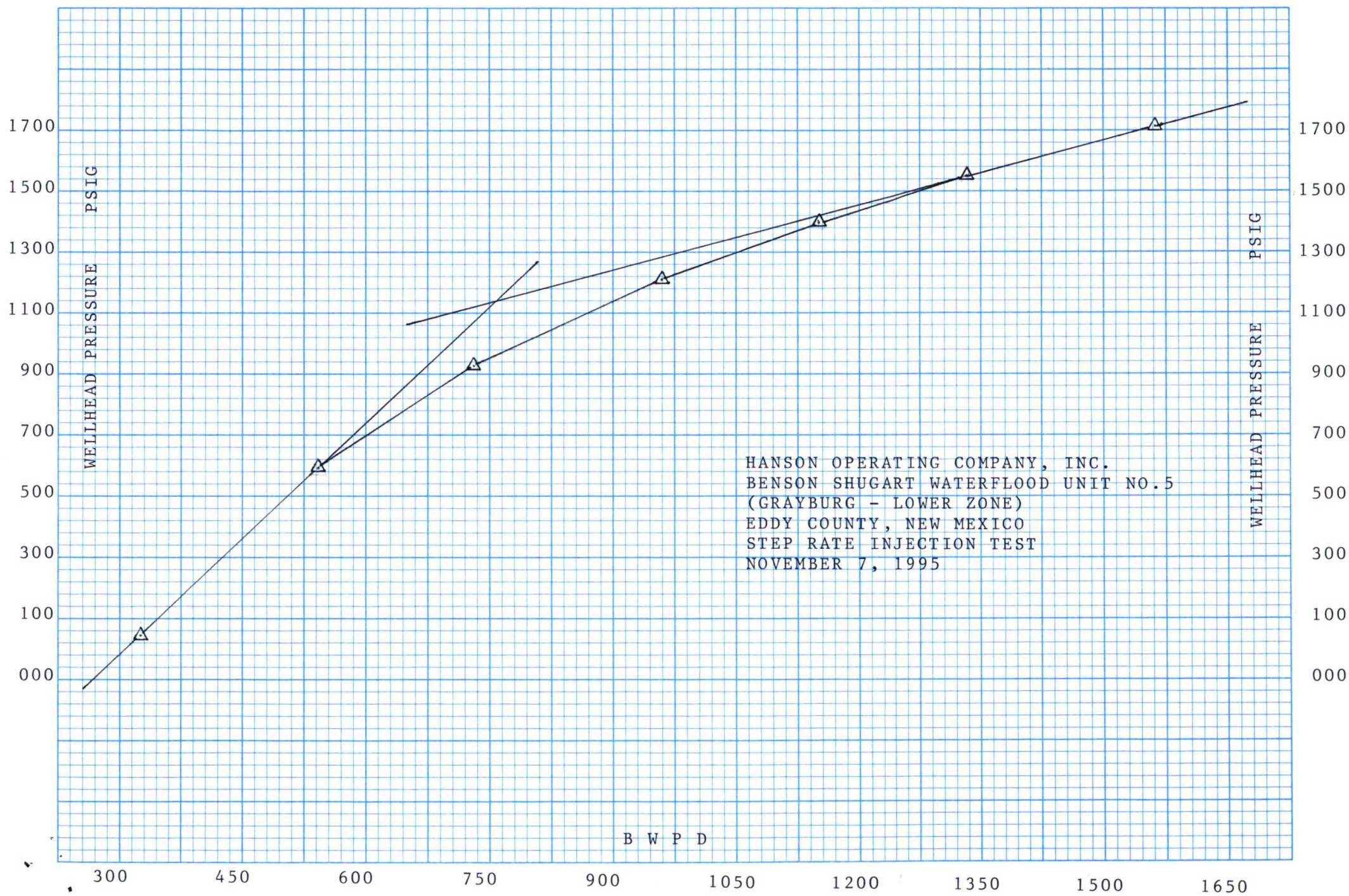
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