

D. S. T. REPORT

Well Name	Phillips	Test No.	4
Well Number	7-11-1X	Zone Tested	IV
Company	Phillips Petroleum Company	Interval	9527 - 9697 ✓
Comp. Rep.	J. Fetters	Tester	H. Price
		Date	June 10, 1968

5700 10

5250

954.84





TE

170 Feb 1968

DRILL-STEM TEST DATA

Well Name	Phillips	Test No.	4
Well Number	7-11-1X	Zone Tested	IV
Company	Phillips Petroleum Company	Interval	9527 - 9697 ✓
Comp. Rep.	J. Feters	Tester	H. Price
		Date	June 10, 1968

Type of Test Casing Hook Wall RFS Tool No. _____

Preflow 19 mins. ISI 174 mins. Flow 715 mins. FSI 238 mins.

Specify Inside or Outside	REC. No. <u>2759</u>	REC. No. <u>6010N</u>	REC. No. _____
	<u>10650</u> RANGE <u>72</u> HR. CLOCK	<u>10500</u> RANGE <u>72</u> HR. CLOCK	RANGE _____ HR. CLOCK
DEPTH	<u>9564</u>	<u>9570</u>	
Initial Hydro Mud Press	<u>6502</u>	<u>6532</u>	
Initial Shut-In Press	<u>5326</u>	<u>5444</u>	
Initial Flow Press	<u>5326</u>	<u>3946</u>	
Final Flow Press	<u>3891</u>	<u>4021</u>	
Final Shut-In Press	<u>5243</u>	<u>5354</u>	
Final Hydro Mud Press	<u>6502</u>	<u>6532</u>	

Mud Drop Nil Fluid Loss 13.0 Mud Weight 12.6
 Viscosity 43 Temperature °F _____ Net Pay Tested 55'
 Top Packer Depth - Bottom Packer Depth 9493 Total Depth 9750'
 Drill Pipe Size 3 1/2" E.U.E. Wt. 9.3 Drill Collar I.D. 2 1/4" Ft. Run 279.59
 Surface Choke Size 2 - 1/4" Bottom Choke Size 2" ID Bumper Sub Main Hole Size 9-5/8" X 47# Casing
 Anchor Size 3 1/2" E.U.E. Rat Hole Size - Feet of Rat Hole -
 Cushion Amount 9493 Type Diesel Oil Rubber Size 8-1/8"
6.9# per gal.

Fluid Recovery Total Feet Nil
 Recovered _____ Feet of Fluid and gas pumped back into formation
 Recovered _____ Feet of _____
 Recovered _____ Feet of _____
 Recovered _____ Feet of _____
 Recovered _____ Feet of _____

Gas Recovery How Measured _____ Riser size: _____

_____ mins.	Temp. °F	Press Rdg. _____ psi	Orifice Size _____	= _____ MCF/Day
_____ mins.	Temp. °F	Press Rdg. _____ psi	Orifice Size _____	= _____ MCF/Day
_____ mins.	Temp. °F	Press Rdg. _____ psi	Orifice Size _____	= _____ MCF/Day
_____ mins.	Temp. °F	Press Rdg. _____ psi	Orifice Size _____	= _____ MCF/Day
_____ mins.	Temp. °F	Press Rdg. _____ psi	Orifice Size _____	= _____ MCF/Day
_____ mins.	Temp. °F	Press Rdg. _____ psi	Orifice Size _____	= _____ MCF/Day

Bleed Off Time for Drill Pipe _____

REMARKS: _____

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

....Continued

F. F.	727	mins		783	psig	=	44	MMCF/D
1st O.F.P.	120	mins	1/4" choke	372	bbl. oil/day	=	4.39	MMCF/D
2nd O.F.P.	120	mins	26/64 "	970	" " "	=	10.75	MMCF/D
3rd O.F.P.	120	mins	37/64 "	868	" " "	=	18	MMCF/D
4th O.F.P.	120	mins	3/4 "	850	" " "	=	25.2	MMCF/D

