



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON

Governor

BETTY RIVERA

Cabinet Secretary

Lori Wrotenbery

Director

Oil Conservation Division

July 25, 2002

ChevronTexaco
15 Smith Road
Midland, Texas 79705

Attn: Mr. Kevin Hickey

**RE: Injection Pressure Increase, -183
 Eunice Monument South Unit
 Waterflood Project
 Lea County, New Mexico**

Dear Mr. Hickey:

Reference is made to your request dated June 25, 2002, to increase the surface injection pressure on eleven wells within the above-referenced water flood project. This request is based on step rate tests conducted on the subject wells during October 2000, and held in suspense pending outcome of Division Case 12320. This case has been dismissed, test results have been reviewed, and we feel an increase in injection pressure on these wells is justified at this time.

Current tubing sizes remaining the same, you are therefore authorized to increase the surface injection pressure on the wells shown on Exhibit "A". The Division Director may rescind this injection pressure increase if it becomes apparent that the injected fluid is not being confined to the injection zone or is endangering any fresh water aquifers.

Sincerely,

Lori Wrotenbery
Director

LW/WVJ

cc: Oil Conservation Division - Hobbs
 Files: R-7766; IPI-2002
 Attachment

Exhibit "A"
ChevronTexaco
Eunice Monument South Unit (EMSU)
Lea County, New Mexico
Injection Pressure Increases

<i>Injection Well and Location</i>	<i>Top Perf Depth Feet</i>	<i>Maximum Surface Injection Pressure</i>
EMSU Well No. 126, API No. 30-025-06288 Lot 4, Section 30, T-20S, R-37E	3714	930 PSIG
EMSU Well No. 164, API No. 30-025-29820 (Unit K), Section 36, T-20S, R-36E	3762	1260 PSIG
EMSU Well No. 185, API No. 30-025-04512 Lot 2, Section 5, T-21S, R-36E	3670	870 PSIG
EMSU Well No. 245, API No. 30-025-04498 (Unit I), Section 5, T-21S, R-36E	3770	755 PSIG
EMSU Well No. 295, API No. 30-025-04560 (Unit F), Section 8, T-21S, R-36E	3745	770 PSIG
EMSU Well No. 307, API No. 30-025-08708 (Unit F), Section 11, T-21S, R-36E	3700	840 PSIG
EMSU Well No. 312, API No. 30-025-04616 (Unit J), Section 11, T-21S, R-36E	3723	860 PSIG
EMSU Well No. 318, API No. 30-025-29901 (Unit L), Section 10, T-21S, R-36E	3718	860 PSIG
EMSU Well No. 324, API No. 30-025-04554 (Unit J), Section 8, T-21S, R-36E	3707	875 PSIG
EMSU Well No. 336, API No. 30-025-04557 (Unit N), Section 8, T-21S, R-36E	3742	815 PSIG
EMSU Well No. 354, API No. 30-025-04640 (Unit B), Section 14, T-21S, R-36E	3720	744 PSIG

218253070 1P1-183 NA

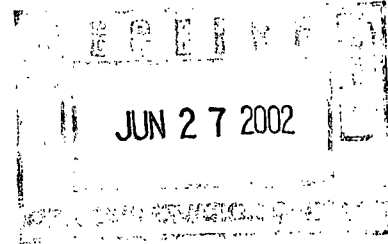
Chevron U.S.A. Production Company
Kevin Hickey
New Mexico Waterflood
Petroleum Engineer
15 Smith Road
Midland, Texas 79705

June 25, 2002

ChevronTexaco

**STEP-RATE TESTS
EUNICE MONUMENT SOUTH UNIT
LEA COUNTY, NEW MEXICO**

State of New Mexico
Energy and Minerals Dept.
Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87504



Attention: Mr. David Catanach

Please refer to our letter dated October 31, 2000. At that time Chevron requested increased injection pressures on eleven (11) wells in the Eunice Monument South Unit (EMSU). This request was held pending outcome of Case No. 12320. This case has now been dismissed. Chevron respectfully would like to resubmit our request to increase the injection pressures on these wells at this time.

If you have any questions or need additional information please contact me at 915-687-7260.

Sincerely,

Kevin F. Hickey
ChevronTexaco
Petroleum Engineer
New Mexico Area – Eunice Waterflood Team

Attachments

October 31, 2000

NOV - 6 2000



Chevron

**STEP-RATE TESTING TO INCREASE
NMOCD PRESSURE LIMITATION
EUNICE MONUMENT SOUTH UNIT
LEA COUNTY, NEW MEXICO**

Chevron U.S.A. Production Company
P.O. Box 1150
Midland, TX 79702

State of New Mexico
Energy and Minerals Dept.
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Attention: Mr. David Catanach

Dear Sir:

Chevron U.S.A. Production Co. requests permission to perform step-rate tests in order to increase injection pressure at the Eunice Monument South Unit (EMSU). The current pressure limitation for EMSU is 0.2 psi/ft, which is around 750 psi wellhead pressure. Many wells are approaching the 0.2 psi/ft limit due to increasing reservoir pressure and conformance work. The conformance work focused on squeezing out of the higher permeability, over-processed zones and targeting injection into the lower permeability, under-processed zones. Injection pressures must be increased in order to achieve target injection rates into the lower permeability zones and maintain desirable FI/FO ratios.