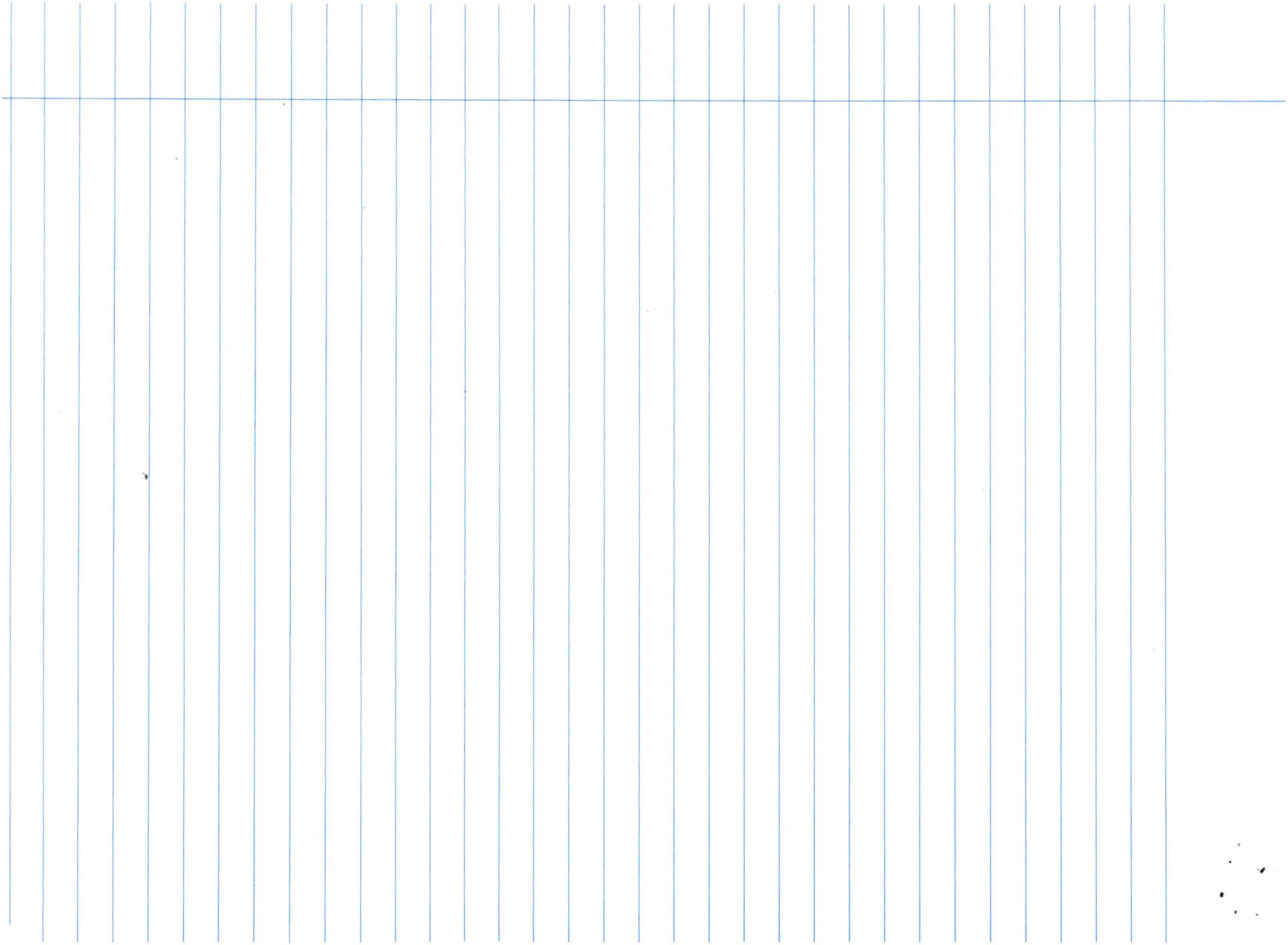
PACKER DEPTH = 3348

