

FLUID SAMPLE DATA		Date	10-16-77	Ticket Number	182939
Sampler Pressure _____ P.S.I.G. at Surface	Recovery: Cu. Ft. Gas _____	Kind of Job	OPEN HOLE	Halliburton District	NESS CITY
cc. Oil _____	cc. Water _____	Tester	CLAPP	Witness	WALLACE
cc. Mud _____	Tot. Liquid cc. _____	Drilling Contractor	Abercrombie Drilling Company NM S		
Gravity _____ ° API @ _____ ° F.	Gas/Oil Ratio _____ cu. ft./bbl.	EQUIPMENT & HOLE DATA			
RESISTIVITY _____	CHLORIDE CONTENT _____	Formation Tested	Mississippian		
Recovery Water _____ @ _____ ° F. _____ ppm	Recovery Mud _____ @ _____ ° F. _____ ppm	Elevation	-		
Recovery Mud Filtrate _____ @ _____ ° F. _____ ppm	Mud Pit Sample _____ @ _____ ° F. _____ ppm	Net Productive Interval	7' _____ Ft.		
Mud Pit Sample Filtrate _____ @ _____ ° F. _____ ppm	Mud Weight 9.4 vis 70 sec	All Depths Measured From	Kelly Bushing		
		Total Depth	4588' _____ Ft.		
		Main Hole/Casing Size	7 7/8" _____ Ft.		
		Drill Collar Length	338' I.D. 2.25"		
		Drill Pipe Length	WP 688' - 3475' I.D. WP 2.764" - 3.826"		
		Packer Depth(s)	4522' - 4528' _____ Ft.		
		Depth Tester Valve	4510' _____ Ft.		

Cushion	TYPE	AMOUNT	Depth Back Pres. Valve	Surface Choke	Bottom Choke
	NONE	NONE	NONE	1/4"	3/4"
Recovered	5'	Feet of	slightly oil cut mud		
Recovered	3'	Feet of	clean gassy oil		
Recovered		Feet of			
Recovered		Feet of			
Recovered		Feet of			
Remarks	SEE PRODUCTION TEST DATA SHEET...				

TEMPERATURE	Gauge No.	6765	Gauge No.	6764	Gauge No.	TIME		
	Depth:	4511' Ft.	Depth:	4584' Ft.	Depth:			
Est. _____ ° F.	12	Hour Clock	12	Hour Clock	Tool _____ A.M.			
Actual 4583' @ _____ ° F.	Blanked Off	NO	Blanked Off	YES	Opened 0805 P.M.			
	Pressures		Pressures		Bypass 1105 P.M.			
	Field	Office	Field	Office	Field	Office	Reported	Computed
Initial Hydrostatic	-	2167	2206	2205			Minutes	Minutes
First Period Flow	Initial	-	12	42	55			
	Final	-	17	52	52			
Closed in	-	1220	1250	1255			30	32
Second Period Flow	Initial	-	23	52	64			
	Final	-	22	52	56			30
Closed in	-	1120	1145	1151			60	59
Third Period Flow	Initial							
	Final							
Closed in								
Final Hydrostatic	-	2154	2186	2191				

Legal Location Sec. - Twp. - Rng. 24 - 19 - 26W

Lease Name VOGEL 1

Well No. 1

Test No. 1

Field Area Meas. From Tester Valve

Tested Interval 4528' - 4588'

County NESS

State KANSAS

Lease Owner/Company Name K & E PETROLEUM, INCORPORATED

Casing perms. _____ Bottom choke _____ Surf. temp _____ °F Ticket No. 182939
 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
2200						Called out.
0030						On location - rig circulating the hole for DST # 1
0115						Rig started pulling drill pipe.
0455						Rig finished pulling drill pipe
0545						Picked up and made up the tool.
0555						Started tool in the hole.
0802						Tool on bottom.
0805						Hydrospring opened with a very weak blow with no increase throughout the opening.
0835						Closed tool.
0935						Opened tool with no blow during the opening.
1005						Closed tool.
1105						Tool off bottom.
1315						Tool back through the table.
1400						Broke tool down - laid on the catwalk.
1420						Read charts.
1430						Job complete...

