



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



BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

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

May 19, 1993

Amoco Production Company
P.O. Box 3092
Houston, Texas 77253

Attention: Mr. James C. Allen

Re: Injection Pressure Increase
South Hobbs GB-SA Unit

Dear Mr. Allen:

Reference is made to your request to increase the surface injection pressure on certain wells within the South Hobbs Grayburg San Andres Unit Pressure Maintenance Project. It is our understanding that you propose to increase the surface injection pressure on the wells by approximately 10 psi per month on an ongoing basis, and that pressures, volumes, rates, etc. measured from each well on a continuous basis will allow the generation of Hearn and Hall plots in order to effectively monitor that formation parting pressure is not being exceeded.

We have reviewed your proposal and have found that your request should be granted, however, due to the fact that the technology and engineering that will be utilized have not previously been used in the state for this purpose, the Division would like the opportunity to review the engineering data after a period of six months.

You are hereby authorized to increase the surface injection pressure on the wells shown on Exhibit "A" from the current pressure limitation by 10 psi per month subject to the following conditions:

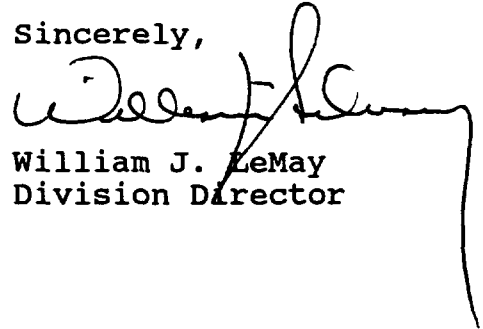
- a) Hearn and Hall plots for each well shown on Exhibit "A" shall be generated on a monthly basis and a copy sent to both the Santa Fe and Hobbs offices of the Division;
- b) Amoco shall immediately consult with the supervisor of the Hobbs office of the Division if any Hearn and Hall plots indicate fracturing of any injection well;
- c) The authority granted herein shall be subject to Division

review after a period of approximately six months; and,

d) At the conclusion of the six month test period, the Division may require step rate tests to be conducted on certain injection wells in order to verify the results of the Hearn and Hall plots.

If you should have any questions, please contact Mr. David Catanach at (505) 827-5800.

Sincerely,

A handwritten signature in black ink, appearing to read 'William J. LeMay', with a long, sweeping horizontal line extending to the right.

William J. LeMay
Division Director

xc: OCD-Hobbs
File-Case No. 5372 ✓

EXHIBIT "A"
SOUTH HOBBS GRAYBURG-SAN ANDRES UNIT
SHU INJECTION WELLS

<u>WELL NAME & NUMBER</u>	<u>WELL LOCATION; UL, S,T,R</u>	<u>PRESSURE LIMIT; PSIG</u>
SHU No. 8	Unit D, 6-19S-38E	800
SHU No. 10	Unit B, 6-19S-38E	800
SHU No. 11	Unit A, 6-19S-38E	800
SHU No. 25	Unit F, 6-19S-38E	800
SHU No. 26	Unit H, 6-19S-38E	800
SHU No. 27	Unit E, 5-19S-38E	800
SHU No. 33	Unit G, 4-19S-38E	950
SHU No. 36	Unit F, 3-19S-38E	945
SHU No. 40	Unit K, 5-19S-38E	825
SHU No. 42	Unit L, 4-19S-38E	800
SHU No. 43	Unit K, 4-19S-38E	1000
SHU No. 47	Unit K, 3-19S-38E	950
SHU No. 48	Unit J, 3-19S-38E	835
SHU No. 53	Unit M, 4-19S-38E	965
SHU No. 54	Unit N, 4-19S-38E	800
SHU No. 58	Unit N, 3-19S-38E	835
SHU No. 59	Unit O, 3-19S-38E	1170
SHU No. 61	Unit A, 8-19S-38E	825
SHU No. 64	Unit B, 9-19S-38E	830
SHU No. 66	Unit D, 10-19S-38E	825
SHU No. 67	Unit C, 10-19S-38E	950
SHU No. 76	Unit E, 10-19S-38E	825
SHU No. 84	Unit I, 9-19S-38E	960
SHU No. 87	Unit K, 10-19S-38E	1000
SHU No. 112	Unit M, 3-19S-38E	845
SHU No. 113	Unit G, 6-19S-38E	790
SHU No. 114	Unit J, 6-19S-38E	800
SHU No. 120	Unit C, 5-19S-38E	820
SHU No. 121	Unit E, 4-19S-38E	810
SHU No. 127	Unit M, 34-18S-38E	840
SHU No. 129	Unit M, 34-18S-38E	830
SHU No. 152	Unit A, 9-19S-38E	825
SHU No. 172	Unit H, 9-19S-38E	960
SHU No. 173	Unit E, 10-19S-38E	830
SHU No. 176	Unit D, 5-19S-38E	835
SHU No. 182	Unit F, 5-19S-38E	815
SHU No. 187	Unit J, 5-19S-38E	800
SHU No. 215	Unit D, 4-19S-38E	780
SHU No. 218	Unit A, 4-19S-38E	1000
SHU Coop No. 9	Unit C, 34-18S-38E	820
SHU Coop No. 10	Unit L, 34-18S-38E	820
SHU Coop No. 11	Unit K, 34-18S-38E	820
SHU Coop No. 12	Unit N, 34-18S-38E	820
SHU Coop No. 13	Unit B, 3-19S-38E	820



ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

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

October 7, 1987

Amoco Production Company
P.O. Box 4072
Odessa, TX 79760

RE: Injection Pressure Increase
South Hobbs Grayburg San
Andres Unit, Lea County,
New Mexico

Dear Sir:

Reference is made to your request dated September 10, 1987, to increase the surface injection pressure on seven wells in the South Hobbs Grayburg San Andres Unit. This request is based on step rate tests conducted on these wells during April - July, 1987. 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.

<u>WELL & LOCATION</u>	<u>MAXIMUM INJECTION SURFACE PRESSURE</u>
South Hobbs Unit No. 33 Unit G, Section 4, Township 19 South, Range 38 East	1290 PSIG
South Hobbs Unit No. 37 Unit G, Section 3, Township 19 South, Range 38 East	895 PSIG
South Hobbs Unit No. 35 Unit E, Section 3, Township 19 South, Range 38 East	1150 PSIG
South Hobbs Unit No. 171 Unit D, Section 9, Township 19 South, Range 38 East	1265 PSIG

South Hobbs Unit No. 212
Unit C, Section 5,
Township 19 South, Range 38 East

1250 PSIG

South Hobbs Unit No. 218
Unit A, Section 4,
Township 19 South, Range 38 East

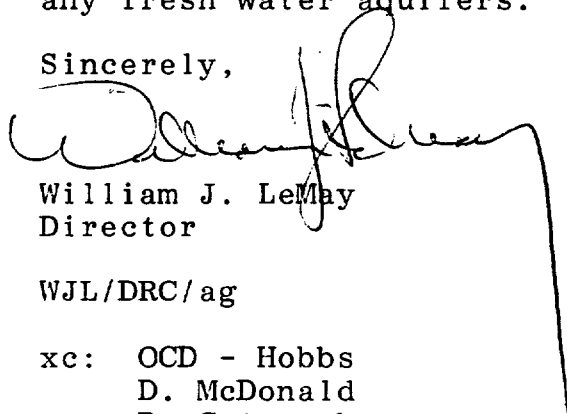
1038 PSIG

South Hobbs Unit No. 219
Unit D, Section 3,
Township 19 South, Range 38 East

1280 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.

Sincerely,

A handwritten signature in dark ink, appearing to read 'William J. LeMay', is written over the typed name. A long, thin vertical line extends from the bottom of the signature down towards the distribution list.

William J. LeMay
Director

WJL/DRC/ag

xc: OCD - Hobbs
D. McDonald
D. Catanach
Case File - 5372

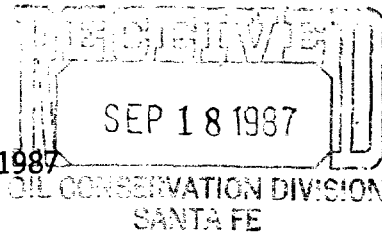


Amoco Production Company

Post Office Box 4072
Odessa, Texas 79760

H.R. Lewis Jr.
District Manager

September 10, 1987



File: JLM-1073-WF

Re: Application to Increase Injection
Pressure-Limit on South Hobbs (GSA) Unit
Well Nos. 33, 35, 37, 171, 212, 218, 219

New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Gentlemen:

Attached are supporting step-rate test for the purpose of filing an application to increase water injection pressure-limit on South Hobbs (GSA) Unit Nos. 33, 35, 37, 171, 212, 218 and 219.

If additional information is required please contact Maurice Mitchell at (915) 367-3800, extension 2164.

H. R. LEWIS
District Manager

OMM/cw
SEPA/z

Attachments

cc: New Mexico Oil Conservation Division w/Attachments
P. O. Box 1980
Hobbs, New Mexico 88240

B & D WELL TESTERS

Customer: AMOCO PRODUCTION

Well: S.H.U. #33

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7/24/87

TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:mn:sc	hrs	psia	'F	psia	psia	bwpd	bbls	ins	factor	mins
11:46:00	.09	1262.2	92.3	0.0	12.0	0.0	0.0	1.5	325.7	90
TOOL @ 4100' @ 11:20										
11:47:07	.11	1258.2	92.3	0.0	11.8	0.0	0.0	1.5	325.7	90
11:48:00	.12	1255.2	92.2	0.0	12.1	0.0	0.0	1.5	325.7	90
11:49:11	.14	1251.3	92.2	0.0	12.5	0.0	0.0	1.5	325.7	90
11:50:04	.16	1248.5	92.2	0.0	12.3	0.0	0.0	1.5	325.7	90
11:51:04	.17	1245.4	92.2	0.0	12.2	0.0	0.0	1.5	325.7	90
11:52:09	.19	1242.2	92.2	0.0	12.4	0.0	0.0	1.5	325.7	90
11:53:08	.21	1239.3	92.2	0.0	12.4	0.0	0.0	1.5	325.7	90
11:54:02	.22	1236.9	92.2	0.0	12.5	0.0	0.0	1.5	325.7	90
11:55:01	.24	1234.1	92.2	0.0	13.0	0.0	0.0	1.5	325.7	90
11:56:07	.26	1231.3	92.2	0.0	12.7	0.0	0.0	1.5	325.7	90
11:57:06	.27	1228.6	92.2	0.0	11.3	0.0	0.0	1.5	325.7	90
11:58:11	.29	1226.0	92.1	0.0	12.6	0.0	0.0	1.5	325.7	90
11:59:11	.31	1223.5	92.1	0.0	11.6	0.0	0.0	1.5	325.7	90
START INJECTION @ 1000 BPD										
12:00:00	.32	1222.1	92.1	0.0	12.9	0.0	0.0	1.5	325.7	90
12:01:05	.34	1219.5	92.1	0.0	11.7	0.0	0.0	1.5	325.7	90
12:02:05	.36	1219.3	92.1	0.0	11.4	1010.6	14.7	1.5	325.7	90
12:05:01	.40	1273.7	92.1	0.0	12.8	1010.6	16.9	1.5	325.7	90
12:10:15	.49	1325.7	92.2	0.0	11.0	1004.3	20.5	1.5	325.7	90
12:15:10	.57	1348.8	92.0	0.0	11.7	1029.5	24.0	1.5	325.7	90
12:20:10	.66	1362.4	91.8	0.0	11.3	1016.9	27.5	1.5	325.7	90
12:25:03	.74	1371.8	91.7	0.0	10.7	1010.6	31.0	1.5	325.7	90
12:30:11	.82	1378.2	92.0	0.0	10.7	1004.3	34.6	1.5	325.7	90
12:35:05	.91	1381.3	91.8	0.0	10.7	1004.3	38.0	1.5	325.7	90
12:40:00	.99	1383.7	91.6	0.0	10.5	1004.3	41.4	1.5	325.7	90
12:45:08	1.07	1385.5	91.6	0.0	10.8	1010.6	45.0	1.5	325.7	90
12:50:02	1.15	1386.9	91.6	0.0	10.9	1010.6	48.5	1.5	325.7	90
12:55:12	1.24	1387.8	91.6	0.0	9.8	1004.3	52.1	1.5	325.7	90
13:00:07	1.32	1388.1	91.6	0.0	9.7	1004.3	55.5	1.5	325.7	90
13:05:03	1.40	1388.2	91.6	0.0	10.4	1004.3	59.0	1.5	325.7	90
13:10:12	1.49	1388.1	91.6	0.0	11.1	1016.9	62.6	1.5	325.7	90
13:15:06	1.57	1388.1	91.6	0.0	11.1	1004.3	66.0	1.5	325.7	90
13:20:00	1.65	1388.0	91.6	0.0	11.6	1010.6	69.5	1.5	325.7	90
13:25:10	1.74	1387.6	91.6	0.0	11.8	1004.3	73.1	1.5	325.7	90
13:30:05	1.82	1387.1	91.6	0.0	11.9	1010.6	76.5	1.5	325.7	90
START 2nd RATE-1400 BPD										
13:35:09	1.91	1411.1	91.6	0.0	11.5	1414.8	81.0	1.5	325.7	90
13:40:03	1.99	1437.2	91.6	0.0	11.6	1414.8	85.8	1.5	325.7	90
13:45:12	2.07	1451.4	91.7	0.0	11.5	1414.8	90.9	1.5	325.7	90
13:50:05	2.16	1460.2	91.7	0.0	11.2	1414.8	95.7	1.5	325.7	90
13:55:17	2.24	1466.6	91.9	0.0	11.3	1414.8	100.7	1.5	325.7	90
14:00:13	2.32	1470.9	91.9	0.0	11.9	1402.2	105.6	1.5	325.7	90
14:05:06	2.41	1474.1	92.0	0.0	11.8	1395.8	110.3	1.5	325.7	90

B & D WELL TESTERS

Customer: AMOCO PRODUCTION

Well: S.H.U. #33

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7/24/87

TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:mn:sc	hrs	psia	'f	psia	psia	bwpd	bbls	ins	factor	mins
14:10:13	2.49	1476.7	92.0	0.0	11.6	1395.8	115.3	1.5	325.7	90
14:15:08	2.57	1478.9	92.0	0.0	11.5	1402.2	120.1	1.5	325.7	90
14:20:02	2.65	1481.2	92.1	0.0	11.1	1421.1	124.9	1.5	325.7	90
14:25:13	2.74	1482.8	92.1	0.0	11.9	1364.3	129.9	1.5	325.7	90
14:30:06	2.82	1464.2	92.2	0.0	11.4	972.7	133.9	1.5	325.7	90
14:35:14	2.91	1441.5	92.2	0.0	12.0	991.6	137.7	1.5	325.7	90
14:40:08	2.99	1424.8	92.1	0.0	12.0	985.3	141.2	1.5	325.7	90
14:45:01	3.07	1424.2	92.1	0.0	12.2	1124.3	145.0	1.5	325.7	90
14:50:08	3.16	1529.5	92.1	0.0	12.0	1307.4	152.6	1.5	325.7	90
14:55:01	3.24	1493.3	92.2	0.0	11.2	1345.3	157.2	1.5	325.7	90
15:00:08	3.32	1488.8	92.3	0.0	10.9	1383.2	162.2	1.5	325.7	90
INJECTION SYSTEM DOWN - INJECT @ 1400 BPD 30 MIN. MORE										
15:05:10	3.41	1486.1	92.3	0.0	12.0	1395.8	167.1	1.5	325.7	90
15:10:03	3.49	1484.2	92.3	0.0	12.0	1408.5	171.9	1.5	325.7	90
15:15:08	3.57	1483.6	92.4	0.0	12.4	1414.8	176.8	1.5	325.7	90
15:20:00	3.65	1483.6	92.4	0.0	12.2	1414.8	181.5	1.5	325.7	90
15:25:12	3.74	1483.6	92.5	0.0	11.3	1389.5	186.5	1.5	325.7	90
15:30:04	3.82	1483.8	92.5	0.0	11.4	1402.2	191.3	1.5	325.7	90
START 3rd RATE-1800 BPD										
15:35:04	3.91	1520.2	92.5	0.0	12.4	1838.0	197.5	1.5	325.7	90
15:40:07	3.99	1539.9	92.7	0.0	12.9	1819.0	203.8	1.5	325.7	90
15:45:02	4.07	1553.0	92.8	0.0	12.9	1800.1	209.9	1.5	325.7	90
15:50:09	4.16	1562.4	92.9	0.0	11.7	1806.4	216.3	1.5	325.7	90
15:55:03	4.24	1569.2	93.0	0.0	11.4	1800.1	222.5	1.5	325.7	90
16:00:10	4.32	1573.9	93.1	0.0	12.0	1787.4	228.9	1.5	325.7	90
16:05:03	4.41	1576.7	93.1	0.0	12.0	1800.1	235.0	1.5	325.7	90
16:10:11	4.49	1579.6	93.1	0.0	11.7	1800.1	241.4	1.5	325.7	90
16:15:03	4.57	1582.1	93.2	0.0	12.2	1793.8	247.5	1.5	325.7	90
16:20:11	4.66	1584.8	93.2	0.0	11.3	1806.4	253.9	1.5	325.7	90
16:25:03	4.74	1587.6	93.2	0.0	11.1	1819.0	260.1	1.5	325.7	90
16:30:16	4.83	1589.3	93.3	0.0	11.2	1793.8	266.5	1.5	325.7	90
16:35:09	4.91	1590.3	93.3	0.0	11.5	1800.1	272.6	1.5	325.7	90
16:40:03	4.99	1591.3	93.3	0.0	11.3	1793.8	278.7	1.5	325.7	90
16:45:09	5.07	1593.3	93.3	0.0	11.1	1800.1	285.2	1.5	325.7	90
16:50:04	5.16	1595.5	93.4	0.0	11.8	1800.1	291.4	1.5	325.7	90
16:55:01	5.24	1597.2	93.4	0.0	10.6	1793.8	297.6	1.5	325.7	90
17:00:12	5.32	1598.8	93.4	0.0	10.3	1806.4	304.1	1.5	325.7	90
START 4th RATE-2200BPD										
17:05:03	5.41	1629.4	93.4	0.0	10.2	2185.4	311.1	1.5	325.7	90
17:10:12	5.49	1657.9	93.5	34.5	9.8	2210.6	319.2	1.5	325.7	90
17:15:07	5.57	1670.6	93.7	47.1	10.7	2204.3	326.7	1.5	325.7	90
17:20:09	5.66	1679.0	93.7	55.7	9.7	2223.3	334.5	1.5	325.7	90
17:25:04	5.74	1684.6	93.8	61.0	9.9	2223.3	342.1	1.5	325.7	90
17:30:18	5.83	1689.2	93.8	63.7	8.7	2204.3	350.0	1.5	325.7	90

B & D WELL TESTERS

Customer: AMOCO PRODUCTION

Well: S.H.U. #33

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7/24/87

TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:mn:sc	hrs	psia	°F	psia	psia	bwpd	bbls	ins	factor	mins
17:35:13	5.91	1691.7	93.8	64.4	8.8	2204.3	357.5	1.5	325.7	90
17:40:10	5.99	1694.4	93.8	66.6	9.0	2198.0	365.0	1.5	325.7	90
17:45:04	6.07	1697.3	93.8	71.5	8.9	2204.3	372.5	1.5	325.7	90
17:50:13	6.16	1700.5	93.9	74.2	8.0	2204.3	380.6	1.5	325.7	90
17:55:10	6.24	1702.3	93.9	75.2	7.6	2198.0	388.1	1.5	325.7	90
18:00:07	6.32	1704.0	93.9	77.0	7.8	2198.0	395.7	1.5	325.7	90
18:05:02	6.40	1706.0	93.9	79.7	8.1	2198.0	403.2	1.5	325.7	90
18:10:13	6.49	1707.7	93.9	80.9	6.8	2204.3	411.2	1.5	325.7	90
18:15:10	6.57	1709.3	93.9	82.9	6.9	2204.3	418.7	1.5	325.7	90
18:20:05	6.66	1710.6	94.0	83.3	7.0	2198.0	426.3	1.5	325.7	90
18:25:01	6.74	1712.1	94.0	85.5	6.8	2198.0	433.8	1.5	325.7	90
18:30:12	6.82	1713.9	94.0	87.3	6.1	2198.0	441.7	1.5	325.7	90
START 5th RATE-2600 BPD										
18:35:03	6.90	1756.2	94.0	188.7	7.1	2577.0	450.4	1.5	325.7	90
18:40:13	6.99	1770.6	94.2	199.6	8.3	2570.6	459.6	1.5	325.7	90
18:45:08	7.07	1777.8	94.2	214.0	8.9	2608.5	468.4	1.5	325.7	90
18:50:02	7.15	1787.7	94.3	222.5	9.0	2589.6	477.3	1.5	325.7	90
18:55:00	7.24	1793.3	94.3	228.1	9.6	2602.2	486.2	1.5	325.7	90
19:00:09	7.32	1797.0	94.3	229.9	9.5	2589.6	495.5	1.5	325.7	90
19:05:03	7.41	1800.4	94.3	234.7	9.6	2614.8	504.3	1.5	325.7	90
19:10:18	7.49	1802.7	94.3	235.2	9.7	2602.2	513.7	1.5	325.7	90
19:15:12	7.57	1804.3	94.3	235.4	9.6	2595.9	522.5	1.5	325.7	90
19:20:07	7.66	1806.1	94.3	236.9	9.4	2583.3	531.3	1.5	325.7	90
19:25:02	7.74	1807.9	94.3	237.9	9.4	2589.6	540.2	1.5	325.7	90
19:30:11	7.82	1809.2	94.4	239.1	9.4	2583.3	549.6	1.5	325.7	90
19:35:05	7.91	1811.0	94.4	241.6	9.4	2583.3	558.4	1.5	325.7	90
19:40:01	7.99	1812.2	94.4	241.9	9.4	2577.0	567.2	1.5	325.7	90
19:45:11	8.07	1812.0	94.4	239.0	9.4	2564.3	576.5	1.5	325.7	90
19:50:08	8.16	1811.5	94.4	237.1	10.0	2551.7	585.2	1.5	325.7	90
19:55:03	8.24	1816.0	94.4	248.0	10.1	2595.9	594.1	1.5	325.7	90
20:00:13	8.32	1818.6	94.4	251.2	10.0	2602.2	603.4	1.5	325.7	90
START 6th RATE-3000 BPD										
20:05:15	8.41	1864.6	94.4	383.0	9.2	3025.4	613.6	1.5	325.7	90
20:10:10	8.49	1883.8	94.5	392.9	8.5	3038.0	623.8	1.5	325.7	90
20:15:05	8.57	1892.4	93.0	416.0	7.9	3012.8	634.1	1.5	325.7	90
20:20:13	8.66	1899.4	91.5	407.8	7.4	2993.8	645.0	1.5	325.7	90
20:25:08	8.74	1904.5	90.4	426.7	7.1	3019.1	655.3	1.5	325.7	90
20:35:13	8.91	1914.7	89.0	427.5	6.6	3031.7	676.3	1.5	325.7	90
20:40:07	8.99	1918.8	88.4	432.6	6.4	3019.1	686.6	1.5	325.7	90
20:45:02	9.07	1922.0	87.9	450.3	6.2	3000.1	696.9	1.5	325.7	90
20:50:11	9.16	1925.0	87.4	450.6	6.0	3000.1	707.6	1.5	325.7	90
20:55:07	9.24	1927.6	87.0	451.9	5.9	3000.1	717.9	1.5	325.7	90
21:00:03	9.32	1878.3	86.7	397.4	5.8	3038.0	11859.8	1.5	325.7	90

