

FLUID SAMPLE DATA				Date 2-9-72		Ticket Number 381521	
Sampler Pressure _____ P.S.I.G. at Surface				Kind of Job OPEN HOLE		Halliburton District HAYS	
Recovery: Cu. Ft. Gas _____				Tester MR. WEATHERBEE		Witness MR. GOODWIN	
cc. Oil _____				Drilling Contractor RED TIGER DRILLING COMPANY IC S			
cc. Water _____				EQUIPMENT & HOLE DATA			
cc. Mud _____				Formation Tested Lower Kansas City			
Tot. Liquid cc. _____				Elevation 2048' KB			
Gravity 28 ° API @ 60 °F.				Net Productive Interval 4'			
Gas/Oil Ratio _____ cu. ft./bbl.				All Depths Measured From Kelly Bushing			
RESISTIVITY CHLORIDE CONTENT				Total Depth 3245'			
				Main Hole/Casing Size 7 7/8"			
Recovery Water _____ @ _____ °F. _____ ppm				Drill Collar Length 1328' WP I.D. 2.76"			
Recovery Mud _____ @ _____ °F. _____ ppm				Drill Pipe Length 1880' I.D. 3.826"			
Recovery Mud Filtrate _____ @ _____ °F. _____ ppm				Packer Depth(s) 3222' - 3226'			
Mud Pit Sample _____ @ _____ °F. _____ ppm				Depth Tester Valve 3219'			
Mud Pit Sample Filtrate _____ @ 9.6 vis 37 cp							
Mud Weight _____							
TYPE		AMOUNT		Depth Back Pres. Valve		Surface Choke	
Cushion		-		Ft.		Bottom Choke 3/4"	
Recovered	60	Feet of Gas		Meas. From Tester Valve			
Recovered	35	Feet of Mud & mud cut oil with a trace of water					
Recovered	5	Feet of Oil					
Recovered		Feet of					
Recovered		Feet of					
Remarks Opened tool for 33 minute first flow with a very weak blow. Closed tool for 31 minute initial closed in pressure. Reopened tool for 60 minute second flow with a very weak blow throughout test. Closed tool for 29 minute second closed in pressure. CLOSED IN PRESSURES ARE QUESTIONABLE DUE TO "S" SHAPED CURVES.							
TEMPERATURE		Gauge No. 534		Gauge No. 533		Gauge No.	
Depth: 3228' Ft.		Depth: 3241' Ft.		Depth: _____ Ft.		TIME	
12 Hour Clock		12 Hour Clock		Hour Clock		Tool A.M.	
Est. _____ °F.		Blanked Off NO		Blanked Off YES		Opened 13:45 P.M.	
3240'@						Tool A.M.	
Actual 95 °F.		Pressures		Pressures		Closed 16:15 P.M.	
	Field	Office	Field	Office	Field	Office	Reported Minutes
Initial Hydrostatic	-	1625	1670	1636			Computed Minutes
First Period	Flow Initial	-	17	14	11		
	Flow Final	-	20	19	17		
	Closed in	-	605	607	611		
Second Period	Flow Initial	-	32	19	26		
	Flow Final	-	31	23	28		
	Closed in	-	550	551	556		
Third Period	Flow Initial						
	Flow Final						
	Closed in						
Final Hydrostatic	-	1625	1660	1636			

