	1st Min.	2nd Min.
Flow Time	4	60
Closed In Press. Time	30	30
Pressure Readings	Field	Office Corrected
Depth Top Gauge	4410' Ft.	NO Blanked Off
BT. P.R.D. No.	291	12 Hour Clock
Initial Hydro Mud Pressure	2420	2489
Initial Closed in Pres.	1545	1541
Initial Flow Pres.	10 (1)	16
	10 (2)	33
Final Flow Pres.	20 (1)	18
	25 (2)	35
Final Closed in Pres.	745	767
Final Hydro Mud Pressure	2410	2441
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	4482' Ft.	YES Blanked Off
BT. P.R.D. No.	537	12 Hour Clock
Initial Hydro Mud Pres.	2435	2513
Initial Closed in Pres.	1560	1566
Initial Flow Pres.	35 (1)	51
	35 (2)	67
Final Flow Pres.	55 (1)	51
	65 (2)	67
Final Closed in Pres.	770	787
Final Hydro Mud Pres.	2425	2481

Date	11-23-62	Ticket Number	313265 - S
Kind of Job	OPEN HOLE	Halliburton District	PRATT
Tester	SHAUERS	Witness	ELSTER
Drilling Contractor	TERREL DRILLING AND EXPLORATION		
Elevation	2175' EST.	Top Packer	4418'
Total Depth	4485'	Bottom Packer	4422'
Interval Tested	4422' - 4485'	Formation Tested	KANSAS CITY
Casing or Hole Size	7 7/8"	Casing Perfs. Top	-
		Casing Perfs. Bot.	-
Surface Choke	1"	Bottom Choke	5/8"
Size & Kind Drill Pipe	4½" API F.H.	Drill Collars Above Tester (I.D. - LENGTH)	2¼" - 180' 360' WT. PIPE
Mud Weight	9.95	Mud Viscosity	46
Temperature	°F Est. 119 °F Actual	Anchor Size & Length	ID 3.87" 31.50 DP OD 5" 31.50 PERF.
Depths Mea. From	KELLY BUSHING	Depth of Tester Valve	4406' Ft.
Cushion (TYPE / AMOUNT)	NONE Ft.	Depth Back Pres. Valve	- Ft.
Recovered	30' Feet of	mud	
Recovered	Feet of		
Recovered	Feet of		
Recovered	Feet of		
Oil A.P.I. Gravity	-	Water Spec. Gravity	-
Gas Gravity	-	Surface Pressure	0# psi
Tool Opened	11:03 A.M. P.M.	Tool Closed	12:37 A.M. P.M.

Mea. From Tester Valve

Remarks: Tool opened @ 11:03 with a very weak blow for a 4 minute first flow. Tool closed @ 11:07. Rotated tool for a 30 minute initial closed in pressure. Tool re-opened @ 11:37 with no blow. Tool closed @ 12:37. Took a 30 minute final closed in pressure. Off bottom @ 1:07.

Legal Location Sec. - Twp. - Rng.: C-NW-NW - 26 - 27 - 18

Lease Name: BISSETT | Well No.: 1 | Test No.: 1

Lease Owner/Company Name: TERREL DRILLING AND PROD.

