

Legal Location
Sec. - Twp. - Rng.

6 - 10 - 30

Lease Name

Well No.

Test No.

Tested Interval

Field Area

WILDCAT

County

SHERIDAN

State

KANSAS

BROCKELMAN

1

2

3986' - 4015'

MALLONEE AND MAHONEY, INC.

Lease Owner/Company Name

FLUID SAMPLER DATA				Date 8-27-70		Ticket Number 321042	
Sampler Pressure _____ P.S.I.G. at Surface Recovery: Cu. Ft. Gas _____ cc. Oil _____ cc. Water _____ cc. Mud _____ Tot. Liquid cc. _____				Kind of Job OPEN HOLE		Halliburton District HAYS	
				Tester WEATHERBEE		Witness MALLONEE	
Gravity _____ ° API @ _____ ° F.				Drilling Contractor SHIELDS DRILLING COMPANY		NM S	
Gas/Oil Ratio _____ cu. ft./bbl.				EQUIPMENT & HOLE DATA			
RESISTIVITY _____ CHLORIDE CONTENT _____ Recovery Water _____ @ _____ ° F. _____ ppm Recovery Mud _____ @ _____ ° F. _____ Recovery Mud Filtrate _____ @ _____ ° F. _____ ppm Mud Pit Sample _____ @ _____ ° F. _____ Mud Pit Sample Filtrate _____ @ _____ ° F. _____ ppm Mud Weight 10.1 vis 41 cp				Formation Tested Tronto			
				Elevation 2975' _____ Ft.			
				Net Productive Interval - _____ Ft.			
				All Depths Measured From Kelly Bushing			
				Total Depth 4015' _____ Ft.			
				Main Hole/Casing Size 7 7/8"			
				Drill Collar Length 868'		I.D. 2.87"	
				Drill Pipe Length 3099'		I.D. 3.826"	
				Packer Depth(s) 3982' - 3986' _____ Ft.			
				Depth Tester Valve 3974' _____ Ft.			
Cushion		TYPE NONE	AMOUNT	Depth Back Pres. Valve NONE	Surface Choke 1/4"	Bottom Choke 3/4"	
Recovered 150'		Feet of	mud	Mea. From Tester Valve			
Recovered 240'		Feet of	water				
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Remarks On bottom @ 19:07 - tool opened @ 19:10 with a very weak to a weak blow for a 45 minute first flow. Rotated tool for a 46 minute first closed in pressure. Tool reopened with a very weak to a fair blow and increasing throughout the test. Took a 60 minute second closed in pressure. Off bottom @ 23:25..							
TEMPERATURE	Gauge No. 1891	Gauge No. 1890	Gauge No.	TIME			
	Depth: 3975' Ft.	Depth: 4011' Ft.	Depth:				
	12 Hour Clock	12 Hour Clock		Hour Clock			
Est. ° F.	Blanked Off NO	Blanked Off YES		Blanked Off			
4010' @					Tool A.M.		
Actual 122° ° F.					Opened 19:10 P.M.		
	Pressures		Pressures		Tool A.M.		
					Closed 23:25 P.M.		
	Field	Office	Field	Office	Field	Office	Reported Minutes
Initial Hydrostatic	-	2141	2150	2153			Minutes
First Period Flow	Initial	19	26	32			
	Final	86	97	95			45
	Closed in	1264	1276	1272			45
Second Period Flow	Initial	100	97	107			
	Final	215	222	223			105
	Closed in	1241	1249	1248			60
Third Period Flow	Initial						
	Final						
	Closed in						
Final Hydrostatic	-	2116	2132	2127			

Gauge No. 1891			Depth 3975'			Clock No. 7105			12 hour			Ticket No. 321042		
First Flow Period			First In Pressure			Second Flow Period			Second In Pressure			Third Flow Period		
Time Defl. .000"	PSIG Temp. Corr.		Time Defl. .000"	$\text{Log } \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\text{Log } \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\text{Log } \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\text{Log } \frac{t + \theta}{\theta}$	PSIG Temp. Corr.
0	.000	19	.000		86	.000		100	.000		215			
1	.0614	33	.0342		1109	.1021		109	.0413		1113			
2	.1228	47	.0684		1185	.2042		128	.0826		1166			
3	.1842	62	.1026		1215	.3063		147	.1239		1191			
4	.2456	74	.1368		1231	.4084		165	.1652		1205			
5	.307	86	.1710		1242	.5105		181	.2065		1215			
6			.2052		1250	.6126		198	.2478		1223			
7			.2394		1255	.708		215**	.2891		1229			
8			.2736		1260				.3304		1233			
9			.315		1264*				.3717		1237			
10									.413'		1241			
11														
12														
13														
14														
15														