REMARKS: Flowed 25 bbl of diesel oil on I. F. Final flow started with strong diesel flow and gas to surface in 5 mins. Varied choke sizes for first 3 hrs. after gas to surface, then set on 2 - 1/4" chokes. 10 hrs., 5 mins. after flow started shut in for 30 mins to repair leak on (1 only) flow line. After 12 hrs, 7 mins shut in for 4 hrs. Opened for 30 mins on 1/4" choke and shut in for one hour due to icing in separator, conducted open flow potential test with four 2 hour flows and 2 hour shut ins between each flow. On last flow period after flowing one hour, had to shut in 10 mins to repair leak. Final flow through positive choke and open flow potential through orifice meter.



BAKER TEST HEAD

TEST NO. 4

TESTING REPORT



4S LANDING SUB _____

4S CHAMBER _____

4S TOOL OR P.O. SUB _____

CO SUB _____

SHUT IN TOOL _____

R.F.S. No. 4 Jts Drill Pipe

R.F.S. No. & 7' Pup Jt. 185.80

~~XXXXXX~~ X-OverSub _____ .80

~~XXXX~~ P.B. Pumper Sub _____ 22.36 (Closed)

~~XXXXXX~~ X-OverSub _____ .80 DEPTH _____

RECORDER No. _____ DEPTH _____

~~XXXXXX~~ 2 Jts. D. Pipe 88.79

~~XXXXXX~~ X-OverSub _____ .74

~~XXXX~~ Otis Test Tree 22.48

X-Over Sub _____ .80

PACKER 287 Jts. 3/4 Tubing 8859.33 ~~XXXXXXXXXXXXXXXXXXXX~~

ANCHOR—SPECIFY _____

X-Over Sub _____ 1.76

P.B. Bumper Sub (Clo- 21.73

sed)

BLANK OFF OR BY PASS SUB _____

RECORDER No. _____ DEPTH _____

X-Over Sub _____ .85

9 Drill Collars _____ 279.52

~~XXXX~~ X-Over Sub _____ 1.62 ~~XXXXXXXXXXXX~~

PACKER _____ 6.82

Baker Hanger Sub & _____

ANCHOR—SPECIFY Perf. Jt. Tubing 32.49

1 Jt. Tubing _____ 31.51

X-Over Sub _____ 1.60

RECORDER No. Inside #2759 5.00 DEPTH 9564'

Rec. Hanger Sub _____ 1.00 Depth 9570" (Outs # 6010)

1" Perf. _____ 1.00

Rec. Case _____ 4.00

BULLNOSE _____ 2.45

1. PACKER DEPTH _____

2. PACKER DEPTH _____

3. PACKER DEPTH _____

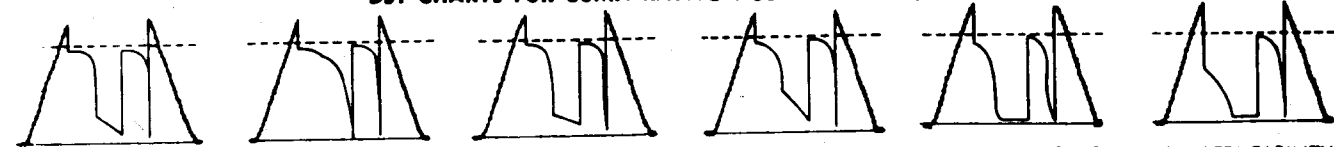
4. PACKER DEPTH 9493' _____

TOTAL DEPTH 9572 _____

TOTAL TAIL PIPE _____

TOTAL TEST TOOL _____

DST CHARTS FOR COMPARATIVE VISUAL ANALYSIS



B 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



DST PRESSURE INCREMENTS PREFLOW

Test # 4

POINT A TO B (19 Mins.)