Field Area: - | County: KIOWA | State: KANSAS | Owner's District: KANSAS

FORMATION TEST DATA

5

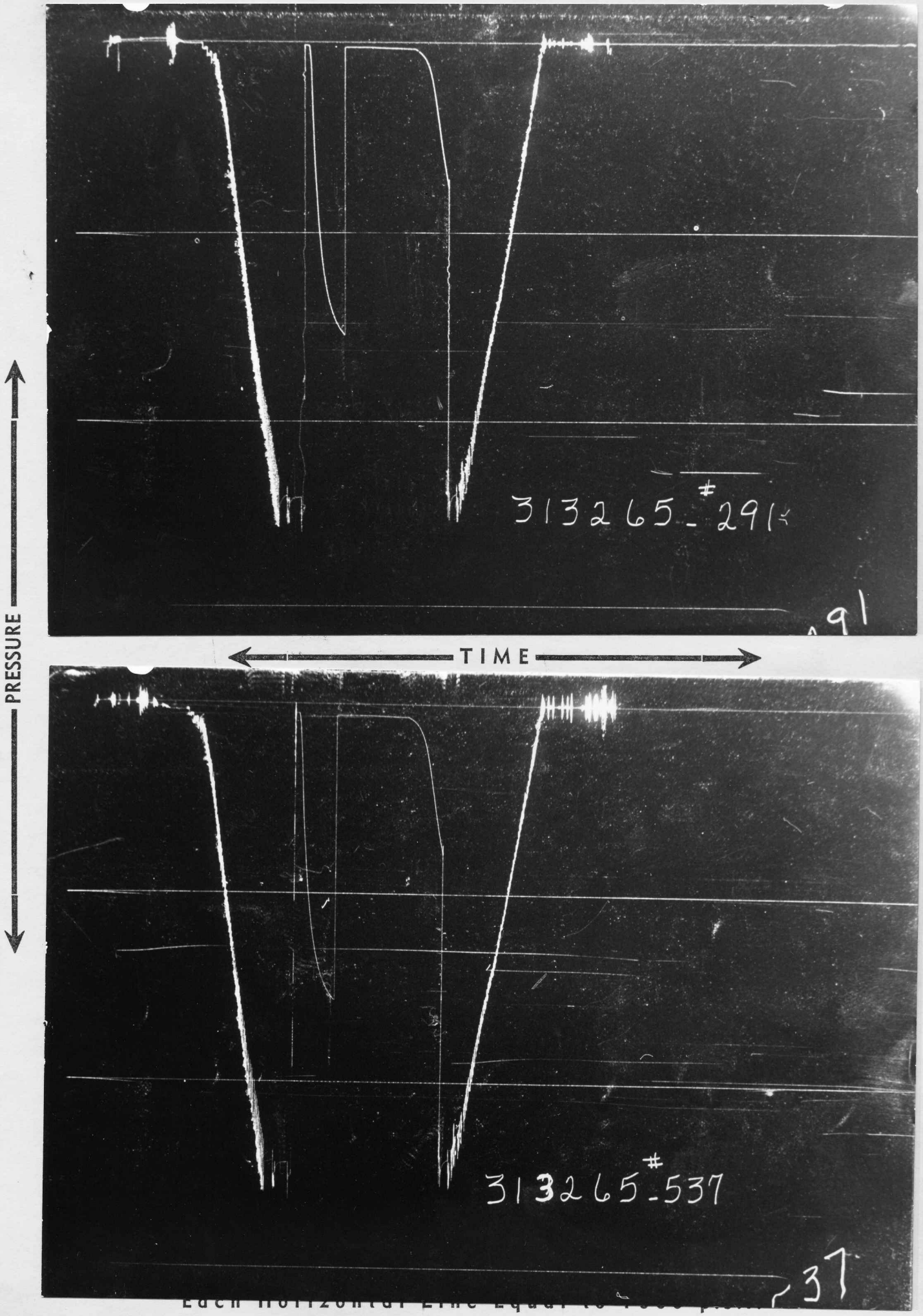
Gauge No.	291	Depth	4410'	Clock	12 hour	Ticket No.	313265

	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	16	.000		18	.000	33	.000		35
P_1	.025	18	.0213		293	.413	35	.0202		46
P_2			.0426		727			.0404		60
P_3			.0639		1008			.0606		83
P_4			.0852		1192			.0808		118
P_5			.1065		1304			.1010		178
P_6			.1278		1389			.1212		280
P_7			.1491		1446			.1414		406
P_8			.1704		1486			.1616		538
P_9			.1917		1517			.1818		661
P_{10}			.213		1541			.202		767

