NOMENCLATURE

b	=	Approximate Radius of Investigation	Feet
b^1	=	Approximate Radius of Investigation (Net Pay Zone h^1)	Feet
D.R.	=	Damage Ratio	——
El	=	Elevation	Feet
GD	=	B.T. Gauge Depth (From Surface Reference)	Feet
h	=	Interval Tested	Feet
h^1	=	Net Pay Thickness	Feet
K	=	Permeability	md
K^1	=	Permeability (From Net Pay Zone h^1)	md
m	=	Slope Extrapolated Pressure Plot (Psi^2/cycle Gas)	psi/cycle
OF^1	=	Maximum Indicated Flow Rate	MCF/D
OF^2	=	Minimum Indicated Flow Rate	MCF/D
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	——
u	=	Viscosity Gas or Liquid	CP
Log	=	Common Log	

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

	1st Min.	2nd Min.
Flow Time	5	60
Closed In Press. Time	30	30
Pressure Readings	Field	Office Corrected
Depth Top Gauge	2927 Ft.	no Blanked Off
BT. P.R.D. No.	228	12 Hour Clock
Initial Hydro Mud Pressure	--	1528
Initial Closed in Pres.	1257	1260
Initial Flow Pres.	- 1	*
	- 2	502**
Final Flow Pres.	- 1	*
	537 2	542
Final Closed in Pres.	1239	1248
Final Hydro Mud Pressure	-	1487
Depth Cen. Gauge	Ft.	Blanked Off
BT. P.R.D. No.		Hour Clock
Initial Hydro Mud Pres.		
Initial Closed in Pres.		
Initial Flow Pres.	1	
	2	
Final Flow Pres.	1	
	2	
Final Closed in Pres.		
Final Hydro Mud Pres.		
Depth Bot. Gauge	2955 Ft.	yes Blanked Off
BT. P.R.D. No.	690	12 Hour Clock
Initial Hydra Mud Pres.	-	1547
Initial Closed in Pres.	-	1280
Initial Flow Pres.	- 1	947**
	- 2	1196**
Final Flow Pres.	- 1	1280
	- 2	1269
Final Closed in Pres.	-	1268
Final Hydro Mud Pres.	-	1506

Date	7/13/68	Ticket Number	508598 S
Kind of Job	OPEN HOLE	Halliburton District	HAYS
Tester	A.A. BERENS	Witness	MR. MC CLUSKY
Drilling Contractor	PEEL BROTHERS INCORPORATED		LC
Elevation	--	Top Packer	--
Total Depth	2959'	Bottom Packer	2924'
Interval Tested	2924' - 2959'	Formation Tested	Topeka
Casing or Hole Size	7 7/8"	Casing Perfs. Top / Bot.	
Surface Choke	1/4"	Bottom Choke	3/4"
Size & Kind Drill Pipe	4 1/2" Acme	Drill Collars Above Tester (I.D. - LENGTH)	--
Mud Weight	10.1	Mud Viscosity	43
Temperature (°F Est.)	2954' @ 83 °F Actual	Anchor Size & Length ID / OD	3.75" / 5.00" X 35'
Depths Mea. From	Kelly Bushing	Depth of Tester Valve	-- Ft.
Cushion (TYPE / AMOUNT)	none Ft.	Depth Back Pres. Valve	-- Ft.
Recovered	1200 Feet of muddy salt water.		
Recovered	Feet of		
Recovered	Feet of		
Recovered	Feet of		
Oil A.P.I. Gravity		Water Spec. Gravity	
Gas Gravity		Surface Pressure	psi
Tool Opened	3:30 A.M. / P.M.	Tool Closed	5:35 A.M. / P.M.

Mea. From Tester Valve

Remarks Opened tool for a 5 minute first flow. Took a 30 minute initial closed in pressure. Reopened tool for a 60 minute final flow with a strong blow throughout test. Closed tool for a 30 minute final closed in pressure. Plugging action on both recorder accepted by Mr. Quick, Cities Service Geologist.

Legal Location Sec. - Twp. - Rng.: 34 9 15W

Field Area: --

County: OSBORNE

State: KANSAS

Lease Name: WARD

Well No.: 1-F

Test No.: 1

Lease Owner/Company Name: CITIES SERVICE OIL COMPANY

Owner's District: PLAINVILLE

FORMATION TEST DATA

* Unable to read ** Questionable

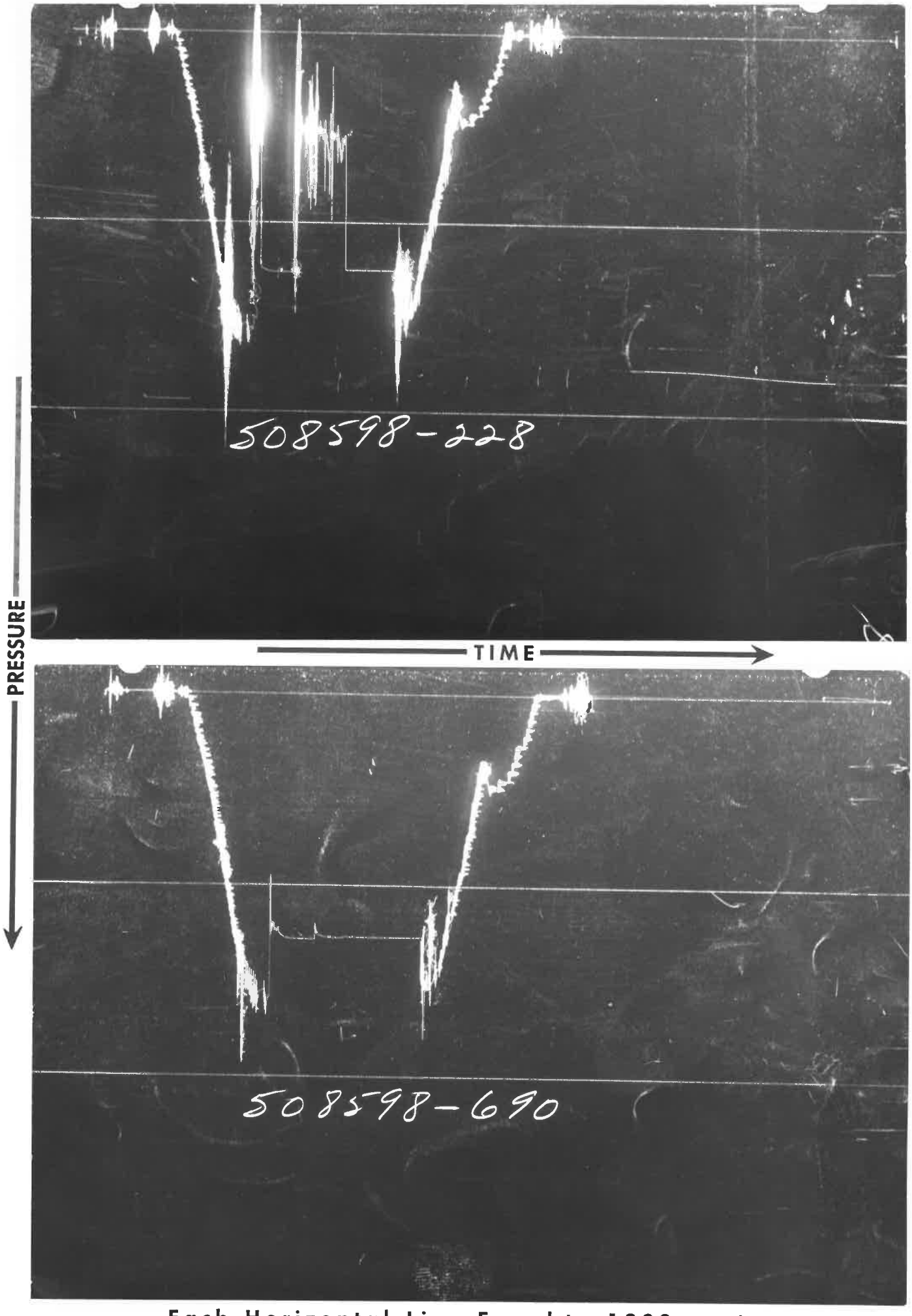
Gauge No.	228	Depth	2927'	Clock	12 hour	Ticket No.	508598

	First Flow Period		Initial Closed In Pressure			Second Flow Period		Final 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.
P_0	.000	Unable	.000		Unable to read	.000	502**	.000		542
P_1	.037	to Read	.203		1260	.282	542	.200		1248
P_2										
P_3										
P_4										
P_5										
P_6										
P_7										
P_8										
P_9										
P_{10}										

Gauge No.	690		Depth	2955'		Clock	12 hour			
P_0	.000	947**	.000		1217	.000	1196**	.000		1269
P_1	.048	1217	.207		1280	.415	1269	.201		1268
P_2										
P_3										
P_4										
P_5										
P_6										
P_7										
P_8										
P_9										
P_{10}										
Reading Interval										Minutes

