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 9.4 vis 52 Sec. CP=

Date 10-5-76 Ticket Number 061744
Kind of Job OPEN HOLE Halliburton District EL DORADO
Tester MR. BUTCHER Witness MR. GOUGH / MR. CHANCE
Drilling Contractor COMPANY TOOLS RIG #1 BC S

EQUIPMENT & HOLE DATA

Formation Tested Kansas City
Elevation 1378' KB Ft.
Net Productive Interval 18' Ft.
All Depths Measured From Kelly Bushing
Total Depth 3035' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length 145' I.D. 2.25"
Drill Pipe Length 941'WP-1895' I.D. 3.440"-3.826"
Packer Depth(s) 3011' - 3017' Ft.
Depth Tester Valve 2997' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve
Surface Choke 1/4" Bottom Choke 3/4"

Recovered 390 Feet of Gas in drill pipe
Recovered 60 Feet of Heavily gas and oil cut drilling mud
Recovered 15 Feet of Heavily oil and gas cut drilling mud
Recovered Feet of
Recovered Feet of

Remarks SEE PRODUCTION TEST DATA SHEET. No gas to surface.

Meas. From Tester Valve

TEMPERATURE	Gauge No. 6705 Depth: 2999' Ft.	Gauge No. 6704 Depth: 3031' Ft.	Gauge No. Depth: Ft.	TIME
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool A.M.
Est. °F.	Blanked Off No	Blanked Off Yes	Blanked Off	Opened 1142 P.M.
3030' Actual 107 °F.	Pressures	Pressures	Pressures	Opened A.M. Bypass 0142 P.M.

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic			1499	1511	1517				
First Period	Flow Initial		9	31	26			———	———
	Flow Final		23	42	38			30	31
	Closed in		990	1020	1006			30	29
Second Period	Flow Initial		22	42	34			———	———
	Flow Final		34	52	48			60	61
	Closed in		397	406	410			33	32
Third Period	Flow Initial							———	———
	Flow Final								
	Closed in								
Final Hydrostatic			1481	1500	1500			———	———

Legal Location Sec. - Twp. - Rng. 2 - 28 - 2W
Lease Name BUERKI Well No. 1 Test No. 2
Tested Interval 3017' - 3035'
Lease Owner/Company Name RAINS AND WILLIAMSON OIL COMPANY, INCORPORATED
Field Area WILDCAT County SEDGWICK State KANSAS

FORM 181-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 10M 8/74

Casing perfs._____ Bottom choke 3/4" Surf. temp_____ °F Ticket No. 061744

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
0730					Truck called #9082
0915					On location, trip out with DST #2
0930					Made up tool
1000					Picked up tool
1025					Went in hole
1139					On bottom with no trouble
1142					Opened tool with a weak blow
1144					Weak blow, ½" and building
1148					Weak blow, 3/4" and building
1153					Weak blow, 1½" and building
1203					Weak blow, 3½" and building
1210					Fair blow, 5" and building
1212					Closed tool
1242					Opened tool with a fair blow
1243					Fair blow, 6" and building
1245					8" and building
1250					10" and building
1252					12" good blow and building
1255					Good blow, no gas to surface
0115					No gas, would not burn
0130					"
0140					"
0142					Closed tool, no gas
0215					Off bottom

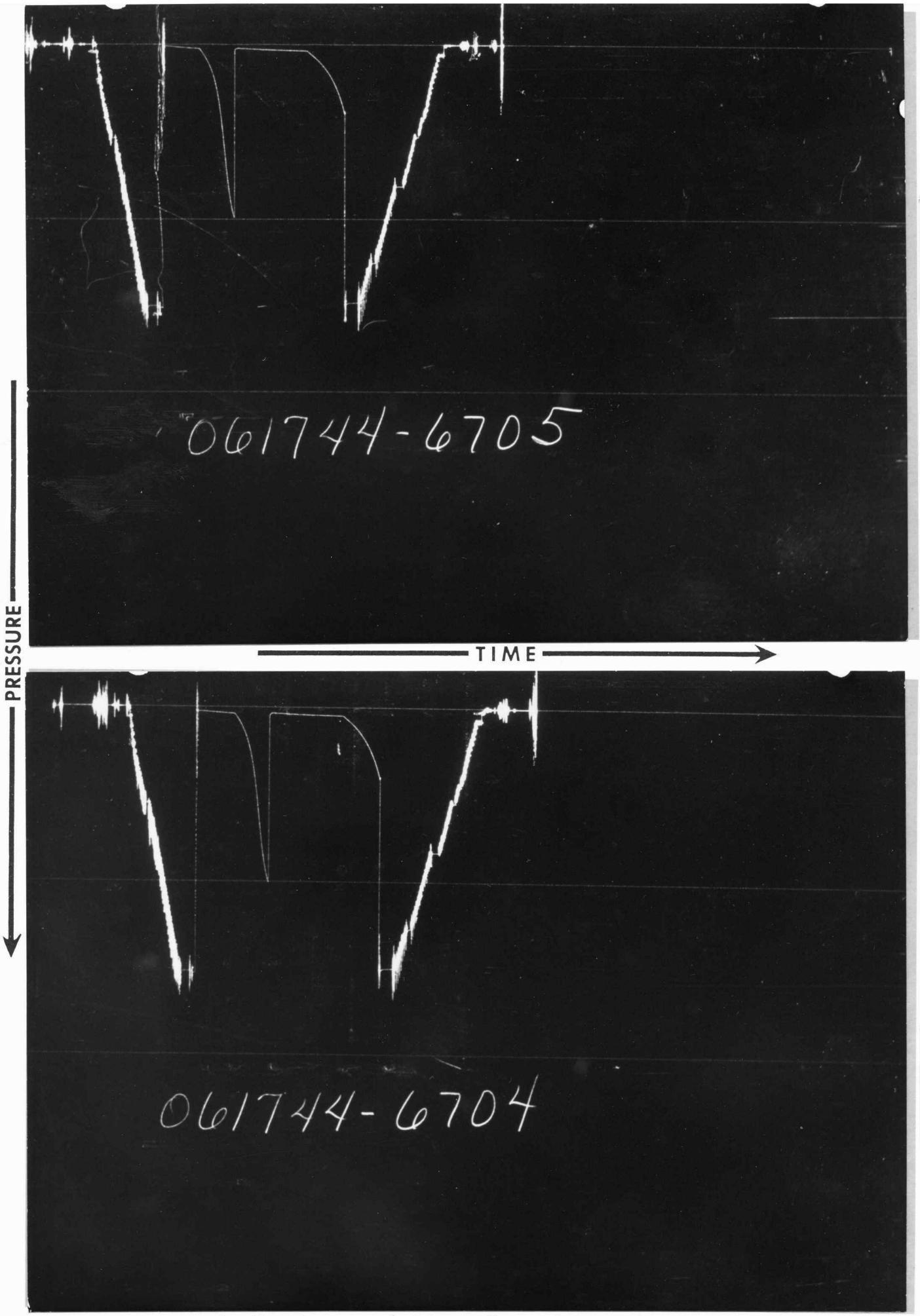
Gauge No.	6705		Depth	2999'		Clock No.	7101		12 hour	Ticket No.	061744			
	First Flow Period		First Closed In Pressure			Second Flow Period		Second Closed In Pressure			Third Flow Period		Third Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG 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	9	.0000		23	.0000	22	.0000		34					
1	.0387	10*	.0134		41**	.0727	24***	.2130		397					
2	.0710	15	.0334		73	.1387	27								
3	.1032	17	.0535		109	.2048	29								
4	.1355	20	.0736		163	.2709	32								
5	.1677	22	.0937		236	.3369	33								
6	.2000	23	.1137		359	.4030	34								
7			.1338		537										
8			.1539		746										
9			.1739		907										
10			.1940		990										
11															
12															
13															
14															
15															

Gauge No.	6704		Depth	3031'		Clock No.	4197		12 hour					
0	.0000	26	.0000		38	.0000	34	.0000		48					
1	.0405	27*	.0134		57**	.0736	36***	.2110		410					
2	.0742	30	.0334		90	.1405	40								
3	.1079	32	.0535		132	.2073	43								
4	.1416	34	.0736		190	.2742	45								
5	.1753	36	.0937		277	.3411	47								
6	.2090	38	.1137		403	.4080	48								
7			.1338		591										
8			.1539		786										
9			.1739		926										
10			.1940		1006										
11															
12															
13															
14															
15															
Reading Interval	5		3			10									Minutes