Chevron is also involved in an ongoing infill drilling and pattern re-alignment program at EMSU in order to recover by-passed reserves. This program will reduce well spacing from 40 acres to 20 acres and pattern spacing from 80 acre five-spots to 40 acre five spots. Injection into under-processed zones will need to be increased in order to maximize recovery of by-passed reserves.

Eleven step-rate tests were performed earlier this month to determine surface parting pressure (SPP) from bottom-hole parting pressure (BHPP). The results varied slightly, but most were consistent. The average BHPP was 2581 psi and the average SPP was 955 psi. This gives an average pressure gradient of 0.253 psi/ft. Twenty-five other step-rate candidates have been identified for future step-rate tests. These candidates are based on their proximity the area of infill drilling and pattern re-alignment. Many wells in this area did not qualify as candidates due to the conformance work performed on the wells. There was a concern on compromising thief isolation during the step-rate tests and thus risk losing injection into the thief zones once again.

I would like to discuss the density spacing requirements and procedures for step-rate testing. Your help in this matter would be greatly appreciated. I have attached some maps and the results of the eleven step-rates performed earlier this month. If further information is required, please contact me at (915) 687-7645 or e-mail me at tglo@chevron.com.

Sincerely,



Tracy G. Love
Petroleum Engineer
New Mexico Waterfloods

R 36 E

T
20
S

R 37 E



R 36 E

T
21
S

- OIL
- ⊕ P&A OIL
- ⊕ TA OR CI OIL
- ☀ GAS
- ☀ P&A GAS
- ☀ TA OR CI GAS
- ⊕ DRY & ABANDONED
- ⊕ INJECTOR
- WATER SUPPLY WELL

LEGEND

● Step Rate Tests performed
10/00

● Future Step Rate Test
Candidates



Chevron U.S.A. Inc.
Exploration, Land and Production

EUNICE MONUMENT SOUTH UNIT
LEA COUNTY, NEW MEXICO

1798 (25-32)042145EN.DGN



INJ SG

1.01

EMSU #126		Gauge depth
RATE	BH PSI	
0	1471	3710
150	1660	Top perf depth
300	1910	3714
450	2200	BHGPP
600	2492	2600
750	2698	BHPP
900	2661	2601.749
750	2592	SPP
600	2460	977.5057

AVG BHPP

2542

AVG SPP

913

w/o 245&295

2581

w/o 245&295

955

30-025-06288

R-7766

EMSU #164		Gauge depth
RATE	BH PSI	
0	1504	3750
150	2002	Top perf depth
300	2554	3762
450	2899	BHGPP
600	2989	2950
750	3032	BHPP
600	2963	2955.248
450	2762	SPP
		1310.013

29820

71

EMSU #185		Gauge depth
RATE	BH PSI	
0	1467	3585
150	1705	Top perf depth
300	2008	3670
450	2278	BHGPP
600	2473	2500
750	2571	BHPP
900	2638	2537.173
750	2575	SPP
600	2500	932.172
450	2340	

04512

11

EMSU #245		Gauge depth
RATE	BH PSI	
0	1548	3765
300	1700	Top perf depth
500	1975	3770
700	2136	BHGPP
900	2254	2275
1100	2320	BHPP
1300	2344	2277.187
1100	2318	SPP
900	2266	628.4526

04498

11

Questionable BHPP. BHCP is higher.

EMSU #295		Gauge depth
RATE	BH PSI	
150	1554	3740
300	1536	Top perf depth
450	1551	3745
600	1615	BHGPP
700	2206	2450
800	2454	BHPP
900	2496	2452.187 ✓
1000	2481	SPP
900	2475	814.3858 Bad Step Rate Test. Hole in tbq.
800	2450	

04560

R-7766

EMSU #307		Gauge depth
RATE	BH PSI	
0	1573	3690
150	1951	Top perf depth
300	2231	3700
450	2464	BHGPP
600	2541	2530
750	2574	BHPP
900	2596	2534.373
750	2596	SPP
600	2573	916.2523
450	2463	

08708

640

EMSU #312		Gauge depth
RATE	BH PSI	
0	2004	3630
150	2281	Top perf depth
300	2477	3723
450	2524	BHGPP
600	2552	2510 ✓
750	2568	BHPP
600	2532	2550.672
450	2481	SPP
		922.4921

04616

860

EMSU #318		Gauge depth
RATE	BH PSI	
300	1278	3700
450	1420	Top perf depth
600	1598	3718
750	1850	BHGPP
900	2040	2530 ✓
1050	2280	BHPP
1200	2460	2537.872
1350	2590	SPP
1500	2688	911.879
1350		
1250	2480	
1050	2250	

29901

OK

EMSU #324		Gauge depth
RATE	BH PSI	
0	1310	3690
150	1417	Top perf depth
300	1580	3707
450	2044	BHGPP
600	2486	2560 ²⁵⁰⁰
750	2575	BHPP
900	2613	2567.435
1050	2649	SPP
900	2619	946.2523
750	2587	
600	2543	

04554

R-7766

475

EMSU #336		Gauge depth
RATE	BH PSI	
0	1302	3660
150	1406	Top perf depth
300	1887	3742
450	2277	BHGPP
600	2476	2475 ✓
750	2466	BHPP
900	2523	2510.861
1050	2542	SPP
900	2546	874.3722
750	2494	
600	2426	
450	2339	