REMARKS: ** Questionable

SPECIAL PRESSURE DATA



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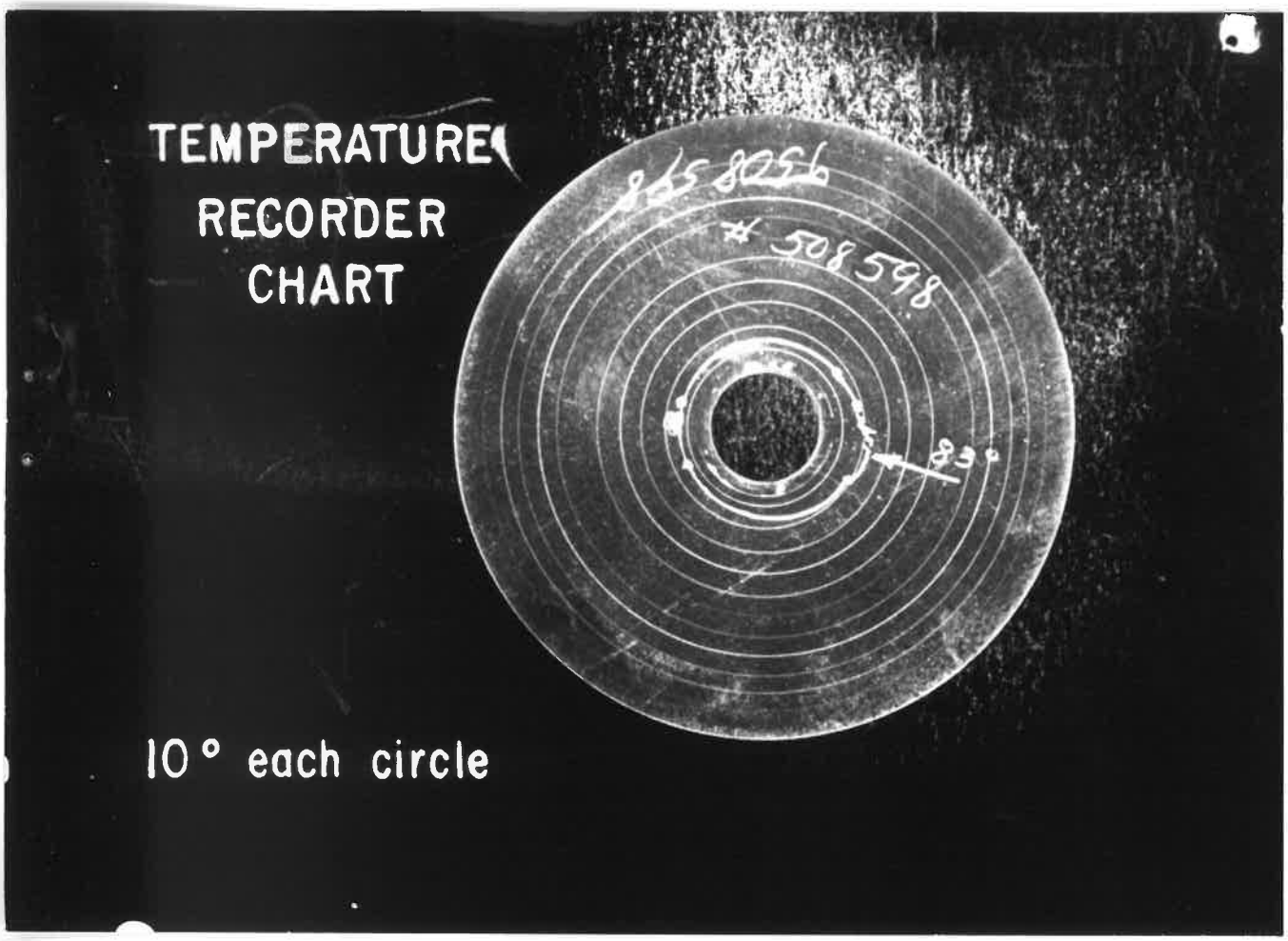

TEMPERATURE
RECORDER
CHART
10° each circle

	1st Min.	2nd Min.				
Flow Time	30	30	Date	7-14-68	Ticket Number	508680 - S
Closed In Press. Time	30	30	Kind of Job	OPEN HOLE	Halliburton District	HAYS
Pressure Readings	Field	Office Corrected	Tester	MR. WEATHERBEE	Witness	MR. MC CLUSKEY
Depth Top Gauge	3104 Ft.	Blanked NO Off	Drilling Contractor	PEEL DRILLING COMPANY		IC
BT. P.R.D. No.	690	Hour 12 Clock	Elevation	1968' K.B.	Top Packer	3101'
Initial Hydro Mud Pressure	-	1581	Total Depth	3118'	Bottom Packer	-
Initial Closed in Pres.	-	1123	Interval Tested	3101'-3118'	Formation Tested	TRONTO
Initial Flow Pres.	- 1	16	Casing or Hole Size	7 7/8"	Casing Perfs. Top	
	- 2	41			Bot.	-
Final Flow Pres.	- 1	37	Surface Choke	1/4"	Bottom Choke	3/4"
	- 2	57				
Final Closed in Pres.	-	1107	Size & Kind Drill Pipe	4 1/2" ACME	Drill Collars Above Tester I.D. - LENGTH	900' WEIGHT PIPE
Final Hydro Mud Pressure	-	1578	Mud Weight	10.0	Mud Viscosity	40
Depth Cen. Gauge	Ft.	Blanked Off	Temperature °F Est. / °F Actual	3113' @ 84°	Anchor Size & Length ID / OD	2 7/8" X 5" 17'
BT. P.R.D. No.		Hour Clock	Depths Mea. From	KELLY BUSHINGS	Depth of Tester Valve	3092' Ft.
Initial Hydro Mud Pres.			Cushion TYPE / AMOUNT	- Ft.	Depth Back Pres. Valve	- Ft.
Initial Closed in Pres.			Recovered	90 Feet of Muddy water		
Initial Flow Pres.	1		Recovered	Feet of		
	2					
Final Flow Pres.	1		Recovered	Feet of		
	2					
Final Closed in Pres.			Recovered	Feet of		
Final Hydro Mud Pres.			Oil A.P.I. Gravity	-	Water Spec. Gravity	-
Depth Bot. Gauge	3114 Ft.	Blanked YES Off	Gas Gravity	-	Surface Pressure	- psi
BT. P.R.D. No.	228	Hour 12 Clock	Tool Opened A.M. P.M.	10:55 AM	Tool Closed A.M. P.M.	12:55 PM
Initial Hydro Mud Pres.	1619	1590	Remarks	Opened tool for 30 minute 1st flow with a		
Initial Closed in Pres.	1137	1125		very weak blow. Closed tool for 30 minuteinitial		
Initial Flow Pres.	14 1	19		closed in pressure. Reopened tool for 30 minute		
	41 2	46				
Final Flow Pres.	41 1	39		2nd flow with a very weak blow. Closed tool for		
	64 2	60				
Final Closed in Pres.	1110	1108		30 minute final closed in pressure.		
Final Hydro Mud Pres.	1610	1585				

Legal Location Sec. - Twp. - Rng.: SEC. 34 - 9 - 15

Lease Name: WARD "F" | Well No.: F-1 | Test No.: 2

Field Area: ---

County: OSBORNE

State: KANSAS

Lease Owner/Company Name: CITIES SERVICE OIL COMPANY

Owner's District: RUSSELL

Meas. From Tester Valve

FORMATION TEST DATA

9

Gauge No. 690	Depth 3104'	Clock 12 hour	Ticket No. 508680

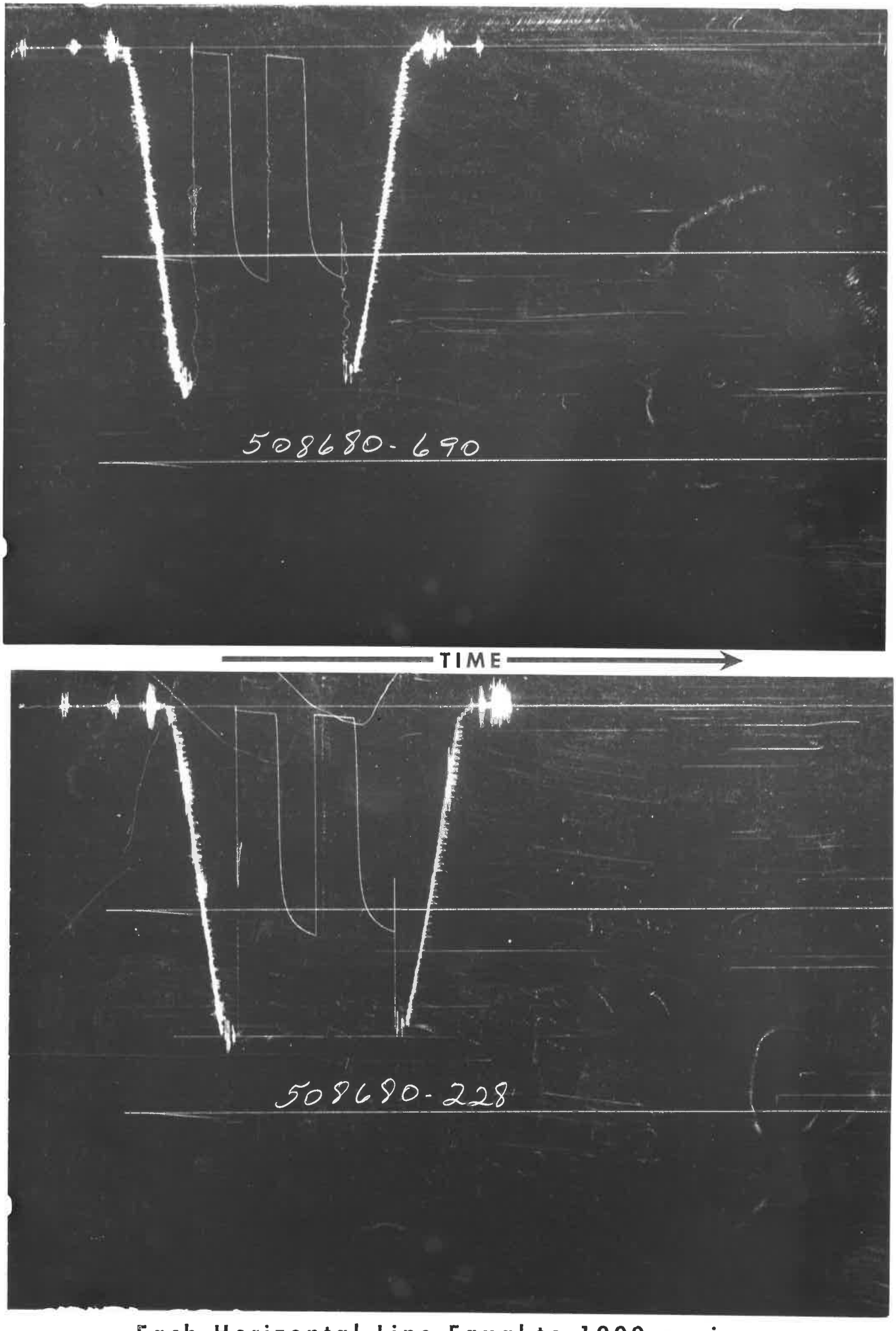
	First Flow Period		Initial Closed In Pressure			Second Flow Period		Final Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\bullet}{\bullet}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\bullet}{\bullet}$	PSIG Temp. Corr.
P_0	.000	16	.000		37	.000	41	.000		57
P_1	.039	23	.0204		818	.0394	44	.020		733
P_2	.078	27	.0408		964	.0788	47	.040		934
P_3	.117	30	.0612		1020	.1182	50	.060		997
P_4	.156	33	.0816		1051	.1576	55	.080		1030
P_5	.195	37	.1020		1073	.1970	57	.100		1052
P_6			.1224		1089			.120		1069
P_7			.1428		1102			.140		1083
P_8			.1632		1110			.160		1093
P_9			.1836		1118			.180		1101
P_{10}			.2040		1123			.200		1107