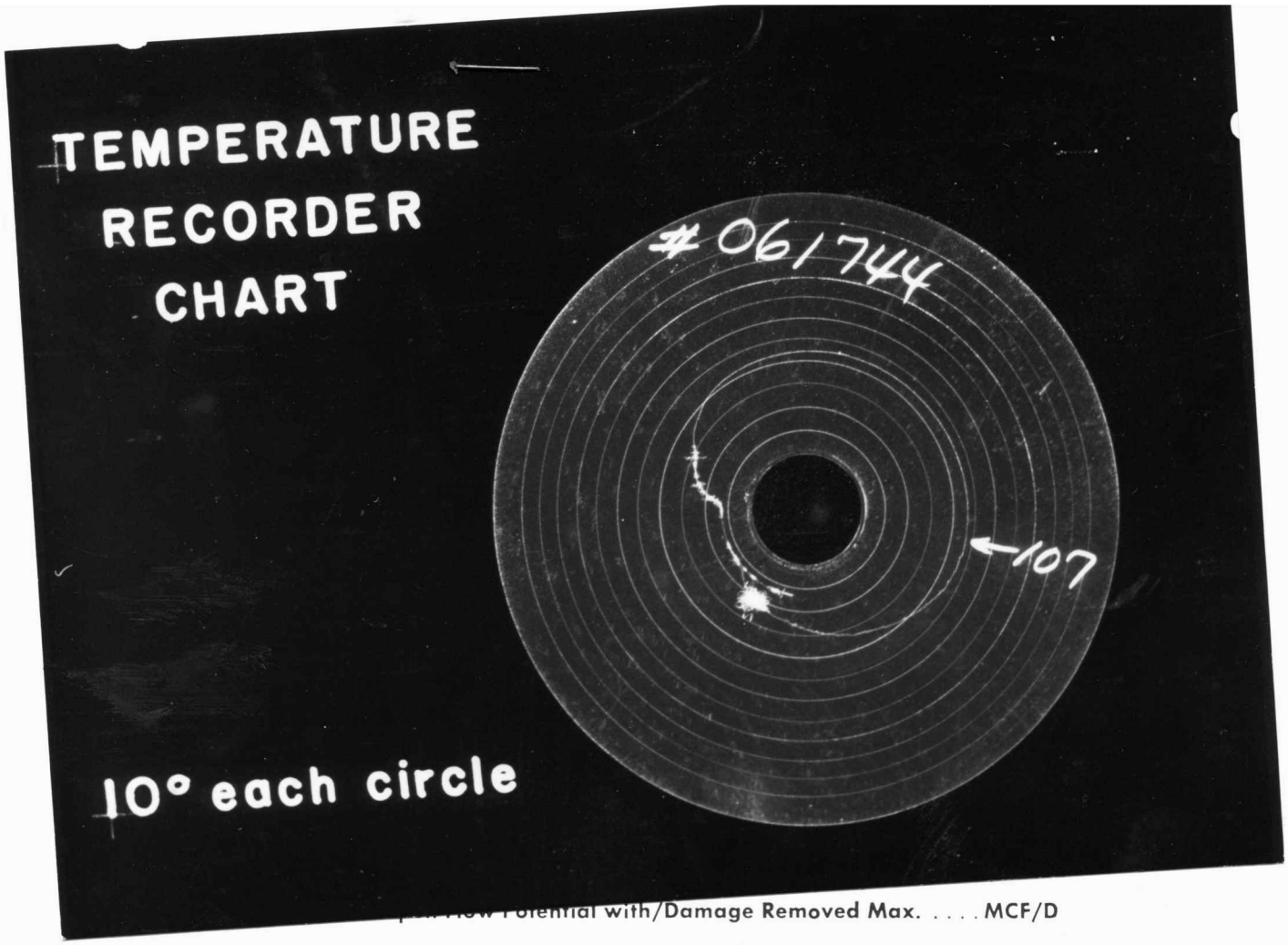
REMARKS: *Interval = 6 minutes **Interval = 2 minutes ***Interval = 11 minutes

TICKET NO. 061744

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	5 3/4"	2.75"	1'	
Change overs	5 3/4"	2.75"	2'	
Water Cushion Valve	4½" IF	3.440"	941' Weight pipe	
Drill Pipe	4½" XH	3.826"	1895'	
Drill Collars	6"	2.25"	145'	
Handling Sub & Choke Assembly	4½"	3.50"	4½'	
Dual CIP Valve	5"	.87"	5'	
Dual CIP Sampler				
Hydro-Spring Tester	5"	.75"	5'	2997'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.75"	4'	2999'
Hydraulic Jar				
VR Safety Joint	5"	1"	3'	
Pressure Equalizing Crossover				
Packer Assembly	6 3/4"	1.53"	6'	3011'
Distributor				
Packer Assembly	6 3/4"	1.53"	6'	3017'
Flush Joint Anchor	5"	3.84"	11'	
Pressure Equalizing Tube				
Temp. Recorder	5"	3"	1½'	3030'
Blanked-Off B.T. Running Case	5"	2.75"	4'	3031'
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars				
Flush Joint Anchor				
Blanked-Off B.T. Running Case				
Total Depth				3035'



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



...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 _____ ° 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 9.6 vis 41 secs

Date 10-7-76 Ticket Number 066625
Kind of Job OPEN HOLE Halliburton District EL DORADO
Tester MR. SEGLUM Witness MR. GOUGH
Drilling Contractor RAINS AND WILLIAMSON COMPANY, INC. DR

EQUIPMENT & HOLE DATA

Formation Tested Mississippi
Elevation 1381' KB Ft.
Net Productive Interval 13' Ft.
All Depths Measured From Kelly Bushing
Total Depth 3515' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length 145' I.D. 2.25"
Drill Pipe Length 941' WP-2388' I.D. 2.764"-3.826"
Packer Depth(s) 3492' - 3498' Ft.
Depth Tester Valve 3475' Ft.

Cushion TYPE _____ AMOUNT _____ Ft. Depth Back Pres. Valve _____ Surface Choke _____ Bottom Choke .75'

Recovered 200 Feet of gassy oil
Recovered 39 Feet of oil cut mud
Recovered 1529 Feet of gas in drill pipe
Recovered _____ Feet of _____
Recovered _____ Feet of _____

Meas. From Tester Valve

Remarks SEE PRODUCTION TEST DATA SHEET

Charts indicate partial plugging of anchor perforations during early part of initial flow period.

TEMPERATURE	Gauge No. 5595 Depth: 3480 Ft.	Gauge No. 5594 Depth: 3511 Ft.	Gauge No. Depth: Ft.	TIME
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool Opened 7:07 A.M. P.M.
Est. °F.	Blanked Off No	Blanked Off Yes	Blanked Off	Opened A.M.
3509' Actual 114 °F.	Pressures	Pressures	Pressures	Bypass 9:37 P.M.

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic			1767	1809	1780				
First Period	Flow Initial		22	101	35			———	———
	Flow Final		60	91	89			30	30
	Closed in		837	847	847			30	29
Second Period	Flow Initial		70	91	113			———	———
	Flow Final		97	119	117			60	60
	Closed in		649	658	661			30	31
Third Period	Flow Initial							———	———
	Flow Final								
	Closed in								
Final Hydrostatic			1738	1779	1752			———	———

Legal Location Sec. - Twp. - Rng. 6S
Lease Name
Well No. 3
Test No.
Tested Interval 3498' to 3515'
Field Area
County SEDGWICK
State KANSAS
Lease Owner/Company Name RAINS AND WILLIAMSON COMPANY, INCORPORA

FORMATION TEST DATA

Casing perfs._____ Bottom choke._____ Surf. temp._____ °F Ticket No. 066625

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
4:30					On location, rig is coming out of hole
					for DST # 3
5:15					Started picking up tool
5:45					Finish tool
5:50					Started in hole
7:04					On bottom with no trouble
7:07					Opened tool with a weak blow
7:12					Strong blow
7:37					Closed tool, no gas to surface
8:07					Opened tool with a strong blow
9:07					Closed tool
9:37					Picked up off bottom
12:15					Out of hole.

