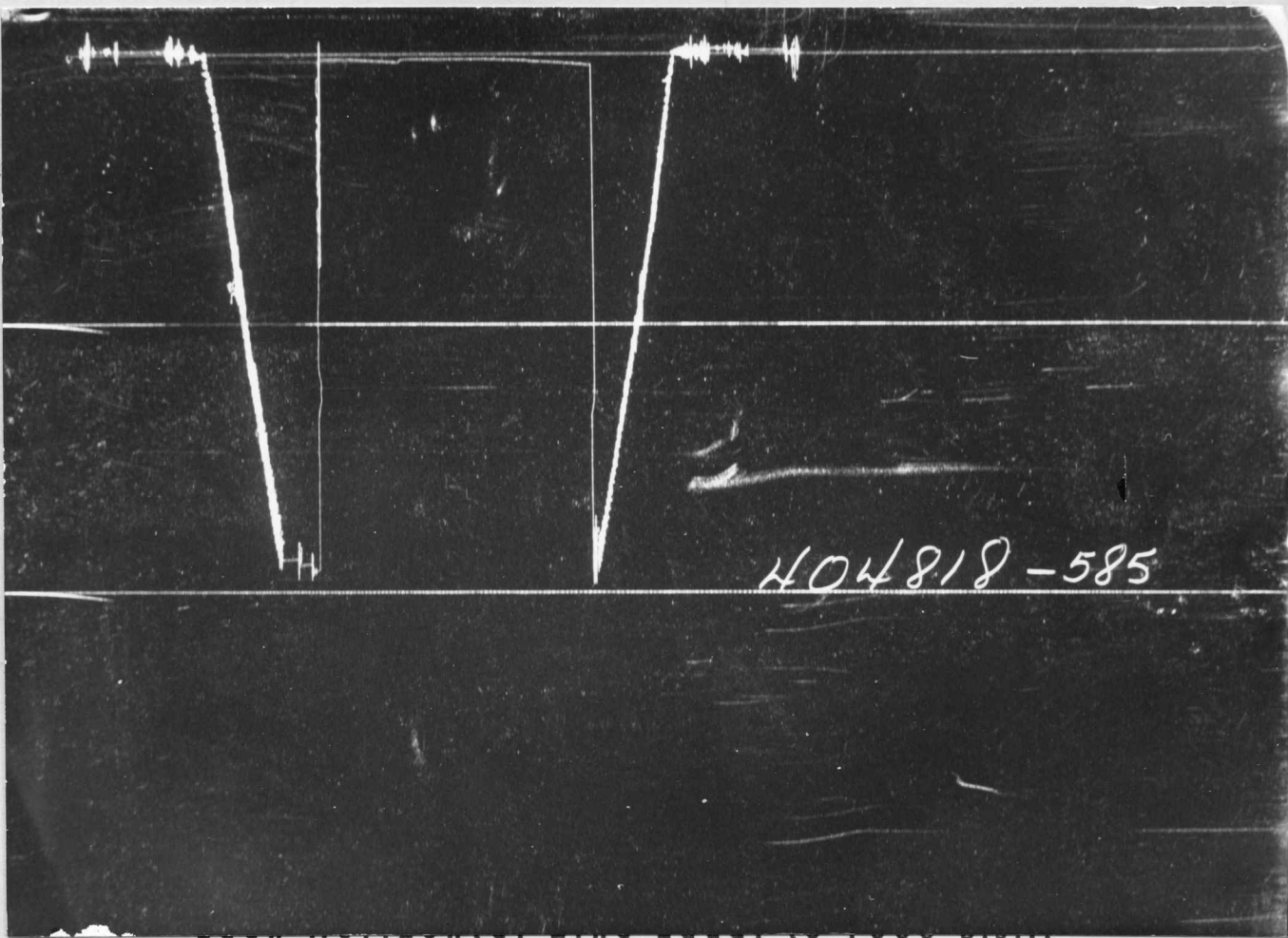


404818-1717

PRESSURE

TIME



404818-585

Flow Time	1st Min.	2nd Min.	Date	Ticket Number
15		45	9-27-63	404818
Closed In Press. Time	1st Min.	2nd Min.	Kind of Job	Halliburton District
30		60	Open Hole	Pratt
Pressure Readings	Field	Office Corrected	Tester	Witness
			Bill Thompson	Paul Willis John Hill
Depth Top Gauge	Ft.	Blanked Off	Drilling Contractor	
3555		no	Red Tiger Drlg Co.	
BT. P.R.D. No.	12 Hour Clock	Elevation	Top Packer	
1717		1543' GL	3570'	
Initial Hydro Mud Pressure	1880	Total Depth	Bottom Packer	
1910		3685'	3595'	
Initial Closed in Pres.	28	Interval Tested	Formation Tested	
		3570-3595'	Elgin	
Initial Flow Pres.	9	Casing or Hole Size	Casing Perfs. } Top	
		9"	Bot.	
Final Flow Pres.	17	Surface Choke	Bottom Choke	
		1"	5/8"	
Final Closed in Pres.	43	Size & Kind Drill Pipe	Drill Collars Above Tester	
		4 1/2"	I.D. - LENGTH	
Final Hydro Mud Pressure	1884	Mud Weight	Mud Viscosity	
		10.1	38	
Depth Cen. Gauge	3587 Ft.	Temperature	Anchor Size & Length	
		105 °F Est. °F Actual	ID 2.87" OD 5" X 25'	
BT. P.R.D. No.	585	12 Hour Clock	Depths Mea. From	Depth of Tester Valve
			Kelly Bushing	3545 Ft.
Initial Hydro Mud Pres.	1910	1890	Cushion	Depth Back Pres. Valve
			TYPE AMOUNT	Ft.
Initial Closed in Pres.	34	30	Recovered	Feet of
Initial Flow Pres.	9	21	Recovered	Feet of mud
			7	
Final Flow Pres.	17	21	Recovered	Feet of
Final Closed in Pres.	43	39	Recovered	Feet of
Final Hydro Mud Pres.	1884	1869	Oil A.P.I. Gravity	Water Spec. Gravity
Depth Bot. Gauge	3582 Ft.	Blanked Off	Gas Gravity	Surface Pressure
		yes		psi
BT. P.R.D. No.	1715	12 Hour Clock	Tool Opened	Tool Closed
			7:03 A.M. P.M.	7:48 A.M. P.M.
Initial Hydro Mud Pres.	1949	1944	Remarks	
			On bottom 6:15. Open 6:18 with a weak	
Initial Closed in Pres.				
			blow. Closed at 6:33 for 30 mins. Reopen 7:03	
Initial Flow Pres.				
			with no blow. Closed for 60 mins at 7:48.	
Final Flow Pres.				
			Off bottom 8:48.	
Final Closed in Pres.	Hydrostatic Release	1823	No special reading adaptable.	
Final Hydro Mud Pres.	1932	1927		

Location NE 35 NE 33S NW 13W
 Lease Name HOLMES
 Well No. 1
 Test No. 1
 Field Area BARBER
 County KANSAS
 Lease Owner/Company Name CONTINENTAL OIL COMPANY
 State KANSAS
 Owner's District KANSAS

