D. S. T. REPORT

Well Name	Phillips		Test No. 5
Well Number	7-11-1		Zone Tested V
Company	Phillips Petroleum Company		Interval 9440 - 9455
Comp. Rep	J. Fetters	Tester B. Flahr	Date June 11, 1968

BJ
BORG WARNER

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TESTING REPORT

DRILL-STEM TEST DATA

Well Name	Phillips	Test No.	5
Well Number	7-11-1	Zone Tested	V
Company	Phillips Petroleum Company	Interval	9440 - 9455
Comp. Rep	J. Fetters / Tester B. Flahr	Date	June 11, 1968

Type of Test Casing Hook Wall R F S Tool No.

Preflow 15 mins ISI 103 mins. Flow 495 & 135 mins. FSI 120 & 37 mins.

Specify Inside or Outside	REC. No. 2759	REC. No. 6010N	REC. No. 6025N
	10650 RANGE 48 HR. CLOCK	10500 RANGE 48 HR. CLOCK	8900 RANGE 48 HR. CLOCK
DEPTH	9442	9437	9431
Initial Hydro Mud Press	6196	6240	6266
Initial Shut-In Press	5259	5295	5317
Initial Flow Press	759	797	854
Final Flow Press	897	931	991
Final Shut-In Press	5191	5226	5250
Final Hydro Mud Press	6196	6240	6266

Mud Drop Nil Fluid Loss 13.0 Mud Weight 12.6

Viscosity 43 Temperature °F 241 Net Pay Tested 15

Top Packer Depth - Bottom Packer Depth 9396 Total Depth 9480

Drill Pipe Size 3½" E.U.E. Wt. 9.3 Drill Collar I.D. 2¼" Ft. Run 279.52

Surface Choke Size 3" Positive Choke Body Bottom Choke Size Bumper Subs Main Hole Size 9-5/8 - 47# casing

Anchor Size 4-3/4 3½ EUE Rat Hole Size - Feet of Rat Hole -

Cushion Amount 9450 Type Diesel Oil Rubber Size 8-1/8"

Fluid Recovery Total Feet Nil

Recovered Feet of Gas and fluid pumped back into formation

Recovered Feet of

Recovered Feet of

Recovered Feet of

Recovered Feet of

Gas Recovery How Measured Various sized chokes Riser size:

Cleaned up at an average rate of 10.4 MMCF/D

Times after tool opened						
___ mins	Temp. F	Press Rdg. ___ psi	Orifice Size ___	=	___	MCF/Day
___ mins	Temp. F	Press Rdg. ___ psi	Orifice Size ___	=	___	MCF/Day
480 mins	Temp. F	Press Rdg. 620 psi	Orifice Size 3/4"	=	6.04	MCF/Day
540 mins	Temp. F	Press Rdg. 1135 psi	Orifice Size 26/64"	=	6.20	MCF/Day
660 mins	Temp. F	Press Rdg. 250 psi	Orifice Size 2 - 1"	=	10.5	MCF/Day
___ mins	Temp. F	Press Rdg. ___ psi	Orifice Size ___	=	___	MCF/Day

Bleed Off Time for Drill Pipe

REMARKS: Opened with 20 bbls. per hour flow of diesel oil. Gas to surface in 2 hours, 20 minutes. Cleaned up at 1-½" choke for 2 hrs., 40 mins. Flowed for 3 hrs. through 3/4" choke at 6.04 MMCF/D. Flowed through 26/64" choke for 60 mins. at 6.2 MMCF/D, then flowed through 2-1" choke at 10.5 MMCF/D, shut in for 2 hrs., 10 mins. Opened and flowed through 3/16"

Core Lab Gas Cont. No. Chem - Geo. Lab Gas Cont. No

choke for 60 minutes @ 2.67 MMCF/D. Flowed through ¼" choke for 60 minutes @ 4.01 MMCF/D. G.O.R. for all flow rates assummed to be 11,700 SCF/bbl.