04557

//

415

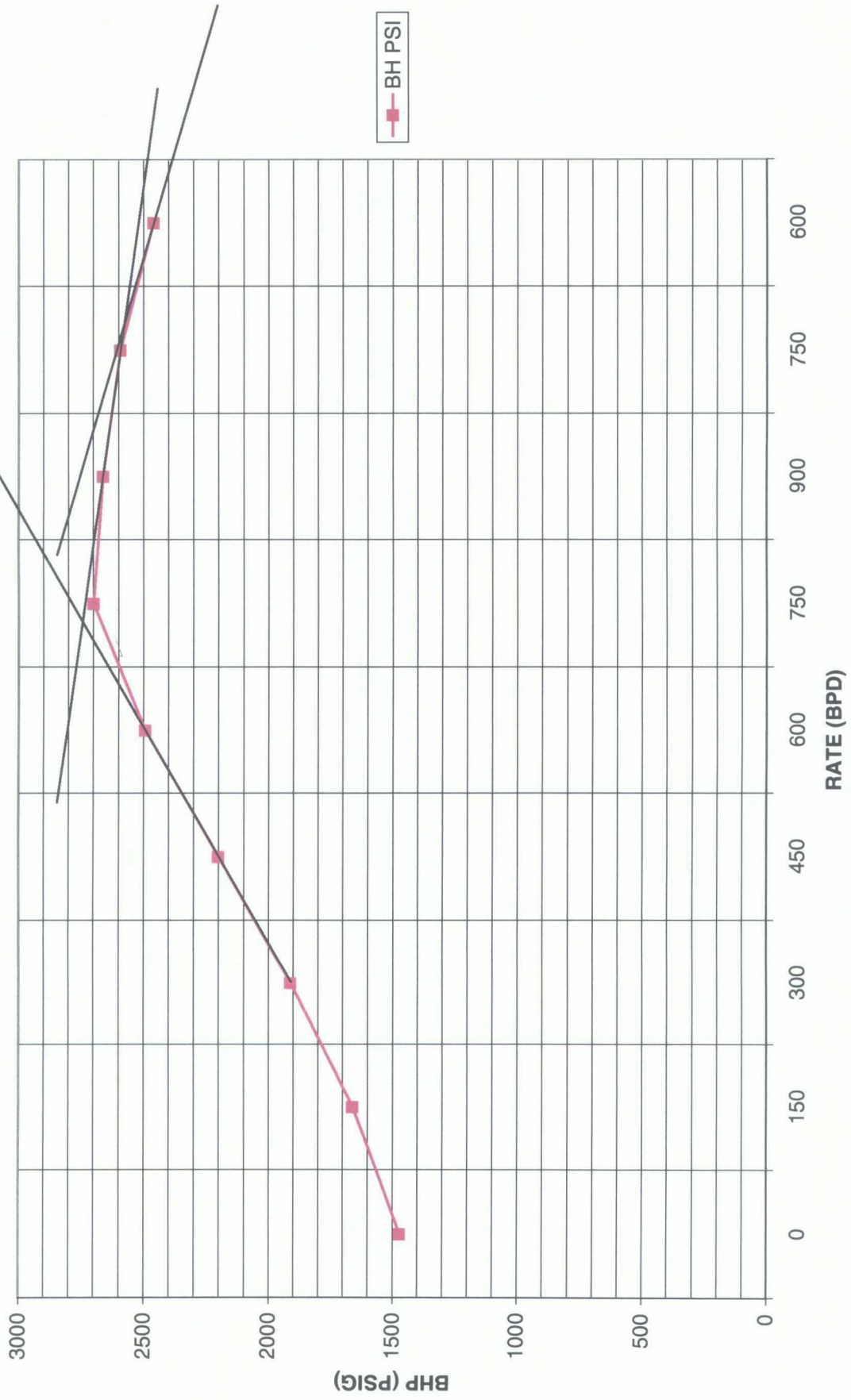
EMSU #354		Gauge depth
RATE	BH PSI	
0	1939	3710
150	2020	Top perf depth
300	2338	3720
450	2347	BHGPP
600	2360	2430 ²³²⁰
450	2342	BHPP
300	2321	2434.373
150	2192	SPP
		807.5057