Gauge No.	537	Depth	4482'	Clock	12 hour		
P_0	.000	51	.000		51	.000	67	.000		67
P_1	.024	51	.0223		334	.1055	61	.0213		78
P_2			.0446		763	.2110	62	.0426		93
P_3			.0669		1042	.3165	64	.0639		115
P_4			.0892		1220	.422	67	.0852		154
P_5			.1115		1330			.1065		215
P_6			.1338		1414			.1278		309
P_7			.1561		1473			.1491		431
P_8			.1784		1514			.1704		569
P_9			.2007		1546			.1917		685
P_{10}			.223		1566			.213		787
Reading Interval			3			15		3		Minutes

REMARKS: ALL READINGS ARE QUESTIONABLE DUE TO SPLIT STYLUS POINT.
ON B.T. # 291

SPECIAL PRESSURE DATA


313265 # 291
.91
PRESSURE
TIME
313265 # 537
37

	1st Min.	2nd Min.
Flow Time	10	120
Closed In Press. Time	30	30
Pressure Readings	Field	Office Corrected
Depth Top Gauge	4708 Ft.	NO Blanked Off
BT. P.R.D. No.	1715	12 Hour Clock
Initial Hydro Mud Pressure	2585	2576
Initial Closed in Pres.	1555	1551
Initial Flow Pres.	- / 75	1 89 / 2 87
Final Flow Pres.	- / 45	1 76 / 2 48
Final Closed in Pres.	1315	1315
Final Hydro Mud Pressure	2550	2562
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	4759 Ft.	YES Blanked Off
BT. P.R.D. No.	533	12 Hour Clock
Initial Hydro Mud Pres.	2595	2586
Initial Closed in Pres.	1545	1550
Initial Flow Pres.	- / 75	1 118 / 2 90
Final Flow Pres.	- / 45	1 84 / 2 53
Final Closed in Pres.	1315	1313
Final Hydro Mud Pres.	2565	2569

Date	11-26-62	Ticket Number	379232 S
Kind of Job	Open hole test	Halliburton District	Pratt
Tester	Thompson	Witness	Elster
Drilling Contractor	Terrel Drilling Company		
Elevation	2202'	Top Packer	4718'
Total Depth	4763'	Bottom Packer	4722'
Interval Tested	4722'-4763'	Formation Tested	Mississippi
Casing or Hole Size	7 7/8"	Casing Perfs. Top / Bot.	-
Surface Choke	1"	Bottom Choke	5/8"
Size & Kind Drill Pipe	4½" FH	Drill Collars Above Tester (I.D. - LENGTH)	-
Mud Weight	10.4	Mud Viscosity	44
Temperature	°F Est. / 116 °F Actual	Anchor Size & Length	ID 3.37" / OD 5.00" X -
Depths Mea. From	Kelly Bushings	Depth of Tester Valve	4703' Ft.
Cushion (TYPE / AMOUNT)	- Ft.	Depth Back Pres. Valve	- Ft.
Recovered	60 Feet of	Slightly gas cut mud	
Recovered	Feet of		
Recovered	Feet of		
Recovered	Feet of		
Oil A.P.I. Gravity	-	Water Spec. Gravity	-
Gas Gravity	-	Surface Pressure	460 psi
Tool Opened	3:58 A.M. / P.M.	Tool Closed	5:58 A.M. / P.M.

Remarks: Opened tool for 10 minute 1st flow.with good blow; gas to surface in 3 minutes. Maximum pressure 460 CF. Closed tool for 30 minute initial closed in pressure. Reopened tool for 120 minute 2nd flow. Closed tool for 30 minute final closed in pressure. 25' NET PAY.