BHP GAUGE DEPTH = SURFACE ONLY

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1) - (4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
1	9:55	16.2				16.2		
	10:00	36.3	1.3	374.4	4.756	31.5	10.92	
	10:05	45.1	2.4	316.8	3.491	41.6	9.24	
	10:10	50.1	3.4	288.0	2.927	47.2	8.40	
2				326.4				
	10:15	474.6	5.4	576.0	10.552	464.0	16.80	
	10:20	545.7	7.2	518.4	8.683	537.0	15.12	
	10:25	584.4	9.1	547.2	9.597	574.8	15.96	
3				547.2				
	10:30	876.1	11.7	748.8	17.145	859.0	21.84	
	10:35	911.0	14.2	720.0	15.945	895.1	21.00	
	10:40	928.5	16.7	720.0	15.945	912.6	21.00	
4				729.6				
	10:45	1171.9	20.1	979.2	28.162	1143.7	28.56	
	10:50	1199.4	23.4	950.4	26.649	1172.8	27.72	
	10:55	1214.4	26.7	950.4	26.649	1187.8	27.72	
5				960.0				
	11:00	1374.4	30.7	1152.0	38.040	1336.4	33.60	
	11:05	1384.4	34.7	1152.0	38.040	1346.4	33.60	
	11:10	1395.6	38.7	1152.0	38.040	1357.6	33.60	
6				1152.0				
	11:15	1550.6	43.3	1324.8	49.265	1501.3	38.64	
	11:20	1541.8	48.0	1353.6	51.264	1490.5	39.48	
	11:25	1541.8	52.6	1324.8	49.265	1492.5	38.64	
7				1334.4				
	11:30	1716.7	58.0	1555.2	66.277	1650.4	45.36	
	11:35	1711.7	63.5	1584.0	68.565	1643.1	46.20	
	11:40	1708.0	68.9	1555.2	66.277	1641.7	45.36	
				1564.8				