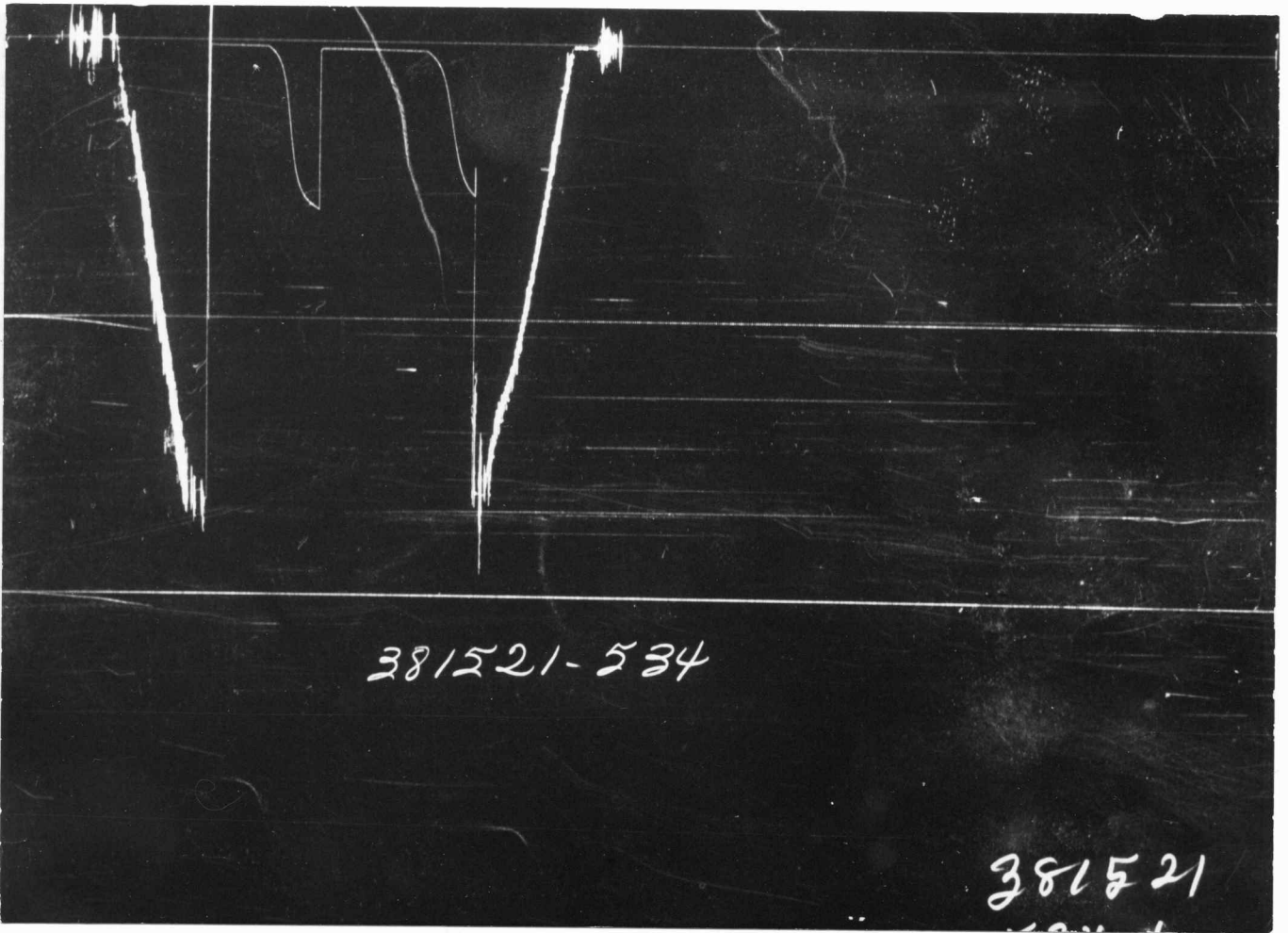
Gauge No.		534		Depth		3228'		Clock No.		10288		12 hour		Ticket No.		381521	
First Flow Period		First Closed In Pressure		Second Flow Period		Second Closed In Pressure		Third Flow Period		Third Closed In Pressure		Third Flow Period		Third Closed In Pressure		Third Flow Period	
Time Defl. .000"	PSIG Temp. 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.	Time Defl. .000"	$\text{Log } \frac{t + \theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"
0	.000 17	.000		20	.000		32	.000		31	.000		31				
1	.228 20	.020		37	.403		31	.0204		45	.0204		45				
2		.040		62				.0408		65	.0408		65				
3		.060		111				.0612		101	.0612		101				
4		.080		218				.0816		165	.0816		165				
5		.100		383				.1020		268	.1020		268				
6		.120		497				.1224		383	.1224		383				
7		.140		546				.1428		462	.1428		462				
8		.160		573				.1632		509	.1632		509				
9		.180		589				.1836		538	.1836		538				
10		.207		605*				.1970		550**	.1970		550**				
11																	
12																	
13																	
14																	
15																	

Gauge No.		533		Depth		3241'		Clock No.		7105		12 hour	
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 11	.000		17	.000		26	.000		28	.000		28
1	.230 17	.0206		31	.415		28	.0209		42	.0209		42
2		.0412		55				.0418		64	.0418		64
3		.0618		101				.0627		99	.0627		99
4		.0824		201				.0836		164	.0836		164
5		.1030		364				.1045		267	.1045		267
6		.1236		488				.1254		381	.1254		381
7		.1442		547				.1463		466	.1463		466
8		.1648		578				.1672		514	.1672		514
9		.1854		595				.1881		544	.1881		544
10		.2130		611*				.2020		556**	.2020		556**
11													
12													
13													
14													
15													

