

Flow Time	1st 30 Min.	2nd 30 Min.	Date	8-15-68	Ticket Number	508691 - S
Closed In Press. Time	1st 30 Min.	2nd 32 Min.	Kind of Job	OPEN HOLE	Halliburton District	HAYS, KANSAS
Pressure Readings	Field	Office Corrected	Tester	WEATHERBEE	Witness	LOUNSBURY
Depth Top Gauge	4286' Ft.	- Blanked Off	Drilling Contractor	MURFIN DRILLING COMPANY # 2		
BT. P.R.D. No.	1891	12 Hour Clock	Elevation	2392' K.B.	Top Packer	4279'
Initial Hydro Mud Pressure		2336	Total Depth	4310'	Bottom Packer	4283'
Initial Closed in Pres.		992	Interval Tested	(NET PAY 8') 4283' - 4310'	Formation Tested	FORT SCOTT
Initial Flow Pres.		1 59	Casing or Hole Size	7 7/8"	Casing } Top -	
Final Flow Pres.		2 403	Surface Choke	1/4"	Perfs. } Bot. -	
Final Closed in Pres.		1 366	Size & Kind Drill Pipe	4 1/2" F.H.	Bottom Choke	3/4"
Final Hydro Mud Pressure		2 501	Mud Weight	9.9	Drill Collars Above Tester	I.D. - LENGTH 2 1/2" x 230'
Depth Cen. Gauge		878	Temperature	105 4305 @ 113°	Mud Viscosity	960' FLEX WT. 42
BT. P.R.D. No.		Hour Clock	Anchor Size & Length	ID 2 7/8" OD 5" X 27'	Depth of Tester Valve	4270' Ft.
Initial Hydro Mud Pres.			TYPE AMOUNT		Depth Back Pres. Valve	NONE Ft.
Initial Closed in Pres.			Cushion	NONE		
Initial Flow Pres.			Recovered	1080' Feet of gas	<div style="border: 1px solid black; padding: 5px; text-align: center;"> MAILED AUG 22 1968 Halliburton Company Duncan, Oklahoma </div>	
Final Flow Pres.			Recovered	500' Feet of free oil		
Final Closed in Pres.			Recovered	880' Feet of frothy		
Final Hydro Mud Pres.			Recovered	Feet of		
Depth Tot. Gauge	4306' Ft.	Blanked Off YES	Oil A.P.I. Gravity	42 @ 92°	Water Spec. Gravity	
BT. P.R.D. No.	1890	12 Hour Clock	Gas Gravity		Surface Pressure	psi
Initial Hydro Mud Pres.	2352	2364	Tool Opened	2:45 PM A.M.	Tool Closed	4:47 PM A.M.
Initial Closed in Pres.	1000	999	Remarks	On bottom @ 2:42 - tool opened @ 2:45		
Initial Flow Pres.	107	1 71		with a strong blow for a 30 minute first flow. Tool		
Final Flow Pres.	375	2 414		closed @ 3:15 for a 30 minute initial closed in		
Initial Closed in Pres.	410	1 376		pressure. Tool reopened @ 3:45 with a very weak		
Final Hydro Mud Pres.	508	2 511		blow. Tool closed @ 4:15. Took a 32 minute final		
Initial Closed in Pres.	883	887		closed in pressure. Off bottom @ 4:47.		

FORMATION TEST DATA

SPECIAL PRESSURE DATA

EXTRAPOLATED PRESSURE GRAPH

MURFIN DRILLING COMPANY
Legal Location Sec. - Twp. - Rng. 12 - 17 - 22
Lessee Name
Well No. 1
Field Area
County NESS
State KANSAS
District
MURFIN DRILLING COMPANY
Lessee Owner/Company Name
District