Gauge No. 228	Depth 3114'	Clock 12 hour

P_0	.000	19	.000		39	.000	46	.000		60
P_1	.043	24	.0209		790	.0424	46	.0213		684
P_2	.086	30	.0418		958	.0848	50	.0426		924
P_3	.129	32	.0627		1017	.1272	54	.0639		992
P_4	.172	36	.0836		1050	.1696	57	.0852		1028
P_5	.215	39	.1045		1071	.2120	60	.1065		1052
P_6			.1254		1088			.1278		1069
P_7			.1463		1101			.1491		1083
P_8			.1672		1111			.1704		1093
P_9			.1881		1119			.1917		1101
P_{10}			.2090		1125			.2130		1108
Reading Interval	6		3			6		3		Minutes

REMARKS:

SPECIAL PRESSURE DATA



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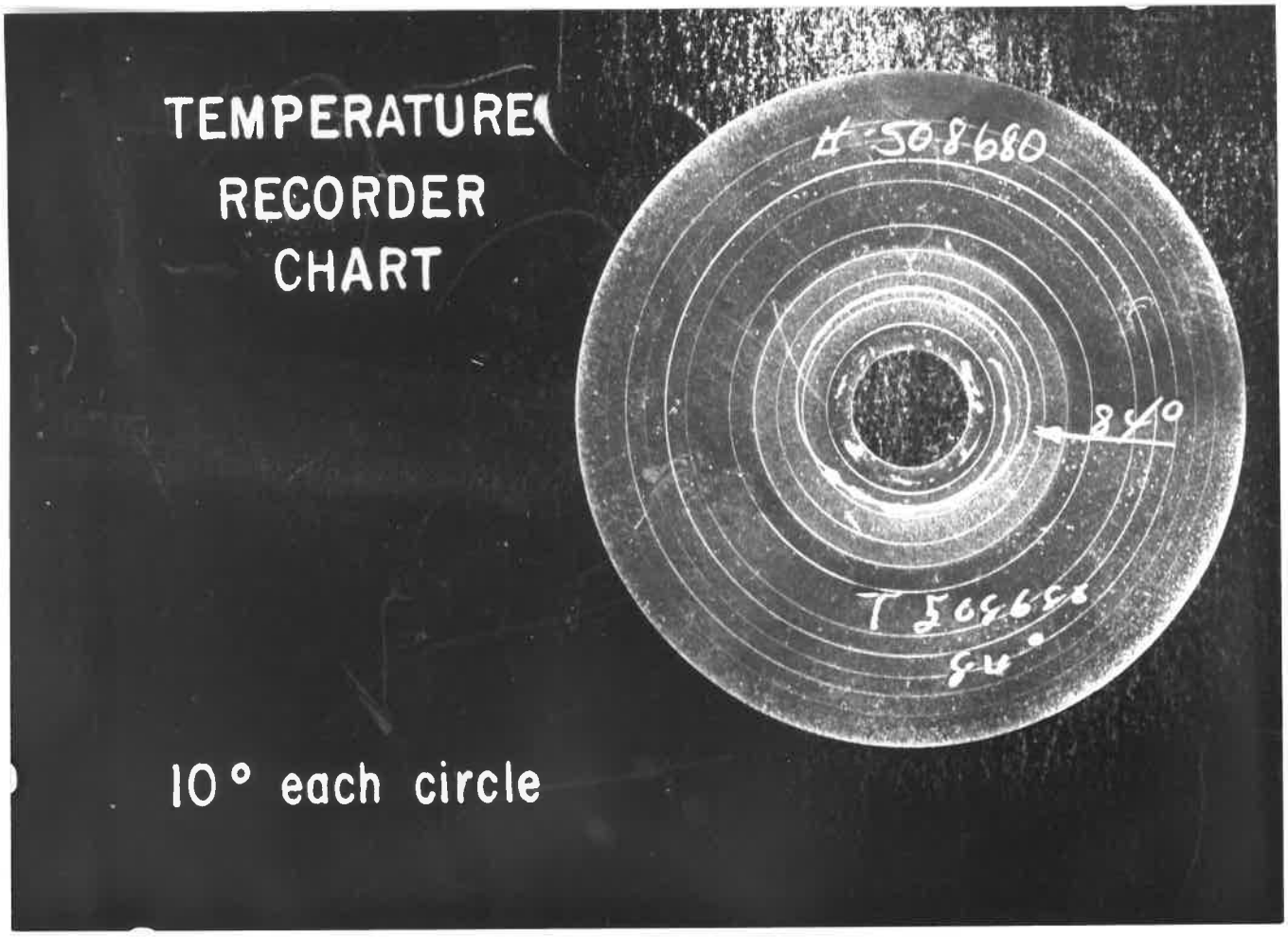

TEMPERATURE
RECORDER
CHART
10° each circle

	1st Min.	2nd Min.
Flow Time	30	30
Closed In Press. Time	30	30
Pressure Readings	Field	Office Corrected
Depth Top Gauge	3198 Ft.	no Blanked Off
BT. P.R.D. No.	690	12 Hour Clock
Initial Hydro Mud Pressure	-	1651
Initial Closed in Pres.	-	1026
Initial Flow Pres.	- 1	29
	- 2	98
Final Flow Pres.	- 1	87
	- 2	145
Final Closed in Pres.	-	1007
Final Hydro Mud Pressure	-	1634
Depth Cen. Gauge	Ft.	Blanked Off
BT. P.R.D. No.		Hour Clock
Initial Hydro Mud Pres.		
Initial Closed in Pres.		
Initial Flow Pres.	1	
	2	
Final Flow Pres.	1	
	2	
Final Closed in Pres.		
Final Hydro Mud Pres.		
Depth Bot. Gauge	3236 Ft.	yes Blanked Off
BT. P.R.D. No.	228	12 Hour Clock
Initial Hydro Mud Pres.	1684	1668
Initial Closed in Pres.	1037	1037
Initial Flow Pres.	37 1	39
	92 2	126
Final Flow Pres.	111 1	100
	157 2	158
Final Closed in Pres.	1017	1017
Final Hydro Mud Pres.	1666	1651

Date	7/15/68	Ticket Number	508681 S
Kind of Job	OPEN HOLE	Halliburton District	HAYS
Tester	A. WEATHERBEE	Witness	MR. MC CLUSKEY
Drilling Contractor	PEEL DRILLING COMPANY		LC
Elevation	1968' KB	Top Packer	3195'
Total Depth	3239'	Bottom Packer	--
Interval Tested	3195' - 3239'	Formation Tested	Lower Kansas City
Casing or Hole Size	7 7/8"	Casing Perfs. Top / Bot.	
Surface Choke	1/4"	Bottom Choke	3/4"
Size & Kind Drill Pipe	4 1/2" ACME	Drill Collars Above Tester (I.D. - LENGTH)	900' Weight Pipe
Mud Weight	9.8	Mud Viscosity	47
Temperature	3234'@ 86 °F Est. / °F Actual	Anchor Size & Length	ID 2 7/8" X OD 5" 44'
Depths Mea. From	Kelly Bushing	Depth of Tester Valve	3186 Ft.
Cushion (TYPE / AMOUNT)	none Ft.	Depth Back Pres. Valve	none Ft.
Recovered	90 Feet of	slightly oily & gas cut mud.	
Recovered	240 Feet of	heavy oil & gas cut mud.	
Recovered	Feet of		
Recovered	Feet of		
Oil A.P.I. Gravity		Water Spec. Gravity	
Gas Gravity		Surface Pressure	psi
Tool Opened	9:40 A.M. A.M. / P.M.	Tool Closed	11:40 A.M. A.M. / P.M.

Remarks: Opened tool @ 9:40 for 30 minute first flow with weak to strong blow. Closed tool @ 10:10 for 30 minute initial closed in pressure. Reopened tool @ 10:40 for 30 minute final flow with weak to strong blow. Closed tool @ 11:10 for a 30 minute f nal closed in pressure. Off bottom @ 11:40 Am.