Gauge No. 1890			Depth 4011'			Clock No. 3577			hour 12		
Time Defl. .000"	PSIG Temp. Corr.		Time Defl. .000"	$\text{Log } \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\text{Log } \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\text{Log } \frac{t + \theta}{\theta}$	PSIG Temp. Corr.
0	.000	32	.000		95	.000		107	.000		223
1	.0616	42	.0338		1120	.1020		117	.0413		1111
2	.1232	56	.0676		1192	.2040		137	.0826		1172
3	.1848	69	.1014		1222	.3060		155	.1239		1198
4	.2464	82	.1352		1239	.4080		172	.1652		1212
5	.308	95	.1690		1250	.5100		190	.2065		1223
6			.2028		1257	.6120		207	.2478		1230
7			.2366		1263	.707		223**	.2891		1237
8			.2704		1268				.3304		1241
9			.311		1272*				.3717		1246
10									.413		1248
11											
12											
13											
14											
15											

Gauge No. 1890			Depth 5			15			6			Minutes		
Time Defl. .000"	PSIG Temp. Corr.		Time Defl. .000"	$\text{Log } \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\text{Log } \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\text{Log } \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\text{Log } \frac{t + \theta}{\theta}$	PSIG Temp. Corr.
0	.000	9	.000			.000			.000					
1	.0616		.0338			.1020			.0413					
2	.1232		.0676			.2040			.0826					
3	.1848		.1014			.3060			.1239					
4	.2464		.1352			.4080			.1652					
5	.308		.1690			.5100			.2065					
6			.2028			.6120			.2478					
7			.2366			.707			.2891					
8			.2704						.3304					
9			.311						.3717					
10									.413					
11														
12														
13														
14														
15														

REMARKS: * INTERVAL = 6 MINUTES. ** INTERVAL = 14 MINUTES.

	O. D.	I. D.	LENGTH	DEPTH
Reversing Sub	5.0"	2.75"	12.0"	
Water Cushion Valve				
Drill Pipe	4.50"	3.826"	3099'	
Drill Collars	4.50"	2.87"	868'	
Handling Sub & Choke Assembly	5.0"	.87"	65.0"	
Dual CIP Valve				
Dual CIP Sampler	5.0"	.75"	60.21"	3974'
Hydro-Spring Tester				
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.0"	2.75"	48.0"	3975'
Hydraulic Jar	5.0"	.87"	39.46"	
VR Safety Joint	5.0"	1.0"	33.40"	
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	54.0"	3982'
Distributor				
Packer Assembly	6.75"	1.53"	54.0"	3986'
Flush Joint Anchor	5.0"	2.75"	24.29'	
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars				
Flush Joint Anchor				
Blanked-Off B.T. Running Case	5.0"	2.75"	48.71"	4011'