Gauge No.		1891		Depth		4286'		Clock		12 hour		Ticket No.		508691	
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	59	.000	-----	366	.000	403	.000	-----	501					
P ₁	.0348	128	.0207	1.045	808	.0343	434	.0200	1.337	744					
P ₂	.0696	188	.0414	.781	854	.0686	458	.0400	1.055	773					
P ₃	.1044	241	.0621	.640	886	.1029	471	.0600	.898	796					
P ₄	.1392	289	.0828	.547	911	.1372	481	.0800	.791	811					
P ₅	.1740	330	.1035	.479	930	.1715	492	.1000	.711	825					
P ₆	.209	366	.1242	.428	946	.206	501	.1200	.649	837					
P ₇			.1449	.387	960			.1400	.598	847					
P ₈			.1656	.354	972			.1600	.555	857					
P ₉			.1863	.326	983			.1800	.519	866					
P ₁₀			.207	.303	992			.2000	.487	873					
								.213	.469	878*					

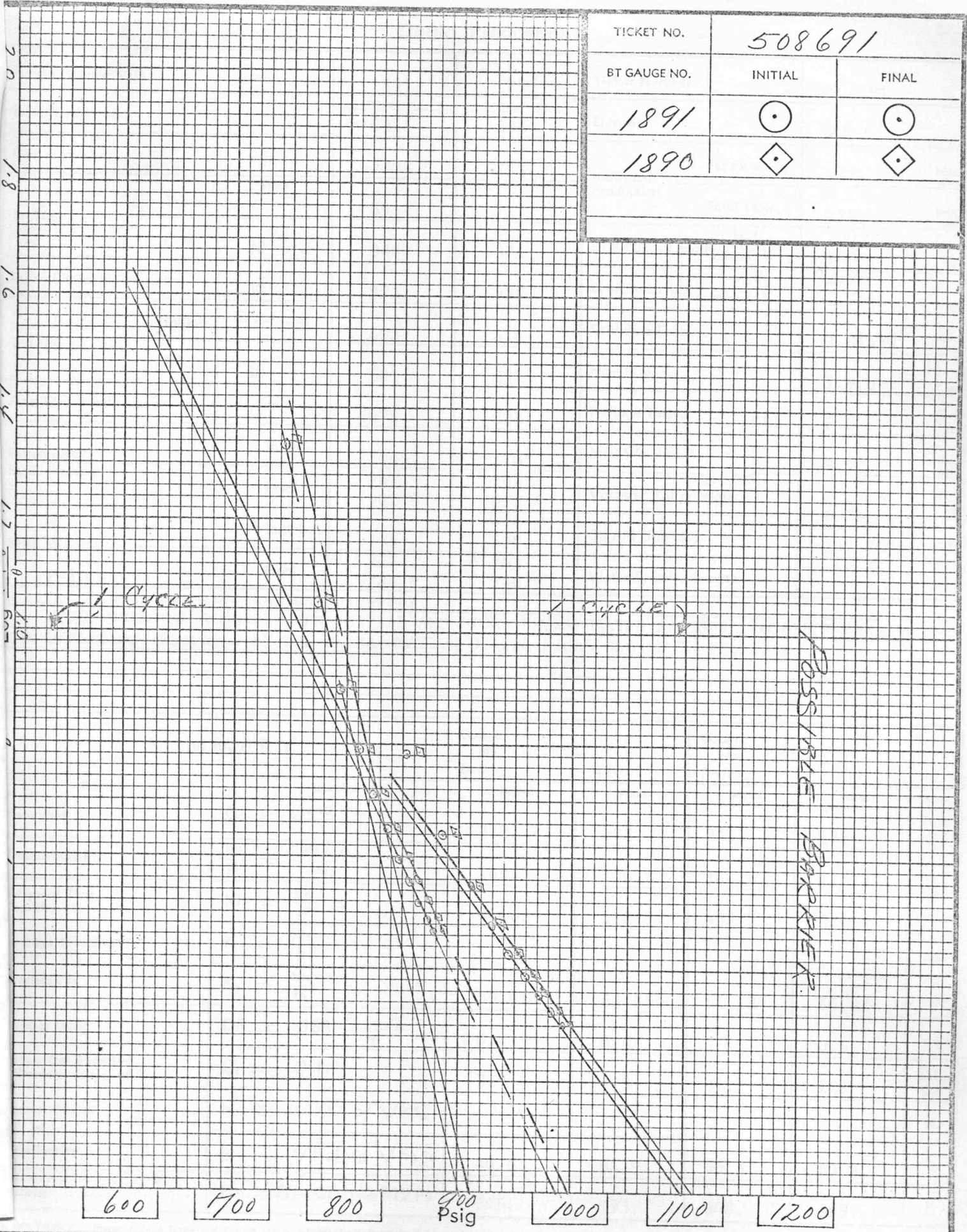
Gauge No.		1890		Depth		4306'		Clock		12 hour	
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{e}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{e}$	PSIG Temp. Corr.	
P ₀	.000	71	.000	-----	376	.000	414	.000	-----	511	
P ₁	.0348	143	.0204	1.050	821	.0348	444	.0199	1.342	754	
P ₂	.0696	202	.0408	.786	863	.0696	466	.0398	1.060	785	
P ₃	.1044	255	.0612	.644	896	.1044	479	.0597	.903	805	
P ₄	.1392	300	.0816	.551	919	.1392	590	.0796	.795	821	
P ₅	.1740	340	.1020	.484	939	.1740	502	.0995	.716	835	
P ₆	.209	376	.1224	.432	954	.209	511	.1194	.653	846	
P ₇			.1428	.391	969			.1393	.602	857	
P ₈			.1632	.358	979			.1592	.559	866	
P ₉			.1836	.330	990			.1791	.522	874	
P ₁₀			.204	.306	999			.1990	.491	882	
								.212	.473	887 *	