Recorder No. 2759

Depth 9564

Points	INITIAL CIP				FINAL CIP			
	Time Defl. "	T+0	$\frac{T+0}{0}$	PSIG	Time Defl. "	T+0	$\frac{T+0}{0}$	PSIG
1		Point A		6407				
2		Point B		3834				
3								
4								
5								
6								
7								
8								
9								
10								
11								
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17								
18								
19								
20								
21								
22								
23								
24								



5 Min. DST PRESSURE INCREMENTS OF INITIAL SHUT-IN

Test # 4

POINTS B TO C (174 Mins.)

Recorder No. 2795

Depth 9564

Points	INITIAL CIP			FINAL CIP				
	Time Defl. "	T+0	$\frac{T+0}{0}$	PSIG	Time Defl. "	T+0	$\frac{T+0}{0}$	PSIG
1	0	Point B		3834	120			5326
2	5			5302	125			5326
3	10			5313	130			5326
4	15			5318	135			5326
5	20			5321	140			5326
6	25			5324	145			5326
7	30			5324	150			5326
8	35			5324	155			5326
9	40			5324	160			5326
10	45			5324	165			5326
11	50			5324	170			5326
12	55			5326	174	Point C		5326
13	60			5326				
14	65			5326				
15	70			5326				
16	75			5326				
17	80			5326				
18	85			5326				
19	90			5326				
20	95			5326				
21	100			5326				
22	105			5326				
23	110			5326				
24	115			5326				



5 Min. DST PRESSURE INCREMENTS OF FLOW

Test # 4

POINT C TO D (715 Mins.)

Recorder No. 2759

Depth 9564

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			5326	120			3918
2	5			4321	125			3921
3	10			4227	130			3924
4	15			4073	135			3924
5	20			3918	140			3926
6	25			3904	145			3929
7	30			3809	150			3929
8	35			3899	155			3932
9	40			3932	160			3994
10	45			3806	165			4000
11	50			3924	170			4003
12	55			3883	175			3869
13	60			3883	180			3826
14	65			3886	185			3823
15	70			3886	190			3820
16	75			3888	195			3820
17	80			3891	200			3823
18	85			3894	205			3826
19	90			3896	210			3826
20	95			3902	215			3826
21	100			3907	220			3828
22	105			3910	225			3831
23	110			3913	230			3834
24	115			3915	235			3834

c



5 Min. DST PRESSURE INCREMENTS OF FLOW

Test # 4

POINT C TO D (715 Mins.)

Recorder No. 2759

Depth 9564

Pebles	Time Defl. "	INITIAL CIP			Time Defl. "	FINAL CIP		
		T+0	$\frac{T+0}{0}$	PSIG		T+0	$\frac{T+0}{0}$	PSIG
1	240			3834	360			3858
2	245			3837	365			3858
3	250			3839	370			3858
4	255			3842	375			3861
5	260			3844	380			3861
6	265			3844	385			3861
7	270			3847	390			3864
8	275			3847	395			3864
9	280			3850	400			3864
10	285			3850	405			3866
11	290			3850	410			3866
12	295			3850	415			3866
13	300			3850	420			3869
14	305			3850	425			3869
15	310			3853	430			3869
16	315			3853	435			3869
17	320			3853	440			3872
18	325			3853	445			3872
19	330			3853	450			3872
20	335			3855	455			3875
21	340			3855	460			3875
22	345			3855	465			3875
23	350			3855	470			3875
24	355			3858	475			3877



5 Min. DST PRESSURE INCREMENTS OF FLOW

Test # 4

POINT C TO D

(715 Mins.)