Gauge No.		6765		Depth		4511'		Clock No.		3926 X		12 hour		Ticket No.		182939	
First Flow Period		Closed In Pressure				Second Flow Period				Closed In Pressure				Third Flow Period			
Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Log $t + \frac{\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Log $t + \frac{\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Log $t + \frac{\theta}{\theta}$	PSIG Temp. Corr.
0	.000	.000	17	.000	23	.000	23	.000	22	.000	22	.000		.000			
1	.0530	.0135	48**	.0397	18***	.0397	18***	.0200	58****	.0200	58****	.0200		.0200			
2	.0928	.0404	296	.0727	19	.0727	19	.0466	255	.0466	255	.0466		.0466			
3	.1325	.0674	630	.1058	19	.1058	19	.0733	565	.0733	565	.0733		.0733			
4	.1723	.0944	839	.1389	20	.1389	20	.0999	758	.0999	758	.0999		.0999			
5	.2120	.1213	952	.1719	21	.1719	21	.1266	874	.1266	874	.1266		.1266			
6		.1483	1031	.2050	22	.2050	22	.1532	945	.1532	945	.1532		.1532			
7		.1753	1083					.1798	994	.1798	994	.1798		.1798			
8		.2022	1120					.2065	1028	.2065	1028	.2065		.2065			
9		.2292	1145					.2331	1052	.2331	1052	.2331		.2331			
10		.2562	1165					.2598	1070	.2598	1070	.2598		.2598			
11		.2831	1180					.2864	1083	.2864	1083	.2864		.2864			
12		.3101	1194					.3131	1095	.3131	1095	.3131		.3131			
13		.3371	1204					.3397	1104	.3397	1104	.3397		.3397			
14		.3640	1213					.3664	1113	.3664	1113	.3664		.3664			
15		.3910	1220					.3930	1120	.3930	1120	.3930		.3930			