04640

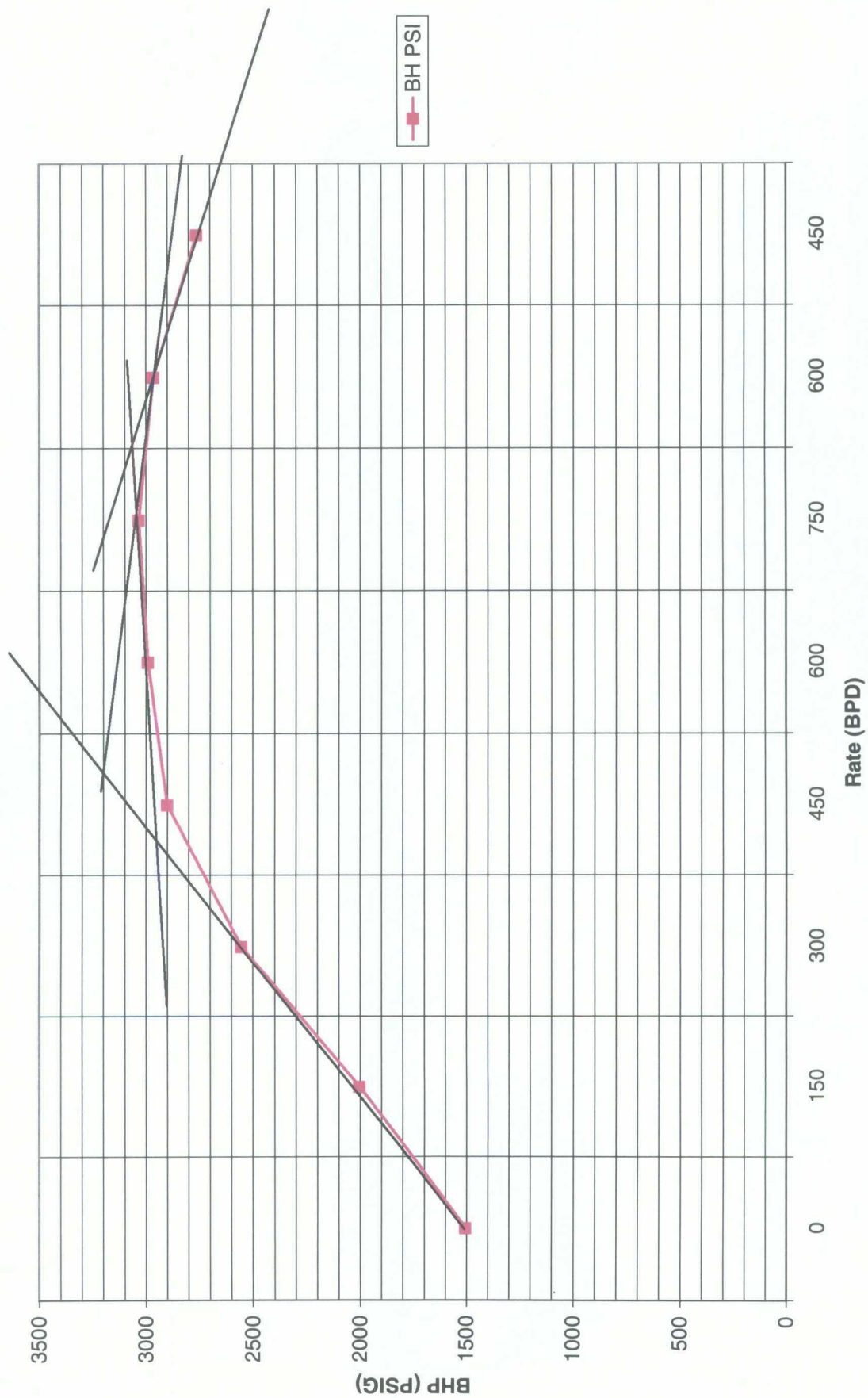
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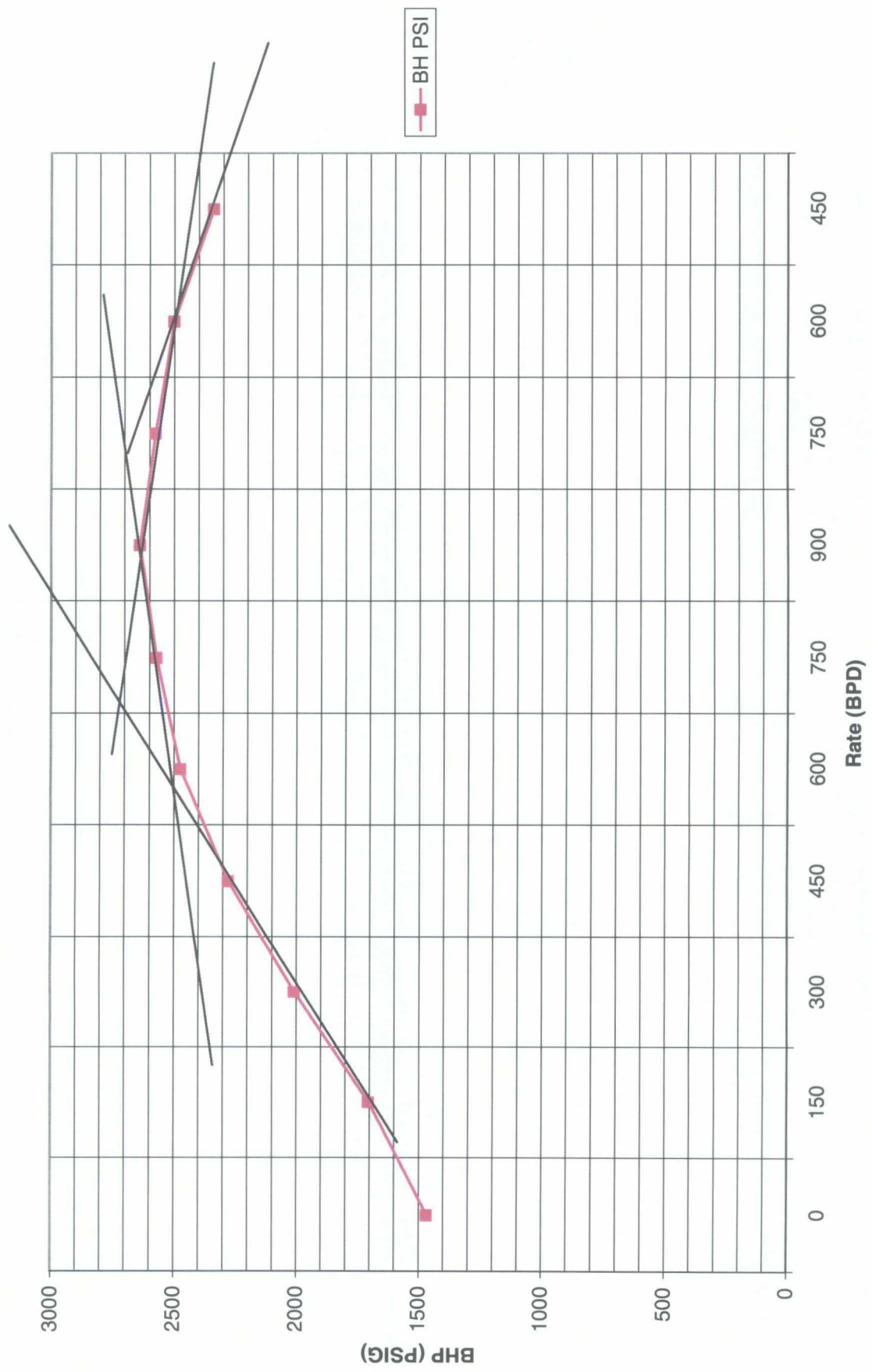
EMSU #126 Step Rate



