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 42 Sec.

Date 9-16-76 Ticket Number 074715
Kind of Job OPEN HOLE TEST Halliburton District HAYS
Tester MR. GARRISON Witness MARTY DOUBOYS
Drilling Contractor R & W DRILLING COMPANY PW

EQUIPMENT & HOLE DATA

Formation Tested Lansing "B"
Elevation 2841' K.B. Ft.
Net Productive Interval 20' Ft.
All Depths Measured From Kelly Bushing
Total Depth 3960' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length I.D.
Drill Pipe Length 3896' I.D. 3.826"
Packer Depth(s) 3918' - 3924' Ft.
Depth Tester Valve 3906' Ft.

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

Recovered 1245 Feet of Muddy oil.
Recovered 60 Feet of Muddy oily water.
Recovered Feet of
Recovered Feet of
Recovered Feet of

Mea. From Tester Valve

Remarks Grind out on 1245' of fluid was 75% oil and 25% water and mud.

SEE PRODUCTION TEST DATA SHEET.....

TEMPERATURE	Gauge No. 536	Gauge No. 392	Gauge No.	TIME
	Depth: 3911 Ft.	Depth: 3956 Ft.	Depth: Ft.	
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool A.M.
Est. °F.	Blanked Off No	Blanked Off Yes	Blanked Off	Opened 14:05 P.M.
3954' Actual 127 °F.	Pressures	Pressures	Pressures	Opened A.M. Bypass 16:20 P.M.

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic			1977	1991	1998				
First Period	Flow Initial		58	90.4	99			———	———
	Flow Final		233	262.8	260			15	15
	Closed in		1304	1325	1320			30	30
Second Period	Flow Initial		271	279.2	283			———	———
	Flow Final		508	541.7	530			30	30
	Closed in		1309	1316.8	1326			60	60
Third Period	Flow Initial							———	———
	Flow Final								
	Closed in								
Final Hydrostatic			1961	1974.9	1977			———	———

Legal Location Sec. - Twp. - Rng. 25 - 25 - 30
Lease Name DAVIS
Well No. E-1
Test No. 2
Field Area WILDCAT
Tested Interval 3924' - 3960'
County DECATUR
State KANSAS
Lease Owner/Company Name CITIES SERVICE OIL COMPANY

FORM 181-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 10M 9/74

5

Casing perfs._____ Bottom choke_____ Surf. temp_____ °F Ticket No. 074715

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
12:15					On location after misrun.
12:20					Checked tool out and rewound clocks in
					B.T. and put in new chart.
13:15					Tool back through table.
13:16					Rig started drill pipe.
14:02					Tool on bottom.
14:05					Opened tool with a fair blow to strong
					blow in 4 minutes.
14:20					Closed tool.
14:50					Reopened tool with a strong blow,
					throughout flow period.
15:20					Closed tool.
16:20					Tool off bottom.
					Tool back through table.

Gauge No.	536	Depth	3911'	Clock No.	11657	12 hour	Ticket No.	074715	

	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	58	.000		233	.000	271	.000		508					
1	.0228	95	.0134		1085	.0348	298	.0272		1166					
2	.0456	130	.0268		1180	.0697	347	.0544		1206					
3	.0684	166	.0402		1211	.1045	391	.0816		1231					
4	.0912	199	.0536		1231	.1393	433	.1088		1248					
5	.1140	233	.0670		1245	.1742	473	.1360		1260					
6			.0804		1256	.2090	508	.1632		1270					
7			.0938		1266			.1904		1277					
8			.1072		1273			.2176		1284					
9			.1206		1280			.2448		1290					
10			.1340		1285			.2720		1293					
11			.1474		1290			.2992		1298					
12			.1608		1294			.3264		1302					
13			.1742		1298			.3536		1304					
14			.1876		1301			.3808		1307					
15			.2010		1304			.4080		1309					

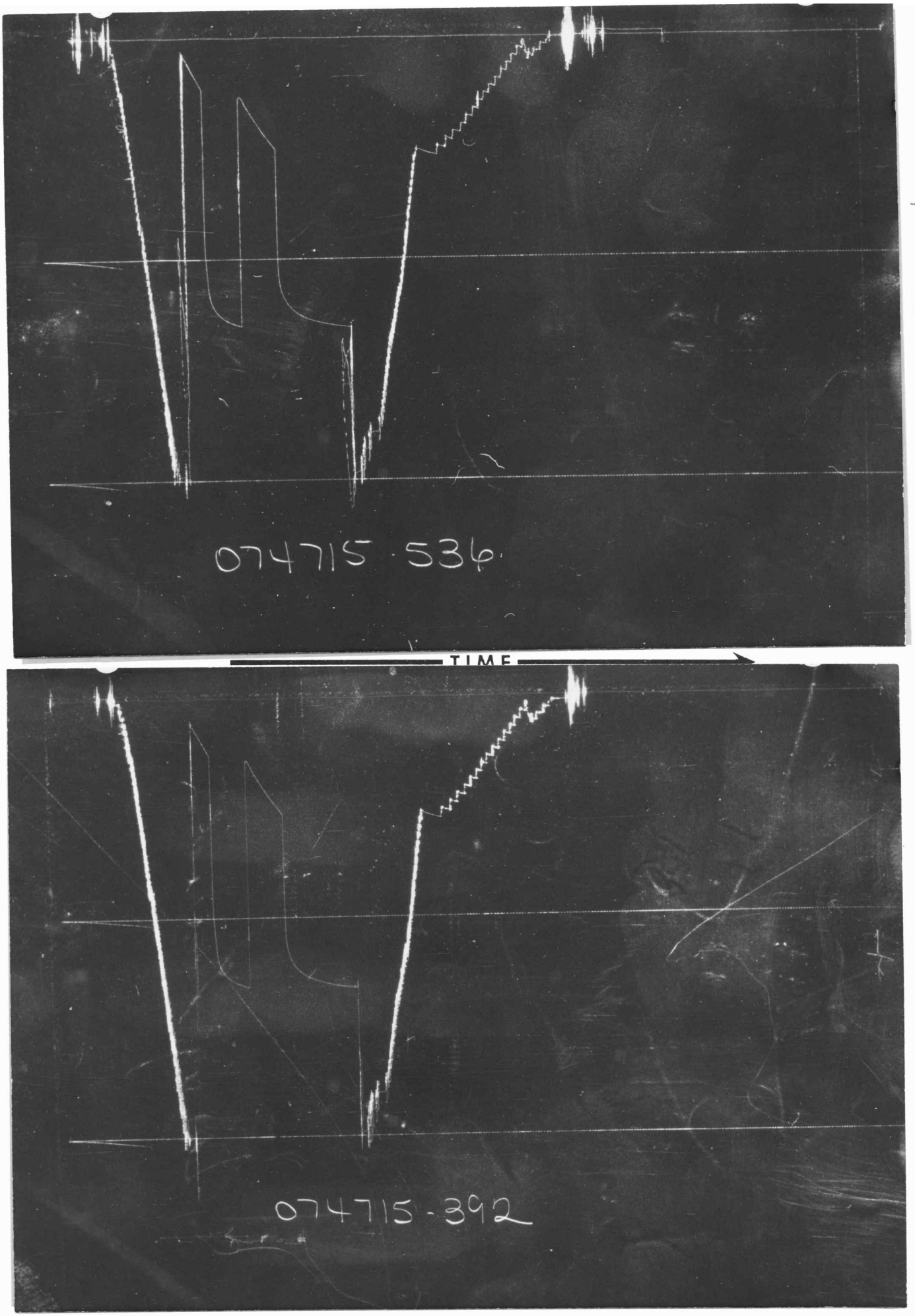
Gauge No.	392		Depth	3956'	Clock No.	11647	12 hour					
0	.000	99	.000	260	.000	283	.000	530				
1	.0206	141	.0135	1075	.0340	323	.0269	1185				
2	.0412	170	.0269	1191	.0680	372	.0537	1226				
3	.0618	200	.0404	1227	.1020	418	.0806	1249				
4	.0824	231	.0539	1248	.1360	459	.1075	1265				
5	.1030	260	.0674	1263	.1700	496	.1344	1278				
6			.0808	1274	.2040	530	.1612	1287				
7			.0943	1283			.1881	1295				
8			.1078	1291			.2150	1301				
9			.1212	1296			.2418	1306				
10			.1347	1302			.2687	1311				
11			.1483	1307			.2956	1315				
12			.1616	1311			.3224	1318				
13			.1751	1314			.3493	1320				
14			.1886	1318			.3762	1323				
15			.2020	1320			.4030	1326				
Reading Interval	3		2		5		4					Minutes