Gauge No. 5595			Depth 3480'			Clock No. 13663			12 hour	Ticket No. 066625				
	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	22	.000		60	.000	70	.000		97					
1	.033	32	.0138		121*	.0672	72	.0267		204**					
2	.066	36	.0345		248	.1343	77	.0468		280					
3	.099	89	.0552		403	.2015	83	.0668		357					
4	.132	51	.0759		522	.2687	89	.0868		425					
5	.165	54	.0966		612	.3359	93	.1069		480					
6	.198	60	.1172		686	.4030	97	.1269		527					
7			.1379		739			.1470		566					
8			.1586		780			.1670		599					
9			.1793		811			.1870		626					
10			.2000		837			.2070		649					
11															
12															
13															
14															
15															

Gauge No. 5594					Depth 3511'			Clock No. 3459			hour 12				
0	.000	35	.000		89	.000	113	.000		117					
1	.033	P	.0133		149*	.0662	99	.0261		223**					
2	.066	P	.0333		276	.1323	100	.0456		302					
3	.099	P	.0533		419	.1985	107	.0651		377					
4	.132	87	.0732		538	.2647	112	.0847		438					
5	.165	88	.0932		629	.3309	115	.1043		491					
6	.198	89	.1132		700	.3970	117	.1238		537					
7			.1331		753			.1434		576					
8			.1531		792			.1629		610					
9			.1731		822			.1825		639					
10			.1930		847			.2020		661					
12															
13															
14															
15															
Reading Interval	5		3			10		3							Minutes

REMARKS: *-2 minutes **-4 minutes P-Plugging

FORM 183-R1—PRINTED IN U.S.A.

SPECIAL PRESSURE DATA

LITTLE'S 96673 75C 8/74

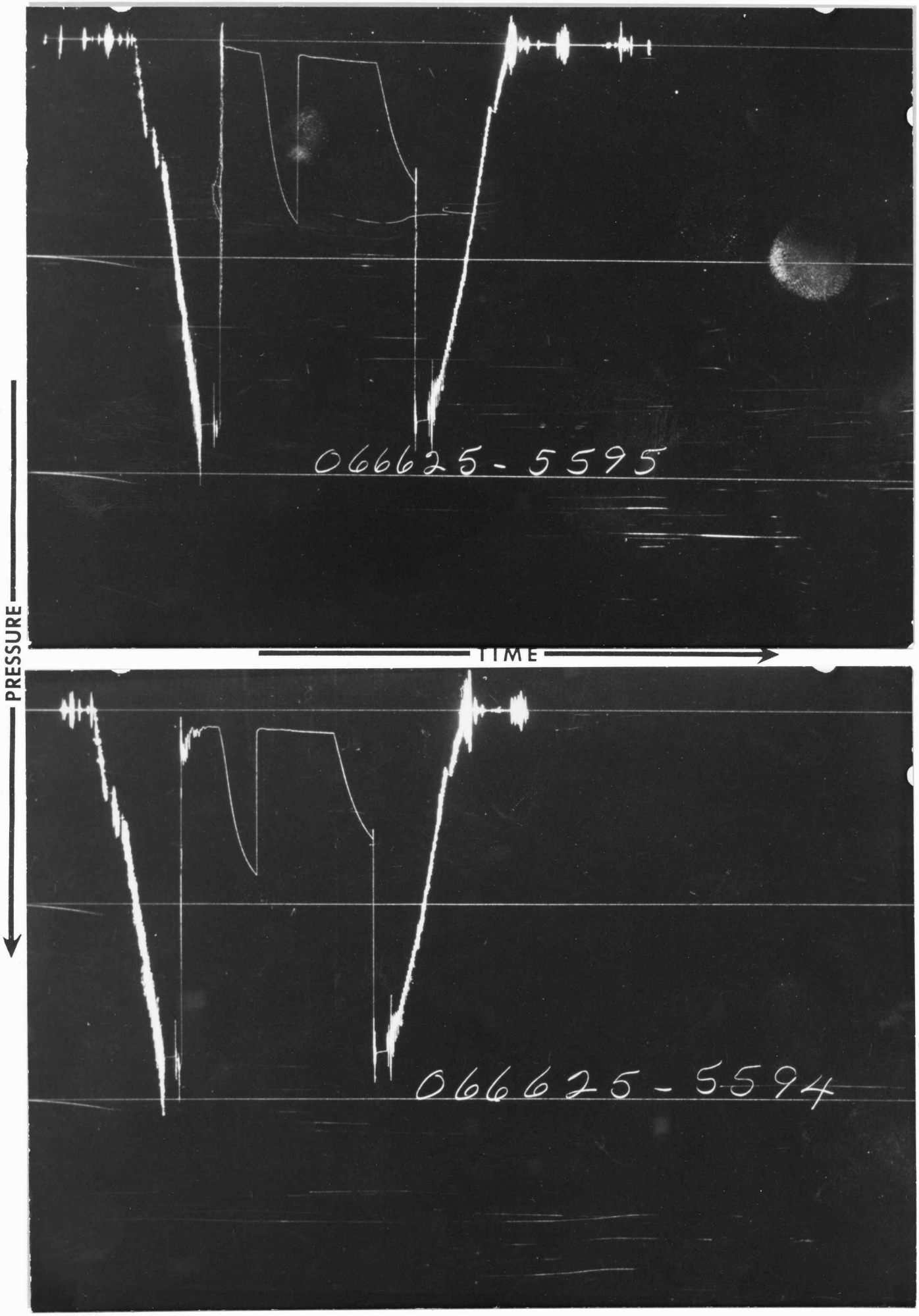
TICKET NO. 066625

	O. D.	I. D.	LENGTH	DEPTH
~~Drill Pipe or Tubing~~	5"	2.25"	1' Change over	
Reversing Sub	5"	2.25"	1'	
	5"	2.25"	1'	
Water Cushion Valve	4½"	3.764"	941' WP	
Drill Pipe	4½"	3.826"	2388'	
Drill Collars	6"	2.25"	145'	
Handling Sub & Choke Assembly	5"	2.37"	3'	
Dual CIP Valve	5"	.86"	5'	3470'
~~Dual CIP Sampler~~	5"	2.25"	1' Double Pin	
Hydro-Spring Tester	5"	.75"	4'	3475'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.75"	4'	3480'
Hydraulic Jar				
VR Safety Joint	5"	1.00"	3'	
Pressure Equalizing Crossover				
Packer Assembly	6 3/4"	1.68"	6'	3492'
Distributor				
Packer Assembly	6 3/4"	1.68"	6'	3498'
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"	2.25"	10'	
HT-500 Temp. Recorder	5"	3.75"	2'	3509'
Blanked-Off B.T. Running Case	5"	2.75"	4'	3511'
Total Depth				3515'

