FLUID SAMPLE DATA

Sampler Pressure _____ P.S.I.G. at Surface
Recovery: Cu. Ft. Gas _____
cc. Oil _____
cc. Water _____
cc. Mud _____
Tot. Liquid cc. _____
Gravity 22 ° API @ 60 °F.
Gas/Oil Ratio _____ cu. ft./bbl.

	RESISTIVITY		CHLORIDE CONTENT
Recovery Water	_____ @	°F.	_____ ppm
Recovery Mud	_____ @	°F.	_____ ppm
Recovery Mud Filtrate	_____ @	°F.	_____ ppm
Mud Pit Sample	_____ @	°F.	_____ ppm
Mud Pit Sample Filtrate	_____ @	°F.	_____ ppm

Mud Weight 9.7 vis 37 cp

Date 8-28-79 Ticket Number 570047
Kind of Job OPEN HOLE TEST Halliburton District HAYS
Tester DINKEL Witness CHUCK KEIHL
Drilling Contractor PIONEER DRILLING COMPANY, INCORPORATED #2

EQUIPMENT & HOLE DATA TJH S

Formation Tested Lansing
Elevation 2353' KB Ft.
Net Productive Interval _____ Ft.
All Depths Measured From Kelly Bushing
Total Depth 3715' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length _____ I.D.
Drill Pipe Length 124' ?? I.D. 3.826"
Packer Depth(s) 3698' - 3704' Ft.
Depth Tester Valve 3685' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve
Surface Choke .25" Bottom Choke .75"

Recovered 90 Feet of viscous gas.
Recovered 1250 Feet of clean oil.
Recovered Feet of
Recovered Feet of
Recovered Feet of

Meas. From Tester Valve

Remarks SEE PRODUCTION TEST DATA SHEET . . .

TEMPERATURE	Gauge No. 6178 Depth: 3694' Ft.	Gauge No. 6177 Depth: 3711' Ft.	Gauge No. Depth: Ft.	TIME
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool Opened 0449 A.M. P.M.
Est. °F.	Blanked Off NO	Blanked Off YES	Blanked Off	Opened A.M.
3709' @ Actual 122 °F.	Pressures	Pressures	Pressures	Bypass P.M.

	Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		1889.7	1932	1903.3				
First Period Flow Initial		123.2	147	176.4			____	____
First Period Flow Final		298.9	315	325.6			30	31
First Period Closed in		1251.5	1260	1257.3			45	43
Second Period Flow Initial		309.0	336	359.2			____	____
Second Period Flow Final		490.9	483	502.1			45	46
Second Period Closed in		1225.1	1239	1232.1			45	48
Third Period Flow Initial							____	____
Third Period Flow Final								
Third Period Closed in								
Final Hydrostatic		1883.6	1890	1892.8			____	____

Legal Location Sec. - Twp. - Rng. 7 - 11S - 24
Lease Name DAVIS
Well No. 4
Test No. 1
Tested Interval 3704' - 3715'
Lease Owner/Company Name RUPE OIL COMPANY
Field Area
County TREGO
State KANSAS

FORM 181-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 10M 8/74

5

Casing perfs._____ Bottom choke_____ Surf. temp_____ °F Ticket No. 570047

Gas gravity_____ Oil gravity_____ GOR_____

Spec. gravity_____ Chlorides_____ ppm Res._____ @_____ °F

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED_____

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
8-28-79					
1845					On location. Rig circulating.
					Short Trip.
					Started out for second shot trip.
					Started out of hole with drill pipe.
					Tool picked up and made up.
					Started in hole with tool.
0345					On bottom.
0349					Opened tool with a strong blow.
0419					Closed tool.
0504					Tool opened with a strong blow.
0549					Tool closed.
0634					Off bottom with tool.
0920					Tool in table.

FORM 182-R1—PRINTED IN U.S.A.

PRODUCTION TEST DATA

LITTLE'S 96672 5M 8/74

5

Gauge No. 6178			Depth 3694			Clock No.			12 hour	Ticket No. 570047				
	First Flow Period		First Closed In Pressure			Second Flow Period		Second Closed In Pressure			Third Flow Period		Third Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.
0	.0000	123.2	.0000		298.9	.0000	309.0	.0000		490.9					
1	.0405*	177.7	.0066**		1023.3	.0066***	314.1	.0399****		1124.7					
2	.0742	164.6	.0266		1121.7	.0400	332.3	.0598		1147.0					
3	.1079	198.9	.0466		1158.2	.0734	356.5	.0797		1162.2					
4	.1416	233.3	.0665		1179.5	.1068	376.7	.0997		1173.4					
5	.1753	269.6	.0865		1194.7	.1401	397.9	.1196		1181.5					
6	.2090	298.9	.1064		1205.8	.1735	418.1	.1395		1188.6					
7			.1264		1215.0	.2068	437.3	.1595		1194.7					
8			.1463		1222.1	.2402	456.5	.1794		1199.7					
9			.1663		1228.1	.2736	473.7	.1993		1204.8					
10			.1862		1233.2	.3070	490.9	.2192		1209.9					
11			.2062		1237.3			.2392		1212.9					
12			.2261		1241.3			.2591		1216.0					
13			.2461		1244.4			.2790		1219.0					
14			.2660		1248.4			.2990		1222.1					
15			.2860		1251.5			.3190		1225.1					
Gauge No. 6177					Depth 3711			Clock No.			12 hour				
0	.0000	176.4	.0000		325.6	.0000	359.2	.0000		502.1					
1	.0393*	217.4	.0066**		1027.3	.0066***	359.2	.0399****		1120.7					
2	.0720	207.9	.0266		1114.4	.0398	352.9	.0598		1143.9					
3	.1048	232.1	.0466		1152.3	.0729	370.7	.0797		1160.7					
4	.1375	263.6	.0665		1175.4	.1061	392.8	.0997		1174.3					
5	.1703	297.2	.0865		1193.2	.1392	413.8	.1196		1183.8					
6	.2030	325.6	.1064		1205.8	.1724	432.7	.1395		1192.2					
7			.1264		1216.3	.2055	450.6	.1595		1199.5					
8			.1463		1224.7	.2387	470.5	.1794		1205.8					
9			.1663		1232.1	.2718	487.3	.1993		1211.1					
10			.1862		1237.3	.3050	502.1	.2192		1215.3					
11			.2062		1242.6			.2392		1219.5					
12			.2261		1246.8			.2591		1222.6					
13			.2461		1251.0			.2790		1225.8					
14			.2660		1254.1			.2990		1228.9					
15			.2860		1257.3			.3190		1232.1					
Reading Interval	5		3			5		3							Minutes

REMARKS: * - first interval is equal to 6 minutes, ** - 1 minute, *** - 1 minute, **** - 6 minutes.

SPECIAL PRESSURE DATA

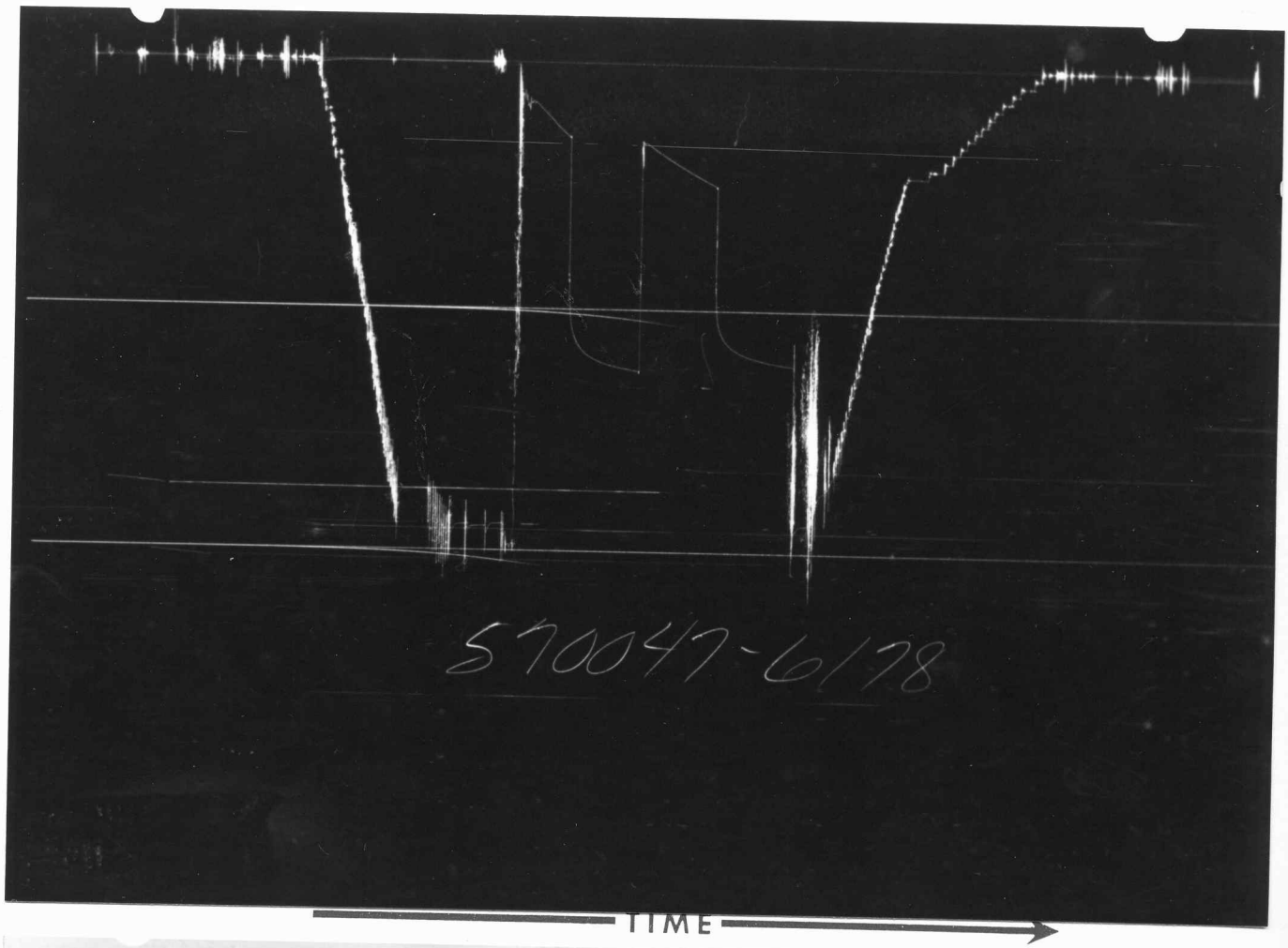
TICKET NO. 570047

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6"	2.25"	1'	3561'
Water Cushion Valve				
Drill Pipe	4 1/2"	3.826"	124' ??	
Drill Collars				
Handling Sub & Choke Assembly				
Dual CIP Valve				
Dual CIP Sampler	5"	.87"	5'	3685'
Hydro-Spring Tester	5"	.75"	5'	3690'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.06"	4'	3694'
Hydraulic Jar				
VR Safety Joint				
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	6'	3698'
Distributor				
Packer Assembly	6.75"	1.53"	6'	3704'
Flush Joint Anchor				
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars				
Flush Joint Anchor	5"	3"	5'	
HT-500	5"		2'	3709'
Blanked-Off B.T. Running Case	5"	2.75"	4'	3711'
Total Depth				3715'

FORM 187-R1—PRINTED IN U.S.A.