REMARKS:

SPECIAL PRESSURE DATA

TICKET NO. 074715

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6"	3"	1.00'	3840'
Water Cushion Valve				
Drill Pipe	4.5"	3.826"	3896'	
Drill Collars				
Handling Sub & Choke Assembly				
Dual CIP Valve	5.0"	.87"	6.05'	3900'
Dual CIP Sampler				
Hydro-Spring Tester	5.00"	.75"	5.00'	3906'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.0"	3.75"	4.00'	3911'
Hydraulic Jar				
VR Safety Joint	5.0"	1"	2.85'	
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	5.85'	3918'
Distributor				
Packer Assembly	6.75"	1.53"	5.85'	3924'
Flush Joint Anchor	5.0"	3.84"	28'	
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 Temp. Case	5.0"	3.75"	1.50'	
Blanked-Off B.T. Running Case	5.0"	2.75"	4.00'	3956'
Total Depth				3960'



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

TEMPERATURE RECORDER CHART

10° 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_{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 39 cp

Date 9-17-76 Ticket Number 074716
Kind of Job OPEN HOLE Halliburton District HAYS
Tester MR. GARRISON Witness MR. DUOBOYS
Drilling Contractor R & W DRILLING COMPANY DR S

EQUIPMENT & HOLE DATA

Formation Tested Lansing "C"
Elevation 2841' KB Ft.
Net Productive Interval 6' Ft.
All Depths Measured From Kelly Bushing
Total Depth 4005' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length - I.D. -
Drill Pipe Length 3929' I.D. 3.826"
Packer Depth(s) 3951'-3957' Ft.
Depth Tester Valve 3939' Ft.

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

Recovered 180 Feet of muddy oil
Recovered 60 Feet of oil cut mud
Recovered Feet of (Gravity could not be taken and fluid was to thick.)
Recovered Feet of
Recovered Feet of
Remarks SEE PRODUCTION TEST DATA SHEET

TEMPERATURE	Gauge No. 536 Depth: 3944' Ft.		Gauge No. 392 Depth: 4001 Ft.		Gauge No. Depth: Ft.		TIME	
	12 Hour Clock		12 Hour Clock		Hour Clock		Tool Opened	0330 A.M. P.M.
Est. °F. 3999'	Blanked Off		Blanked Off		Blanked Off		Opened Bypass	A.M. 0600 P.M.
Actual 128 °F.	Pressures		Pressures		Pressures		Reported Minutes	Computed Minutes
	Field	Office	Field	Office	Field	Office		
Initial Hydrostatic		2019	2007.4	2029				
First Period Flow Initial		30	32.9	47			———	———
First Period Flow Final		68	73.9	84			30	31
First Period Closed in		1344	1349.4	1357			30	29
Second Period Flow Initial		87	82.2	98			———	———
Second Period Flow Final		111	115	123			30	30
Second Period Closed in		1348	1373.8	1359			60	60
Third Period Flow Initial							———	———
Third Period Flow Final								
Third Period Closed in								
Final Hydrostatic		1981	1991.1	1993			———	———

Legal Location Sec.-Twp.-Rng. 25-25-30
Lease Name DAVIS
Well No. E-1
Test No. 3
Tested Interval 3957-4005'
Field Area WILDCAT
Meas. From Tester Valve
County DECATUR
State KANSAS
Lease Owner/Company Name CITIES SERVICE OIL COMPANY

FORM 181-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 10M 8/74

5

Casing perfs._____ Bottom choke_____ Surf. temp_____ °F Ticket No. 074716

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
1800					Time called out
2000					On lcoation, rig reaming after coring
					and after drilling, circulated for 1 hour.
0015					Rig pulled drill pipe
0130					Picked up and made up tool
0215					Tool throughout table.
0325					Tool on bottom-packer slid 6'
0330					Opened tool with a weak blow to a fair
					weak blow in 7 minutes to a fair blow
0400					in 24 minutes. Closed tool
0430					Opened tool
0500					Closed tool
0600					Tool off bottom
0745					Tool back through table

FORM 192-R1—PRINTED IN U.S.A.

