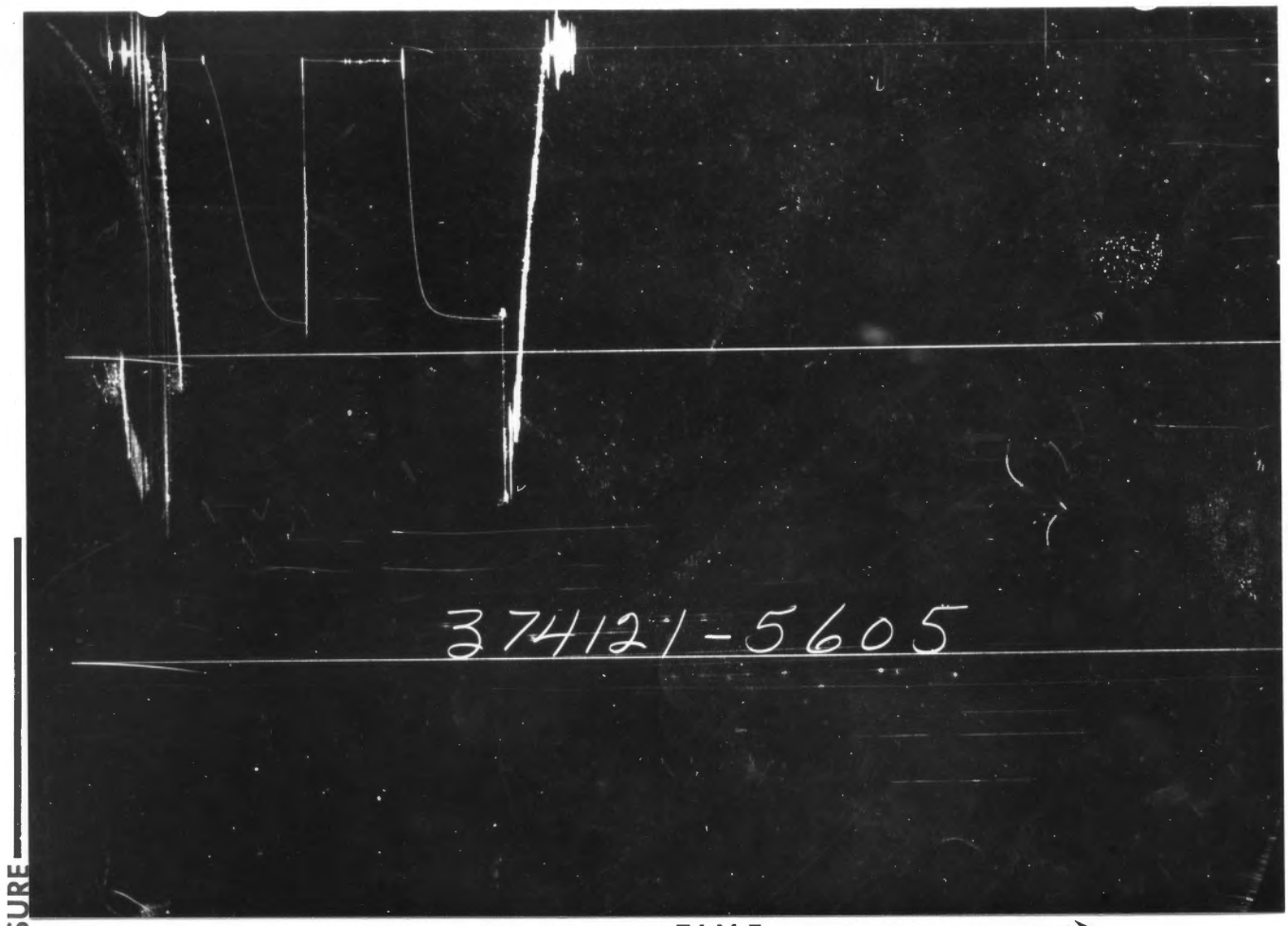