Legal Location Sec. - Twp. - Rng.: SEC. 26 - 27 - 18

Lease Name: BISSETT

Well No.: 1

Test No.: 2

Lease Owner/Company Name: PENTAGON CORPORATION INCORPORATED

Owner's District: KANSAS

Field Area: -

County: KIOWA

State: KANSAS

FORMATION TEST DATA

Gauge No. 1715	Depth 4708'	Clock 12 hour	Ticket No. 379232

	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	89	.000	---	76	.000	87	.000	---	48
P_1	.0132	76	.0211	.616	1478	.142	67	.0211	1.648	1130
P_2	.0264	79	.0422	.409	1498	.284	57	.0422	1.357	1171
P_3	.0396	78	.0633	.310	1512	.426	55	.0633	1.190	1200
P_4	.0528	78	.0844	.251	1522	.568	52	.0844	1.075	1223
P_5	.0660	76	.1055	.211	1531	.710	50	.1055	.987	1242
P_6			.1266	.182	1537	.852	48	.1266	.917	1259
P_7			.1477	.160	1541			.1477	.858	1275
P_8			.1688	.143	1546			.1688	.809	1290
P_9			.1899	.130	1549			.1899	.766	1303
P_{10}			.2110	.118	1551			.2110	.728	1315

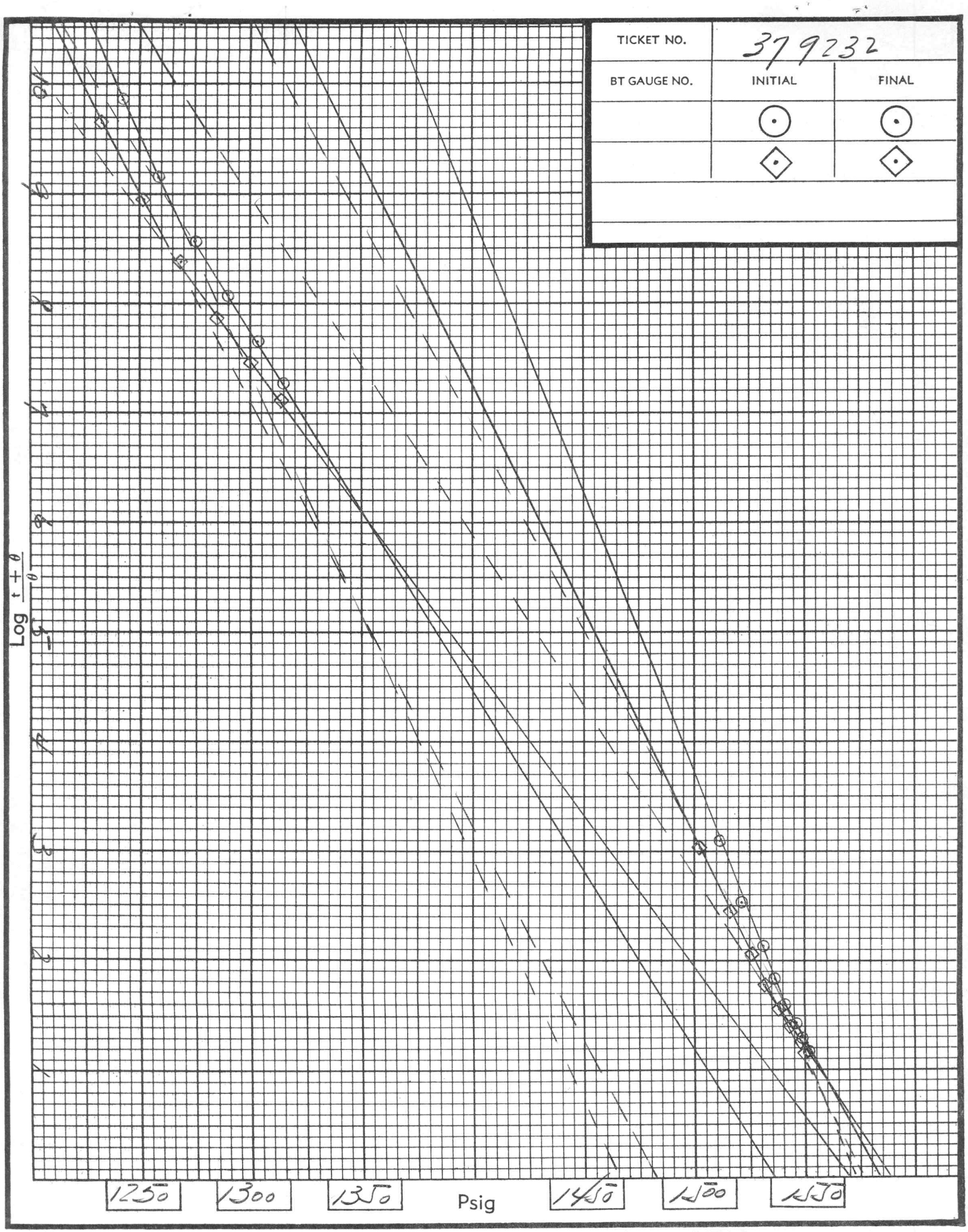
Gauge No. 533	Depth 4759'	Clock 12 hour	

P_0	.000	118	.000	---	84	.000	90	.000	---	53
P_1	.0136	97	.0224	.606	1429	.1407	72	.0221	1.626	1059
P_2	.0272	90	.0448	.401	1485	.2814	62	.0442	1.335	1147
P_3	.0408	83	.0672	.304	1503	.4221	59	.0663	1.169	1181