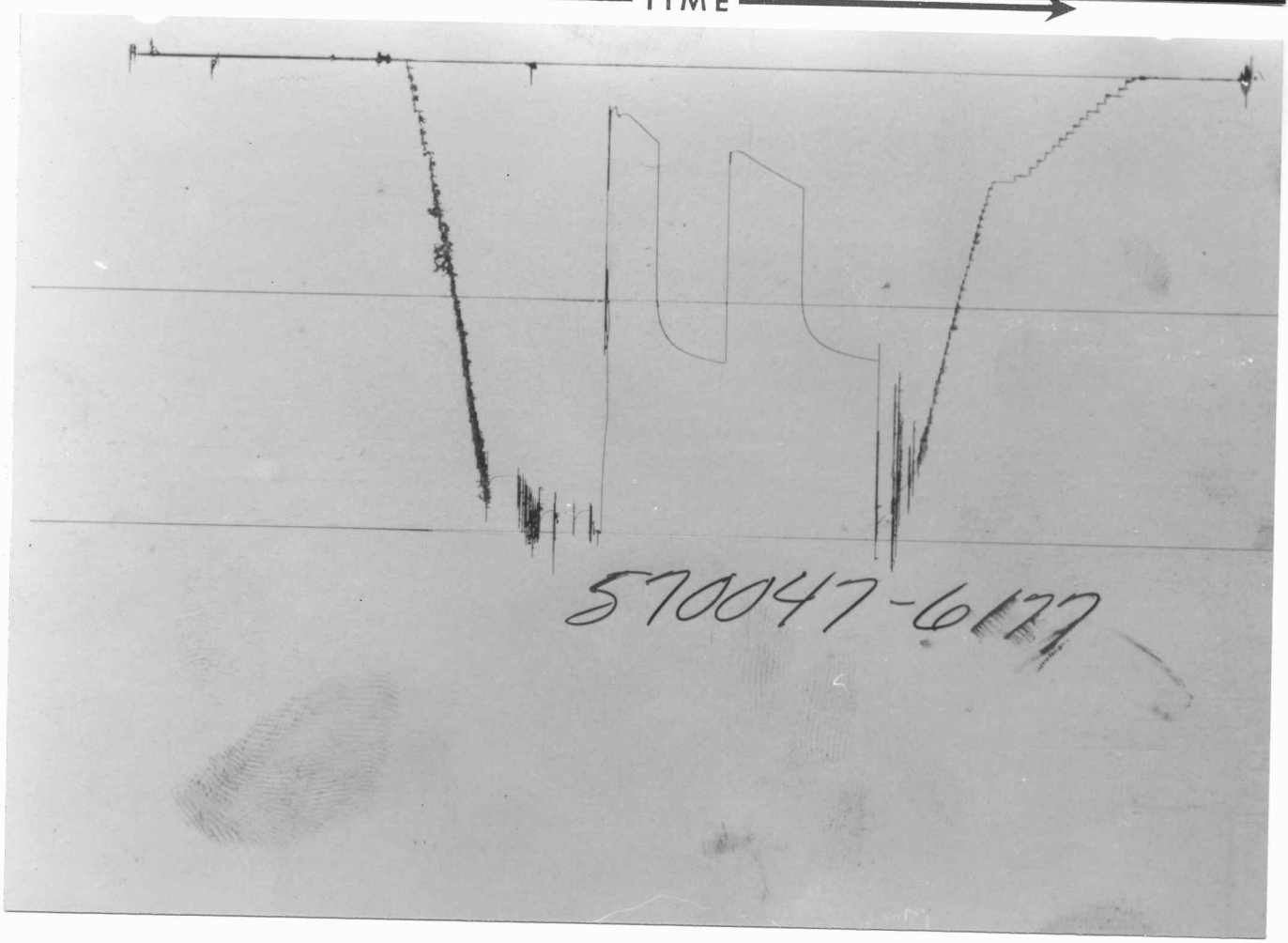
EQUIPMENT DATA

LITTLE'S 96676 75C 8/74

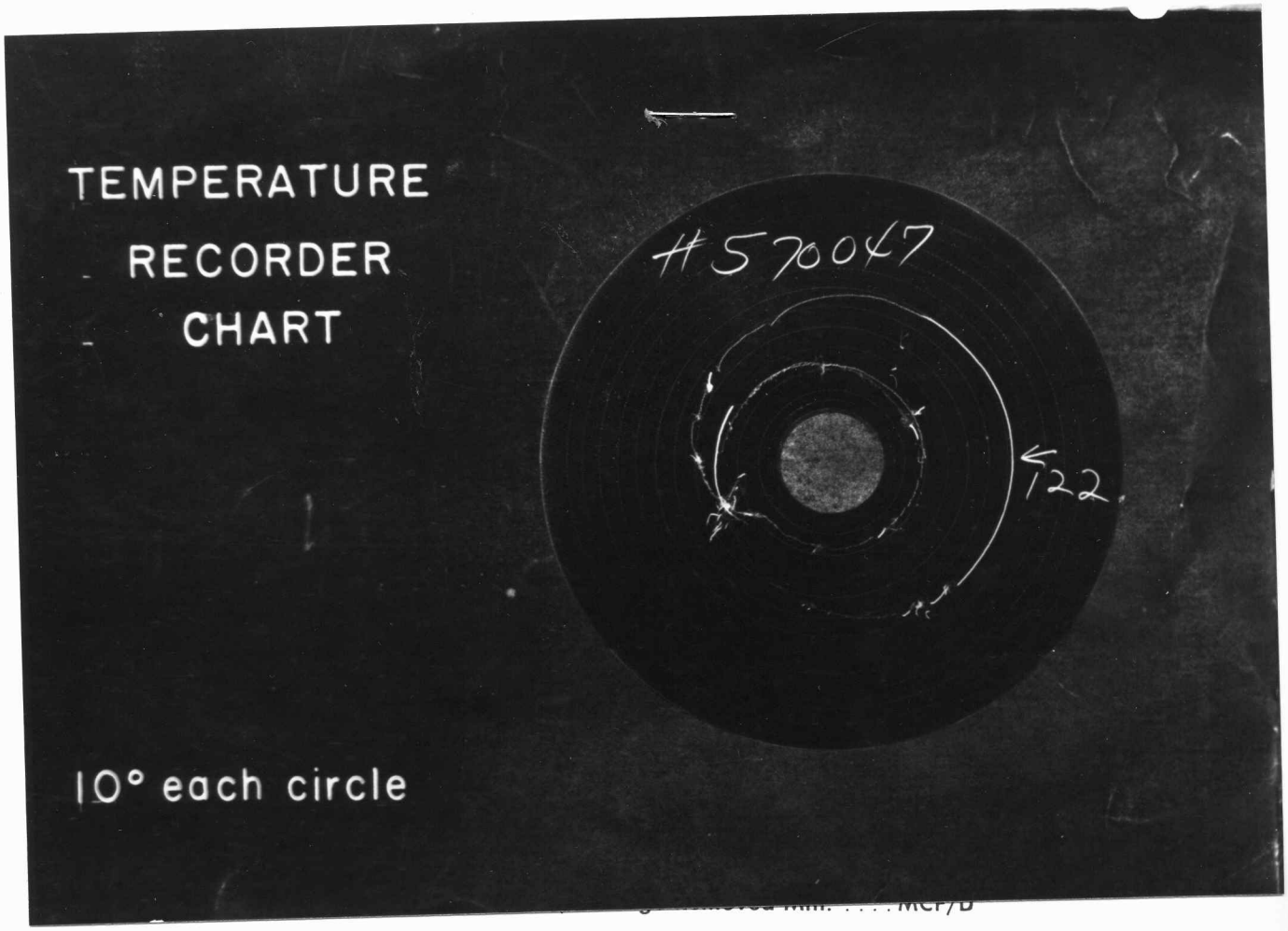


PRESSURE

TIME



Each Horizontal Line Equal to 1000 p.s.i.



P_s = Extrapolated Static Pressure ..... Psig.

P_F = Final Flow Pressure ..... Psig.

P_{ot} = Potentiometric Surface (Fresh Water *) ..... Feet

Q = Average Adjusted Production Rate During Test ..... bbls/day

Q_1 = Theoretical Production w/Damage Removed ..... bbls/day

Q_g = Measured Gas Production Rate ..... MCF/D

R = Corrected Recovery ..... bbls

r_w = Radius of Well Bore ..... Feet

t = Flow Time ..... Minutes

t_o = Total Flow Time ..... Minutes

T = Temperature Rankine ..... °R

Z = Compressibility Factor ..... ——

μ = Viscosity Gas or Liquid ..... CP

Log = Common Log

* Potentiometric Surface Reference to Rotary Table When Elevation Not Given, Fresh Water Corrected to 100° F.

FLUID SAMPLE DATA

Sampler Pressure _____ P.S.I.G. at Surface
Recovery: Cu. Ft. Gas _____
cc. Oil _____
cc. Water _____
cc. Mud _____
Tot. Liquid cc. _____
Gravity 22 ° API @ 60 °F.
Gas/Oil Ratio _____ cu. ft./bbl.

		RESISTIVITY		CHLORIDE CONTENT
Recovery Water	@	°F.		ppm
Recovery Mud	@	°F.		ppm
Recovery Mud Filtrate	@	°F.		ppm
Mud Pit Sample	@	°F.		ppm
Mud Pit Sample Filtrate	@	°F.		ppm

Mud Weight 9.7 vis 43

Date 8-29-79 Ticket Number 570048
Kind of Job OPEN HOLE Halliburton District HAYS
Tester DINKEL Witness KEIHEL
Drilling Contractor PIONEER DRILLING COMPANY, INC. NM S

EQUIPMENT & HOLE DATA

Formation Tested Lansing Kansas City
Elevation 2353' K.B. Ft.
Net Productive Interval - Ft.
All Depths Measured From Kelly Bushing
Total Depth 3730' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length - I.D. -
Drill Pipe Length 3696' I.D. 3.826"
Packer Depth(s) 3714' - 3720' Ft.
Depth Tester Valve 3705' Ft.

Cushion TYPE NONE AMOUNT Ft. Depth Back Pres. Valve NONE Surface Choke .25" Bottom Choke .75"

Recovered 248' Feet of very highly oil cut mud
Recovered 496' Feet of very clean gassy oil
Recovered 930' Feet of oily water
Recovered Feet of
Recovered Feet of

Remarks SEE PRODUCTION TEST DATA SHEET...

Mea. From Tester Valve

TEMPERATURE	Gauge No. 6178	Gauge No. 6177	Gauge No.	TIME
	Depth: 3710' Ft.	Depth: 3726' Ft.	Depth: Ft.	
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool Opened 2150 A.M. P.M.
Est. °F.	Blanked Off NO	Blanked Off YES	Blanked Off	
3725' @ Actual 123 °F.	Pressures	Pressures	Pressures	Opened Bypass 2450 A.M. P.M.

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		-	1957.1	1996	1977.9				
First Period	Flow Initial	-	45.4	74	80.8			———	———
	Flow Final	-	519.1	515	522.0			30	31
	Closed in	-	1300.2	1303	1305.6			45	47
Second Period	Flow Initial	-	532.3	546	565.1			———	———
	Flow Final	-	843.4	840	845.5			45	42
	Closed in	-	1296.1	1303	1305.6			60	72
Third Period	Flow Initial							———	———
	Flow Final								
	Closed in								
Final Hydrostatic		-	1872.4	1880	1888.6			———	———

Legal Location Sec. - Twp. - Rng. 7 - 11 - 24
Lease Name DAVIS
Well No. 4
Test No. 2
Field Area -
Tested Interval 3720' - 3730'
County TREGO
State KANSAS
Lease Owner/Company Name RUPE OIL COMPANY

FORM 181-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 10M 8/74

5

Casing perfs._____ Bottom choke_____ Surf. temp._____ °F Ticket No. 570048

Gas gravity_____ Oil gravity_____ GOR_____

Spec. gravity_____ Chlorides_____ ppm Res._____ @_____ °F

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED_____

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
1630					Called out.
1900					On location - rig out of the hole with drill pipe.
1930					Making tool up.
2000					Started tool in the hole.
2146					Tool on bottom.
2150					Tool opened with a good to a strong blow.
2220					Tool closed.
2305					Tool reopened with a good to a strong blow. (Had a loose connection.)
2350					Tool closed.
2450					Tool off bottom.
0530					Tool in the table.

FORM 182-R1—PRINTED IN U.S.A.