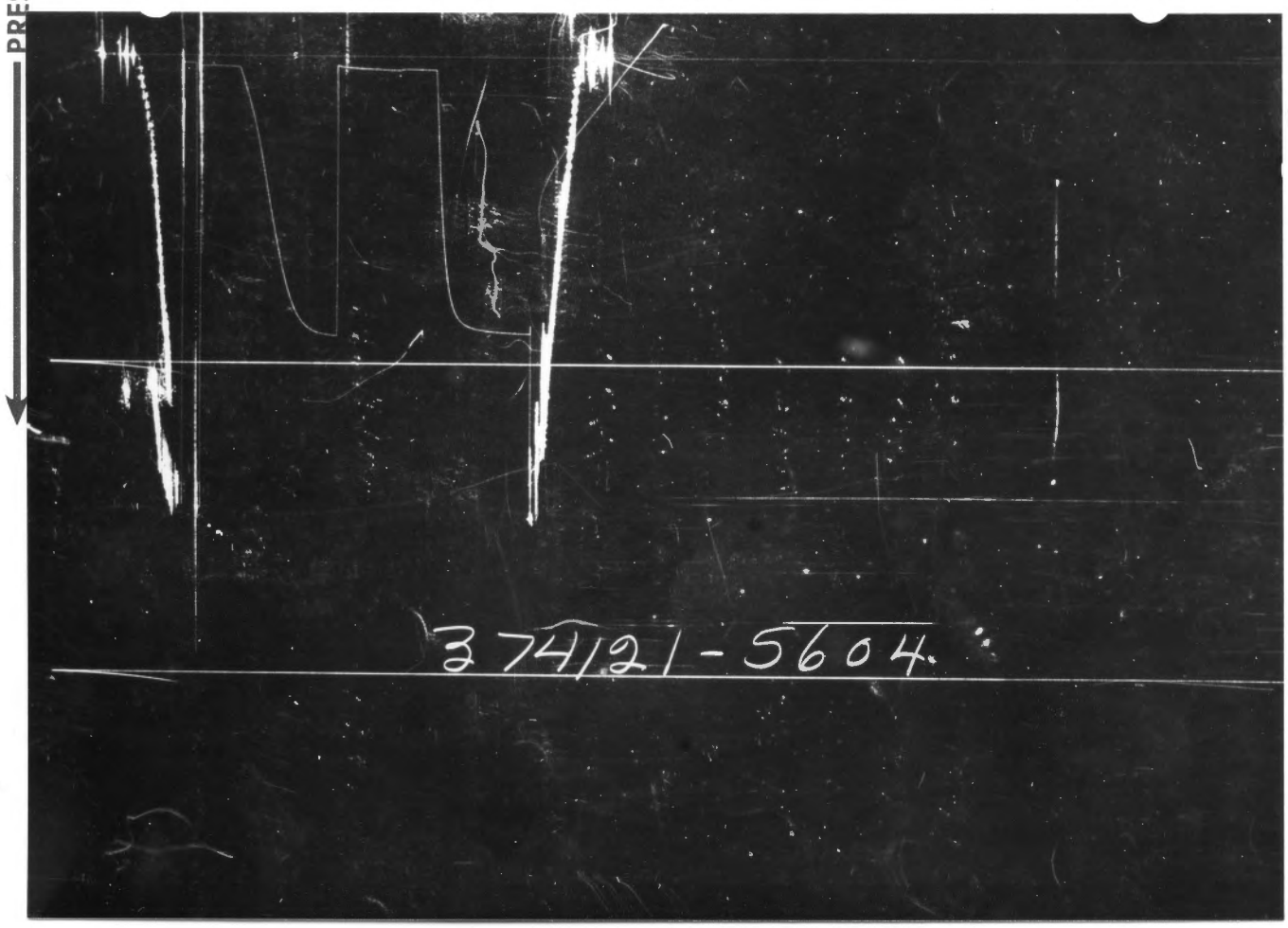