Recorder No. 2759

Depth 9564

Points	INITIAL CIP				FINAL CIP			
	Time Defl. "	T+0	$\frac{T+0}{0}$	PSIG	Time Defl. "	T+0	$\frac{T+0}{0}$	PSIG
1	480			3877	600			4038
2	485			3877	605			3984
3	490			3877	610			3891
4	495			3877	615			3886
5	500			3877	620			3886
6	505			3877	625			3886
7	510			3880	630			3886
8	515			3880	635			3886
9	520			3880	640			3886
10	525			3880	645			3886
11	530			3880	650			3886
12	535			3880	655			3886
13	540			3880	660			3886
14	545			3880	665			3886
15	550			3880	670			3886
16	555			3880	675			3886
17	560			3880	680			3886
18	565			3880	685			3886
19	570			3880	690			3886
20	575			3880	695			3888
21	580			3880	700			3888
22	585			3880	705			3891
23	590			3880	710			3891
24	595			3880	715			3891



5 Min. DST PRESSURE INCREMENTS OF FINAL SHUT-IN

Test # 4

POINT D TO F (238 Mins.)

Recorder No. 2759

Depth 9564

Points	INITIAL CIP				FINAL CIP			
	Time Defl. "	T+0	$\frac{T+0}{0}$	PSIG	Time Defl. "	T+0	$\frac{T+0}{0}$	PSIG
1	0	11.9		3891	120	13.9	6.95	5223
2	5			5124	125			5226
3	10			5151	130			5226
4	15	12.15		5164	135			5226
5	20			5172	140			5229
6	25			5180	145			5229
7	30	12.4	24.8	5186	150	14.4	5.76	5232
8	35			5191	155			5232
9	40			5194	160			5234
10	45			5196	165			5234
11	50			5199	170			5235
12	55			5202	175			5236
13	60	12.9	12.9	5203	180	14.9	4.97	5237
14	65			5206	185			5238
15	70			5210	190			5239
16	75			5213	195			5240
17	80			5213	200			5241
18	85			5216	205			5242
19	90	13.4	8.93	5218	210	15.4	4.40	5243
20	95			5220	215			5243
21	100			5221	220			5243
22	105			5221	225			5243
23	110			5223	230	15.73	4.11	5243
24	115			5223	235			5243

238 Point F 15.87 4.00 5243

C



5 Min. DST PRESSURE INCREMENTS OPEN FLOW POTENTIAL

Test # 4

POINT F TO G

Recorder No. 2759

Depth 9564

#1 FLOW

25 Mins.

#1 SHUT-IN

30 Mins.

Points	#1 FLOW				#1 SHUT-IN			
	Time Defl. "	T+@	$\frac{T+@}{@}$	PSIG	Time Defl. "	T+@	$\frac{T+@}{@}$	PSIG
1	0	Point F		5243	0			5102
2	5			5196	5			5226
3	10			5194	10			5237
4	15			5134	15			5240
5	20			5110	20			5243
6	25			5102	25			5246
7					30			5248
8								
9					#2 SHUT-IN - 32 Mins.			
10					0			5118
11					5			5232
12					10			5243
13					15			5245
14					20			5248
15					25			5250
16					30			5252
17					32			5254
18								
19								
20								
21								
22								
23								
24								



5 Min. DST PRESSURE INCREMENTS OPEN FLOW POTENTIAL
POINT F TO G

Recorder No. 2759
2 FLOW

116 Mins.

Depth 9564
3 SHUT-IN

119 Mins.

Points	XXXXXXXXXX				XXXXXXXXXX			
	Time Defl. "	T+θ	$\frac{T+\theta}{\theta}$	PSIG	Time Defl. "	T+θ	$\frac{T+\theta}{\theta}$	PSIG
1	0			5113	0			5124
2	5			5123	5			5232
3	10			5124	10			5240
4	15			5124	15			5244
5	20			5124	20			5248
6	25			5124	25			5251
7	30			5124	30			5253
8	35			5124	35			5234
9	40			5124	40			5254
10	45			5124	45			5254
11	50			5124	50			5256
12	55			5124	55			5258
13	60			5124	60			5259
14	65			5124	65			5259
15	70			5124	70			5259
16	75			5124	75			5259
17	80			5124	80			5259
18	85			5124	85			5259
19	90			5124	90			5259
20	95			5124	95			5259
21	100			5124	100			5260
22	105			5124	105			5260
23	110			5124	110			5261
24	115			5124	115			5261
	116			5124	119			5261