FORMATION TEST DATA

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

Flow Time	1st 15 Min.	2nd 60 Min.	Date	10-3-63	Ticket Number	404820 - S
Closed In Press. Time	1st 30 Min.	2nd 60 Min.	Kind of Job	OPEN HOLE	Halliburton District	GREAT BEND
Pressure Readings	Field	Office Corrected	Tester	THOMPSON	Witness	JOHN HILL & PAUL WILLIS
Depth Top Gauge	4546' Ft.	NO Blanked Off	Drilling Contractor	RED TIGER DRILLING COMPANY		
BT. P.R.D. No.	1717	12 Hour Clock	Elevation	1543' GL.	Top Packer	4506'
Initial Hydro Mud Pressure	2455	2513	Total Depth	4570'	Bottom Packer	4511'
Initial Closed in Pres.	1453	1457	Interval Tested	4511' - 4570'	Formation Tested	MISSISSIPPI
Initial Flow Pres.	478	1 735 2 718	Casing or Hole Size	9"	Casing Perfs. } Top - Bot. -	
Final Flow Pres.	358	1 470 2 372	Surface Choke	1"	Bottom Choke	5/8"
Final Closed in Pres.	1453	1454	Size & Kind Drill Pipe	4 1/2" F.H.	Drill Collars Above Tester	I.D. - LENGTH -
Final Hydro Mud Pressure	2438	2459	Mud Weight	10.1	Mud Viscosity	44
Depth Cen. Gauge	Ft.	Blanked Off	Temperature	115 °F Est. °F Actual	Anchor Size & Length	ID 2.87" OD 5" X 59'
BT. P.R.D. No.		Hour Clock	Depths Mea. From	-	Depth of Tester Valve	4586' Ft.
Initial Hydro Mud Pres.			Cushion	TYPE NONE AMOUNT Ft.	Depth Back Pres. Valve	- Ft.
Initial Closed in Pres.			Recovered	Feet of		
Initial Flow Pres.		1	Recovered	65' Feet of mud		
Final Flow Pres.		1	Recovered	Feet of		
Final Closed in Pres.		2	Recovered	Feet of		
Final Hydro Mud Pres.			Oil A.P.I. Gravity	-	Water Spec. Gravity	-
Depth Bot. Gauge	4566' Ft.	YES Blanked Off	Gas Gravity	UNKNOWN	Surface Pressure	0# psi
BT. P.R.D. No.	1715	12 Hour Clock	Tool Opened	6:53 AM	A.M. P.M. Tool Closed	7:53 AM A.M. P.M.
Initial Hydro Mud Pres.	2485	2548	Remarks	On bottom @ 6:06. Tool opened @ 6:08 with a strong blow. Gas to the surface in 2 minutes -		
Initial Closed in Pres.	1467	1469		3120. MCF. Took closed @ 6:23. Rotated tool for a		
Initial Flow Pres.	510	1 739 2 695		30 minute initial closed in pressure. Tool re-opened @ 6:53 - 3120. MCF - last measurement was 2740.		
Final Flow Pres.	383	1 513 2 391		Tool closed @ 7:53. Took a 60 minute final closed in pressure. Tool off bottom @ 8:53.		
Final Closed in Pres.	1467	1464				
Final Hydro Mud Pres.	-	2503				

FORMATION TEST DATA

5

Legal Location Sec. - Twp. - Rng. NE NE NW - 35 - 33S - 13W
 Lease Name HOWLERS
 Well No. 1
 Test No. 2
 Field Area
 County BARBER
 Lease Owner/Company Name CONTINENTAL OIL COMPANY
 State KANSAS
 Owner's District MAANDAS

Gauge No. 1717		Depth 4546'			Clock 12 hour		Ticket No. 404820		
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	.000 735 *	.000	-----	470	.000	718 *	.000	-----	372
P ₁	.019 613	.0214	.736	1129	.103	467	.0422	1.114	1114
P ₂	.038 555	.0428	.508	1214	.206	401	.0844	.846	1319
P ₃	.057 542	.0642	.394	1352	.309	379	.1266	.699	1397
P ₄	.076 512	.0856	.324	1360	.412	372	.1688	.602	1439
P ₅	.095 470	.1070	.276	1403			.2110	.532	1450
P ₆		.1284	.241	1431			.2532	.477	1451
P ₇		.1498	.213	1447			.2954	.434	1452
P ₈		.1712	.192	1454			.3376	.398	1452
P ₉		.1926	.174	1455			.3798	.368	1452
P ₁₀		.214	.160	1457			.422	.343	1454

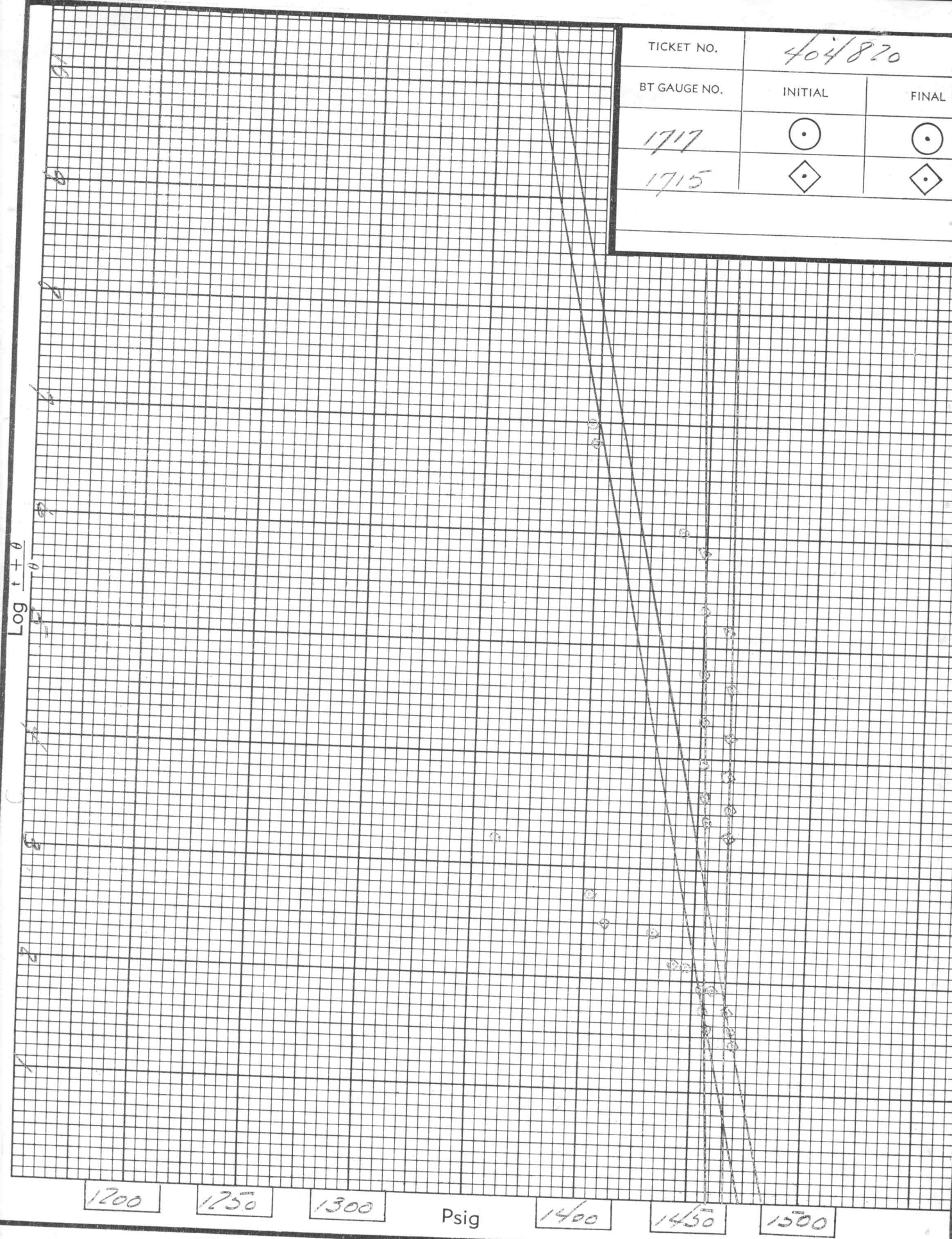
Gauge No. 1715		Depth 4566'			Clock 12 hour				
Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.
P ₀	.000 739 *	.000	-----	513	.000	695 *	.000	-----	391
P ₁	.0164 627	.0211	.689	1081	.0983	481	.0416	1.094	1083
P ₂	.0328 606	.0422	.469	1209	.1966	419	.0832	.827	1283
P ₃	.0492 568	.0633	.361	1298	.2949	398	.1248	.682	1399
P ₄	.0656 536	.0844	.295	1364	.393	391	.1664	.586	1449
P ₅	.082 513	.1055	.250	1410			.2080	.516	1461
P ₆		.1266	.217	1442			.2496	.463	1463
P ₇		.1477	.192	1459			.2912	.420	1463
P ₈		.1688	.172	1466			.3328	.385	1463
P ₉		.1899	.156	1468			.3744	.356	1464
P ₁₀		.211	.143	1469			.416	.331	1464