EMSU #164 Step Rate



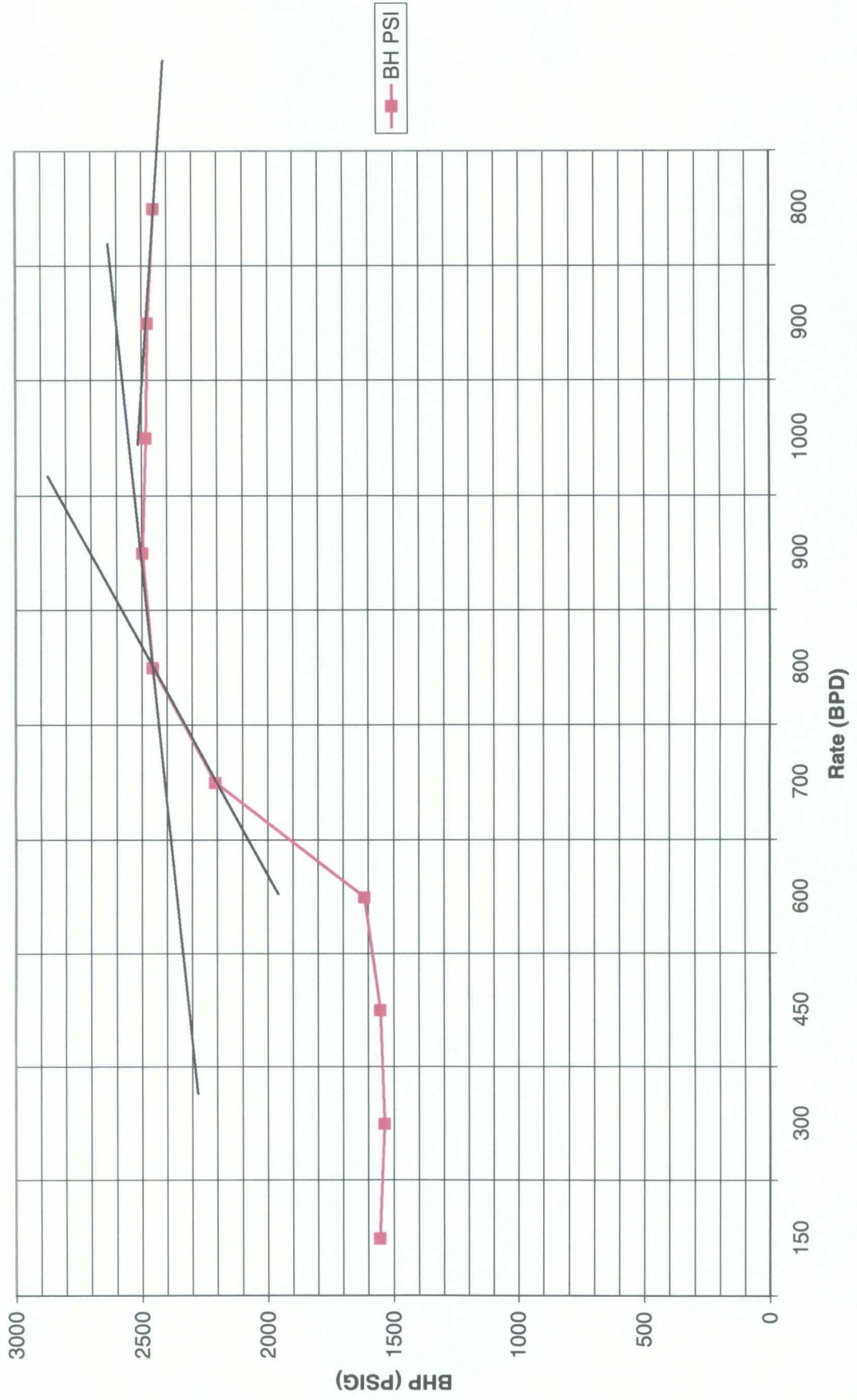
EMSU #185 Step Rate



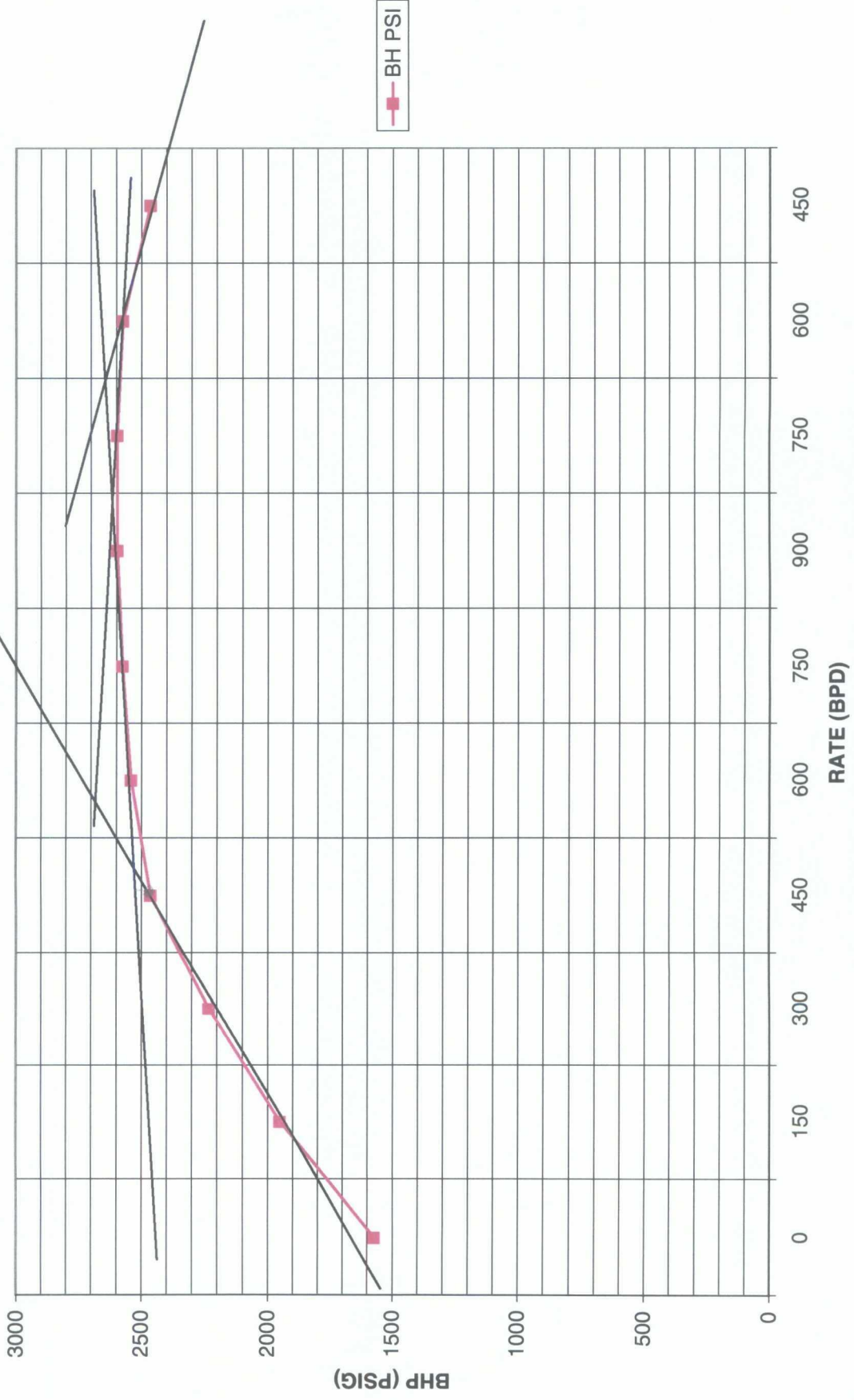