PRODUCTION TEST DATA

LITTLE'S 96672 5M 8/7

5

Gauge No.	536	Depth	3944'	Clock No.	11657	12 hour	Ticket No.	074716

	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	30	.000		68	.000	87	.000		111					
1	.0408	31*	.0066		148**	.0353	82	.0276		1268					
2	.0749	39	.0198		1204	.0707	87	.0552		1310					
3	.1089	47	.0329		1282	.1060	93	.0828		1323					
4	.1429	54	.0461		1306	.1413	100	.1104		1331					
5	.1770	61	.0593		1319	.1767	105	.1380		1334					
6	.2110	68	.0724		1326	.2120	111	.1656		1337					
7			.0856		1331			.1932		1340					
8			.0988		1334			.2208		1342					
9			.1120		1337			.2484		1344					
10			.1251		1339			.2760		1344					
11			.1383		1340			.3036		1345					
12			.1515		1342			.3312		1346					
13			.1646		1343			.3588		1347					
14			.1778		1344			.3864		1348					
15			.1910		1344			.4140		1348					

Gauge No.	392	Depth	4001'	Clock No.	11647	hour	12

0	.000	47	.000		84	.000	98	.000		123					
1	.0405	51*	.0067		143**	.0342	94	.0273		1266					
2	.0742	57	.0202		1128	.0683	102	.0547		1324					
3	.1079	63	.0336		1292	.1025	107	.0820		1337					
4	.1416	70	.0471		1322	.1367	112	.1093		1343					
5	.1753	79	.0605		1333	.1709	118	.1367		1347					
6	.2090	84	.0740		1340	.2050	123	.1640		1349					
7			.0874		1345			.1913		1351					
8			.1009		1349			.2186		1353					
9			.1143		1350			.2460		1354					
10			.1278		1353			.2733		1355					
11			.1412		1354			.3006		1356					
12			.1547		1355			.3280		1357					
13			.1681		1356			.3553		1357					
14			.1816		1357			.3826		1359					
15			.1950		1357			.4100		1359					
Reading Interval	5		2			5		4							Minutes

REMARKS: *-6 minutes **-1 minute

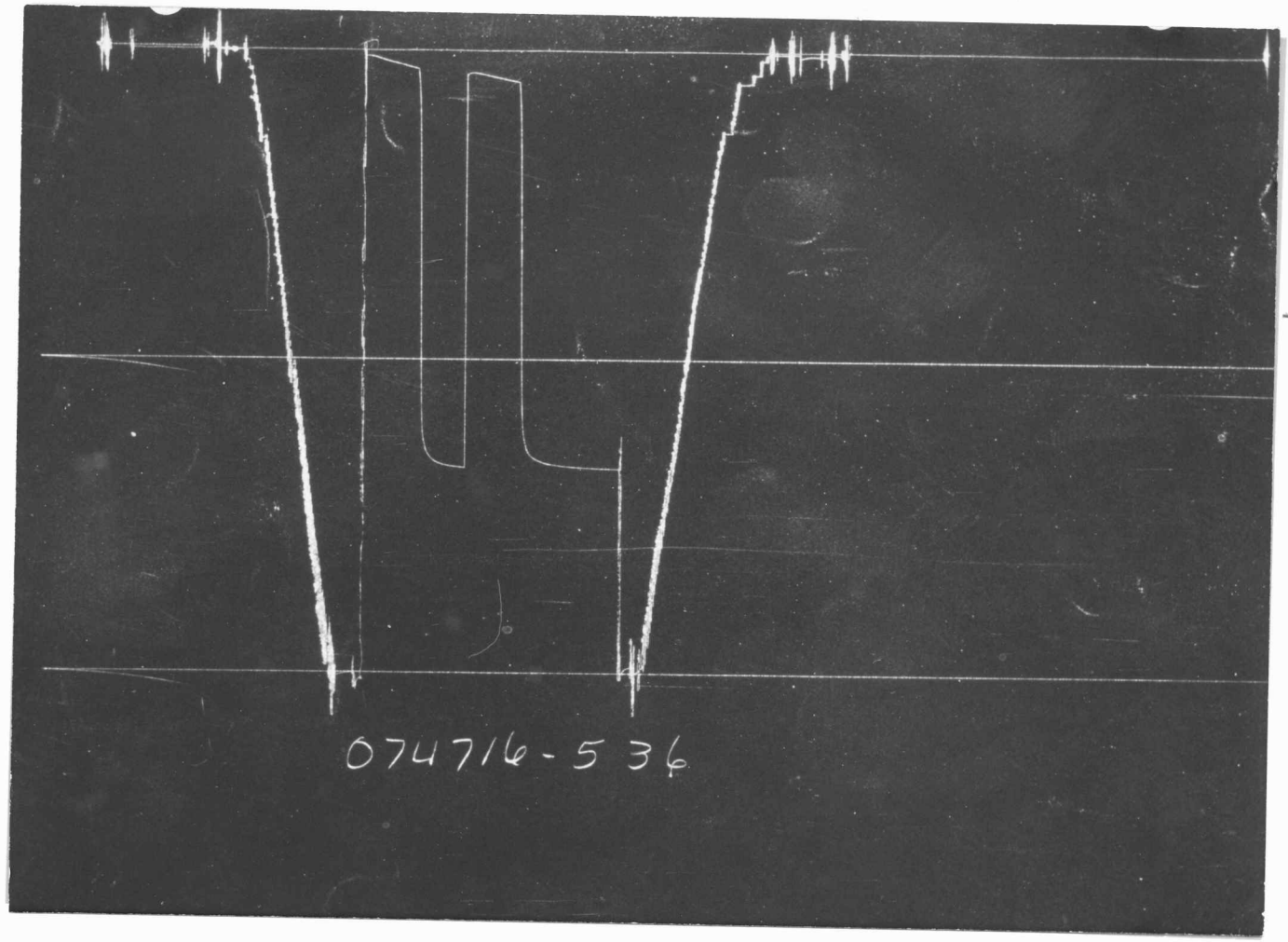
FORM 183-R1—PRINTED IN U.S.A.