PRODUCTION TEST DATA

LITTLE'S 96672 5M 8/

5

Gauge No.	6178	Depth	3710'	Clock No.	5926	12 hour	Ticket No.	570048	

	First Flow Period		First Closed In Pressure			Second Flow Period		Second Closed In Pressure			Third Flow Period		Third Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.
0	.000	45.4	.000		519.1	.000	532.3	.000		843.4					
1	.0395	169.6*	.0136		1250.5**	.0136	546.4**	.0136		1265.7**					
2	.0724	271.7	.0340		1269.7	.0407	584.8	.0474		1278.9					
3	.1053	353.5	.0545		1276.8	.0679	619.1	.0813		1282.9					
4	.1382	415.1	.0749		1281.9	.0950	653.5	.1152		1287.0					
5	.1711	468.6	.0953		1286.0	.1221	682.8	.1491		1289.0					
6	.2040	519.1	.1157		1288.0	.1493	714.1	.1830		1290.0					
7			.1362		1290.0	.1764	742.4	.2169		1292.0					
8			.1566		1292.0	.2036	769.6	.2508		1293.1					
9			.1770		1293.1	.2307	794.9	.2847		1294.1					
10			.1974		1294.1	.2578	821.2	.3186		1295.1					
11			.2179		1295.1	.2850	843.4	.3524		1296.1					
12			.2383		1296.1			.3863		1296.1					
13			.2587		1297.1			.4202		1296.1					
14			.2791		1299.1			.4541		1296.1					
15			.2996		1299.1			.4880		1296.1					
			.3200		1300.2										

Gauge No.	6177	Depth	3726'	Clock No.	2800	hour	12		
0	.000	80.8	.000		522.0	.000	565.1	.000		845.5					
1	.0397	168.0*	.0135		1245.7**	.0134	555.6**	.0134		1262.6**					
2	.0727	272.0	.0338		1268.9	.0403	585.0	.0470		1282.5					
3	.1058	355.0	.0541		1279.4	.0671	608.1	.0805		1290.9					
4	.1389	417.0	.0744		1286.7	.0940	654.4	.1140		1294.1					
5	.1719	471.6	.0947		1290.9	.1209	686.9	.1476		1297.2					
6	.2050	522.0	.1150		1294.1	.1477	717.4	.1811		1299.3					
7			.1353		1297.2	.1746	745.7	.2147		1300.4					
8			.1556		1299.3	.2014	772.0	.2482		1301.4					
9			.1759		1300.4	.2283	798.3	.2817		1302.5					
10			.1962		1302.5	.2551	822.4	.3153		1302.5					
11			.2165		1303.5	.2820	845.5	.3488		1303.5					
12			.2368		1304.6			.3824		1304.6					
13			.2571		1305.6			.4159		1304.6					
14			.2774		1305.6			.4494		1305.6					
15			.2977		1305.6			.4830		1305.6					
Reading Interval	5		.3180	3	1305.6		4		5						Minutes

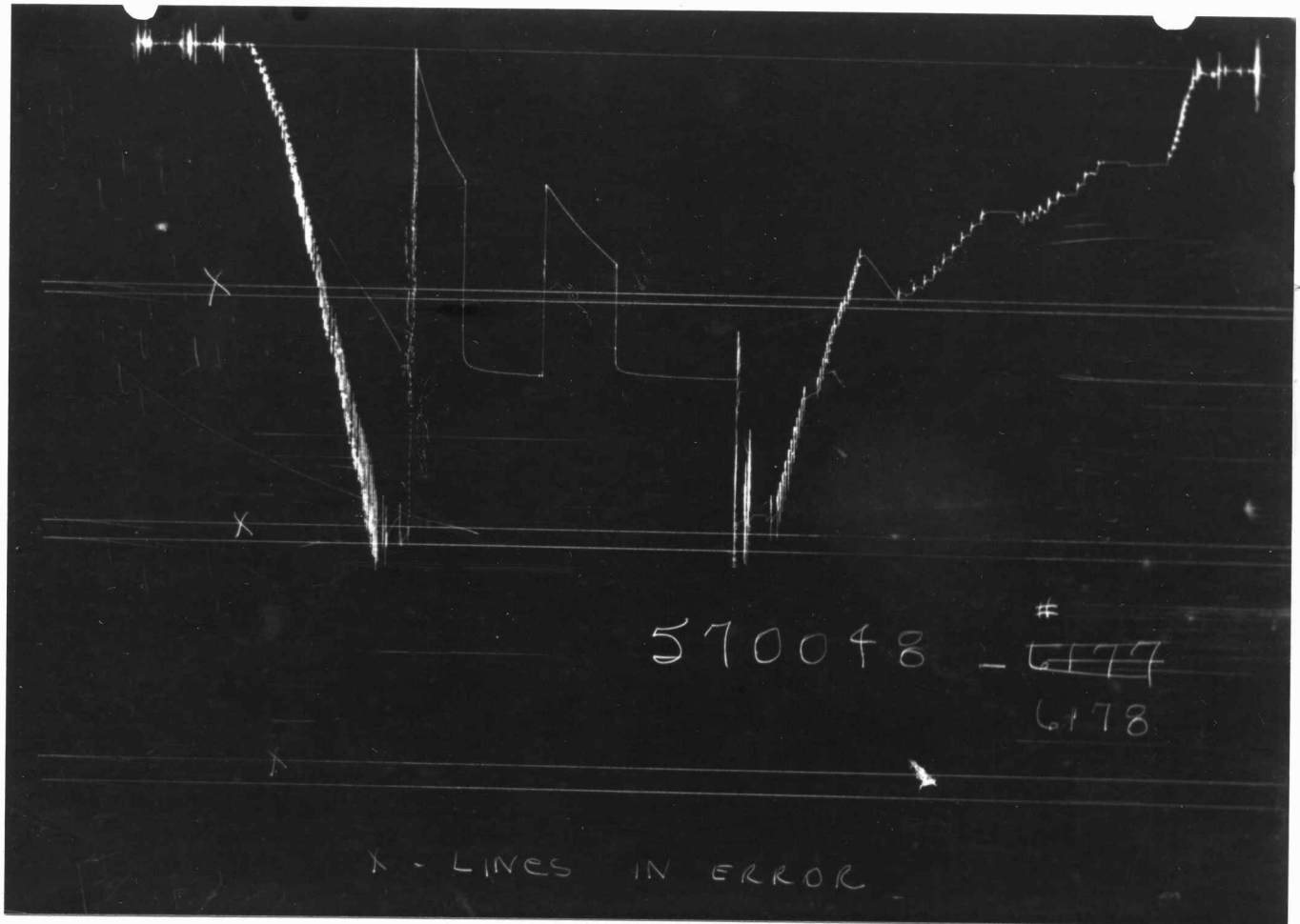
REMARKS: * INTERVAL = 6 MINUTES. ** INTERVAL = 2 MINUTES.

SPECIAL PRESSURE DATA

TICKET NO. 570048

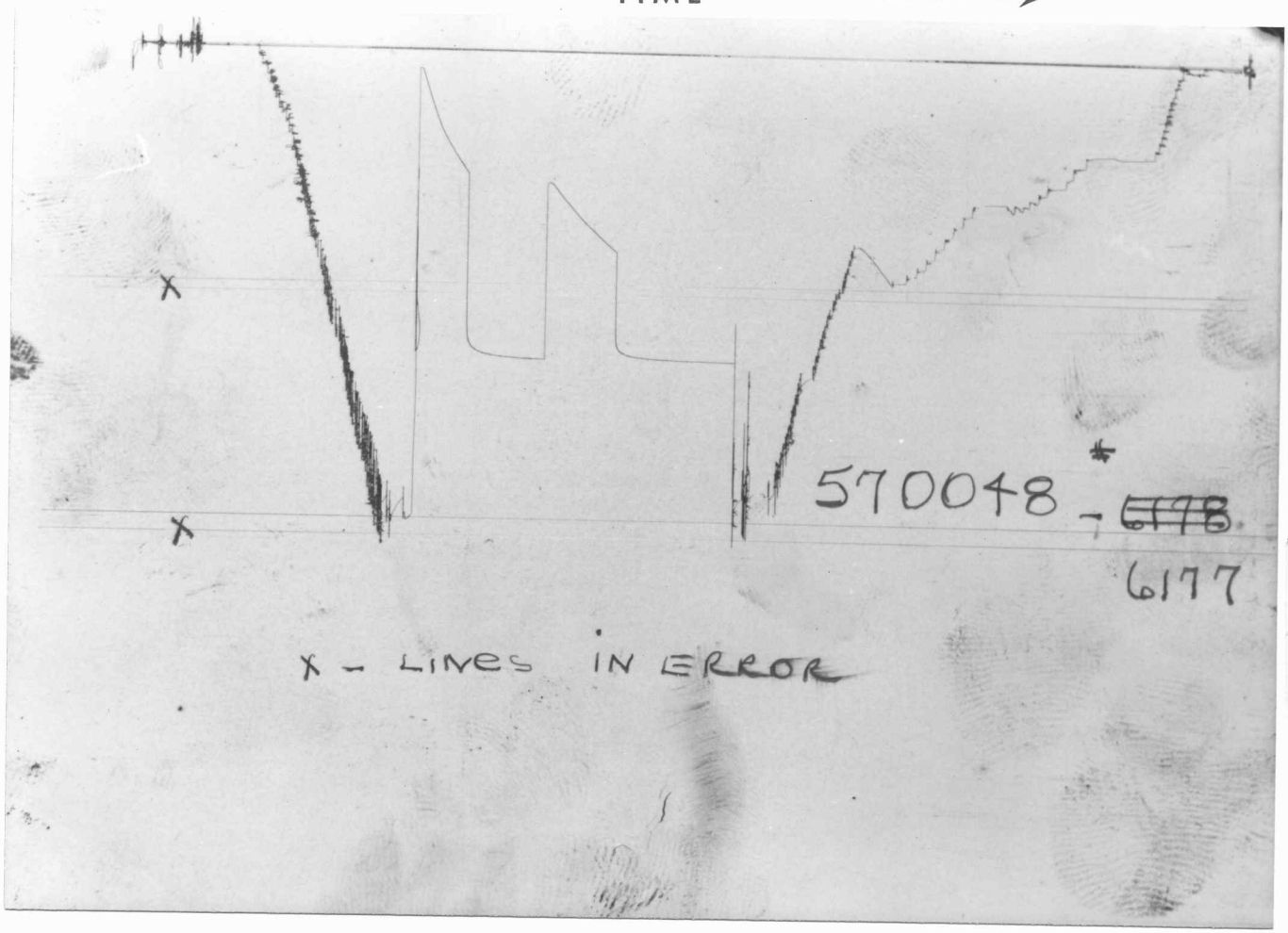
	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6.00"	2.25"	1'	3576'
Water Cushion Valve				
Drill Pipe	4½"	3.826"	3696'	
Drill Collars				
Handling Sub & Choke Assembly				
Dual CIP Valve				
Dual CIP Sampler	5.00"	.87"	5'	3700'
Hydro-Spring Tester	5.00"	.75"	5'	3705'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.00"	3.06"	4'	3710'
Hydraulic Jar				
VR Safety Joint				
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	6'	3714'
Distributor				
Packer Assembly	6.75"	1.53"	6'	3720'
Flush Joint Anchor				
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars				
Flush Joint Anchor	5.00"	3.00"	3'	
Blanked-Off B.T. Running Case	5.00"	2.75"	4'	3726'
Total Depth				3730'