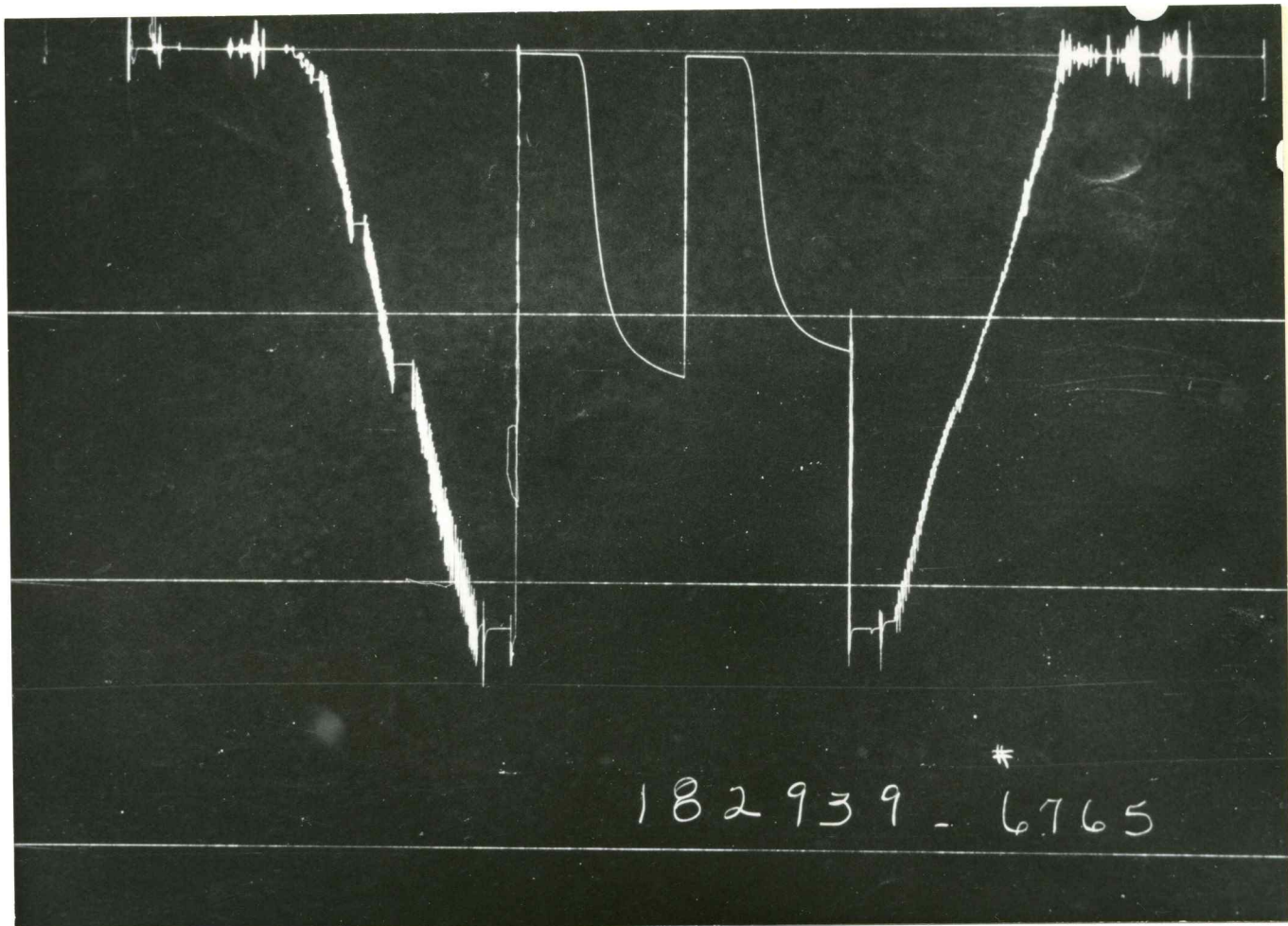
Gauge No.		6764		Depth		4584'		Clock No.		2800X		hour		12			
First Flow Period		Closed In Pressure				Second Flow Period				Closed In Pressure				Third Flow Period			
Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Log $t + \frac{\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Log $t + \frac{\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Log $t + \frac{\theta}{\theta}$	PSIG Temp. Corr.
0	.000	.000	52	.000	64	.000	64	.000	56	.000	56	.000		.000			
1	.0535	.0133	84**	.0397	53***	.0397	53***	.0199	93****	.0199	93****	.0199		.0199			
2	.0936	.0398	370	.0727	54	.0727	54	.0465	289	.0465	289	.0465		.0465			
3	.1338	.0664	689	.1058	54	.1058	54	.0731	599	.0731	599	.0731		.0731			
4	.1739	.0929	878	.1389	55	.1389	55	.0997	798	.0997	798	.0997		.0997			
5	.2140	.1195	990	.1719	55	.1719	55	.1262	914	.1262	914	.1262		.1262			
6		.1460	1068	.2050	56	.2050	56	.1528	984	.1528	984	.1528		.1528			
7		.1726	1119					.1794	1029	.1794	1029	.1794		.1794			
8		.1991	1152					.2060	1062	.2060	1062	.2060		.2060			
9		.2257	1178					.2325	1086	.2325	1086	.2325		.2325			
10		.2522	1198					.2591	1102	.2591	1102	.2591		.2591			
11		.2788	1214					.2857	1117	.2857	1117	.2857		.2857			
12		.3053	1227					.3123	1127	.3123	1127	.3123		.3123			
13		.3319	1237					.3388	1138	.3388	1138	.3388		.3388			
14		.3584	1247					.3654	1145	.3654	1145	.3654		.3654			
15		.3850	1255					.3920	1151	.3920	1151	.3920		.3920			

Reading Interval 6 4 5 4
 REMARKS: * INTERVAL = 8 MINUTES. ** INTERVAL = 2 MINUTES. *** INTERVAL = 6 MINUTES. **** INTERVAL = 3 MINUTES. Minutes