Reading Interval 3 3 15 6 Minutes

REMARKS: * QUESTIONABLE.

SPECIAL PRESSURE DATA

TICKET NO.	404820	
BT GAUGE NO.	INITIAL	FINAL
1717	○	○
1715	◇	◇



EXTRAPOLATED PRESSURE GRAPH

Gas Production

B.T. Gauge Numbers		1717	1715	Ticket Number	404820	
Initial Hydrostatic		PRESSURE	PRESSURE	Elevation	1543 ft.	
		2513	2548			
Final Hydrostatic		2459	2503	Production Intial	3120 m cu. ft.	
1st Flow	Initial	Time	735	739	Rate Final	2740 m cu. ft.
	Final	15	470	513	Hole Size	9 in.
Initial Closed In Pressure		30	1457	1469	Footage Tested	10 NET ft.
2nd Flow	Initial	---	718	695	Mud Weight	10.1 lbs. gal.
	Final	60	372	391	Gas Viscosity	0.016 cp
Final Closed In Pressure		60	1454	1464	Gas Gravity	0.70
Extrapolated Static Pressure	Initial		1473	1483	Gas Compressibility	0.83
	Final		1458	1466		
Slope $P_{1717} - P_{1715}$ $P=10$	Initial		1369	1379		
	Final		1344	1460		

Remarks:

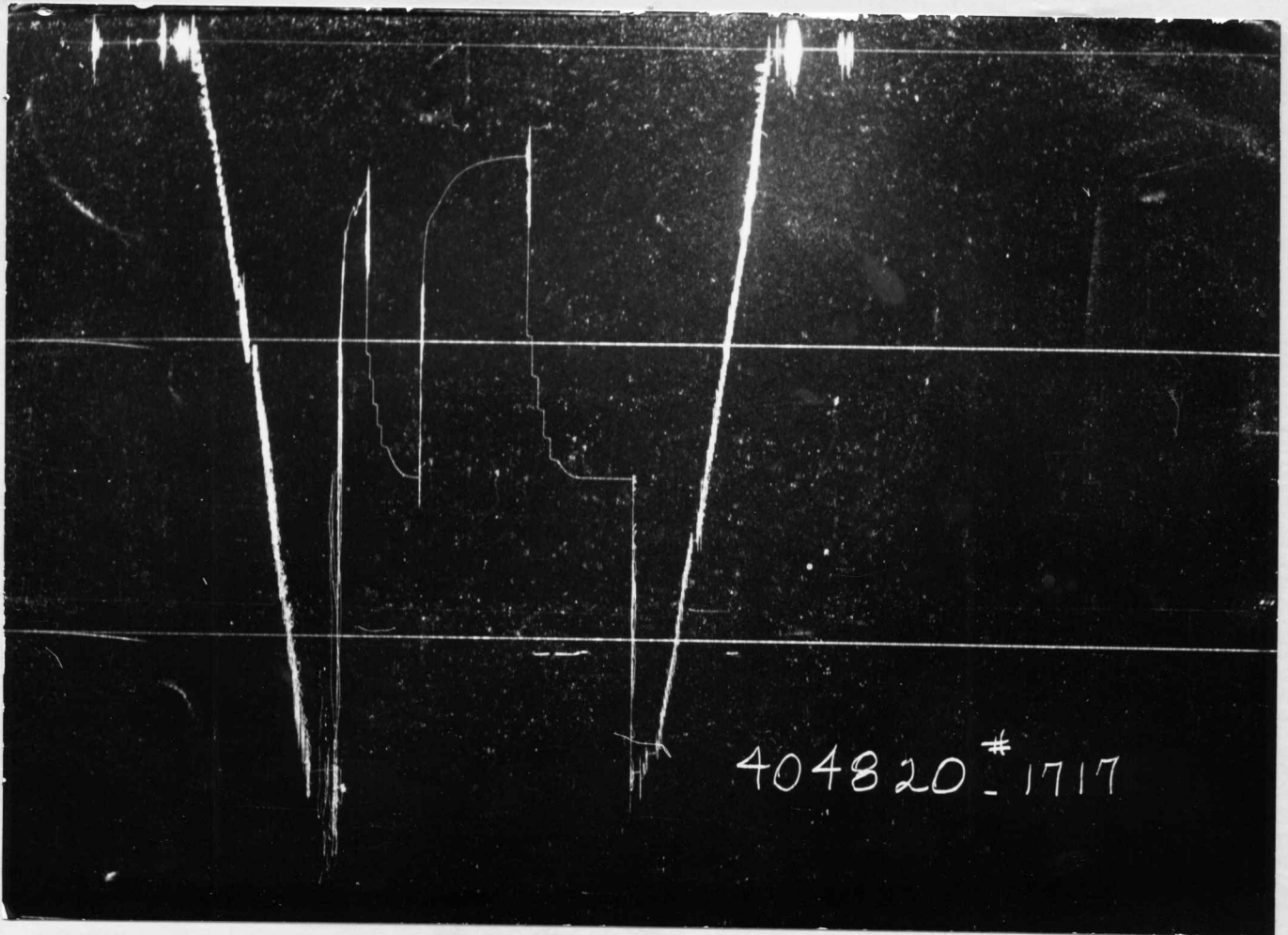
SUMMARY

Product	Equation	BT Gauge Number Depth 1717 - 4546'		BT Gauge Number Depth 1715 - 4566'		Units
		Initial	Final	Initial	Final	
Transmissability	$\frac{Kh}{\mu} = \frac{1637 Q_g ZT}{m}$	8246.9	6701.5	8189.3		md. ft. / cp
Theoretical Flow Capacity	$Kh = \frac{Kh}{\mu} \mu$	131.9	107.2	131.0		md. ft.
Average Effective Permeability	$K = \frac{Kh}{h}$					md.
Indicated Flow Capacity	$(Kh)_2 = \frac{3200 Q_g \mu ZT \text{Log}(0.472 b/r_w)}{P_s^2 - P_r^2}$	51.4	54.0	49.5		md. ft.
Damage Ratio	$DR = \frac{\text{Theo. Flow Cap}}{\text{Indicated Flow Cap}} \frac{Kh}{(Kh)_2}$	2.6	2.0	2.6		—
Indicated Flow Rate	$OF_1 = \frac{Q_g P_s^2}{P_s^2 - P_r^2} \text{ Max.}$	3550.7	2952.3	3468.4		MCFD
	$OF_2 = \frac{Q_g P_s}{\sqrt{P_s^2 - P_r^2}} \text{ Min.}$	3328.4	2844.2	3289.6		MCFD
Theoretical Potential Rate	$OF_3 = OF_1 DR \text{ Max.}$	9110.1	5862.7	9180.5		MCFD
	$OF_4 = OF_2 DR \text{ Min.}$	8539.8	5647.9	8707.3		MCFD
Approx. Radius of Investigation	$b \approx \sqrt{Kt} \text{ or } \sqrt{Kt_0}$					ft.
	$b_1 \approx \sqrt{K_1 t} \text{ or } \sqrt{K_1 t_0}$	14.4	28.7	14.4		ft.
Potentiometric Surface *	$\text{Pot.} = (EI - GD) + (2.319 P_s)$	362.9	328.1	416.1		ft.

NOTICE: These calculations are based upon information furnished by you and taken from Drill Stem Test pressure charts, and are furnished you for your information. In furnishing such calculations and evaluations based thereon, Halliburton is merely expressing its opinion. You agree that Halliburton makes no warranty express or implied as to the accuracy of such calculations or opinions, and that Halliburton shall not be liable for any loss or damage, whether due to negligence or otherwise, in connection with such calculations and opinions.

INTERPRETATIONS AND CALCULATIONS

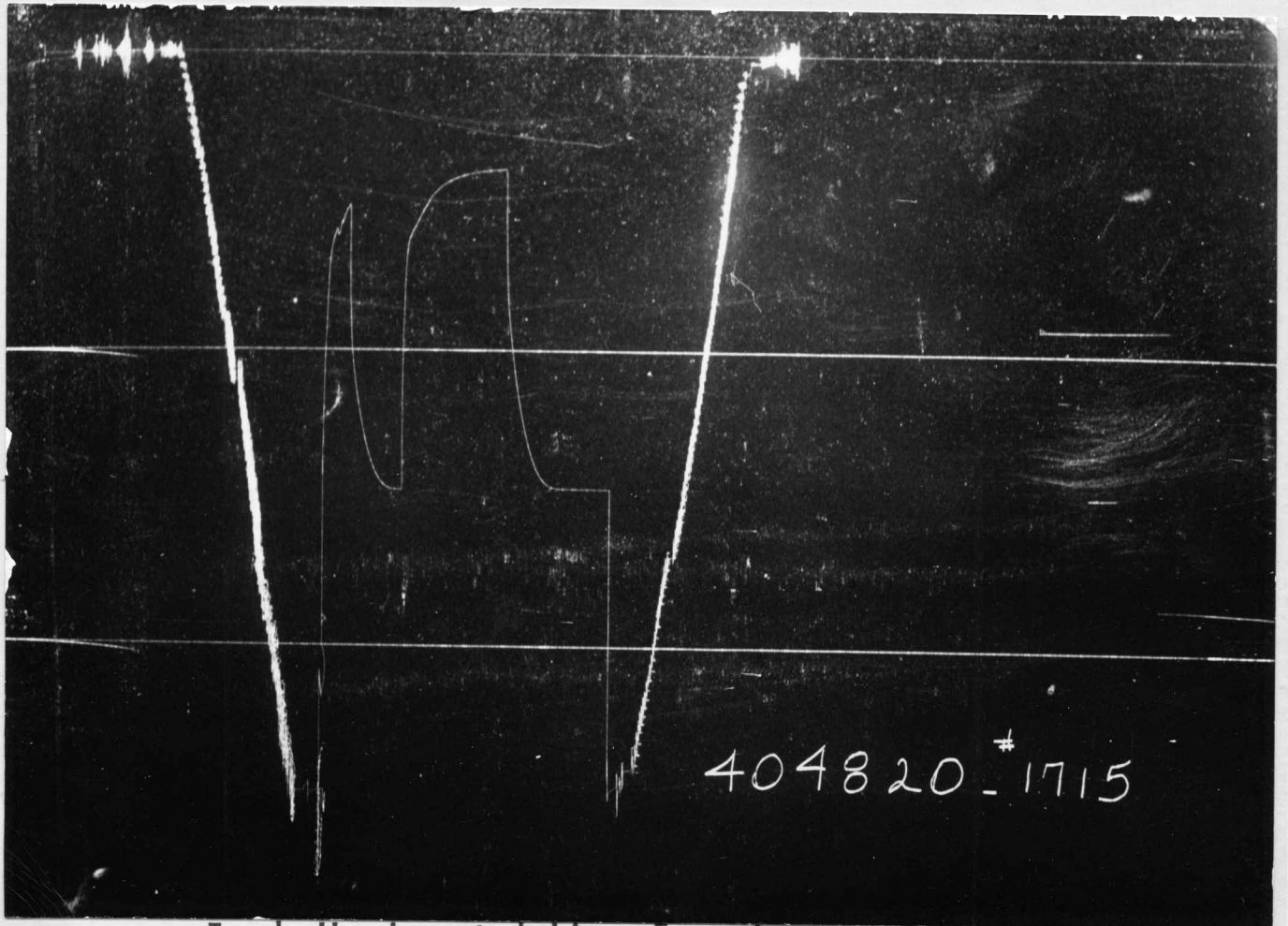
↑
PRESSURE
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404820-1717