EQUIPMENT DATA

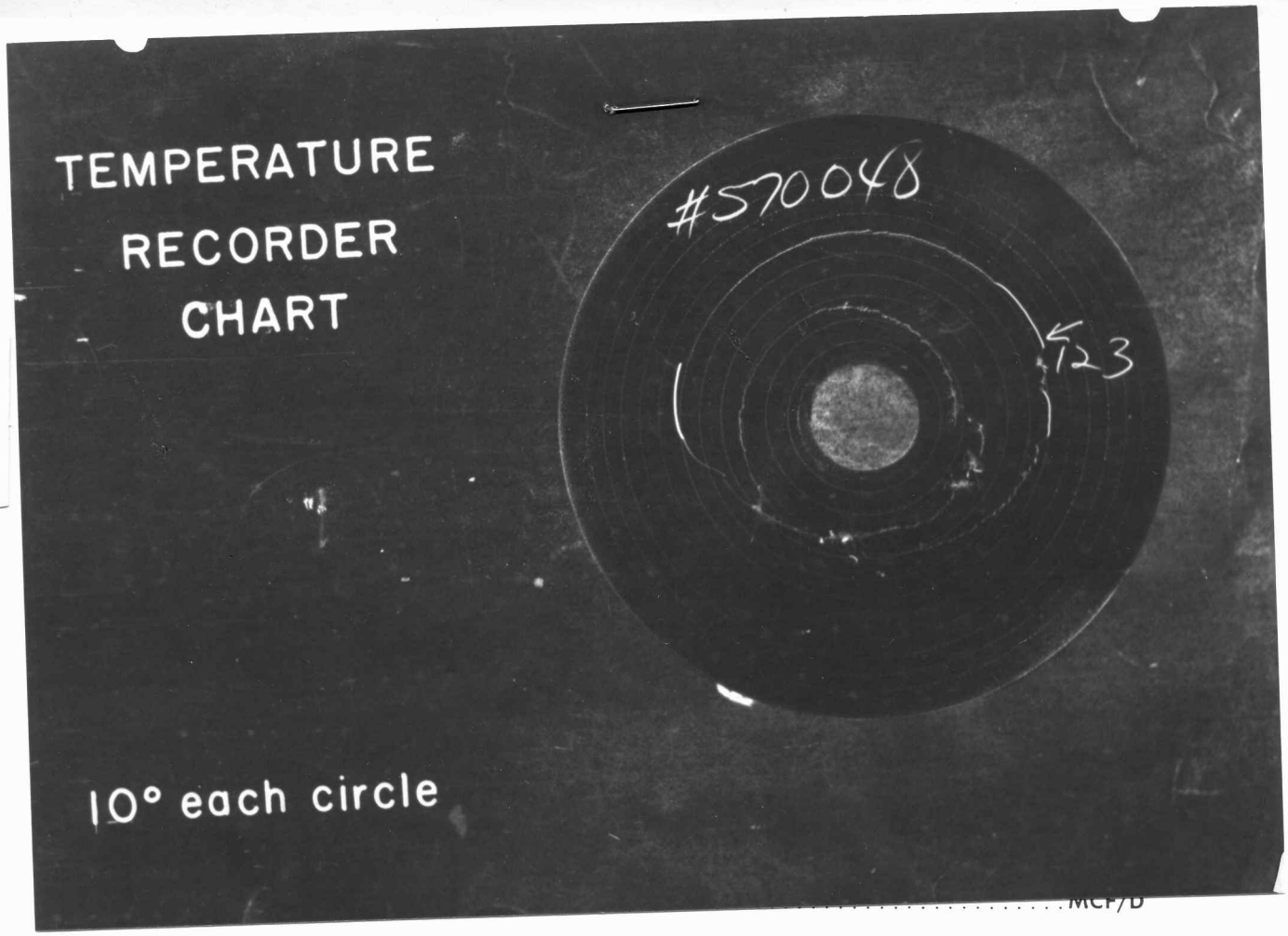


PRESSURE

TIME



Each Horizontal Line Equal to 1000 p.s.i.



OF_3 = Theoretical Open Flow Potential with/Damage Removed Max. . . . . MCF/D

OF_4 = Theoretical Open Flow Potential with/Damage Removed Min. . . . . MCF/D

P_s = Extrapolated Static Pressure . . . . . Psig.

P_F = Final Flow Pressure . . . . . Psig.

P_{ot} = Potentiometric Surface (Fresh Water *) . . . . . Feet

Q = Average Adjusted Production Rate During Test . . . . . bbls/day

Q_1 = Theoretical Production w/Damage Removed . . . . . bbls/day

Q_g = Measured Gas Production Rate . . . . . MCF/D

R = Corrected Recovery . . . . . bbls

r_w = Radius of Well Bore . . . . . Feet

t = Flow Time . . . . . Minutes

t_o = Total Flow Time . . . . . Minutes

T = Temperature Rankine . . . . . °R

Z = Compressibility Factor . . . . . ——

μ = Viscosity Gas or Liquid . . . . . CP

Log = Common Log

* Potentiometric Surface Reference to Rotary Table When Elevation Not Given, Fresh Water Corrected to 100° F.

FLUID SAMPLE DATA

Sampler Pressure _____ P.S.I.G. at Surface
Recovery: Cu. Ft. Gas _____
cc. Oil _____
cc. Water _____
cc. Mud _____
Tot. Liquid cc. _____
Gravity 43 ° API @ Cor. to 60° F.
Gas/Oil Ratio _____ cu. ft./bbl.

		RESISTIVITY		CHLORIDE CONTENT
Recovery Water	@	°F.		ppm
Recovery Mud	@	°F.		ppm
Recovery Mud Filtrate	@	°F.		ppm
Mud Pit Sample	@	°F.		ppm
Mud Pit Sample Filtrate	@	°F.		ppm

Mud Weight 9.6 vis 48 cp

Date 9-1-79 Ticket Number 569873
Kind of Job OPEN HOLE TEST Halliburton District HAYS
Tester J. BECKER Witness CHUCK KUHL
Drilling Contractor PIONEER DRILLING COMPANY #2 TJH S

EQUIPMENT & HOLE DATA

Formation Tested Kansas City
Elevation 2353' KB Ft.
Net Productive Interval 4' Ft.
All Depths Measured From Kelly Bushing
Total Depth 3850' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length WP 847' I.D. 2.764" WP
Drill Pipe Length 2969' I.D. 3.826"
Packer Depth(s) 3831' - 3837' Ft.
Depth Tester Valve 3826' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve Surface Choke .25" Bottom Choke .75"

Recovered 2865 Feet of clean gassy oil.
Recovered 60 Feet of mud cut oil.
Recovered gas Feet of to surface in 7 minutes into second flow.
Recovered Feet of
Recovered Feet of

Remarks SEE PRODUCTION TEST DATA SHEET . . .

Meas. From Tester Valve

TEMPERATURE	Gauge No. 6178	Gauge No. 6177	Gauge No.	TIME
	Depth: 3840 Ft.	Depth: 3846 Ft.	Depth: Ft.	
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool Opened 2032 A.M. P.M.
Est. °F.	Blanked Off NO	Blanked Off YES	Blanked Off	
3845 Actual 127 °F.	Pressures	Pressures	Pressures	Opened Bypass 2332 A.M. P.M.

	Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		1953.0	2006	1957.9				
First Period Flow Initial		314.1	326	339.2			———	———
First Period Flow Final		512.1	504	505.2			15	13
First Period Closed in		1251.5	1261	1247.8			45	45
Second Period Flow Initial		603.0	609	612.3			———	———
Second Period Flow Final		1010.1	1009	1006.3			60	59
Second Period Closed in		1264.7	1261	1265.7			60	62
Third Period Flow Initial							———	———
Third Period Flow Final								
Third Period Closed in								
Final Hydrostatic		1949.9	1996	1955.8			———	———

Legal Location Sec. - Twp. - Rng. 7 - 11S - 24W
Lease Name DAVIS
Well No. 4
Test No. 5
Tested Interval 3837' - 3850'
Field Area
County TREGO
State KANSAS
Lease Owner/Company Name RUPE OIL COMPANY, INCORPORATED

FORM 181-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 10M 8/74

5

Casing perfs._____ Bottom choke_____ Surf. temp._____ °F Ticket No. 569873

Gas gravity_____ Oil gravity_____ GOR_____

Spec. gravity_____ Chlorides_____ ppm Res._____ @_____ °F

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED_____

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
1810					Picked up tool.
1840					Tool in table.
2029					Tool on bottom.
2032					Tool opened with a very strong blow.
2047					Tool closed.
2132					Tool opened with a strong blow, slowly
					decreasing.
2232					Tool closed.
2332					Tool off bottom.
0032					Dropped bar.
0034					Started reversing.
0600					Tool in table.
0620					Tool laid down.

FORM 182-R1—PRINTED IN U.S.A.

PRODUCTION TEST DATA

LITTLE'S 96672 5M 8/74

Gauge No. 6178			Depth 3840			Clock No. 3926			12 hour	Ticket No. 569873				
	First Flow Period		First Closed In Pressure			Second Flow Period		Second Closed In Pressure			Third Flow Period		Third Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.
0	.0000	314.1	.0000		512.1	.0000	603.0	.0000		1010.1					
1	.0210*	354.5	.0199		962.6	.0338**	640.4	.0405***		1138.9					
2	.0350	380.8	.0399		1024.3	.0744	706.0	.0676		1162.2					
3	.0490	422.2	.0598		1068.9	.1150	768.6	.0946		1180.5					
4	.0630	451.5	.0797		1100.4	.1555	818.1	.1216		1194.7					
5	.0770	482.8	.0997		1128.8	.1961	862.6	.1487		1206.8					
6	.0910	512.1	.1196		1151.1	.2367	896.9	.1757		1217.0					
7			.1395		1170.3	.2772	932.3	.2027		1226.1					
8			.1594		1185.5	.3178	960.6	.2298		1234.2					
9			.1794		1199.7	.3584	985.8	.2568		1240.3					
10			.1993		1210.9	.3990	1010.1	.2838		1246.4					
11			.2192		1221.0			.3108		1250.5					
12			.2392		1230.2			.3379		1255.5					
13			.2591		1238.3			.3649		1258.6					
14			.2790		1244.4			.3919		1262.6					
15			.2990		1251.5			.4190		1264.7					
Gauge No. 6177			Depth 3846			Clock No. 2800			12 hour						
0	.0000	339.2	.0000		505.2	.0000	612.3	.0000		1006.3					
1	.0208*	347.6	.0199		943.2	.0336**	633.4	.0404***		1129.1					
2	.0346	377.0	.0399		1010.5	.0738	698.5	.0673		1153.3					
3	.0484	410.7	.0598		1053.5	.1141	759.4	.0942		1174.3					
4	.0623	445.3	.0797		1089.2	.1544	811.9	.1211		1190.1					
5	.0761	476.8	.0997		1118.6	.1946	857.1	.1480		1203.7					
6	.0900	505.2	.1196		1141.8	.2349	892.8	.1749		1214.2					
7			.1395		1161.7	.2752	927.5	.2018		1223.7					
8			.1594		1178.5	.3154	956.9	.2287		1232.1					
9			.1794		1193.2	.3557	982.1	.2556		1238.4					
10			.1993		1205.8	.3960	1006.3	.2825		1244.7					
11			.2192		1216.3			.3094		1249.9					
12			.2392		1226.8			.3363		1254.1					
13			.2591		1234.2			.3632		1258.3					
14			.2790		1241.5			.3901		1262.6					
15			.2990		1247.8			.4170		1265.7					
Reading Interval	2		3			6		4							Minutes