P_4	.0544	84	.0896	.245	1516	.5628	57	.0884	1.054	1209
P_5	.0680	84	.1120	.206	1527	.7035	54	.1105	.966	1233
P_6			.1344	.178	1532	.8440	53	.1326	.896	1252
P_7			.1568	.156	1538			.1547	.839	1269
P_8			.1792	.140	1543			.1768	.789	1285
P_9			.2016	.126	1548			.1989	.747	1300
P_{10}			.2240	.115	1550			.2210	.710	1313
Reading Interval	2		3			20		3		Minutes

REMARKS:

SPECIAL PRESSURE DATA

TICKET NO.	379232	
BT GAUGE NO.	INITIAL	FINAL
	⊙	⊙
	◇	◇



EXTRAPOLATED PRESSURE GRAPH

Gas Production

B.T. Gauge Numbers			1715	533	Ticket Number		379232	
			PRESSURE	PRESSURE				
Initial Hydrostatic			2576	2586	Elevation		2202	ft.
Final Hydrostatic			2562	2569	Production Rate	Intial	460	m cu. ft.
		Time				Final	416	m cu. ft.
1st Flow	Initial	— — — —	89	118				
	Final	10	76	84	Hole Size		7.875	in.
Initial Closed In Pressure		30	1551	1550	Footage Tested		25	ft.
2nd Flow	Initial	— — — —	87	90	Mud Weight		10.4	lbs. gal.
	Final	120	48	53	Gas Viscosity		0.017	cp
Final Closed In Pressure		30	1315	1313	Gas Gravity		0.070	—
Extrapolated Static Pressure	Initial		1583	1589	Gas Compressibility		0.79	—
	Final		1536	1570				
Slope ~~Psi²/cycle~~ P10	Initial		1333	1376				
	Final		1240	1225				