Legal Location Sec. - Twp. - Rng.: 34 9 15

Lease Name: WARD "F"

Well No.: 1

Test No.: 3

Lease Owner/Company Name: CITIES SERVICE OIL COMPANY

Field Area: --

County: OSBORNE

State: KANSAS

Owner's District: RUSSELL

FORMATION TEST DATA

9

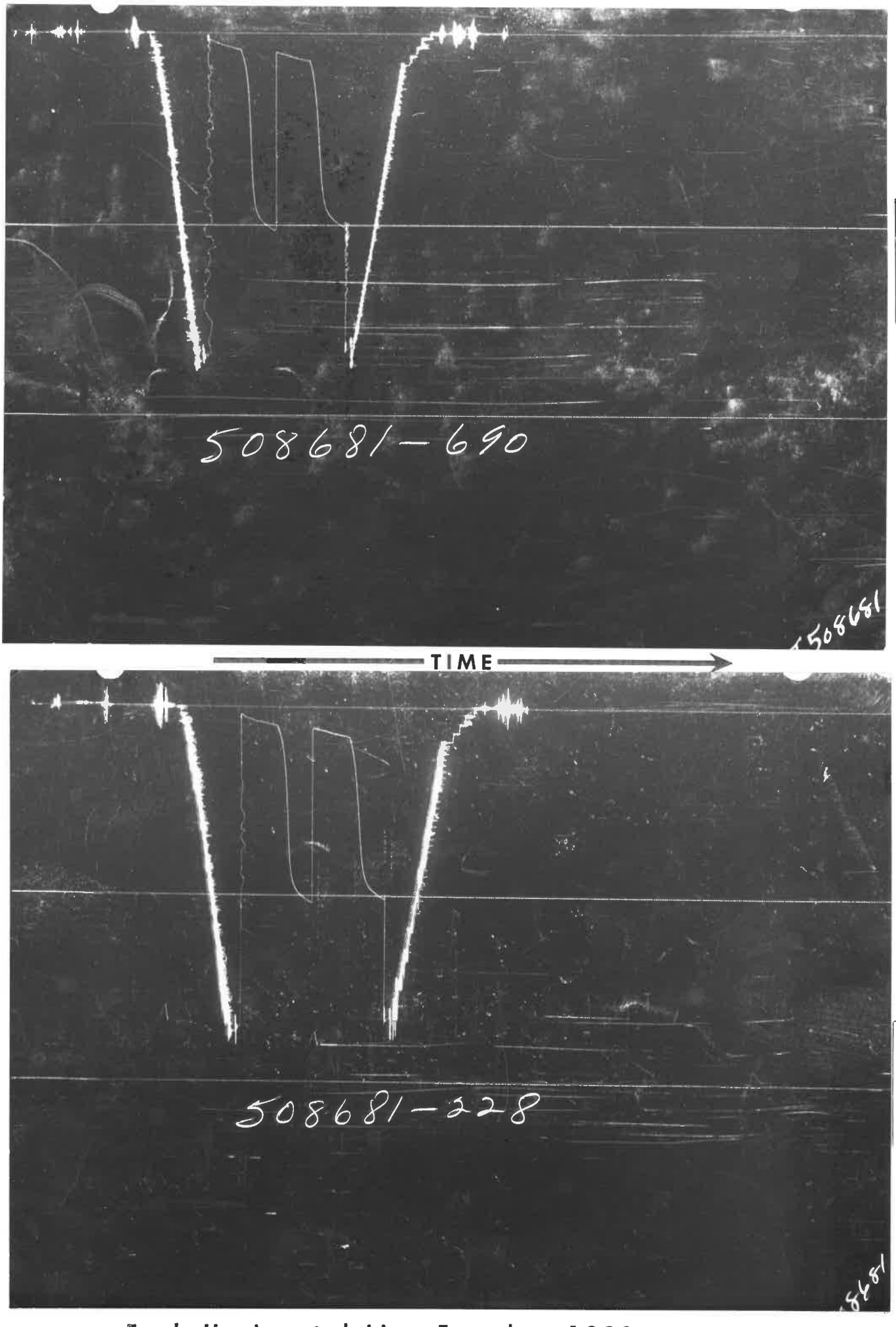
Gauge No.	690	Depth	3198'	Clock	12 hour	Ticket No.	508681

	First Flow Period		Initial Closed In Pressure			Second Flow Period		Final Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\bullet}{\bullet}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\bullet}{\bullet}$	PSIG Temp. Corr.
P_0	.000	29	.000		87	.000	98	.000		145
P_1	.038	46	.0207		140	.0396	109	.0202		232
P_2	.076	59	.0414		253	.0792	119	.0404		389
P_3	.114	68	.0621		546	.1188	130	.0606		651
P_4	.152	78	.0828		846	.1584	138	.0808		845
P_5	.190	87	.1035		937	.1980	145	.1010		920
P_6			.1242		971			.1212		948
P_7			.1449		990			.1414		968
P_8			.1656		1005			.1616		984
P_9			.1863		1017			.1818		996
P_{10}			.2070		1026			.2020		1007

Gauge No.	228	Depth	3236'	Clock	12 hour				
P_0	.000	39	.000		100	.000	126	.000		158
P_1	.0424	60	.021		158	.043	121	.0215		237
P_2	.0848	76	.042		271	.086	129	.0430		380
P_3	.1272	82	.063		558	.129	141	.0645		650
P_4	.1696	91	.084		877	.172	149	.0860		856
P_5	.2120	100	.105		947	.215	158	.1075		929
P_6			.126		982			.1290		959
P_7			.147		1001			.1505		979
P_8			.168		1016			.1720		994
P_9			.189		1027			.1935		1006
P_{10}			.210		1037			.2150		1017
Reading Interval	6		3			6		3		Minutes

REMARKS:

SPECIAL PRESSURE DATA



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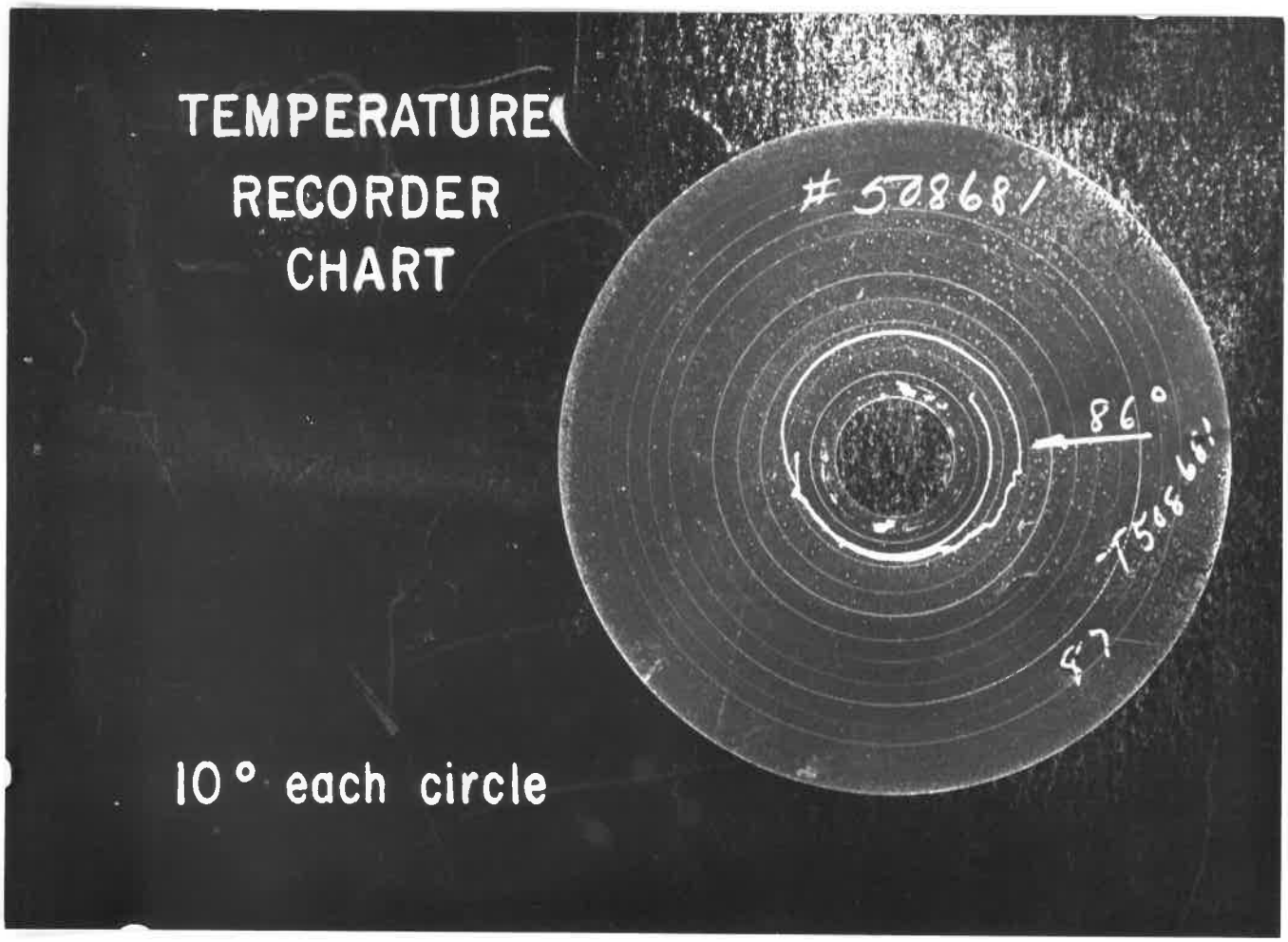

TEMPERATURE
RECORDER
CHART
#508681
86°
10° each circle

	1st Min.	2nd Min.
Flow Time	30	30
Closed In Press. Time	30	30
Pressure Readings	Field	Office Corrected
Depth Top Gauge	3242 Ft.	No Blanked Off
BT. P.R.D. No.	690	12 Hour Clock
Initial Hydro Mud Pressure		1694
Initial Closed in Pres.		1015
Initial Flow Pres.	1	19
	2	38
Final Flow Pres.	1	33
	2	47
Final Closed in Pres.		980
Final Hydro Mud Pressure		1692
Depth Cen. Gauge	Ft.	Blanked Off
BT. P.R.D. No.		Hour Clock
Initial Hydro Mud Pres.		
Initial Closed in Pres.		
Initial Flow Pres.	1	
	2	
Final Flow Pres.	1	
	2	
Final Closed in Pres.		
Final Hydro Mud Pres.		
Depth Bot. Gauge	3288 Ft.	Yes Blanked Off
BT. P.R.D. No.	228	12 Hour Clock
Initial Hydro Mud Pres.	1703	1727
Initial Closed in Pres.	1036	1032
Initial Flow Pres.	32 1	32
	55 2	56
Final Flow Pres.	55 1	49
	66 2	63
Final Closed in Pres.	989	994
Final Hydro Mud Pres.	1694	1711

Date	7-16-68	Ticket Number	508682 S
Kind of Job	OPEN HOLE	Halliburton District	HAYS
Tester	A. WEATHERBEE	Witness	MC CLUSNEY
Drilling Contractor	PEEL DRILLING COMPANY		DH
Elevation	1968 Kelly Bushing	Top Packer	3240'
Total Depth	3291'	Bottom Packer	
Interval Tested	3240'-3291'	Formation Tested	Lower Kansas City
Casing or Hole Size	7 7/8"	Casing Perfs. Top / Bot.	
Surface Choke	¾"	Bottom Choke	3/4"
Size & Kind Drill Pipe	4½" Acme.	Drill Collars Above Tester (I.D. - LENGTH)	900' Weight pipe
Mud Weight	9.6	Mud Viscosity	37
Temperature	84 °F Est. / 3286'-87° °F Actual	Anchor Size & Length	ID 2 7/8" OD 5" X 51'
Depths Mea. From	Kelly Bushing	Depth of Tester Valve	3231' Ft.
Cushion (TYPE / AMOUNT)	- Ft.	Depth Back Pres. Valve	- Ft.
Recovered	65' Feet of	oily slighty muddy water	
Recovered	Feet of		
Recovered	Feet of		
Recovered	Feet of		
Oil A.P.I. Gravity		Water Spec. Gravity	
Gas Gravity		Surface Pressure	psi
Tool Opened	2:00 A.M. A.M. / P.M.	Tool Closed	4:00 A.M. A.M. / P.M.