Reading Interval		3		3		Minutes	
REMARKS: *Last interval equal to 4 minutes **Last interval equal to 2 minutes							

	O. D.	I. D.	LENGTH	DEPTH
Reversing Sub	5.75"	2.75"	12"	
Water Cushion Valve				
Drill Pipe	4 1/2"	3.826"	1880'	
Drill Collars	4.50"	2.76"	1328' WP	
Handling Sub & Choke Assembly				
Dual CIP Valve	5.0"	.87"	65"	
Dual CIP Sampler				
Hydro-Spring Tester	5.0"	.75"	60"	3219'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.0"	3.14"	48"	3228'
Hydraulic Jar				
VR Safety Joint				
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	54"	3222'
Distributor				
Packer Assembly	6.75"	1.53"	54"	3226'
Flush Joint Anchor				
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	5.0"	3.24"	14.94'	
Blanked-Off B.T. Running Case	5.0"	2.75"	48.06"	3241'

↑
PRESSURE
↓



TIME →



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

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	

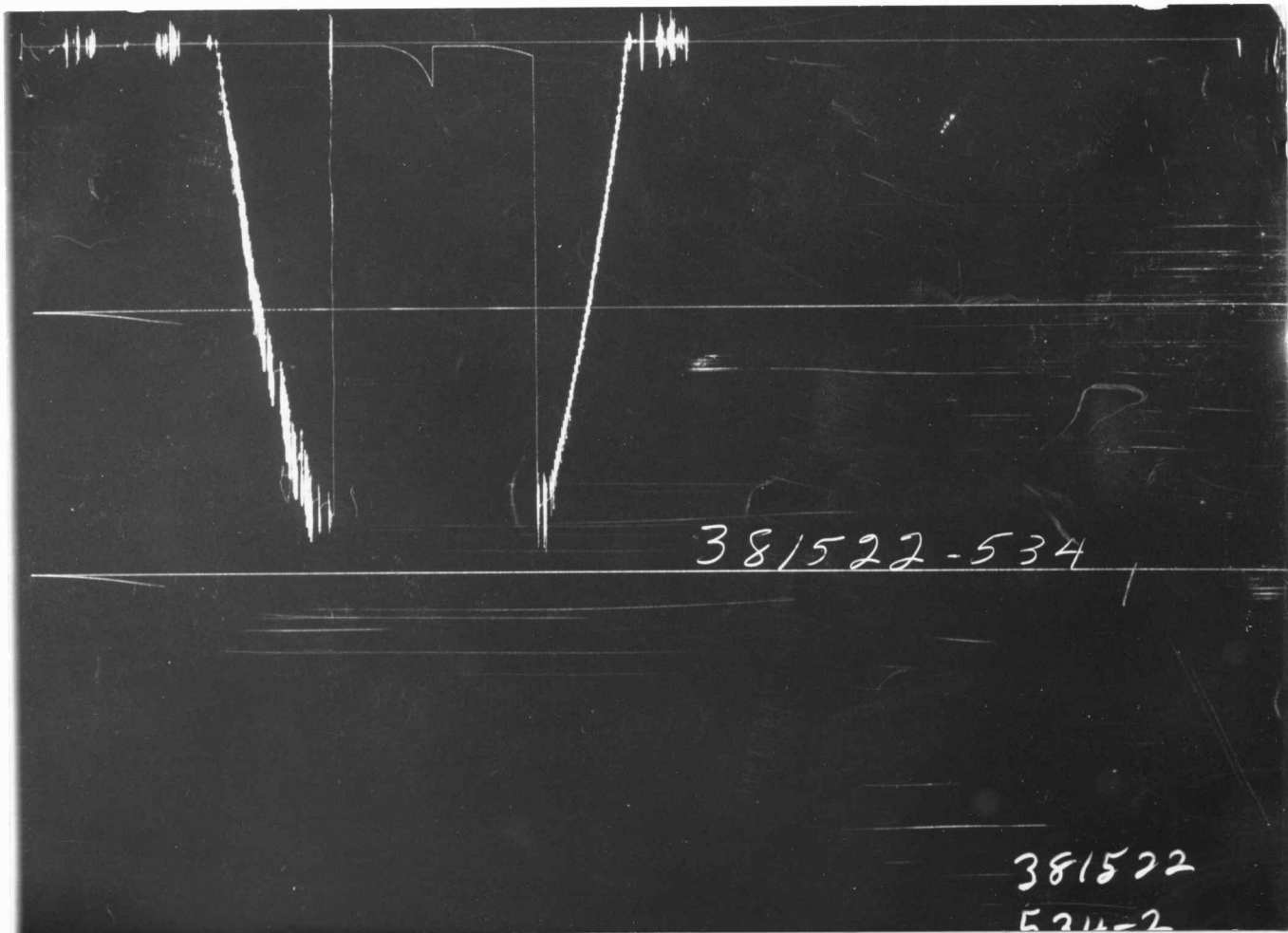
* Potentiometric Surface Reference to Rotary Table When Elevation Not Given,
Fresh Water Corrected to 100° F.