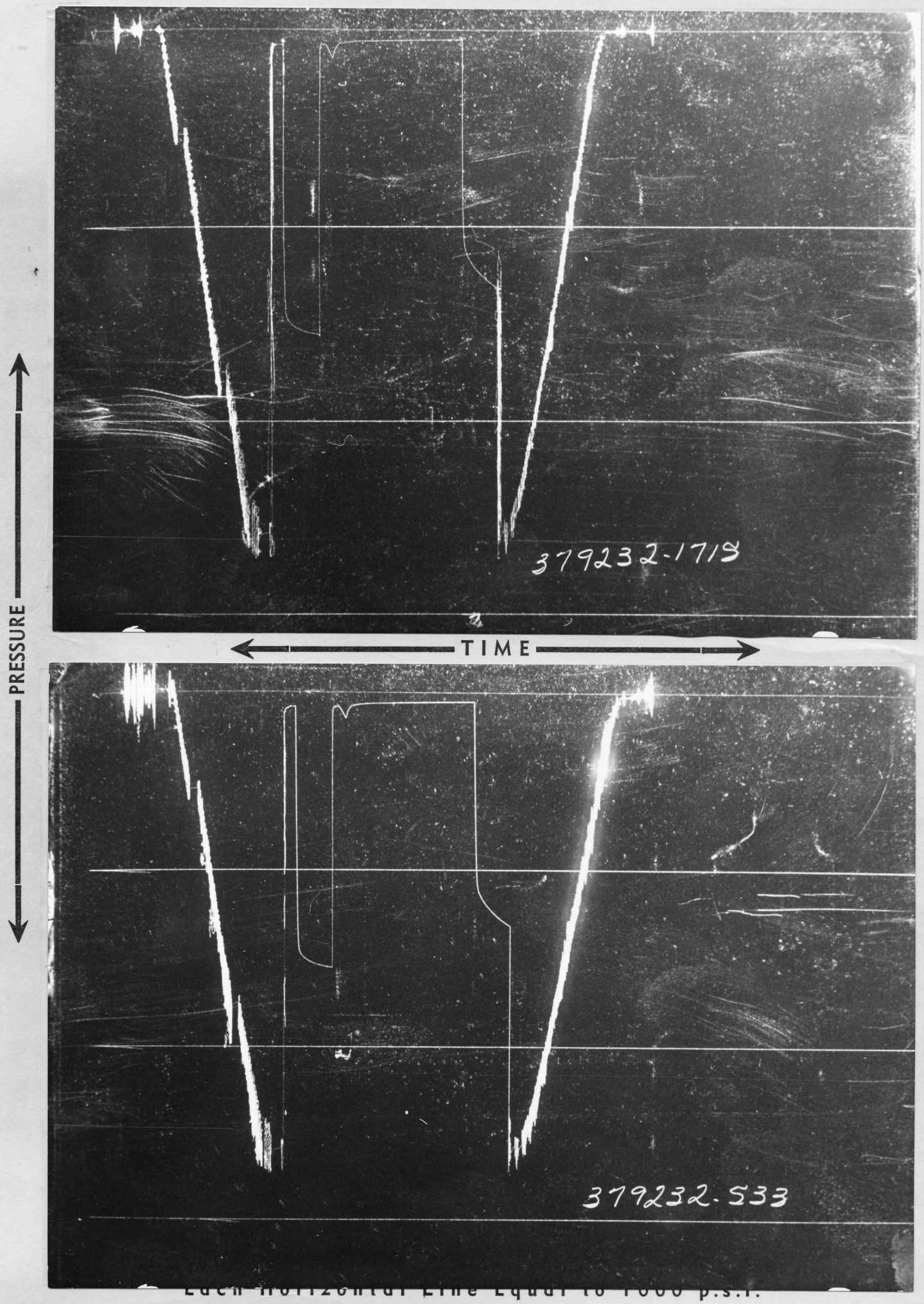
Remarks:

SUMMARY

		BT Gauge Number Depth	1715/4708'	BT Gauge Number Depth	533/4759'	
Product	**Equation**	**Initial**	**Final**	**Initial**	**Final**	**Units**
Transmissability	$\frac{Kh}{\mu} = \frac{1637\ Q_g\ ZT}{m}$	491.3	506.7	580.4	445.4	$\frac{\text{md. ft.}}{\text{cp}}$
Theoretical Flow Capacity	$Kh = \frac{Kh}{\mu}\ \mu$	8.4	8.6	9.9	7.6	md. ft.
Average Effective	$K = \frac{Kh}{h}$	-	-	-	-	md.
Permeability	$K_1 = \frac{Kh}{h_1}$	0.3	0.3	0.4	0.3	md.
Indicated Flow Capacity	$(Kh)_2 = \frac{3200\ Q_g\ \mu\ ZT\ \text{Log}(0.472\ b/r_w)}{P_s^2 - P_F^2}$	2.3	4.9	2.5	4.7	md. ft.
Damage Ratio	$DR = \frac{\text{Theo. Flow Cap}}{\text{Indicated Flow Cap}} \quad \frac{Kh}{(Kh)_2}$	3.6	1.8	4.0	1.6	—
Indicated	$OF_1 = \frac{Q_g \quad P_s^2}{P_s^2 - P_F^2}$ Max.	461.1	416.4	461.3	416.5	MCFD
Flow Rate	$OF_2 = \frac{Q_g \quad P_s}{\sqrt{P_s^2 - P_F^2}}$ Min.	460.5	416.2	460.7	416.2	MCFD
Theoretical	$OF_3 = OF_1\ DR$ Max.	1663.4	729.3	1855.9	673.0	MCFD
Potential Rate	$OF_4 = OF_2\ DR$ Min.	1661.5	728.9	1853.3	672.6	MCFD
Approx. Radius of Investigation	$b \leftrightarrows \sqrt{Kt}$ or $\sqrt{Kt_0}$	-	-	-	-	ft.
	$b_1 \leftrightarrows \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$	2.2	7.0	2.3	6.6	ft.
Potentiometric Surface *	$Pot. = (El - GD) + (2.319\ Ps)$	1141.8	893.7	1097.7	879.8	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