Remarks: Opened tool for 30 minute first flow. Closed tool for 30 minute initial closed in pressure. Reopened tool for 30 minute second flow, with a weak blow. Closed tool for 30 minute final closed in pressure.

Legal Location Sec. - Twp. - Rng.: 34-9-15

Lease Name: WARD F

Well No.: 1

Test No.: 4

Field Area:

County: OSBORNE

State: KANSAS

Lease Owner/Company Name: CITIES SERVICE OIL COMPANY

Owner's District: RUSSELL

Mea. From Tester Valve

FORMATION TEST DATA

9

Gauge No. 690	Depth 3242'	Clock 12 hour	Ticket No. 508682

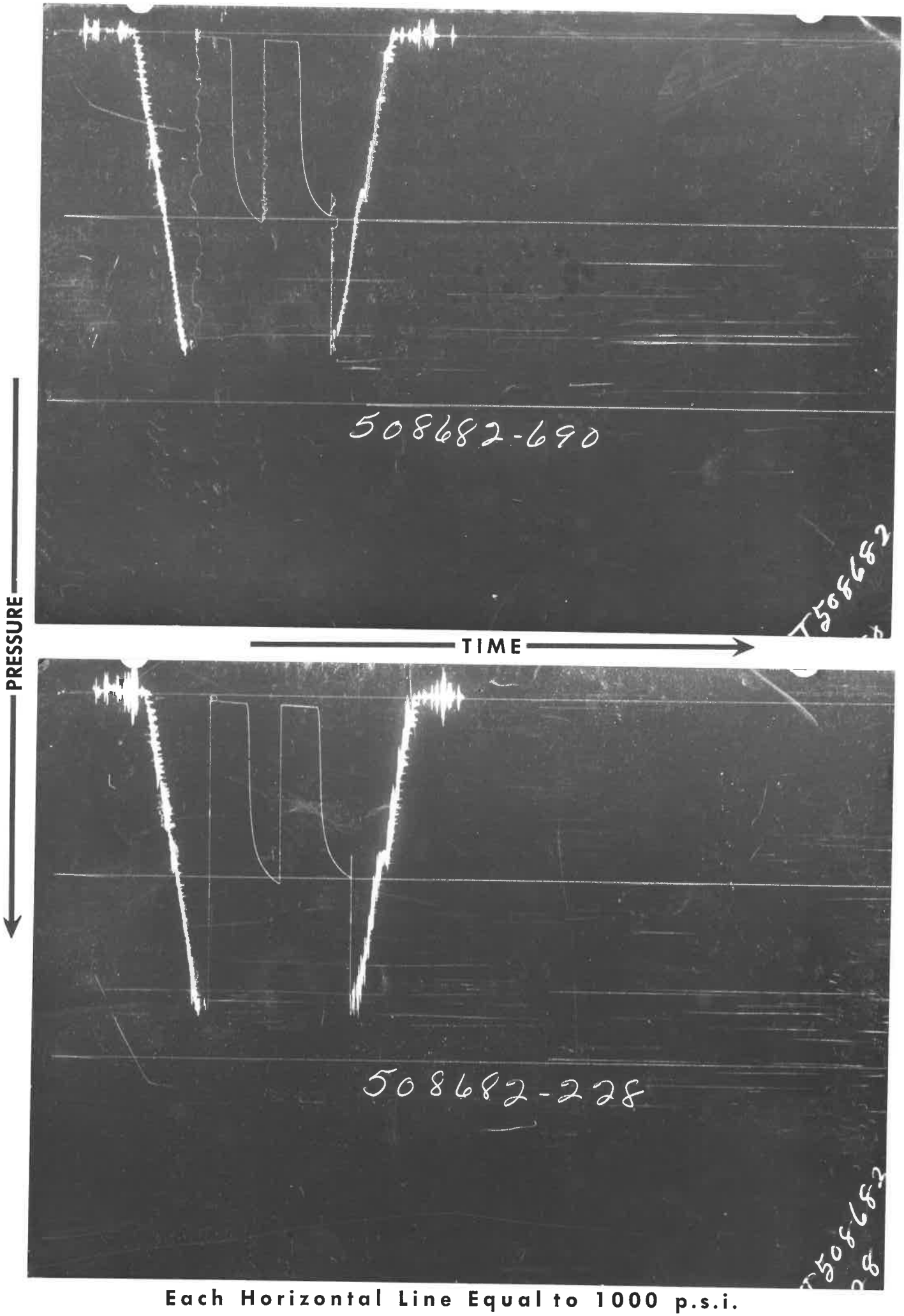
	First Flow Period		Initial Closed In Pressure			Second Flow Period		Final Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\bullet}{\bullet}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\bullet}{\bullet}$	PSIG Temp. Corr.
P_0	.000	19	.000		33	.000	38	.000		47
P_1	.0394	21	.0201		343	.040	39	.0204		379
P_2	.0788	25	.0402		727	.080	41	.0408		692
P_3	.1182	31	.0603		821	.120	42	.0612		793
P_4	.1576	31	.0804		880	.160	45	.0816		849
P_5	.1970	33	.1005		919	.200	47	.1020		885
P_6			.1206		947			.1224		913
P_7			.1407		966			.1428		934
P_8			.1608		988			.1632		953
P_9			.1809		1005			.1836		967
P_{10}			.2010		1015			.2040		980

Gauge No. 228	Depth 3288'	Clock 12 hour	

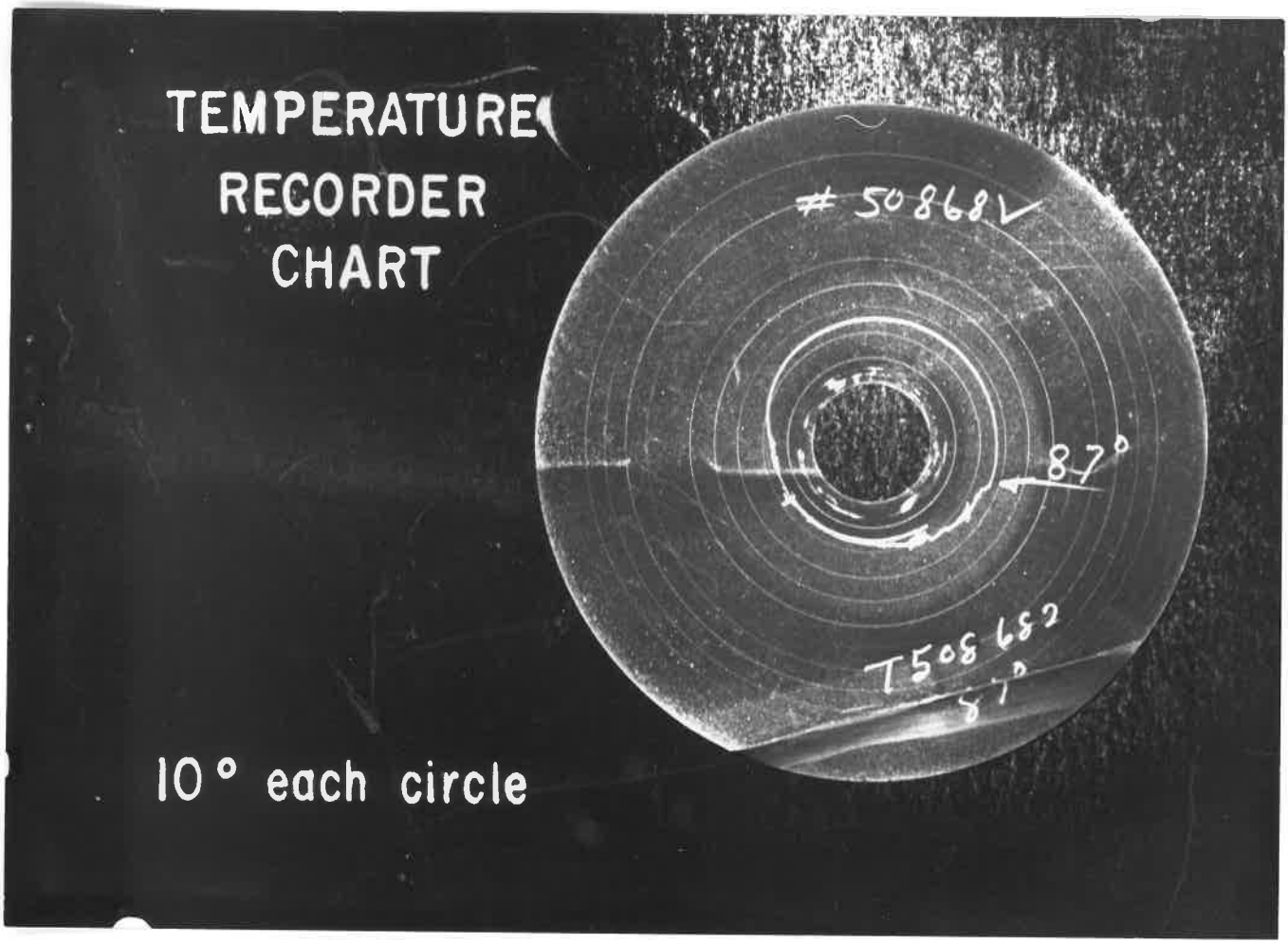
P_0	.000	32	.000		49	.000	56	.000		63
P_1	.0436	36	.0208		450	.0436	55	.0215		382
P_2	.0872	41	.0416		744	.0872	57	.0430		710
P_3	.1308	44	.0624		846	.1308	58	.0645		811
P_4	.1744	46	.0832		901	.1744	61	.0860		866
P_5	.2180	49	.1040		930	.2180	63	.1075		901
P_6			.1248		965			.1290		930
P_7			.1456		987			.1505		951
P_8			.1664		988			.1720		969
P_9			.1872		1021			.1935		983
P_{10}			.2080		1032			.2150		994
Reading Interval		6	3			6		3		Minutes