5 Min. DST PRESSURE INCREMENTS OPEN FLOW POTENTIAL

Test # 4

POINT F TO G

Recorder No. 2759

Depth 9564

3 FLOW

120 MINS.

4 SHUT-IN

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			5261	0			4891
2	5			4931	5			5207
3	10			4910	10			5221
4	15			4896	15			5232
5	20			4894	20			5237
6	25			4891	25			5240
7	30			4891	30			5244
8	35			4891	35			5248
9	40			4891	40			5250
10	45			4891	45			5251
11	50			4891	50			5252
12	55			4891	55			5253
13	60			4891	60			5254
14	65			4891	65			5256
15	70			4891	70			5257
16	75			4891	75			5258
17	80			4891	80			5258
18	85			4891	85			5259
19	90			4891	90			5259
20	95			4891	95			5260
21	100			4891	100			5261
22	105			4891	105			5261
23	110			4891	110			5262
24	115			4891	115			5262
	120			4891	120			5262

C



5 Min. DST PRESSURE INCREMENTS OPEN FLOW POTENTIAL

Test # 4

POINT F TO G

Recorder No. 2759

Depth 9564

4 FLOW

121 MINS.

5 SHUT-IN

132 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			5262	0			4656
2	5			4734	5			5178
3	10			4686	10			5205
4	15			4670	15			5218
5	20			4664	20			5223
6	25			4659	25			5226
7	30			4656	30			5232
8	35			4656	35			5234
9	40			4656	40			5237
10	45			4656	45			5240
11	50			4656	50			5243
12	55			4656	55			5245
13	60			4656	60			5247 ✓
14	65			4656	65			5248
15	70			4656	70			5250
16	75			4656	75			5252
17	80			4656	80			5253
18	85			4656	85			5253
19	90			4656	90			5254 ✓
20	95			4656	95			5255
21	100			4656	100			5256
22	105			4656	105			5257
23	110			4656	110			5258
24	115			4656	115			5259



5-Min. DST PRESSURE INCREMENTS OPEN FLOW POTENTIAL

Test # 4

POINT F TO G

Recorder No. 2759

Depth 9564

4 FLOW

121 MINS.

5 SHUT-IN

132 MINS.

Points	FLOW				SHUT-IN			
	Time Defl. "	T+θ	$\frac{T+\theta}{\theta}$	PSIG	Time Defl. "	T+θ	$\frac{T+\theta}{\theta}$	PSIG
1	120			4656	120			5259
2	121			4656	125			5259
3					130			5259
4					132			5259
5								
6								
7								
8								
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23								
24								



5 Min. DST PRESSURE INCREMENTS OPEN FLOW POTENTIAL

Test # 4

POINT F TO G

Recorder No. 2759

Depth 9564

5 FLOW

58 MINS.

6 SHUT-IN

15 MINS.

Points	INITIAL CIP				FINAL CIP			
	Time Defl. "	T+0	$\frac{T+0}{0}$	PSIG	Time Defl. "	T+0	$\frac{T+0}{0}$	PSIG
1	0			5259	0			4394
2	5			5007	5			5172
3	10			4578	10			5202
4	15			4462	15			5218
5	20			4408				
6	25			4397				
7	30			4394				
8	35			4394				
9	40			4394				
10	45			4394				
11	50			4394				
12	55			4394				
13	58			4394				
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