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

SPECIAL PRESSURE DATA

5

TICKET NO.	508691	
BT GAUGE NO.	INITIAL	FINAL
1891	○	○
1890	◇	◇



EXTRAPOLATED PRESSURE GRAPH

INTERPRETATIONS AND CALCULATIONS

Liquid Production

B.T. Gauge Numbers			1891	1890	Ticket Number	508691	
Initial Hydrostatic			PRESSURE 2336	PRESSURE 2364	Elevation	2392 ft.	
Final Hydrostatic			2308	2332	Indicated Production	1st Flow 311 bbls. day	
1st Flow	Initial	Time -----	59	71		Total Flow 128 bbls. day	
	Final	30	366	376	Drill Collar Length	D.C. 230 FLEX WT. 960 ft.	
Initial Closed In Pressure			30	992	999	Drill Collar I.D.	D.C. 2.25 FLEX WT. 2.764 in.
2nd Flow	Initial	-----	403	414	Drill Pipe Factor	0.01422 bbls. ft.	
	Final	30	501	511	Hole Size	7.875 in.	
Final Closed In Pressure			32	878	887	Footage Tested	NET 8.0 ft.
Extrapolated Static Pressure	Initial		1095	1105	Mud Weight	9.9 lbs. gal.	
	Final		987 901 *	997 911 *	Viscosity, Oil or Water	3.0 cp	
Slope psi/cycle	Initial		745	755	Oil API Gravity	42° @ 92° F 39° CORRECTED	
	Final		753 784 *	763 794 *	Water Specific Gravity	TO 60° F.	