B & D WELL TESTERS

Customer: AMOCO PRODUCTION

Well: S.H.U. #33

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7/24/87

TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:mn:sc	hrs	psia	'F	psia	psia	bwpd	bbls	ins	factor	mins
21:05:16	9.41	1918.4	86.3	428.4	6.0	3031.7	11870.6	1.5	325.7	90
21:10:03	9.49	1927.3	86.2	401.9	6.2	2981.2	11880.8	1.5	325.7	90
21:15:13	9.57	1940.1	85.9	437.9	6.5	3031.7	11891.6	1.5	325.7	90
21:20:07	9.66	1951.2	87.5	449.8	2.3	2993.8	11901.8	1.5	325.7	90
21:25:02	9.74	1956.2	88.7	451.5	7.0	2987.5	11912.0	1.5	325.7	90
21:30:10	9.82	1959.4	89.7	460.1	3.7	3019.1	11922.7	1.5	325.7	90
START 7th RATE-3400 BPD										
21:35:45	9.92	2000.6	90.7	582.7	7.1	3398.0	11933.0	1.5	325.7	90
21:40:10	9.99	2020.6	91.8	592.7	7.5	3404.4	11946.1	1.5	325.7	90
21:45:06	10.07	2030.4	92.1	608.2	7.7	3360.1	11957.8	1.5	325.7	90
21:50:13	10.16	2037.8	92.8	626.9	7.8	3366.5	11969.8	1.5	325.7	90
21:55:07	10.24	2043.4	93.2	634.3	7.9	3372.8	11981.2	1.5	325.7	90
22:00:02	10.32	2047.9	93.4	629.1	7.9	3353.8	11992.7	1.5	325.7	90
22:05:09	10.41	2051.9	93.7	642.6	7.9	3385.4	12004.7	1.5	325.7	90
22:10:02	10.49	2055.3	94.0	646.2	7.8	3372.8	12016.1	1.5	325.7	90
22:15:09	10.57	2058.6	94.2	643.2	7.7	3391.7	12028.1	1.5	325.7	90
22:20:02	10.65	2061.6	94.3	644.5	7.7	3379.1	12039.5	1.5	325.7	90
22:25:09	10.74	2064.4	94.3	653.2	7.8	3391.7	12051.5	1.5	325.7	90
22:30:03	10.82	2067.0	94.4	657.4	7.8	3379.1	12063.0	1.5	325.7	90
22:35:10	10.91	2069.2	94.5	649.1	7.9	3391.7	12075.0	1.5	325.7	90
22:40:04	10.99	2071.2	94.7	661.4	8.0	3353.8	12086.5	1.5	325.7	90
22:45:10	11.07	2073.5	94.8	655.0	7.9	3385.4	12098.4	1.5	325.7	90
22:50:06	11.16	2075.3	94.8	656.6	7.8	3385.4	12110.0	1.5	325.7	90
22:55:13	11.24	2077.4	94.9	664.8	7.8	3366.5	12122.0	1.5	325.7	90
23:00:05	11.32	2079.2	94.9	667.1	7.9	3429.6	12133.4	1.5	325.7	90
START 8th RATE 3800 BPD										
23:05:49	11.42	2132.5	94.9	0.0	7.7	3814.9	12145.5	1.5	325.7	90
23:10:00	11.49	2149.5	95.3	848.0	7.8	3827.5	12159.9	1.5	325.7	90
23:15:10	11.57	2157.9	95.4	848.0	7.9	3871.7	12173.7	1.5	325.7	90
23:20:06	11.66	2164.5	95.5	845.3	7.9	3827.5	12186.8	1.5	325.7	90
23:25:00	11.74	2169.7	95.5	854.0	7.9	3833.8	12199.8	1.5	325.7	90
23:30:08	11.82	2174.4	95.4	876.5	7.9	3821.2	12213.4	1.5	325.7	90
23:35:08	11.91	2178.2	95.5	866.5	8.0	3796.0	12226.7	1.5	325.7	90
23:40:03	11.99	2180.7	95.6	879.0	7.8	3833.8	12239.7	1.5	325.7	90
23:45:11	12.07	2183.5	95.6	873.1	7.8	3802.3	12253.4	1.5	325.7	90
23:50:05	12.16	2185.8	95.6	889.2	7.7	3814.9	12266.3	1.5	325.7	90
23:55:13	12.24	2188.1	95.5	891.4	7.6	3827.5	12280.0	1.5	325.7	90

B & D WELL TESTERS

Customer: AMOCO PRODUCTION

Well: S.H.U. #33

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TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:mn:sc	hrs	psia	'f	psia	psia	bupd	bbls	ins	factor	mins
0:00:12	12.32	2190.5	95.5	878.3	7.9	3821.2	12293.0	1.5	325.7	90
0:05:09	12.41	2192.5	95.5	877.7	8.2	3796.0	12306.1	1.5	325.7	90
0:10:03	12.49	2194.6	95.5	897.0	8.4	3827.5	12319.1	1.5	325.7	90
0:15:10	12.57	2197.9	95.5	904.2	8.7	3833.8	12332.9	1.5	325.7	90
0:20:04	12.66	2199.5	95.5	886.5	8.9	3789.6	12345.9	1.5	325.7	90
0:25:11	12.74	2200.9	95.5	905.7	9.3	3852.8	12359.5	1.5	325.7	90
0:35:41	12.92	2202.4	95.6	909.1	10.0	3808.6	12376.5	1.5	325.7	90
START 9th RATE-4200 BPD										
0:40:10	12.99	2229.4	95.7	1039.3	9.9	4231.8	12399.6	1.5	325.7	90
0:45:05	13.07	2255.3	95.9	1046.4	10.1	4212.8	12414.0	1.5	325.7	90
0:50:00	13.15	2267.3	95.9	1062.9	10.4	4231.8	12428.4	1.5	325.7	90
0:55:11	13.24	2275.2	96.0	1082.6	10.9	4181.2	12443.6	1.5	325.7	90
1:00:07	13.32	2280.8	96.1	1083.8	11.1	4174.9	12457.9	1.5	325.7	90
1:05:02	13.40	2285.6	96.1	1087.9	11.3	4174.9	12472.3	1.5	325.7	90
1:10:11	13.49	2289.3	96.2	1089.7	11.5	4187.5	12487.3	1.5	325.7	90
1:15:06	13.57	2292.6	96.1	1079.7	11.6	4200.2	12501.6	1.5	325.7	90
1:20:02	13.65	2294.7	96.1	1084.1	11.8	4212.8	12516.0	1.5	325.7	90
1:25:12	13.74	2297.7	96.0	1099.3	12.0	4231.8	12531.1	1.5	325.7	90
1:30:07	13.82	2300.0	96.0	1090.3	12.3	4225.4	12545.5	1.5	325.7	90
1:35:02	13.90	2302.8	96.0	1105.7	12.6	4244.4	12559.9	1.5	325.7	90
1:40:11	13.99	2305.4	96.0	1090.2	13.0	4231.8	12575.0	1.5	325.7	90
1:45:07	14.07	2307.4	96.0	1110.2	13.3	4219.1	12589.5	1.5	325.7	90
1:50:01	14.15	2309.2	96.0	1112.8	13.4	4225.4	12603.8	1.5	325.7	90
1:55:11	14.24	2310.8	96.0	1100.0	13.4	4225.4	12618.9	1.5	325.7	90
2:00:06	14.32	2312.1	96.0	1095.3	13.4	4200.2	12633.3	1.5	325.7	90
START 10th RATE-4600 BPD										
2:05:02	14.40	2356.0	96.1	1258.7	13.3	4623.4	12649.0	1.5	325.7	90
2:10:12	14.49	2372.4	96.3	1273.7	13.6	4610.7	12665.5	1.5	325.7	90
2:15:08	14.57	2381.2	96.4	1275.5	13.8	4604.4	12681.3	1.5	325.7	90
2:20:05	14.66	2387.2	96.4	1292.1	14.2	4610.7	12697.2	1.5	325.7	90
2:25:00	14.74	2391.9	96.4	1286.4	14.5	4598.1	12713.0	1.5	325.7	90
2:30:09	14.82	2396.3	96.3	1292.1	15.0	4598.1	12729.4	1.5	325.7	90
2:35:03	14.90	2399.7	96.3	1295.0	15.3	4598.1	12745.1	1.5	325.7	90
2:40:11	14.99	2402.7	96.3	1297.9	15.6	4604.4	12761.5	1.5	325.7	90
2:45:05	15.07	2405.3	96.3	1323.9	15.7	4591.8	12777.2	1.5	325.7	90
START 20 MIN. SHUT IN										
2:47:28	15.11	2406.5	96.3	1332.0	15.8	4623.4	12784.6	1.5	325.7	90
2:48:10	15.12	2406.9	96.3	1339.6	15.8	4604.4	12787.1	1.5	325.7	90
2:49:12	15.14	2272.6	96.3	517.7	15.6	.	36287.6	1.5	325.7	90
2:50:09	15.16	2128.7	96.3	380.2	15.4	.	76552.0	1.5	325.7	90
2:51:06	15.17	2043.1	96.3	296.7	15.3	.	116392.6	1.5	325.7	90
2:52:09	15.19	1973.4	96.0	228.4	15.2	.	160758.0	1.5	325.7	90
2:53:07	15.21	1922.8	96.0	177.4	15.0	.	201781.9	1.5	325.7	90

B & D WELL TESTERS

Customer: AMOCO PRODUCTION

Well: S.H.U. #33

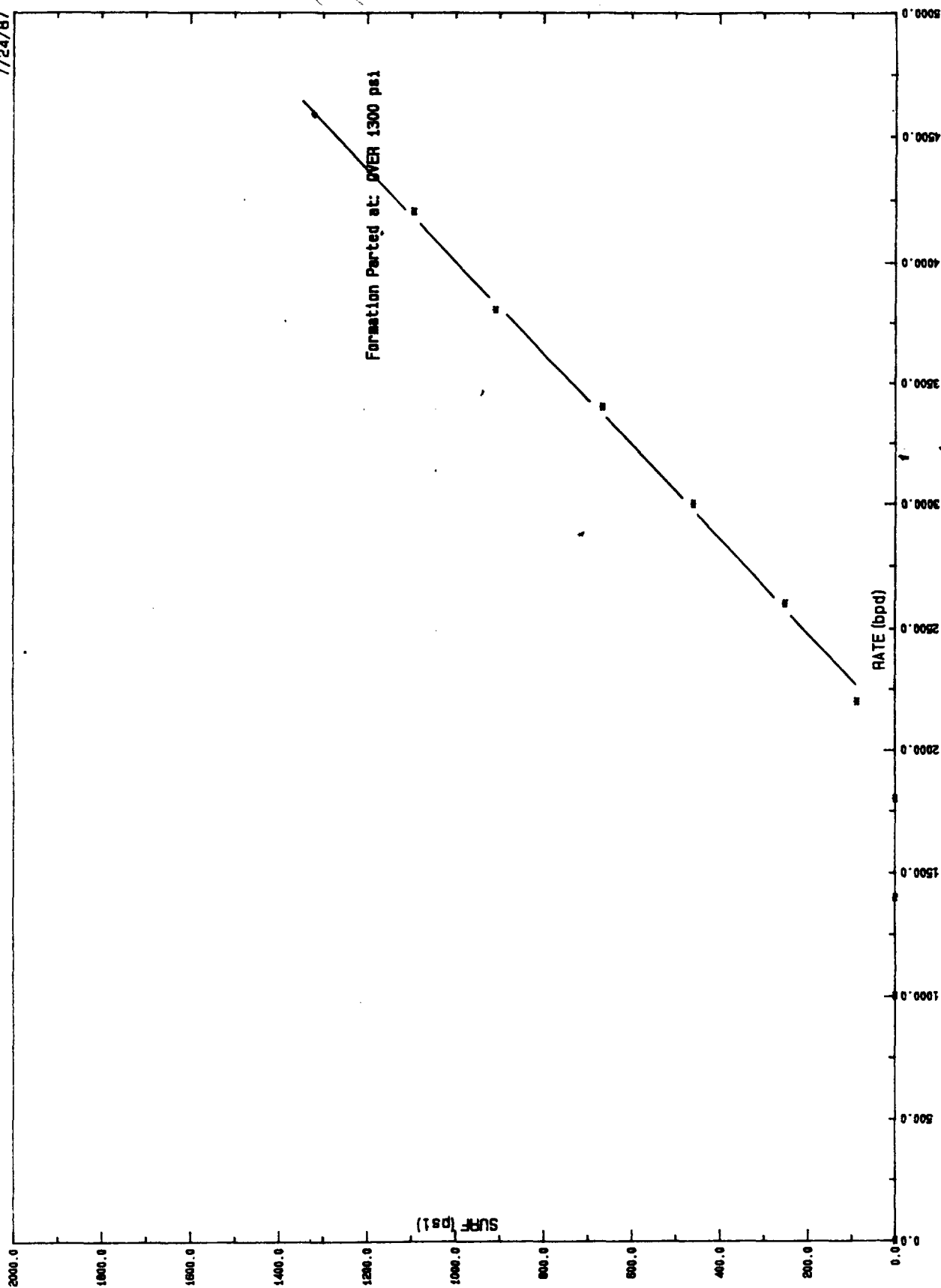
Page: 6
7/25/87

TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:mn:sc	hrs	psia	'F	psia	psia	bwpd	bbls	ins	factor	mins
2:54:10	15.22	1877.3	95.6	132.3	14.9	.	233355.5	1.5	325.7	90
2:55:09	15.24	1841.8	95.6	95.7	14.8	.	258984.6	1.5	325.7	90
2:56:07	15.26	1811.9	95.6	65.6	14.7	.	284277.5	1.5	325.7	90
2:57:10	15.27	1784.1	95.1	39.6	14.6	.	311610.2	1.5	325.7	90
2:58:09	15.29	1774.5	95.1	74.5	14.3	.	333947.6	1.5	325.7	90
2:59:12	15.31	1754.5	94.8	99.7	14.3	.	361443.8	1.5	325.7	90
3:00:10	15.32	1737.3	94.8	102.9	14.3	.	386497.6	1.5	325.7	90
3:01:26	15.34	1716.0	94.8	106.2	14.2	.	392639.2	1.5	325.7	90
3:02:10	15.36	1704.4	94.8	105.1	14.1	.	438407.2	1.5	325.7	90
3:03:13	15.37	1688.3	94.5	103.6	14.0	.	465736.1	1.5	325.7	90
3:04:12	15.39	1674.4	94.5	102.1	13.9	.	490863.2	1.5	325.7	90
3:05:01	15.40	1663.2	94.4	100.6	13.9	.	509915.1	1.5	325.7	90
3:06:13	15.42	1647.5	94.4	101.4	13.8	.	543524.5	1.5	325.7	90
3:07:11	15.44	1635.5	94.4	100.0	13.7	.	568859.8	1.5	325.7	90
END OF TEST										
3:08:00	15.45	1628.6	94.2	101.0	13.7	.	583969.1	1.5	325.7	90

B & D WELL TESTERS

Customer: Amoco Production
Well: S.H.U. #33

7/24/87

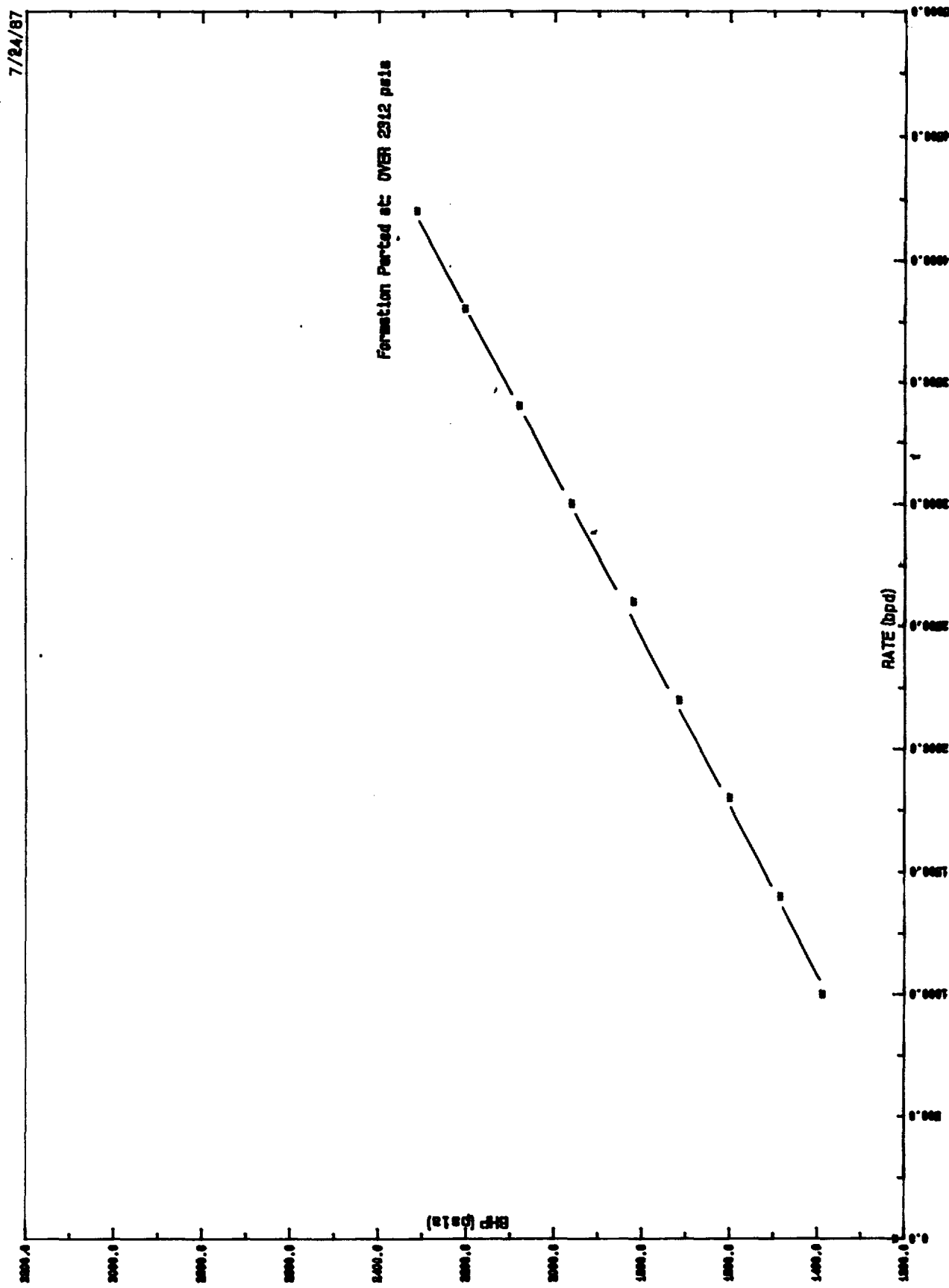


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23
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B & D WELL TESTERS