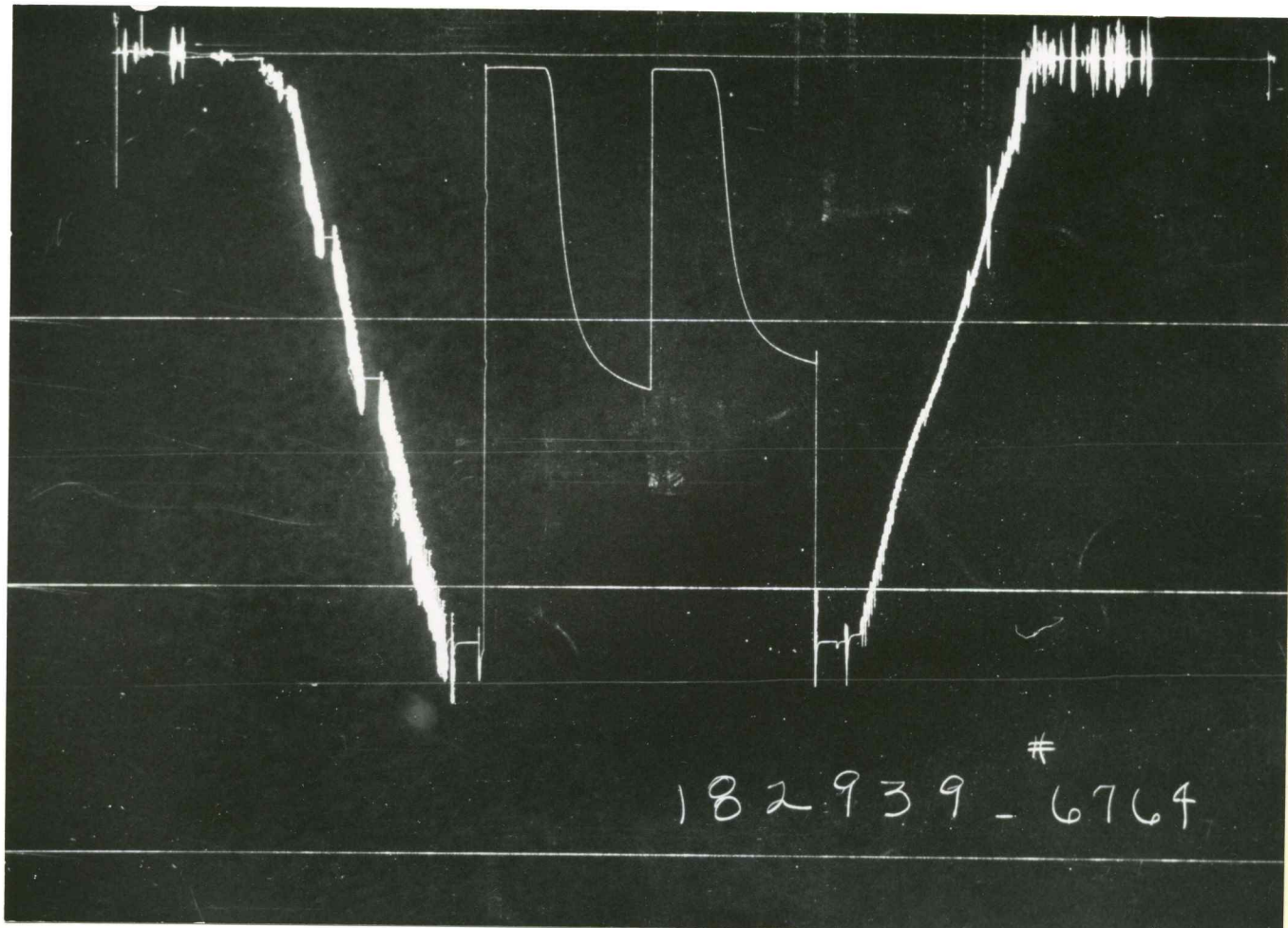
	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing	5.75"	2.75"	1.00'	4438'
Reversing Sub				
Water Cushion Valve				
Drill Pipe	4.5"	3.826"	3475'	
Drill Collars	6.00"	2.25"	338'	
*** Handling Sub & Choke Assembly WT. PIPE	4.5"	2.764"	688'	
Dual CIP Valve	5.00"	.87"	6.00'	4500'
Dual CIP Sampler				
Hydro-Spring Tester	5.00"	.75"	5.00'	4510'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.00"	3.84"	4.00'	4511'
Hydraulic Jar				
VR Safety Joint	5.00"	1.00"	2.80'	
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	5.85'	4522'
Distributor				
Packer Assembly	6.75"	1.53"	5.85'	4528'
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 PIPE	4.50"	3.82"	31.00'	
Flush Joint Anchor	5.00"	3.84"	22.00'	
TEMP. CASE	5.00"	3.00"	1.50'	
Blanked-Off B.T. Running Case	5.00"	2.75"	4.00'	4584'
Total Depth				4588'