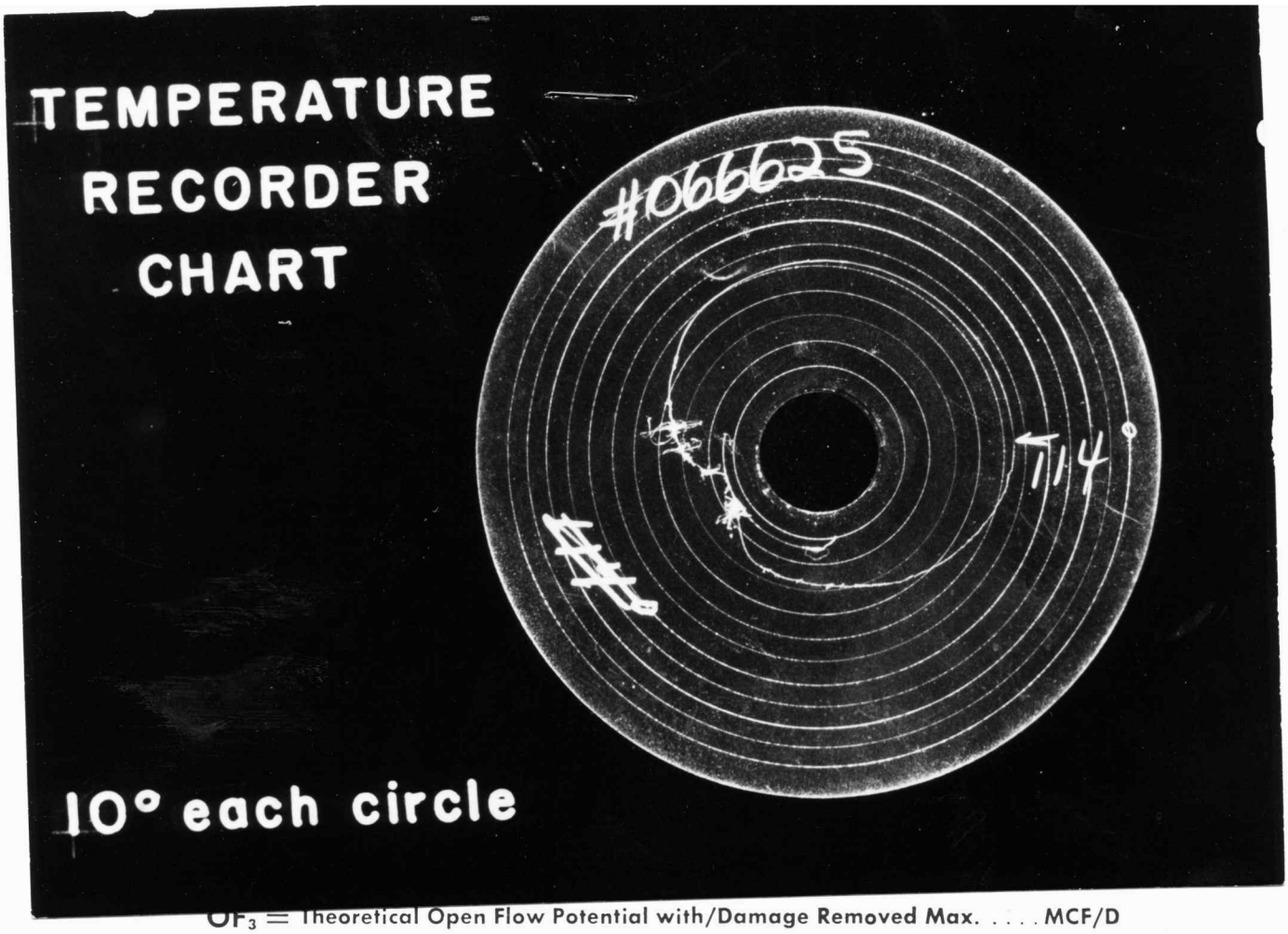
FORM 187-R1—PRINTED IN U.S.A.

EQUIPMENT DATA

LITTLE'S 96676 75C 8/74



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 _____ ° 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 9.8 vis 41 Sec. ~~cp~~

Date 10-8-76 Ticket Number 066830
Kind of Job OPEN HOLE Halliburton District EL DORADO
Tester MR. CANNON Witness MR. GOUGH
Drilling Contractor COMPANY TOOLS RIG #1 BC

EQUIPMENT & HOLE DATA

Formation Tested Mississippi
Elevation 1381' KB Ft.
Net Productive Interval 15' Ft.
All Depths Measured From Kelly Bushing
Total Depth 3530' Ft.
Main Hole/Casing Size 7 7/8" Hole
Drill Collar Length 145' I.D. 2.25"
Drill Pipe Length 940'WP-2420' I.D. 2.764" - 3.826"
Packer Depth(s) 3509' - 3515' Ft.
Depth Tester Valve 3493' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve Surface Choke 1/4" Bottom Choke 3/4"

Recovered 72 Feet of Slightly gas cut mud with a trace of oil
Recovered Feet of
Recovered Feet of
Recovered Feet of
Recovered Feet of

Remarks CHARTS INDICATE SEVERE PARTIAL PLUGGING OF ANCHOR PERFORATIONS

SEE PRODUCTION TEST DATA SHEET.

MISRUN....

TEMPERATURE	Gauge No. 5595 Depth: 3498' Ft.	Gauge No. 5594 Depth: 3526' Ft.	Gauge No. Depth: Ft.	TIME
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool Opened 1040 A.M. P.M.
Est. °F.	Blanked Off No	Blanked Off Yes	Blanked Off	Opened A.M.
3525' Actual 117°F.	Pressures	Pressures	Pressures	Bypass 1350 P.M.

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		1906	1739		1749				
First Period Flow	Initial	36	32		364-Q			———	———
	Final	43	37		130-Q			30	
	Closed in	1228	1224		1234			31	
Second Period Flow	Initial	38	43		297-Q			———	———
	Final	45	46		968-Q			89	
	Closed in	1201	1209		1220			40	
Third Period Flow	Initial							———	———
	Final								
	Closed in								
Final Hydrostatic		1746	1720		1730			———	———

Q = Questionable

Legal Location Sec. - Twp. - Rng. 2 - 28S - 2W
Lease Name BUERKI
Well No. 1
Test No. 4
Tested Interval 3515' - 3530'
Lease Owner/Company Name RAINS AND WILLIAMSON OIL COMPANY
Field Area WILDCAT
County SEDGWICK
State KANSAS
Mea. From Tester Valve

FORM 181-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 10M 8/74

Casing perfs._____ Bottom choke 3/4" Surf. temp_____ °F Ticket No. 066830

Gas gravity_____ Oil gravity_____ GOR_____

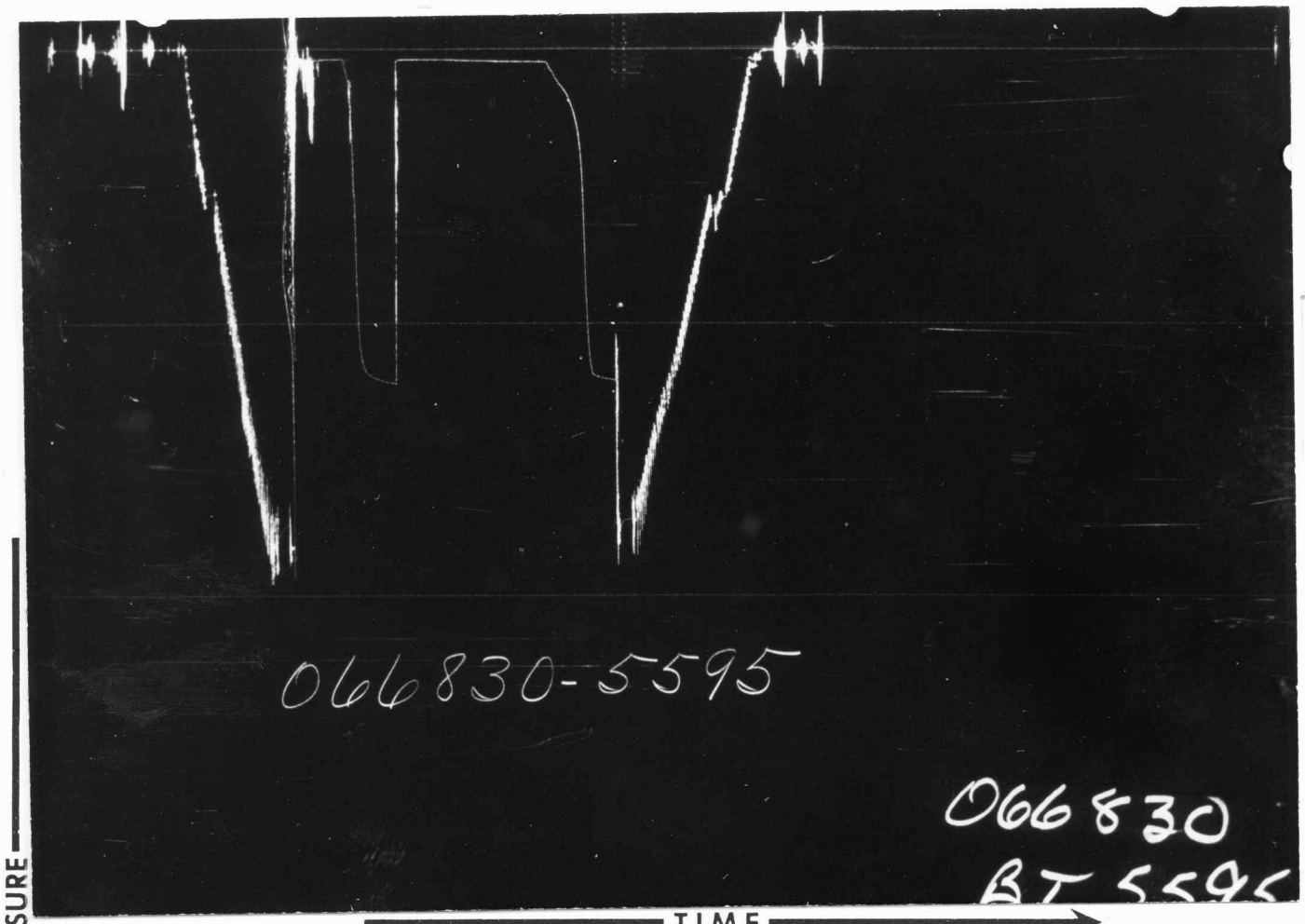
Spec. gravity_____ Chlorides_____ ppm Res._____ @_____ °F