PRESSURE

TIME



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

State Geological Survey
WICHITA BRANCH
DRILLERS LOG JAN 22 1982

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 9.1 vis 32sec

Date 5-2-78 Ticket Number 374121
Kind of Job OPEN HOLE Halliburton District PRATT
Tester MR. GROSS Witness MR. MC LEAN
Drilling Contractor RED TIGER DR

EQUIPMENT & HOLE DATA

Formation Tested Council Grove
Elevation 2139' KB Ft.
Net Productive Interval 57-62' Ft.
All Depths Measured From Kelly Bushing
Total Depth 2765' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length - I.D. -
Drill Pipe Length 2707' I.D. 3.826"
Packer Depth(s) 2749-2755' Ft.
Depth Tester Valve 2732' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve
Surface Choke 1/8" Bottom Chake 3/4"

Recovered 65 Feet of heavy gas cut muddy water
Recovered Feet of
Recovered Feet of
Recovered Feet of
Recovered Feet of

Remarks SEE PRODUCTION TEST DATA SHEET

TEMPERATURE	Gauge No. 5605		Gauge No. 5604		Gauge No.		TIME	
	Depth: 2737 Ft.		Depth: 2761 Ft.		Depth: Ft.			
	24 Hour Clock		24 Hour Clock		Hour Clock		Tool Opened 1200	A.M. P.M.
Est. °F.	Blanked Off No		Blanked Off Yes		Blanked Off		Opened	A.M.
Actual 73 °F.	Pressures		Pressures		Pressures		Bypass 1645	P.M.
	Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		1376	1351	1388				
First Period Flow Initial		10	32	25			———	———
First Period Flow Final		24	32	37			45	71
First Period Closed in		894	854	909			120	122
Second Period Flow Initial		25	32	33			———	———
Second Period Flow Final		35	49	45			120	121
Second Period Closed in		889	854	898			120	116
Third Period Flow Initial							———	———
Third Period Flow Final								
Third Period Closed in								
Final Hydrostatic		1317	1335	1331			———	———

Legal Location Sec. - Twp. - Rng. 31-24-17
Lease Name WILTGEN
Well No. 2-31
Test No. 1
Tested Interval 2755-2765'
Field Area
Meas. From Tester Valve
County EDWARDS
State KANSAS
Lease Owner/Company Name IMPERIAL OIL COMPANY

FORM 181-R2—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 102548 3M 9/76

5

Casing perfs. _____ Bottom choke _____ Surf. temp _____ °F Ticket No. 374121

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
0630					Called for job
0810					On location requested
0830					Rig circulating, started out with drill
					pipe.
1010					Picked up tool
1030					Tool through table
1129					Tool on bottom wt 38#
1135					Opened tool with a weak blow
1145					Increased to a fair blow
1150					Losing fluid, picked up and reset tool
					still losing fluid before resetting.
1200					Tool reset and open with a very weak
					blow.
1245					Closed tool
1445					Opened tool with a strong blow
1555			Tubing volume		Gas to surface in 70 minutes.
1605	1/8"	1	2.76		Recovery 65' of heavy Gas cut muddy water
1615	"	1	2.76		
1625	"	1	2.76		
1635	"	1	2.76		
1645	"	1			Closed tool
1845					Started off bottom

FORM 182-R1—PRINTED IN U.S.A.

PRODUCTION TEST DATA

5

LITTLE'S 96672 5M 6/74

Gauge No.	5605	Depth	2737'	Clock No.	12920	24 hour	Ticket No.	374121	

	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	10	.000		24	.000	25	.000		35					
1	.0367	13*	.0334		105**	.0703	31***	.0134		331****					
2	(.058	15 B)	.0602		193	.1372	33	.0403		675					
3	(.075	17A)	.0869		292	.2042	36	.0671		802					
4	.0768	17	.1137		412	.2711	33	.0939		843					
5	.1168	20	.1404		548	.3381	34	.1207		862					
6	.1569	22	.1672		641	.4050	35	.1476		872					
7	.1970	23	.1939		729			.1744		876					
8	.2370	24	.2207		796			.2012		880					
9			.2474		838			.2281		881					
10			.2742		862			.2549		884					
11			.3009		877			.2817		885					
12			.3277		885			.3085		886					
13			.3544		890			.3354		887					
14			.3812		892			.3622		889					
15			.4080		894			.3890		889					