↑ PRESSURE ↓



182939 - 6765 *

→ TIME →



182939 - 6764 #

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

TEMPERATURE RECORDER CHART



100 each circle

- 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_{or} = 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				Date 10-17-77		Ticket Number 182940	
Sampler Pressure _____ P.S.I.G. at Surface				Kind of Job OPEN HOLE		Halliburton District NESS CITY	
Recovery: Cu. Ft. Gas _____				Tester T. D. CLAPP		Witness K. WALLACE	
cc. Oil _____				Drilling Contractor ABERCROMBIE DRILLING COMPANY DR			
cc. Water _____				EQUIPMENT & HOLE DATA			
cc. Mud _____				Formation Tested Mississippian			
Tot. Liquid cc. _____				Elevation 2616' KB Ft.			
Gravity 39.6 ° API @ 60 °F.				Net Productive Interval 10' Ft.			
Gas/Oil Ratio _____ cu. ft./bbl.				All Depths Measured From Kelly Bushing			
RESISTIVITY _____ CHLORIDE CONTENT _____				Total Depth 4600' Ft.			
Recovery Water @ _____ °F. _____ ppm				Main Hole/Casing Size 7 7/8"			
Recovery Mud @ _____ °F. _____ ppm				Drill Collar Length 297' I.D. 2.25"			
Recovery Mud Filtrate @ _____ °F. _____ ppm				Drill Pipe Length 3536'-726' I.D. 3.826"-2.764"			
Mud Pit Sample @ _____ °F. _____ ppm				Packer Depth(s) 4584-4590' Ft.			
Mud Pit Sample Filtrate @ _____ °F. _____ ppm				Depth Tester Valve 4568' Ft.			
Mud Weight 9.4 vis 47 sec				Cushion TYPE AMOUNT			
				Ft. Depth Back Pres. Valve		Surface Choke 1/4" Bottom Choke 3/4"	
Recovered 230 Feet of clean gassy oil				Mea. From Tester Valve			
Recovered 60 Feet of muddy oil							
Recovered 30 Feet of oil cut mud							
Recovered 30 Feet of muddy water							
Recovered Feet of							
Remarks SEE PRODUCTION TEST DATA SHEET							
TEMPERATURE							
Gauge No. 6765		Gauge No. 6764		Gauge No.		TIME	
Depth: 4573' Ft.		Depth: 4596 Ft.		Depth: Ft.			
12 Hour Clock		12 Hour Clock		Hour Clock		Tool A.M.	
Blanked Off NO		Blanked Off YES		Blanked Off		Opened 0445 P.M.	
4395' °F.						Opened A.M.	
Actual 114 °F.		Pressures		Pressures		Bypass 0815 P.M.	
		Field Office		Field Office		Reported Computed	
Initial Hydrostatic		2207 2190				Minutes Minutes	
Flow Initial		9 21					
Flow Final		12 63				30 33	
Closed in		CLOCK STOPPED AFTER 1270 1271				60 58	
Flow Initial		6 MINUTES. 73 79					
Flow Final		125 136				60 60	
Closed in		1197 1200				60 59	
Flow Initial							
Flow Final							
Closed in							
Final Hydrostatic		2155 2167					