← TIME →

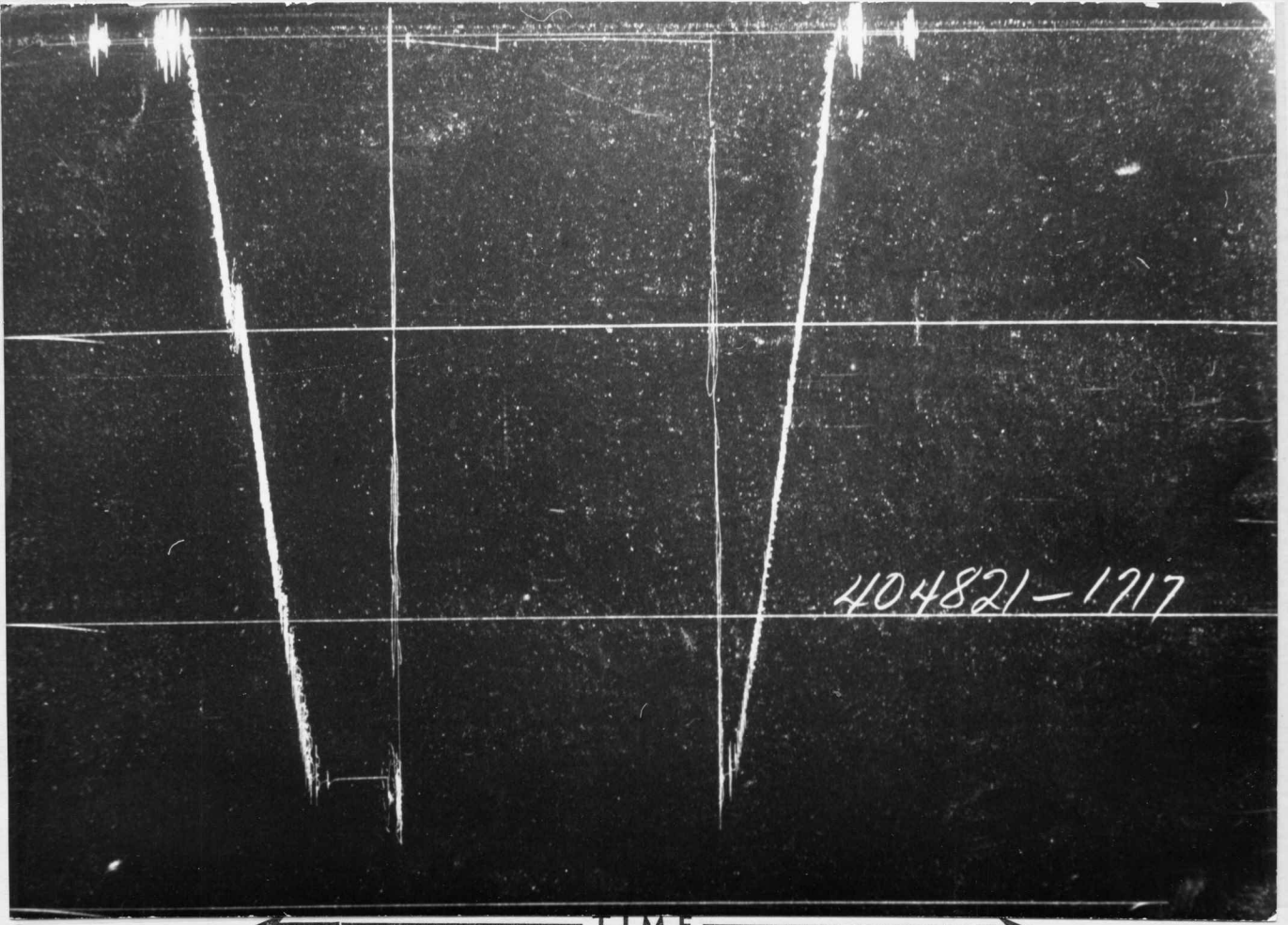
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PRESSURE
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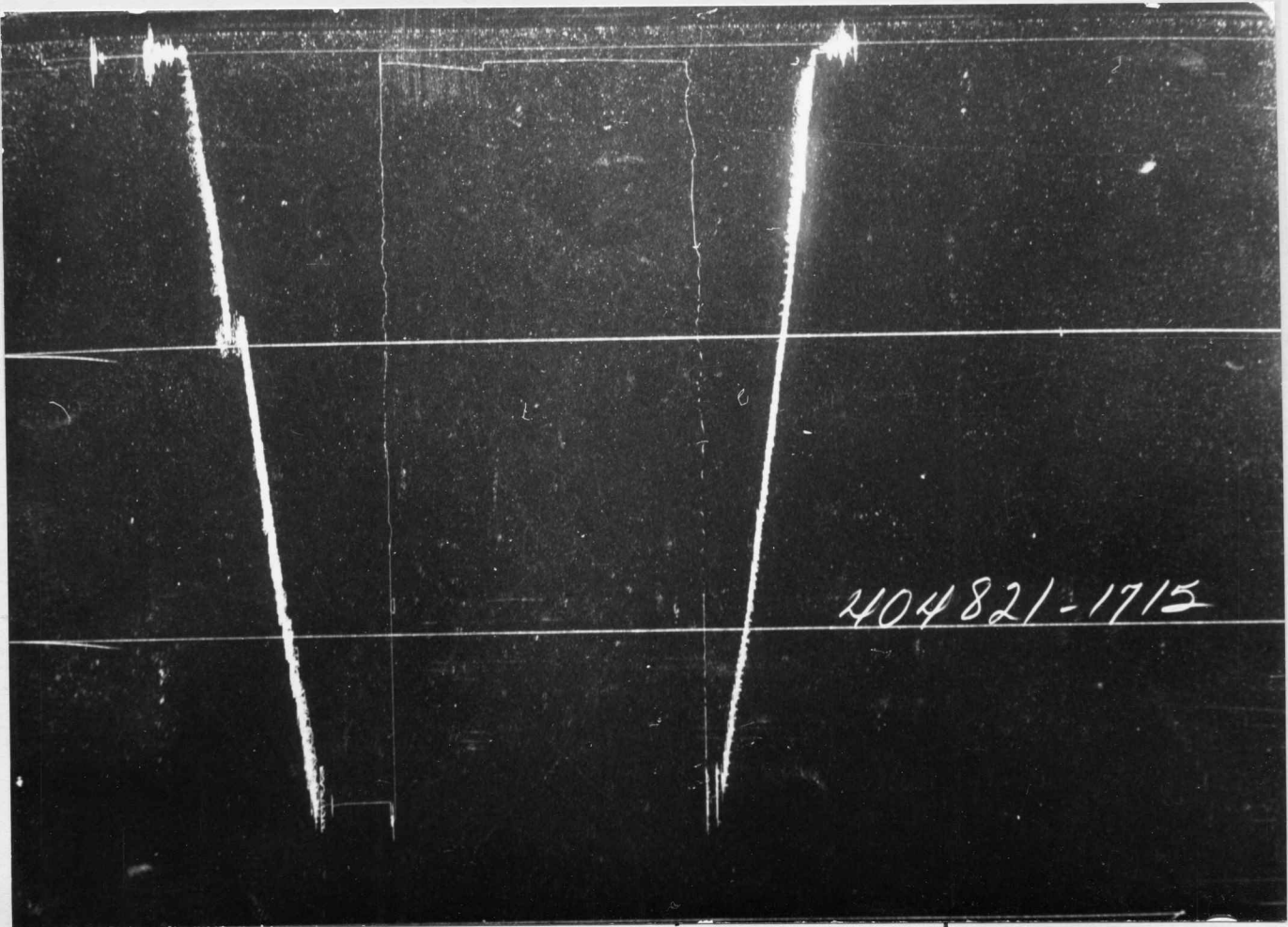
404820-1715