Gauge No.	5604	Depth	2761'	Clock No.	12920	hour	24		

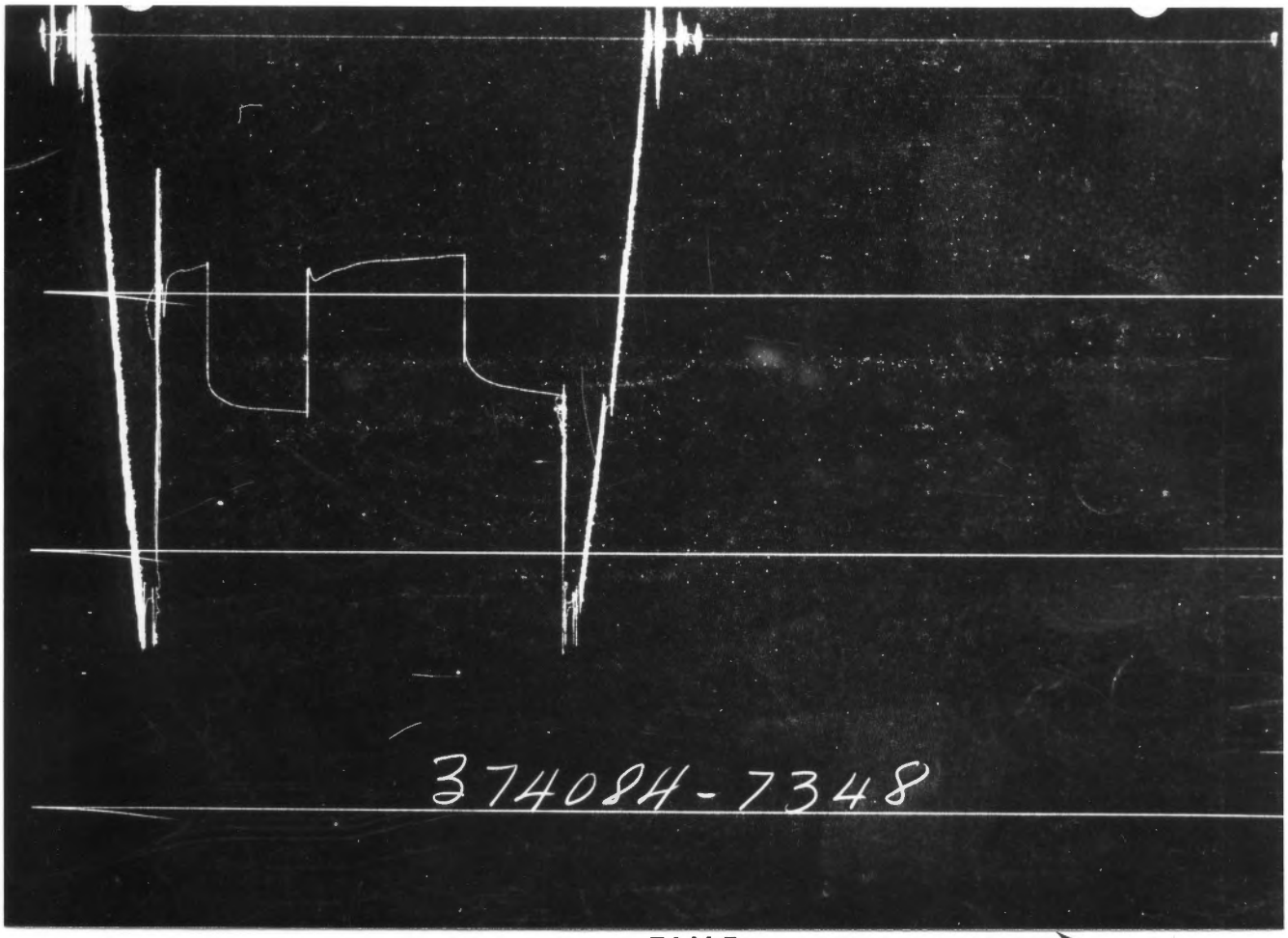
0	.000	25	.000		37	.000	33	.000		45					
1	.0363	24*	.0325		124**	.0699	40***	.0132		358 ****					
2	(.055	25 B)	.0584		204	.1366	42	.0395		674					
3	(.074	32 A)	.0844		305	.2032	44	.0659		807					
4	.0958	32	.1104		435	.2698	43	.0922		852					
5	.1154	34	.1363		548	.3364	44	.1186		871					
6	.1549	34	.1623		652	.4030	45	.1449		880					
7	.1945	36	.1883		740			.1713		893					
8	.2340	37	.2142		807			.1976		888					
9			.2402		849			.2240		891					
10			.2662		874			.2503		892					
11			.2921		889			.2767		895					
12			.3181		898			.3030		897					
13			.3441		903			.3294		897					
14			.3700		905			.3557		898					
15			.3960		909			.3820		898					
Reading Interval	12		8			20		8							Minutes

REMARKS: B-Before by pass A-After by pass *-11 minutes **-10 minutes ***-21 minutes
****-4 minutes.