Legal Location Sec - Twp - Rng. 24-19-26W
 Lease Name VOGEL
 Well No. 1
 Test No. 2
 Tested Interval 4590-4600'
 County NESS
 State KANSAS
 Lease Owner/Company Name K & E PETROLEUM, INCORPORATED

Casing perms. _____ Bottom choke _____ Surf. temp _____ °F Ticket No. 182940
 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
2315						Called out
2345						On location-rig circulating hole for DST # 2
0020						Rig started pulling drill pipe
0230						Rig finish pulling drill pipe
0310						Picked up, made up tool
0315						Started tool in hole
0443						Tool on bottom
0445						Opened tool with a weak blow, building to a fair blow through opening
0515						Closed tool
0615						Opened tool with a fair blow increasing to moderate throughout opening.
0715						Closed tool
0815						Tool off bottom
1030						Tool back through table
1100						Broke tool down-laid on catwalk
1120						Read charts
1130						Job completed

8

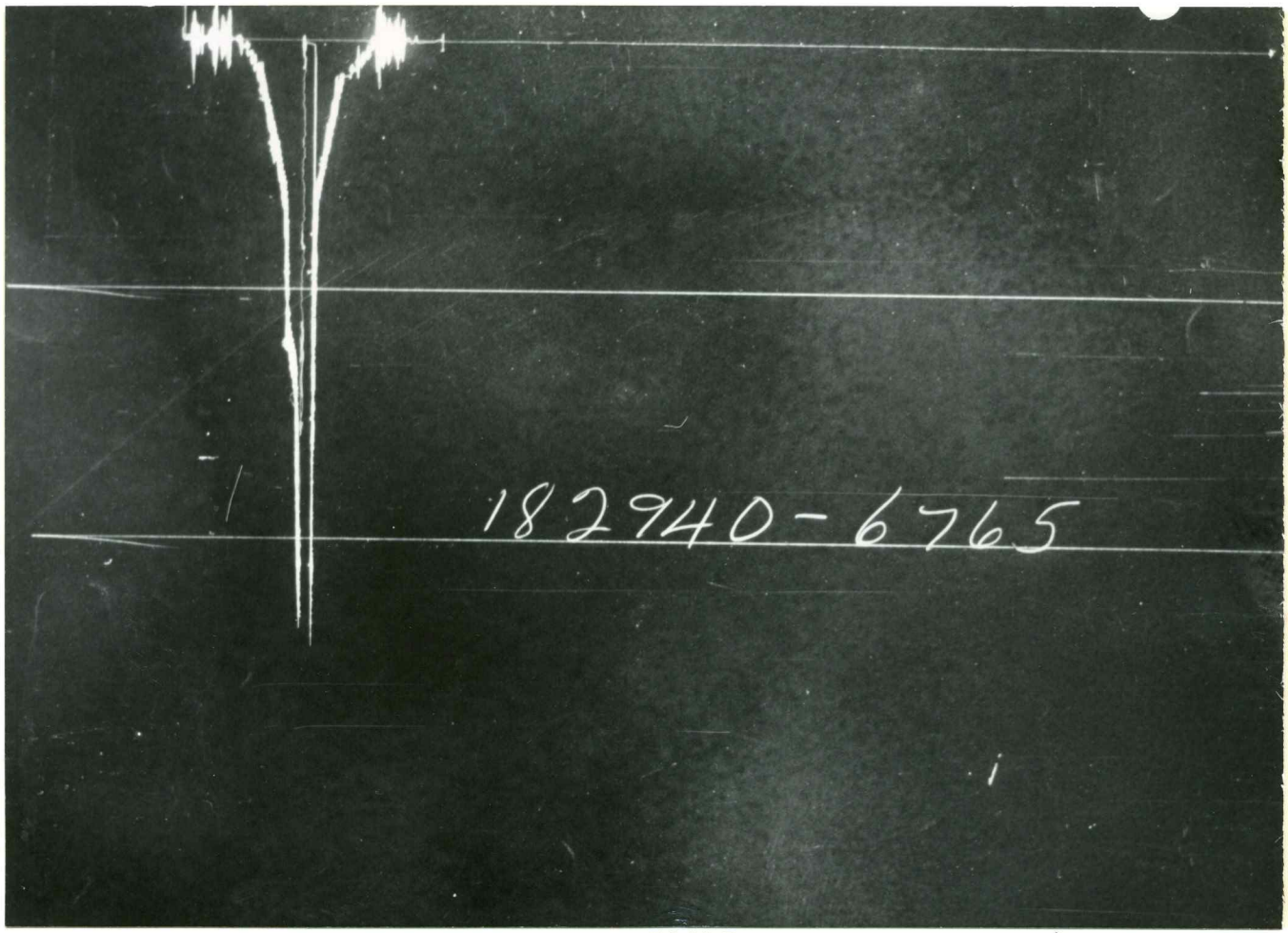
Gauge No. 6765		Depth 4573'		Clock No. 3926 X		12 hour		Ticket No. 182940	