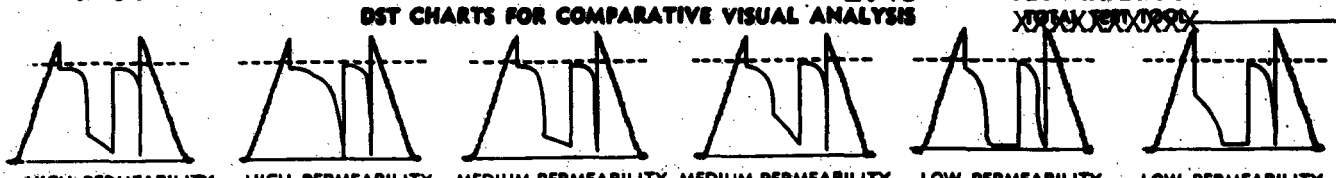
TEST NO. 5

BAKER TEST HEAD

TESTING REPORT

4S CHAMBER	4 Jts D.P. & Pup Jt.	
		185.80
	X-Over Sub	.80
	P.B. Bumper Sub	21.73 (Closed)
	X-Over Sub	.80
	2 Jts. D. Pipe	88.79
	X-Over Sub	.74
	Otis Test Tree	22.48
	X-Over Sub	.80
	Tubing 3½ EUE	8765.00
	X-Over Sub	1.76
	B.P. Bumper Sub	21.73
	X-Over Sub	.85
RECORDER No.	9 Drill Collars	279.52 DEPTH
	X-Over Sub	1.62
3. PACKER DEPTH 9396	PACKER Baker	6.82
	1 Jt Perf Tubing	31.59
	X-Over Sub	1.60
	Recorder (Inside)	5.00 Depth 9431'
	Perf.	2.00
RECORDER No.	(Outside)	5.00 DEPTH 9437'
	Rec. Hanger (Outs.)	1.00 Depth 9442'
	Perf.	1.00
	Rec. Case	4.00
TOTAL DEPTH 9450	BULLNOSE	2.45

DST CHARTS FOR COMPARATIVE VISUAL ANALYSIS



HIGH PERMEABILITY STRONG DAMAGE EFFECT | HIGH PERMEABILITY NO DAMAGE EFFECT | MEDIUM PERMEABILITY STRONG DAMAGE EFFECT | MEDIUM PERMEABILITY NO DAMAGE EFFECT | LOW PERMEABILITY STRONG DAMAGE EFFECT | LOW PERMEABILITY NO DAMAGE EFFECT

B

TEST NO. 5

5 min. DST PRESSURE INCREMENTS of Preflow

Point A to B

Recorder No. 2759

Depth 9442

15 mins.

Point		INITIAL CIP				FINAL CIP		
	Time Defl. "	T + Θ	(T + Θ)/Θ	PSIG	Time Defl. "	T + Θ	(T + Θ)/Θ	PSIG
1	0			6455				
2	5			5280				
3	10			3984				
4	15			3417				
5								
6								
7								
8								
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24								

BJ BORG WARNER

TESTING REPORT

TEST NO. 5 — 5 min **DST PRESSURE INCREMENTS** of initial shut-in

Point B to C

Recorder No. 2759 — Depth 9442

103 mins.

Points	INITIAL CIP				FINAL CIP			
	Time Defl. "	T + Θ	$\frac{T+\Theta}{\Theta}$	PSIG	Time Defl. "	T + Θ	$\frac{T+\Theta}{\Theta}$	PSIG
1	0	Point B		3417				
2	5			4486				
3	10			4929				
4	15			5186				
5	20			5226				
6	25			5245				
7	30			5248				
8	35			5251				
9	40			5253				
10	45			5253				
11	50			5253				
12	55			5254				
13	60			5254				
14	65			5254				
15	70			5255				
16	75			5255				
17	80			5256				
18	85			5257				
19	90			5258				
20	95			5259				
21	100			5259				
22	103	Point C		5259				
23								
24								

BJ BORG WARNER

TESTING REPORT

5 min. **DST PRESSURE INCREMENTS** of Bleed Off

Point C - D

Recorder No. 2759 Depth 9442

155 mins.