Customer: Amoco Production
Well: S.H.U. #33

7/24/87



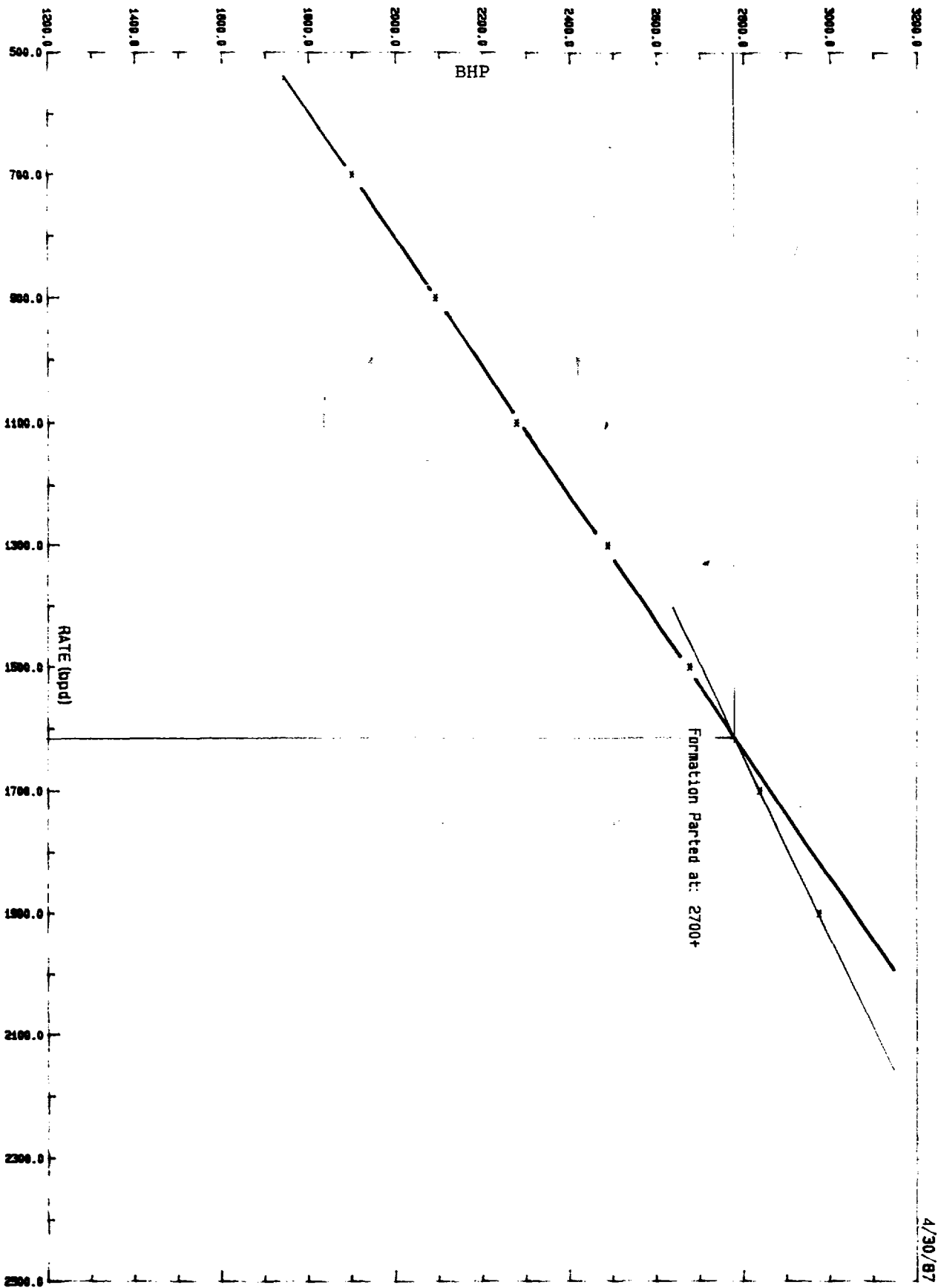
Step Rate Test

Hobbs, New Mexico 88240

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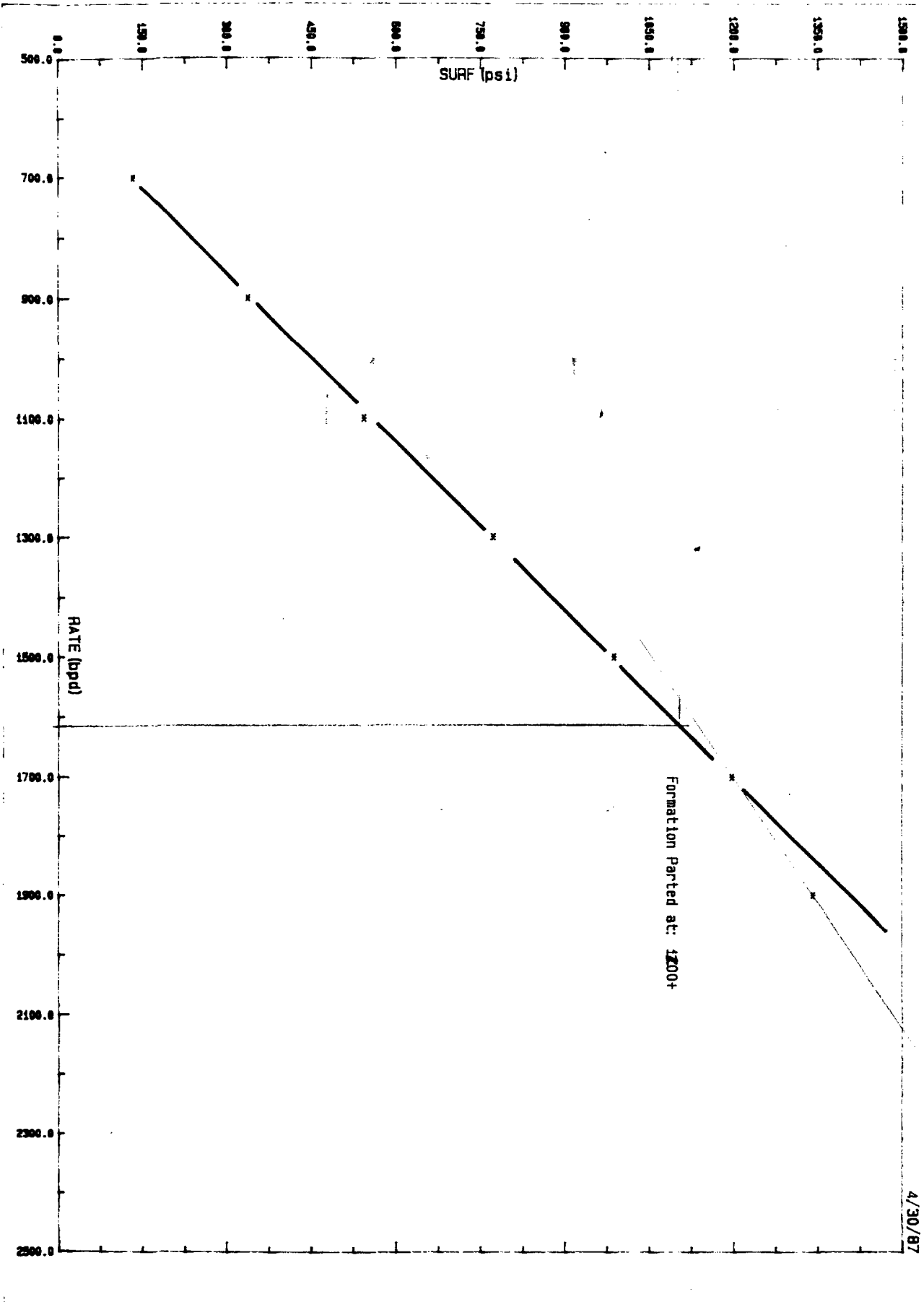
B & D WELL TESTERS

Customer: AMOCO
Well: S. HOBBS UNIT #35



Customer: AMOCO
Well: S. HOBBS UNIT #35

B.S.D. WELL TESTERS



4/30/87

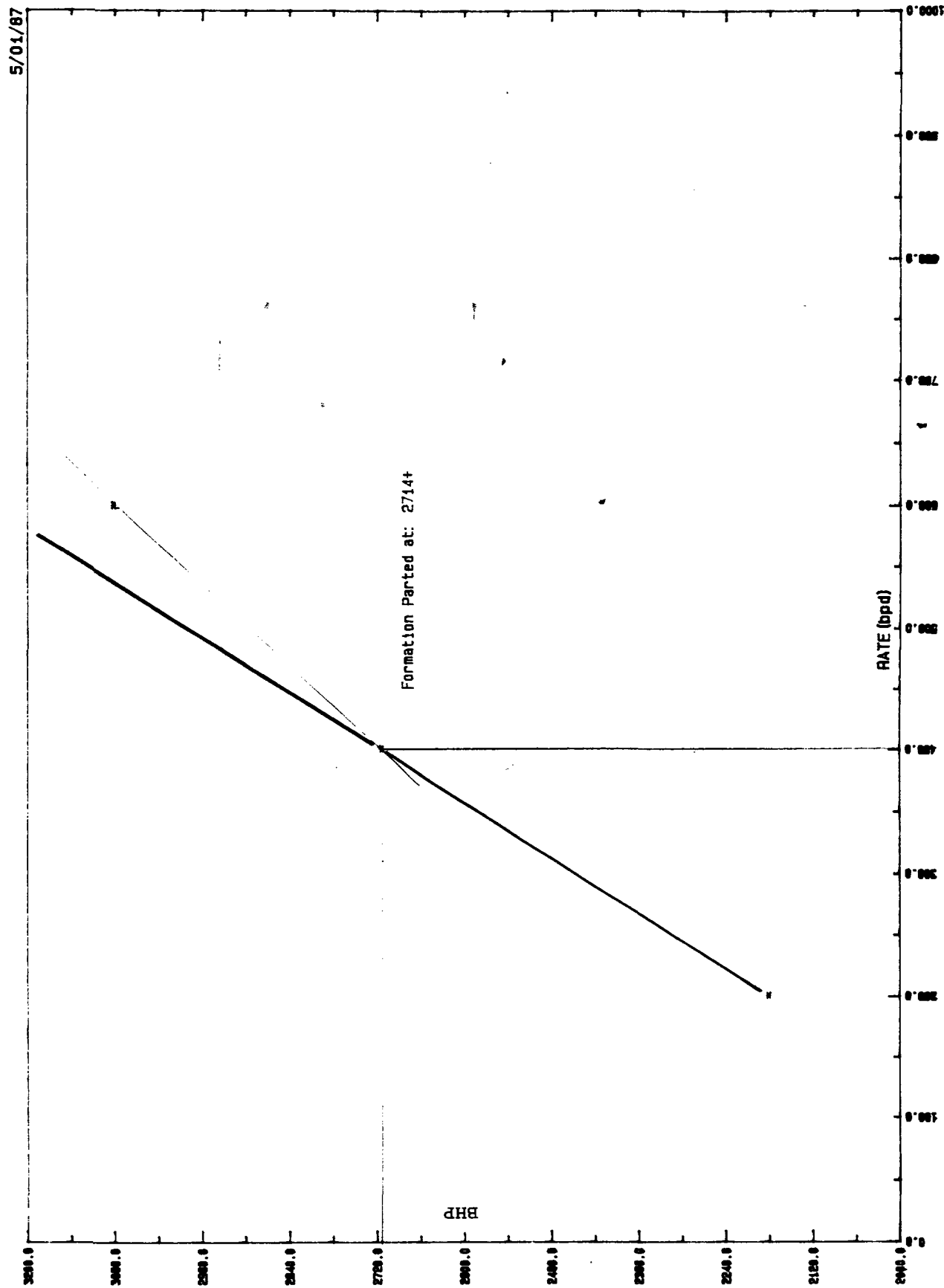
Step Rate Test

Hobbs, New Mexico 88240

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B & D WELL TESTERS

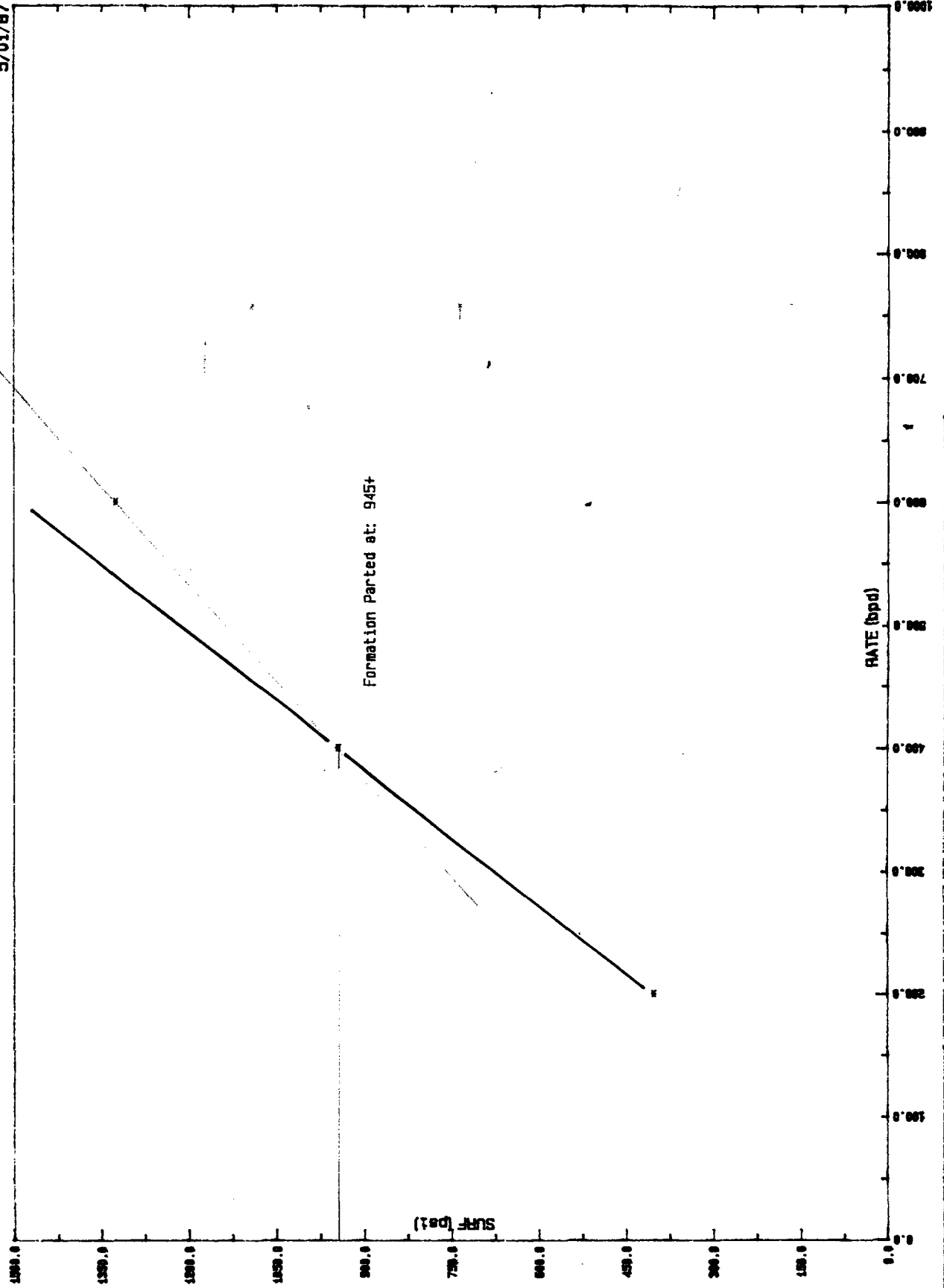
Customer: AMOCO
Well: S.H.U. #37



B & D WELL TESTERS

Customer: AMOCO
Well: S.H.U.#37

5/01/87



B & D WELL TESTERS
P.O. Box 5683 - Hobbs NM
(505) 397-3914

Customer: Amoco Production Co.
State: New Mexico
County: Lea
Well: South Hobbs Unit #171
Date: 7/1/87 - 7/2/87
Type of Test: Step Rate Test
Legal Description: Sec. 9 - T19S - R38E
Tubing: 23/8" Plastic Coated
Depth to Packer: 3990'
CSG: 51/2"
WT: 15.5#
Depth to T.D.: 4300' - PBTD=4285
Perforations: From: 4140' To: 4231'
Midway: 4185'
Type of Completion: Water Injection Well
Company Rep: Mike Madera
Specific Gravity: N/A
XCO2: N/A
XN2: N/A
XH2S: N/A
Meter Run: N/A
Comments: Step Rate Test - Grayburg/San Andres

B & D WELL TESTERS

Customer: AMOCO PRODUCTION

Well: S.H.U. 171

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7/01/87

TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:mn:sc	hrs	psia	'F	psia	psia	bwpd	bbls	ins	factor	mins
15:43:20	.96	2273.4	87.4	465.7	0.0	0.0	0.0	1.5	325.7	90
TOOL @ 4185 @ 15:35										
15:44:08	.98	2273.4	87.4	465.8	0.0	0.0	0.0	1.5	325.7	90
15:45:01	.99	2273.2	87.4	466.0	0.0	0.0	0.0	1.5	325.7	90
WELL ON INJECTION										
15:50:10	1.08	2273.2	87.5	466.2	0.0	0.0	0.0	1.5	325.7	90
15:55:03	1.16	2273.2	87.4	466.7	0.0	0.0	0.0	1.5	325.7	90
SHUT IN WELL TO RIG-UP PUMP										
16:00:08	1.24	2272.8	87.5	466.7	0.0	0.0	0.0	1.5	325.7	90
16:05:07	1.33	1845.9	87.4	10.6	0.0	0.0	0.0	1.5	325.7	90
16:10:03	1.41	1799.2	87.4	12.7	0.0	0.0	0.0	1.5	325.7	90
16:15:08	1.49	1747.0	87.3	12.4	0.0	0.0	0.0	1.5	325.7	90
16:20:00	1.58	1705.7	87.3	12.4	0.0	0.0	0.0	1.5	325.7	90
16:30:02	.01	1640.6	87.3	11.1	0.0	0.0	0.0	1.5	325.7	90
START INJECTING @ 400 BPD										
16:35:02	.09	1691.9	87.3	16.8	0.0	448.4	1.5	1.5	325.7	90
16:40:06	.18	1745.7	87.3	21.2	0.0	353.7	2.9	1.5	325.7	90
16:45:05	.26	1775.2	87.4	23.9	0.0	410.5	4.3	1.5	325.7	90
16:50:08	.34	1793.4	87.5	25.3	0.0	379.0	5.7	1.5	325.7	90
16:55:06	.43	1804.0	87.6	25.2	0.0	360.0	7.1	1.5	325.7	90
17:00:09	.51	1810.8	87.7	23.8	0.0	435.8	8.5	1.5	325.7	90
17:05:00	.59	1814.2	87.8	21.5	0.0	429.5	9.8	1.5	325.7	90
17:10:00	.67	1816.4	87.8	19.0	0.0	341.1	11.2	1.5	325.7	90
17:15:04	.76	1817.9	87.8	16.3	0.0	442.1	12.6	1.5	325.7	90
17:20:08	.84	1818.4	87.8	14.0	0.0	366.3	14.0	1.5	325.7	90
17:25:01	.93	1818.6	87.8	12.5	0.0	404.2	15.4	1.5	325.7	90
17:30:00	1.01	1818.3	87.8	11.5	0.0	429.5	16.8	1.5	325.7	90
17:35:04	1.09	1818.1	87.8	10.7	0.0	397.9	18.2	1.5	325.7	90
17:40:03	1.18	1817.7	87.8	10.5	0.0	442.1	19.6	1.5	325.7	90
17:45:07	1.26	1817.4	87.7	10.3	0.0	397.9	21.0	1.5	325.7	90
17:50:13	1.35	1816.6	87.7	10.3	0.0	372.6	22.4	1.5	325.7	90
17:55:02	1.43	1816.3	87.7	10.2	0.0	379.0	23.8	1.5	325.7	90
18:00:07	1.51	1816.3	87.7	10.2	0.0	461.1	25.2	1.5	325.7	90
START 2ND RATE - 600 BPD										
18:05:10	1.59	1891.3	87.7	74.8	0.0	644.2	27.4	1.5	325.7	90
18:10:12	1.68	1917.8	87.7	87.6	0.0	524.2	29.3	1.5	325.7	90
18:15:10	1.76	1920.6	87.7	107.6	0.0	600.0	31.3	1.5	325.7	90
18:20:04	1.84	1931.9	87.7	107.7	0.0	480.0	33.2	1.5	325.7	90
18:25:03	1.93	1929.5	87.6	116.0	0.0	631.6	35.2	1.5	325.7	90
18:30:07	2.01	1935.4	87.6	115.0	0.0	574.8	37.1	1.5	325.7	90
18:35:07	2.09	1936.7	87.5	114.7	0.0	499.0	39.1	1.5	325.7	90
INJECTION SYSTEM SURGING										
18:40:01	2.18	1937.1	87.5	115.7	0.0	562.1	41.0	1.5	325.7	90
18:50:56	2.36	2016.3	87.5	209.4	0.0	694.8	41.2	1.5	325.7	90
18:55:08	2.43	1981.3	87.3	165.5	0.0	625.3	47.1	1.5	325.7	90

B & D WELL TESTERS

Customer: AMOCO PRODUCTION

Well: S.H.U. 171

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TIME	OT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:mn:sc	hrs	psia	'F	psia	psia	bwpd	bbls	ins	factor	mins
22:35:05	6.09	2432.3	87.4	664.9	0.0	1237.9	4086.5	1.5	325.7	90
22:40:05	6.18	2449.0	87.4	678.9	0.0	1206.4	4090.6	1.5	325.7	90
22:45:07	6.26	2468.0	87.4	689.6	0.0	1206.4	4094.8	1.5	325.7	90
22:50:04	6.34	2481.0	87.4	707.2	0.0	1212.7	4099.0	1.5	325.7	90
22:55:06	6.43	2488.0	87.5	713.0	0.0	1256.9	4103.2	1.5	325.7	90
23:00:10	6.51	2493.5	87.5	719.2	0.0	1231.6	4107.5	1.5	325.7	90
23:05:09	6.59	2495.4	87.5	722.2	0.0	1206.4	4111.7	1.5	325.7	90
23:10:01	6.68	2497.9	87.5	725.0	0.0	1212.7	4115.8	1.5	325.7	90
23:15:00	6.76	2500.6	87.6	725.1	0.0	1219.0	4120.0	1.5	325.7	90
23:20:04	6.84	2503.5	87.6	726.3	0.0	1219.0	4124.3	1.5	325.7	90
23:25:09	6.93	2505.9	87.6	732.0	0.0	1219.0	4128.5	1.5	325.7	90
23:30:07	7.01	2508.4	87.6	730.4	0.0	1200.1	4132.8	1.5	325.7	90
23:35:09	7.09	2509.8	87.6	736.2	0.0	1219.0	4137.0	1.5	325.7	90
23:40:08	7.18	2513.9	87.7	741.8	0.0	1225.3	4141.2	1.5	325.7	90
23:45:10	7.26	2516.5	87.7	742.7	0.0	1219.0	4145.4	1.5	325.7	90
23:50:14	7.35	2516.8	87.7	744.0	0.0	1225.3	4149.7	1.5	325.7	90
23:55:01	7.43	2516.9	87.7	744.9	0.0	1206.4	4153.8	1.5	325.7	90
0:00:05	7.51	2508.3	87.8	733.4	0.0	1212.7	4158.0	1.5	325.7	90
START 6TH RATE - 1400 BPD										
0:05:01	7.59	2582.0	87.8	822.0	0.0	1389.5	4162.7	1.5	325.7	90
0:10:06	7.68	2625.9	87.8	862.8	0.0	1389.5	4167.7	1.5	325.7	90
0:15:08	7.76	2637.4	87.9	876.0	0.0	1402.2	4172.7	1.5	325.7	90
0:20:04	7.84	2643.2	87.9	877.8	0.0	1408.5	4177.5	1.5	325.7	90
0:25:06	7.93	2648.8	87.9	886.0	0.0	1389.5	4182.4	1.5	325.7	90
0:30:02	8.01	2652.8	88.0	898.1	0.0	1414.8	4187.2	1.5	325.7	90
0:35:02	8.09	2655.8	88.0	890.2	0.0	1383.2	4192.1	1.5	325.7	90
0:40:03	8.18	2658.7	88.0	890.8	0.0	1402.2	4197.0	1.5	325.7	90
0:45:10	8.26	2660.4	88.1	894.4	0.0	1364.3	4201.9	1.5	325.7	90
0:50:00	8.34	2663.6	88.1	911.3	0.0	1402.2	4206.6	1.5	325.7	90
0:55:14	8.43	2667.2	88.2	914.2	0.0	1376.9	4211.6	1.5	325.7	90
1:00:01	8.51	2672.6	88.2	917.4	0.0	1421.1	4216.4	1.5	325.7	90
1:05:04	8.59	2678.2	88.2	923.6	0.0	1402.2	4221.3	1.5	325.7	90
1:10:00	8.67	2680.6	88.3	927.2	0.0	1364.3	4226.2	1.5	325.7	90
1:15:01	8.76	2680.9	88.2	930.7	0.0	1433.7	4231.1	1.5	325.7	90
1:20:12	8.84	2683.5	88.3	926.9	0.0	1389.5	4236.1	1.5	325.7	90
1:25:07	8.93	2684.4	88.3	925.7	0.0	1402.2	4241.0	1.5	325.7	90
1:30:08	9.01	2684.6	88.3	934.5	0.0	1440.1	4245.9	1.5	325.7	90
START 7TH RATE - 1600 BPD										
1:35:13	9.10	2764.7	88.4	1030.4	0.0	1591.6	4251.3	1.5	325.7	90
1:40:01	9.18	2791.7	88.4	1059.6	0.0	1635.9	4256.7	1.5	325.7	90
1:45:05	9.26	2805.8	88.4	1068.6	0.0	1629.5	4262.4	1.5	325.7	90
1:50:04	9.34	2813.7	88.5	1080.9	0.0	1610.6	4267.9	1.5	325.7	90
1:55:02	9.43	2819.9	88.5	1083.1	0.0	1598.0	4273.4	1.5	325.7	90
2:00:06	9.51	2824.9	88.5	1092.7	0.0	1604.3	4279.1	1.5	325.7	90
2:05:11	9.59	2825.7	88.6	1085.8	0.0	1579.0	4284.7	1.5	325.7	90