First Flow Period		First Closed In Pressure		Second Flow Period		Second Closed In Pressure		Third Flow Period	
Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.
Log $\frac{t + \theta}{\theta}$		Log $\frac{t + \theta}{\theta}$		Log $\frac{t + \theta}{\theta}$		Log $\frac{t + \theta}{\theta}$		Log $\frac{t + \theta}{\theta}$	
0									
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
CLOCK STOPPED AFTER 6 MINUTES.									
Gauge No. 6764 Depth 4596' Clock No. 2800 X hour 12									
0	.000	.000	65	.000	79	.000	136		
1	.0529	31*	235**	.0662	81	.0198	734***		
2	.0859	39	1137	.1323	94	.0462	1062		
3	.1189	44	1174	.1985	105	.0725	1093		
4	.1519	50	1197	.2647	117	.0989	1114		
5	.1850	57	1214	.3309	128	.1253	1130		
6	.2180	65	1225	.3970	136	.1516	1145		
7			1235			.1780	1154		
8			1242			.2044	1164		
9			1249			.2308	1171		
10			1255			.2571	1178		
11			1259			.2835	1184		
12			1263			.3099	1188		
13			1266			.3363	1193		
14			1269			.3626	1197		
15			1271			.3890	1200		
Reading Interval		5	4	10		4		Minutes	
REMARKS: *--8 minutes **--2 minutes ***--3minutes.									