SPECIAL PRESSURE DATA

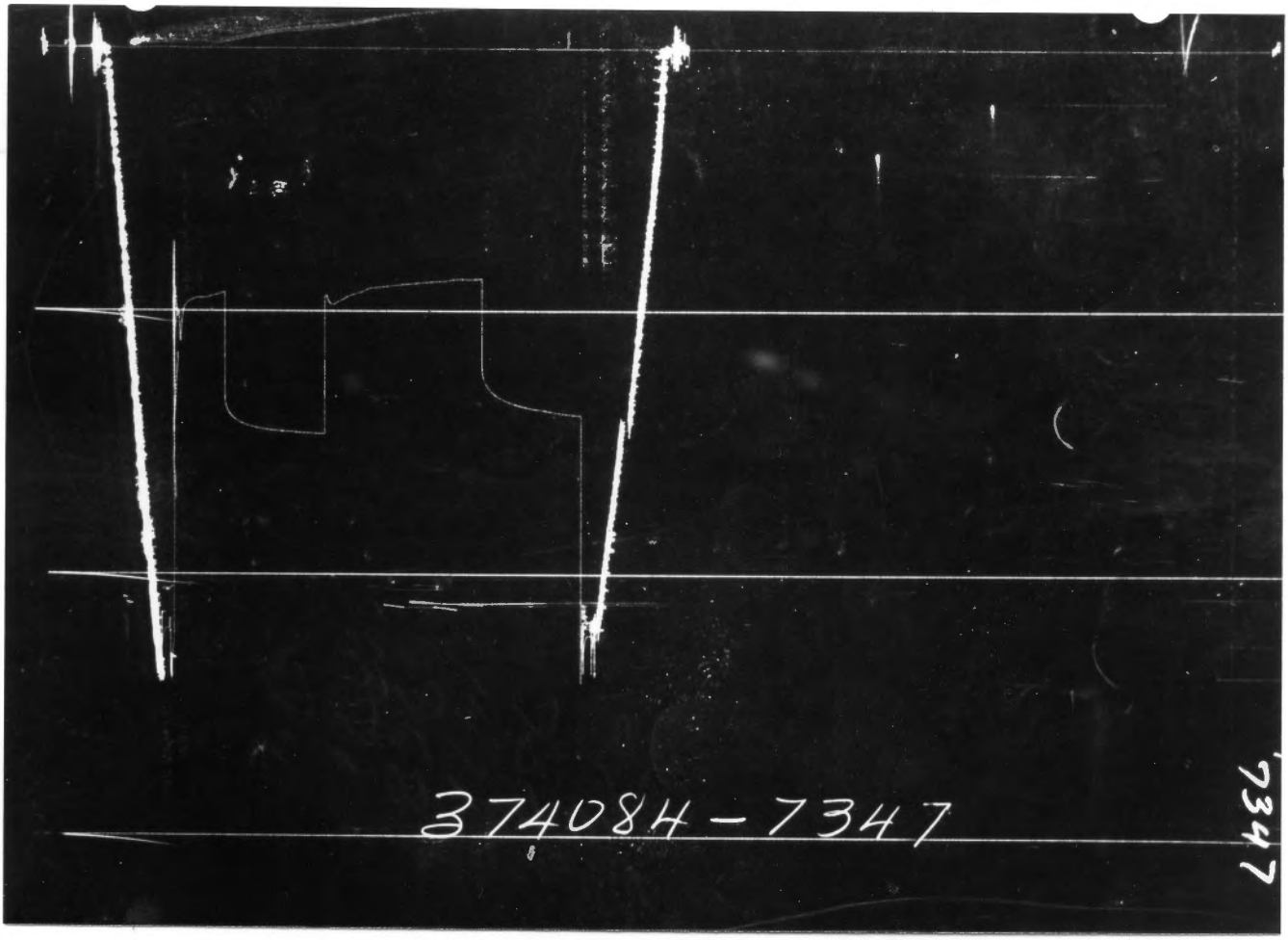
TICKET NO. 374121

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	5 5/5"	5"	1'	
Water Cushion Valve				
Drill Pipe	4 1/2"	3.826"	2707'	
Drill Collars				
Handling Sub & Choke Assembly				
Duol CIP Valve	5"	.87"	5'	2727'
Dual CIP Sampler				
Hydro-Spring Tester	6"	.75"	5'	2732'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.06"	4'	2737'
Hydraulic Jar	5"	1.50"	5'	
VR Safety Joint	5"	1.00"	3'	
Pressure Equalizing Crossover				
Packer Assembly	6 3/4"	1.53"	6'	2749'
Distributor				
Packer Assembly	6 3/4"	1.53"	6'	2755'
Flush Joint Anchor	5"	2.37"	4'	
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case	5"	2.44"	4'	2761'
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				2765'



PRESSURE

TIME



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

State Geological Survey
WICHITA BRANCH JAN 22 1982

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 9.3 vis 48 sec

Date 5-7-78 Ticket Number 374084
Kind of Job HOOK WALL Halliburton District PRATT
Tester G. GEORGE Witness ED PONLEY
Drilling Contractor RED TIGER # 1 DR

EQUIPMENT & HOLE DATA

Formation Tested Cherokee Sand
Elevation 2139' KB Ft.
Net Productive Interval 8' Ft.
All Depths Measured From Kelly Bushing
Total Depth 4470' Ft.
Main Hole/Casing Size 7 5/8"
Drill Collar Length 2000' I.D. 2.764"WP
Drill Pipe Length 2415' I.D. 3.826"
Packer Depth(s) 4443-4449' Ft.
Depth Tester Valve 4427' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve
Surface Choke 1.00" Bottom Choke .75"