EMSU #245 Step Rate



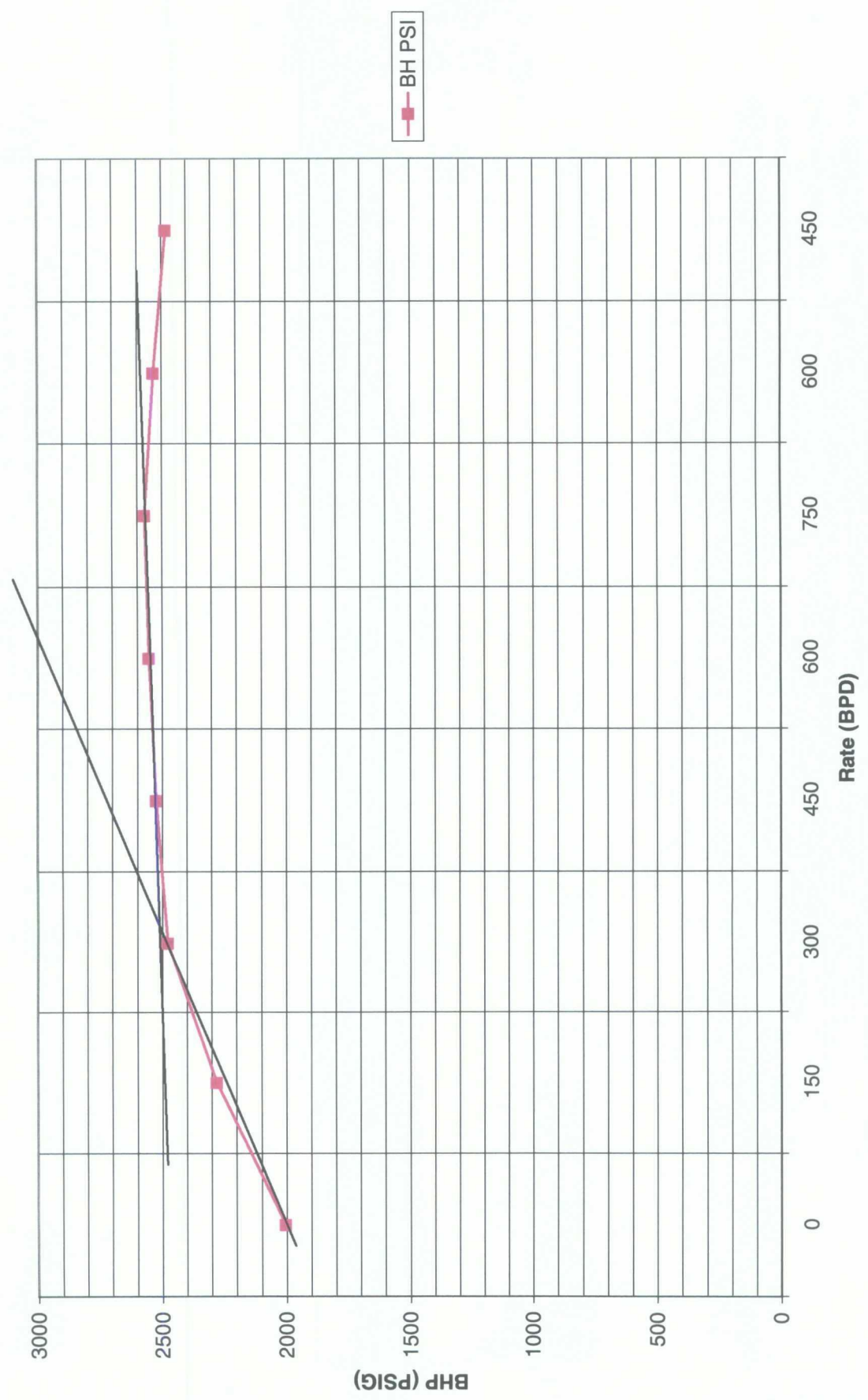
EMSU #295 Step Rate