B & D WELL TESTERS

Customer: AMOCO PRODUCTION

Well: S.H.U. 171

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TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:mn:sc	hrs	psia	'F	psia	psia	bwpd	bbls	ins	factor	mins
2:10:00	9.67	2826.2	88.6	1092.9	0.0	1598.0	4290.1	1.5	325.7	90
2:15:04	9.76	2833.2	88.6	1091.5	0.0	1604.3	4295.7	1.5	325.7	90
2:20:03	9.84	2838.8	88.6	1094.3	0.0	1591.6	4301.3	1.5	325.7	90
2:25:06	9.93	2841.4	88.7	1102.4	0.0	1604.3	4306.9	1.5	325.7	90
2:30:11	10.01	2844.1	88.7	1109.1	0.0	1616.9	4312.5	1.5	325.7	90
2:35:01	10.09	2844.7	88.7	1102.2	0.0	1598.0	4318.0	1.5	325.7	90
2:40:07	10.18	2846.0	88.7	1108.0	0.0	1591.6	4323.6	1.5	325.7	90
2:45:07	10.26	2846.7	88.7	1108.1	0.0	1654.8	4329.2	1.5	325.7	90
2:50:03	10.34	2848.7	88.8	1114.1	0.0	1629.5	4334.7	1.5	325.7	90
2:55:04	10.43	2849.3	88.8	1109.5	0.0	1591.6	4340.2	1.5	325.7	90
3:00:00	10.51	2848.3	88.8	1105.8	0.0	1591.6	4345.7	1.5	325.7	90
START 8TH RATE - 1800 BPD										
3:05:04	10.59	2848.4	88.9	1146.7	0.0	1856.9	4352.0	1.5	325.7	90
3:10:03	10.68	2941.9	88.9	1238.8	0.0	1831.7	4358.4	1.5	325.7	90
3:15:05	10.76	2961.7	89.0	1256.0	0.0	1850.6	4364.7	1.5	325.7	90
3:20:06	10.84	2976.5	89.0	1273.7	0.0	1819.0	4371.1	1.5	325.7	90
3:25:09	10.93	2987.6	89.1	1279.8	0.0	1838.0	4377.5	1.5	325.7	90
3:30:08	11.01	2994.4	88.8	1285.9	0.0	1812.7	4383.8	1.5	325.7	90
3:35:00	11.09	2998.8	88.3	1285.0	0.0	1831.7	4390.0	1.5	325.7	90
3:40:10	11.18	3004.4	87.9	1286.5	0.0	1793.8	4396.5	1.5	325.7	90
3:45:02	11.26	3009.4	87.7	1294.9	0.0	1825.3	4402.7	1.5	325.7	90
3:50:05	11.34	3012.0	87.7	1297.5	0.0	1825.3	4409.0	1.5	325.7	90
3:55:03	11.43	3013.3	87.8	1304.1	0.0	1838.0	4415.4	1.5	325.7	90
4:00:05	11.51	3015.0	87.9	1298.6	0.0	1844.3	4421.8	1.5	325.7	90
4:05:04	11.59	3018.0	88.0	1307.7	0.0	1825.3	4428.1	1.5	325.7	90
4:10:06	11.68	3018.9	88.0	1303.3	0.0	1856.9	4434.4	1.5	325.7	90
4:15:08	11.76	3019.8	88.0	1299.1	0.0	1812.7	4440.7	1.5	325.7	90
4:20:07	11.84	3021.5	87.9	1304.4	0.0	1831.7	4447.1	1.5	325.7	90
4:25:02	11.93	3022.5	87.9	1306.2	0.0	1800.1	4453.3	1.5	325.7	90
4:30:02	12.01	3023.7	87.9	1314.6	0.0	1844.3	4459.6	1.5	325.7	90
END TEST -- SURFACE PSI MAXIMUM @ 1314										
4:31:42	12.04	2775.8	88.0	913.0	0.0	0.0	0.0	1.5	325.7	90
4:32:06	12.04	2664.2	88.0	819.4	0.0	0.0	0.0	1.5	325.7	90
20 MINUTE FALL-OFF										
4:33:05	12.06	2517.0	88.0	653.5	0.0	0.0	0.0	1.5	325.7	90
4:34:04	12.08	2373.3	87.9	541.3	0.0	0.0	0.0	1.5	325.7	90
4:35:04	12.09	2289.5	87.9	459.0	0.0	0.0	0.0	1.5	325.7	90
4:36:03	12.11	2224.5	87.9	394.8	0.0	0.0	0.0	1.5	325.7	90
4:37:07	12.13	2168.7	87.9	339.4	0.0	0.0	0.0	1.5	325.7	90
4:38:02	12.14	2128.7	87.9	299.8	0.0	0.0	0.0	1.5	325.7	90
4:39:01	12.16	2091.5	87.8	262.8	0.0	0.0	0.0	1.5	325.7	90
4:40:00	12.17	2059.8	87.8	231.2	0.0	0.0	0.0	1.5	325.7	90
4:41:07	12.19	2028.6	87.7	199.9	0.0	0.0	0.0	1.5	325.7	90
4:42:02	12.21	2006.2	87.7	177.5	0.0	0.0	0.0	1.5	325.7	90
4:43:01	12.23	1984.6	87.7	155.8	0.0	0.0	0.0	1.5	325.7	90

B & D WELL TESTERS

Customer: AMOCO PRODUCTION

Well: S.H.U. 171

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TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:mn:sc	hrs	psia	'F	psia	psia	bwpd	bbls	ins	factor	mins
4:44:01	12.24	1965.1	87.7	136.3	0.0	0.0	0.0	1.5	325.7	90
4:45:08	12.26	1945.5	87.6	116.6	0.0	0.0	0.0	1.5	325.7	90
4:46:03	12.28	1930.9	87.6	102.1	0.0	0.0	0.0	1.5	325.7	90
4:47:03	12.29	1916.4	87.6	87.5	0.0	0.0	0.0	1.5	325.7	90
4:48:02	12.31	1902.9	87.6	74.0	0.0	0.0	0.0	1.5	325.7	90
4:49:05	12.33	1889.7	87.6	60.8	0.0	0.0	0.0	1.5	325.7	90
4:50:05	12.34	1877.9	87.6	48.8	0.0	0.0	0.0	1.5	325.7	90
4:51:05	12.36	1866.7	87.6	37.6	0.0	0.0	0.0	1.5	325.7	90
4:52:04	12.38	1856.6	87.6	27.6	0.0	0.0	0.0	1.5	325.7	90
4:53:07	12.39	1847.4	87.6	18.5	0.0	0.0	0.0	1.5	325.7	90
4:54:07	12.41	1842.1	87.6	13.6	0.0	0.0	0.0	1.5	325.7	90
4:55:06	12.43	1839.6	87.6	11.2	0.0	0.0	0.0	1.5	325.7	90

WELL ON VACUUM

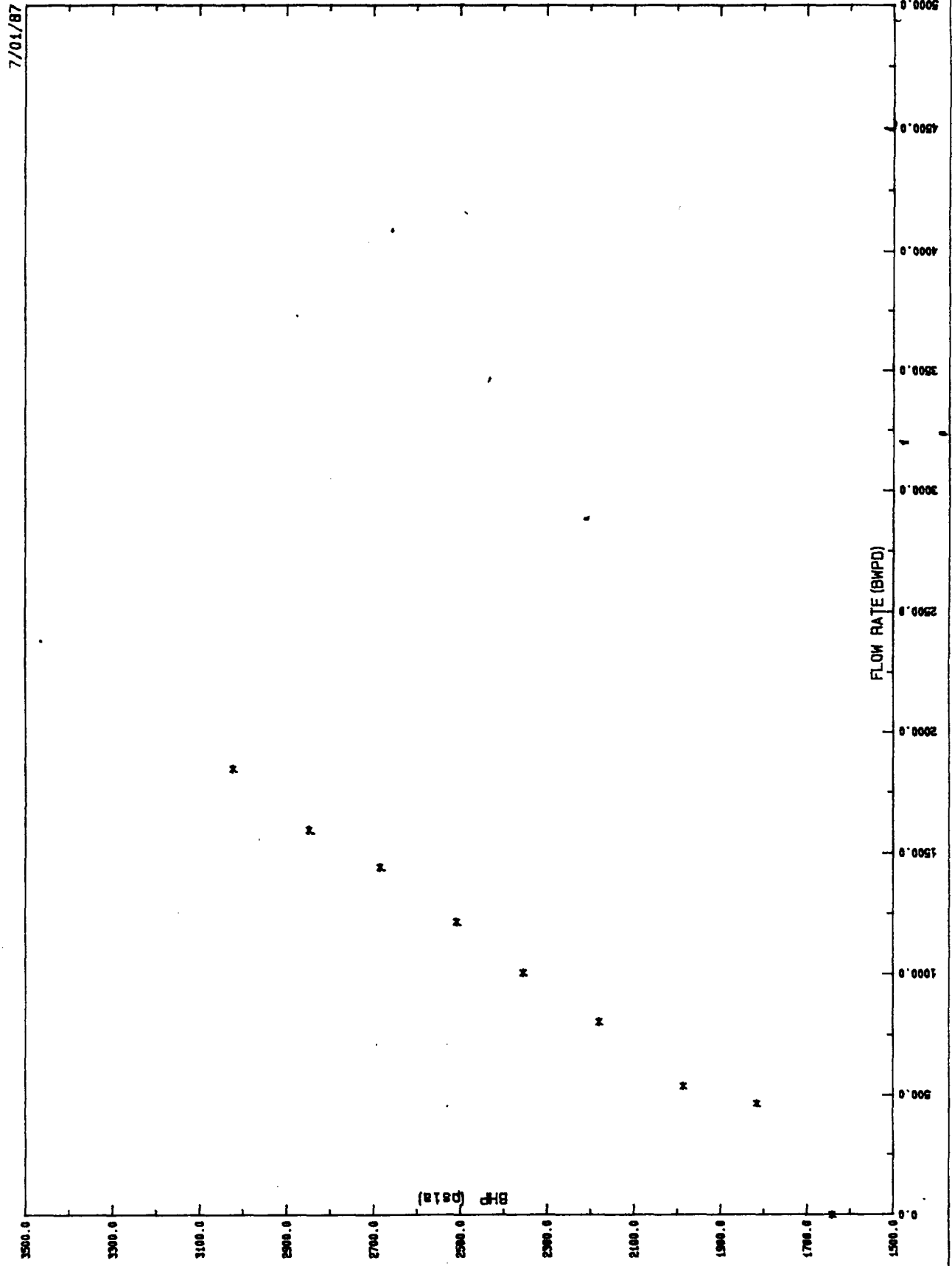
TOTAL BBLs INJECTED DURING TEST=529.8

4:56:01	12.44	1839.2	87.6	11.1	0.0	0.0	0.0	1.5	325.7	90
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END OF TEST

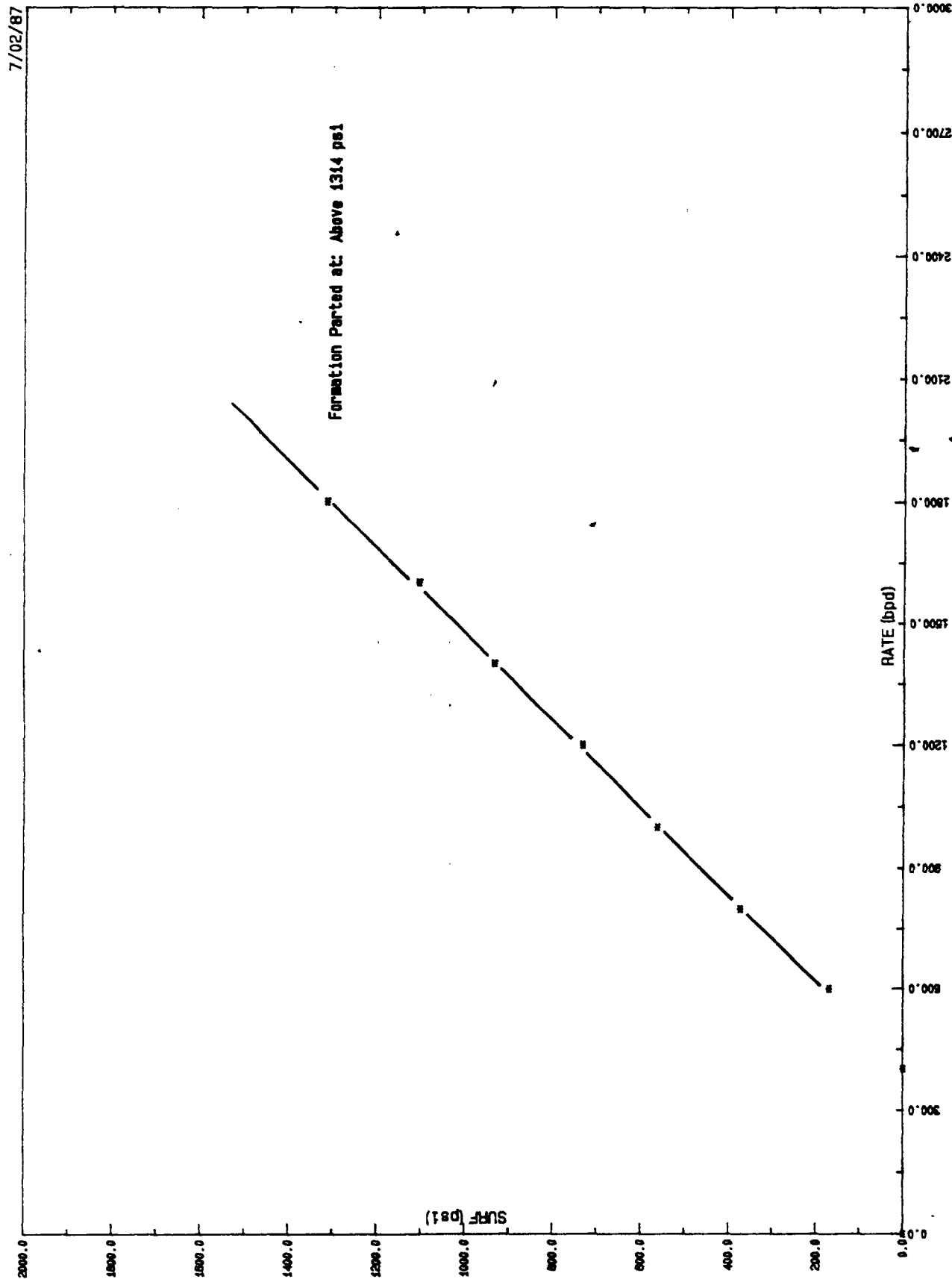
B & D WELL TESTERS

Customer: AMOCO PRODUCTION
Well: S.H.U. 171



B & D WELL TESTERS

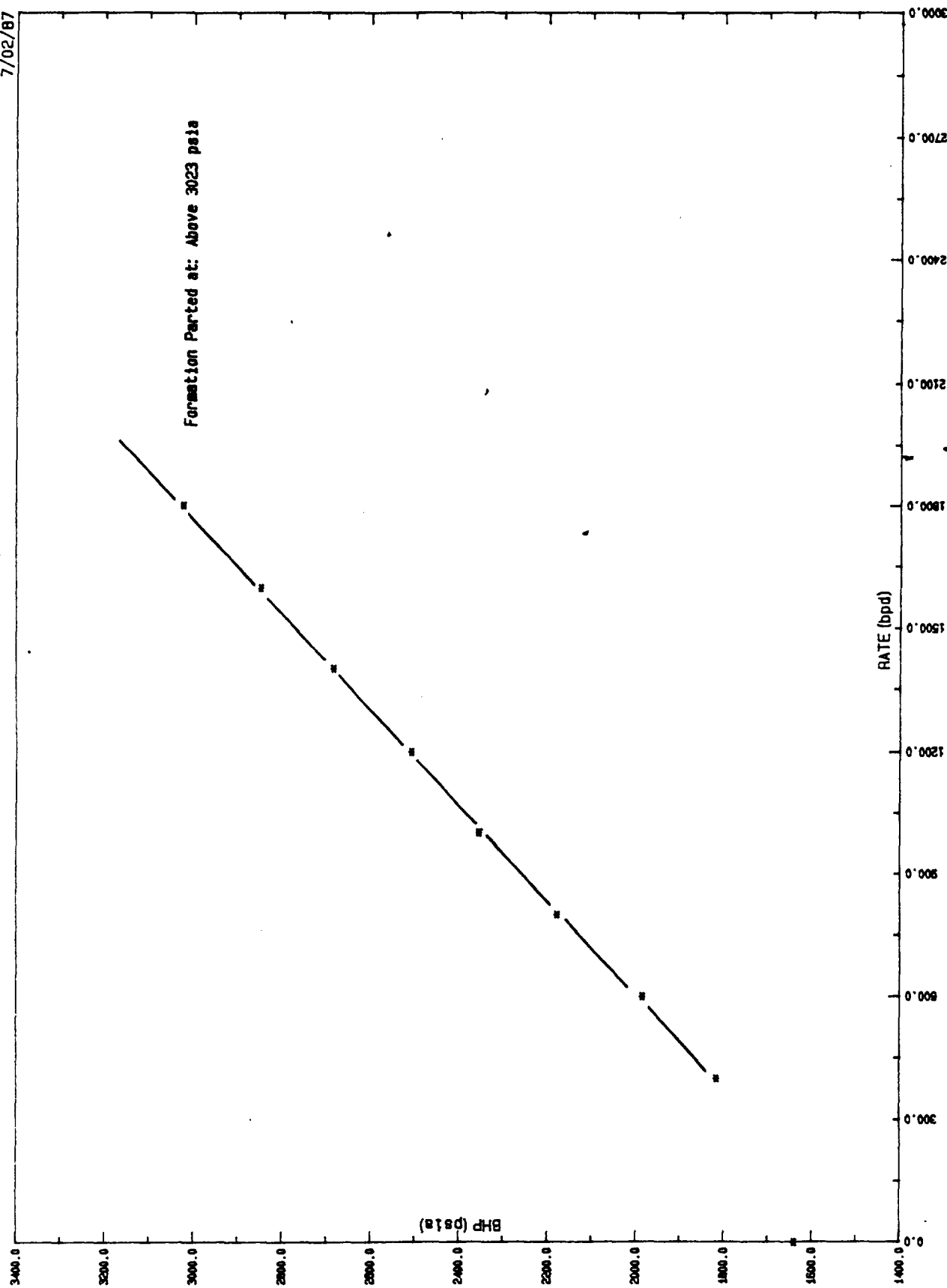
Customer: Amoco Production
Well: S.H.U. #171



B & D WELL TESTERS

Customer: Amoco Production
Well: S.H.U. #471

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B & D WELL TESTERS

Customer: AMOCO PRODUCTION CO.

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Well: S.H.U. #212

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TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:min:sc	hrs	psia	°F	psia	psia	bwpd	bbls	ins	factor	mins
9:18:40	.06	17.7	87.2	3.7	13.2	0.0	0.0	1.5	325.7	90
TOOL @ SURFACE										
9:19:02	.07	17.7	87.2	3.6	13.2	0.0	0.0	1.5	325.7	90
WELL S.I. - R.U. S.R.U.										
9:20:07	.08	17.8	87.2	4.2	13.8	0.0	0.0	1.5	325.7	90
9:21:07	.10	17.4	87.4	3.6	11.7	0.0	0.0	1.5	325.7	90
9:22:05	.12	17.2	87.4	3.4	11.8	0.0	0.0	1.5	325.7	90
9:23:05	.13	13.7	87.7	3.9	12.2	0.0	0.0	1.5	325.7	90
9:24:06	.15	18.2	88.0	3.5	12.1	0.0	0.0	1.5	325.7	90
9:25:04	.17	10.2	88.0	4.0	12.2	0.0	0.0	1.5	325.7	90
9:30:07	.25	861.6	89.7	3.9	11.8	0.0	0.0	1.5	325.7	90
TOOL @ 4240FT.										
START TEST@1000BPD.										
9:32:34	.00	954.1	91.0	4.1	11.8	0.0	0.0	1.5	325.7	90
9:33:06	.01	953.7	91.0	4.1	11.7	0.0	0.0	1.5	325.7	90
9:34:02	.03	954.2	91.0	0.0	11.7	997.9	.9	1.5	325.7	90
9:35:10	.05	958.4	91.0	0.0	11.6	1035.8	1.7	1.5	325.7	90
9:40:03	.13	.2	.3	0.0	12.5	1042.1	.5	1.5	325.7	90
9:45:11	.21	.2	.3	0.0	13.3	1086.4	1.2	1.5	325.7	90
9:50:03	.30	.5	.3	0.0	14.1	1016.9	.6	1.5	325.7	90
9:55:10	.38	1390.0	91.1	0.0	14.1	934.8	1.6	1.5	325.7	90
10:00:03	.46	1434.6	91.0	0.0	14.4	1048.5	5.1	1.5	325.7	90
10:05:08	.55	1485.2	90.8	0.0	15.1	1035.8	8.7	1.5	325.7	90
10:10:02	.63	1517.0	90.8	0.0	14.9	997.9	12.2	1.5	325.7	90
10:15:09	.71	1539.0	91.1	0.0	15.4	1010.6	15.8	1.5	325.7	90
10:20:00	.79	1553.4	90.8	0.0	15.0	997.9	19.1	1.5	325.7	90
10:25:08	.88	1564.2	90.5	0.0	15.8	997.9	22.6	1.5	325.7	90
10:30:00	.96	1571.2	90.5	0.0	15.6	991.6	26.0	1.5	325.7	90
10:35:06	1.05	1577.3	90.4	0.0	16.1	1004.3	29.6	1.5	325.7	90
10:40:03	1.13	1581.0	90.4	0.0	16.2	972.7	32.9	1.5	325.7	90
10:45:09	1.21	1580.7	90.4	0.0	15.7	991.6	36.5	1.5	325.7	90
10:50:01	1.29	1584.4	90.4	0.0	15.6	1010.6	39.8	1.5	325.7	90
10:55:10	1.38	1587.2	90.4	0.0	15.5	997.9	43.4	1.5	325.7	90
11:00:01	1.46	1590.5	90.4	0.0	15.9	1004.3	46.7	1.5	325.7	90
START 2nd RATE-1400BPD										
11:05:00	1.54	1713.2	90.4	0.0	15.7	1421.1	51.9	1.5	325.7	90
11:10:09	1.63	1814.5	90.4	49.4	16.9	1339.0	56.8	1.5	325.7	90
11:15:01	1.71	1885.6	90.4	121.0	17.0	1376.9	61.5	1.5	325.7	90
11:20:06	1.80	1910.2	90.4	148.0	17.7	1414.8	66.5	1.5	325.7	90
11:25:02	1.88	1914.9	90.5	151.6	18.5	1427.4	71.3	1.5	325.7	90
11:30:06	1.96	1914.3	90.6	149.5	18.5	1402.2	76.4	1.5	325.7	90
11:35:09	2.05	1914.1	90.7	150.0	19.7	1421.1	81.3	1.5	325.7	90
11:40:06	2.13	1916.8	90.7	151.4	20.2	1402.2	86.2	1.5	325.7	90
11:45:08	2.21	1918.5	90.8	152.9	20.8	1402.2	91.1	1.5	325.7	90

B & D WELL TESTERS

Customer: AMOCO PRODUCTION CO.