Recovered Feet of No fluid
Recovered Feet of
Recovered Feet of
Recovered Feet of
Recovered Feet of

Remarks SEE PRODUCTION TEST DATA SHEET

TEMPERATURE	Gauge No. 7348 Depth: 4431 Ft.	Gauge No. 7347 Depth: 4466 Ft.	Gauge No. Depth: Ft.	TIME
	24 Hour Clock	24 Hour Clock	Hour Clock	Tool Opened 2210 A.M. P.M.
Est. °F.	Blanked Off No	Blanked Off Yes	Blanked Off	Opened A.M. P.M.
Actual 114 °F.	Pressures	Pressures	Pressures	Bypass 0610 A.M. P.M.

	Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		2180	2322	2207				
First Period Flow Initial		516	968	732			———	———
First Period Flow Final		884	930	926			60	60
First Period Closed in		1454	1471	1464			120	118
Second Period Flow Initial		899	968	943			———	———
Second Period Flow Final		842	891	874			180	185
Second Period Closed in		1385	1394	1393			120	116
Third Period Flow Initial							———	———
Third Period Flow Final								
Third Period Closed in								
Final Hydrostatic		2202	2322	2231			———	———

Legal Location Sec. - Twp. - Rng. 31-24S-17W
Lease Name WILTREN
Well No. 2-31
Test No. 2
Tested Interval 4449-4470'
Lease Owner/Company Name IMPERIAL OIL COMPANY
Field Area WILDCAT
Mea. From Tester Valve
County EDWARDS
State KANSAS

FORM 181-R2—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 102548 5M 9/78

5

Casing perfs.____ Bottom choke____ Surf. temp____ °F Ticket No. 374084

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
1230					Called out
1420					On location
2020					Picked up tool
2040					Tool through table, tool on bottom
					wt. 50 M.
2210	2" PITOT TUBE		CU. FT./DAY		Opened tool
2225	"	60	7,120		
2235	"	55	6,640		
2245	"	55	6,640		
2255	"	60	7,120		
2305	"	60	7,120		
2310	"	60	7,120		Closed tool
0110	"	25	3,710		Opened tool
0120	"	60	7,120		
0130	"	60	7,120		
0140	"	60	7,120		
0155	"	60	7,120		
0210	"	60	7,120		
0225	"	60	7,120		
0340	"	60	7,120		
0355	"	60	7,120		
0410	"	60	7,120		Closed tool
0610					Tool off bottom

Gauge No.	7348		Depth	4431'		Clock No.	16777		24 hour	Ticket No.	374084			
	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	516	.000		884	.000	899	.000		842					
1	.0332	986	.0201		1379*	.1242	901	.0135		1258**					
2	.0663	918	.0470		1402	.2484	869	.0406		1295					
3	.0995	908	.0738		1418	.3726	861	.0676		1318					
4	.1327	904	.1007		1429	.4968	852	.0946		1332					
5	.1659	893	.1275		1435	.6210	842	.1216		1341					
6	.1990	884	.1544		1440			.1487		1349					
7			.1812		1443			.1757		1354					
8			.2081		1443			.2027		1357					
9			.2349		1444			.2298		1363					
10			.2618		1447			.2568		1367					
11			.2886		1449			.2838		1370					
12			.3155		1450			.3109		1373					
13			.3423		1451			.3379		1376					
14			.3692		1452			.3649		1380					
15			.3960		1454			.3920		1385					
Gauge No.	7347		Depth	4466'		Clock No.	16767		hour	24					
0	.000	732	.000		926	.000	943	.000		874					
1	.0338	992	.0201		1390*	.1248	931	.0135		1270**					
2	.0677	957	.0470		1412	.2496	902	.0406		1306					
3	.1015	947	.0738		1426	.3744	889	.0676		1325					
4	.1353	945	.1007		1435	.4992	878	.0946		1338					
5	.1692	935	.1275		1441	.6240	874	.1216		1347					
6	.2030	926	.1544		1447			.1487		1354					
7			.1812		1450			.1757		1363					
8			.2081		1453			.2027		1367					
9			.2349		1455			.2298		1370					
10			.2618		1456			.2568		1375					
11			.2886		1458			.2838		1380					
12			.3155		1460			.3109		1384					
13			.3423		1461			.3379		1388					
14			.3692		1463			.3649		1390					
15			.3960		1464			.3920		1393					
Reading Interval	10		8			37		8							Minutes

REMARKS: *-6 minutes **-4 minutes.