C



5 Min. DST PRESSURE INCREMENTS OPEN FLOW POTENTIAL

Test # 4

POINT F TO G

Recorder No. 2759

Depth 9564

6 FLOW

70 MINS.

7 SHUT-IN

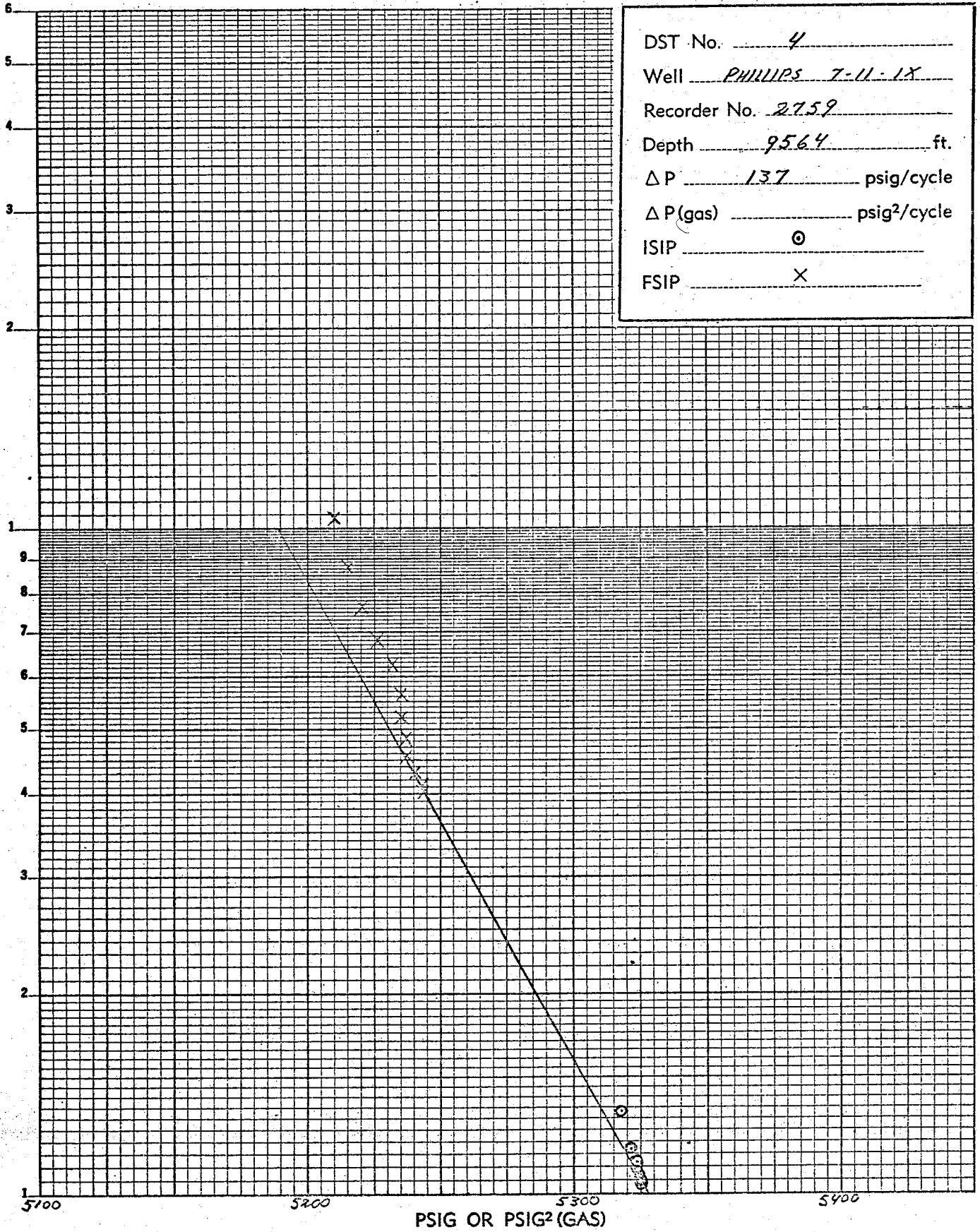
17 MINS.