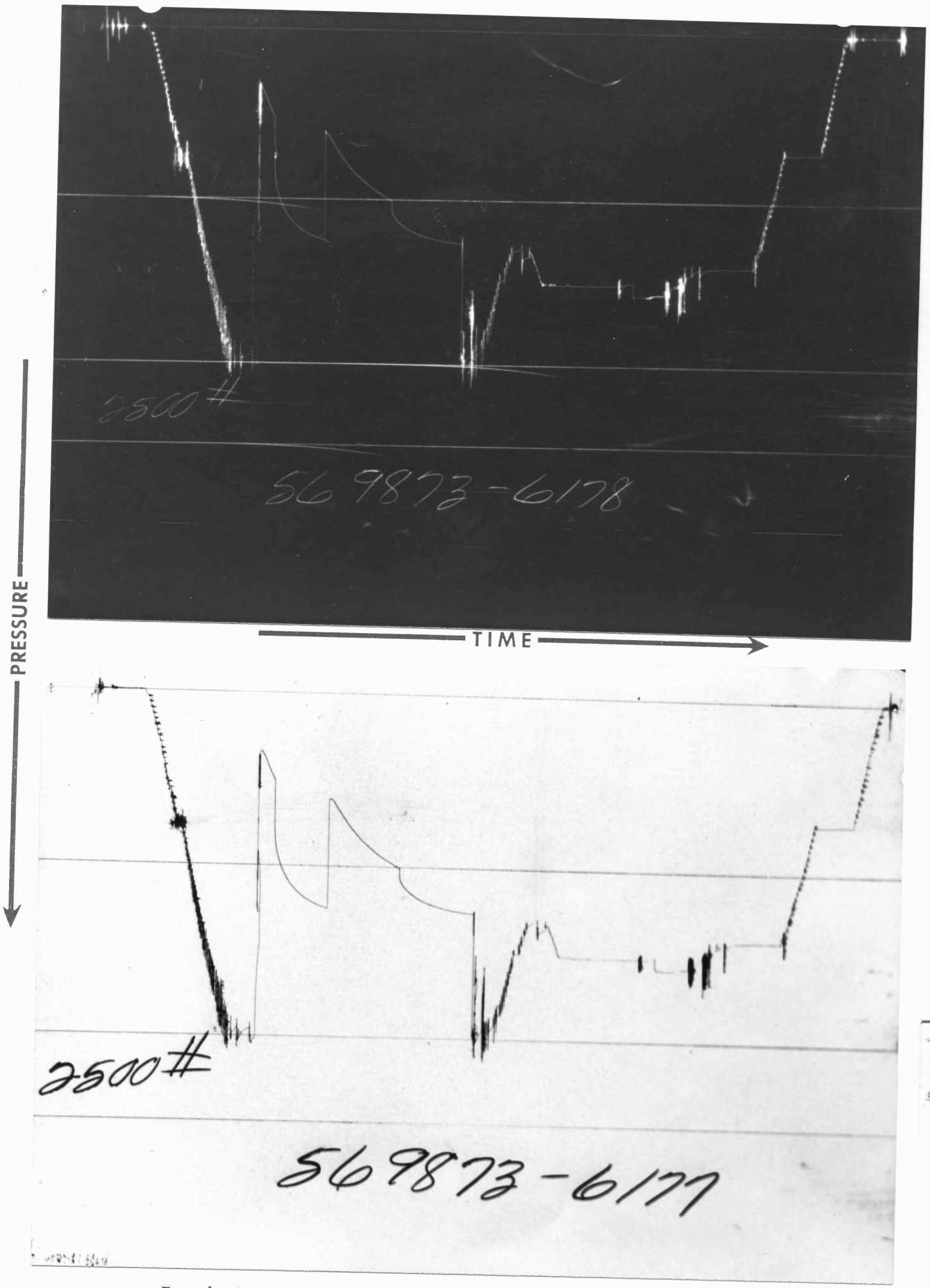
REMARKS: * - first interval is equal to 3 minutes, ** - 5 minutes, *** - 6 minutes.

SPECIAL PRESSURE DATA

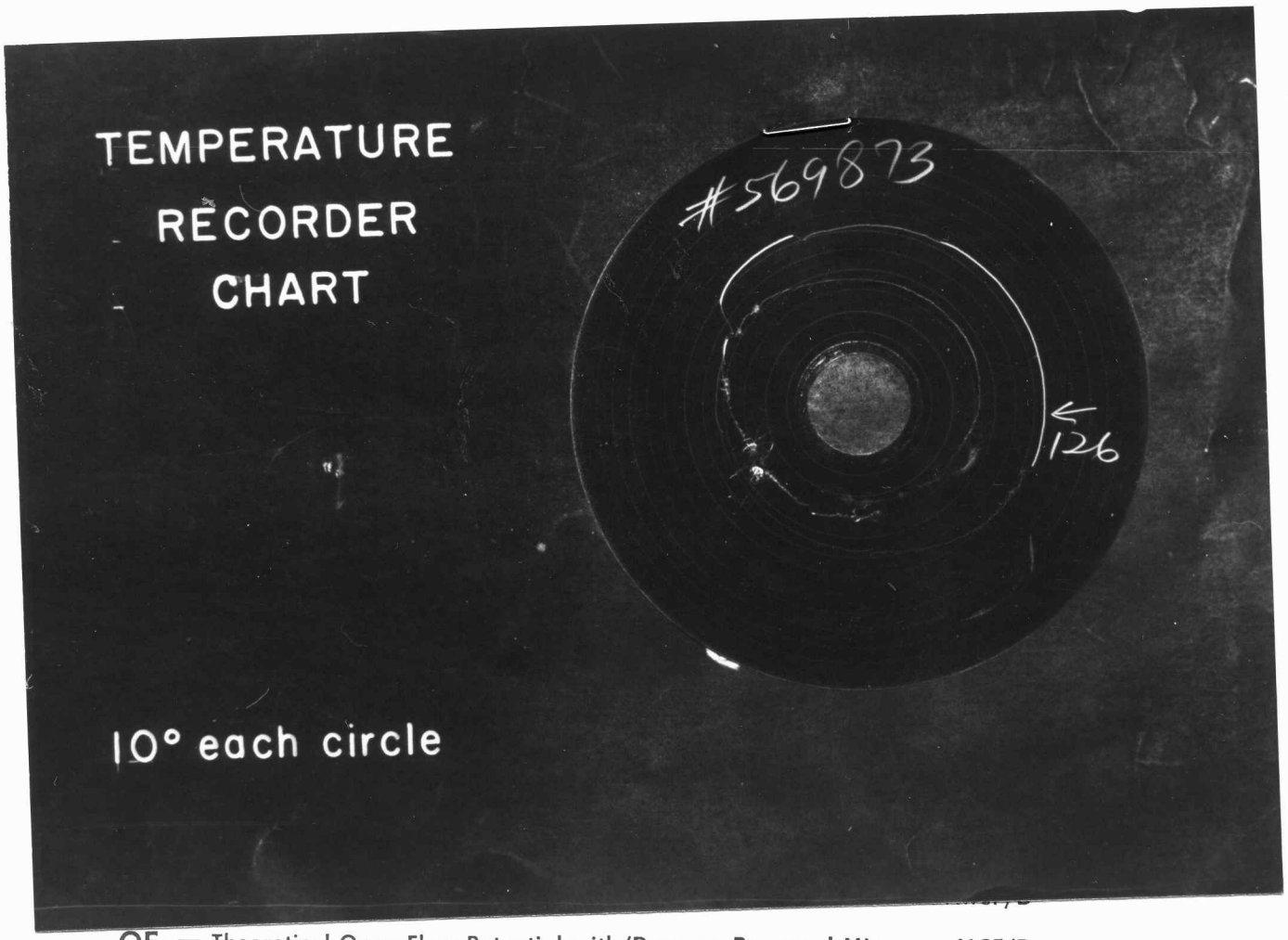
TICKET NO. 569873

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	5.75"	2.75"	1'	3753'
Water Cushion Valve				
Drill Pipe	4.5"	3.826"	2969'	
XXXXXXXXXX WEIGHT PIPE	4.5"	2.764"	847'	
Handling Sub & Choke Assembly				
Dual CIP Valve	5"	.87"	6'	3816'
Dual CIP Sampler				
Hydro-Spring Tester	5"	.75"	5'	3826'
Multiple CIP Sampler				
Extension Joint				
AP Running Case				
Hydraulic Jar				
VR Safety Joint				
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	6'	3831'
Distributor				
Packer Assembly	6.75"	1.53"	6'	3837'
AP RUNNING CASE	5"	3.06"	4'	3840'
Flush Joint Anchor				
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars				
Flush Joint Anchor	5"	3.84"	2'	
HT-500	5"	3.75"	1.5'	3845'
Blanked-Off B.T. Running Case	5"	2.44"	4'	3846'
Total Depth				3850'

EQUIPMENT DATA



Each Horizontal Line Equal to 1000 p.s.i.



OF_4 = Theoretical Open Flow Potential with/Damage Removed Min. . . . . MCF/D

P_s = Extrapolated Static Pressure . . . . . Psig.

P_F = Final Flow Pressure . . . . . Psig.

P_{ot} = Potentiometric Surface (Fresh Water *) . . . . . Feet

Q = Average Adjusted Production Rate During Test . . . . . bbls/day

Q_1 = Theoretical Production w/Damage Removed . . . . . bbls/day

Q_g = Measured Gas Production Rate . . . . . MCF/D

R = Corrected Recovery . . . . . bbls

r_w = Radius of Well Bore . . . . . Feet

t = Flow Time . . . . . Minutes

t_o = Total Flow Time . . . . . Minutes

T = Temperature Rankine . . . . . °R

Z = Compressibility Factor . . . . . ——

μ = Viscosity Gas or Liquid . . . . . CP

Log = Common Log

* Potentiometric Surface Reference to Rotary Table When Elevation Not Given, Fresh Water Corrected to 100° F.

FLUID SAMPLE DATA

Sampler Pressure _____ P.S.I.G. at Surface
Recovery: Cu. Ft. Gas _____
cc. Oil _____
cc. Water _____
cc. Mud _____
Tot. Liquid cc. _____
Gravity _____ ° API @ _____ °F.
Gas/Oil Ratio _____ cu. ft./bbl.

		RESISTIVITY		CHLORIDE CONTENT
Recovery Water	@ °F.			ppm
Recovery Mud	@ °F.			ppm
Recovery Mud Filtrate	@ °F.			ppm
Mud Pit Sample	@ °F.			ppm
Mud Pit Sample Filtrate	@ °F.			ppm

Mud Weight 9.5 vis 46 cp

Date 9-2-79 Ticket Number 569874
Kind of Job OPEN HOLE TEST Halliburton District HAYS
Tester BECKER Witness C. KUHL
Drilling Contractor PIONEER DRILLING COMPANY #2 TJH S

EQUIPMENT & HOLE DATA

Formation Tested Kansas City
Elevation 2353' Ft.
Net Productive Interval 6' Ft.
All Depths Measured From Kelly Bushing
Total Depth 3885' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length WP 847' I.D. 2.764" WP
Drill Pipe Length 2985' I.D. 3.826"
Packer Depth(s) 3847' - 3853' Ft.
Depth Tester Valve 3842' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve Surface Choke .25" Bottom Choke .75"

Recovered 675 Feet of slightly muddy gassy oil.
Recovered 105 Feet of slightly muddy oily saltwater.
Recovered 45 Feet of saltwater.
Recovered Feet of
Recovered Feet of

Meas. From Tester Valve

Remarks SEE PRODUCTION TEST DATA SHEET . . .

TEMPERATURE	Gauge No. 6178 Depth: 3856 Ft.	Gauge No. 6177 Depth: 3881 Ft.	Gauge No. Depth: Ft.	TIME
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool Opened 2042 A.M. P.M.
Est. °F.	Blanked Off NO	Blanked Off YES	Blanked Off	
Actual 3880 117 °F.	Pressures	Pressures	Pressures	Opened Bypass 2357 A.M. P.M.

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic			1961.2	2038	1977.9				
First Period	Flow Initial		23.2	53	55.6			———	———
	Flow Final		167.6	189	174.3			30	30
	Closed in		1394.5	1408	1400.2			45	45
Second Period	Flow Initial		174.7	189	195.3			———	———
	Flow Final		277.7	294	284.6			45	42
	Closed in		1393.5	1408	1399.1			75	72
Third Period	Flow Initial							———	———
	Flow Final								
	Closed in								
Final Hydrostatic			1967.3	2017	1982.1			———	———

Legal Location Sec. - Twp. - Rng. 7 - 11S - 24W
Lease Name DAVIS
Well No. 4
Test No. 6
Field Area
Tested Interval 3853' - 3885'
County TREGO
State KANSAS
Lease Owner/Company Name RUPE OIL COMPANY, INCORPORATED

FORM 181-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 10M 8/74

5

Casing perfs._____ Bottom choke_____ Surf. temp._____ °F Ticket No. 569874

Gas gravity_____ Oil gravity_____ GOR_____

Spec. gravity_____ Chlorides_____ ppm Res._____ @_____ °F

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED_____

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
1800					Picked up tool.
1830					Tool in table.
2039					Tool on bottom.
2042					Opened tool with a fair to strong blow.
2112					Closed tool.
2157					Opened tool with a strong blow.
2242					Closed tool.
2357					Tool off bottom.

FORM 182-R1—PRINTED IN U.S.A.