FLUID SAMPLE DATA				Date 2-11-72		Ticket Number 381522	
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 MR. WEATHERBEE		Witness MR. GOODIN	
				Drilling Contractor RED TIGER DRILLING COMPANY # 2 DR			
EQUIPMENT & HOLE DATA							
				Formation Tested Lower Kansas City			
				Elevation 2048' KB Ft.			
				Net Productive Interval 6' Ft.			
				All Depths Measured From Kelly Bushing			
				Total Depth 3415' Ft.			
				Main Hole/Casing Size 7718'			
				Drill Collar Length 1328' WP I.D. 2.76"			
				Drill Pipe Length 2036' I.D. 3.826"			
				Packer Depth(s) 3378-3382' Ft.			
				Depth Tester Valve 3375' Ft.			
TYPE		AMOUNT		Depth Back Pres. Valve		Surface Choke	
Cushion				Ft.		1/4"	
				Bottom Choke		3/4"	
Recovered	10	Feet of	slightly oil cut mud				
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Recovered		Feet of					
Remarks Opened tool for 30 minute first flow with a very weak blow, dead in 26 minutes.							
Closed tool for 30 minute first closed in pressure. Reopened tool for 30 minute							
second flow. Closed tool for 30 minute second closed in pressure.							
TEMPERATURE		Gauge No. 534	Gauge No. 533	Gauge No.	TIME		
		Depth: 3384 Ft.	Depth: 3411 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 02:30 P.M.		
3410'					Tool A.M.		
Actual 97 °F.		Pressures	Pressures	Pressures	Closed 04:30 P.M.		
	Field	Office	Field	Office	Field	Office	Reported
		1739	1794	1751			Computed
First Period	Initial	11	28	27			Minutes
	Flow						
	Final	11	28	27			
Second Period	Closed in	166	190	186			30
	Flow						
	Initial	13	28	29			
Third Period	Flow						
	Final	13	33	29			30
	Closed in	54	66	67			30
	Initial						
	Flow						
	Final						
	Closed in						
	Final Hydrostatic	1739	1784	1751			