Points		INITIAL CIP				FINAL CIP		
	Time Defl. "	T + Θ	$\frac{T+\Theta}{\Theta}$	PSIG	Time Defl. "	T + Θ	$\frac{T+\Theta}{\Theta}$	PSIG
1	0			5259	125			2632
2	5			3384	130			2539
3	10			3379	135			2400
4	15			3354	140			2203
5	20			3335	145			1667
6	25			3316	150			1399
7	30			3298	155			759
8	35			3281				
9	40			3261				
10	45			3242				
11	50			3226				
12	55			3204				
13	60			3182				
14	65			3161				
15	70			3142				
16	75			3120				
17	80			3095				
18	85			3065				
19	90			3038				
20	95			3000				
21	100			2965				
22	105			2899				
23	110			2866				
24	115			2796				
	120			2733				

C

5 min **DST PRESSURE INCREMENTS** of flow

TEST NO. 5

Recorder No. 2759 Depth 9442 Points D to E

Points		INITIAL CIP				FINAL CIP		
	Time Defl. "	T+θ	$\frac{T+\theta}{\theta}$	PSIG	Time Defl. "	T+θ	$\frac{T+\theta}{\theta}$	PSIG
1	0		2	759	125			601
2	5			760	130			604
3	10			761	135			704
4	15			784	140			773
5	20			798	145			848
6	25			795	150			972
7	30			787	155			1554
8	35			767	160			1030
9	40			737	165			1055
10	45			676	170			1069
11	50			634	175			1099
12	55			617	180			1122
13	60			601	185			1130
14	65			595	190			1136
15	79			593	195			1130
16	75			595	200			1125
17	80			598	205			1114
18	85			631	210			1108
19	90			659	215			1099
20	95			662	220			1094
21	100			659	225			1102
22	105			670	230			1111
23	110			681	235			1111
24	115			631	240			1111
	120			593	245			1111

DST PRESSURE INCREMENTS

5 min. of flow

Recorder No. 2759 Depth 9442 Points D to E 495 mins.

Points		XXXXXXXX				XXXXXXXX		
	Time Defl. "	T+θ	$\frac{T+\theta}{\theta}$	PSIG	Time Defl. "	T+θ	$\frac{T+\theta}{\theta}$	PSIG
1	250			1111	375			1692
2	255			1111	380			1698
3	260			1112	385			1703
4	265			1113	390			1706
5	270			1114	395			842
6	275			1116	400			936
7	280			1119	405			875
8	285			1122	410			859
9	290			1119	415			857
10	295			1116	420			853
11	300			1114	425			850
12	305			1116	430			853
13	310			1119	435			867
14	315			1122	440			875
15	320			1125	445			878
16	325			1138	450			881
17	330			1230	455			883
18	335			1304	460			886
19	340			1368	465			889
20	345			1197	470			892
21	350			1554	475			893
22	355			1590	480			894
23	360			1637	485			895
24	365			1656	490			896
	370			1677	495			897

BJ HUGHES TOOL

TESTING REPORT

5 mins **DST PRESSURE INCREMENTS** of final shut in

TEST NO.5

Point E to F

Recorder No. 2759 Depth 9442 120 mins.