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED 2" Merla Well Tester

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
0650					Called out
0825					On location, tools on location from
					DST #3
0900					Picked up tools
0925					Started tools in hole
1037					On bottom, 8' fill up
1040					Opened tool, slid 2'. Had a weak blow.
					No gas
1110					Closed tool
1141					Opened tool with a very weak blow
1236					No blow
1240					Flushed tool with a very weak blow
1310					Closed tool
1350					Pulled out of hole
1520					Tool in table

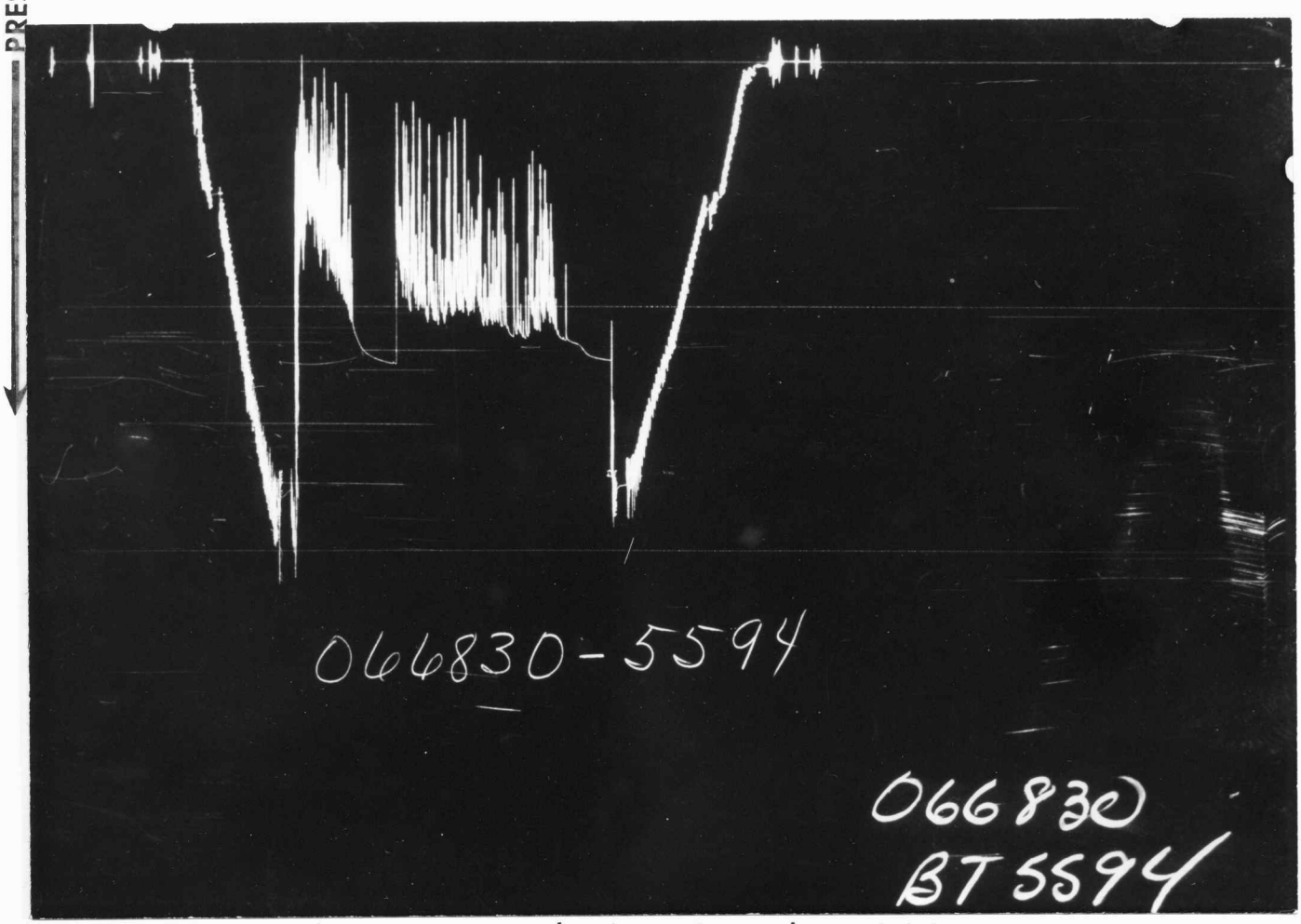
TICKET NO. 066830

	O. D.	I. D.	LENGTH	DEPTH
~~Drill Pipe or Tubing~~ Change over	5"	2.25"	1'	
Reversing Sub	5"	3"	1'	
Change over	5"	2.25"	1'	
~~Water Cushion Valve~~ Weight pipe	4½" WP	2.764"	940'	
Drill Pipe	4½"	3.826"	2420'	
Drill Collars	6¼"	2.25"	145'	
Handling Sub & ~~Choke Assembly~~	5"	2.25"	3'	
Dual CIP Valve	5"	.87"	5'	3488'
Dual CIP Sampler				
Hydro-Spring Tester	5"	.75"	5'	3493'
Double Pin	5"	2.25"	1'	
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.25"	4'	3498'
Hydraulic Jar				
VR Safety Joint	5"	1"	3'	
Pressure Equalizing Crossover				
Packer Assembly	6 3/4" NR	1.53"	6'	3509'
Distributor				
Packer Assembly	6 3/4" NR	1.53"	6'	3515'
Flush Joint Anchor	5"	2.37"	8'	
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				
HT-500	5"	-	2'	
Drill Collars				
Flush Joint Anchor				
Blanked-Off B.T. Running Case	5"	2.75"	4'	3526'
Total Depth				3530'