Points	# 6 FLOW				# 7 SHUT-IN			
	Time Defl. "	T+θ	$\frac{T+\theta}{\theta}$	PSIG	Time Defl. "	T+θ	$\frac{T+\theta}{\theta}$	PSIG
1	0			5218	0			4389
2	5			4583	5			5169
3	10			4427	10			5189
4	15			4400	15			5205
5	20			4399	17	Point G		5207
6	25			4398				
7	30			4397				
8	35			4396				
9	40			4395				
10	45			4394				
11	50			4393				
12	55			4392				
13	60			4391				
14	65			4390				
15	70			4389				
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23								
24								

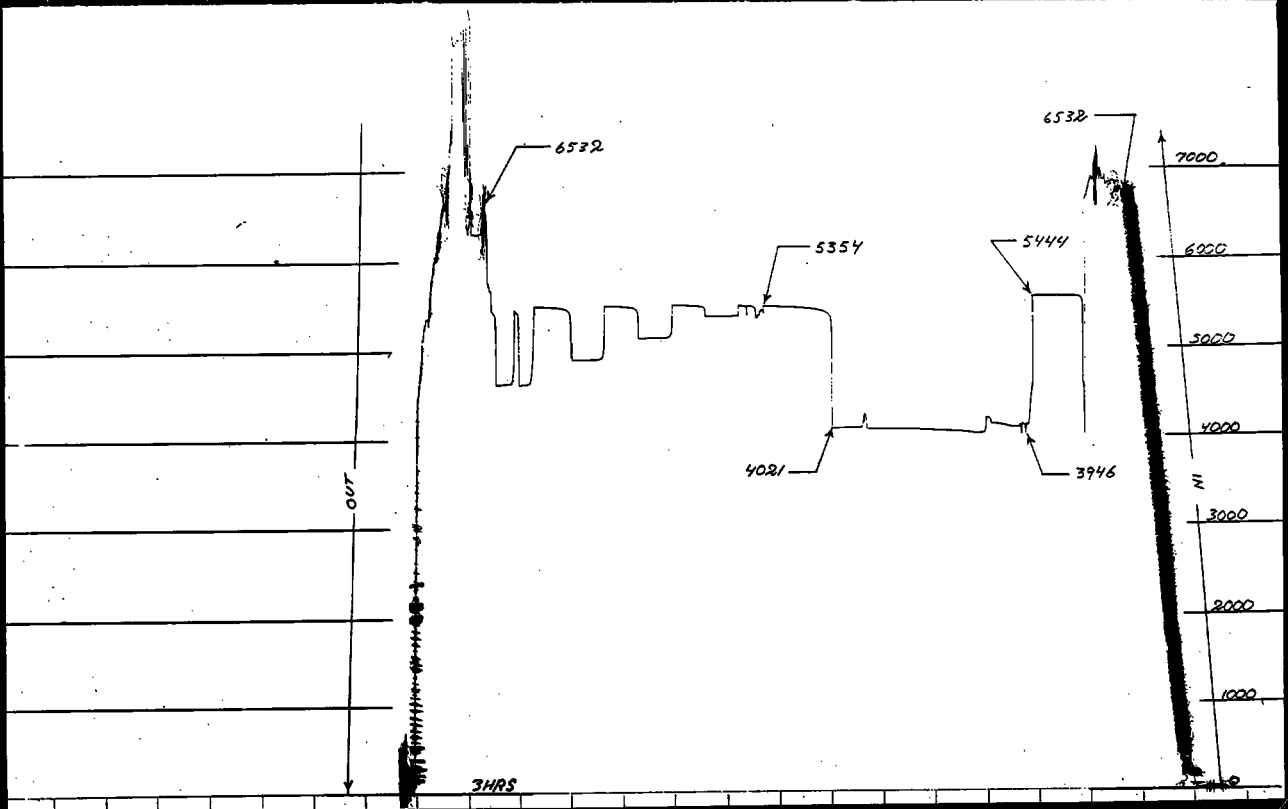


DST No. 4
Well PHILLIPS 7-11-1X
Recorder No. 2759
Depth 9564 ft.
 ΔP 137 psig/cycle
 ΔP (gas) _____ psig²/cycle
ISIP ⊙
FSIP ×

$\frac{r+e}{\phi}$



Phillips 7-11-IX
Recorder # 6010 Test # 4



Phillips 7-11-IX
Recorder # 2759 Test # 4