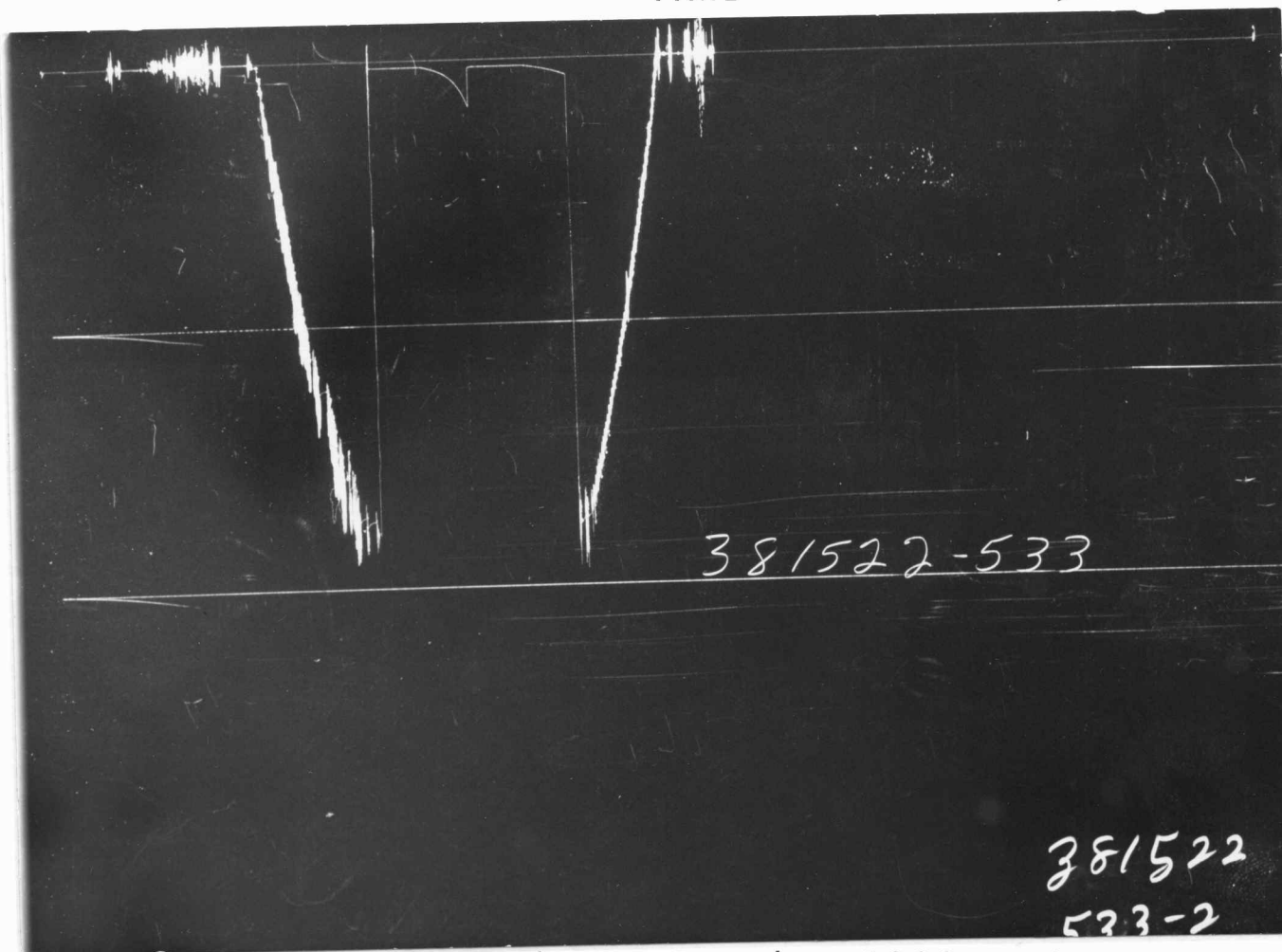


	O. D.	I. D.	LENGTH	DEPTH
Reversing Sub	5.75"	2.75"	12.0"	
Water Cushion Valve				
Drill Pipe	4½"	3.826"	2036'	
Drill Collars	4.50"	2.76"	1328'	
Handling Sub & Choke Assembly				
Dual CIP Valve	5.0"	.87"	.65"	
Dual CIP Sampler				
Hydro-Spring Tester	5.0"	.75"	60.0"	3375'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.0"	3.14"	48.0"	3384'
Hydraulic Jar				
VR Safety Joint				
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	54.0"	3378'
Distributor				
Packer Assembly	6.75"	1.53"	54.0"	3382'
Flush Joint Anchor				
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	5.0"	3.24"	28.94'	
Blanked-Off B.T. Running Case	5.0"	2.75"	48.06"	3411'

PRESSURE

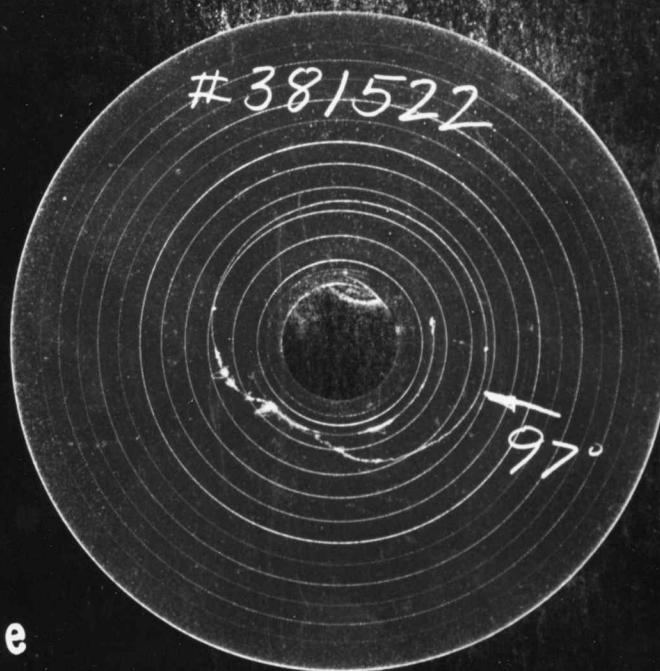


TIME



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

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.