TEMPERATURE RECORDER CHART

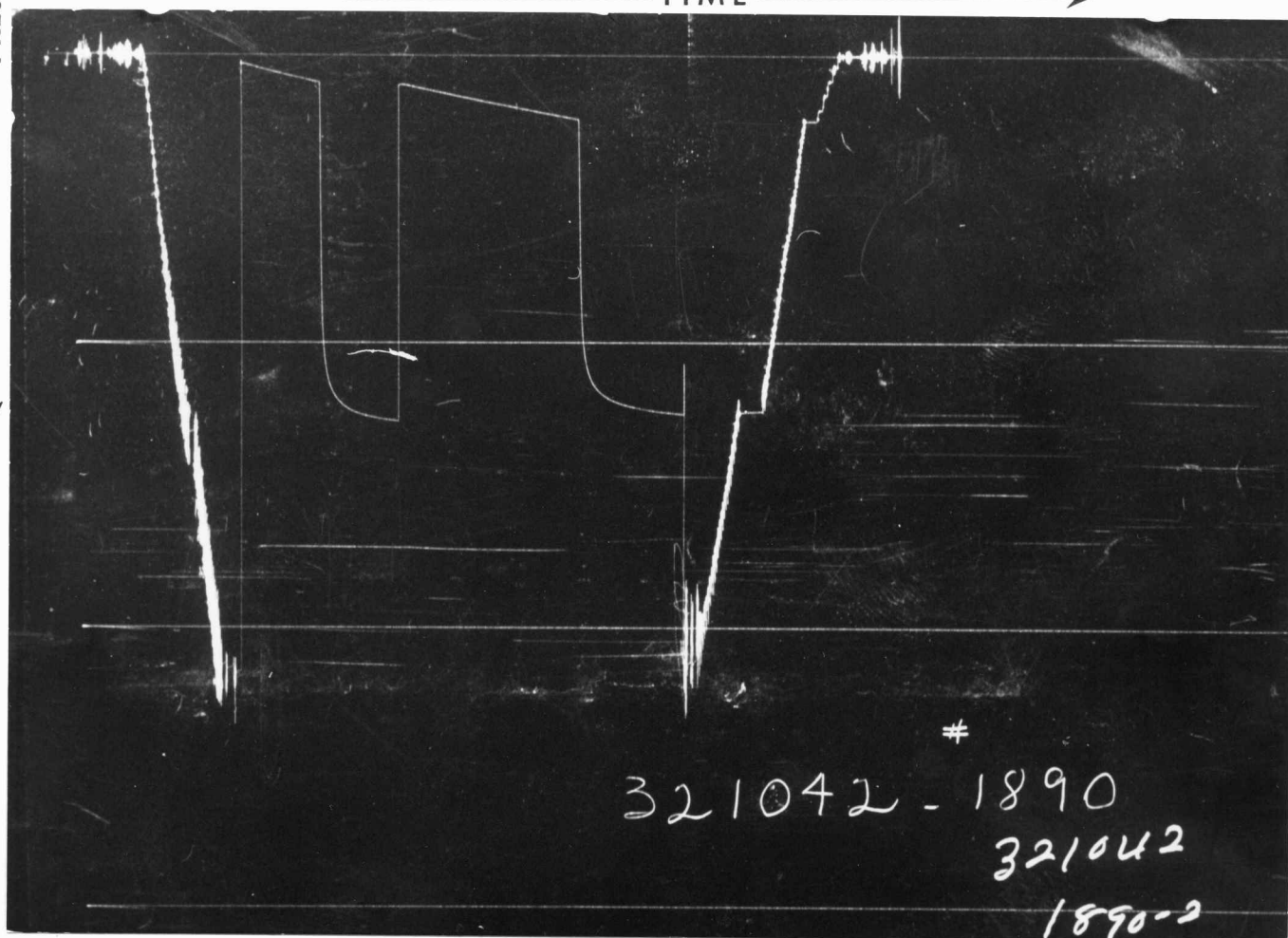
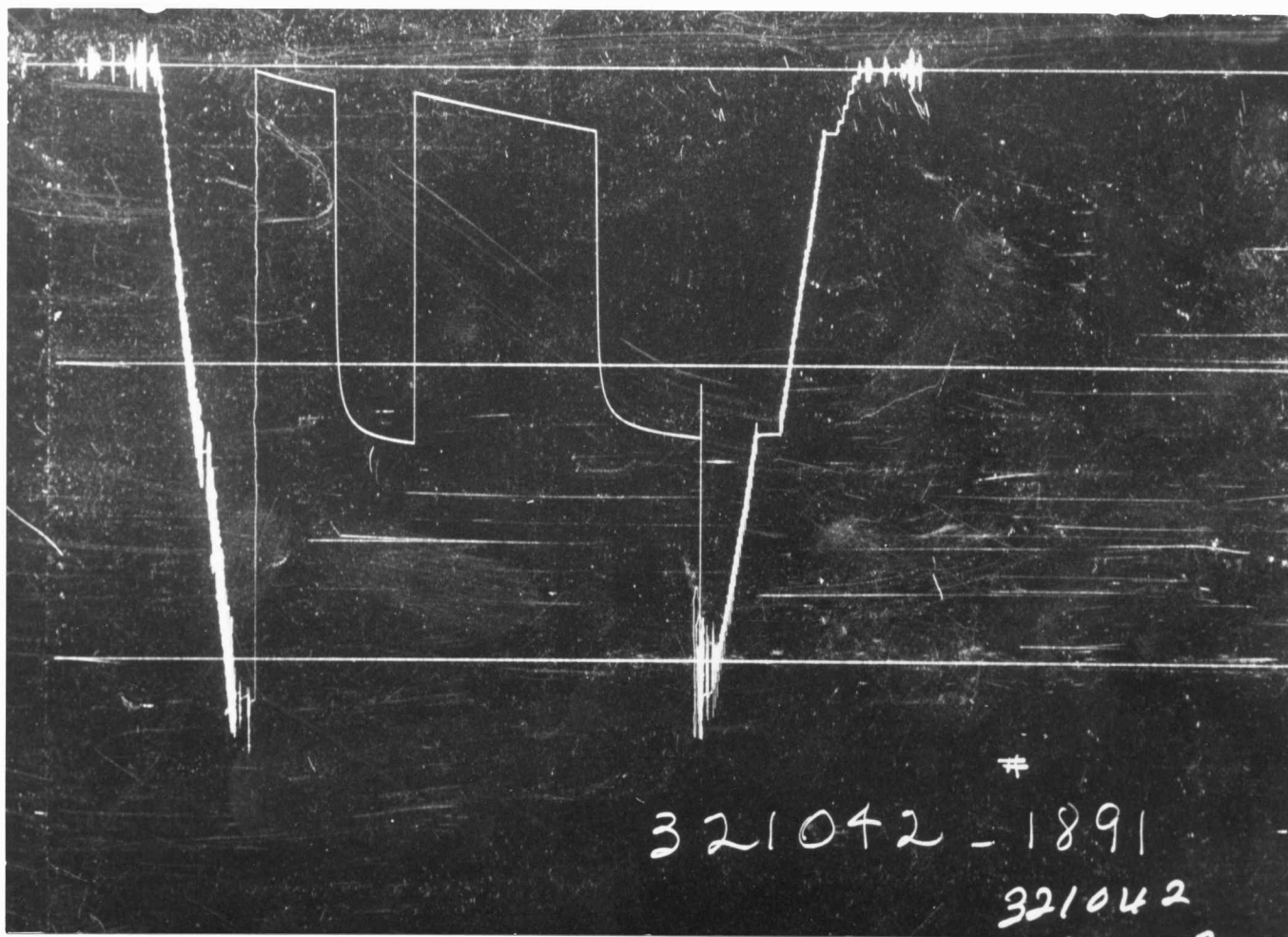


10° each circle

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.