Points		INITIAL CIP				FINAL CIP		
	Time Defl. "	T+Θ	$\frac{T+\Theta}{\Theta}$	PSIG	Time Defl. "	T+Θ	$\frac{T+\Theta}{\Theta}$	PSIG
1	0	2.0		897				
2	5			1141				
3	10			2518				
4	15	2.25	9.0	2801				
5	20	2.33	7.06	4567				
6	25			4729				
7	30	2.5	5.0	5118				
8	35			5140				
9	40			5161				
10	45	2.75	3.67	5167				
11	50			5175				
12	55			5178				
13	60	3.0	3.0	5180				
14	65			5181				
15	70			5183				
16	75	3.25	2.60	5185				
17	80			5186				
18	85			5187				
19	90	3.5	2.33	5188				
20	95			5189				
21	100			5190				
22	105	3.75	2.14	5191				
23	110			5191				
24	115			5191				
	120	4.0	2.0	5191				

5 min. **DST PRESSURE INCREMENTS** of # 2 flow

Point F to G

Recorder No. 2759 Depth 9442

Points		FLOW XXXXXXXXX INITIAL SIP			135 mins. XXXXXXXXX FINAL SIP			
	Time Defl. "	T+θ	$\frac{T+\theta}{\theta}$	PSIG	Time Defl. "	T+θ	$\frac{T+\theta}{\theta}$	PSIG
1	0			5191	125			4140
2	5			4931	130			4138
3	10			4724	135			4138
4	15			4672				
5	20			4659				
6	25			4653				
7	30			4650				
8	35			4647				
9	40			4645				
10	45			4640				
11	50			4637				
12	55			4634				
13	60			4633				
14	65			4632				
15	70			4632				
16	75			4464				
17	80			4329				
18	85			4251				
19	90			4194				
20	95			4175				
21	100			4159				
22	105			4151				
23	110			4146				
24	115			4140				
	120			4138				

5 min. **DST PRESSURE INCREMENTS** of # 3 Shut in

Point F to G

Recorder No. 2759 Depth 9442

37 mins.

Points		INITIAL CIP				FINAL CIP		
	Time Defl. "	T+Θ	$\frac{T+\Theta}{\Theta}$	PSIG	Time Defl. "	T+Θ	$\frac{T+\Theta}{\Theta}$	PSIG
1	0			4138				
2	5			4672				
3	10			5029				
4	15			5134				
5	20			5159				
6	25			5167				
7	30			5178				
8	35			5183				
9	37			5186				
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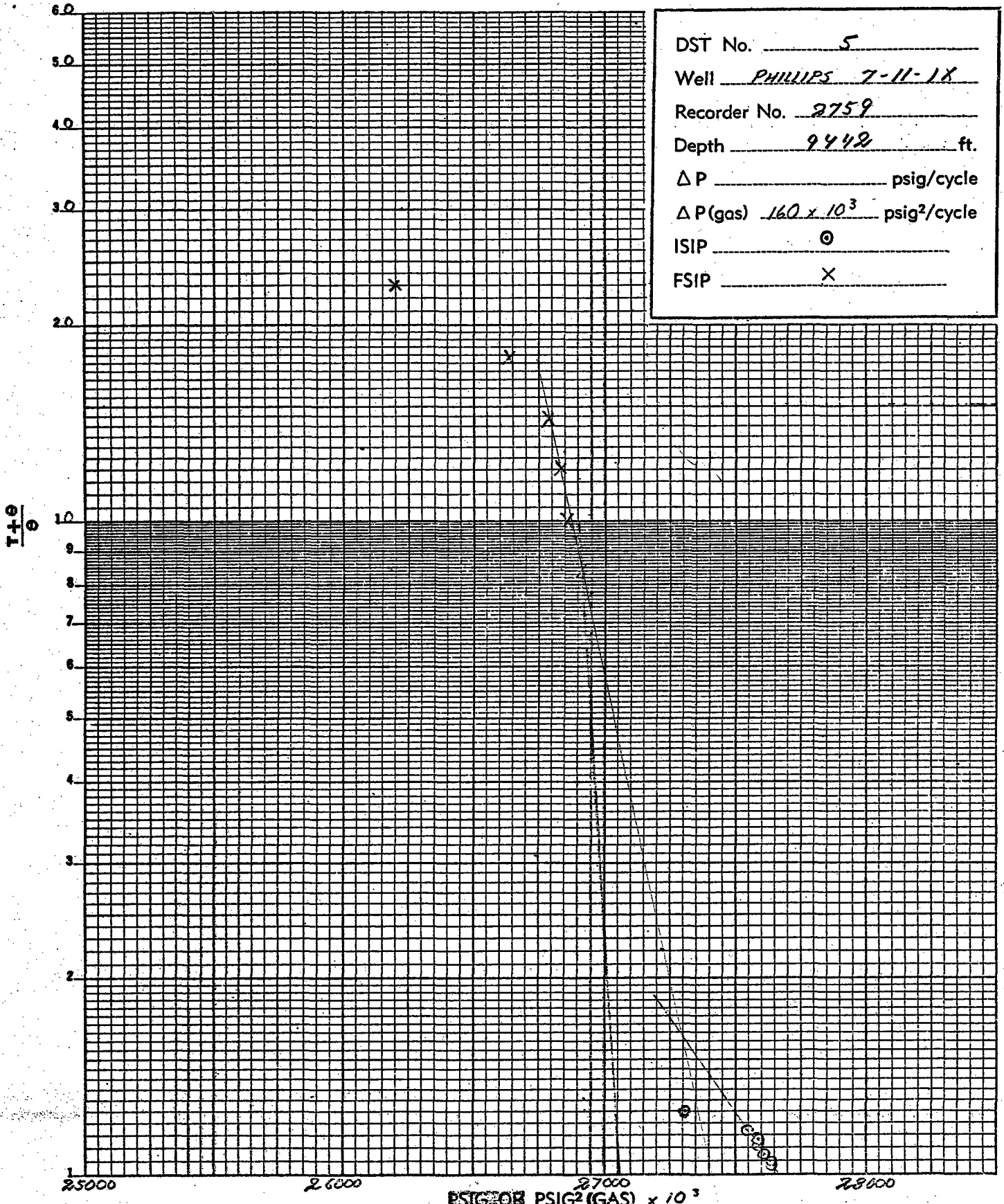
BJ
BORG WARNER