REMARKS:

SPECIAL PRESSURE DATA



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


TEMPERATURE
RECORDER
CHART
50868V
87°
T508 682
87°
10° each circle

	1st Min.	2nd Min.
Flow Time	30	30
Closed In Press. Time	30	30
Pressure Readings	Field	Office Corrected
Depth Top Gauge	3314 Ft.	no Blanked Off
BT. P.R.D. No.	690	12 Hour Clock
Initial Hydro Mud Pressure	-	1700
Initial Closed in Pres.	-	250
Initial Flow Pres.	- 1	16
	- 2	28
Final Flow Pres.	- 1	23
	- 2	28
Final Closed in Pres.	-	243
Final Hydro Mud Pressure	-	1688
Depth Cen. Gauge	Ft.	Blanked Off
BT. P.R.D. No.		Hour Clock
Initial Hydro Mud Pres.		
Initial Closed in Pres.		
Initial Flow Pres.	1	
	2	
Final Flow Pres.	1	
	2	
Final Closed in Pres.		
Final Hydro Mud Pres.		
Depth Bot. Gauge	3353 Ft.	yes Blanked Off
BT. P.R.D. No.	228	12 Hour Clock
Initial Hydro Mud Pres.	1759	1719
Initial Closed in Pres.	269	267
Initial Flow Pres.	37 1	35
	41 2	50
Final Flow Pres.	41 1	41
	41 2	45
Final Closed in Pres.	253	259
Final Hydro Mud Pres.	1740	1704

Date	7/16/68	Ticket Number	508683 S
Kind of Job	OPEN HOLE	Halliburton District	HAYS
Tester	A. WEATHERBEE	Witness	MR. MC CLUSKEY
Drilling Contractor	PEEL DRILLING COMPANY		LC
Elevation	1968' KB	Top Packer	3311'
Total Depth	3356'	Bottom Packer	--
Interval Tested	3311' - 3356'	Formation Tested	Lower Kansas City
Casing or Hole Size	7 7/8"	Casing Perfs. Top / Bot.	
Surface Choke	½"	Bottom Choke	3/4"
Size & Kind Drill Pipe	4 ½" ACME	Drill Collars Above Tester (I.D. - LENGTH)	900' Weight Pipe
Mud Weight	9.3	Mud Viscosity	46
Temperature	3351'@ 86 °F Est. / °F Actual	Anchor Size & Length	ID 2 7/8" OD 5" X 45'
Depths Mea. From	Kelly Bushing	Depth of Tester Valve	3302 Ft.
Cushion (TYPE / AMOUNT)	none Ft.	Depth Back Pres. Valve	none Ft.
Recovered	30 Feet of rotary mud with slight oily odor.		
Recovered	Feet of		
Recovered	Feet of		
Recovered	Feet of		
Oil A.P.I. Gravity		Water Spec. Gravity	
Gas Gravity		Surface Pressure	psi
Tool Opened	7:25 P.M. A.M. P.M.	Tool Closed	9:25 P.M. A.M. P.M.

Remarks: Opened tool @ 7:25 for 30 minute initial flow with very weak blow. Closed tool @ 7:55 for a 30 minute initial closed in pressure. Reopened tool @ 8:25 for 30 minute final flow with no blow. Closed tool @ 8:55 for a 30 minute final closed in pressure Off bottom @ 9:25.

Legal Location Sec. - Twp. - Rng.: 34 - 9 - 15

Lease Name: WARD "F"

Well No.: 1

Test No.: 5

Field Area: --

County: OSBORNE

State: KANSAS

Lease Owner/Company Name: CITIES SERVICE OIL COMPANY

Owner's District: RUSSELL

Mea. From Tester Valve

FORMATION TEST DATA

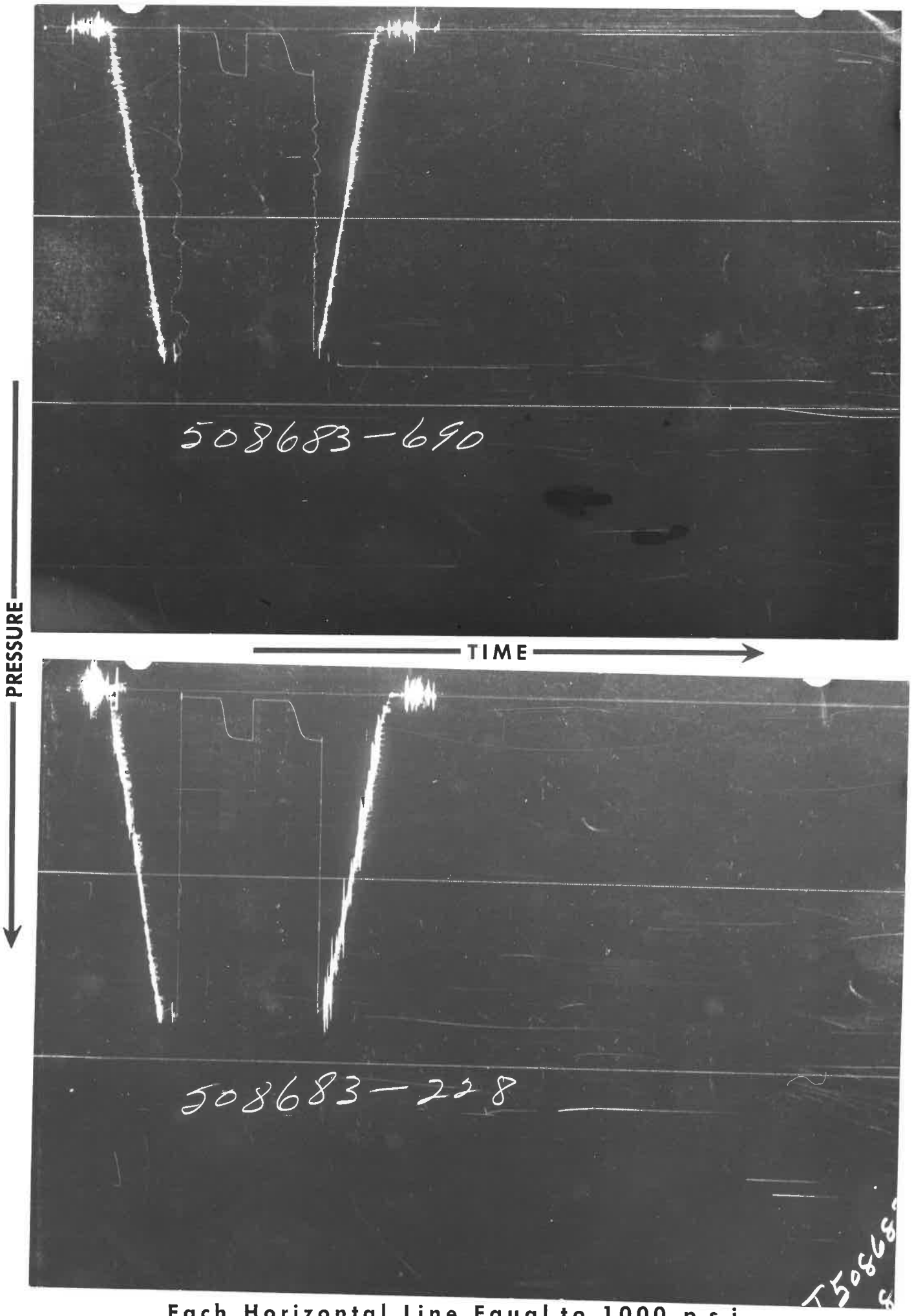
9

Gauge No. 690	Depth 3314'	Clock 12 hour	Ticket No. 508683

	First Flow Period		Initial Closed In Pressure			Second Flow Period		Final Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\bullet}{\bullet}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\bullet}{\bullet}$	PSIG Temp. Corr.
P_0	.000	16	.000		23	.000	28	.000		28
P_1	.0404	19	.0195		56	.194	28	.0197		49
P_2	.0808	20	.0390		170			.0394		96
P_3	.1212	22	.0585		219			.0591		155
P_4	.1616	22	.0780		233			.0788		205
P_5	.2020	23	.0975		239			.0985		226
P_6			.1170		242			.1182		234
P_7			.1365		244			.1379		237
P_8			.1560		246			.1576		240
P_9			.1755		249			.1773		241
P_{10}			.1950		250			.1970		243
Gauge No.	228		**Depth**	3353'		**Clock**	12	**hour**		
P_0	.000	35	.000		41	.000	50	.000		45
P_1	.045	37	.0201		91	.205	45	.0205		67
P_2	.090	39	.0402		199			.0410		106
P_3	.135	40	.0603		241			.0615		173
P_4	.180	40	.0804		252			.0820		219
P_5	.225	41	.1005		257			.1025		242
P_6			.1206		260			.1230		250
P_7			.1407		262			.1435		253
P_8			.1608		263			.1640		256
P_9			.1809		265			.1845		258
P_{10}			.2010		267			.2050		259
Reading Interval	6		3					3		**Minutes**

REMARKS:

SPECIAL PRESSURE DATA



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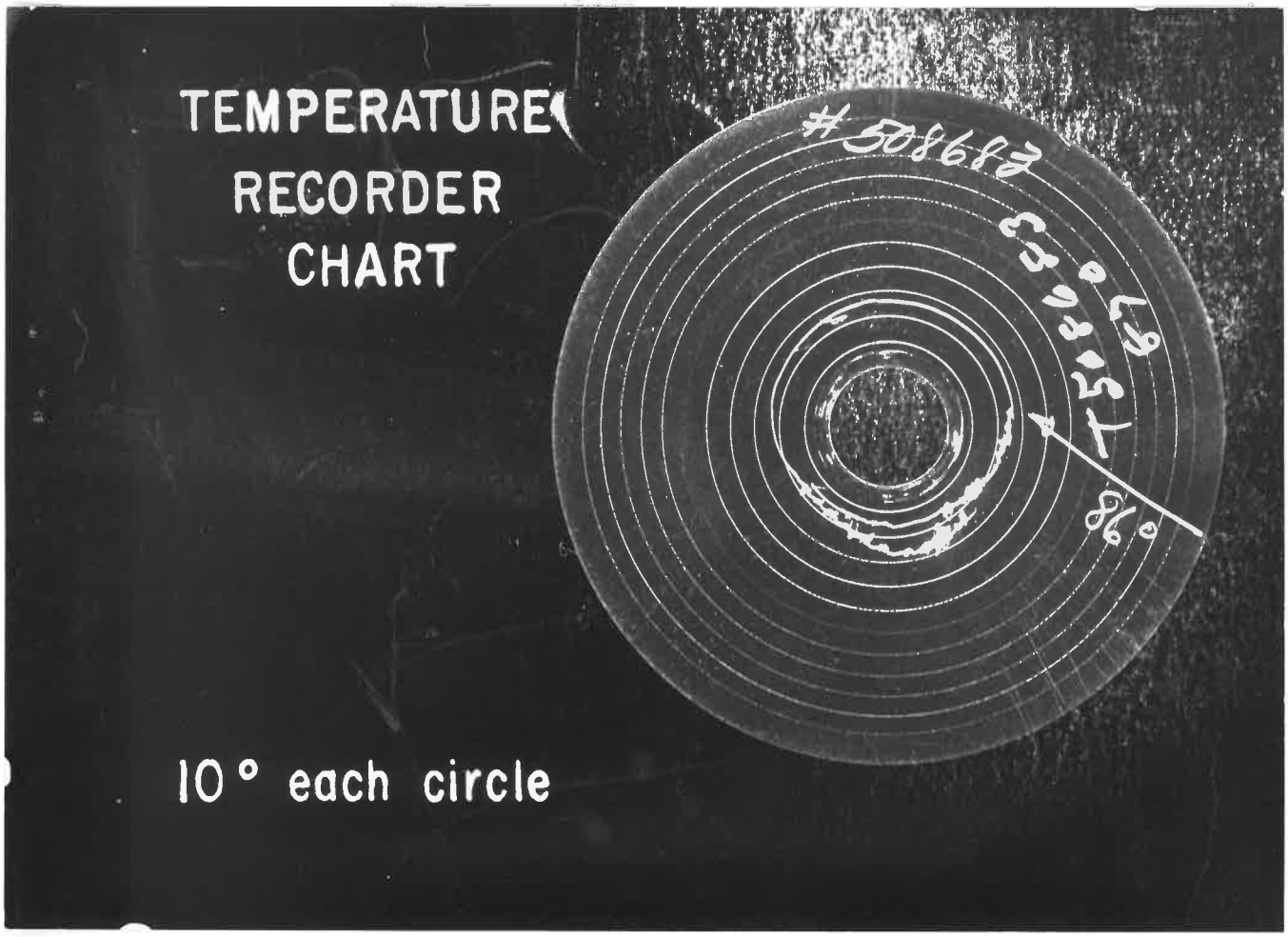
TEMPERATURE
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CHART
10° each circle

Flow Time	1st Min. 30	2nd Min. 30	Date	7-17-68	Ticket Number	508684 - S	Legal Location Sec. - Twp. - Rng.
Closed In Press. Time	1st Min. 30	2nd Min. 30	Kind of Job	OPEN HOLE	Halliburton District	HAYS	
Pressure Readings	Field	Office Corrected	Tester	MR. WEATHERBEE	Witness	MR. MC CLUSKEY	
Depth Top Gauge	3376 Ft.	Blanked Off NO	Drilling Contractor	PEEL DRILLING COMPANY		IC	
BT. P.R.D. No.	690	Hour Clock 12	Elevation	1968' K.B.	Top Packer	3373'	SEC. 34 - 9S - 15
Initial Hydro Mud Pressure	-	1752	Total Depth	3420'	Bottom Packer	-	
Initial Closed in Pres.	-	658	Interval Tested	3373'-3420'	Formation Tested	LOWER KANSAS CITY	
Initial Flow Pres.	- 1	16	Casing or Hole Size	7 7/8"	Casing Perfs. Top		Well No. 1
	- 2	21			Bot.	-	
Final Flow Pres.	- 1	16	Surface Choke	1/4"	Bottom Choke	3/4"	Test No. 6
	- 2	19					
Final Closed in Pres.	-	608	Size & Kind Drill Pipe	4 1/2" ACME	Drill Collars Above Tester I.D. - LENGTH	900' WEIGHT PIPE	
Final Hydro Mud Pressure	-	1729	Mud Weight	9.7	Mud Viscosity	41	
Depth Cen. Gauge	Ft.	Blanked Off	Temperature	3415' @ 86 °F Est. °F Actual	Anchor Size & Length	ID 2 7/8" OD 3.00" X 47'	Field Area
BT. P.R.D. No.		Hour Clock	Depths Mea. From	KELLY BUSHINGS	Depth of Tester Valve	3364' Ft.	
Initial Hydro Mud Pres.			Cushion TYPE - AMOUNT Ft.		Depth Back Pres. Valve	- Ft.	
Initial Closed in Pres.			Recovered	15 Feet of Mud			Mea. From Tester Valve
Initial Flow Pres.	1		Recovered	Feet of			
	2						
Final Flow Pres.	1		Recovered	Feet of			
	2						
Final Closed in Pres.			Recovered	Feet of			
Final Hydro Mud Pres.			Oil A.P.I. Gravity	-	Water Spec. Gravity	-	County OSBORNE
Depth Bot. Gauge	3417 Ft.	Blanked Off YES	Gas Gravity	-	Surface Pressure	- psi	
BT. P.R.D. No.	228	Hour Clock 12	Tool Opened	1:00 PM A.M. P.M.	Tool Closed	3:00 PM A.M. P.M.	
Initial Hydro Mud Pres.	1805	1771	Remarks	Opened tool for 30 minute 1st flow with			State KANSAS
Initial Closed in Pres.	667	676		a very weak blow. Closed tool for 30 minute			
Initial Flow Pres.	37 1	36		initial closed in pressure. Reopened tool for			
	37 2	42					
Final Flow Pres.	37 1	36		30 minute 2nd flow with no blow. Closed tool			
	37 2	39					
Final Closed in Pres.	625	627		for 30 minute final closed in pressure.			
Final Hydro Mud Pres.	1796	1754					

Lease Name: WARD "F"

Lease Owner/Company Name: CITIES SERVICE OIL COMPANY

Owner's District: RUSSELL

FORMATION TEST DATA

9

Gauge No. 690	Depth 3376'	Clock 12 hour	Ticket No. 508684

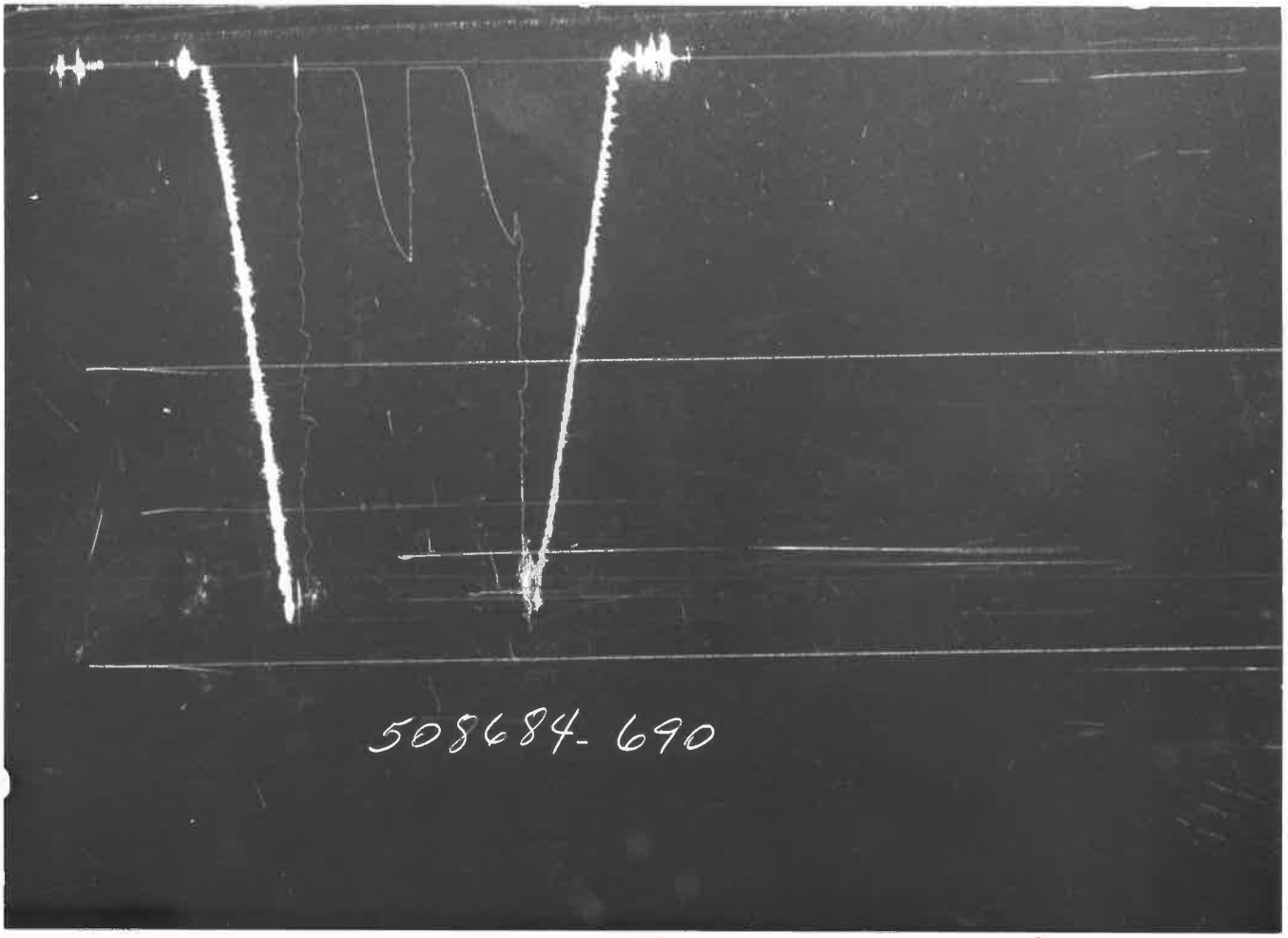
	First Flow Period		Initial Closed In Pressure			Second Flow Period		Final Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\bullet}{\bullet}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\bullet}{\bullet}$	PSIG Temp. Corr.
P_0	.000	16	.000		16	.000	21	.000		19
P_1	.207	16	.020		39	.195	19	.0195		40
P_2			.040		117			.0390		95
P_3			.060		256			.0585		204
P_4			.080		375			.0780		313
P_5			.100		461			.0975		396
P_6			.120		521			.1170		464
P_7			.140		569			.1365		511
P_8			.160		606			.1560		550
P_9			.180		636			.1755		582
P_{10}			.200		658			.1950		608