Page 2





WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

CONSERVATION DIVISION
RECEIVED
95 DEC 13 AM 8 52

STEP RATE INJECTION TEST

CLIENT: HANSON OPERATING COMPANY, INC.

DATE: DECEMBER 5, 1995

WELL NAME: B.S.W.U. NO. 15 (UPPER ZONE - PENROSE)
EDDY COUNTY, NEW MEXICO

WO#: 95-14-1732

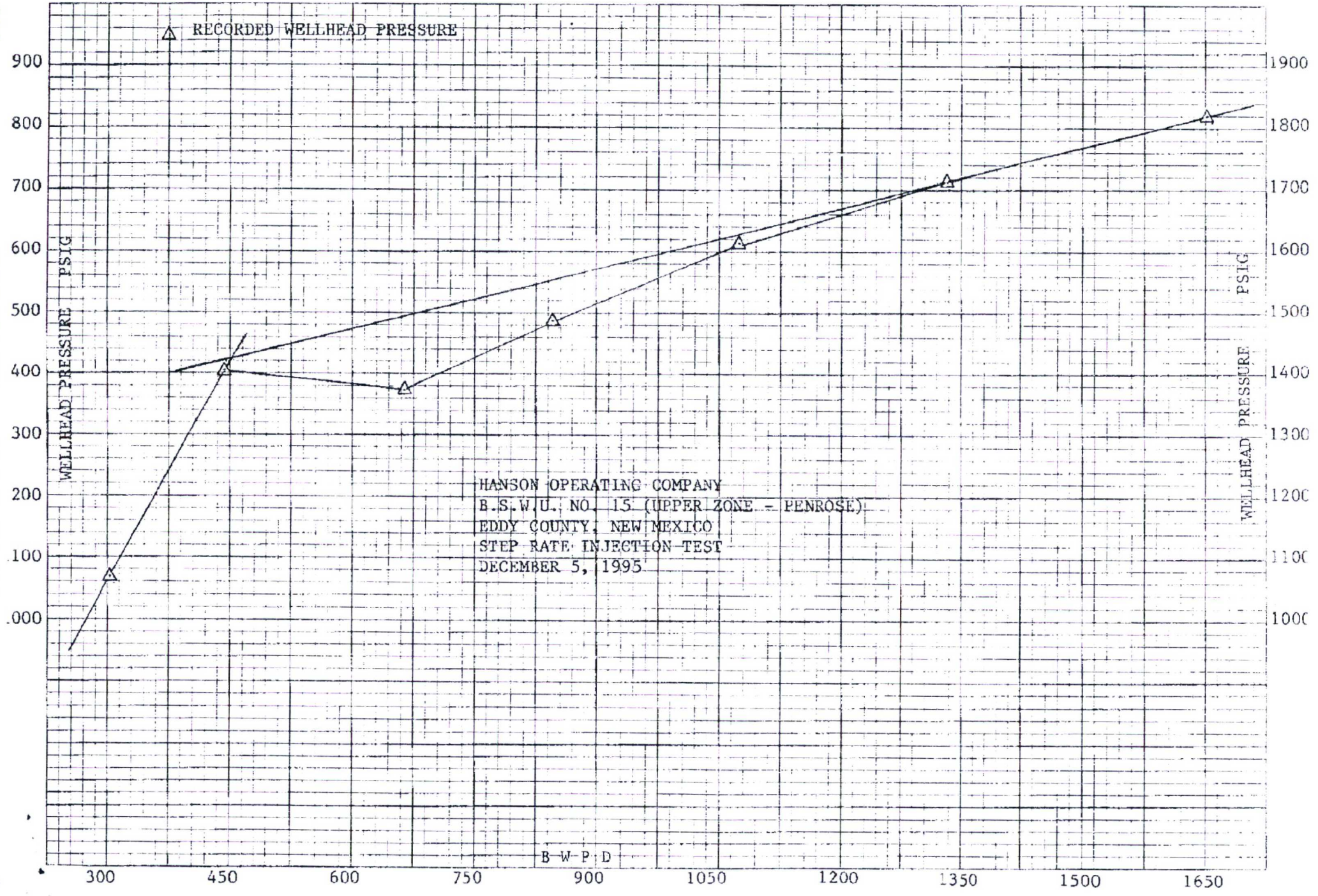
PERFS - 3220-3228

PACKER DEPTH =

BHP GAUGE DEPTH - SURFACE ONLY

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)-(4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
1	12:00	48.3				48.3		
	12:05	130.3	1.3	374.4	4.518	125.8	10.92	
	12:10	697.0	2.4	316.8	3.317	693.7	9.24	
	12:15	991.1	3.3	259.2	2.288	988.8	7.56	
	12:20	1069.8	4.2	259.2	2.288	1067.5	7.56	
2				302.4				
	12:25	1343.3	5.7	432.0	5.887	1337.4	12.60	
	12:30	1382.0	7.2	432.0	5.887	1376.1	12.60	
	12:35	1405.7	8.8	460.8	6.633	1399.1	13.44	
3				441.6				
	12:40	1625.5	11.1	662.4	12.981	1612.5	19.32	
	12:45	1355.7	13.5	691.2	14.045	1341.7	20.16	
	12:50	1374.5	15.7	633.6	11.956	1362.5	18.48	
4				662.4				
	12:55	1493.1	18.6	835.2	19.932	1473.2	24.36	
	1:00	1489.3	21.5	835.2	19.932	1469.4	24.36	
	1:05	1489.3	24.5	864.0	21.222	1468.1	25.20	
5				844.8				
	1:10	1564.2	28.2	1065.6	31.282	1532.9	31.08	
	1:15	1604.1	32.0	1094.4	32.864	1571.2	31.92	
	1:20	1615.3	35.7	1065.6	31.282	1584.0	31.08	
6				1075.2				
	1:25	1680.2	40.3	1324.8	46.797	1633.4	38.64	
	1:30	1697.7	45.0	1353.6	48.696	1649.0	39.48	
	1:35	1714.0	49.6	1324.8	46.797	1667.2	38.64	
				1334.4				

STEP NO. & REMARKS		(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)
7 FALLOFF	1:40	1790.1	55.3	1641.6	69.580	1720.5	47.88	
	1:45	1808.9	61.0	1641.6	69.580	1739.3	47.88	
	1:50	1820.1	66.8	1670.4	71.855	1748.2	48.72	
				1651.2				
	1:51	1606.6				1606.6		
	1:52	1555.4				1555.4		
	1:53	1509.2				1509.2		
	1:54	1468.0				1468.0		
	1:55	1428.0				1428.0		
	2:00	1266.9				1266.9		
	2:05	1162.0				1162.0		



WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: HANSON OPERATING COMPANY

DATE: DECEMBER 5, 1995

WELL NAME: B.S.W.U. NO. 15 (LOWER ZONE - GRAYBURG)
EDDY COUNTY, NEW MEXICO

WO#: 95-14-1732

PERFS - 3488-3516

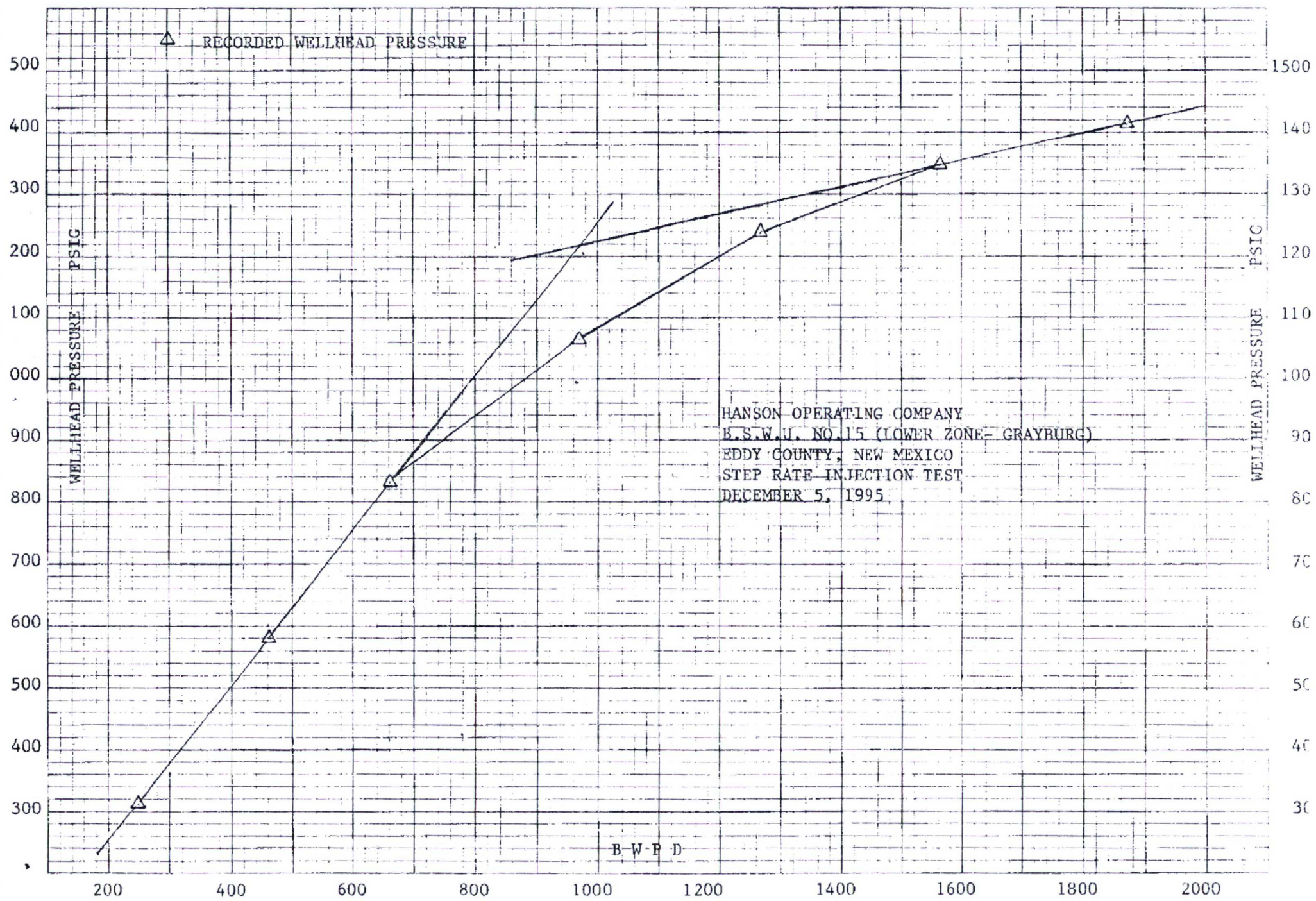
PACKER DEPTH -

BHP GAUGE DEPTH - SURFACE ONLY

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1) - (4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
1	2:20	54.4				54.4		
	2:25	247.1	0.9	259.2	2.485	244.6	7.56	
	2:30	289.4	1.8	259.2	2.485	286.9	7.56	
	2:35	311.8	2.6	230.4	1.999	309.8	6.72	
				249.6				
2	2:40	488.8	4.3	489.6	8.061	480.7	14.28	
	2:45	533.6	5.8	432.0	6.394	527.2	12.60	
	2:50	579.7	7.4	460.8	7.205	572.5	13.44	
3				460.8				
	2:55	730.5	9.7	662.4	14.100	716.4	19.32	
	3:00	795.3	12.0	662.4	14.100	781.2	19.32	
	3:05	832.7	14.3	662.4	14.100	818.6	19.32	
				662.4				
4	3:10	985.9	17.6	950.4	27.497	958.4	27.72	
	3:15	1037.0	21.0	979.2	29.058	1007.9	28.56	
	3:20	1064.5	24.4	979.2	29.058	1035.4	28.56	
5				969.6				
	3:25	1159.4	28.8	1267.2	46.819	1112.6	36.96	
	3:30	1210.6	33.2	1267.2	46.819	1163.8	36.96	
	3:35	1239.3	37.6	1267.2	46.819	1192.5	36.96	
				1267.2				
6	3:40	1310.4	43.0	1555.2	68.386	1242.0	45.36	
	3:45	1335.4	48.4	1555.2	68.386	1267.0	45.36	
	3:50	1346.6	53.9	1584.0	70.747	1275.9	46.20	
7				1564.8				
	3:55	1399.1	60.4	1872.0	96.367	1302.7	54.60	
	4:00	1401.5	66.9	1872.0	96.367	1305.1	54.60	
	4:05	1415.2	73.4	1872.0	96.367	1318.8	54.60	
				1872.0				

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
STEP NO. & REMARKS	TIME	SURFACE TUBING PRESS. (psig)	CUMMULATIVE VOL. INJECTED (bbls)	INJECTION RATE (bbls/day)	FRICTION HEAD LOSS (psi)	CORRECTED TUBING PRESS. (psi) (1) - (4)	INJECTION RATE (gpm) (3)/34.2807	MEASURED BHP (psi)
FALLOFF	4:06	1233.0				1233.0		
	4:07	1186.8				1186.8		
	4:08	1151.8				1151.8		
	4:09	1123.1				1123.1		
	4:10	1096.9				1096.9		
	4:15	987.1				987.1		
	4:20	894.8				894.8		