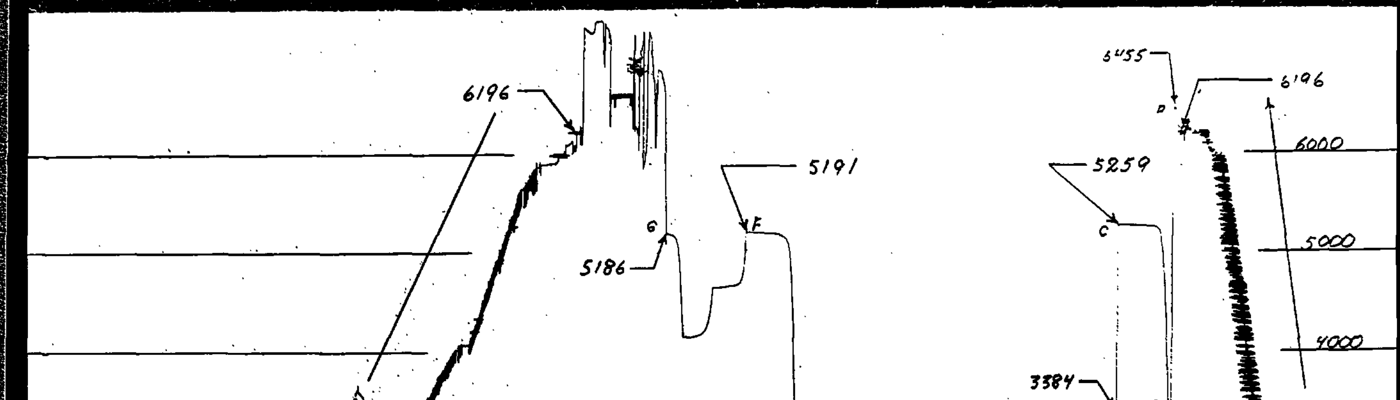
TESTING REPORT

DST No. 5
Well PHILLIPS 7-11-1X
Recorder No. 2759
Depth 9448 ft.
ΔP _____ psig/cycle
ΔP(gas) 160 x 10^3 psig²/cycle
ISIP ⊙
FSIP ×