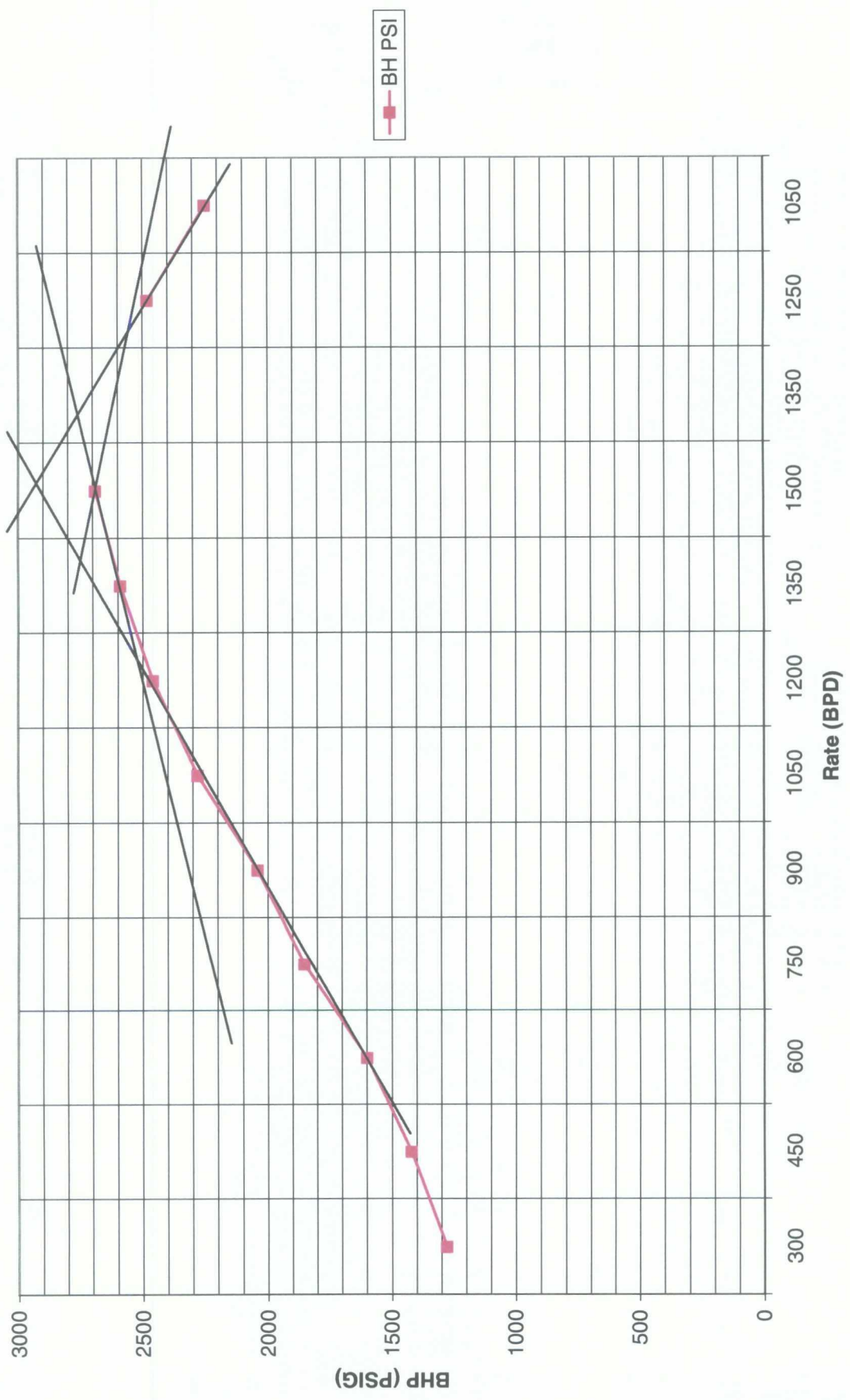
EMSU #307 Step Rate



EMSU #312 Step Rate



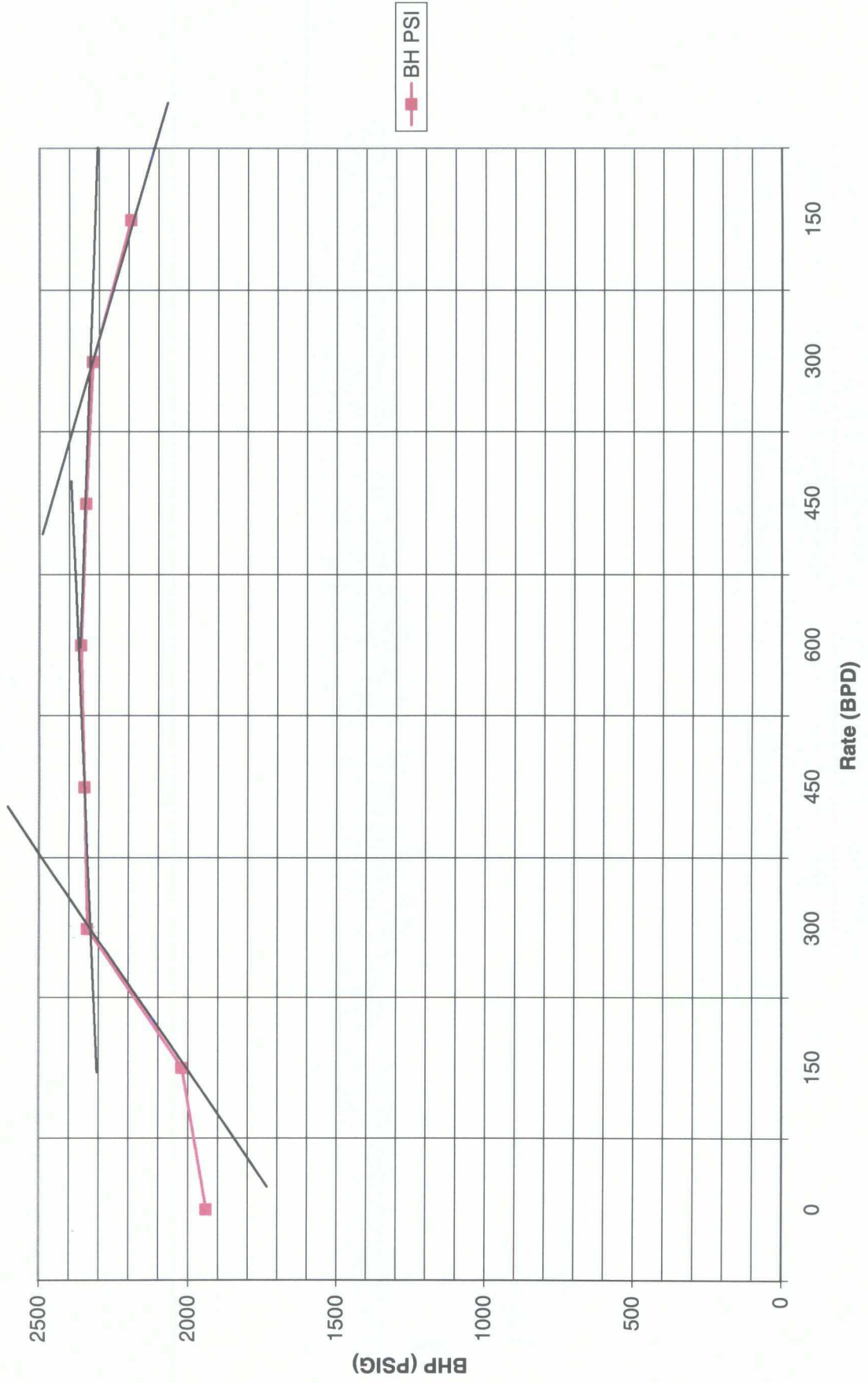
EMSU #318 Step Rate



EMSU #324 Step Rate



EMSU #354 Step Rate



EMSU #336 Step Rate