12-11-1995 10:04AM FROM JOHN WEST ENG CO 505 393 3450 P.7



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

STEP RATE INJECTION TEST

CLIENT: HANSON OPERATING COMPANY

DATE: NOVEMBER 29, 1995

WELL NAME: B.S.W.U. NO. 7 (PENROSE - UPPER ZONE)
EDDY COUNTY, NEW MEXICO

WO#: 95-14-1845

PERFS = 3153-3160

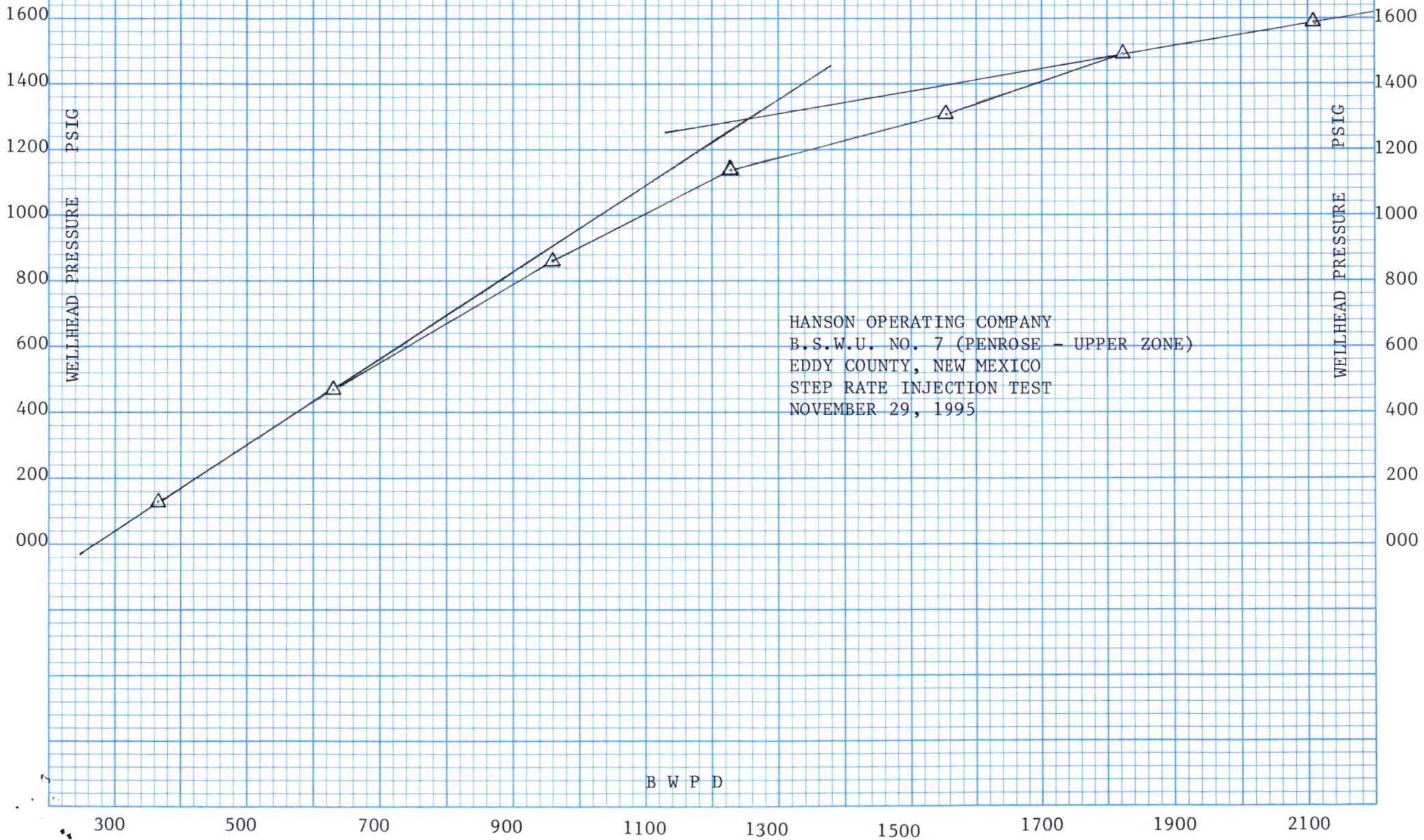
PACKER DEPTH =

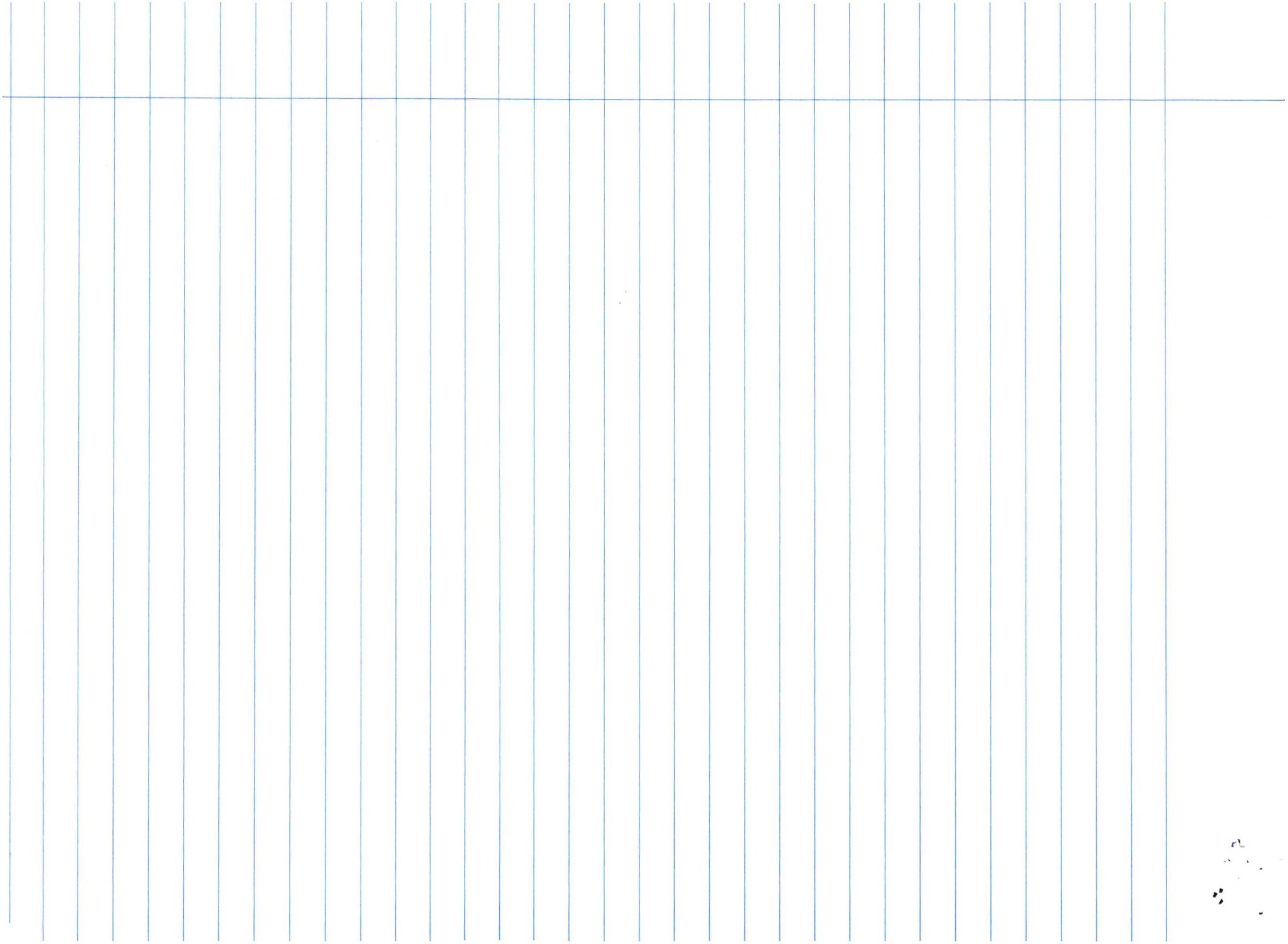
BHP GAUGE DEPTH = SURFACE ONLY

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)-(4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
1	12:20	66.7				66.7		
	12:25	80.4	1.3	374.4	4.424	76.0	10.92	
	12:30	99.0	2.5	345.6	3.815	95.2	10.08	
	12:35	126.3	3.8	374.4	4.424	121.9	10.92	
				364.8				
2	12:40	237.0	6.0	633.6	11.708	225.3	18.48	
	12:45	377.9	8.3	662.4	12.711	365.2	19.32	
	12:50	477.6	10.4	604.8	10.742	466.9	17.64	
3				633.6				
	12:55	673.2	13.8	979.2	26.196	647.0	28.56	
	1:00	782.8	17.1	950.4	24.788	758.0	27.72	
	1:05	872.5	20.4	950.4	24.788	847.7	27.72	
				960.0				
4	1:10	1009.5	24.7	1238.4	40.449	969.1	36.12	
	1:15	1089.5	29.0	1238.4	40.449	1049.1	36.12	
	1:20	1139.4	33.2	1209.6	38.726	1100.7	35.28	
				1228.8				
5	1:25	1244.4	38.7	1584.0	63.777	1180.6	46.20	
	1:30	1285.6	43.9	1497.6	57.491	1228.1	43.68	
	1:35	1315.6	49.4	1584.0	63.777	1251.8	46.20	
				1555.2				