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Well: S.H.U. #212

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TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:mn:sc	hrs	psia	'F	psia	psia	bwpd	bbls	ins	factor	mins
11:50:11	2.30	1917.7	90.8	152.0	21.2	1421.1	96.0	1.5	325.7	90
11:55:08	2.38	1919.6	90.9	153.3	21.3	1414.8	100.9	1.5	325.7	90
12:00:02	2.46	1919.4	91.0	153.6	21.9	1421.1	105.7	1.5	325.7	90
12:05:05	2.55	1918.1	91.0	151.9	22.5	1402.2	110.6	1.5	325.7	90
12:10:13	2.63	1916.5	91.1	150.3	22.8	1408.5	115.6	1.5	325.7	90
12:15:05	2.71	1916.9	91.1	151.4	23.1	1395.8	120.4	1.5	325.7	90
12:20:10	2.80	1915.8	91.1	150.8	23.1	1408.5	125.3	1.5	325.7	90
12:25:05	2.88	1918.9	91.2	153.4	23.8	1395.8	130.0	1.5	325.7	90
12:30:08	2.96	1918.9	91.2	153.1	24.1	1395.8	135.0	1.5	325.7	90
START 3RD. RATE @ 1800BPD.										
12:35:01	3.05	2151.9	91.3	421.5	36.8	1831.7	141.0	1.5	325.7	90
12:40:07	3.13	2154.9	91.4	420.7	44.0	1800.1	147.4	1.5	325.7	90
12:45:04	3.21	2153.1	91.5	417.3	45.8	1787.4	153.6	1.5	325.7	90
12:50:10	3.30	2154.4	91.5	418.9	40.9	1774.8	159.9	1.5	325.7	90
12:55:02	3.38	2157.3	91.6	422.7	36.1	1806.4	166.0	1.5	325.7	90
13:00:12	3.46	2155.1	91.6	420.0	33.3	1781.1	172.4	1.5	325.7	90
13:05:05	3.55	2156.3	91.7	420.8	34.2	1812.7	178.4	1.5	325.7	90
13:10:13	3.63	2156.7	91.8	420.5	34.6	1793.8	184.7	1.5	325.7	90
13:15:06	3.71	2155.2	91.9	419.3	35.1	1768.5	190.8	1.5	325.7	90
13:20:00	3.79	2154.9	91.9	419.4	35.0	1787.4	196.9	1.5	325.7	90
13:25:09	3.88	2152.5	92.0	416.7	36.2	1774.8	203.2	1.5	325.7	90
13:30:01	3.96	2153.0	92.0	418.0	37.3	1781.1	209.3	1.5	325.7	90
13:35:00	4.04	2155.7	92.1	421.0	38.2	1781.1	215.5	1.5	325.7	90
13:40:05	4.13	2155.6	92.1	420.7	38.0	1768.5	221.8	1.5	325.7	90
13:45:02	4.21	2153.4	92.2	416.9	38.2	1762.2	227.8	1.5	325.7	90
13:50:07	4.30	2142.7	92.2	403.9	36.6	1755.9	234.1	1.5	325.7	90
13:55:00	4.38	2143.3	92.2	405.9	35.0	1755.9	240.1	1.5	325.7	90
14:00:10	4.46	2143.9	92.3	407.3	33.4	1749.5	246.4	1.5	325.7	90
START 4th RATE-2200 BPD										
14:05:09	4.55	2347.4	92.3	656.9	37.5	2141.1	253.3	1.5	325.7	90
14:10:02	4.63	2412.0	92.4	715.6	40.4	2204.3	260.8	1.5	325.7	90
14:15:07	4.71	2419.1	92.4	718.6	43.2	2223.3	268.6	1.5	325.7	90
14:20:04	4.80	2425.1	92.5	735.5	45.0	2204.3	276.2	1.5	325.7	90
14:25:10	4.88	2427.5	92.6	731.2	46.8	2229.6	284.1	1.5	325.7	90
14:30:03	4.96	2425.4	92.6	735.8	48.1	2242.2	291.7	1.5	325.7	90
14:35:01	5.04	2425.1	92.7	728.3	49.2	2223.3	299.4	1.5	325.7	90
14:40:06	5.13	2424.9	92.7	731.5	50.5	2235.9	307.3	1.5	325.7	90
14:45:15	5.22	2427.4	92.8	735.1	52.2	2248.5	315.2	1.5	325.7	90
14:50:08	5.30	2410.6	92.9	712.4	52.1	2229.6	322.8	1.5	325.7	90
14:55:01	5.38	2406.0	92.9	711.0	54.2	2235.9	330.4	1.5	325.7	90
15:00:10	5.46	2404.8	92.9	710.3	55.1	2223.3	338.2	1.5	325.7	90
15:05:01	5.55	2403.7	93.0	705.3	55.8	2204.3	345.7	1.5	325.7	90
15:10:05	5.63	2400.6	93.0	702.4	56.9	2191.7	353.5	1.5	325.7	90
15:15:03	5.71	2398.3	93.1	700.7	58.4	2198.0	361.0	1.5	325.7	90
15:20:10	5.80	2398.6	93.1	703.9	60.3	2210.6	368.9	1.5	325.7	90

B & D WELL TESTERS

Customer: AMOCO PRODUCTION CO.

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Well: S.H.U. #212

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TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:min:sc	hrs	psia	'F	psia	psia	bwpd	bbls	ins	factor	mins
15:25:02	5.88	2398.2	93.1	703.0	61.2	2185.4	376.3	1.5	325.7	90
15:30:07	5.96	2399.7	93.2	703.8	61.5	2229.6	384.1	1.5	325.7	90
START 5TH. RATE @ 2600BPD.										
15:35:08	6.05	2546.6	93.2	913.2	60.3	2614.8	392.3	1.5	325.7	90
15:40:16	6.13	2622.9	93.3	986.4	33.9	2595.9	401.5	1.5	325.7	90
15:45:09	6.21	2627.9	93.5	983.5	15.7	2602.2	410.4	1.5	325.7	90
15:50:02	6.30	2637.4	93.0	1000.1	7.2	2614.8	419.2	1.5	325.7	90
15:55:11	6.38	2640.9	91.7	994.6	2.4	2608.5	428.4	1.5	325.7	90
16:00:04	6.46	2640.4	91.1	994.6	.3	2596.9	437.4	1.5	325.7	90
16:05:09	6.55	2640.2	90.6	994.7	0.0	2589.6	446.5	1.5	325.7	90
16:10:05	6.63	2640.0	90.0	993.6	0.0	2595.9	455.4	1.5	325.7	90
16:15:09	6.71	2639.1	89.6	993.8	0.0	2589.6	464.6	1.5	325.7	90
16:20:01	6.79	2639.0	89.2	992.8	0.0	2621.2	473.4	1.5	325.7	90
16:25:09	6.88	2531.1	88.7	901.9	0.0	2627.5	15401.1	1.5	325.7	90
16:30:01	6.96	2632.5	88.6	988.6	0.0	2608.5	15409.9	1.5	325.7	90
16:35:06	7.05	2642.6	88.3	1001.0	0.0	2627.5	15419.1	1.5	325.7	90
16:40:03	7.13	2648.1	88.0	1006.6	0.0	2589.6	15428.0	1.5	325.7	90
16:45:08	7.21	2638.2	88.7	994.0	1.1	2595.9	15437.2	1.5	325.7	90
16:50:01	7.30	2632.8	89.4	987.7	3.2	2595.9	15446.0	1.5	325.7	90
16:55:01	7.38	2630.7	89.9	974.9	6.8	2589.6	15455.0	1.5	325.7	90
17:00:12	7.46	2628.3	90.4	981.8	10.1	2564.3	15464.3	1.5	325.7	90
START 6TH. RATE @ 3000BPD.										
17:05:02	7.55	2819.8	90.8	1226.9	16.5	2968.5	30352.6	1.5	325.7	90
17:10:07	7.63	2823.1	91.2	1240.5	23.7	3031.7	30363.3	1.5	325.7	90
17:15:05	7.71	2821.3	91.8	1225.1	31.9	3038.0	30373.6	1.5	325.7	90
17:20:10	7.80	2817.8	92.1	1225.2	38.4	3038.0	30384.4	1.5	325.7	90
17:25:04	7.88	2817.0	92.3	1224.1	46.7	3012.8	30394.7	1.5	325.7	90
17:30:02	7.96	2817.3	92.7	1222.1	55.1	3038.0	30404.9	1.5	325.7	90
17:35:09	8.05	2818.3	92.9	1227.7	62.8	3088.6	30415.8	1.5	325.7	90
17:40:02	8.13	2813.2	93.1	1209.6	70.3	3038.0	30426.0	1.5	325.7	90
17:45:11	8.21	2820.3	93.4	1224.9	77.2	3038.0	30436.8	1.5	325.7	90
17:50:04	8.30	2815.2	93.5	1219.0	84.3	3025.4	30447.0	1.5	325.7	90
17:55:10	8.38	2809.4	93.7	1221.0	90.1	3025.4	30457.7	1.5	325.7	90
18:00:06	8.46	2809.3	93.9	1225.9	94.0	3025.4	30468.1	1.5	325.7	90
18:05:00	8.54	2808.1	94.0	1206.8	100.5	2993.8	30478.3	1.5	325.7	90
18:10:07	8.63	2808.1	94.1	1203.3	103.8	3019.1	30489.7	1.5	325.7	90
18:15:04	8.71	2808.7	94.2	1207.0	108.8	3025.4	30500.1	1.5	325.7	90
18:20:10	8.80	2799.8	94.3	1211.9	112.2	2987.5	30510.7	1.5	325.7	90
18:25:04	8.88	2806.7	94.4	1206.8	116.3	2993.8	30520.8	1.5	325.7	90
18:30:01	8.96	2812.5	94.5	1217.4	122.6	2968.5	30531.0	1.5	325.7	90
START 7th RATE-3400 BPD										
18:31:57	8.99	2900.4	94.5	1384.0	127.1	3442.3	30535.5	1.5	325.7	90
18:32:09	9.00	2925.1	94.5	1415.3	128.4	3429.6	30536.0	1.5	325.7	90
18:33:03	9.01	2912.8	94.6	1333.3	126.6	3057.0	30537.9	1.5	325.7	90
18:34:05	9.03	2875.7	94.6	1301.2	127.2	3057.0	30540.2	1.5	325.7	90

B & D WELL TESTERS

Customer: AMOCO PRODUCTION CO.

Well: S.H.U. #212

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TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:mn:sc	hrs	psia	'F	psia	psia	bwpd	bbls	ins	factor	mins
18:35:10	9.05	2877.2	94.6	1301.7	127.6	3101.2	30542.4	1.5	325.7	90

END TEST

START 20MIN. FALL OFF

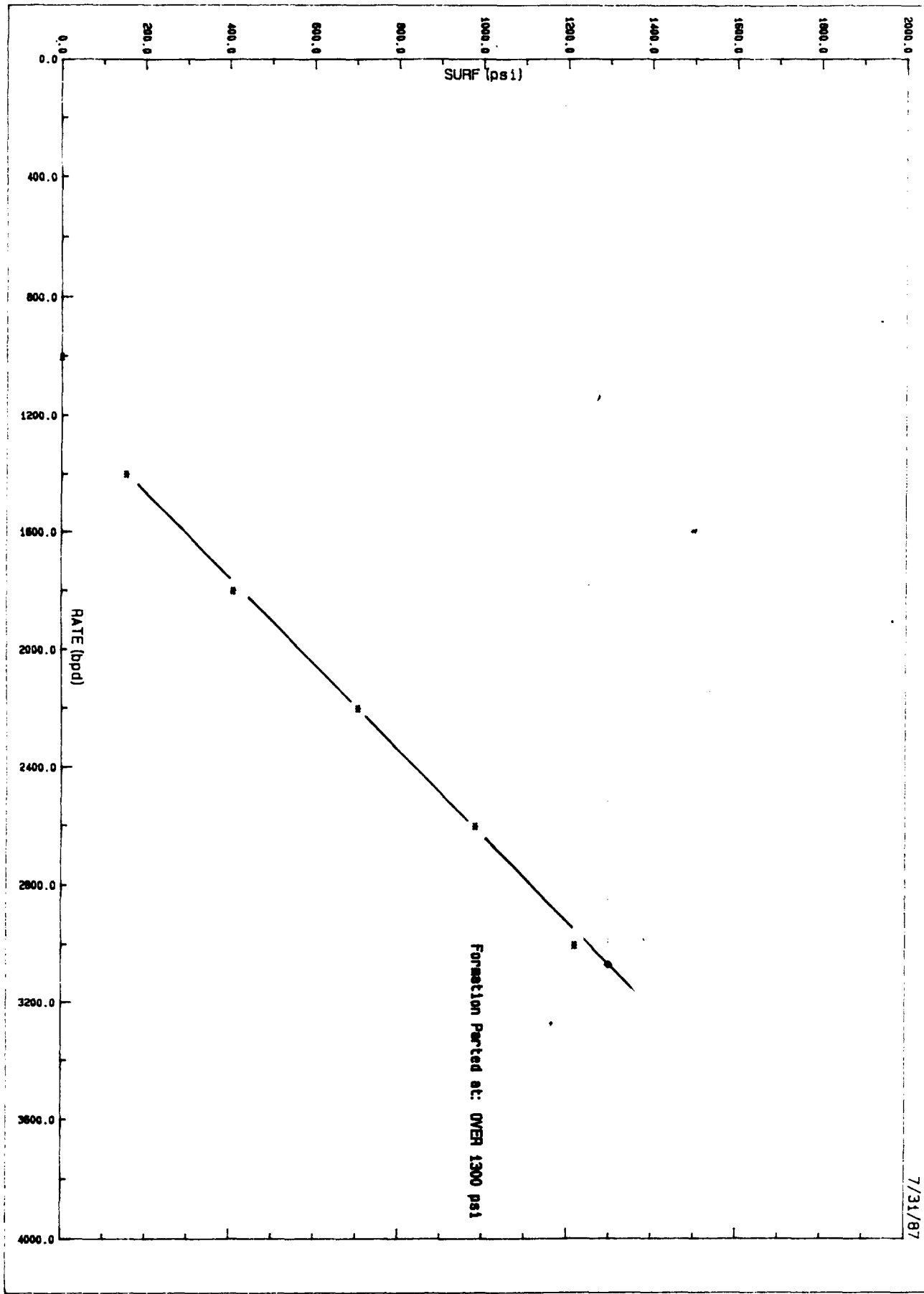
18:36:15	9.07	2877.3	94.6	1295.3	119.5	.5	53662.7	1.5	325.7	90
18:37:04	9.08	2092.8	94.6	226.3	102.9	0.0	0.0	1.5	325.7	90
18:38:05	9.10	1805.2	94.5	3.1	96.2	0.0	0.0	1.5	325.7	90
18:39:02	9.11	1752.9	94.5	1.8	95.6	0.0	0.0	1.5	325.7	90
18:40:03	9.13	1700.6	94.3	1.6	93.3	0.0	0.0	1.5	325.7	90
18:41:04	9.15	1650.7	94.3	1.5	90.3	0.0	0.0	1.5	325.7	90
18:42:01	9.16	1606.8	94.3	1.5	87.8	0.0	0.0	1.5	325.7	90
18:43:02	9.18	1563.8	94.2	1.1	84.9	0.0	0.0	1.5	325.7	90
18:44:08	9.20	1526.5	94.2	9.3	82.5	0.0	0.0	1.5	325.7	90
18:45:00	9.21	1495.0	94.2	9.3	79.7	0.0	0.0	1.5	325.7	90
18:46:01	9.23	1460.3	94.1	9.1	76.3	0.0	0.0	1.5	325.7	90
18:47:06	9.25	1426.2	94.1	7.9	72.8	0.0	0.0	1.5	325.7	90
18:48:07	9.26	1397.4	94.0	7.2	70.0	0.0	0.0	1.5	325.7	90
18:49:04	9.28	1372.5	94.0	6.6	67.8	0.0	0.0	1.5	325.7	90
18:50:06	9.30	1347.5	93.9	6.1	65.3	0.0	0.0	1.5	325.7	90
18:51:03	9.31	1325.6	93.9	5.7	63.0	0.0	0.0	1.5	325.7	90
18:52:05	9.33	1304.5	93.6	5.4	60.8	0.0	0.0	1.5	325.7	90
18:53:02	9.35	1286.4	93.6	5.0	58.7	0.0	0.0	1.5	325.7	90
18:54:03	9.36	1268.9	93.4	4.8	56.7	0.0	0.0	1.5	325.7	90
18:55:04	9.38	1252.7	93.3	4.5	54.7	0.0	0.0	1.5	325.7	90
18:56:02	9.40	1238.8	93.3	4.3	53.0	0.0	0.0	1.5	325.7	90
18:57:03	9.41	1225.3	93.1	4.0	51.3	0.0	0.0	1.5	325.7	90

END 20MIN. FALL OFF

END OF TEST

B & D WELL TESTERS

Customer: Amoco Production
Well: S.H.U. #212

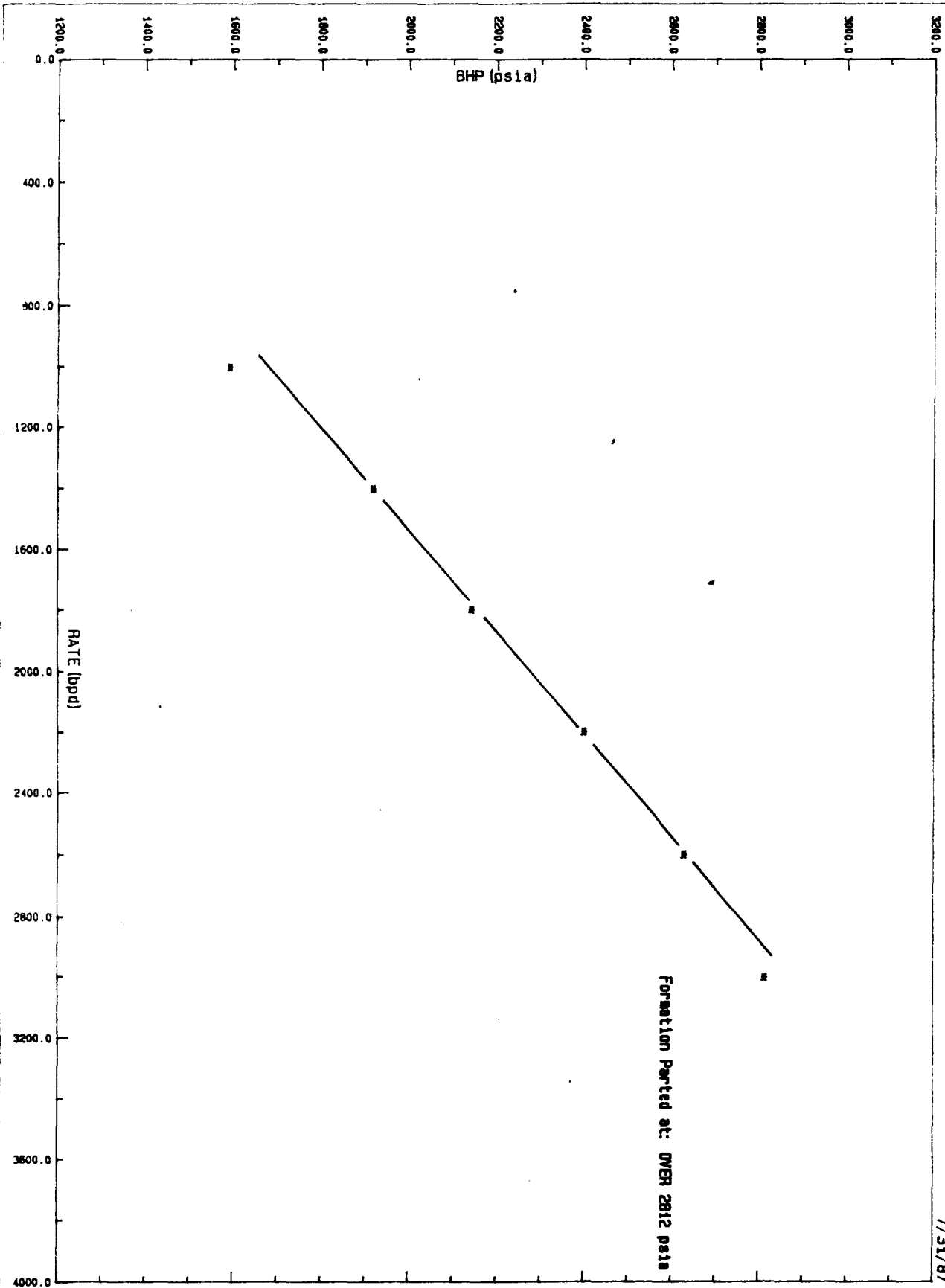


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B & D WELL TESTERS

Customer: Amoco Production
Well: S.H.U. #212

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B & D WELLTESTERS

Customer: AMOCO PRODUCTION

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Well: S.H.U. #218

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TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:min:sc	hrs	psia	'F	psia	psia	bwpd	bbls	ins	factor	mins
11:31:44	0.00	2486.5	90.9	809.5	6.8	0.0	0.0	1.5	325.7	90
11:32:06	.01	2486.8	90.9	809.3	6.6	0.0	0.0	1.5	325.7	90
WELL ON INJECTION										
11:33:06	.02	2487.1	90.9	810.1	6.8	0.0	0.0	1.5	325.7	90
11:34:07	.04	2487.3	90.9	809.9	7.4	0.0	0.0	1.5	325.7	90
11:35:08	.06	2487.3	90.9	807.8	7.2	0.0	0.0	1.5	325.7	90
11:36:04	.07	2487.0	90.9	808.6	7.5	0.0	0.0	1.5	325.7	90
11:37:04	.09	2486.3	90.9	805.9	7.9	0.0	0.0	1.5	325.7	90
11:38:08	.11	2486.2	90.9	806.7	8.1	0.0	0.0	1.5	325.7	90
SHUT IN WELL										
11:39:05	.12	2487.2	90.9	809.6	8.8	0.0	0.0	1.5	325.7	90
11:40:08	.14	2489.1	91.0	810.5	8.9	0.0	0.0	1.5	325.7	90
11:45:07	.22	1903.4	90.8	86.0	0.0	0.0	0.0	1.5	325.7	90
11:50:06	.31	1760.5	90.8	6.6	9.8	0.0	0.0	1.5	325.7	90
11:55:05	.39	1672.9	90.8	1.8	11.0	0.0	0.0	1.5	325.7	90
12:00:05	.47	1604.0	90.9	0.0	11.0	0.0	0.0	1.5	325.7	90
START INJECTION @ 1000 BPD										
12:05:00	.55	1615.7	90.9	0.0	10.9	1023.2	.4	1.5	325.7	90
12:10:01	.64	1717.1	90.9	0.0	11.4	1010.6	3.9	1.5	325.7	90
TOOL @ 4178 @ 11:25										
12:15:06	.72	1769.4	91.1	.1	11.5	1023.2	7.5	1.5	325.7	90
12:20:07	.81	1817.0	91.1	46.2	11.1	997.9	10.9	1.5	325.7	90
12:25:01	.89	1841.8	90.9	70.6	11.5	1010.6	14.3	1.5	325.7	90
12:30:01	.97	1851.9	90.8	79.7	10.5	991.6	17.8	1.5	325.7	90
12:35:00	1.05	1861.4	90.7	90.3	10.2	991.6	21.3	1.5	325.7	90
12:40:01	1.14	1865.6	90.6	92.9	9.8	1004.3	24.8	1.5	325.7	90
12:45:07	1.22	1866.0	90.6	93.1	10.1	1004.3	28.3	1.5	325.7	90
INJECTION SYSTEM DOWN										
12:50:21	1.31	1761.5	90.6	0.0	10.5	0.0	0.0	1.5	325.7	90
12:55:02	1.39	1705.9	90.6	0.0	11.5	0.0	0.0	1.5	325.7	90
RESTART TEST @ 1000 BPD										
13:00:10	1.47	1737.7	90.6	0.0	11.8	1061.1	6.2	1.5	325.7	90
13:05:11	1.56	1776.3	90.6	1.7	12.1	1004.3	9.7	1.5	325.7	90
13:10:12	1.64	1812.3	90.6	41.6	12.4	928.5	13.2	1.5	325.7	90
13:15:04	1.72	1830.3	90.5	59.6	12.2	1029.5	16.6	1.5	325.7	90
13:20:04	1.81	1843.4	90.5	74.4	11.7	1023.2	20.2	1.5	325.7	90
13:25:05	1.89	1847.8	90.5	77.0	11.6	1029.5	23.8	1.5	325.7	90
13:30:05	1.97	1850.0	90.5	78.2	12.1	1029.5	27.3	1.5	325.7	90
INJECT @ 1000 BPD 15 MORE MINUTES FOR DOWN TIME										
13:35:01	2.05	1850.8	90.4	80.7	11.8	1010.6	30.8	1.5	325.7	90
13:40:05	2.14	1850.3	90.4	78.4	11.4	1029.5	34.4	1.5	325.7	90
START 2ND RATE - 1400 BPD										
13:45:05	2.22	1850.9	90.4	79.7	11.3	1016.9	38.0	1.5	325.7	90
13:50:06	2.31	1954.0	90.4	207.2	11.3	1376.9	42.8	1.5	325.7	90
13:55:07	2.39	1992.0	90.4	245.3	10.0	1395.8	47.7	1.5	325.7	90
14:00:12	2.47	2013.9	90.4	268.0	9.9	1408.5	52.6	1.5	325.7	90
14:05:00	2.55	2025.2	90.5	278.0	8.4	1427.4	57.3	1.5	325.7	90
14:10:11	2.64	2032.1	90.5	283.1	8.3	1395.8	62.4	1.5	325.7	90
14:15:11	2.72	2038.6	90.6	291.6	8.1	1389.5	67.2	1.5	325.7	90
14:20:03	2.81	2045.6	90.7	297.6	8.3	1402.2	71.9	1.5	325.7	90
14:25:04	2.89	2050.2	90.7	301.0	8.8	1414.8	76.9	1.5	325.7	90
14:30:06	2.97	2051.4	90.7	301.8	9.3	1408.5	81.9	1.5	325.7	90
14:35:05	3.06	2051.9	90.8	302.2	9.4	1376.9	86.7	1.5	325.7	90