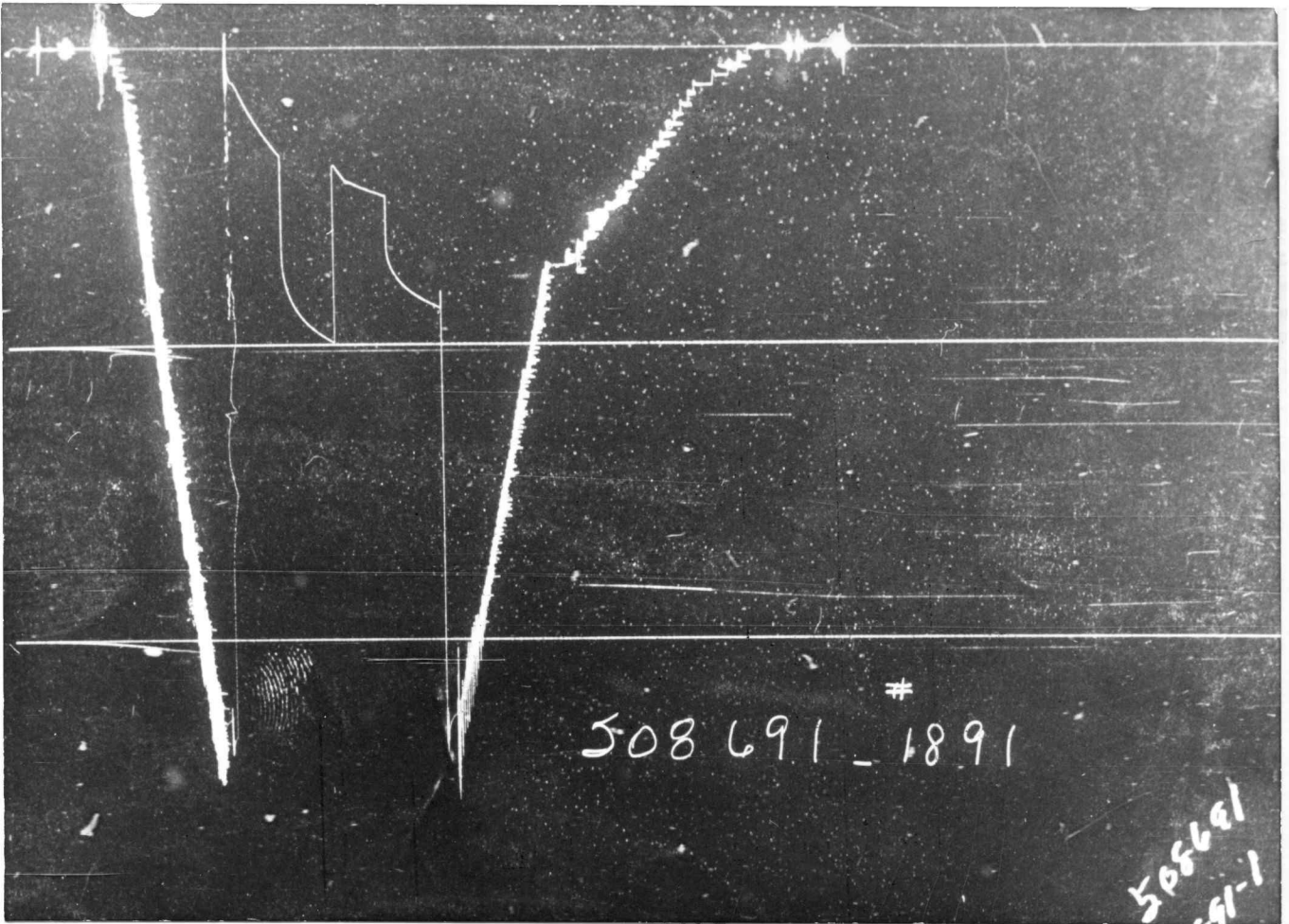
Remarks: * Used for calculation purposed.

NOTE: PRESSURE LOSS BETWEEN INITIAL AND FINAL EXTRAPOLATED PRESSURE POSSIBLE BARRIER AND DEPLETION INDICATED BY THE EXTRAPOLATION OF THE FINAL CLOSED IN PRESSURE.