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

PRESSURE



404821-1717



404821-1715

Flow Time	1st 10 Min.	2nd 50 Min.	Date	10-5-63	Ticket Number	404821
Closed In Press. Time	1st 60 Min.	2nd 60 Min.	Kind of Job	Open Hole	Halliburton District	Pratt
Pressure Readings	Field	Office Corrected	Tester	B.G. Thompson	Witness	John Hill
Depth Top Gauge	4660 Ft.	no Blanked Off	Drilling Contractor	Red Tiger Drllg Co.		
BT. P.R.D. No.	1717	12 Hour Clock	Elevation	1543' GL	Top Packer	4670'
Initial Hydro Mud Pressure	2542	2544	Total Depth	4716'	Bottom Packer	4675'
Initial Closed in Pres.	51	45	Interval Tested	4675-4716'	Formation Tested	Miss.
Initial Flow Pres.	9	1 16 2 17	Casing or Hole Size	9"	Casing Perfs.	Top Bot.
Final Flow Pres.	17	1 16 2 17	Surface Choke	1"	Bottom Choke	5/8"
Final Closed in Pres.	26	31	Size & Kind Drill Pipe	4 1/2" FH	Drill Collars Above Tester	I.D. - LENGTH
Final Hydro Mud Pressure	2524	2544	Mud Weight	10.2	Mud Viscosity	42
Depth Cen. Gauge		Blanked Off	Temperature	116°	Anchor Size & Length	ID 2.87" X OD 5" 41'
BT. P.R.D. No.		Hour Clock	Depths Mea. From	Kelly Bushing	Depth of Tester Valve	4650 Ft.
Initial Hydro Mud Pres.			TYPE	AMOUNT	Depth Back Pres. Valve	Ft.
Initial Closed in Pres.			Cushion		Recovered	Feet of
Initial Flow Pres.			Recovered	7	Recovered	Feet of mud
Final Flow Pres.			Recovered		Recovered	Feet of
Final Closed in Pres.			Recovered		Recovered	Feet of
Final Hydro Mud Pres.			Oil A.P.I. Gravity		Water Spec. Gravity	
Depth Bot. Gauge	4712 Ft.	yes Blanked Off	Gas Gravity		Surface Pressure	psi
BT. P.R.D. No.	1715	12 Hour Clock	Tool Opened	7:14	A.M. P.M.	Tool Closed 8:14 A.M. P.M.
Initial Hydro Mud Pres.	2571	2571	Remarks	On bottom 6:12. Open tool at 6:14 with		
Initial Closed in Pres.	76	72		a weak blow. Closed at 6:14 for 60 mins		
Initial Flow Pres.	34	1 43 2 43		Reopen tool at 7:14 with no blow. Closed		
Final Flow Pres.	42	1 43 2 43		at 8:14 for 60 mins. Off bottom 9:14.		
Final Closed in Pres.	51	55		No special reading adaptable.		
Final Hydro Mud Pres.	2536	2571				

HOLMES
 Lease Name
 Well No. 1
 Test No. 3
 Field Area
 County BARBER
 State KANSAS
 Owner's District
 CONTINENTAL OIL COMPANY
 Lease Owner/Company Name

FORMATION TEST DATA

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

Flow Time	1st Min.	2nd Min.	Date	Ticket Number
10	60	10-10-63	404822-S	
Closed In Press. Time	1st Min.	2nd Min.	Kind of Job	Halliburton District
45	60	OPEN HOLE TEST	PRATT	
Pressure Readings	Field	Office Corrected	Tester	Witness
			MR. THOMPSON	MR. HILL
Depth Top Gauge	4964 Ft.	NO Blanked Off	Drilling Contractor	RED TIGER DRILLING COMPANY
BT. P.R.D. No.	1717	12 Hour Clock	Elevation	1543' G.L. Top Packer 4974'
Initial Hydro Mud Pressure	2716	2748	Total Depth	5038' Bottom Packer 4979'
Initial Closed in Pres.	1583	1576	Interval Tested	4979'-5038' Formation Tested SIMPSON
Initial Flow Pres.	- 1 20	17 2 24	Casing or Hole Size	9" Casing } Top
Final Flow Pres.	- 1 21	26 2 23	Surface Choke	1" Bottom Choke 5/8"
Final Closed in Pres.	990	1000	Size & Kind Drill Pipe	4 1/2" F.H. Drill Collars Above Tester - I.D. - LENGTH
Final Hydro Mud Pressure	2699	2737	Mud Weight	10.1 Mud Viscosity 47
Depth Cen. Gauge	Ft.	Blanked Off	Temperature	119 °F Est. Anchor Size ID 2.87" & Length OD 5.00" X 59'
BT. P.R.D. No.		Hour Clock	Depths Mea. From	KELLY BUSHINGS Depth of Tester Valve 4954' Ft.
Initial Hydro Mud Pres.			Cushion	- Ft. Depth Back Pres. Valve - Ft.
Initial Closed in Pres.			Recovered	20 Feet of Mud
Initial Flow Pres.	1 2		Recovered	Feet of
Final Flow Pres.	1 2		Recovered	Feet of
Final Closed in Pres.			Recovered	Feet of
Final Hydro Mud Pres.			Oil A.P.I. Gravity	- Water Spec. Gravity -
Depth Bot. Gauge	5034 Ft.	Blanked Off YES	Gas Gravity	- Surface Pressure - psi
BT. P.R.D. No.	1715	12 Hour Clock	Tool Opened	1:23 A.M. Tool Closed 2:23 A.M. P.M.
Initial Hydro Mud Pres.	2761	2761	Remarks	Opened tool at 12:28 for 10 minute 1st flow with weak blow. Closed tool for 45 minute closed in pressure at 12:38. Reopened tool at 1:23 for 60 minute 2nd flow with very weak blow for 15 minutes. Closed tool at 2:23 for 60 minute final closed in pressure.
Initial Closed in Pres.	1622	1614		
Initial Flow Pres.	- 1 60	51 2 66		
Final Flow Pres.	- 1 62	60 2 59		
Final Closed in Pres.	1030	1024		
Final Hydro Mud Pres.	2744	2727		

Legal Location Sec. - Twp. - Rng. SEC. 35 - 33 - 13
 Lease Name HOLMES
 Well No. 1
 Test No. 4
 Field Area
 County BARBER
 State KANSAS
 Lease Owner/Company Name CONTINENTAL OIL COMPANY
 Owner's District KANSAS