B & D WELLTESTERS

Customer: AMOCO PRODUCTION

Well: S.H.U. #218

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TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:min:sc	hrs	psia	'f	psia	psia	bwpd	bbls	ins	factor	mins
14:40:09	3.14	2051.8	90.8	301.2	9.5	1427.4	91.7	1.5	325.7	90
14:45:09	3.22	2052.9	90.8	303.0	9.8	1389.5	96.5	1.5	325.7	90
14:50:08	3.31	2053.8	90.9	303.8	10.7	1389.5	101.4	1.5	325.7	90
14:55:10	3.39	2055.6	90.9	307.0	10.8	1427.4	106.3	1.5	325.7	90
15:00:06	3.47	2054.6	91.0	306.1	10.1	1395.8	111.1	1.5	325.7	90
15:05:05	3.56	2054.4	91.0	304.4	9.2	1383.2	115.9	1.5	325.7	90
15:10:08	3.64	2054.6	91.0	305.4	9.5	1414.8	120.8	1.5	325.7	90
START 3rd RATE-1800 BPD										
15:15:07	3.72	2054.7	91.1	305.8	9.2	1376.9	125.7	1.5	325.7	90
15:20:08	3.81	2166.8	91.1	453.2	9.1	1768.5	131.9	1.5	325.7	90
15:25:08	3.89	2205.3	91.2	491.9	8.8	1774.8	138.2	1.5	325.7	90
15:30:14	3.97	2224.3	91.3	507.9	7.9	1831.7	144.5	1.5	325.7	90
15:35:02	4.05	2231.8	91.4	514.2	8.1	1819.0	150.6	1.5	325.7	90
15:40:03	4.14	2241.6	91.5	524.5	8.0	1774.8	156.9	1.5	325.7	90
15:45:04	4.22	2246.2	91.5	529.9	8.0	1838.0	163.1	1.5	325.7	90
15:50:07	4.31	2252.1	91.5	534.9	7.9	1800.1	169.5	1.5	325.7	90
15:55:08	4.39	2255.6	91.6	539.9	8.7	1774.8	175.7	1.5	325.7	90
16:00:08	4.47	2256.4	91.6	545.6	8.1	1869.6	182.0	1.5	325.7	90
16:05:11	4.56	2267.1	91.6	552.6	7.5	1812.7	188.3	1.5	325.7	90
16:10:00	4.64	2268.1	91.6	552.7	7.5	1787.4	194.4	1.5	325.7	90
16:15:07	4.72	2269.3	91.6	553.4	7.1	1806.4	200.8	1.5	325.7	90
16:20:09	4.81	2273.5	91.6	559.2	7.9	1819.0	207.1	1.5	325.7	90
16:25:11	4.89	2273.7	91.5	557.5	7.1	1787.4	213.4	1.5	325.7	90
16:30:02	4.97	2273.7	91.5	557.2	7.1	1800.1	219.4	1.5	325.7	90
16:35:02	5.05	2273.8	91.5	556.7	7.3	1806.4	225.8	1.5	325.7	90
16:40:03	5.14	2274.1	91.5	558.1	7.8	1793.8	232.0	1.5	325.7	90
START 4TH RATE - 2200 BPD										
16:45:05	5.22	2275.7	91.4	561.3	7.2	1793.8	238.3	1.5	325.7	90
16:50:08	5.31	2362.5	91.4	692.7	7.8	2248.5	246.1	1.5	325.7	90
16:55:06	5.39	2407.6	91.4	735.1	7.2	2223.3	253.7	1.5	325.7	90
START PUMPING										
17:00:03	5.47	2436.2	91.4	762.9	6.9	2204.3	261.3	1.5	325.7	90
17:05:04	5.56	2455.2	91.4	782.7	6.1	2261.1	269.0	1.5	325.7	90
17:10:08	5.64	2463.7	91.5	795.5	5.9	2204.3	276.7	1.5	325.7	90
17:15:08	5.72	2465.3	91.4	793.4	6.6	2172.7	284.5	1.5	325.7	90
17:20:08	5.81	2468.6	91.5	795.8	6.0	2191.7	292.1	1.5	325.7	90
17:25:08	5.89	2469.9	91.5	792.1	5.9	2216.9	299.7	1.5	325.7	90
17:30:01	5.97	2473.6	91.5	800.5	6.7	2223.3	307.2	1.5	325.7	90
17:35:04	6.06	2474.5	91.5	799.3	5.3	2179.0	314.9	1.5	325.7	90
17:40:04	6.14	2479.0	91.5	804.6	5.2	2185.4	322.5	1.5	325.7	90
17:45:03	6.22	2480.4	91.5	803.7	5.1	2191.7	330.1	1.5	325.7	90
17:50:05	6.31	2480.3	91.6	805.8	5.5	2235.9	337.7	1.5	325.7	90
17:55:04	6.39	2480.9	91.6	805.5	5.7	2179.0	345.5	1.5	325.7	90
18:00:02	6.47	2479.7	91.6	806.7	5.9	2223.3	353.1	1.5	325.7	90
18:05:01	6.55	2479.8	91.6	804.4	5.9	2204.3	360.7	1.5	325.7	90
18:10:06	6.64	2483.5	91.7	809.7	5.9	2191.7	368.5	1.5	325.7	90
START 5TH RATE - 2600 BPD										
18:15:06	6.72	2484.5	91.7	811.3	6.2	2216.9	376.2	1.5	325.7	90
18:20:20	6.81	2556.5	91.7	984.6	5.8	2684.3	381.5	1.5	325.7	90

B & O WELLTESTERS

Customer: AMOCO PRODUCTION

Well: S.H.U. #218

Page: 3
7/21/87

TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:min:sc	hrs	psia	°F	psia	psia	bwd	bbls	ins	factor	mins
18:25:04	6.89	2632.0	91.9	1015.9	6.0	2633.8	394.1	1.5	325.7	90
18:30:04	6.97	2641.4	92.0	1017.6	5.1	2621.2	403.3	1.5	325.7	90
18:35:08	7.06	2643.7	92.1	1019.9	5.6	2652.7	412.5	1.5	325.7	90
18:40:07	7.14	2645.8	92.2	1021.7	5.7	2614.8	421.5	1.5	325.7	90
18:45:06	7.22	2647.0	92.2	1021.1	5.7	2577.0	430.5	1.5	325.7	90
18:50:09	7.31	2647.2	92.3	1024.1	6.1	2577.0	439.6	1.5	325.7	90
18:55:07	7.39	2649.6	92.4	1029.9	6.0	2589.6	448.6	1.5	325.7	90
19:00:06	7.47	2648.9	92.5	1027.2	6.1	2577.0	457.5	1.5	325.7	90
19:05:09	7.56	2647.7	92.5	1027.1	5.3	2583.3	466.5	1.5	325.7	90
19:10:01	7.64	2636.7	92.6	1025.3	4.6	2589.6	475.5	1.5	325.7	90
19:45:17	8.23	2710.0	91.8	1088.1	4.4	2602.2	5.6	1.5	325.7	90
START 6TH RATE - 3000 BPD										
19:46:05	8.24	2709.9	91.8	1092.9	4.5	2595.9	6.4	1.5	325.7	90
19:47:12	8.26	2747.4	91.7	1197.0	4.6	2949.6	9.5	1.5	325.7	90
19:48:04	8.27	2766.3	91.7	1217.1	4.6	2974.9	11.2	1.5	325.7	90
19:49:11	8.29	2784.1	91.6	1235.5	4.6	2987.5	13.6	1.5	325.7	90
19:50:03	8.31	2794.2	91.6	1248.2	4.6	2987.5	15.4	1.5	325.7	90
19:51:10	8.32	2804.1	91.6	1248.4	4.6	2968.5	17.6	1.5	325.7	90
19:52:02	8.34	2809.0	91.6	1262.1	4.7	2987.5	19.5	1.5	325.7	90
19:53:06	8.36	2815.4	91.6	1257.8	4.6	2949.6	21.7	1.5	325.7	90
19:54:02	8.37	2819.5	91.6	1264.4	4.7	2968.5	23.6	1.5	325.7	90
19:55:06	8.39	2823.4	91.6	1271.4	4.7	2974.9	25.8	1.5	325.7	90
19:56:01	8.40	2825.6	91.6	1274.0	4.7	2981.2	27.7	1.5	325.7	90
19:57:05	8.42	2828.2	91.6	1276.1	4.7	2974.9	29.9	1.5	325.7	90
19:58:12	8.44	2831.4	91.6	1274.5	4.8	2955.9	32.3	1.5	325.7	90
19:59:04	8.46	2832.8	91.6	1284.3	4.7	2993.8	34.8	1.5	325.7	90
20:00:11	8.47	2834.9	91.7	1277.8	4.7	2968.5	36.4	1.5	325.7	90
20:01:02	8.49	2836.5	91.7	1280.6	4.6	2987.5	38.1	1.5	325.7	90
20:02:10	8.51	2837.5	91.7	1284.8	4.7	2974.9	40.3	1.5	325.7	90
20:03:01	8.52	2838.5	91.7	1286.7	4.7	2974.9	42.2	1.5	325.7	90
20:04:05	8.54	2839.4	91.7	1283.7	4.6	2974.9	44.4	1.5	325.7	90
20:05:03	8.56	2843.1	91.6	1291.4	4.6	3050.7	44.9	1.5	325.7	90
20:06:08	8.57	2845.3	91.6	1297.8	4.5	2993.8	48.7	1.5	325.7	90
20:07:00	8.59	2846.3	91.6	1295.4	4.5	3050.7	50.6	1.5	325.7	90
20:08:08	8.61	2847.2	91.6	1303.8	4.6	3019.1	53.0	1.5	325.7	90
20:09:00	8.62	2847.1	91.6	1300.0	4.6	3025.4	54.7	1.5	325.7	90
SURFACE PSI OVER 1300 - END TEST										
20:10:08	8.64	2847.8	91.6	1304.3	4.5	2987.5	57.1	1.5	325.7	90
START 20 MINUTE FALL-OFF										
20:11:06	8.66	2783.6	91.6	0.0	4.5	0.0	0.0	1.5	325.7	90
20:12:10	8.67	2444.5	91.5	612.0	4.5	0.0	0.0	1.5	325.7	90
20:13:06	8.69	2309.3	91.5	482.7	4.6	0.0	0.0	1.5	325.7	90
20:14:07	8.71	2197.3	91.4	376.0	4.6	0.0	0.0	1.5	325.7	90
20:15:02	8.72	2116.2	91.4	298.2	4.6	0.0	0.0	1.5	325.7	90
20:16:03	8.74	2043.7	91.4	228.4	4.5	0.0	0.0	1.5	325.7	90
20:17:03	8.76	1983.4	91.3	170.2	4.5	0.0	0.0	1.5	325.7	90
20:18:00	8.77	1935.6	91.3	124.2	4.6	0.0	0.0	1.5	325.7	90
20:19:01	8.79	1890.7	91.3	81.0	4.6	0.0	0.0	1.5	325.7	90

B & D WELLTESTERS

Customer: AMOCO PRODUCTION

Well: S.H.U. #218

Page: 4

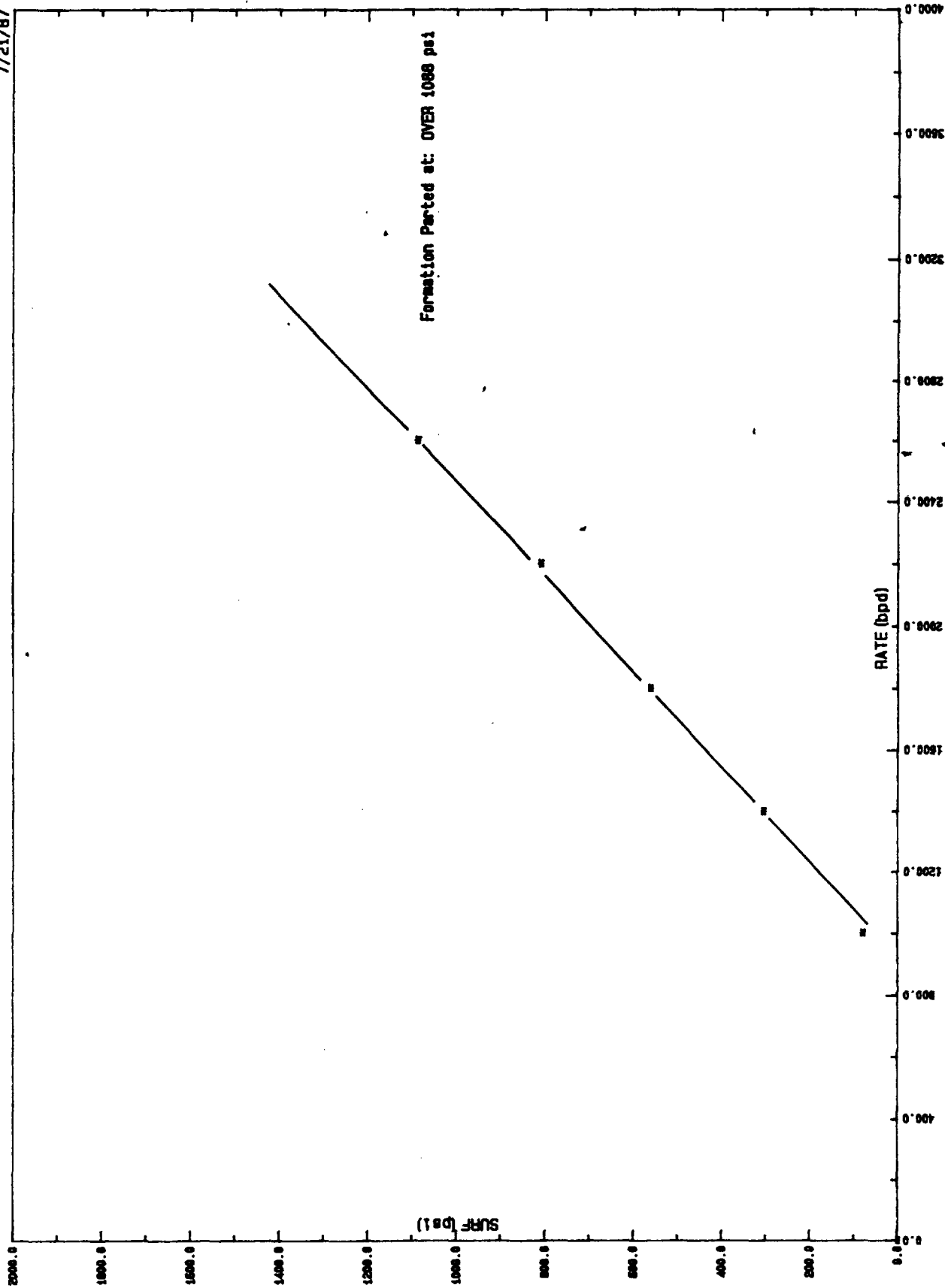
7/21/87

TIME	DT	BHP	BHT	SURF	CSG	RATE	TOTAL	METER	CALIB	RATE INT
hr:mn:sc	hrs	psia	'f	psia	psia	bopd	bbls	ins	factor	mins
20:20:06	8.81	1849.0	91.3	40.7	4.6	0.0	0.0	1.5	325.7	90
20:21:07	8.82	1815.4	91.3	8.6	4.6	0.0	0.0	1.5	325.7	90
20:22:08	8.84	1798.1	91.2	5.6	4.7	0.0	0.0	1.5	325.7	90
20:23:04	8.86	1794.6	91.2	7.9	4.8	0.0	0.0	1.5	325.7	90
20:24:05	8.87	1778.3	91.2	10.5	5.0	0.0	0.0	1.5	325.7	90
20:25:07	8.89	1761.7	91.2	10.3	4.9	0.0	0.0	1.5	325.7	90
20:26:08	8.91	1745.8	91.2	10.3	5.0	0.0	0.0	1.5	325.7	90
20:27:04	8.92	1731.5	91.2	10.3	5.0	0.0	0.0	1.5	325.7	90
20:28:06	8.94	1716.6	91.2	10.4	5.0	0.0	0.0	1.5	325.7	90
20:29:02	8.95	1703.4	91.2	10.4	5.0	0.0	0.0	1.5	325.7	90
20:30:03	8.97	1689.1	91.2	10.4	5.0	0.0	0.0	1.5	325.7	90