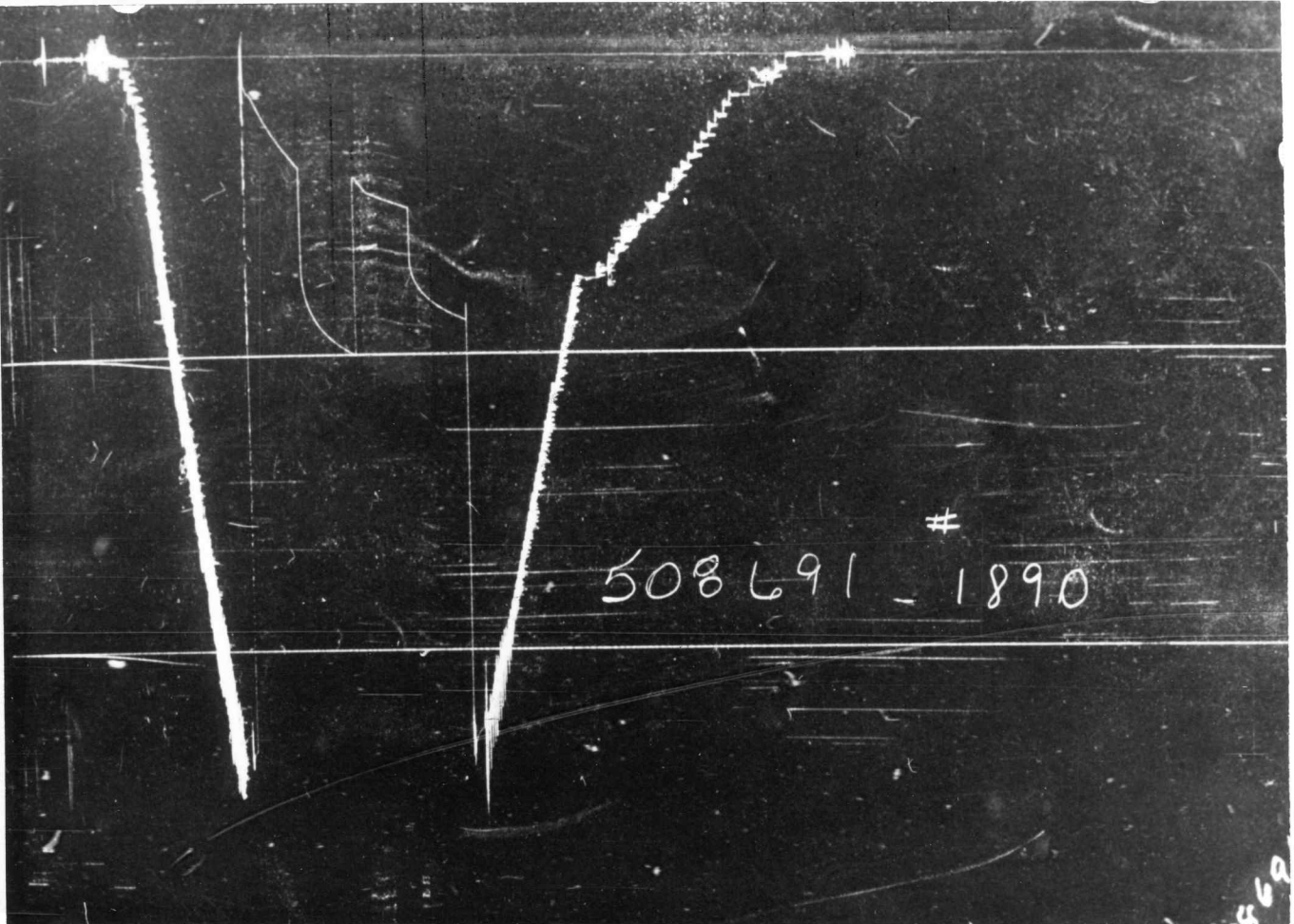
SUMMARY		Gauge No. 1891/ Depth 4286'		Gauge No. 1890/ Depth 4306'		Units
Product	Equation	Initial	Final	Initial	Final	
Production	$Q = \frac{1440 R}{t}$	319.	123	311	128	bbls. day
Transmissibility	$\frac{Kh}{\mu} = \frac{162.6 Q}{m}$	148.3	170.3	144.6	178.2	md. ft. cp
Indicated Flow Capacity	$Kh = \frac{Kh}{\mu} \mu$	444.9	510.9	433.9	534.6	md. ft.
Average Effective Permeability	$K = \frac{Kh}{h}$	-	-	-	-	md.
	$K_r = \frac{Kh}{h_r}$	55.616	63.857	54.234	66.827	md.
Damage Ratio	$DR = .183 \frac{P_s - P_f}{m}$	0.4	0.6	0.4	0.6	-
Theoretical Potential / Damage Removed	$Q_1 = Q DR$	319	123	311	128	bbls. day
Approx. Radius of Investigation	$b \approx \sqrt{Kt}$ or $\sqrt{Kt_0}$	-	-	-	-	ft.
	$b_1 \approx \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$	40.8	61.9	40.3	63.3	ft.
Potentiometric Surface *	$Pot. = EI - GD + 2.319 P_s$	645.	195.	648.	199.	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.