PRODUCTION TEST DATA

LITTLE'S 96672 5M 8/74

5

Gauge No. 6178			Depth 3856			Clock No. 3926			12 hour	Ticket No. 569874				
	First Flow Period		First Closed In Pressure			Second Flow Period		Second Closed In Pressure			Third Flow Period		Third Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.
0	.0000	23.2	.0000		167.6	.0000	174.7	.0000		277.7					
1	.0337	61.6	.0206		1327.5	.0470	191.9	.0136*		1278.9					
2	.0673	87.8	.0412		1355.9	.0940	211.1	.0475		1359.0					
3	.1010	112.1	.0618		1365.1	.1410	229.2	.0815		1369.1					
4	.1346	132.3	.0824		1371.1	.1880	246.4	.1154		1374.2					
5	.1683	150.5	.1030		1375.2	.2350	262.6	.1494		1378.2					
6	.2020	167.6	.1236		1379.3	.2820	277.7	.1833		1381.3					
7			.1442		1382.3			.2173		1383.3					
8			.1648		1384.3			.2512		1384.3					
9			.1854		1386.4			.2852		1386.4					
10			.2060		1388.4			.3191		1387.4					
11			.2266		1389.4			.3531		1389.4					
12			.2472		1391.4			.3870		1390.4					
13			.2678		1392.4			.4210		1391.4					
14			.2884		1393.5			.4549		1372.4					
15			.3090		1394.5			.4890		1393.5					
Gauge No. 6177					Depth 3881			Clock No. 2800			12 hour				
0	.0000	55.6	.0000		174.3	.0000	195.3	.0000		284.6					
1	.0330	69.3	.0203		1328.7	.0468	199.5	.0135*		1298.3					
2	.0660	97.6	.0407		1355.0	.0937	217.4	.0473		1361.3					
3	.0990	119.7	.0610		1367.6	.1405	235.2	.0810		1373.9					
4	.1320	138.6	.0813		1374.9	.1873	253.1	.1148		1379.1					
5	.1650	156.5	.1017		1380.2	.2342	268.9	.1485		1384.4					
6	.1980	174.3	.1220		1384.4	.2810	284.6	.1823		1387.5					
7			.1423		1387.5			.2160		1389.6					
8			.1626		1390.7			.2498		1391.7					
9			.1830		1392.8			.2835		1393.9					
10			.2033		1394.9			.3173		1394.9					
11			.2236		1397.0			.3510		1396.0					
12			.2440		1398.1			.3848		1398.1					
13			.2643		1399.1			.4185		1399.1					
14			.2846		1400.2			.4523		1399.1					
15			.3050		1400.2			.4860		1399.1					
Reading Interval		5		3			7		5						Minutes

REMARKS: * - first interval is equal to 2 minutes.

5

SPECIAL PRESSURE DATA

TICKET NO. 569874

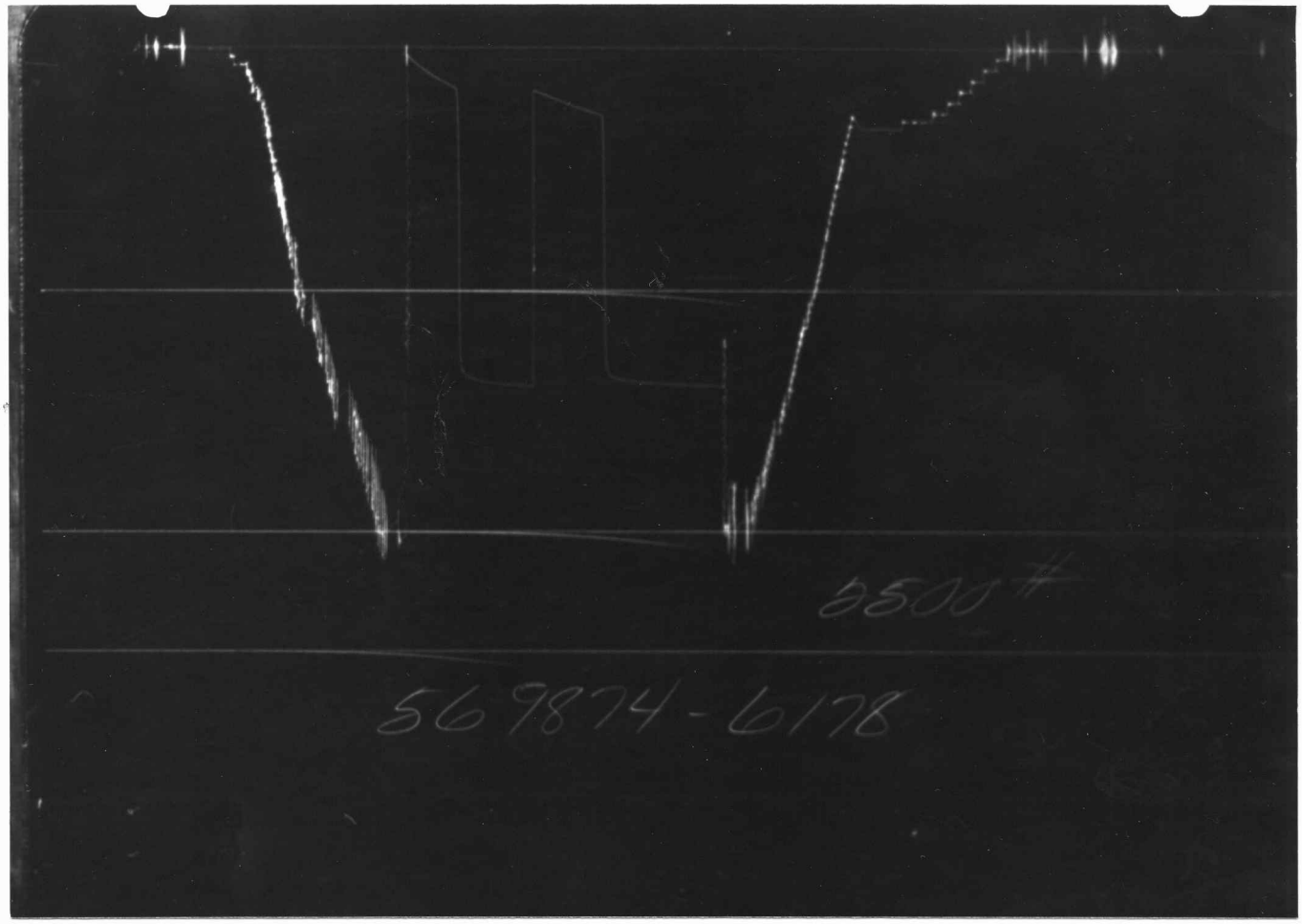
	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	5.75"	2.75"	1'	3769'
Water Cushion Valve				
Drill Pipe	4 1/2"	3.826"	2985'	
XXXXXXXXX WEIGHT PIPE	4 1/2"	2.764"	847'	
Handling Sub & Choke Assembly				
Dual CIP Valve	5"	.87"	6'	3832'
Dual CIP Sampler				
Hydro-Spring Tester	5"	.75"	5'	3842'
Multiple CIP Sampler				
Extension Joint				
AP Running Case				
Hydraulic Jar				
VR Safety Joint				
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	6'	3847'
Distributor				
Packer Assembly	6.75"	1.53"	6'	3853'
AP RUNNING CASE	5"	3.06"	4'	3856'
Flush Joint Anchor				
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars				
Flush Joint Anchor	5"	3.84"	21'	
HT-500	5"	3.75"	1.5'	3880'
Blanked-Off B.T. Running Case	5"	2.44"	4'	3881'
Total Depth				3885'

FORM 187-R1—PRINTED IN U.S.A.