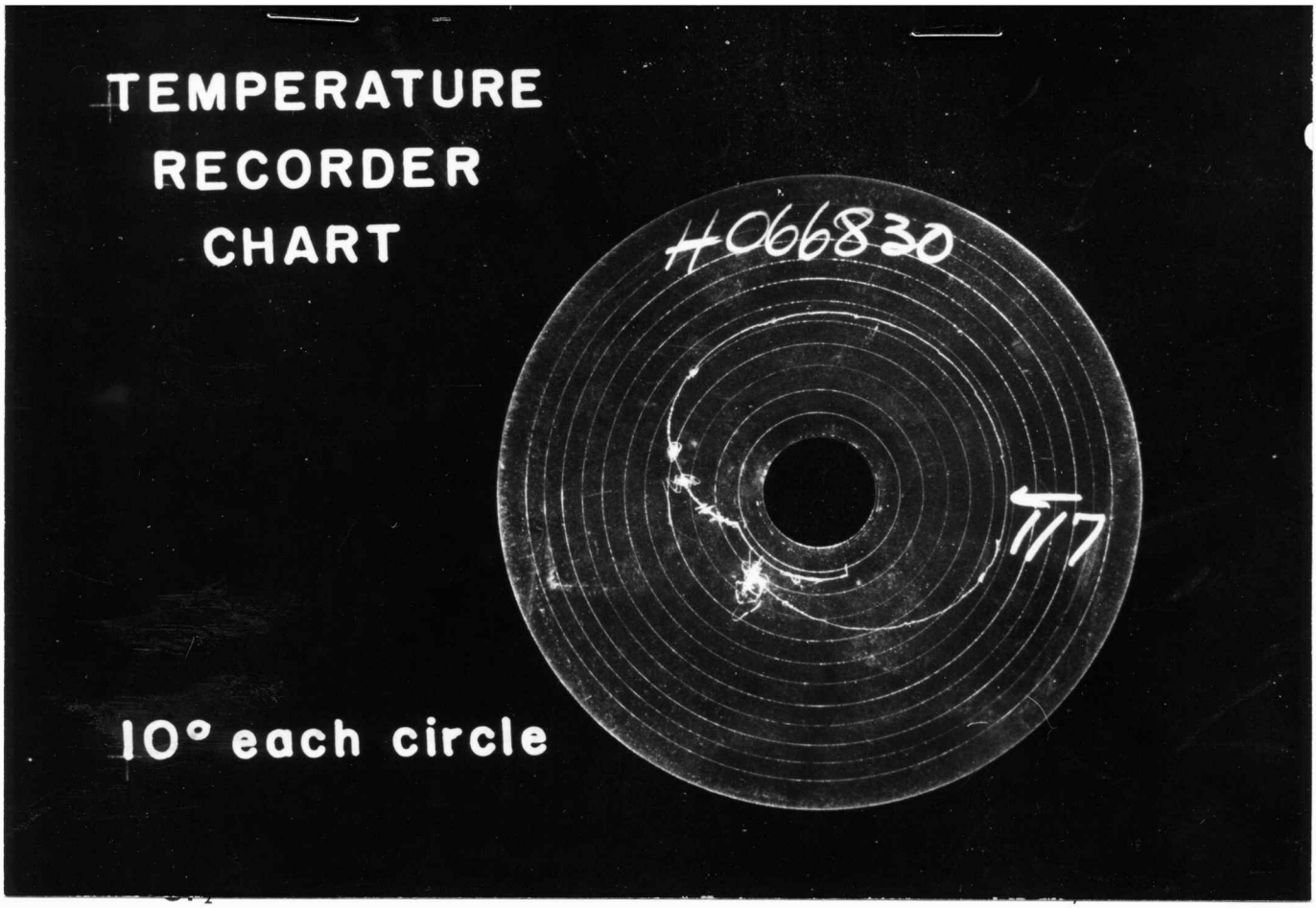


PRESSURE

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 _____ ° 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 9.7 vis 43 Sec. ~~CP~~

Date 10-10-76 Ticket Number 061748
Kind of Job OPEN HOLE Halliburton District EL DORADO
Tester MR. BUTCHER Witness MR. GOUGH / MR. CHANCE
Drilling Contractor COMPANY TOOLS RIG #1 BC S

EQUIPMENT & HOLE DATA

Formation Tested Viola Dolomite
Elevation 4381' KB Ft.
Net Productive Interval 14' Ft.
All Depths Measured From Kelly Bushing
Total Depth 3941' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length 145' I.D. 2.25"
Drill Pipe Length 941'WP-2855' I.D. 2.764" - 3.826"
Packer Depth(s) 3921' - 3927' Ft.
Depth Tester Valve 3907' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve
Surface Choke 1/4" Bottom Choke 3/4"

Recovered 208 Feet of Slightly gas cut drilling mud with a trace of water
Recovered 3319 Feet of Very slightly gassy salt water
Recovered Feet of
Recovered Feet of
Recovered Feet of

Mea. From Tester Valve

Remarks SEE PRODUCTION TEST DATA SHEET.

TEMPERATURE	Gauge No. 6705	Gauge No. 6704	Gauge No.	TIME
	Depth: 3909' Ft.	Depth: 3937' Ft.	Depth: Ft.	
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool Opened 7:35 A.M. / P.M.
Est. °F.	Blanked Off No	Blanked Off Yes	Blanked Off	
3936' Actual 128 °F.	Pressures	Pressures	Pressures	Opened A.M. / Bypass 9:15 P.M.

	Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		1989	2025	2005				
First Period Flow Initial		306-Q	312	356			———	———
First Period Flow Final		1514	1532	1525			30	30
First Period Closed in		1541	1553	1555			30	30
Second Period Flow Initial		1485	1500	1497			———	———
Second Period Flow Final		1542	1553	1556			40	40
Second Period Closed in		1543	1553	1556			30	31
Third Period Flow Initial							———	———
Third Period Flow Final								
Third Period Closed in								
Final Hydrostatic		1954	1973	1970			———	———

Q = Questionable

Legal Location Sec. - Twp. - Rng. 2 - 28 - 2W
Lease Name BUERKI
Well No. 1
Test No. 5
Tested Interval 3927' - 3941'
Lease Owner/Company Name RAINS AND WILLIAMSON OIL COMPANY, INCORPORATED
Field Area WILDCAT
County SEDGWICK
State KANSAS

FORM 181-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 10M 8/74

6

Casing perfs._____ Bottom choke 3/4" Surf. temp._____ °F Ticket No. 061748

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
0330					Truck called #9082
0515					On location with collars
0530					Made up tool
0540					Picked up tool
0605					Went in hole
0731					On bottom with no trouble
0735					Opened tool with a fair blow
0736					Good blow & building
0737					Strong blow & building
0750					Very strong blow, no gas
0755					"
0805					Closed tool, no gas
0835					Opened tool with a good blow
0840					Strong blow
0845					Good blow & getting weaker
0850					No gas to surface, would not burn
0900					Weak blow, 4" getting weaker
0910					3/4" getting weaker
0915					Almost no blow
0915					Closed tool
0945					Off bottom
1030					Dropped bar and reversed out
1115					Came out of hole

PRODUCTION TEST DATA

Gauge No.	6705		Depth	3909'		Clock No.	7101		12 hour	Ticket No.	061748		
	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	306-Q	.0000		1514	.0000	1485	.0000		1542					
1	.0330	712	.0068		1540	.0264	1519**	.2010		1543					
2	.0660	981	.0135		1540	.0660	1541								
3	.0990	1196	.0203		1540	.1056	1542								
4	.1320	1344	.0271		1540	.1452	1542								
5	.1650	1449	.0338		1540	.1848	1542								
6	.1980	1514	.0406		1540	.2244	1542								
7			.0474		1540	.2640	1542								
8			.0541		1540										
9			.0609		1540										
10			.0677		1540										
11			.0947		1541										
12			.1218		1541										
13			.1489		1541										
14			.1759		1541										
15			.2030		1541										
Gauge No.	6704		Depth	3937'		Clock No.	4197		12 hour						
0	.0000	356	.0000		1525	.0000	1497	.0000		1556					
1	.0337	770	.0067		1553	.0267	1532**	.2060		1556					
2	.0673	1028	.0135		1553	.0668	1553								
3	.1010	1228	.0202		1554	.1068	1555								
4	.1347	1367	.0269		1554	.1469	1555								
5	.1683	1466	.0337		1554	.1869	1555								
6	.2020	1525	.0440		1554	.2270	1555								
7			.4071		1554	.2670	1556								
8			.0539		1554										
9			.0606		1554										
10			.0673		1554										
11			.0943		1555										
12			.1212		1555										
13			.1481		1555										
14			.1751		1555										
15			.2020		1555										
Reading Interval	5		*			6									Minutes

REMARKS: *First 10 intervals = 1 minute each; last 5 intervals = 4 minutes each.
**Interval = 4 minutes Q = Questionable