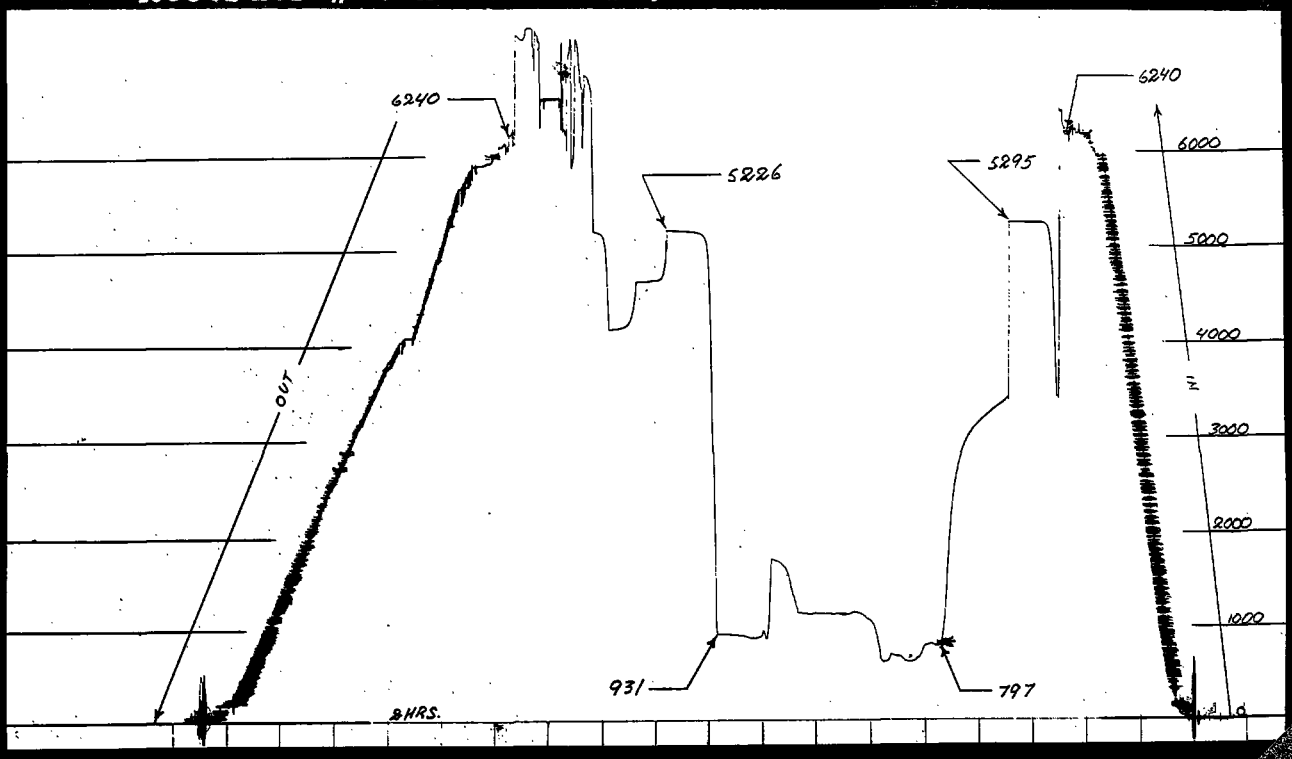


D

Phillips 7-11-1X
Recorder # 2759 Test # 5



Phillips 7-11-1X
Recorder # 6010 Test # 5



Phillips 7-11-1X
Recorder # 6025 Test # 5