SPECIAL PRESSURE DATA

LITTLE'S 96673 75C 8/74

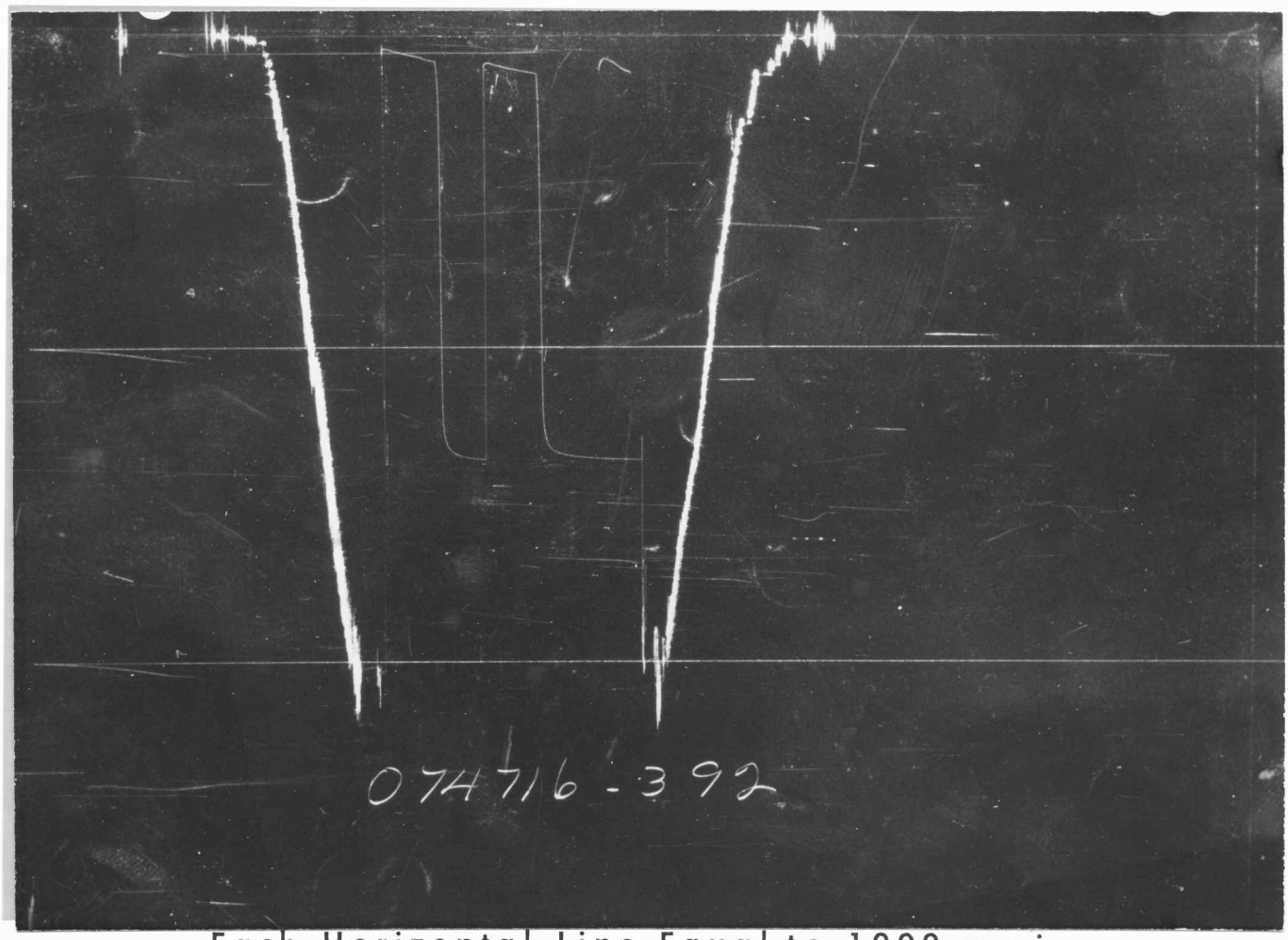
TICKET NO. 074716

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6"	3"	1.00'	3873'
Water Cushion Valve				
Drill Pipe	4.5"	3.826"	3929'	
Drill Collars				
Handling Sub & Choke Assembly				
Dual CIP Valve	5.0"	.87"	6.05'	3933'
Dual CIP Sampler				
Hydro-Spring Tester	5.0"	.75 "	5.00'	3939'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.0"	3.75"	4.00'	3944'
Hydraulic Jar				
VR Safety Joint	5.0"	1"	2.85'	
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	5.85'	3951'
Distributor				
Packer Assembly	6.75"	1.53"	5.58'	3957'
Flush Joint Anchor	5.0"	3.84"	40'	
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				
Temp. case	5.0"	3.75"	1.50'	3999'
Blanked-Off B.T. Running Case	5.0"	2.75"	4.00'	4001'
Total Depth				4005'

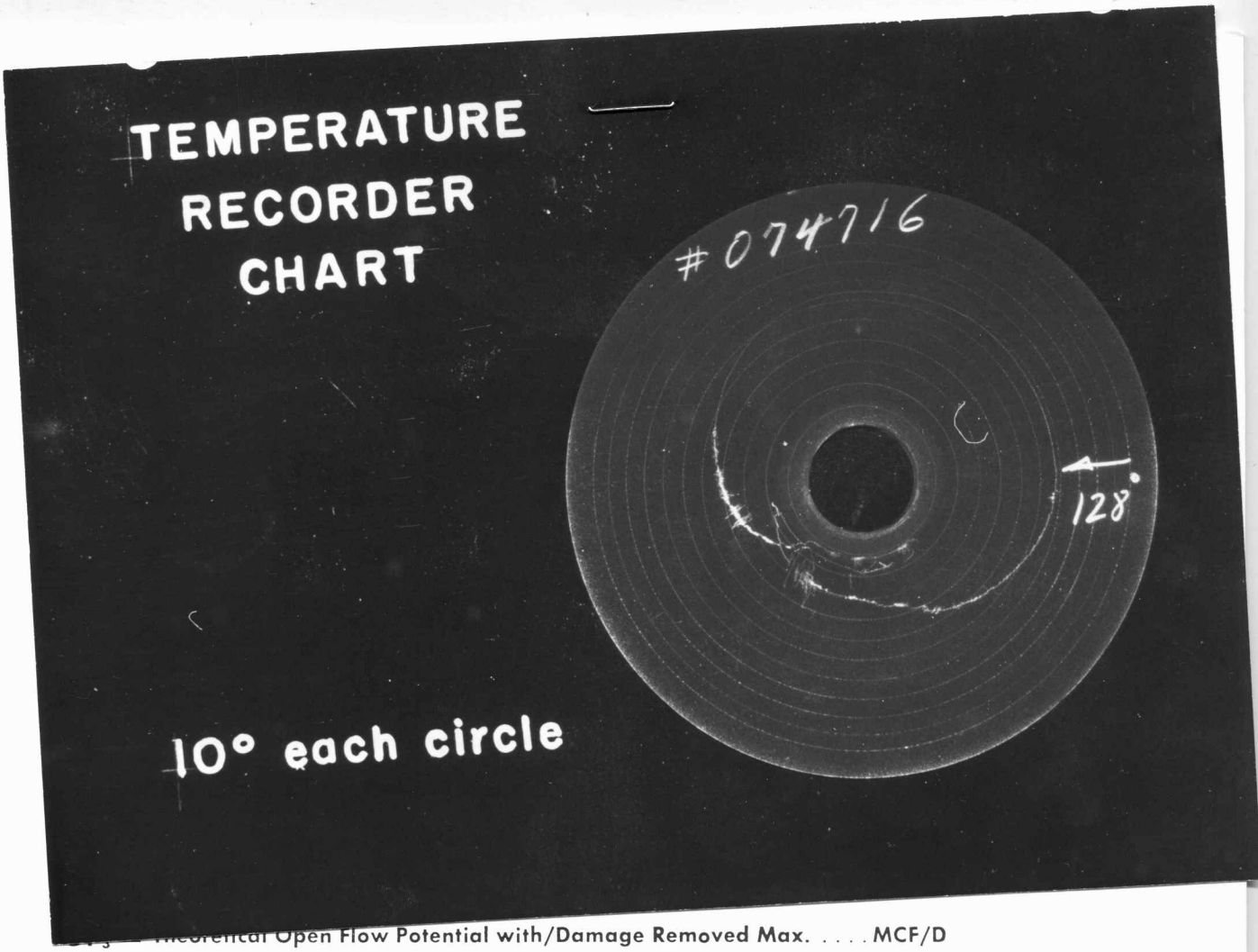


PRESSURE

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 9.6 vis 39 Sec. =#=

Date 9-18-76 Ticket Number 074717
Kind of Job OPEN HOLE Halliburton District HAYS
Tester MR. GARRISON Witness MR. DOUBOYS
Drilling Contractor R & W DRILLING COMPANY BC S

EQUIPMENT & HOLE DATA

Formation Tested Lansing
Elevation 2841' KB Ft.
Net Productive Interval 10' Ft.
All Depths Measured From Kelly Bushing
Total Depth 4040' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length - I.D.
Drill Pipe Length 3972' I.D. 3.826"
Packer Depth(s) 3994' - 4000' Ft.
Depth Tester Valve 3982' Ft.