Gauge No. 228	Depth 3417'	Clock 12 hour	

P_0	.000	36	.000		36	.000	42	.000		39
P_1	.230	36	.0205		61	.211	39	.0203		61
P_2			.0410		143			.0406		115
P_3			.0615		275			.0609		214
P_4			.0820		391			.0812		325
P_5			.1025		475			.1015		409
P_6			.1230		535			.1218		476
P_7			.1435		581			.1421		528
P_8			.1640		621			.1624		568
P_9			.1845		651			.1827		600
P_{10}			.2050		676			.2030		627
Reading Interval			3					3		Minutes

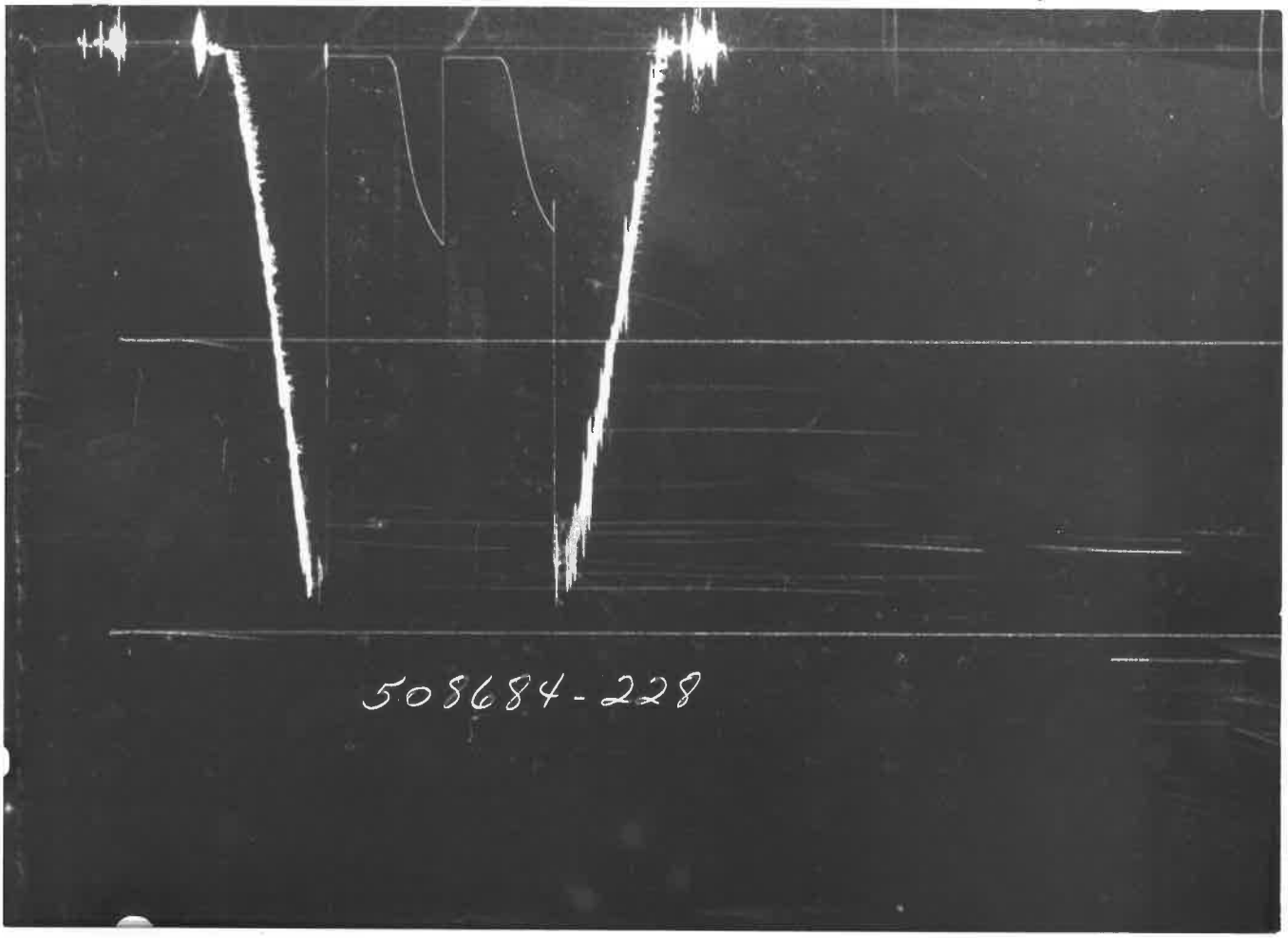
REMARKS:

SPECIAL PRESSURE DATA



PRESSURE

TIME



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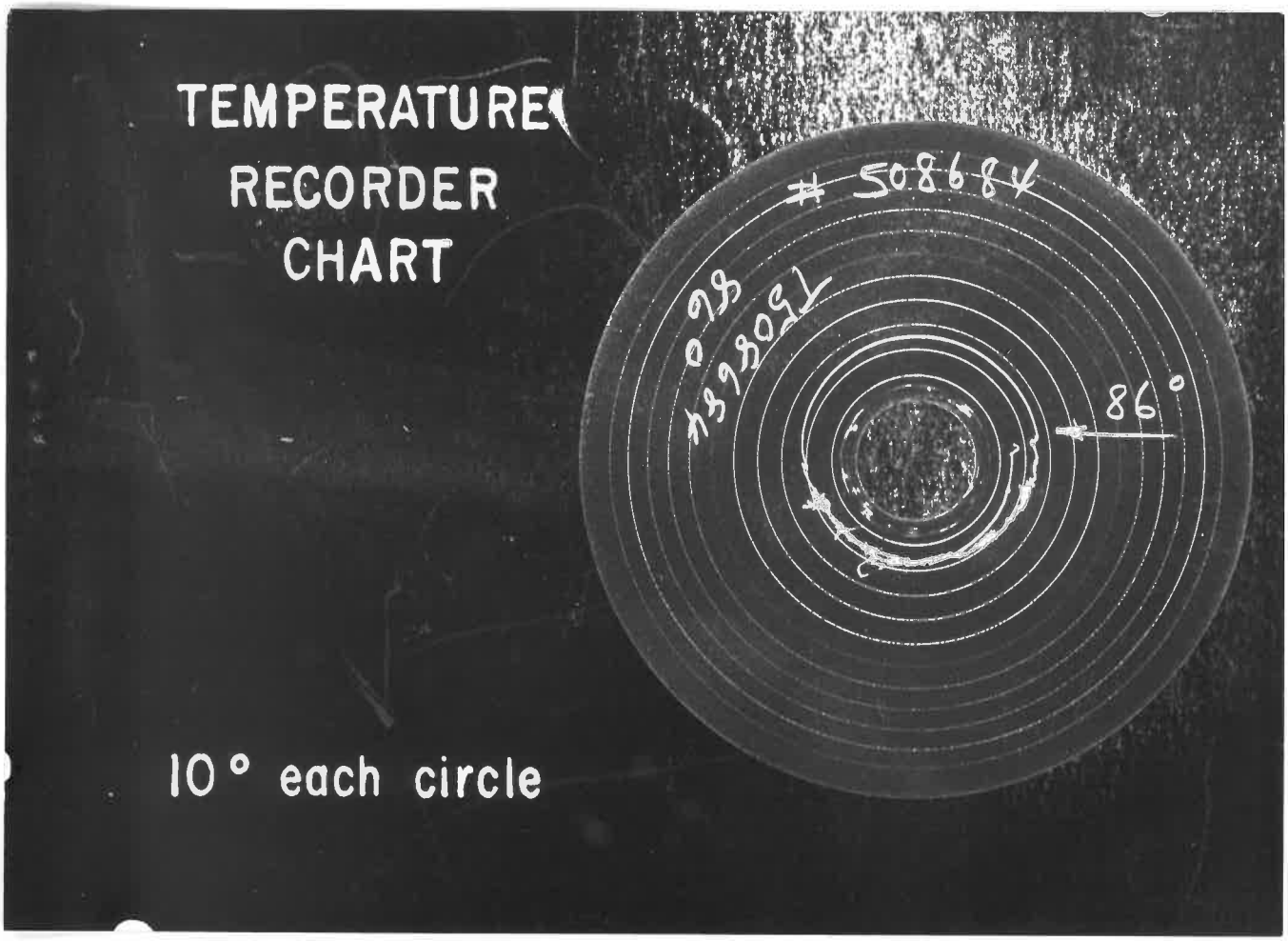
TEMPERATURE
RECORDER
CHART
508684
86°
10° each circle