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

	1st Min.	2nd Min.
Flow Time	10	75
Closed In Press. Time	30	45
Pressure Readings	Field	Office Corrected
Depth Top Gauge	4749 Ft.	no Blanked Off
BT. P.R.D. No.	1715	12 Hour Clock
Initial Hydro Mud Pressure	2610	2600
Initial Closed in Pres.	75	64
Initial Flow Pres.	10	1 14 / 2 18
Final Flow Pres.	15	1 15 / 2 18
Final Closed in Pres.	35	38
Final Hydro Mud Pressure	2585	2597
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	4780 Ft.	yes Blanked Off
BT. P.R.D. No.	533	12 Hour Clock
Initial Hydro Mud Pres.	2620	2602
Initial Closed in Pres.	75	71
Initial Flow Pres.	15	1 23 / 2 27
Final Flow Pres.	25	1 27 / 2 27
Final Closed in Pres.	45	43
Final Hydro Mud Pres.	2595	2596

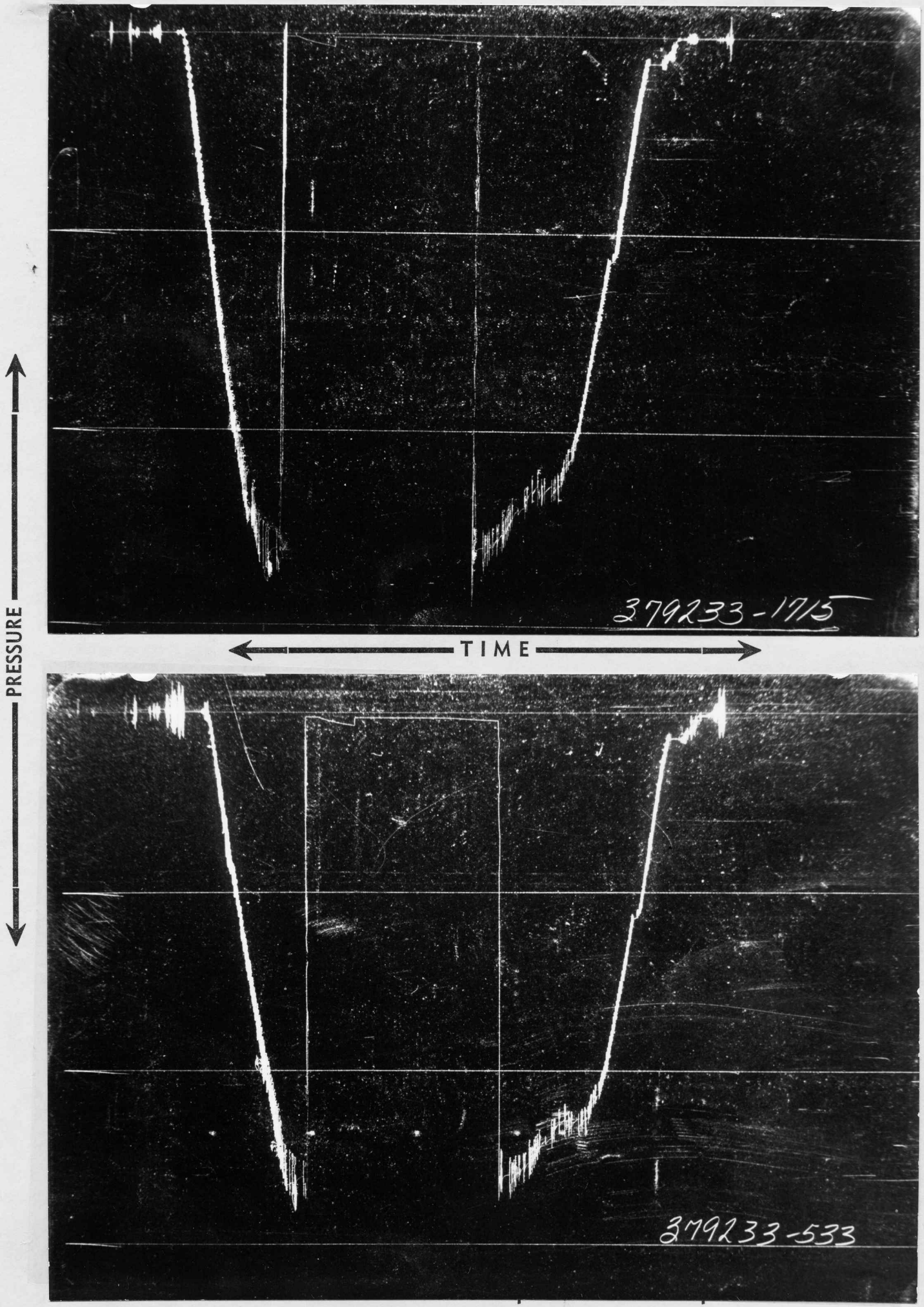
Date	11-27-62	Ticket Number	379233
Kind of Job	Open Hole	Halliburton District	Pratt
Tester	Bill Thompson	Witness	Toby Elster
Drilling Contractor	Company Tools		
Elevation	2122' KB	Top Packer	4759'
Total Depth	4784'	Bottom Packer	4763'
Interval Tested	4763-4784'	Formation Tested	-