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

Recovered 55 Feet of Drilling mud
Recovered Feet of
Recovered Feet of
Recovered Feet of
Recovered Feet of

Meas. From Tester Valve

Remarks SEE PRODUCTION TEST DATA SHEET.

TEMPERATURE	Gauge No. 536 Depth: 3987' Ft.	Gauge No. 392 Depth: 4036' Ft.	Gauge No. Depth: Ft.	TIME
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool Opened 1755 A.M. P.M.
Est. °F.	Blanked Off -	Blanked Off -	Blanked Off	Opened A.M. P.M.
4034' Actual 121 °F.	Pressures	Pressures	Pressures	Bypass

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		-	1994	2016	2018				
First Period	Flow Initial		19	49	40			———	———
	Flow Final		18	49	45			15	21
	Closed in		1356	1382	1379			30	28
Second Period	Flow Initial		29	49	49			———	———
	Flow Final		34	58	58			30	31
	Closed in		1355	1374	1378			60	61
Third Period	Flow Initial							———	———
	Flow Final								
	Closed in								
Final Hydrostatic			1979	1999	2000			———	———

Legal Location Sec. - Twp. - Rng. 25 - 25 - 30
Lease Name DAVIS
Well No. E-1
Test No. 4
Tested Interval 4000' - 4040'
Field Area WILDCAT
County DECATUR
State KANSAS
Lease Owner/Company Name CITIES SERVICE OIL COMPANY

FORM 161-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 ICM 8/74

Casing perfs. _____ Bottom choke _____ Surf. temp _____ °F Ticket No. 074717

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
1430					Time called out
1530					On location, rig pulled drill pipe for
					DST #4
1615					Picked up and made up tool
1635					Tool through table
1640					Rig started drill pipe
1747					Tool on bottom
1750					Tool opened with no blow for 3 minutes
1753					Picked up tool & flushed tool
					Tool back on bottom
1755					Tool opened with no blow
1810					Closed tool
1840					Opened tool with no blow
1910					Closed tool
2010					Tool off bottom
2120					Tool back through table

PRODUCTION TEST DATA

Gauge No.	536		Depth	3987'		Clock No.	11657		12 hour	Ticket No.	074717							
	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	19	.0000		18	.0000	29	.0000		34								
1	.0300	15-BB	.0137		1007	.0408	29*	.0268		1293								
2	.0410	14-AB	.0274		1314	.0749	29	.0535		1328								
3	.1440	18	.0411		1330	.1089	30	.0803		1338								
4			.0549		1338	.1429	31	.1070		1343								
5			.0686		1343	.1770	33	.1338		1346								
6			.0823		1346	.2110	34	.1605		1348								
7			.0960		1348			.1873		1350								
8			.1097		1350			.2140		1351								
9			.1234		1352			.2408		1352								
10			.1371		1354			.2675		1352								
11			.1509		1355			.2943		1352								
12			.1647		1356			.3210		1353								
13			.1783		1356			.3478		1354								
14			.1920		1356			.3746		1355								
15								.4080		1355**								

Gauge No.	392		Depth	4036'		Clock No.	11647		12 hour									
0	.0000	40	.0000		45	.0000	49	.0000		58								
1	.0280	40-BB	.0136		1038	.0397	49*	.0268		1267								
2	.0380	41-AB	.0271		1337	.0727	52	.0535		1353								
3	.1410	45	.0407		1357	.1058	53	.0803		1362								
4			.0543		1364	.1389	55	.1070		1366								
5			.0679		1367	.1719	57	.1338		1370								
6			.0814		1370	.2050	58	.1605		1371								
7			.0950		1372			.1873		1372								
8			.1086		1374			.2140		1374								
9			.1221		1375			.2408		1374								
10			.1357		1376			.2675		1375								
11			.1493		1377			.2943		1375								
12			.1629		1378			.3210		1376								
13			.1764		1379			.3478		1377								
14			.1900		1379			.3746		1378								
15								.4080		1378**								
Reading Interval			2			5		4									Minutes	

REMARKS: *Interval = 6 minutes **Interval = 5 minutes

BB = Before by-passing tool AB = After by-passing

U

FORM 183-R1—PRINTED IN U.S.A.