FLUID SAMPLE DATA				Date 2-11-72		Ticket Number 381523	
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.				Kind of Job OPEN HOLE		Halliburton District HAYS	
				Tester MR. WEATHERBEE		Witness MR. GOODIN	
				Drilling Contractor RED TIGER DRILLING COMPANY BC S			
EQUIPMENT & HOLE DATA							
				Formation Tested Lower Kansas City			
				Elevation 2048' KB			
				Net Productive Interval 6'			
				All Depths Measured From Kelly Bushing			
				Total Depth 3439'			
				Main Hole/Casing Size 7 7/8"			
				Drill Collar Length 1328' WP I.D. 2.764"			
				Drill Pipe Length 2071' I.D. 3.826"			
				Packer Depth(s) 3413' - 3417'			
				Depth Tester Valve 3410'			
TYPE		AMOUNT		Depth Back Pres. Valve		Surface Choke	
Cushion				Ft.		Bottom Choke	
						1 1/4"	
						3/4"	
Recovered		15		Feet of Thin watery mud with specks of oil			
Recovered				Feet of			
Recovered				Feet of			
Recovered				Feet of			
Recovered				Feet of			
Remarks Tool opened for a 31 minute first flow with a very weak blow, dead in 24 minutes. Closed tool for 29 minute first closed in pressure. Reopened tool for 31 minute second flow with no blow. Closed tool for 29 minute second closed in pressure. CLOSED IN PRESSURES QUESTIONABLE.							
TEMPERATURE		Gauge No. 534		Gauge No. 533		Gauge No.	
		Depth: 3419 Ft.		Depth: 3435' Ft.		Depth: _____ Ft.	
Est. _____ ° F.		12 Hour Clock		12 Hour Clock		Hour Clock	
Actual 94 ° F.		Blanked Off No		Blanked Off Yes		Blanked Off	
		Pressures		Pressures		Pressures	
		Field	Office	Field	Office	Field	Office
Initial Hydrostatic		-	1743	1784	1750		
First Period	Flow Initial	-	13	19	22		
	Flow Final	-	13	19	22		
	Closed in	-	898	900	905		
Second Period	Flow Initial	-	20	19	26		
	Flow Final	-	20	23	26		
	Closed in	-	698	702	706		
Third Period	Flow Initial						
	Flow Final						
Final Hydrostatic		-	1728	1746	1736		

 Legal Location
 Sec. - Twp. - Rng.

 Lease Name
SE NE NW 8-9S-18W

Well No.

Test No.

Field Area

Tested Interval

 County **ROCKS**

State

KANSAS

License Owner/Company Name

Gauge No. 534			Depth 3419'			Clock No. 10288			12 hour			Ticket No. 381523					
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.		$\text{Log } \frac{t + \theta}{\theta}$	PSIG Temp. Corr.		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.	
0	.0000	13			13		.0000	20		.0000		20					
1	.2150	13			26		.2100	20		.0213		28					
2					58					.0426		40					
3					164					.0639		61					
4					423					.0852		114					
5					610					.1066		224					
6					717					.1279		382					
7					790					.1492		515					
8					840					.1705		602					
9					878					.1918		663					
10					898*					.2060		698**					
11																	
12																	
13																	
14																	
15																	