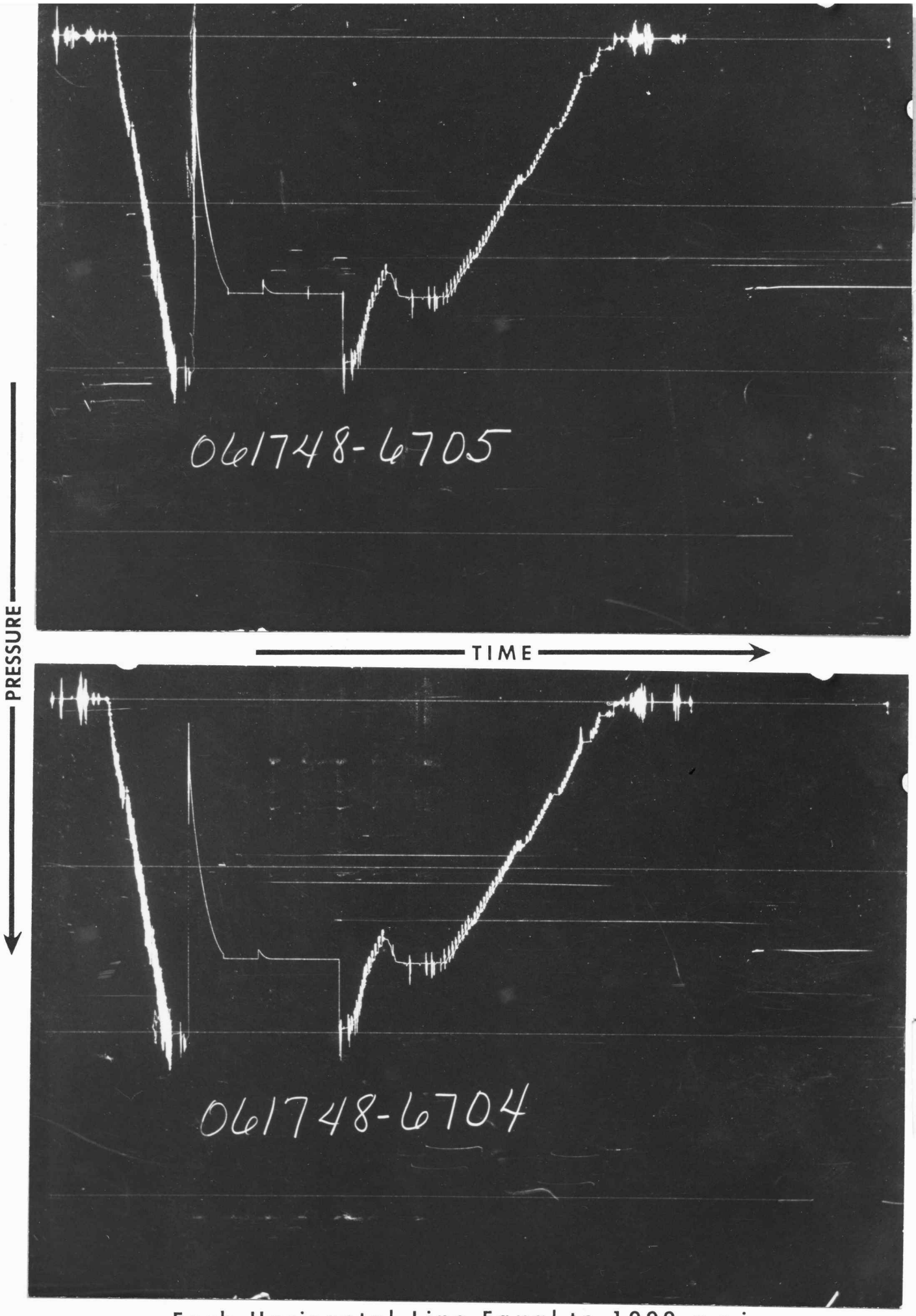
TICKET NO. 061748

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	5 3/4"	2.75"	1'	
Change overs	5 3/4"	2.75"	2'	
Water Cushion Valve	4½" WP	2.764"	941'	
Drill Pipe	4½"	3.826"	2855'	
Drill Collars	6"	2.25"	145'	
Handling Sub & Choke Assembly	4½"	3.50"	4½'	
Dual CIP Valve	5"	.87"	5'	
Dual CIP Sampler				
Hydro-Spring Tester	5"	.75"	5'	3907'
Double Pin	5 3/4"	2.75"	1'	
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.75"	4'	3909'
Hydraulic Jar				
VR Safety Joint	5"	1"	3'	
Pressure Equalizing Crossover				
Packer Assembly	6 3/4"	1.53"	6'	3921'
Distributor				
Packer Assembly	6 3/4"	1.53"	6'	3927'
Flush Joint Anchor	5"	3.84"	7'	
Pressure Equalizing Tube				
Temp. Recorder	5"	3"	1½'	3936'
Blanked-Off B.T. Running Case	5"	2.75"	4'	3937'
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars				
Flush Joint Anchor				
Blanked-Off B.T. Running Case				
Total Depth				3041'

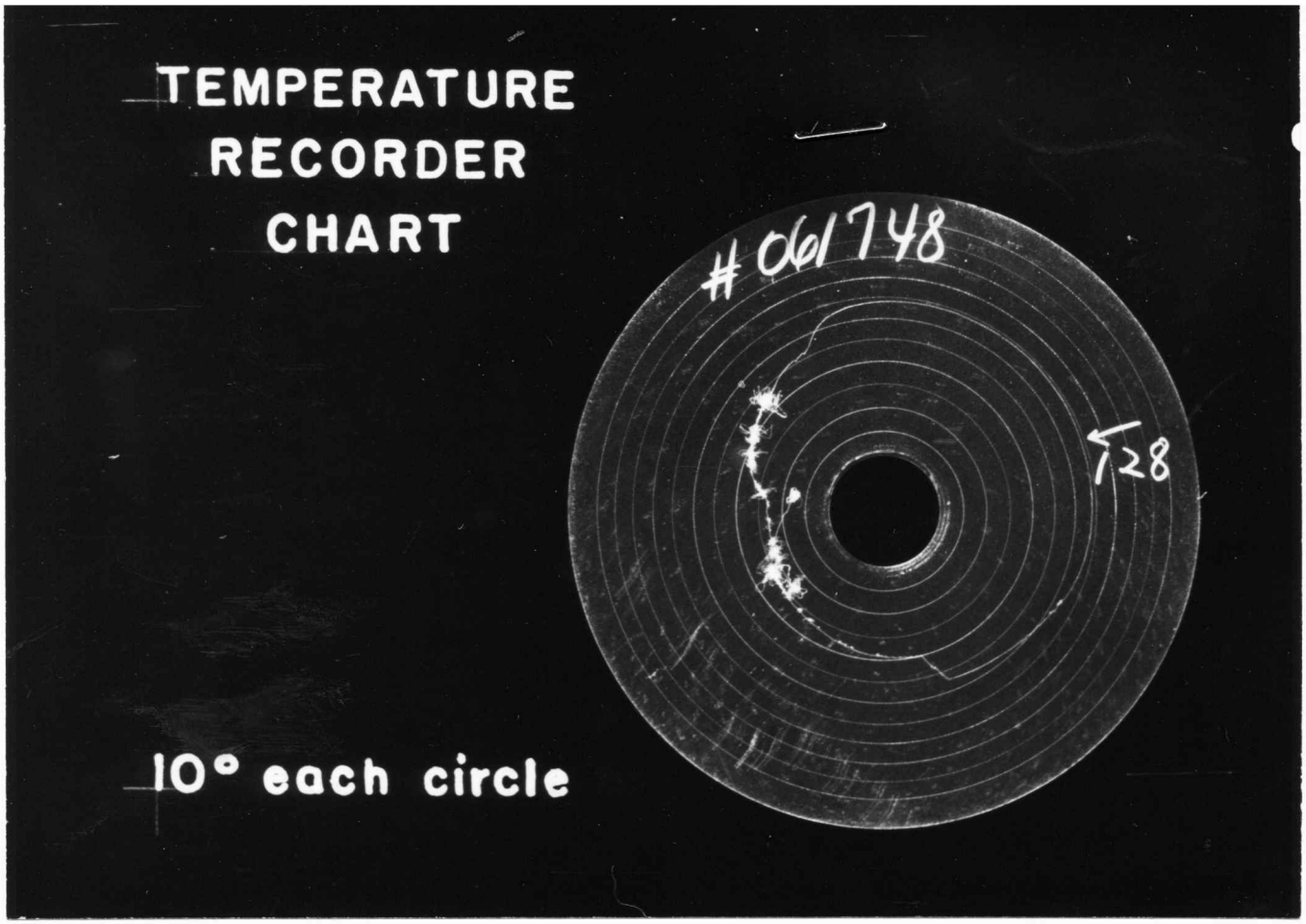
FORM 187 RI--PRINTED IN U.S.A.

EQUIPMENT DATA

LITTLE'S 96676 75C 9/74



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 _____ ° 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 52 sec. cp

Date 10-11-76 Ticket Number 066832

Kind of Job OPEN HOLE Halliburton District EL DORADO

Tester MR. CANNON Witness MR. GOUGH

Drilling Contractor COMPANY TOOLS RIG # 1 DR S

EQUIPMENT & HOLE DATA

Formation Tested Simpson

Elevation 1381' KB Ft.

Net Productive Interval 10' Ft.

All Depths Measured From Kelly Bushing

Total Depth 3956' Ft.

Main Hole/Casing Size 7 7/8" HOle-8 5/8" Csg.

Drill Collar Length 144' I.D. 2.25"

Drill Pipe Length 941-WP-2813' I.D. 2.764"-3.826"

Packer Depth(s) 3946' Ft.