PRESSURE



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

FLUID SAMPLER DATA				Date 8-25-70		Ticket Number 321043																																																																																																																																																	
Sampler Pressure _____ P.S.I.G. at Surface Recovery: Cu. Ft. Gas _____ cc. Oil _____ cc. Water _____ cc. Mud _____ Tot. Liquid cc. _____				Kind of Job OPEN HOLE		Halliburton District HAYS																																																																																																																																																	
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<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">TEMPERATURE</th> <th colspan="2">Gauge No. 1891'</th> <th colspan="2">Gauge No. 1890'</th> <th colspan="2">Gauge No.</th> <th rowspan="2">TIME</th> </tr> <tr> <th>Depth:</th> <th>4075' Ft.</th> <th>Depth:</th> <th>4129' Ft.</th> <th>Depth:</th> <th>Ft.</th> </tr> </thead> <tbody> <tr> <td>Est. °F.</td> <td colspan="2">12 Hour Clock</td> <td colspan="2">12 Hour Clock</td> <td colspan="2">Hour Clock</td> <td>Tool A.M.</td> </tr> <tr> <td></td> <td colspan="2">Blanked Off NO</td> <td colspan="2">Blanked Off YES</td> <td colspan="2">Blanked Off</td> <td>Opened 10:35 P.M.</td> </tr> <tr> <td>4127@</td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td>Tool A.M.</td> </tr> <tr> <td>Actual 127 °F.</td> <td colspan="2">Pressures</td> <td colspan="2">Pressures</td> <td colspan="2">Pressures</td> <td>Closed 13:20 P.M.</td> </tr> <tr> <td></td> <td>Field</td> <td>Office</td> <td>Field</td> <td>Office</td> <td>Field</td> <td>Office</td> <td>Reported</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Minutes</td> </tr> <tr> <td rowspan="3">First Period</td> <td>Initial Hydrostatic</td> <td>2135</td> <td>2150</td> <td>2157</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Flow Initial</td> <td>61</td> <td>79</td> <td>82</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Flow Final</td> <td>579</td> <td>595</td> <td>596</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>Closed in</td> <td>1316</td> <td>1321</td> <td>1333</td> <td></td> <td></td> <td>30 29</td> </tr> <tr> <td rowspan="3">Second Period</td> <td>Flow Initial</td> <td>595</td> <td>609</td> <td>615</td> <td></td> <td></td> <td>45 45</td> </tr> <tr> <td>Flow Final</td> <td>877</td> <td>890</td> <td>893</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Closed in</td> <td>1309</td> <td>1321</td> <td>1326</td> <td></td> <td></td> <td>40 39</td> </tr> <tr> <td></td> <td>Flow Initial</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>50 51</td> </tr> <tr> <td rowspan="3">Third Period</td> <td>Flow Final</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Closed in</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Final Hydrostatic</td> <td>2108</td> <td>2122</td> <td>2126</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>								TEMPERATURE	Gauge No. 1891'		Gauge No. 1890'		Gauge No.		TIME	Depth:	4075' Ft.	Depth:	4129' Ft.	Depth:	Ft.	Est. °F.	12 Hour Clock		12 Hour Clock		Hour Clock		Tool A.M.		Blanked Off NO		Blanked Off YES		Blanked Off		Opened 10:35 P.M.	4127@							Tool A.M.	Actual 127 °F.	Pressures		Pressures		Pressures		Closed 13:20 P.M.		Field	Office	Field	Office	Field	Office	Reported								Minutes	First Period	Initial Hydrostatic	2135	2150	2157				Flow Initial	61	79	82				Flow Final	579	595	596					Closed in	1316	1321	1333			30 29	Second Period	Flow Initial	595	609	615			45 45	Flow Final	877	890	893				Closed in	1309	1321	1326			40 39		Flow Initial						50 51	Third Period	Flow Final							Closed in							Final Hydrostatic	2108	2122	2126			
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 Legal Location
 Sec. - Twp. - Rng.