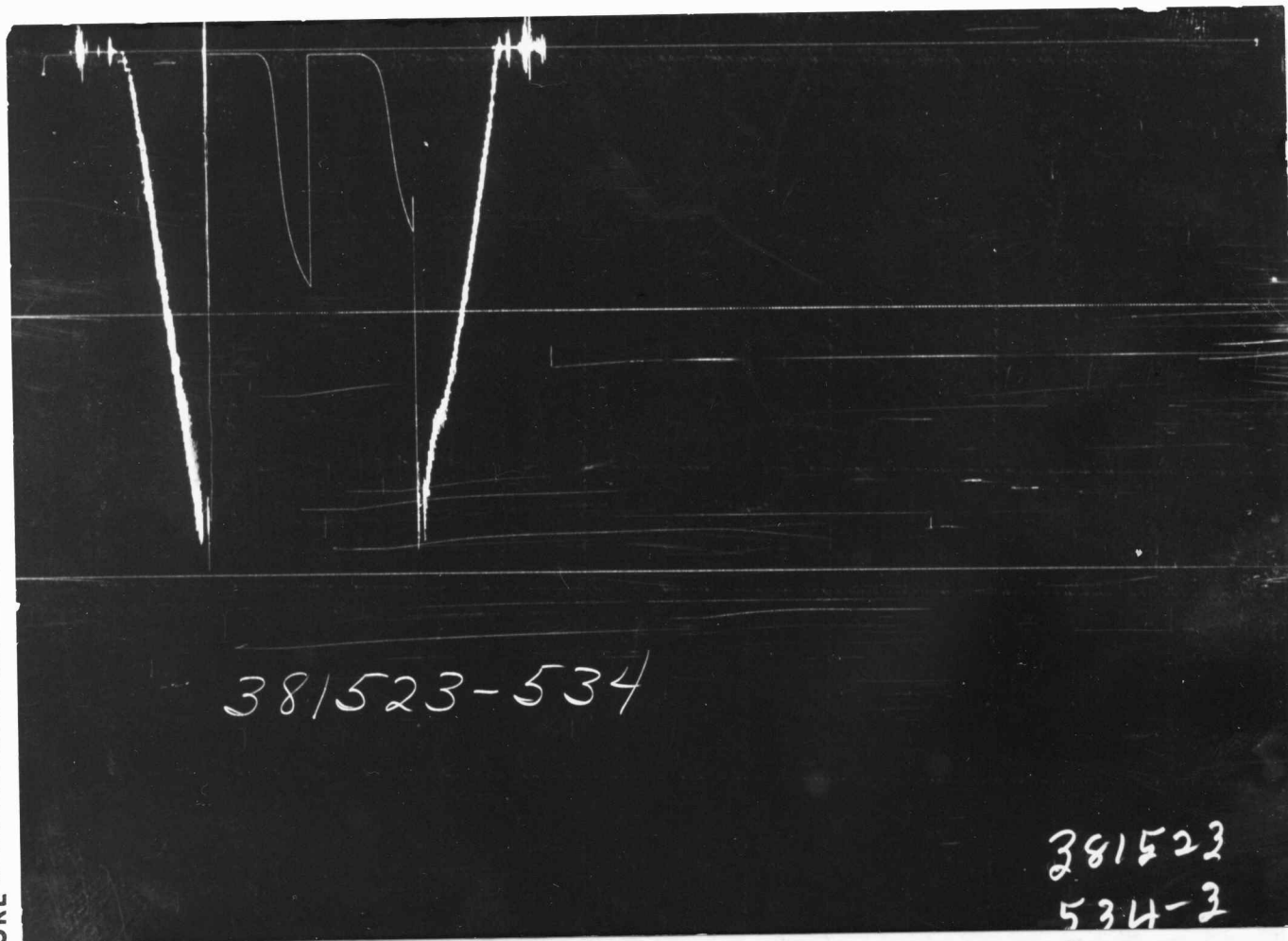
Gauge No. 533			Depth 3435'			Clock No. 7105			12 hour		
	Time Defl. .000"	PSIG Temp. Corr.		Time Defl. .000"	PSIG Temp. Corr.		Time Defl. .000"	PSIG Temp. Corr.		Time Defl. .000"	PSIG Temp. Corr.
0	.0000	22		.0000	26		.0000	25			
1	.2120	22		.2080	26		.0207	35			
2				70			.0414	48			
3				210			.0621	73			
4				457			.0828	128			
5				631			.1035	241			
6				733			.1241	405			
7				800			.1448	526			
8				852			.1655	613			
9				886			.1862	677			
10				905*			.2000	706**			
11											
12											
13											
14											
15											

Reading Interval	3	*Interval = 2 minutes	**Interval = 2 minutes	3	Minutes
------------------	---	-----------------------	------------------------	---	---------