SPECIAL PRESSURE DATA

LITTLE'S 96673 75C 8/74

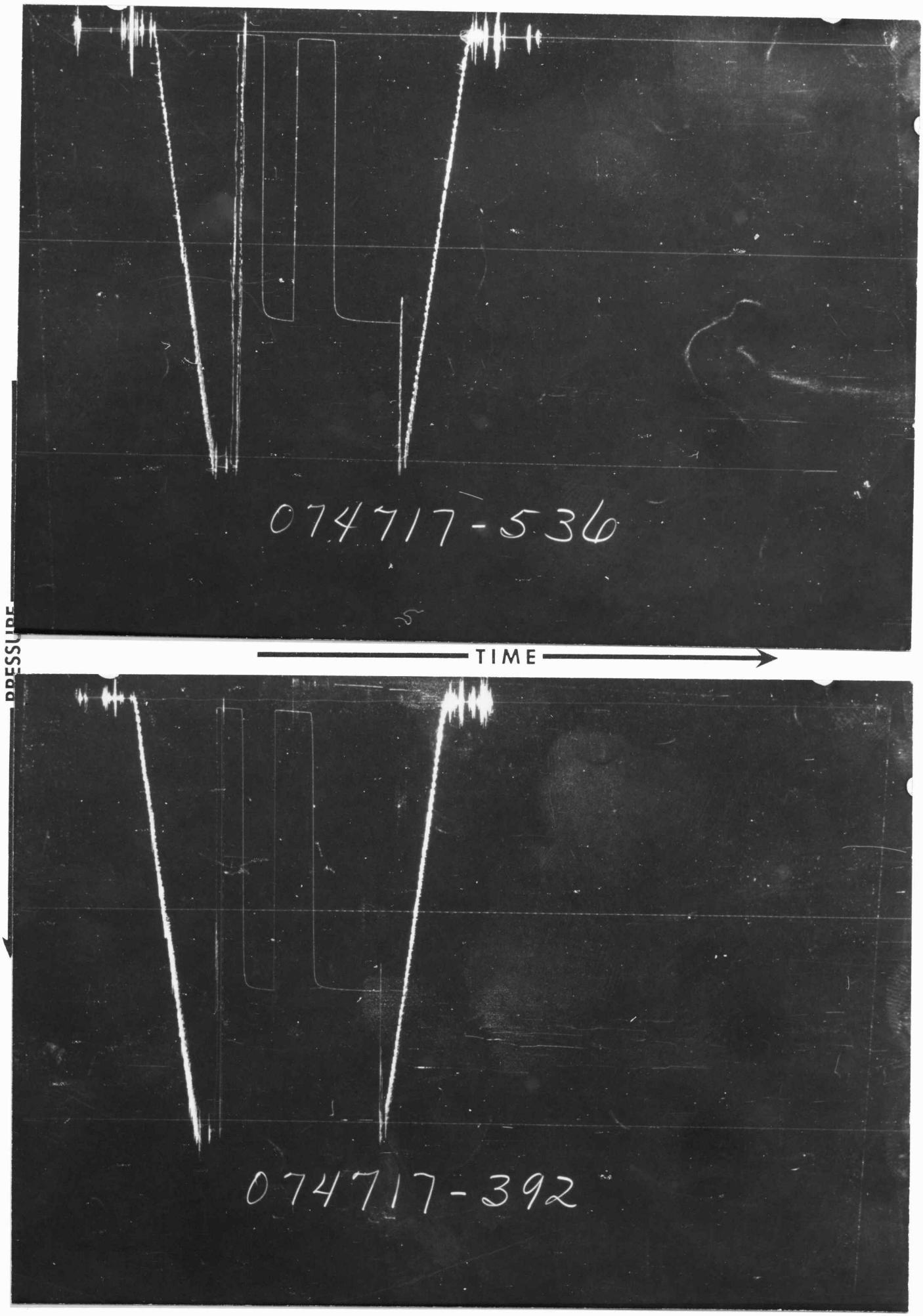
TICKET NO. 074717

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6"	3"	1'	3916'
Water Cushion Valve				
Drill Pipe	4.5"	3.826"	3972'	
Drill Collars				
Handling Sub & Choke Assembly				
Dual CIP Valve	5"	.87"	6.05'	3976'
Dual CIP Sampler				
Hydro-Spring Tester	5"	.75"	5'	3982'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.75"	4'	3987'
Hydraulic Jar				
VR Safety Joint	5"	1"	2.85'	
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	5.85'	3994'
Distributor				
Packer Assembly	6.75"	1.53"	5.85'	4000'
Flush Joint Anchor	5"	3.84"	32'	
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				
Temperature Case	5"	3.75"	1.50'	4034'
Flush Joint Anchor				
Blanked-Off B.T. Running Case	5"	2.75"	4'	4036'
Total Depth				4040'

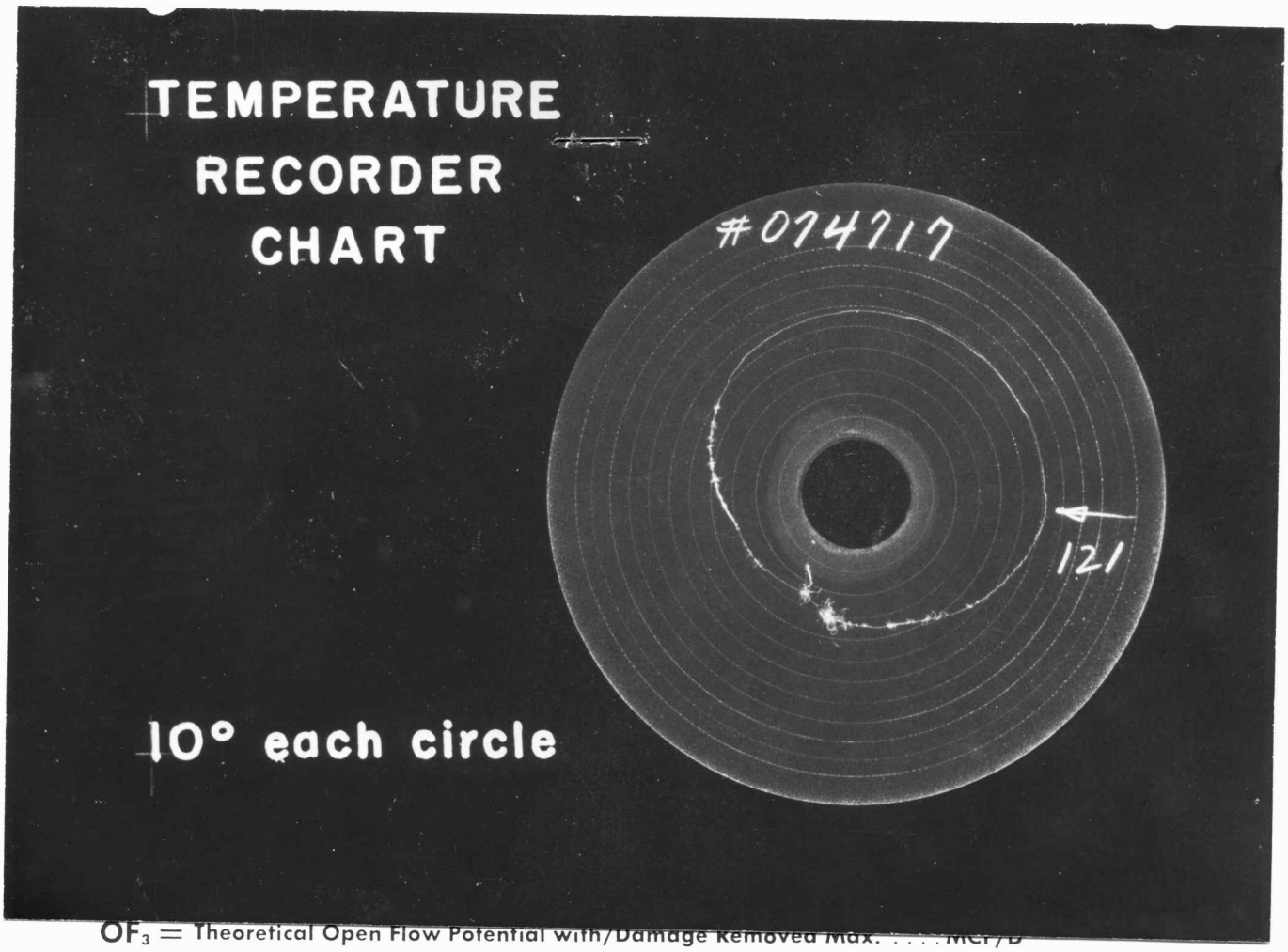
FORM 187-R1—PRINTED IN U.S.A.