6-10-30

 BROCKELMAN
 Lease Name

Well No. 1

Test No. 3

 4084'-4131'
 Tested Interval

 Field Area
 WILDCAT

County

SHERIDAN

 State
 KANSAS

 MALLONEE AND MAHONEY, INCORPORATED
 Lease Owner/Company Name

Gauge No. 1891		Depth 4075'		Clock No. 7105		12 hour		Ticket No. 321043	
First Flow Period		Closed In Pressure		Second Flow Period		Closed In Pressure		Third Flow Period	
Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t + \theta}{\theta}$
0	.000 61	.000		579	.000		877		
1	.0357 203	.0347		1204	.0481		1230		
2	.0714 323	.0694		1244	.0962		1257		
3	.1071 429	.1041		1266	.1442		1272		
4	.1428 485	.1388		1281	.1924		1289		
5	.1785 538	.1735		1291	.2680**		1296		
6	.207* 579	.2082		1300			1300		
7		.2429		1305			1303		
8		.2776		1311			1307		
9		.312		1316			1309		
10							.354***		
11									
12									
13									
14									
15									

Gauge No. 1890		Depth 4129'		Clock No. 3577		12 hour	
Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	$\log \frac{t + \theta}{\theta}$	PSIG Temp. Corr.
0	.000 82	.000		596	.000		893
1	.0353 218	.0344		1220	.0345		1247
2	.0706 337	.0688		1260	.0690		1273
3	.1059 443	.1032		1282	.1035		1289
4	.1412 502	.1376		1297	.1380		1299
5	.1765 554	.1720		1308	.1725		1306
6	.205* 596	.2064		1315	.2070		1312
7		.2408		1320	.2415		1316
8		.2752		1327	.2760		1319
9		.310		1333	.3105		1322
10					.3520***		1326
11							
12							
13							
14							
15							

Reading Interval 5		5		7		5		Minutes	

REMARKS: *Last interval equal to 4 minutes. **Last interval equal to 11 minutes. ***Last interval equal to 6 minutes.

321043

	O. D.	I. D.	LENGTH	DEPTH
Reversing Sub	5"	2.75"	12.0"	
Water Cushion Valve				
Drill Pipe	4.5"	3.826"	3197'	
Drill Collars	4.5"	2.87"	868'	
Handling Sub & Choke Assembly				
Dual CIP Valve	5"	.87"	65'	
Dual CIP Sampler				
Hydro-Spring Tester	5"	.75"	60.21'	4074'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	2.75"	48'	4075'
Hydraulic Jar	5"	.87"	39.36'	
VR Safety Joint	5"	1"	33.40'	
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	54'	4084'
Distributor				
Packer Assembly	6.75"	1.53"	54'	
Flush Joint Anchor	5"	2.75"	43.29'	
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars				
Flush Joint Anchor				
Blanked-Off B.T. Running Case	5"	2.75"	48.71'	4129'