Depth Tester Valve 3930' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve Surface Choke 1/4" Bottom Choke 3/4"

Recovered 15 Feet of mud

Recovered Feet of

Recovered Feet of

Recovered Feet of

Recovered Feet of

Remarks SEE PRODUCTION TEST DATA SHEET

TEMPERATURE	Gauge No. 5595 Depth: 3935 Ft.	Gauge No. 5594 Depth: 3953 Ft.	Gauge No. Depth: Ft.	TIME
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool Opened 1639 A.M. P.M.
Est. 125 °F.	Blanked Off No	Blanked Off Yes	Blanked Off	Opened A.M.
Actual °F.	Pressures	Pressures	Pressures	Bypass 1840 P.M.

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic			1962	2033	1971				
First Period	Flow Initial		8	10	16			———	———
	Flow Final		10	20	19			31	31
	Closed in		1053	1044	1057			30	30
Second Period	Flow Initial		14	20	28			———	———
	Flow Final		14	22	25			30	31
	Closed in		944	949	953			30	29
Third Period	Flow Initial							———	———
	Flow Final								
	Closed in								
Final Hydrostatic			1943	1941	1951			———	———

Legal Location Sec. - Twp. - Rng. 2-28S-2W

Lease Name BUERKI

Well No. 1

Test No. 6

Tested Interval 3946-3956'

Field Area WILDCAT

Mea. From Tester Valve

County SEDGWICK

State KANSAS

Lease Owner/Company Name

FORM 181-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 10M 8/74

Casing perfs._____ Bottom choke 3/4" Surf. temp._____ °F Ticket No. 066832

Gas gravity._____ Oil gravity._____ GOR_____

Spec. gravity._____ Chlorides._____ ppm Res._____ @_____ °F

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED 2" Merla Well tester

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
1200					Called out
1425					On location
1500					Picked up tools
1515					Started tools in hole
1637					On bottom
1639					Opened tool with no blow
1644					Flushed tool no blow
1646					Flushed tool, no blow
1648					Closed hydrospring
0650					Opened tool with a few bubbles, then
					no blow
1710					Closed tool
1740					Opened tool with no blow
1810					Closed tool
1840					Pulled out of hole.
2015					Tool in table

Gauge No.	5595		Depth	3935'		Clock No.	13663		12 hour	Ticket No.	066832			
	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	8	.000		10	.000	14	.000		14					
1	.055	9 B	.0202		19	.211	14	.0131		25*					
2	.069	10A	.0404		47			.0328		50					
3	.205	10	.0606		166			.0524		116					
4			.0808		421			.0721		264					
5			.1010		586			.0917		445					
6			.1212		660			.1114		599					
7			.1414		793			.1311		720					
8			.1616		904			.1508		811					
9			.1818		991			.1704		891					
10			.2020		1053			.1900		944					
11															
12															
13															
14															
15															
Gauge No.			5594		Depth	3953'		Clock No.		3459	hour	12			
0	.000	16	.000		19	.000	28	.000		25					
1	.052	17 B	.0193		29	.203	25	.0132		34*					
2	.067	19 A	.0386		60			.0329		59					
3	.202	19	.0580		155			.0527		119					
4			.0772		378			.0725		257					
5			.0965		574			.0922		449					
6			.1158		666			.1120		599					
7			.1351		804			.1317		723					
8			.1544		914			.1515		820					
9			.1737		996			.1713		896					
10			.1930		1057			.1910		953					
11															
12															
13															
14															
15															
Reading Interval			3					3							Minutes

REMARKS: *-2 minutes B-Before by pass A-After by pass

FORM 183-R1—PRINTED IN U.S.A.

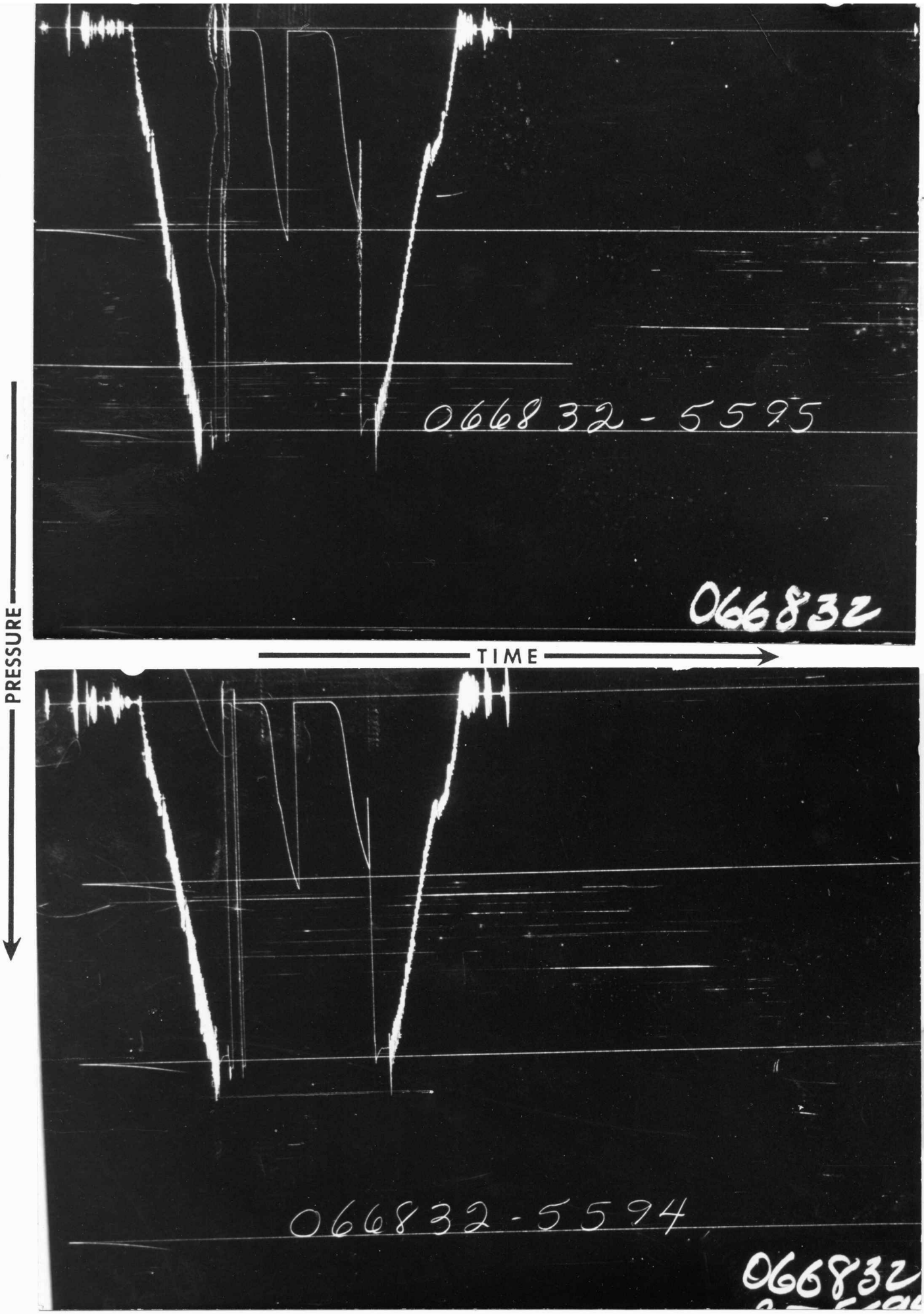
SPECIAL PRESSURE DATA

LITTLE'S 96673 75C 8/74

TICKET NO. 066832

	O. D.	I. D.	LENGTH	DEPTH
~~Drill Pipe or Tubing~~ change over	5"	2.25"	1'	
~~Reversing Sub~~ Circ. sub	5"	3.00"	1'	
Change over	5"	2.25"	1'	
Water Cushion Valve WT. Pipe	4½"	2.764"	941'	
Drill Pipe	4½"	3.826"	2813'	
Drill Collars		2.25"	144'	
Handling Sub & ~~Choke Assembly~~	5"	2.25"	3'	
Dual CIP Valve	5"	.87"	5'	3925'
Dual CIP Sampler				
Hydro-Spring Tester	5"	.75"	5'	3930'
	5"	2.25"	1' Double pin	
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.25"	4'	3935'
Hydraulic Jar				
VR Safety Joint	5"	1.00"	3'	
Pressure Equalizing Crossover				
Packer Assembly	6 3/4"	1.53"	6'	3946'
Distributor				
Packer Assembly				
Flush Joint Anchor	5"	2.37"	5'	
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				
Blanked-Off B.T. Running Case	5"	2.75"	4'	3953'
Total Depth				3956'

EQUIPMENT DATA



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