SPECIAL PRESSURE DATA





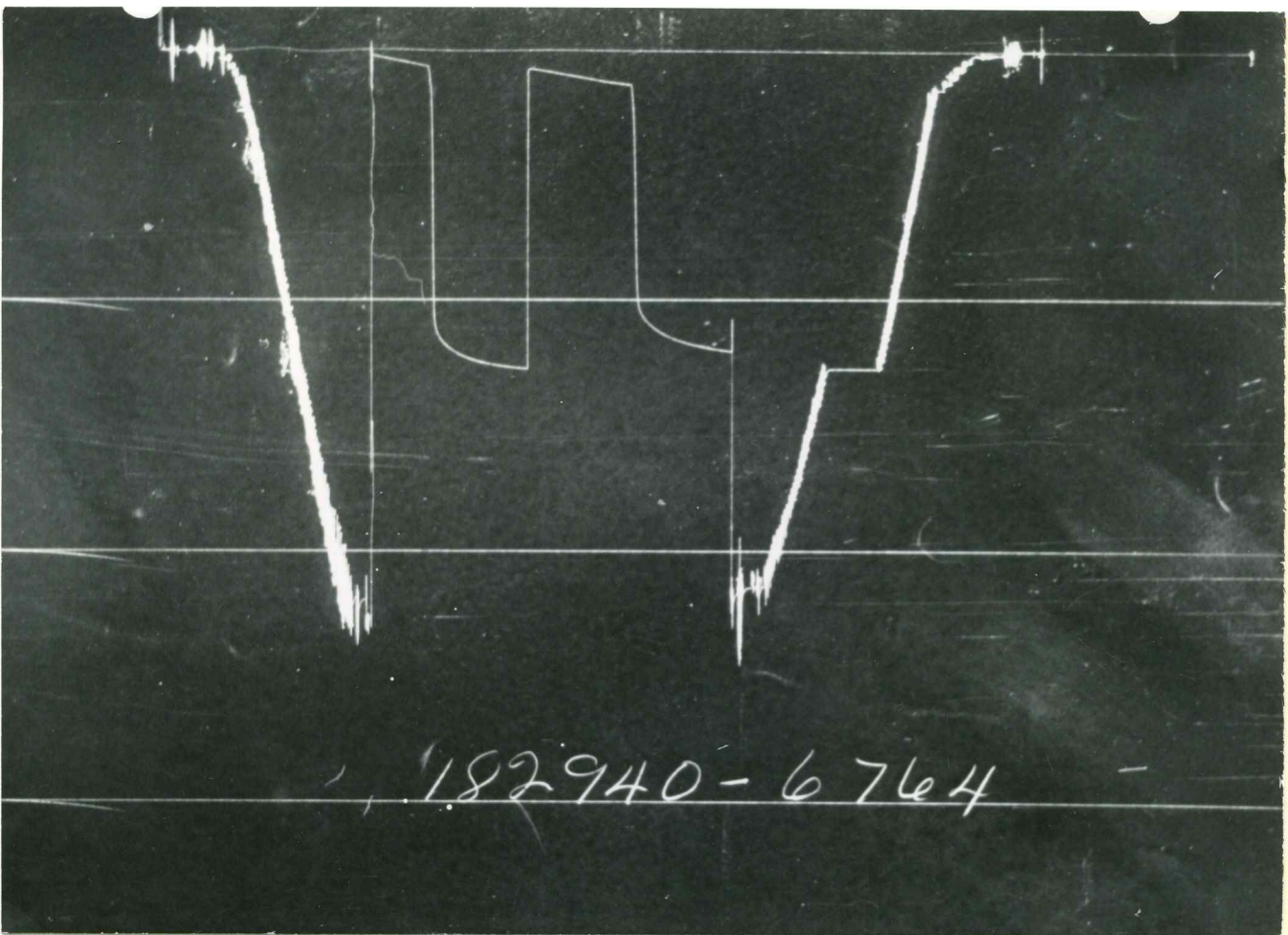
	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	5.75"	2.75"	1.00'	4457'
Water Cushion Valve	4.50"	2.764"	726.0' Flex Weight	
Drill Pipe	4.50"	3.826"	3536'	
Drill Collars	6.00"	2.25"	297.0'	
Handling Sub & Choke Assembly				
Dual CIP Valve	5.0"	.87"	6.00'	4562'
Dual CIP Sampler				
Hydro-Spring Tester	5.0"	.75"	5.00'	4568'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.0"	3.06"	4.00'	4573'
Hydraulic Jar				
VR Safety Joint	5.0"	1.00"	2.80'	
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	5.85'	4584'
Distributor				
Packer Assembly	6.75"	1.53"	5.85'	4590'
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	5.0"	3.84"	3.00'	
	5.00"	3.00"	1.50' Temp. Case	
Blanked-Off B.T. Running Case	5.0"	2.75"	4.00'	4596'
Total Depth				4600'



182940-6765

PRESSURE

TIME



182940-6764

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

TEMPERATURE RECORDER CHART



10° each circle

- OF₃ = Theoretical Open Flow Potential with/Damage Removed Max. MCF/D
- OF₄ = 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
- Q₁ = 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.