PRESSURE



TIME



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

TEMPERATURE
RECORDER
CHART



10° each circle

Flow Time	1st 30	Min.	2nd 30	Min.	Date	8-16-68	Ticket Number	508692-S	Legal Location Sec. - Twp. - Rng.
Closed In Press. Time	1st 30	Min.	2nd 30	Min.	Kind of Job	Open hole	Halliburton District	Hays	
Pressure Readings	Field			Office Corrected		Tester	A. Weatherbee	Witness	B. Lounsbury
Depth Top Gauge	4365	Ft.	-	Blanked Off	Drilling Contractor	MURFIN DRILLING COMPANY	sm		
BT. P.R.D. No.	1891		12	Hour Clock	Elevation	2392' KB	Top Packer	4358'	
Initial Hydro Mud Pressure	-		2296		Total Depth	4415'	Bottom Packer	4362'	
Initial Closed in Pres.	-		933		Interval Tested	4362-4415'	Formation Tested	Mississippi	
Initial Flow Pres.	-	1	29		Casing or Hole Size	7 7/8"	Casing Perfs.	Top	
	-	2	40					Bot.	
Final Flow Pres.	-	1	32		Surface Choke	1/4"	Bottom Choke	3/4"	
	-	2	41						
Final Closed in Pres.	-		819		Size & Kind Drill Pipe	4 1/2" FH	Drill Collars Above Tester	960'	I.D. - LENGTH 2 1/2" x 230' Flex wt.
Final Hydro Mud Pressure	-		2284		Mud Weight	9.8	Mud Viscosity	43	
Depth Cen. Gauge		Ft.		Blanked Off	Temperature	114 °F Est. 4410' @ 118° °F Actual	Anchor Size & Length	ID 2 7/8" 4" OD 5" 4 1/2" 22-3	
BT. P.R.D. No.				Hour Clock	Depths Mea. From	Kelly bushing	Depth of Tester Valve	4349	Ft.
Initial Hydro Mud Pres.					Cushion	none	Depth Back Pres. Valve		Ft.
Initial Closed in Pres.					Recovered	50	Feet of mud	<div style="border: 1px solid black; padding: 5px; text-align: center;"> MAILED AUG 22 1968 Halliburton Company Duncan, Oklahoma </div>	
Initial Flow Pres.		1			Recovered		Feet of		
Final Flow Pres.		1			Recovered		Feet of		
Final Closed in Pres.		2			Recovered		Feet of		
Final Hydro Mud Pres.					Recovered		Feet of		
Depth Bot. Gauge	4411	Ft.	yes	Blanked Off	Oil A.P.I. Gravity		Water Spec. Gravity		
BT. P.R.D. No.	1890		12	Hour Clock	Gas Gravity		Surface Pressure	psi	
Initial Hydro Mud Pres.	2371		2322		Tool Opened	9:20 PM	A.M. Tool Closed	11:20	A.M. P.M.
Initial Closed in Pres.	964		954		Remarks	Tool opened with a very weak blow for a 30 minute first flow. Closed for a 30 minute			
Initial Flow Pres.	44	1	54			initial closed in pressure. Tool re-opened with			
Final Flow Pres.	53	2	65			no blow. Took a 30 minute final closed in pressure.			
Final Closed in Pres.	839		842			NOTE: Unable to scribe 3000# line on BT. # 1891			
Final Hydro Mud Pres.	2352		2310						

FORMATION TEST DATA
SPECIAL PRESSURE DATA

Lease Name: _____
 Well No.: _____
 Test No.: _____
 Field Area: _____
 County: _____
 Lease Owner/Company Name: _____
 State: KANSAS
 12 17 22
 5
 5

Log
Sec.

Gauge No. 1891		Depth 4365'			Clock 12 hour		Ticket No. 508692			
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	29	.000		32	.00	40	.000		41
P ₁	.0412	28	.0222		84	.207	41	.0229		87
P ₂	.0824	30	.0444		202			.0458		176
P ₃	.1236	30	.0666		352			.0687		300
P ₄	.1648	31	.0888		498			.0916		411
P ₅	.2060	32	.1110		611			.1145		504
P ₆			.1332		702			.1374		589
P ₇			.1554		775			.1603		664
P ₈			.1776		839			.1832		723
P ₉			.1998		891			.2061		773
P ₁₀			.2220		933			.2290		819