B & D WELL TESTERS

Customer: Amoco Production
Well: S.H.U. #218

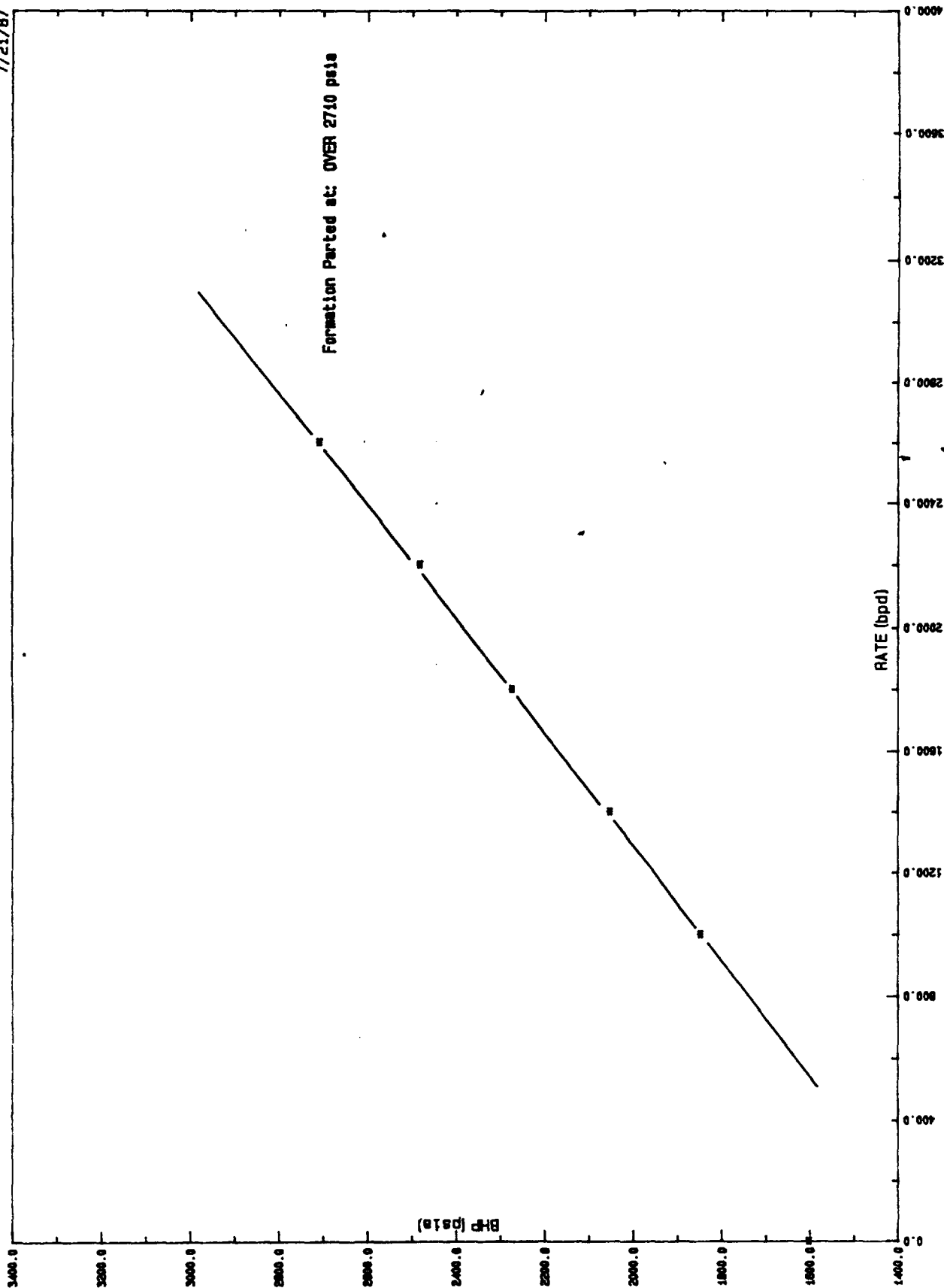
7/21/87



B & D WELL TESTERS

Customer: Amoco Production
Well: S.H.U. #218

7/21/87



B & D WELL TESTERS

Step Rate Test

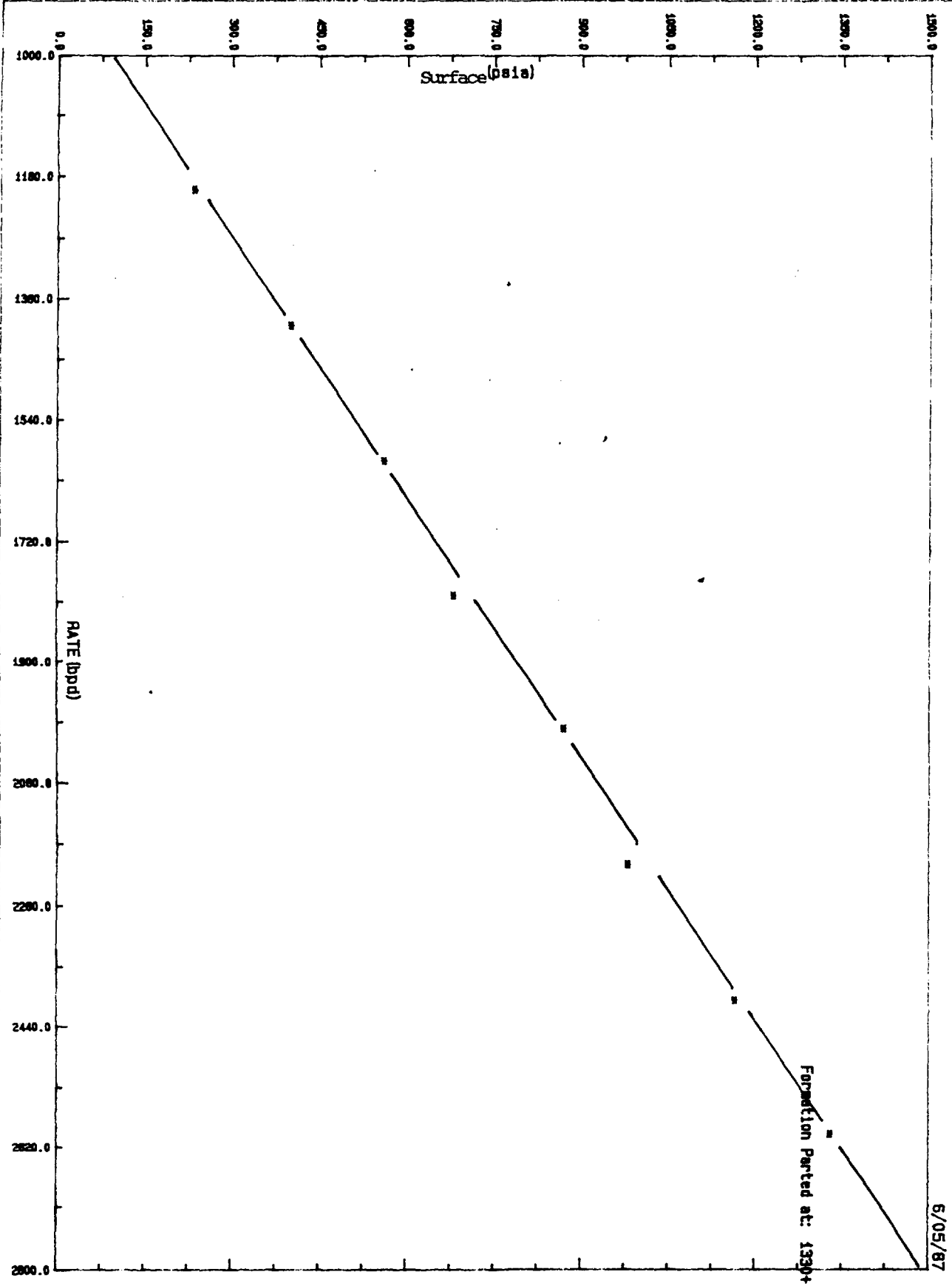
Phone (505) 397-3914

Hobbs, New Mexico 88240

Company Amoco Production Company							Unit
Test Date 6-5-87							Lease South Hobbs Unit
Total Depth 4353		Plug Back TD		Elevation 3607			Well # 219
Csg size 5 1/2	Wt 17	d	Set at 4353	Perfs: From 4156	To 4273		Sec Twp-Blk Rge
Tbg size 2 3/8	Wt 4.7	d	Set at	Perfs: From	To		County Lea State New Mexico
Producing thru Packer set at 4032							Co. Rep Mike Madera
Time of Reading	Elap Time Hrs.	Well Information					Remarks
		Rate BBLS Per Day	Total BBLS Per Rate	Surface PSIG	Surface PSI Cor for Friction	BHP	
8:00 PM	SI					0	Tool SA Midway Perfs 4215
8:30	Start	1000		0		1152.4	
9:00		1000		20.7		1800.7	
9:31	Lost power, computer down						
10:00	Restart	1200					
10:38		1200		229		2064	10:41 Lost computer
11:00		1200		231		2070.6	
11:30		1200		234.2		2069.1	
12:00 AM		1400		399.2		2204	
12:30		1400		398		2204	
1:00		1400		400		2204	
1:30		1600		560		2317	
2:00		1600		560		2265	
2:30		1600		560		2349	
3:00		1800		690		2445	4:00 AM System
3:30		1800		680		2422	Delivered 1800 BPD
4:00		1800		680		2433	Start Pump B & D
4:30		2000		820		2567	
5:00		2000		870		2587	
5:30		2000		870		2586	
6:00		2200		980		2670	
6:30		2200		980		2683	Shut down B & D Pump
7:00		2200		980		2690	Kill truck pump started 7:00AM
7:30		2400		1100		2815	
8:00		2400		1110		2820.3	
8:30		2400		1165		2840.4	
9:00		2600		1285		2949	Lost Pump Prime
9:30		2600		1330		2977	9:56 AM
10:00	SI	2600		1330		2973	End Test Due to Pressure
10:01				350		2281	Limit
10:02				40		1950	
10:03				10		1880	

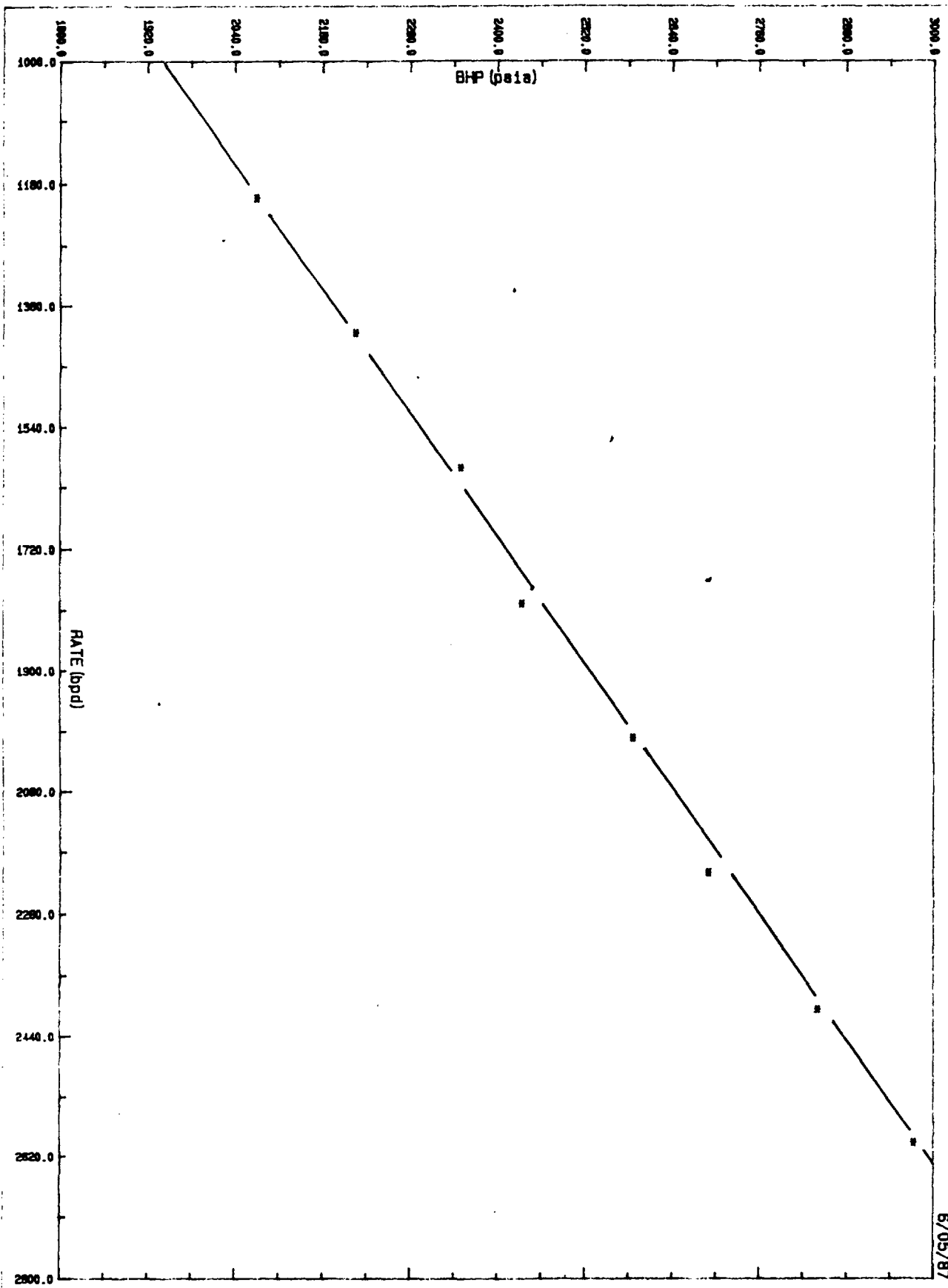
B S D WELL TESTERS

Customer: AMOCO PROD.
Well: S.H.U. #219



B & D WELL TESTERS

Customer: AMOCO PROD.
Well: S.H.U. #219



6/05/87



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

September 17, 1987

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

OIL CONSERVATION DIVISION
P.O. BOX 2088
SANTA FE, NEW MEXICO 87504-2088

RE: APPLICATION FOR PRESSURE LIMIT INCREASE FOR DISPOSAL & INJECTION WELLS

Gentlemen:

I have examined the step rate test for the:

Amoco Production Co.	S. Hobbs Unit 37-G	3-19-38
Operator	Lease & Well No.	Unit S-T-R

and my recommendations are as follows:

OK as submitted

Very truly yours

Jerry Sexton
Supervisor, District I

/bp



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

September 17, 1987

GARREY CARRUTHERS
GOVERNOR

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HOBBS, NEW MEXICO 88240
(505) 393-6161

OIL CONSERVATION DIVISION
P.O. BOX 2088
SANTA FE, NEW MEXICO 87504-2088

RE: APPLICATION FOR PRESSURE LIMIT INCREASE FOR DISPOSAL & INJECTION WELLS

Gentlemen:

I have examined the step rate test for the:

Amoco Production Co.	S. Hobbs, Unit #33G	4-19-38
Operator	Lease & Well No.	Unit S-T-R

and my recommendations are as follows:

OK as submitted

Very truly yours

Jerry Sexton
Supervisor, District I

/bp



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

September 17, 1987

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

OIL CONSERVATION DIVISION
P.O. BOX 2088
SANTA FE, NEW MEXICO 87504-2088

RE: APPLICATION FOR PRESSURE LIMIT INCREASE FOR DISPOSAL & INJECTION WELLS

Gentlemen:

I have examined the step rate test for the:

Amoco Production Co.	S. Hobbs Unit	#219-D	3-19-38
Operator	Lease & Well No.	Unit	S-T-R

and my recommendations are as follows:

OK as submitted

Very truly yours

Jerry Sexton
Supervisor, District I

/bp



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

September 17, 1987

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

OIL CONSERVATION DIVISION
P.O. BOX 2088
SANTA FE, NEW MEXICO 87504-2088

RE: APPLICATION FOR PRESSURE LIMIT INCREASE FOR DISPOSAL & INJECTION WELLS

Gentlemen:

I have examined the step rate test for the:

Amoco Production Co.	S. Hobbs Unit #171-D	9-19-38
Operator	Lease & Well No.	Unit S-T-R

and my recommendations are as follows:

OK as submitted

Very truly yours

Jerry Sexton
Supervisor, District I

/bp



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

September 17, 1987

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

OIL CONSERVATION DIVISION
P.O. BOX 2088
SANTA FE, NEW MEXICO 87504-2088

RE: APPLICATION FOR PRESSURE LIMIT INCREASE FOR DISPOSAL & INJECTION WELLS

Gentlemen:

I have examined the step rate test for the:

Amoco Production Co.	S. Hobbs Unit #212-C	5-19-38
Operator	Lease & Well No.	Unit S-T-R

and my recommendations are as follows:

OK as submitted

Very truly yours

Jerry Sexton
Supervisor, District I

/bp



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

September 17, 1987

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

OIL CONSERVATION DIVISION
P.O. BOX 2088
SANTA FE, NEW MEXICO 87504-2088

RE: APPLICATION FOR PRESSURE LIMIT INCREASE FOR DISPOSAL & INJECTION WELLS

Gentlemen:

I have examined the step rate test for the:

Amoco Production Co.	S. Hobbs Unit #218-A	4-19-38
Operator	Lease & Well No.	Unit S-T-R

and my recommendations are as follows:

OK as submitted

Very truly yours

Jerry Sexton
Supervisor, District I

/bp



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

September 17, 1987

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

SEP 24 1987

OIL CONSERVATION DIVISION
P.O. BOX 2088
SANTA FE, NEW MEXICO 87504-2088

RE: APPLICATION FOR PRESSURE LIMIT INCREASE FOR DISPOSAL & INJECTION WELLS

Gentlemen:

I have examined the step rate test for the:

Amoco Production Co.	S. Hobbs Unit #35-E	3-19-38
Operator	Lease & Well No.	Unit S-T-R

and my recommendations are as follows:

Insufficient points - need three points to indicate good test.

Very truly yours

Jerry Sexton
Supervisor, District I

/bp



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONY ANAYA
GOVERNOR

September 11, 1986

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

APPLICATION OF AMOCO PRODUCTION COMPANY
TO EXPAND ITS PRESSURE MAINTENANCE PROJECT IN
THE HOBBS GRAYBURG SAN ANDRES POOL IN
LEA COUNTY, NEW MEXICO.

AMENDED
ORDER NO. PMX-142

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Order No. R-4934, Amoco Production Company has made application to the Division on August 4, 1986, for permission to expand its South Hobbs Grayburg San Andres Pressure Maintenance Project in the Hobbs Grayburg-San Andres Pool in Lea County, New Mexico.

NOW, on this 28th day of August, 1986, the Division Director finds:

1. That application has been filed in due form.
2. That satisfactory information has been provided that all offset operators have been duly notified of the application.
3. That no objection has been received within the waiting period as prescribed by Rule 701B.
4. That the proposed injection wells are eligible for conversion to water injection under the terms of Rule 701.
5. That the proposed expansion of the above referenced Pressure Maintenance project will not cause waste nor impair correlative rights.
6. That the application should be approved.

IT IS THEREFORE ORDERED:

That the applicant, Amoco Production Company, be and the same is hereby authorized to inject water into Hobbs Grayburg San Andres formations through plastic-lined tubing set in a packer located approximately 100' above the uppermost perforations in the following described wells for purposes of pressure maintenance to wit:

<u>WELL NUMBER</u>	<u>LOCATION</u>	<u>MAX. SURFACE INJ. PRESSURE (PSIG)</u>
SHU No. 212	1478' FNL & 2589' FWL Sec. 5, T-19-S, R-38-E	805
SHU No. 213	890' FNL & 1275' FEL Sec. 5, T-19-S, R-38-E	802
SHU No. 215	1398' FNL & 1227' FWL Sec. 4, T-19-S, R-38-E	815
SHU No. 216	1166' FNL & 2411' FWL Sec. 4, T-19-S, R-38-E	805
SHU No. 217	1407' FNL & 2203' FEL Sec. 4, T-19-S, R-38-E	807
SHU No. 218	652' FNL & 563' FEL Sec. 4, T-19-S, R-38-E	808
SHU No. 219	657' FNL & 787' FWL Sec. 3, T-19-S, R-38-E	814

IT IS FURTHER ORDERED:

That the operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

That the casing-tubing annulus (in each well) shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

That the injection well or system shall be equipped with a pressure limiting device which will limit the wellhead pressure on the injection well to no more than .2/psi/ft. of depth to the uppermost perforation.

That the Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the Grayburg-San Andres formation. That such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

That the operator shall notify the supervisor of the Division's Hobbs District Office of the date and time of the installation of injection equipment and of the mechanical integrity test so that the same may be inspected and witnessed.

That the operator shall immediately notify the Supervisor of the Division's Hobbs District Office of the failure of the tubing, casing, or packer in said wells or the leakage of water from or around said wells and shall take such steps as may be timely or necessary to correct such failure or leakage.

That the subject wells shall be governed by all provisions of Division Order No. R-4934 and Rules 702, 703, 704, 705, and 706 not inconsistent herewith.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



R. L. STAMETS,
Director

S E A L

REMARKS: Division Order No. NSL-2288 also approves the unorthodox locations and direction drilling of the above-referenced wells.

xc: OCD - Hobbs
Donna McDonald
Case File 5372



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

September 3, 1986

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

APPLICATION OF AMOCO PRODUCTION COMPANY
TO EXPAND ITS PRESSURE MAINTENANCE PROJECT IN
THE HOBBS GRAYBURG SAN ANDRES POOL IN
LEA COUNTY, NEW MEXICO.

ORDER NO. PMX-142

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Order No. R-4934, Amoco Production Company has made application to the Division on August 4, 1986, for permission to expand its South Hobbs Grayburg San Andres Pressure Maintenance Project in the Hobbs Grayburg-San Andres Pool in Lea County, New Mexico.

~~Now~~, on this 28th day of August, 1986, the Division Director finds:

1. That application has been filed in due form.
2. That satisfactory information has been provided that all offset operators have been duly notified of the application.
3. That no objection has been received within the waiting period as prescribed by Rule 701B.
4. That the proposed injection wells are eligible for conversion to water injection under the terms of Rule 701.
5. That the proposed expansion of the above referenced Pressure Maintenance project will not cause waste nor impair correlative rights.
6. That the application should be approved.

IT IS THEREFORE ORDERED:

That the applicant, Amoco Production Company, be and the same is hereby authorized to inject water into Hobbs Grayburg San Andres formations through plastic-lined tubing set in a packer located approximately 100' above the uppermost perforations in the following described wells for purposes of pressure maintenance to wit:

<u>WELL NUMBER</u>	<u>LOCATION</u>	<u>MAX. SURFACE INJ. PRESSURE (PSIG)</u>
SHU No. 212	1790' FNL & 1420' FWL Sec. 5, T-19-S, R-38-E	805
SHU No. 213	890' FNL & 1275' FEL Sec. 5, T-19-S, R-38-E	802
SHU No. 215	1398' FNL & 1227' FWL Sec. 4, T-19-S, R-38-E	815
SHU No. 216	1166' FNL & 2411' FWL Sec. 4, T-19-S, R-38-E	805
SHU No. 217	1407' FNL & 2203' FEL Sec. 4, T-19-S, R-38-E	807
SHU No. 218	652' FNL & 563' FEL Sec. 4, T-19-S, R-38-E	808
SHU No. 219	657' FNL & 787' FWL Sec. 3, T-19-S, R-38-E	814

IT IS FURTHER ORDERED:

That the operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

That the casing-tubing annulus (in each well) shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

That the injection well or system shall be equipped with a pressure limiting device which will limit the wellhead pressure on the injection well to no more than .2/psi/ft. of depth to the uppermost perforation.

That the Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the Grayburg-San Andres formation. That such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

That the operator shall notify the supervisor of the Division's Hobbs District Office of the date and time of the installation of injection equipment and of the mechanical integrity test so that the same may be inspected and witnessed.

That the operator shall immediately notify the Supervisor of the Division's Hobbs District Office of the failure of the tubing, casing, or packer in said wells or the leakage of water from or around said wells and shall take such steps as may be timely or necessary to correct such failure or leakage.

That the subject wells shall be governed by all provisions of Division Order No. R-4934 and Rules 702, 703, 704, 705, and 706 not inconsistent herewith.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


R. L. STAMETS,
Director

S E A L

REMARKS: Division Order No. NSL-2288 also approves the unorthodox locations and direction drilling of the above-referenced wells.

xc: OCD - Hobbs
/Donna McDonald
Case File 5372



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

May 16, 1985

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

Amoco Production Company
P. O. Box 68
Hobbs, New Mexico 88240

Attention: L. R. Smith, District Manager

Re: South Hobbs Unit Pressure
Maintenance Project, Hobbs
Grayburg-San Andres Pool
Exception to Rule 11 of
Division Order No. R-4934-E,
Maximum Surface Injection
Pressure Increases on Wells
59, 85, 115, and 172

Dear Mr. Smith:

Your request for increases in the maximum surface injection pressure for the subject wells has been reviewed. The following pressure limits have been approved for the subject wells:

	(Injection Pressure Limits, PSIG)		
<u>Well Number</u>	<u>Current</u>	<u>Requested</u>	<u>Approved</u>
59	825	1400	1275
85	825	1390	1390
115	825	1360	1360
172	825	960	960

The approved limits were based on combined evaluations of the step rate test data from your technical staff and our technical staff.

-2-

Letter to Amoco Production Company
May 16, 1985

Should you have any questions concerning this approval,
don't hesitate to call me at 827-5807 in Santa Fe.

Sincerely,

Gilbert P. Quintana

GILBERT P. QUINTANA
UIC Director/Petroleum Engineer

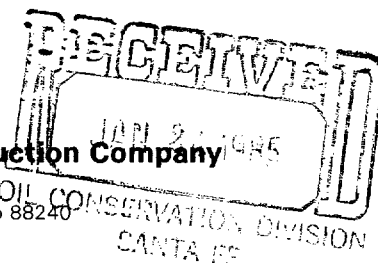
GPQ/fd

cc: Hobbs District Office
R. L. Stamets, Division Director
Case File No. 5372 ✓



Amoco Production Company

Post Office Box 68
Hobbs, New Mexico 88240



L. R. Smith
District Manager

January 21, 1985

File: LRS-21-416

Re: Request for Exception to Rule 11, Order No. R-4934-E
to Increase Water Injection Well Pressure Limits
South Hobbs Unit Pressure Maintenance Project
Hobbs Grayburg-San Andres Pool, Lea County, New Mexico

R. L. Stamets
Division Director
State of New Mexico
Energy and Minerals Department
Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87501

Amoco Production Company, as operator of the South Hobbs Unit, requests an exception to Rule 11, Order No. R-4934-E, to increase the water injection pressure limits from 0.2 psi/ft. to the pressure limits listed below for the following injection wells:

<u>Well Number</u>	<u>Current Injection Pressure Limit (psig)*</u>	<u>Requested Pressure Limit (psig)</u>	<u>Requested Gradient (psi/ft)</u>	<u>Date of SRT</u>
59	825	1400	0.335	10-04-84
85	825	1390	0.336	09-21-84
115	835	1360	0.325	10-24-84
172	825	960	0.232	10-09-84

*Current gradient = 0.2 psi/ft.

Step rate test data verifying these higher injection pressures is presented in the attachments.

By increasing injection pressures in these wells, timely waterflood response will result without damaging the formation. If any additional

January 21, 1985
File: LRS-21-416
Page 2

work is necessary to satisfy NMOCD requirements for granting this exception or if any additional information is needed, please contact Bob LaRobadiere at (505) 393-1781, extension 302.

L.R. Smith

NAM/jat
EPSEC4-M

Attachments

Noel McINNIS, Amoco - Hobbs
ext. 302

NOTE: I DISCUSSED THESE STERRATE TESTS WITH NOEL McINNIS ON 5/13/85. THE TWO TESTS THAT DIDN'T SHOW A "PARTING" (FRACTURE) PRESSURE WERE USED TO DETERMINE INJECTION LIMITS BASED ON SIMILIAR OFFSET INJECTION LIMITS. IT IS PROBABLY SAFE TO ASSUME THE "PARTING" PAESSURE WAS NEVER ACHIEVED. BASED ON OFFSETS!

Willet P. Quintana


TYLER SURVEYS, INC.