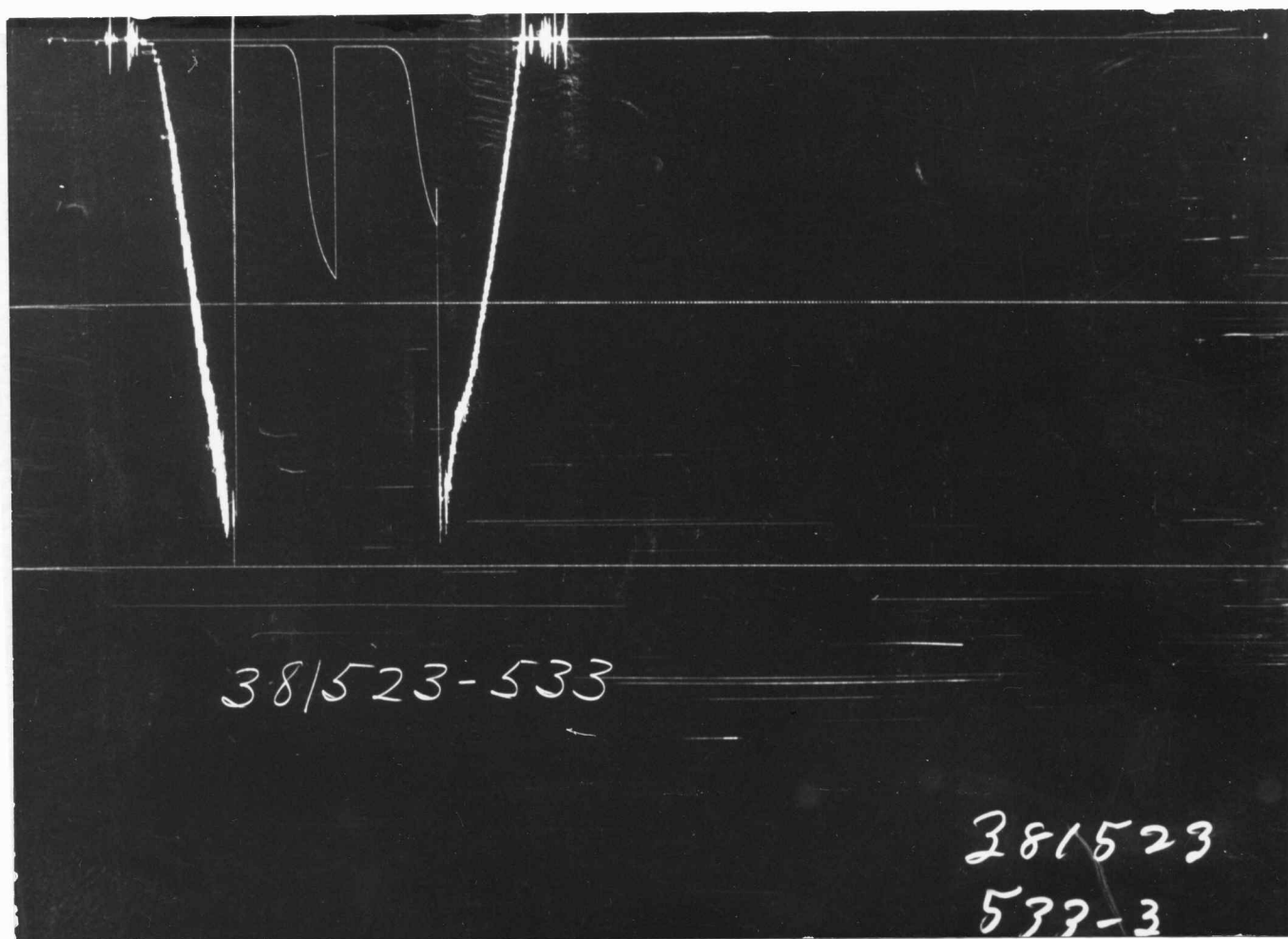
REMARKS:

	O. D.	I. D.	LENGTH	DEPTH
Reversing Sub	5.75"	2.75"	12"	
Water Cushion Valve				
Drill Pipe	4½"	3.826"	2071'	
Drill Collars WP	4½"	2.764"	1328'	
Handling Sub & Choke Assembly				
Dual CIP Valve	5"	.87"	65"	
Dual CIP Sampler				
Hydro-Spring Tester	5"	.75"	60"	3410'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3.14"	48"	3419'
Hydraulic Jar				
VR Safety Joint				
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.53"	54"	3413'
Distributor				
Packer Assembly	6.75"	1.53"	54"	3417'
Flush Joint Anchor				
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	5"	3.24"	17.94'	
Blanked-Off B.T. Running Case	5"	2.75"	48.06"	3435'

PRESSURE



TIME



Each Horizontal Line Equal to 1000 psi

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_{o1}	= 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.