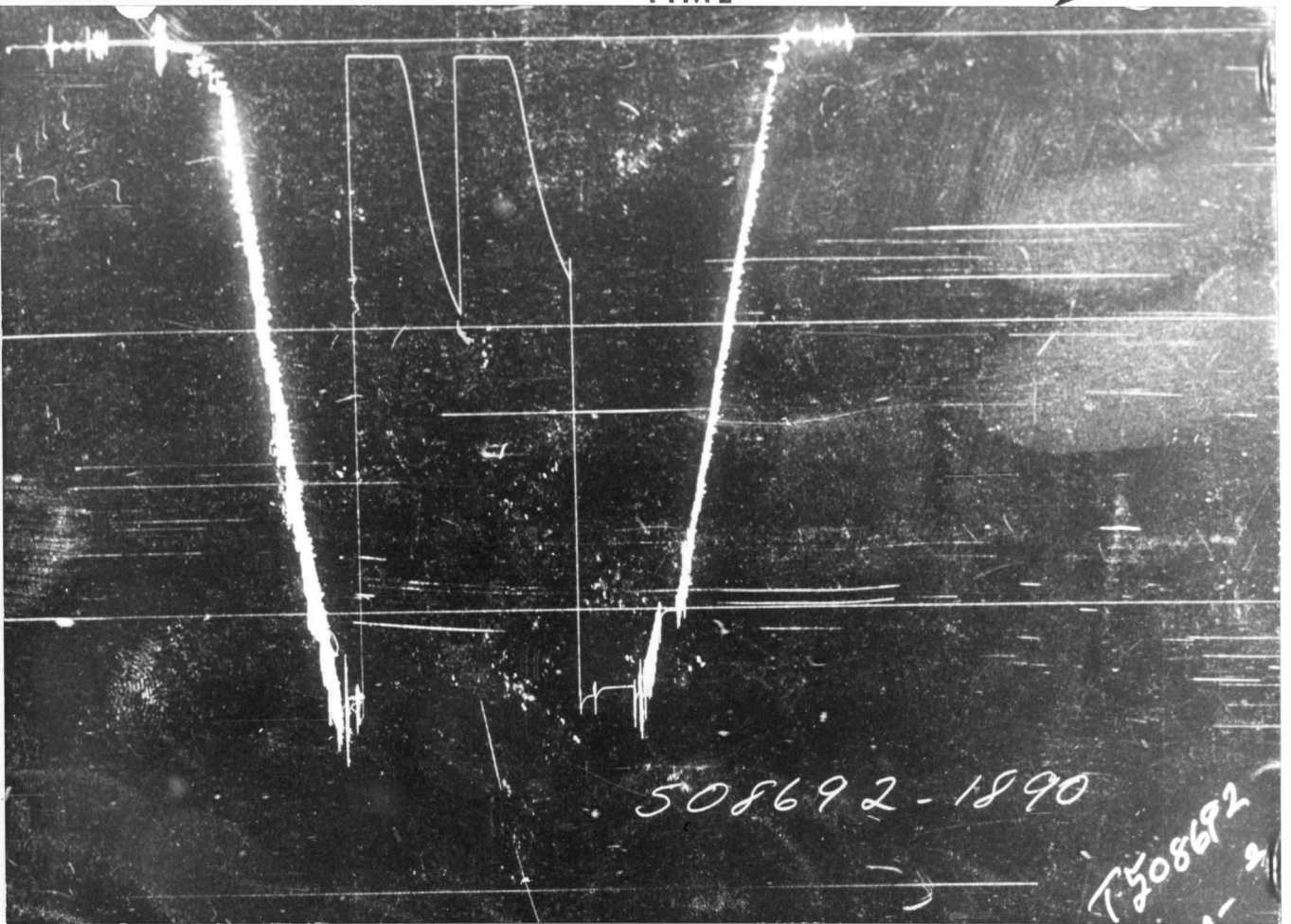
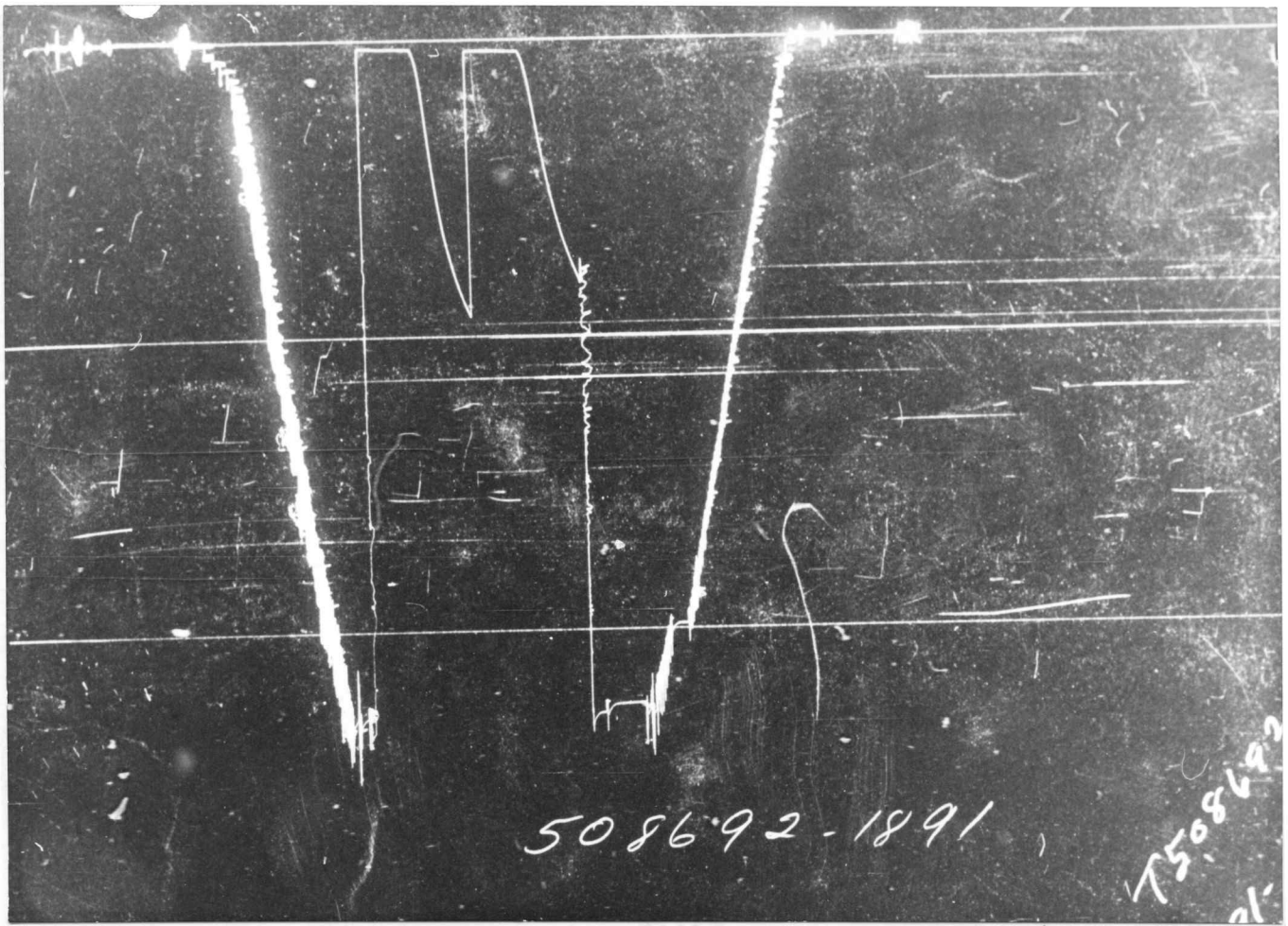
Gauge No. 1890		Depth 4411'			Clock 12 hour					
P ₀	.000	54	.000		57	.000	65	.000		64
P ₁	.206	57	.0221		114	.210	64	.0227		118
P ₂			.0442		226			.0454		215
P ₃			.0663		388			.0681		327
P ₄			.0884		524			.0908		435
P ₅			.1105		641			.1135		538
P ₆			.1326		729			.1362		620
P ₇			.1547		800			.1589		686
P ₈			.1768		863			.1816		746
P ₉			.1989		915			.2043		799
P ₁₀			.2210		954			.2270		842
Reading Interval 6					3				3	

REMARKS:

SPECIAL PRESSURE DATA

5

PRESSURE



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

TEMPERATURE
RECORDER
CHART



10° each circle