6	1:40	1428.1	55.7	1814.4	81.993	1346.1	52.92	
	1:45	1491.8	62.1	1843.2	84.417	1407.4	53.76	
	1:50	1491.7	68.4	1814.4	81.993	1409.7	52.92	
				1824.0				
7	1:55	1560.3	75.8	2131.2	110.427	1449.9	62.16	
	2:00	1597.6	83.1	2102.4	107.682	1489.9	61.32	
	2:05	1584.9	90.4	2102.4	107.682	1477.2	61.32	
				2112.0				

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
STEP NO. & REMARKS	TIME	SURFACE TUBING PRESS. (psig)	CUMMULATIVE VOL. INJECTED (bbls)	INJECTION RATE (bbls/day)	FRICTION HEAD LOSS (psi)	CORRECTED TUBING PRESS. (psi) (1) - (4)	INJECTION RATE (gpm) (3)/34.2857	MEASURED BHP (psi)
FALLOFF	2:06	1408.7				1408.7		
	2:07	1358.7				1358.7		
	2:08	1338.7				1338.7		
	2:09	1323.7				1323.7		
	2:10	1308.6				1308.6		
	2:15	1251.0				1251.0		
	2:20	1201.0				1201.0		

△ RECORDED WELLHEAD PRESSURE





WEST - TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: HANSON OPERATING COMPANY

DATE: NOVEMBER 29, 1995

WELL NAME: B.S.W.U. NO. 7 (GRAYBURG - LOWER ZONE)
EDDY COUNTY, NEW MEXICO

WO#: 95-14-1845

PERFS = 3436-3444

PACKER DEPTH =

BHP GAUGE DEPTH = SURFACE ONLY

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)-(4)	(6) INJECTION RATE (gpm) (3)/34.2657	(7) MEASURED BHP (psi)
1	9:20	22.5				22.5		
	9:25	28.8	0.6	172.8	1.153	27.6	5.04	
	9:30	43.9	1.2	172.8	1.153	42.7	5.04	
	9:35	50.3	1.6	115.2	0.545	49.8	3.36	
				153.6				