915/523-6826

908 CARDINAL CREST

ANDREWS, TEXAS 79714

No. _____

COMPANY AMOCO DATE 10-04-84

ADDRESS _____

WELL # 59 LEASE SHU

WELL FILE DATA:

T.D. _____ PACKERS @ _____ PERFS. _____
TBG. ID. _____ TBG. COATING _____ DEPTH SN. _____ BHP @ 4215

STABILIZATION:

RATE 200 BHPD PRES. 50 PSIG. CUMULATIVE _____ BBLs.

INCREMENTS:

RATE 200 BHPD PRES. _____ PSIG. STEP LENGTH 200 MINS.

TEST RESULTS:

FORMATION PARTING POINT _____ PSIG. @ _____ BHPD

	RATE BHPD	PRESSURE SURFACE PSIG.	PRESSURE MINUS FRICTION PSIG.	PRESSURE BOTTOM HOLE PSIG.
1.	0	47		1864
13:30 2.	200	70		1927
50 3.	400	195		2043
14:10 4.	600	340		2142
30 5.	800	590		2392
50 6.	1000	760		2586
15:10 7.	1200	967		2785
30 8.	1400	1240		2979
50 9.	1600	1470		3164
14:10 10.	1800			
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				

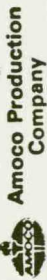
REMARKS _____

TESTER _____ COMPANY REP. _____

3184 PSIG (BH)
 - 50 PSI SAFETY FACTOR
 3134 PSIG BOTTOM HOLE

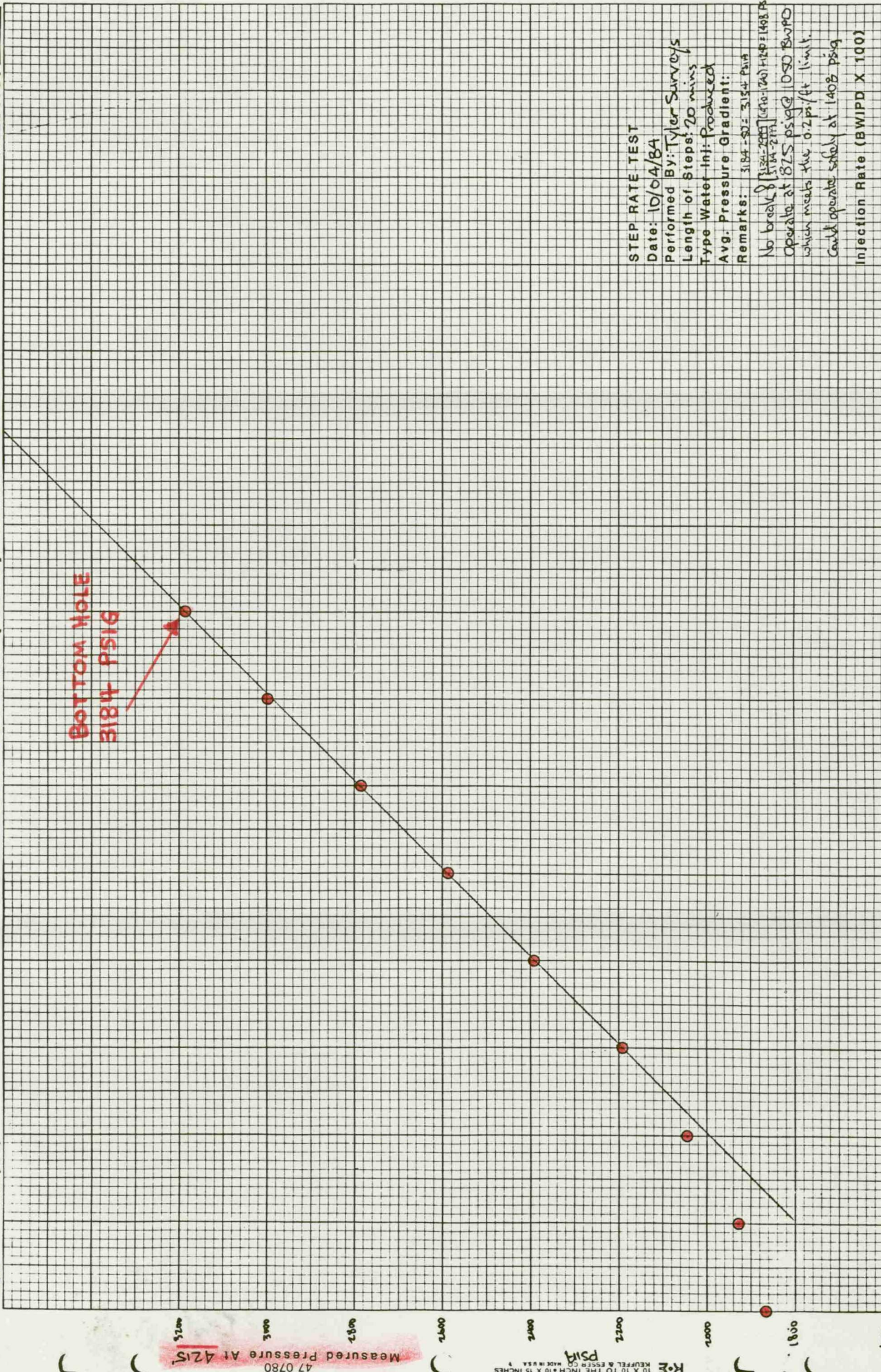
HYDROSTATIC HEAD PRESSURE
 4215 FT. X 0.4415 $\frac{\text{PSI}}{\text{FT.}}$ = @ 1861 PSI.

(CALCULATIONS IN RED
 BY GILBERT QUINTANA)



SOUTH HOBBS (GSA) UNIT

WELL NO. 59



STEP RATE TEST

Date: 10/04/84

Performed By: Tyler Surveys

Length of Steps: 20 mins

Type Water Inj: Produced

Avg. Pressure Gradient:

Remarks: 3184 - 50 = 3134 PSIG

No break (3184 - 200) (4215 - 120) HHP = 1498 PSIG

operate at 875 PSIG 1050 BWPD

which meets the 0.2 psi/ft limit.

Could operate safely at 1400 PSIG

Injection Rate (BWPD X 100)

TYLER SURVEYS, INC.

915/523-6826

908 CARDINAL CREST

ANDREWS, TEXAS 79714

No. _____

COMPANY Amoco DATE 9-20-84

ADDRESS _____

WELL # 85 LEASE SHU

WELL FILE DATA:

T.D. _____ PACKERS @ _____ PERFS. _____

TBG. ID. _____ TBG. COATING _____ DEPTH SN. _____ BHP @ 4190'

STABILIZATION:

RATE 200 BHPD PRES. 400 PSIG. CUMULATIVE _____ BBLs.

INCREMENTS:

RATE 200 BHPD PRES. _____ PSIG. STEP LENGTH 20 MINS.

TEST RESULTS:

FORMATION PARTING POINT _____ PSIG. @ _____ BHPD

	RATE BHPD	PRESSURE SURFACE PSIG.	PRESSURE MINUS FRICTION PSIG.	PRESSURE BOTTOM HOLE PSIG.
1. 1:45	0	20		1859
2. 8:05	200	318		2067
3. 253.	400	620		2469
4. 454.	600	1040		2918
5. 9:05	800	1440		3330
6. 1000				
7.				
8.				
9.				
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14.				
15.				
16.				
17.				
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19.				
20.				

REMARKS

TESTER _____ COMPANY REP. _____

3280 PSIG
1841 PSI
1439 PSIG
1440 PSIG

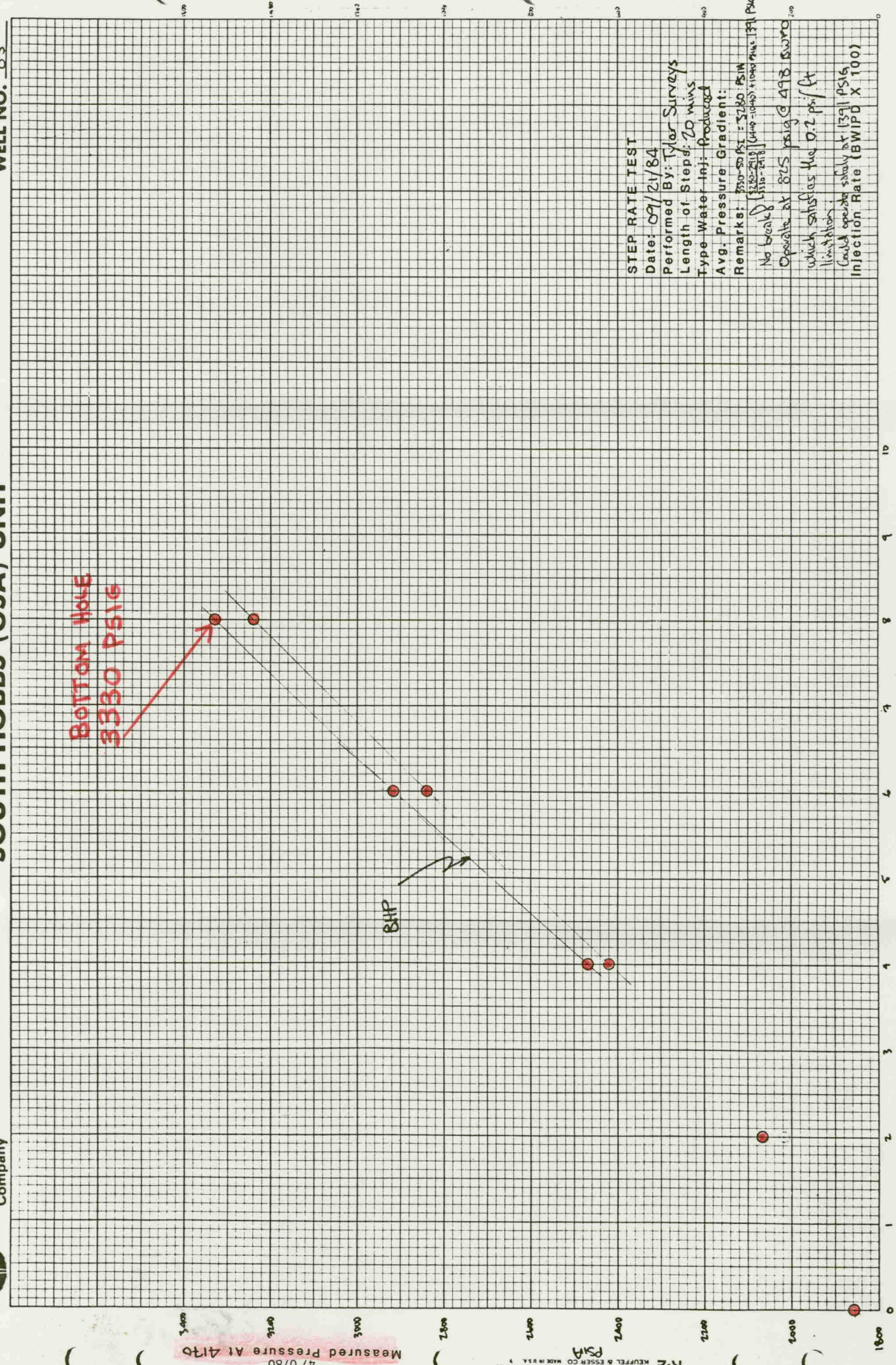
HYDROSTATIC HEAD PRESSURE
4170 FT. X 0.4415 PSI/FT. = 1841 PSI

3330 PSIG
- 50 PSI SAFETY FACTOR
3280 PSIG BOTTOM HOLE



SOUTH HOBBS (GSA) UNIT

WELL NO. 85



STEP RATE TEST

Date: 09/21/84
Performed By: Tyler Surveys
Length of Steps: 20 mins
Type Water Inj: Produced
Avg. Pressure Gradient:
Remarks: 320-520 PSI
No bleed
Operate at 825 PSIG @ 498 BWPD
which satisfies the 0.2 psi/ft
limitation
(could operate safely at 1391 PSIG
Injection Rate (BWPD X 100))

TYLER SURVEYS, INC.

915/523-6826

908 CARDINAL CREST

ANDREWS, TEXAS 79714

No. _____

COMPANY PHCO DATE 7/24/84

ADDRESS _____

WELL # 115 LEASE S.H.H.

WELL FILE DATA:

T.D. _____ PACKERS @ _____ PERFS. _____

TBG. ID. _____ TBG. COATING _____ DEPTH SN. _____ BHP @ 4720

STABILIZATION:

RATE _____ BHPD PRES. _____ PSIG. CUMULATIVE _____ BBLs.

INCREMENTS:

RATE 50 BHPD PRES. _____ PSIG. STEP LENGTH 30 MINS.

TEST RESULTS:

FORMATION PARTING POINT _____ PSIG. @ _____ BHPD

	RATE BHPD	PRESSURE SURFACE PSIG.	PRESSURE MINUS FRICTION PSIG.	PRESSURE BOTTOM HOLE PSIG.
451.	0	0		1789
1040.2	100	367		2223
403.	150	1050	max. stuck	2881
1140.4	200	1440		3314
1120.5	250	1565		3446
406.	300	1635		3532
407.	350			
408.	400			
409.	450			
410.	500			
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420.				

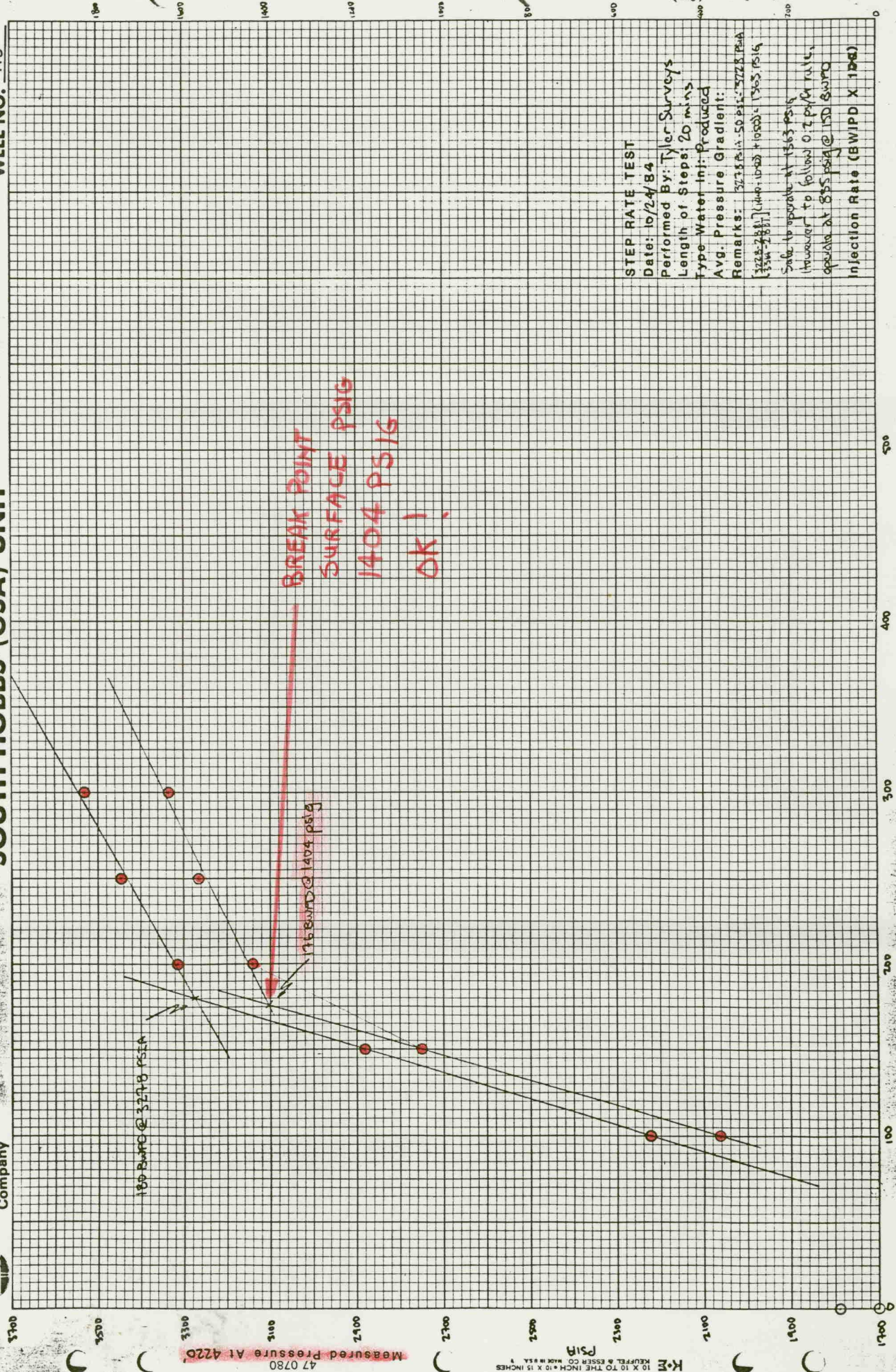
REMARKS _____

TESTER _____ COMPANY REP. _____



SOUTH HOBBS (GSA) UNIT

WELL NO. 115



STEP RATE TEST

Date: 10/24/84

Performed By: Tyler Surveys

Length of Steps: 20 mins

Type Water Int: Produced

Avg. Pressure Gradient:

Remarks: 5278 PSI @ 50 PSI @ 327.8 PSIA

1324-2881 (1440-1000) @ 10000: 1353 PSI @

Safe to operate at 1353 PSI @

However to follow 0.2 psi rule,

operate at 855 PSI @ 100 BWPD

Injection Rate (BWPD X 100)

TYLER SURVEYS, INC.

915/523-6826

908 CARDINAL CREST

ANDREWS, TEXAS 79714

No. _____

COMPANY AMOCO DATE 10/9/84

ADDRESS _____

WELL # 172 LEASE S.H.U.

WELL FILE DATA:

T.D. _____ PACKERS @ _____ PERFS. _____

TBG. ID. _____ TBG. COATING _____ DEPTH SN. _____ BHP @ 4185

STABILIZATION:

RATE _____ BHPD _____ PRES. _____ PSIG. _____ CUMULATIVE _____ BBLs.

INCREMENTS:

RATE 100 BHPD _____ PRES. _____ PSIG. _____ STEP LENGTH 20 MINS.

TEST RESULTS:

FORMATION PARTING POINT _____ PSIG. @ _____ BHPD

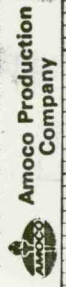
	RATE BHPD	PRESSURE SURFACE PSIG.	PRESSURE MINUS FRICTION PSIG.	PRESSURE BOTTOM HOLE PSIG.
301.	0	0		1546
502.	200	0		1699
10:103.	300	55		1849
304.	400	210		2158
505.	500	510		2346
11:106.	600	635		2469
307.	700	790		2632
508.	800	995		2833
12:109.	900	1060		2883
310.	1000	1110		2936
11.				
12.				
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14.				
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16.				
17.				
18.				
19.				
20.				

REMARKS _____

TESTER _____

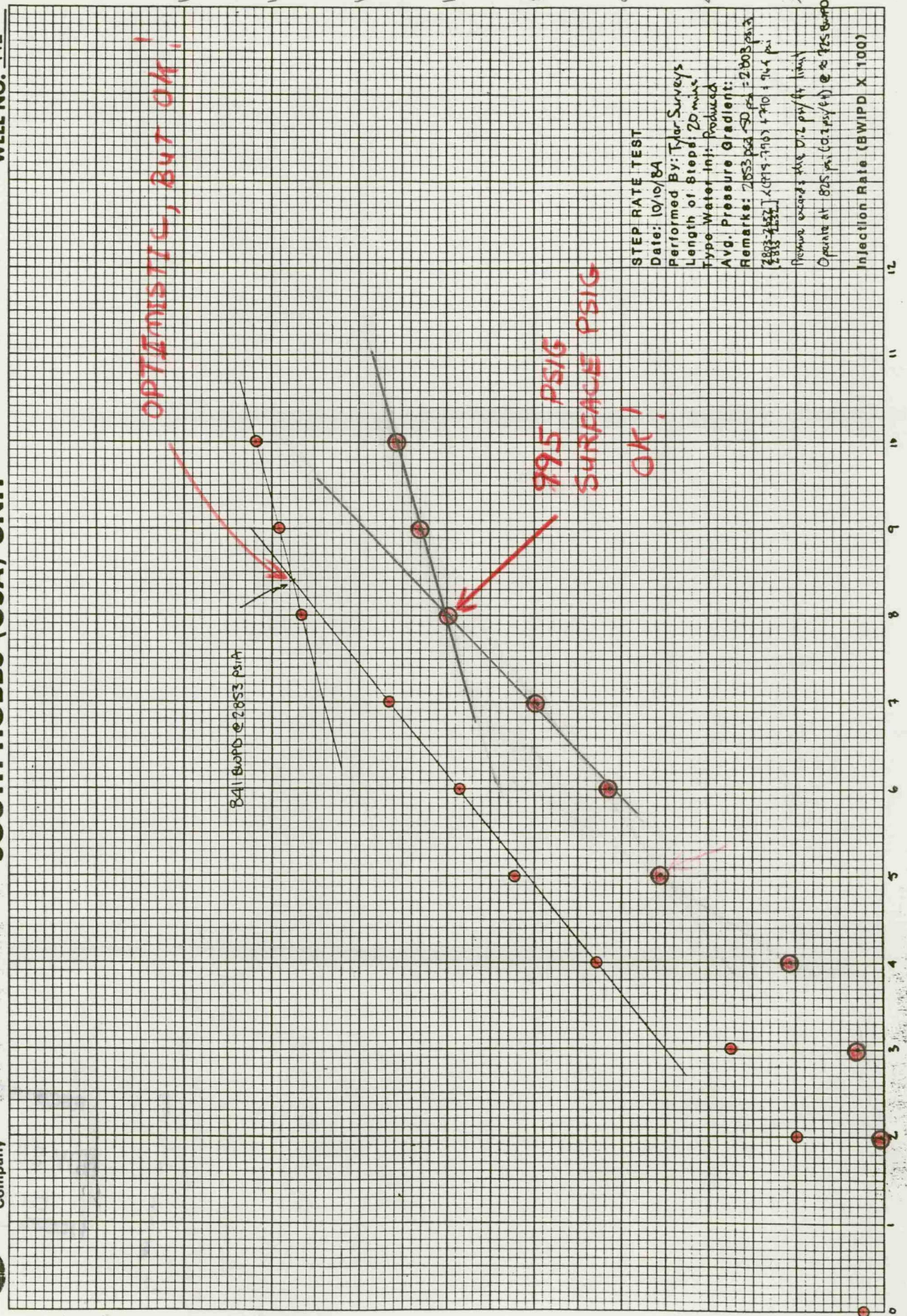
COMPANY REP. _____

940



SOUTH HOBBS (GSA) UNIT

WELL NO. 172



STEP RATE TEST

Date: 10/10/84
Performed By: Tyler Surveys
Length of Steps: 20 min
Type Water In: Produced
Avg. Pressure Gradient:
Remarks: 2853 PSIA @ 841 BWIPD = 2803 PSIA
2803 - 2853 = -50 PSIA / 170 = -0.294 psi/BWIPD
Pressure exceeds the 0.2 psi/BWIPD limit
Operate at 825 psi (0.19 psi/BWIPD) @ 2853 BWIPD
Injection Rate (BWIPD X 100)

RECEIVED

NOV 30 1984

003
HOSBY OFFICE