Casing or Hole Size	7 7/8"	Casing Top / Perfs. Bot.	
Surface Choke	1"	Bottom Choke	5/8"
Size & Kind Drill Pipe	4½" FH	Drill Collars Above Tester	I.D. - LENGTH
Mud Weight	10.4	Mud Viscosity	44
Temperature	116 °F Est. / °F Actual	Anchor Size & Length	ID 3.37" / OD 5" x
Depths Mea. From	Rotary	Depth of Tester Valve	4744 Ft.
Cushion TYPE AMOUNT	Ft.	Depth Back Pres. Valve	Ft.
Recovered	15 Feet of	mud	
Recovered	Feet of		
Recovered	Feet of		
Recovered	Feet of		
Oil A.P.I. Gravity		Water Spec. Gravity	
Gas Gravity		Surface Pressure	psi
Tool Opened	1:29 A.M. / P.M.	Tool Closed	2:44 A.M. / P.M.

Remarks: Open tool at 12:49 with a fair blow. Closed at 12:59 for 30 mins. Reopen at 1:29 with a fair blow, decreasing to weak blow. Closed at 2:44. Off bottom at 3:29.

No special reading adaptable.

Legal Location Sec. - Twp. - Rng.: C NW NW 26-27-18
Lease Name: BISSETT
Well No.: 1
Test No.: 3
Lease Owner/Company Name: Terrell Drlg & Producers
Field Area: -
County: KIOWA
State: Kansas
Owner's District: Kansas
Meas. From Tester Valve

FORMATION TEST DATA


PRESSURE
TIME
379233-1715
379233-533