TEMPERATURE RECORDER CHART

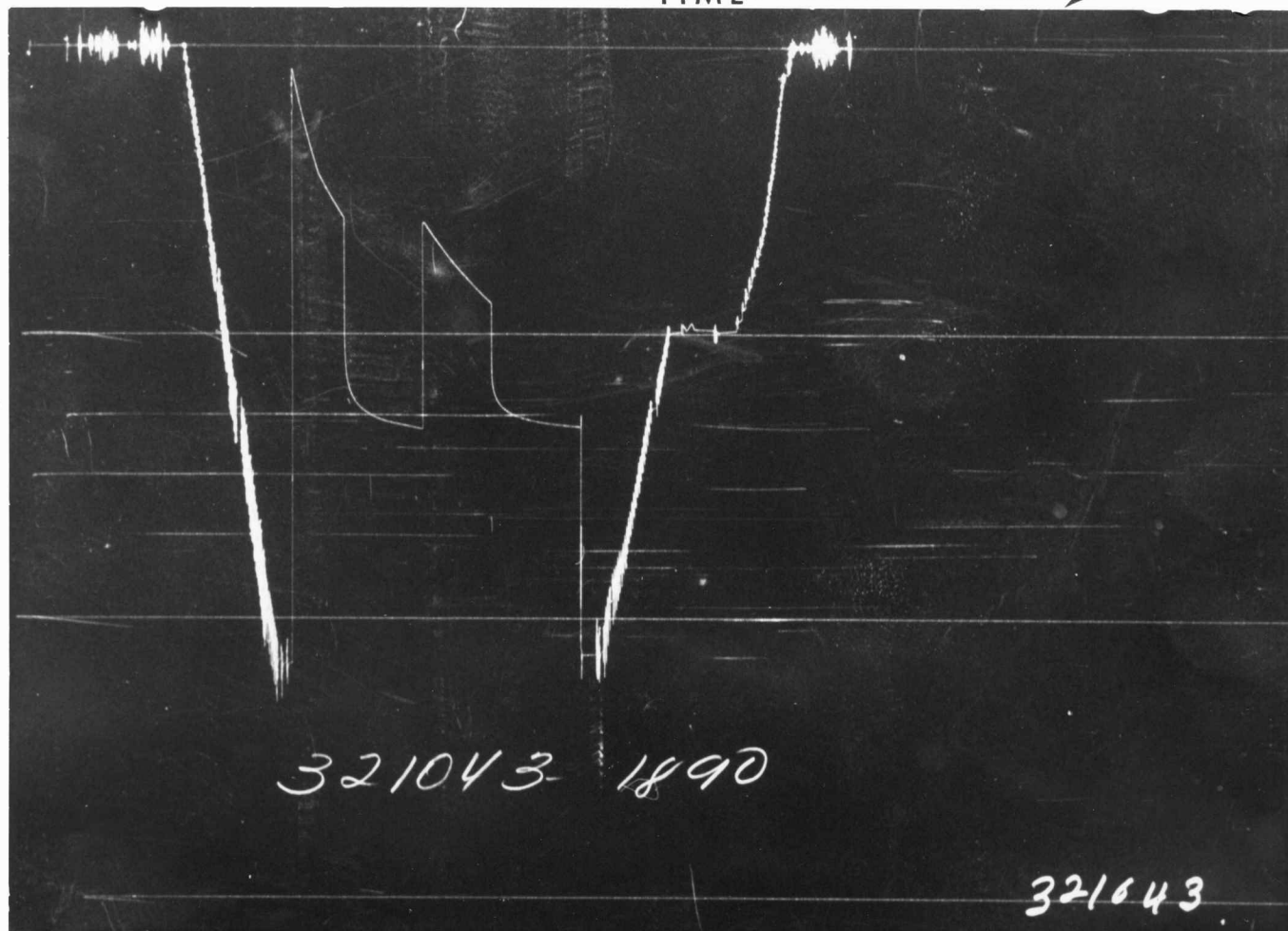
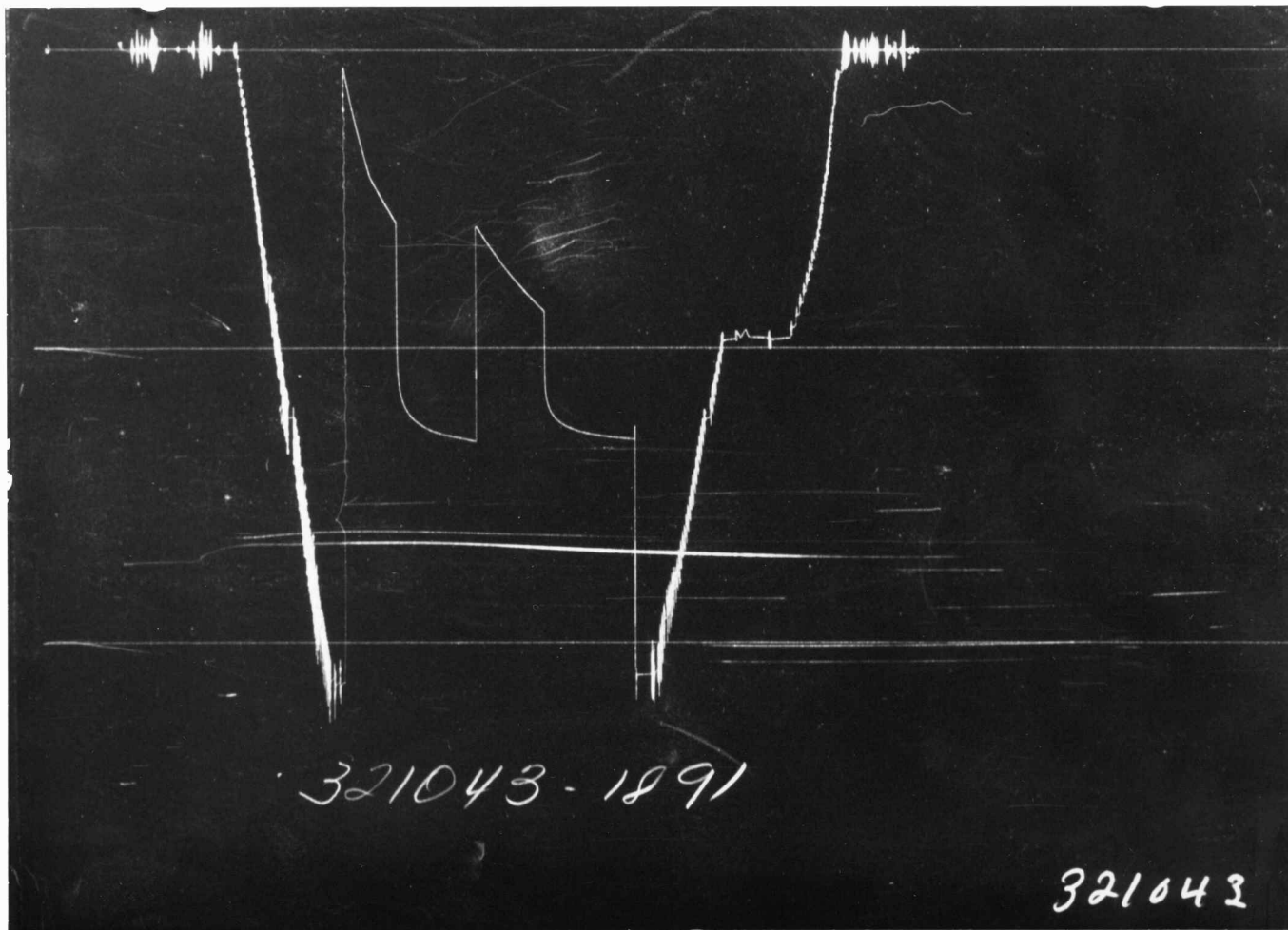


10° each circle

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.