FORM 193-RI—PRINTED IN U.S.A.

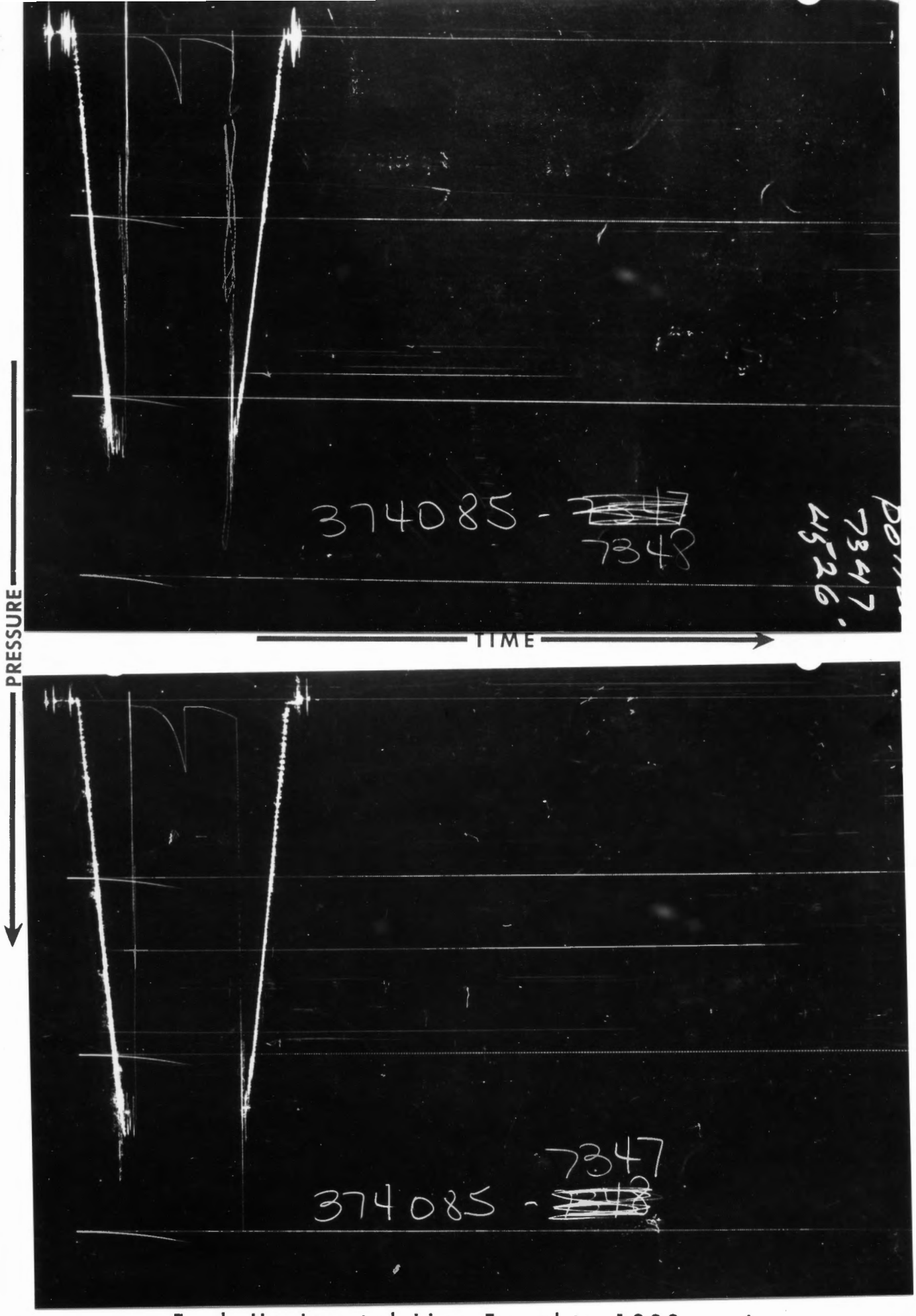
SPECIAL PRESSURE DATA

LITTLE'S 96673 75C 6/74

TICKET NO. 374084

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6.00"	2.00'	1'	
Water Cushion Valve				
Drill Pipe	4.50"	3.826"	2415'	
Drill Collars	4.50"	2.764"	2000' WP	
Handling Sub & Choke Assembly				
Dual CIP Valve	5.75"	.87"	6'	4422'
Dual CIP Sampler				
Hydro-Spring Tester	5.00"	.75"	5'	4427'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.00"	3.06"	4'	4431'
Hydraulic Jar	5.00"	1.50"	5'	
VR Safety Joint	5.00"	1.00"	3'	
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	6'	4443'
Distributor				
Packer Assembly	6.75"	1.53"	6'	4449'
Flush Joint Anchor	5.00"	2.37"	15'	
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case	5.00"	2.44"	4'	4466'
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				4470'