EQUIPMENT DATA

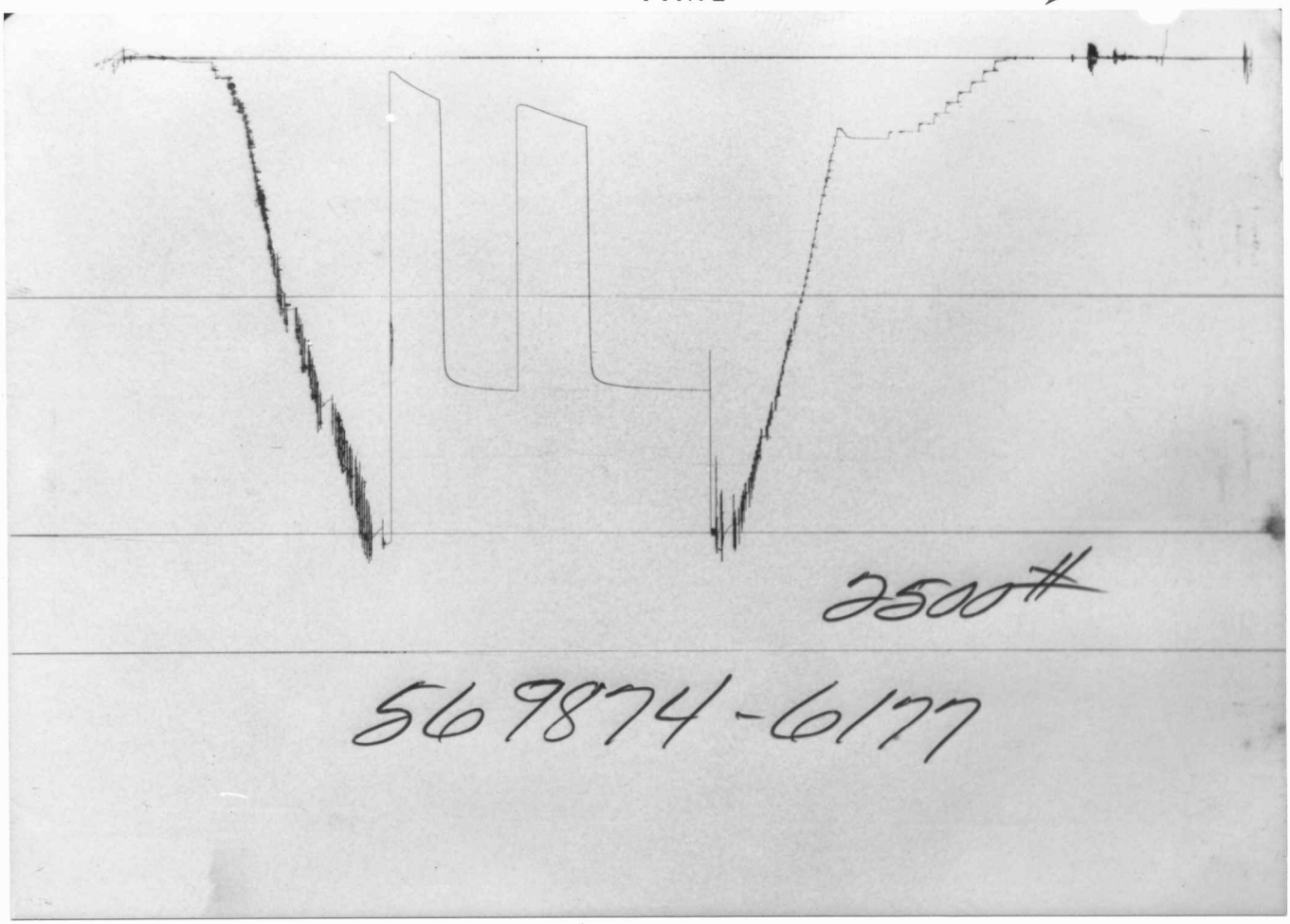
LITTLE'S 96676 75C 8/74

5

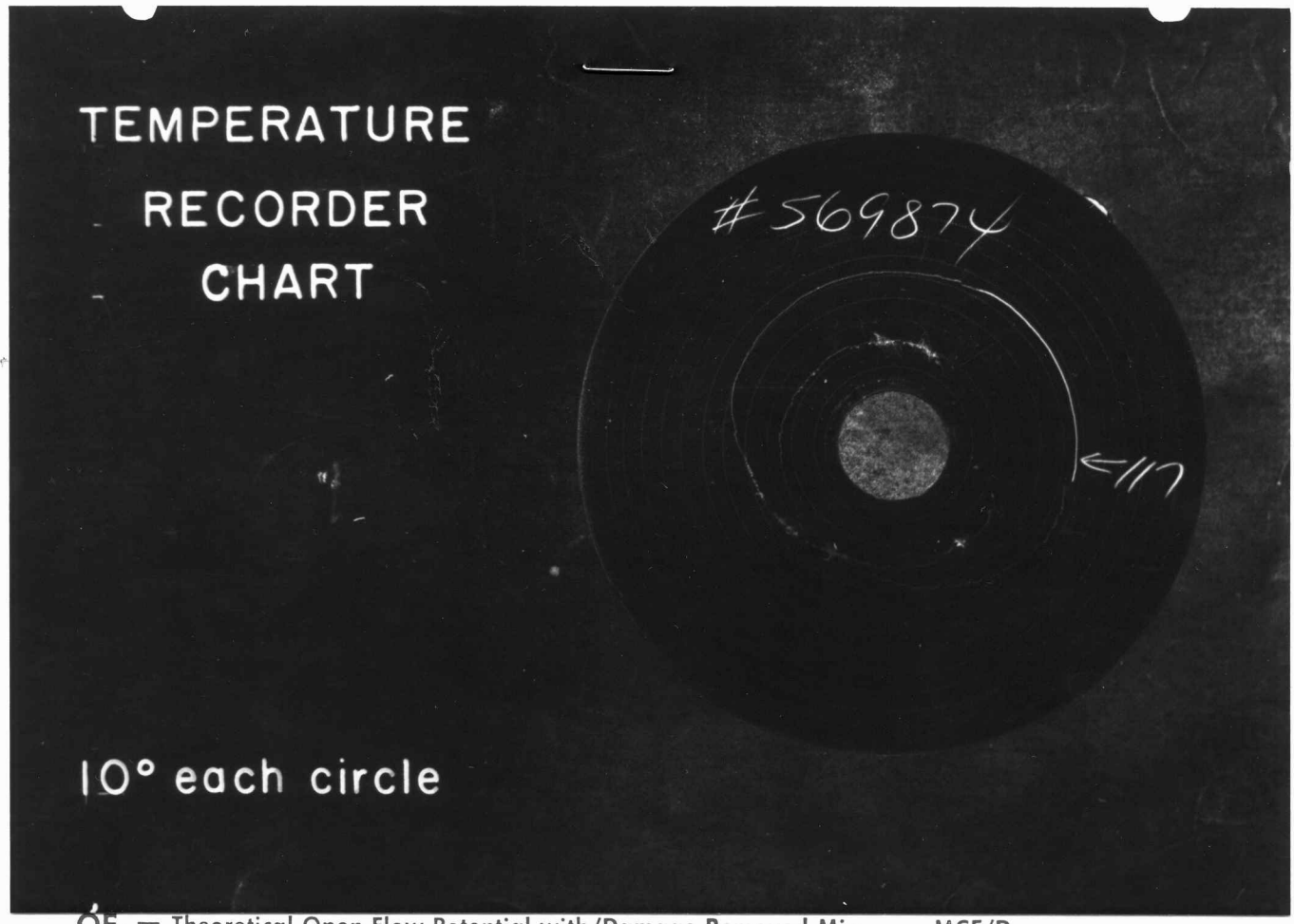


PRESSURE

TIME



Each Horizontal Line Equal to 1000 p.s.i.



$\acute{O}F_4$ = Theoretical Open Flow Potential with/Damage Removed Min. .... MCF/D

P_s = Extrapolated Static Pressure ..... Psig.

P_F = Final Flow Pressure ..... Psig.

P_{ot} = Potentiometric Surface (Fresh Water*) ..... Feet

Q = Average Adjusted Production Rate During Test ..... bbls/day

Q_1 = Theoretical Production w/Damage Removed ..... bbls/day

Q_g = Measured Gas Production Rate ..... MCF/D

R = Corrected Recovery ..... bbls

r_w = Radius of Well Bore ..... Feet

t = Flow Time ..... Minutes

t_o = Total Flow Time ..... Minutes

T = Temperature Rankine ..... °R

Z = Compressibility Factor ..... ——

μ = Viscosity Gas or Liquid ..... CP

Log = Common Log

* Potentiometric Surface Reference to Rotary Table When Elevation Not Given, Fresh Water Corrected to 100° F.

FLUID SAMPLE DATA

Sampler Pressure _____ P.S.I.G. at Surface
Recovery: Cu. Ft. Gas _____
cc. Oil _____
cc. Water _____
cc. Mud _____
Tot. Liquid cc. _____
Gravity 33 ° API @ 60 °F.
Gas/Oil Ratio _____ cu. ft./bbl.

			RESISTIVITY		CHLORIDE CONTENT
Recovery Water	@	°F.		ppm	
Recovery Mud	@	°F.		ppm	
Recovery Mud Filtrate	@	°F.		ppm	
Mud Pit Sample	@	°F.		ppm	
Mud Pit Sample Filtrate	@	°F.		ppm	

Mud Weight 9.3 vis 42 SEC=~~QT~~

Date 9-3-79 Ticket Number 569875
Kind of Job OPEN HOLE Halliburton District HAYS
Tester MR. BECKER Witness MR. KUHL
Drilling Contractor PIONEER DRILLING COMPANY #2 BC

EQUIPMENT & HOLE DATA

Formation Tested Kansas City
Elevation 2353' Ft.
Net Productive Interval 5' Ft.
All Depths Measured From Kelly Bushing
Total Depth 3915' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length 847' WP I.D. 2.764"
Drill Pipe Length 3020' I.D. 3.826"
Packer Depth(s) 3882' - 3888' Ft.
Depth Tester Valve 3877' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve Surface Choke .25" Bottom Choke .75"

Recovered 2505 Feet of Clean, gassy oil
Recovered Feet of
Recovered Feet of
Recovered Feet of
Recovered Feet of
Remarks SEE PRODUCTION TEST DATA SHEET.

TEMPERATURE	Gauge No. 6178 Depth: 3891' Ft.	Gauge No. 6177 Depth: 3911' Ft.	Gauge No. Depth: Ft.	TIME
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool Opened 1543 A.M. P.M.
Est. °F.	Blanked Off No	Blanked Off Yes	Blanked Off	
3910' Actual 118 °F.	Pressures	Pressures	Pressures	Opened A.M. Bypass 1843 P.M.

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic			1982.6	1996	2003.1				
First Period	Flow Initial		167.6	200	206.9			———	———
	Flow Final		539.3	525	538.8			30	29
	Closed in		1397.5	1397	1404.4			45	45
Second Period	Flow Initial		557.5	567	581.9			———	———
	Flow Final		903.0	893	904.4			45	45
	Closed in		1388.4	1397	1397.0			60	61
Third Period	Flow Initial							———	———
	Flow Final								
	Closed in								
Final Hydrostatic			1983.6	1985	2000.0			———	———

Legal Location Sec. - Twp. - Rng. 7 - 11 - 24
Lease Name DAVIS
Well No. 4
Test No. 7
Tested Interval 3888' - 3915'
Lease Owner/Company Name RUPE OIL COMPANY, INCORPORATED
Field Area
County TREGO
State KANSAS
Mea. From Tester Valve

FORM 181-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 10M 8/74

5

569875

Casing perfs.____ Bottom choke____ Surf. temp____ °F Ticket No.____

Gas gravity____ Oil gravity____ GOR____

Spec. gravity____ Chlorides____ ppm Res.____ @____ °F

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED____

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
1400					Picked up tool
1420					Tool in table
1540					Tool on bottom
1543					Tool opened with a strong blow
1613					Closed tool
1658					Opened tool with a strong blow
1743					Closed tool
1843					Tool off bottom
1957					Dropped bar
1959					Started reversing out

FORM 182-R1—PRINTED IN U.S.A.

PRODUCTION TEST DATA

LITTLE'S 96672 5M 8/74

5

Gauge No.	6178		Depth	3891'		Clock No.	3926		12 hour	Ticket No.	569875	

	First Flow Period		First Closed In Pressure			Second Flow Period		Second Closed In Pressure			Third Flow Period		Third Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.
0	.0000	167.6	.0000		539.3	.0000	557.5	.0000		903.0					
1	.0134	184.8*	.0200		1296.1	.0334	597.9**	.0334		1331.6**					
2	.0334	230.3	.0400		1330.6	.0602	638.3	.0602		1347.8					
3	.0535	282.8	.0600		1349.8	.0870	673.7	.0870		1358.0					
4	.0736	324.2	.0800		1361.0	.1137	709.0	.1137		1364.0					
5	.0937	365.5	.1000		1369.1	.1405	740.4	.1405		1369.1					
6	.1137	404.0	.1200		1375.2	.1672	771.7	.1672		1372.2					
7	.1338	441.4	.1400		1380.3	.1940	802.0	.1940		1375.2					
8	.1539	474.7	.1600		1383.3	.2207	828.2	.2207		1378.2					
9	.1739	507.0	.1800		1386.4	.2475	852.5	.2475		1380.3					
10	.1940	539.3	.2000		1387.4	.2742	877.7	.2742		1381.3					
11			.2200		1389.4	.3010	903.0	.3010		1382.3					
12			.2400		1391.4			.3277		1384.3					
13			.2600		1394.5			.3545		1386.4					
14			.2800		1396.5			.3812		1387.4					
15			.3000		1397.5			.4080		1388.4					

Gauge No.	6177		Depth	3911'		Clock No.	2800		12 hour					
0	.0000	206.9	.0000		538.8	.0000	581.9	.0000		904.4					
1	.0131	206.9*	.0199		1284.6	.0332	598.7**	.0332		1328.7**					
2	.0328	228.9	.0399		1325.6	.0598	636.5	.0598		1348.7					
3	.0524	281.5	.0598		1347.6	.0864	673.3	.0863		1361.3					
4	.0721	325.6	.0797		1361.3	.1130	709.0	.1129		1368.6					
5	.0917	365.5	.0997		1371.8	.1395	740.5	.1394		1373.9					
6	.1114	403.3	.1196		1378.1	.1661	771.0	.1660		1378.1					
7	.1310	441.1	.1395		1384.4	.1927	800.4	.1925		1382.3					
8	.1507	474.7	.1595		1388.6	.2193	828.7	.2191		1384.4					
9	.1703	507.3	.1794		1391.7	.2458	853.9	.2457		1387.5					
10	.1900	538.8	.1993		1394.9	.2724	881.2	.2722		1388.6					
11			.2193		1398.1	.2990	904.4	.2988		1391.7					
12			.2392		1400.2			.3253		1392.8					
13			.2591		1401.2			.3519		1394.9					
14			.2791		1403.3			.3784		1396.0					
15			.2990		1404.4			.4050		1397.0					
Reading Interval	3		3			4		4							Minutes