PRESSURE



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

321044

	O. D.	I. D.	LENGTH	DEPTH
Reversing Sub	5.0"	2.75"	12.0"	
Water Cushion Valve				
Drill Pipe	4.50"	3.826"	3269'	
Drill Collars	4.50"	2.87"	868'	
Handling Sub & Choke Assembly				
Dual CIP Valve	5.0"	.87"	65.0"	
Dual CIP Sampler				
Hydro-Spring Tester	5.0"	.75"	60.21"	4136'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.0"	2.75"	48.0"	4137'
Hydraulic Jar	5.0"	.87"	39.36"	
VR Safety Joint	5.0"	1.0"	33.40"	
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	54.0"	4146'
Distributor				
Packer Assembly	6.75"	1.53"	54.0"	4150'
Flush Joint Anchor	5.10"	2.75"	25.29"	
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars				
Flush Joint Anchor				
Blanked-Off B.T. Running Case	5.0"	2.75"	48.71"	4176'

TEMPERATURE RECORDER CHART

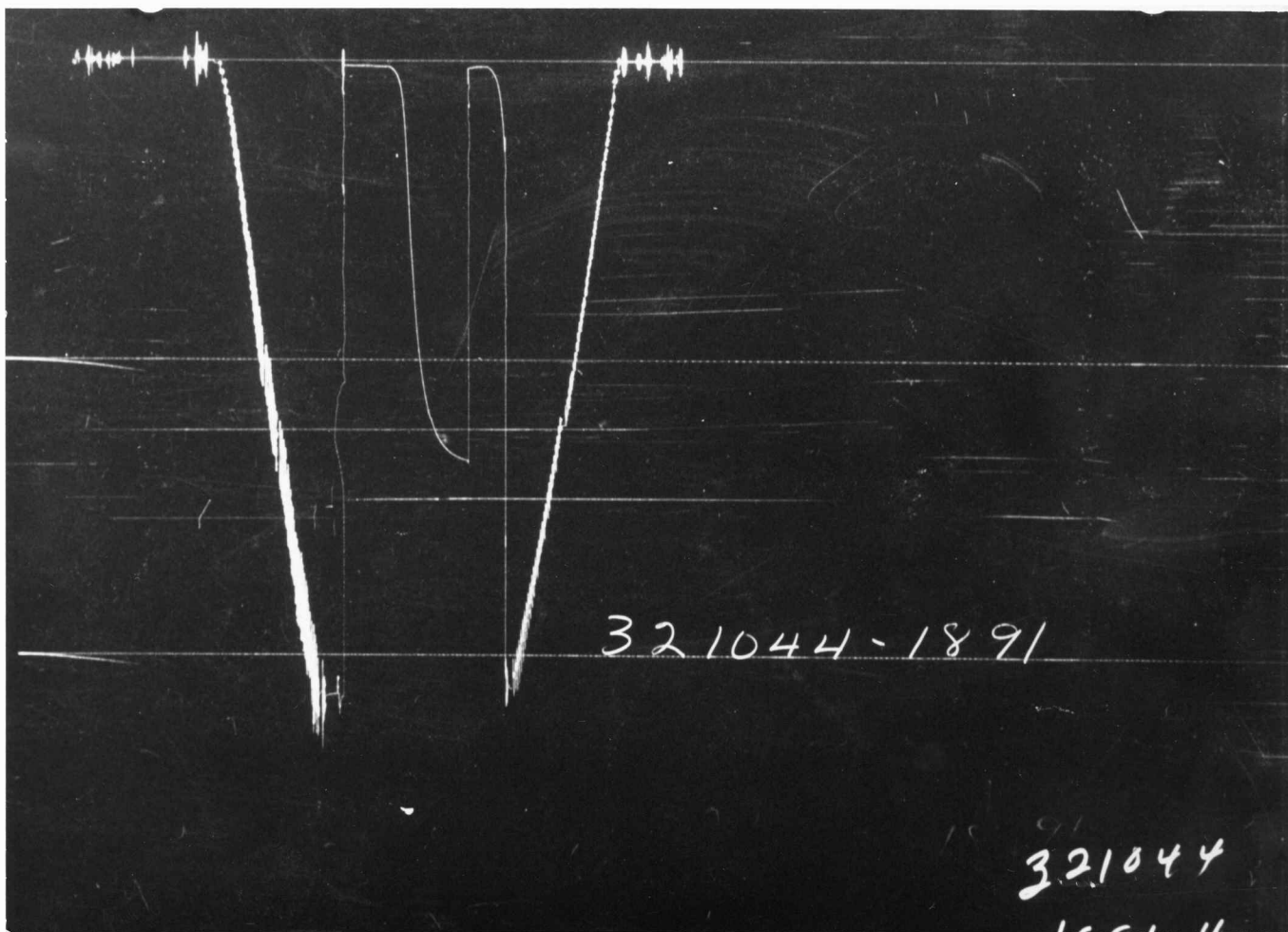


10° each circle

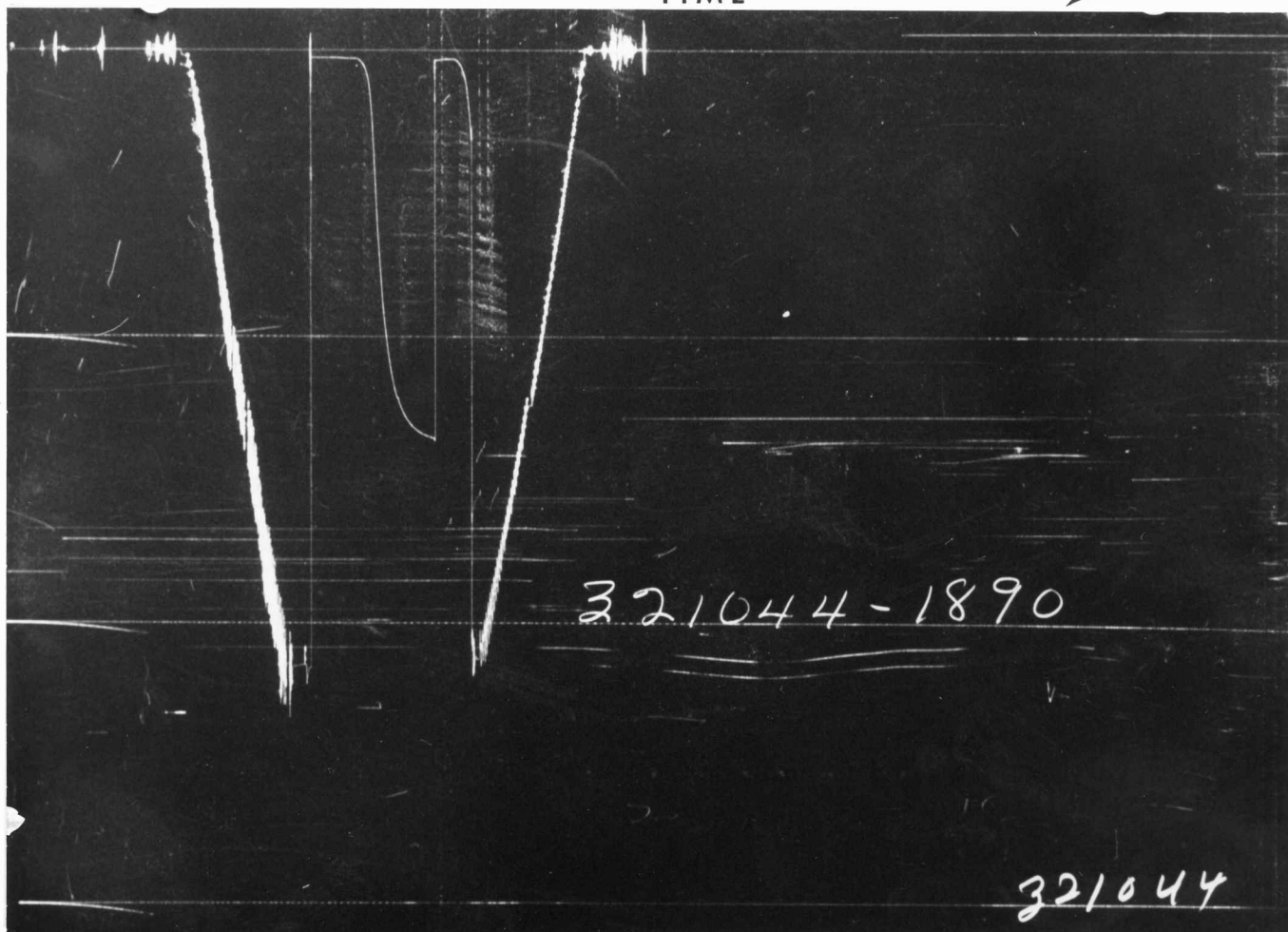
OF_4	= Theoretical Open Flow Potential with/Damage Removed Min.	MCF/D
P_s	= Extrapolated Static Pressure	Psig.
P_f	= Final Flow Pressure	Psig.
P_{ot}	= Potentiometric Surface (Fresh Water *)	Feet
Q	= Average Adjusted Production Rate During Test	bbls/day
Q_1	= Theoretical Production w/Damage Removed	bbls/day
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.

PRESSURE



TIME



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