2	9:40	127.5	2.8	345.6	4.157	123.3	10.08	
	9:45	181.0	4.1	374.4	4.820	176.2	10.92	
	9:50	210.9	5.3	345.6	4.157	206.7	10.08	
3				355.2				
	9:55	359.2	7.3	576.0	10.695	348.5	16.80	
	10:00	402.9	9.3	576.0	10.695	392.2	16.80	
	10:05	454.1	11.2	547.2	9.727	444.4	15.96	
4				556.4				
	10:10	634.8	14.1	835.2	21.267	613.5	24.36	
	10:15	683.4	17.2	892.8	24.060	659.3	26.04	
	10:20	717.1	20.2	864.0	22.644	694.5	25.20	
5				864.0				
	10:25	820.6	24.3	1180.8	40.358	780.2	34.44	
	10:30	819.4	28.3	1152.0	38.556	780.8	33.60	
	10:35	815.7	32.4	1180.8	40.358	775.3	34.44	
6				1171.2				
	10:40	904.2	37.5	1468.8	60.434	843.8	42.84	
	10:45	935.5	42.6	1468.8	60.434	875.1	42.84	
	10:50	935.5	47.8	1497.6	62.645	872.9	43.68	
7				1478.4				
	10:55	1030.3	53.8	1728.0	81.632	948.7	50.40	
	11:00	1041.5	59.9	1756.8	84.167	957.3	51.24	
	11:05	1047.8	66.0	1756.8	84.167	963.6	51.24	
				1747.2				

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1) - (4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
8 FALLOFF	11:10	1131.6	73.0	2016.0	108.570	1023.0	58.80	
	11:15	1149.1	80.1	2044.8	111.457	1037.6	59.64	
	11:20	1156.6	87.2	2044.8 2035.2	111.457	1045.1	59.64	
	11:21	889.6				889.6		
	11:22	860.9				860.9		
	11:23	849.7				849.7		
	11:24	838.5				838.5		
	11:25	828.5				828.5		
	11:30	791.2				791.2		
	11:35	757.6				757.6		