EQUIPMENT DATA



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

State Geological Survey
WICHITA BRANCH
JAN 2 2 1982

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 45 sec

Date 5-8-78 Ticket Number 374085
Kind of Job OPEN HOLE TEST Halliburton District PRATT
Tester G. GEORGE Witness E. DONNELLY
Drilling Contractor RED TIGER DRILLING COMPANY #6 PW

EQUIPMENT & HOLE DATA

Formation Tested Mississippi
Elevation 2139' K.B. Ft.
Net Productive Interval 8' Ft.
All Depths Measured From Kelly Bushing
Total Depth 4530' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length 2000' WP I.D. 2.764" WP
Drill Pipe Length 2492' I.D. 3.826"
Packer Depth(s) 4516' - 4522' Ft.
Depth Tester Valve 4504' Ft.

Cushion TYPE AMOUNT Depth Back Pres. Valve Ft. Surface Choke 1.00" Bottom Choke .75"

Recovered 15 Feet of drilling mud.
Recovered Feet of
Recovered Feet of
Recovered Feet of
Recovered Feet of

Remarks SEE PRODUCTION TEST DATA SHEET.....

TEMPERATURE	Gauge No. 7348 Depth: 4508 Ft.	Gauge No. 7347 Depth: 4526 Ft.	Gauge No. Depth: Ft.	TIME
Calc. Est. 110 °F.	24 Hour Clock	24 Hour Clock	Hour Clock	Tool Opened 0125 A.M. P.M.
	Blanked Off Yes	Blanked Off No	Blanked Off	Opened A.M.
Actual °F.	Pressures	Pressures	Pressures	Bypass 0425 P.M.

	Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic	2244	2234		2256				
First Period Flow Initial	10	13		29			—	—
First Period Flow Final	10	15		37			30	
First Period Closed in	389	384		394			60	
Second Period Flow Initial	10	23		41			—	—
Second Period Flow Final	20	23		39			30	
Second Period Closed in	97	86		102			60	
Third Period Flow Initial							—	—
Third Period Flow Final								
Third Period Closed in								
Final Hydrostatic	2244	2221		2239			—	—

Legal Location Sec. - Twp. - Rng. 31 - 24 S - 17 W
Lease Name WILTGEN
Well No. 2-31
Test No. 3
Tested Interval 4522' - 4530'
Lease Owner/Company Name IMPERIAL OIL COMPANY
Field Area WILDCAT
Mea. From Tester Valve
County EDWARDS
State KANSAS

FORM 161-R2—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 102548 SM 9/76

5

Casing perfs. Bottom choke Surf. temp °F Ticket No. 374085

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
2000					Called out.
2230					On location.
2335					Picked up tool.
2350 0120					Tool thru table. Tool on bottom - 50,000#.
0125					Opened tool with a very weak blow.
0128					Blow dead in 3 minutes.
0155					Closed tool.
0255					Reopened tool with no blow.
0325					Closed tool.
0425					Tool off bottom.

FORM 102-R1—PRINTED IN U.S.A.

PRODUCTION TEST DATA

LITTLE'S 96672 SM 8/74

TICKET NO. 374085

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6.00"	2.00"	1'	
Water Cushion Valve				
Drill Pipe	4.50"	3.826"	2492'	
~~Drill Collars~~ Weight Pipe.	4.50"	2.764"	2000'	
Handling Sub & Choke Assembly				
Dual CIP Valve	5.75"	.87"	6'	4499'
Dual CIP Sampler				
Hydro-Spring Tester	5.00"	.75"	5'	4504'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.00"	3.06"	4'	4508'
Hydraulic Jar	5.00"	1.50"	5'	
VR Safety Joint	5.00"	1.00"	3'	
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	6'	4516'
Distributor				
Packer Assembly	6.75"	1.53"	6'	4522'
Flush Joint Anchor	5.00"	2.37"	2'	
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case	5.00"	2.44"	4'	4526'
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				4530'

FORM 187-R1—PRINTED IN U.S.A.

EQUIPMENT DATA

LITTLE'S 96676 7EC 6/74

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