EQUIPMENT DATA

LITTLE'S 96-75C 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 33.6 ° API @ 60 °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 39 SEC qp

Date 9-19-76 Ticket Number 074718
Kind of Job OPEN HOLE Halliburton District HAYS
Tester MR. GARRISON Witness MR. DOUBOYS
Drilling Contractor R & W DRILLING COMPANY IC S

EQUIPMENT & HOLE DATA

Formation Tested Lansing "E"
Elevation 2841' Kelly Bushing Ft.
Net Productive Interval 4 Ft.
All Depths Measured From Kelly Bushing
Total Depth 4074' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length - I.D. -
Drill Pipe Length 4005.90' I.D. 3.826"
Packer Depth(s) 4028' - 4034' Ft.
Depth Tester Valve 4020' Ft.

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

Recovered 30 Feet of Free oil
Recovered 120 Feet of Oil cut mud
Recovered Feet of
Recovered Feet of
Recovered Feet of

Meas. From Tester Valve

Remarks SEE PRODUCTION TEST DATA SHEET.

TEMPERATURE	Gauge No. 536	Gauge No. 392	Gauge No.	TIME
	Depth: 4021' Ft.	Depth: 4070' Ft.	Depth: Ft.	
	12 Hour Clock	12 Hour Clock	Hour Clock	Tool Opened 07:30 A.M.
Est. °F.	Blanked Off NO	Blanked Off YES	Blanked Off	Opened A.M.
Actual 4068' @ 122 °F.	Pressures	Pressures	Pressures	Bypass 10:00 P.M.

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		-	2026	2048	2050				
First Period	Initial Flow	-	9	33	34			____	____
	Final Flow	-	39	66	62			30	30
	Closed in	-	1256	1284	1278			30	30
Second Period	Initial Flow	-	53	58	65			____	____
	Final Flow	-	62	82	82			30	30
	Closed in	-	1270	1292	1292			60	60
Third Period	Initial Flow							____	____
	Final Flow								
	Closed in								
Final Hydrostatic		-	2012	1869	2030			____	____

Legal Location Sec. - Twp. - Rng. 25 - 25 - 30
Lease Name DAVIS
Well No. E-1
Test No. 5
Field Area WILDCAT
Tested Interval 4034' - 4074'
County DECATUR
State KANSAS
Lease Owner/Company Name CITIES SERVICE OIL COMPANY

FORM 181-R1—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 96671 10M 8/74

5

Casing perfs._____ Bottom choke_____ Surf. temp_____ °F Ticket No. 074718

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
04:45					Time called out
05:30					On location-rig finished pulling
					drill pipe for DST #5
05:50					Picked up and made up tool
06:10					Tool through table
06:15					Rig started drill pipe
07:27					On bottom
07:30					Opened tool with weak to fair blow
08:00					Closed tool for closed in pressure
08:30					Reopened tool with a weak blow for
					30 seconds and then died
09:00					Closed tool for closed in pressure
10:00					Off bottom
11:20					Tool back through table
11:30					Broke tool down and read charts

Gauge No.	536	Depth	4021'	Clock No.	11657	12 hour	Ticket No.	074718

	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	9	.000		39	.000	53	.000		62					
1	.0352	15	.020		101	.0348	51	.0404		667					
2	.0704	22	.040		448	.0696	52	.0808		1106					
3	.1056	29	.060		1036	.1044	54	.1212		1169					
4	.1408	32	.080		1134	.1392	56	.1616		1204					
5	.1760	36	.100		1179	.1740	60	.2020		1225					
6	.2110	39	.120		1206	.2090	62	.2424		1239					
7			.140		1222			.2828		1250					
8			.160		1236			.3232		1259					
9			.180		1248			.3636		1265					
10			.200		1256			.4040		1270					
11															
12															
13															
14															
15															

Gauge No.	392	Depth	4070'	Clock No.	11647	12 hour

0	.000	34	.000		62	.000	65	.000		82					
1	.0342	43	.0201		130	.0338	67	.0406		499					
2	.0684	48	.0402		392	.0676	71	.0812		1124					
3	.1026	53	.0603		1009	.1014	73	.1218		1194					
4	.1368	56	.0804		1152	.1352	76	.1624		1226					
5	.1710	59	.1005		1199	.1690	80	.2030		1248					
6	.2050	62	.1206		1226	.2030	82	.2436		1261					
7			.1407		1246			.2842		1272					
8			.1608		1260			.3248		1280					
9			.1809		1270			.3654		1286					
10			.2010		1278			.4060		1292					
11															
12															
13															
14															
15															

Reading Interval	5	3	5	6			Minutes

REMARKS:

G

SPECIAL PRESSURE DATA

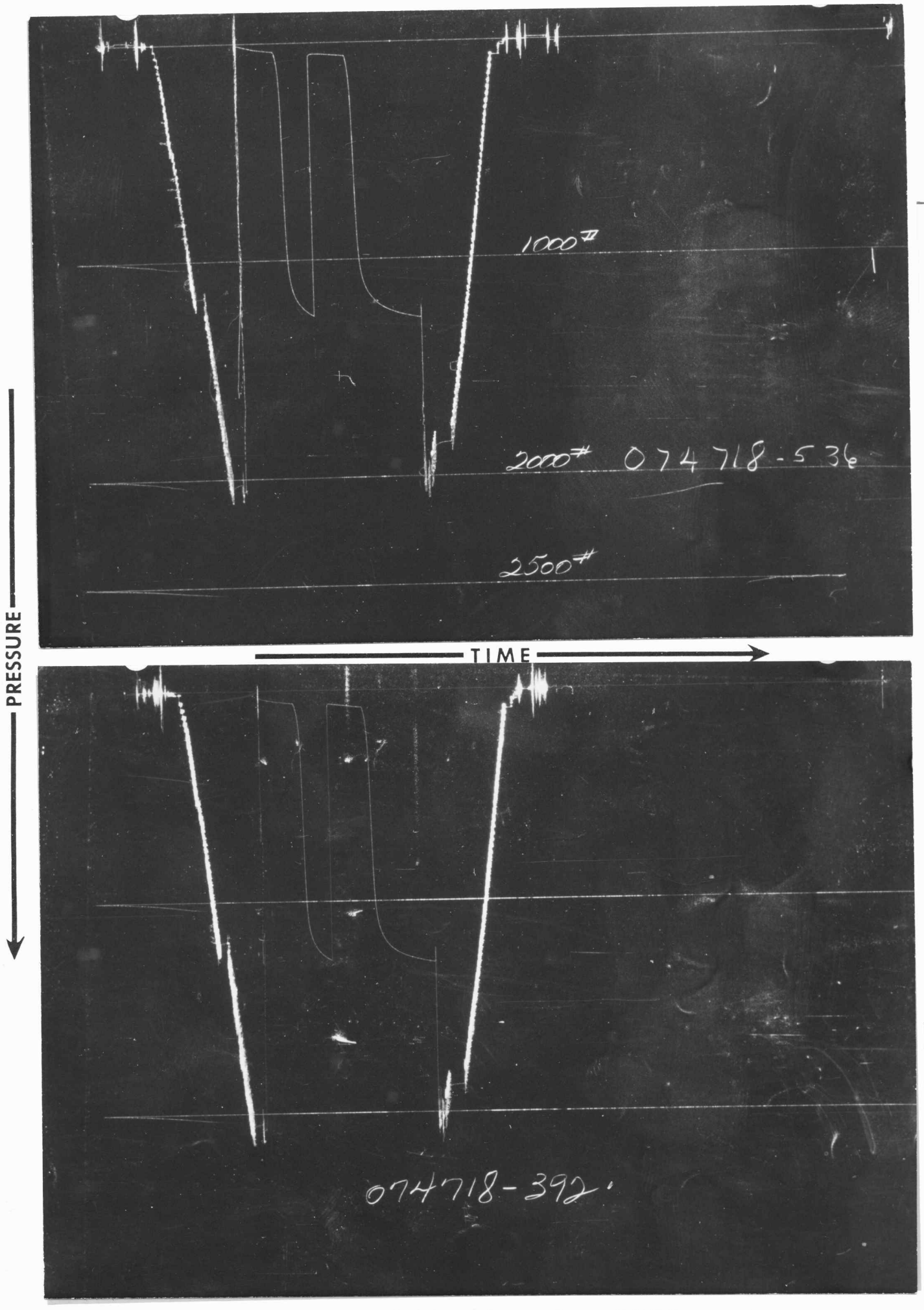
TICKET NO. 074718

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6"	3"	1'	3949'
Water Cushion Valve				
Drill Pipe	4.5"	3.826"	4005.90'	
Drill Collars				
Handling Sub & Choke Assembly				
Dual CIP Valve	5.0"	.87"	6.05'	4009'
Dual CIP Sampler				
Hydro-Spring Tester	5.0"	.75"	5.00'	4020'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.0"	3.75"	4.00'	4021'
Hydraulic Jar				
VR Safety Joint	5.0"	1"	2.85'	
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	5.85'	4028'
Distributor				
Packer Assembly	6.75"	1.53"	5.85'	4034'
Flush Joint Anchor	5.0"	3.84"	32'	
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				
~~XXXXXXXXXXXX~~ TEMP. CASE Flush Joint Anchor	5.0"	3.75"	1.50'	4068'
Blanked-Off B.T. Running Case	5.0"	2.75"	4.00'	4070'
Total Depth				4074'

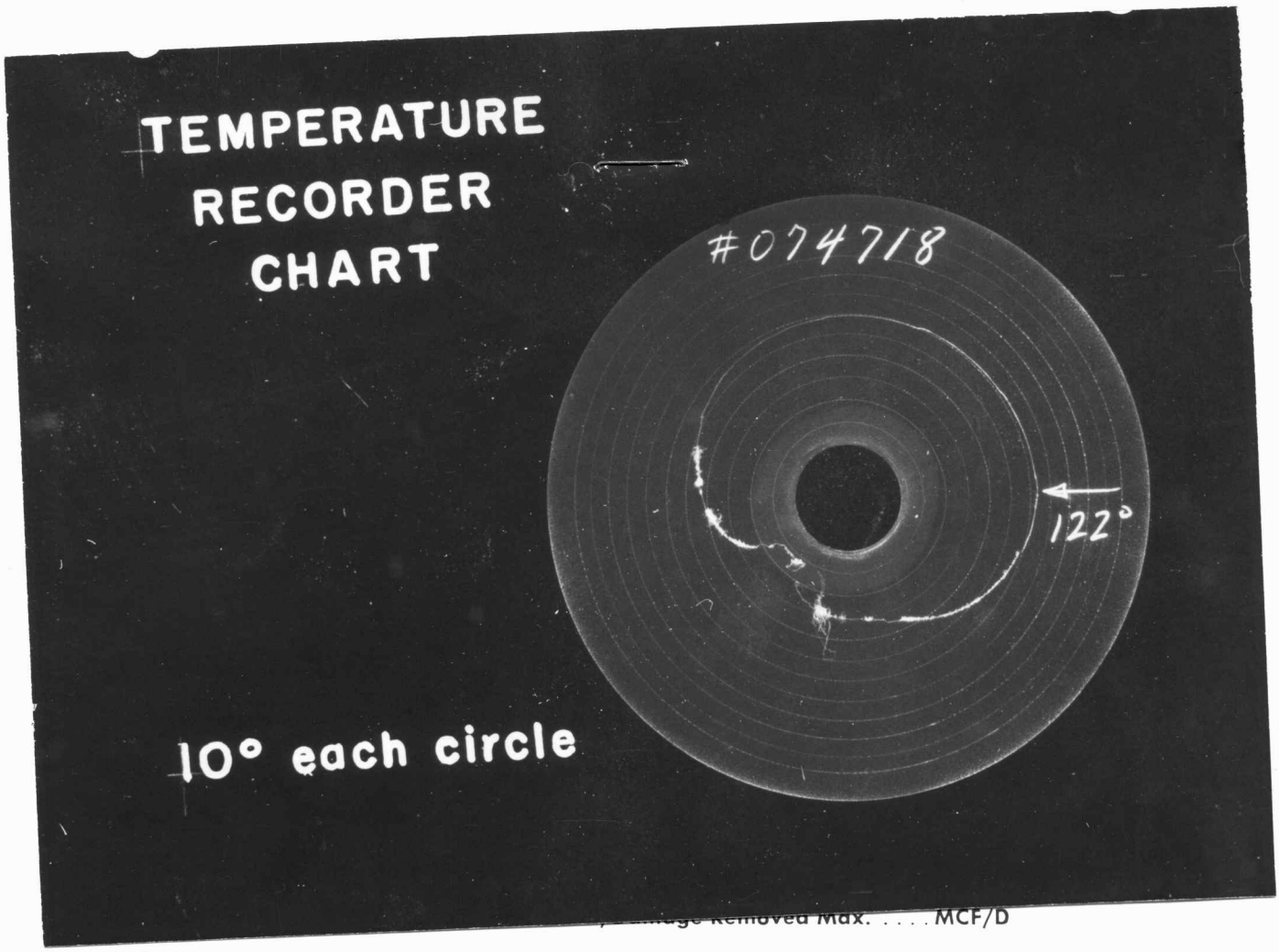
FORM 197-R1—PRINTED IN U.S.A.

EQUIPMENT DATA

LITTLE'S 96676 75C 6/74



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



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.