FORMATION TEST DATA

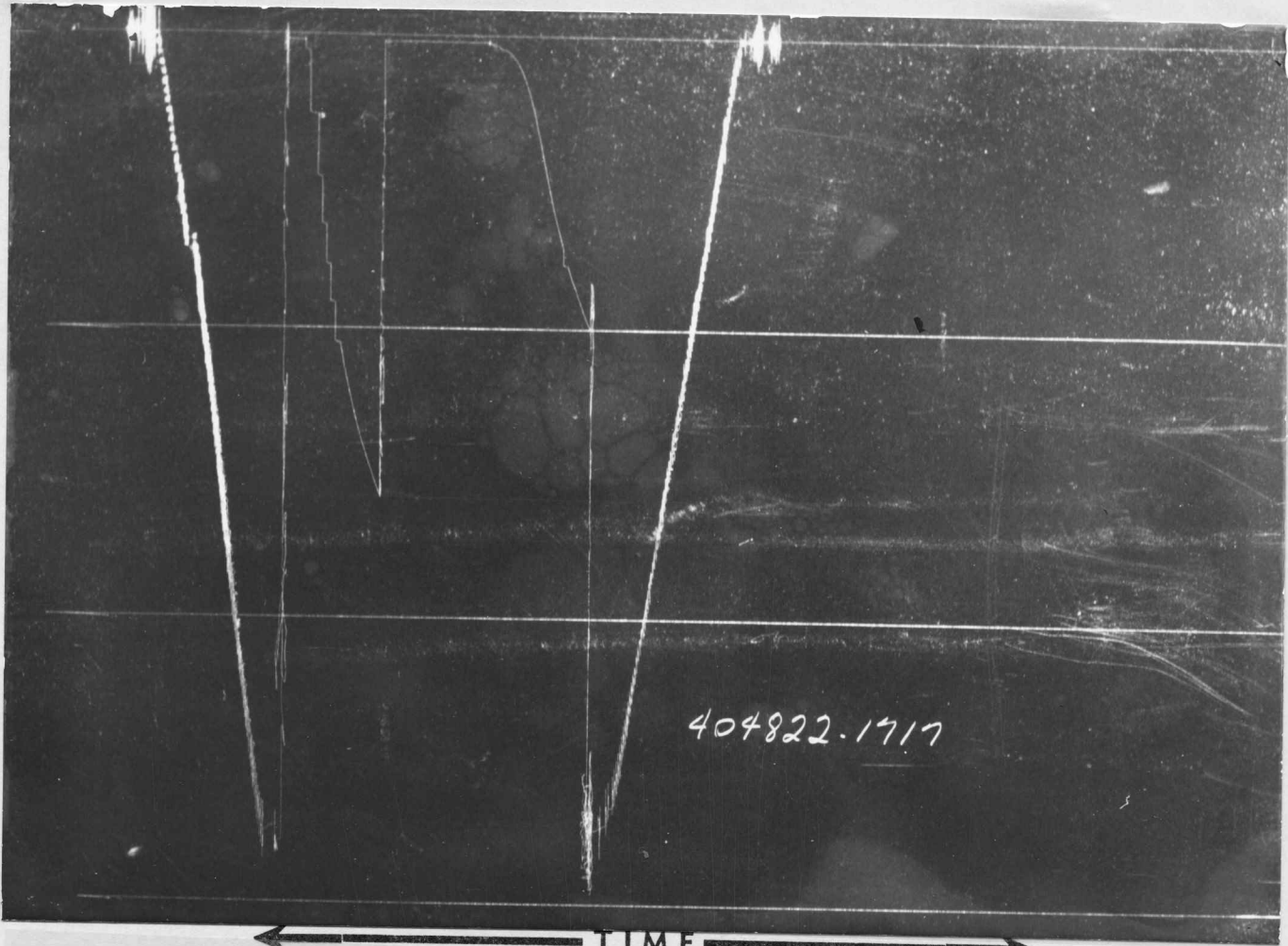
Gauge No. 1717		Depth 4964'		Clock 12 hour		Ticket No. 404822				
First Flow Period		Initial Closed In Pressure			Second Flow Period		Final Closed In Pressure			
Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{e}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{e}$	PSIG Temp. Corr.	
P ₀	.000	20	.000		21	.000	24	.000		23
P ₁	.072	21	.031		271	.420	23	.0413		36
P ₂			.062		486			.0826		58
P ₃			.093		785			.1239		107
P ₄			.124		917			.1652		205
P ₅			.155		1093			.2065		357
P ₆			.186		1226			.2478		533
P ₇			.217		1339			.2891		682
P ₈			.248		1427			.3304		813
P ₉			.279		1508			.3717		910
P ₁₀			.310		1576			.4130		1000

Gauge No. 1715		Depth 5034'		Clock 12 hour						
P ₀	.000	60	.000		62	.000	66	.000		59
P ₁	.070	62	.0299		183	.416	59	.0395		71
P ₂			.0598		413			.0790		96
P ₃			.0897		723			.1185		142
P ₄			.1196		935			.1580		238
P ₅			.1495		1118			.1975		395
P ₆			.1794		1255			.2370		560
P ₇			.2093		1367			.2765		719
P ₈			.2392		1457			.3160		843
P ₉			.2691		1543			.3555		941
P ₁₀			.2990		1614			.3950		1024
Reading Interval			4.5			6			Minutes	

REMARKS:

SPECIAL PRESSURE DATA

PRESSURE

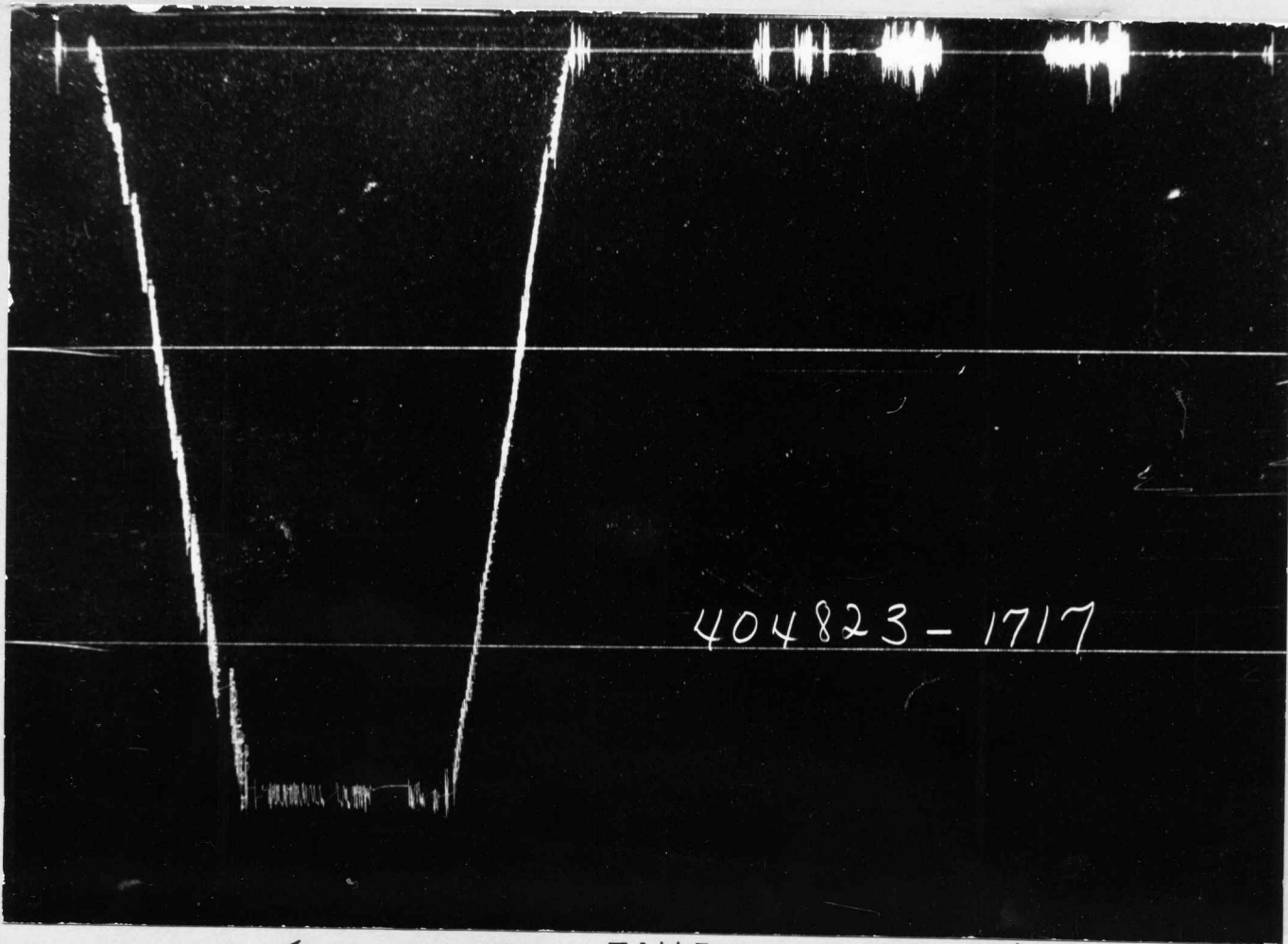


TIME



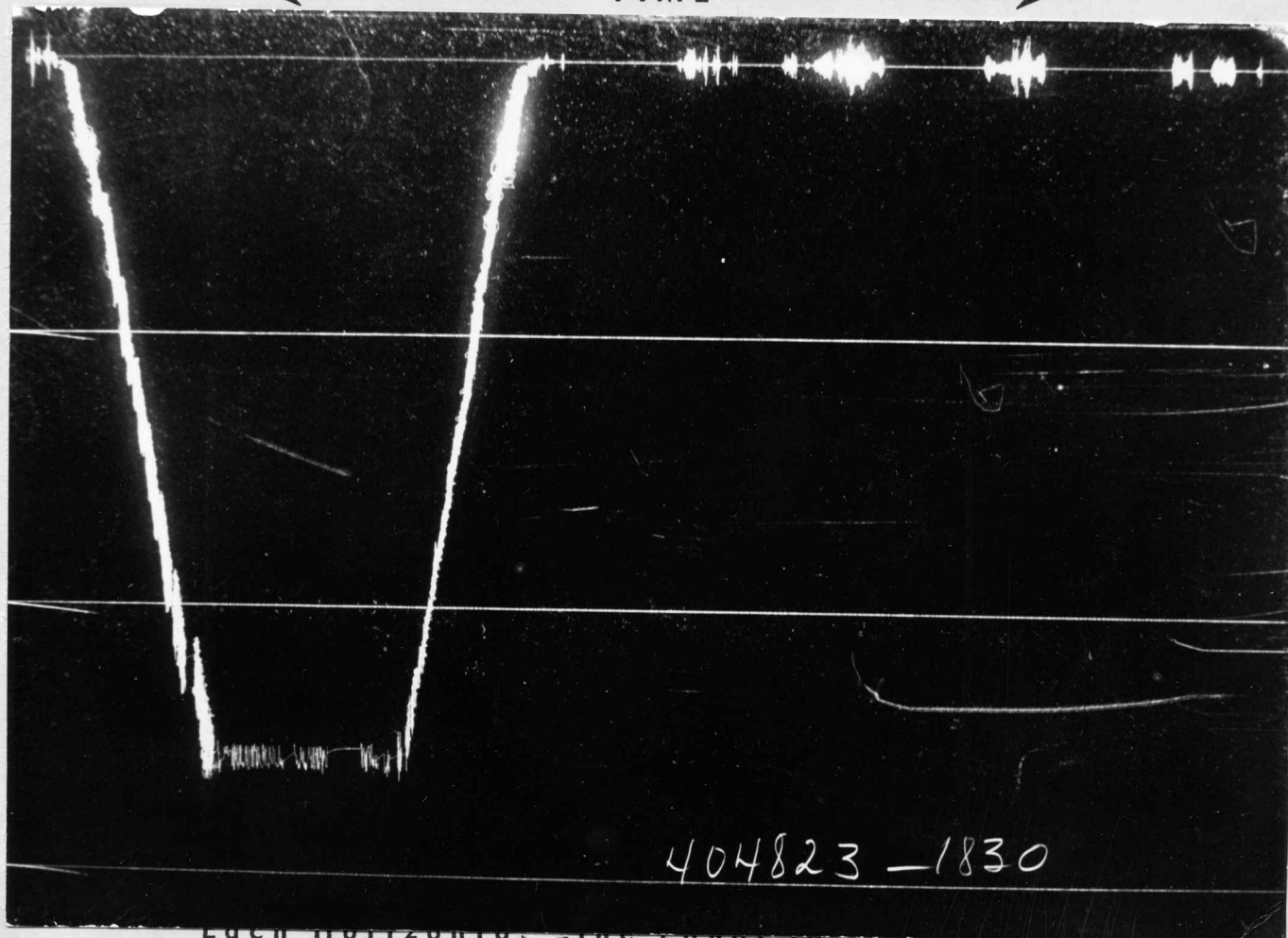
Each Horizontal Line Equal to 1000 p.s.i.

↑
PRESSURE
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404823-1717

← TIME →



404823-1830

Each horizontal line equal to 1000 psi.

Flow Time	1st Min.	2nd Min.		Date	Ticket Number
Closed In Press. Time	1st Min.	2nd Min.		10-11-63	404823
Pressure Readings	Field	Office Corrected		Kind of Job	Halliburton District
Depth Top Gauge	4488 Ft.	no Blanked Off		Open Hole	Pratt
BT. P.R.D. No.	1717	12 Hour Clock		Tester	Bill Thompson
Initial Hydro Mud Pressure		2488		Witness	John Hill
Initial Closed in Pres.		-		Drilling Contractor	Red Tiger
Initial Flow Pres.		1		Elevation	1543' GL
Final Flow Pres.		2		Top Packer	4498'
Final Closed in Pres.		1		Bottom Packer	4502'
Final Hydro Mud Pressure		2		Total Depth	5038'
Depth Cen. Gauge	4576 Ft.	- Blanked Off		Interval Tested	4502-4580'
BT. P.R.D. No.	1830	12 Hour Clock		Formation Tested	Miss.
Initial Hydro Mud Pres.		2535		Casing or Hole Size	9"
Initial Closed in Pres.		-		Surface Choke	1"
Initial Flow Pres.		1		Size & Kind Drill Pipe	4 1/2" FH
Final Flow Pres.		2		Mud Weight	10.1
Final Closed in Pres.		-		Temperature	114 °F Est. °F Actual
Final Hydro Mud Pres.		2535		Anchor Size & Length	ID 2.87" OD 5" X 78'
Depth Bot. Gauge	4590 Ft.	yes Blanked Off		Depths Mea. From	Kelly Bushing
BT. P.R.D. No.	1715	12 Hour Clock		Cushion	
Initial Hydro Mud Pres.		2545		Recovered	Feet of
Initial Closed in Pres.		-		Recovered	Feet of
Initial Flow Pres.		1		Recovered	Feet of
Final Flow Pres.		2		Recovered	Feet of
Final Closed in Pres.		-		Oil A.P.I. Gravity	
Final Hydro Mud Pres.		2545		Water Spec. Gravity	
Depth Bot. Gauge	4590 Ft.	yes Blanked Off		Gas Gravity	psi
BT. P.R.D. No.	1715	12 Hour Clock		Tool Opened	A.M. P.M.
Initial Hydro Mud Pres.		2545		Tool Closed	A.M. P.M.
Initial Closed in Pres.		-		Remarks	Misrun: On bottom at 4:40.
Initial Flow Pres.		1			Hookwall would not hook.
Final Flow Pres.		2			Start out at 7:00 AM.
Final Closed in Pres.		1			
Final Hydro Mud Pres.		2			
Final Hydro Mud Pres.		2545			

Legal Location
Sec. - Twp. - Rng.

NE NE NW 35-33-13

Field Area

County

BARBER

State

KANSAS

HOLMES

Lease Name

Well No.

Test No.

CONTINENTAL OIL COMPANY

Lease Owner/Company Name

KANSAS

Owner's District

FORMATION TEST DATA

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