REMARKS: *Interval = 2 minutes **Interval = 5 minutes

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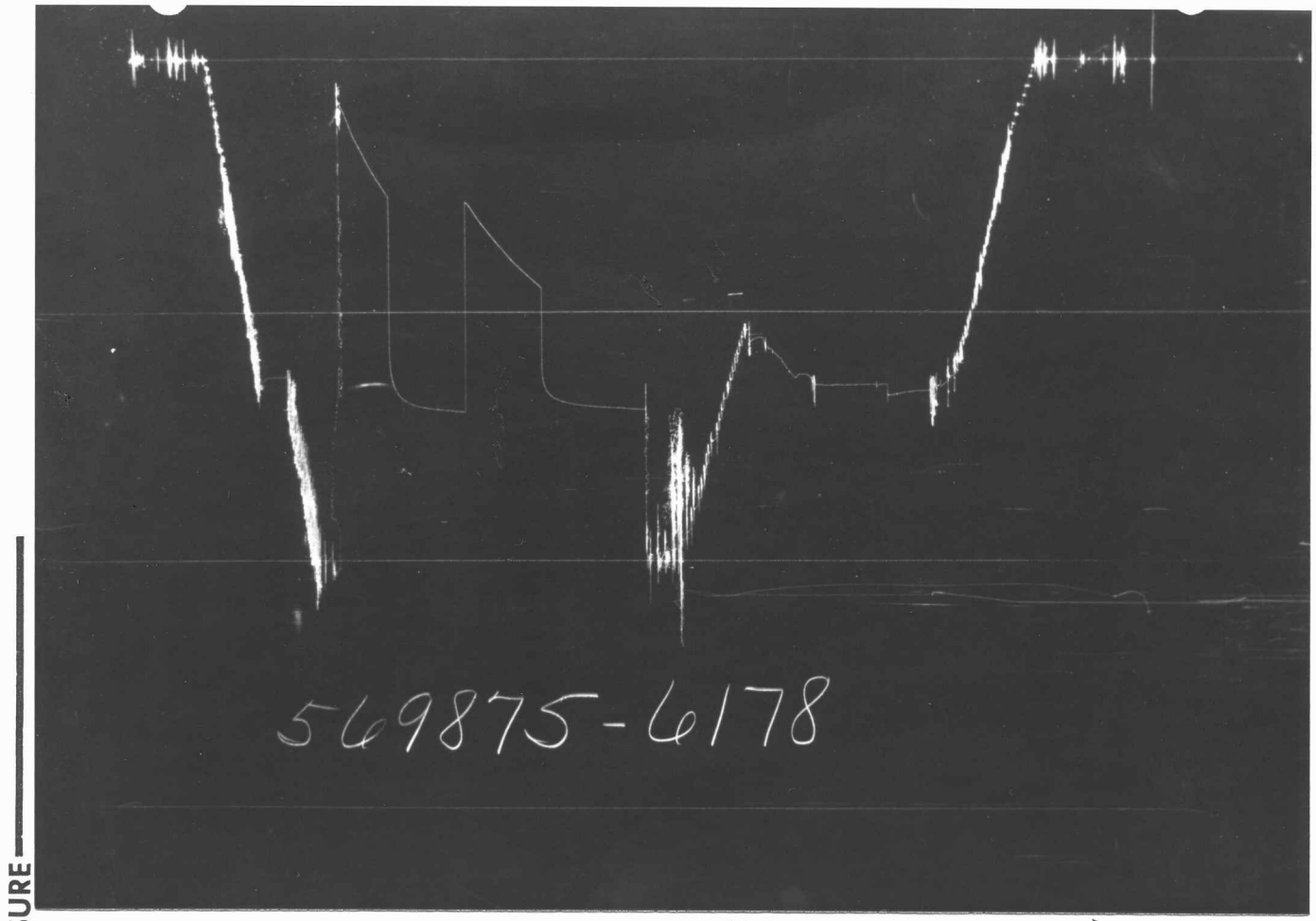
SPECIAL PRESSURE DATA

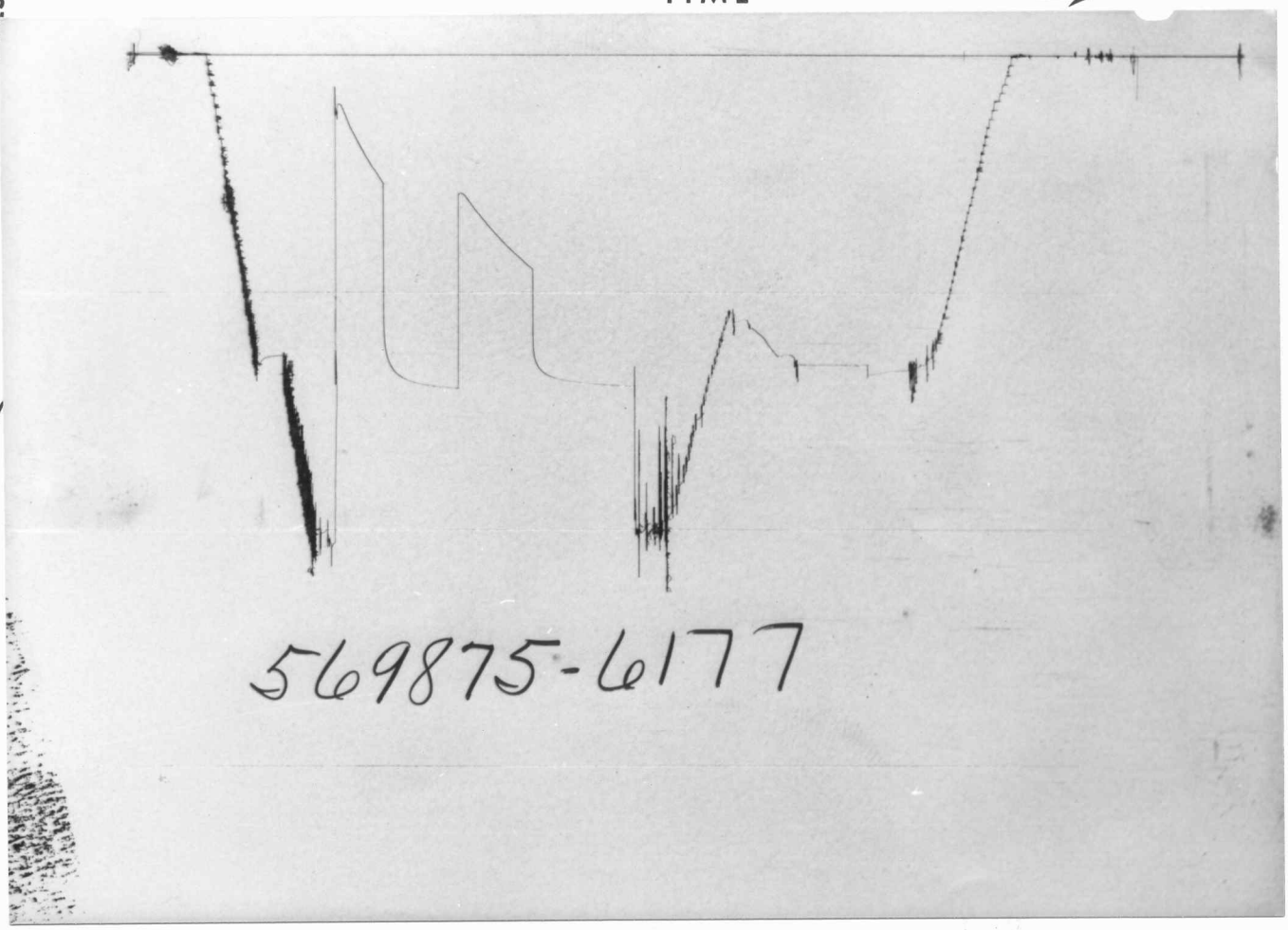
TICKET NO. 569875

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	5.75"	2.75"	1'	3804'
Water Cushion Valve	4½" WP	2.764"	847'	
Drill Pipe	4½"	3.826"	3020'	
Drill Collars				
Handling Sub & Choke Assembly				
Dual CIP Valve	5"	.87"	6'	3867'
Dual CIP Sampler				
Hydro-Spring Tester	5"	.75"	5'	3877'
Multiple CIP Sampler				
Extension Joint				
AP Running Case				
Hydraulic Jar				
VR Safety Joint				
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	6'	3882'
Distributor				
Packer Assembly	6.75"	1.53"	6'	3888'
Flush Joint Anchor	5"	3.06"	4'	3891'
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars				
Flush Joint Anchor	5"	3.84"	16'	
HT-500	5"	3.75"	1.5'	3910'
Blanked-Off B.T. Running Case	5"	2.44"	4'	3911'
Total Depth				3915'

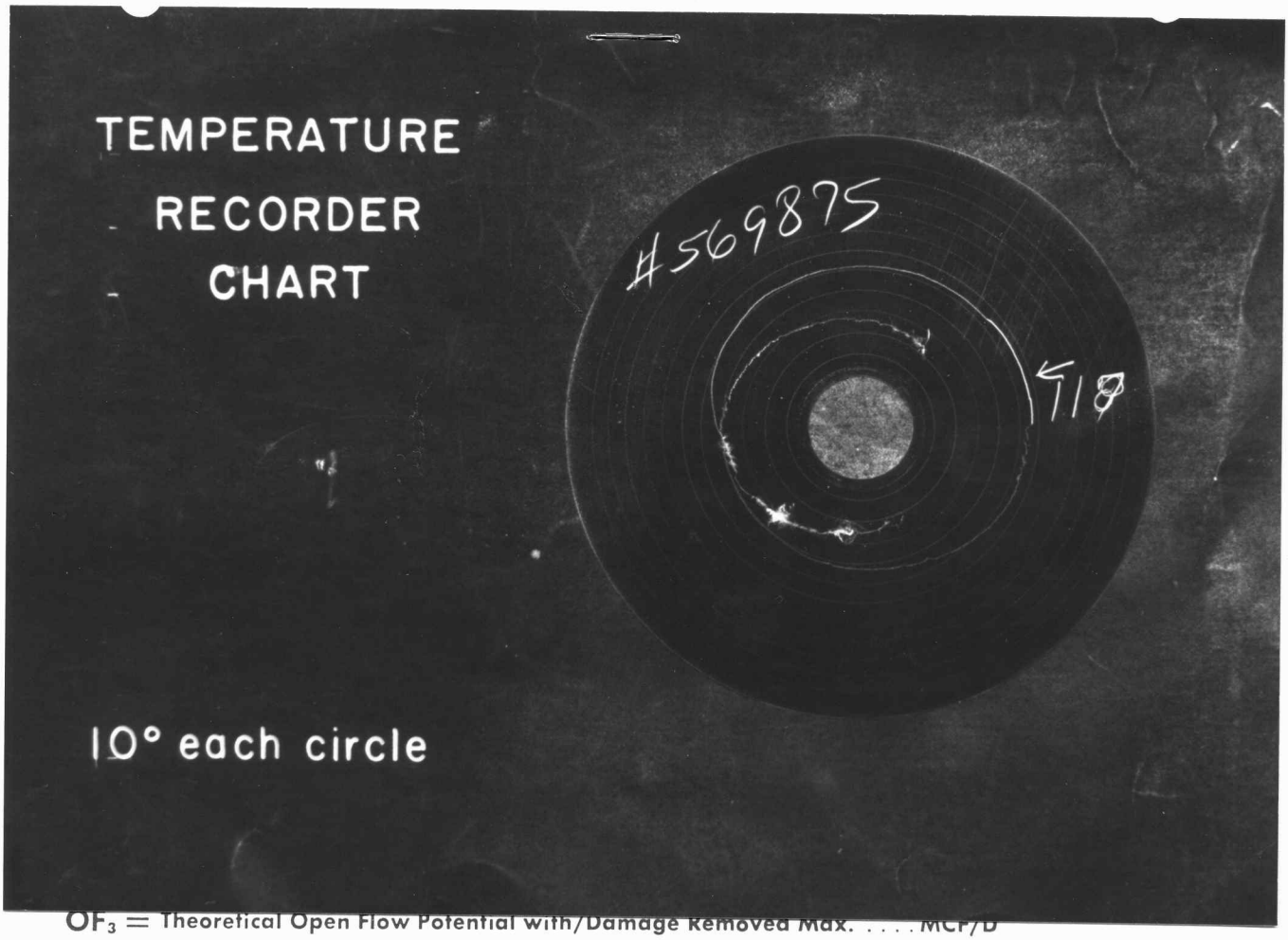


PRESSURE

TIME



Each Horizontal Line Equal to 1000 p.s.i.



OF_3 = Theoretical Open Flow Potential with/Damage Removed Max. . . . . MCF/D

OF_4 = Theoretical Open Flow Potential with/Damage Removed Min. . . . . MCF/D

P_s = Extrapolated Static Pressure . . . . . Psig.

P_F = Final Flow Pressure . . . . . Psig.

P_{ot} = Potentiometric Surface (Fresh Water*) . . . . . Feet

Q = Average Adjusted Production Rate During Test . . . . . bbls/day

Q_1 = Theoretical Production w/Damage Removed . . . . . bbls/day

Q_g = Measured Gas Production Rate . . . . . MCF/D

R = Corrected Recovery . . . . . bbls

r_w = Radius of Well Bore . . . . . Feet

t = Flow Time . . . . . Minutes

t_o = Total Flow Time . . . . . Minutes

T = Temperature Rankine . . . . . °R

Z = Compressibility Factor . . . . . ——

μ = Viscosity Gas or Liquid . . . . . CP

Log = Common Log

* Potentiometric Surface Reference to Rotary Table When Elevation Not Given, Fresh Water Corrected to 100° F.