HALLIBURTON
SERVICES

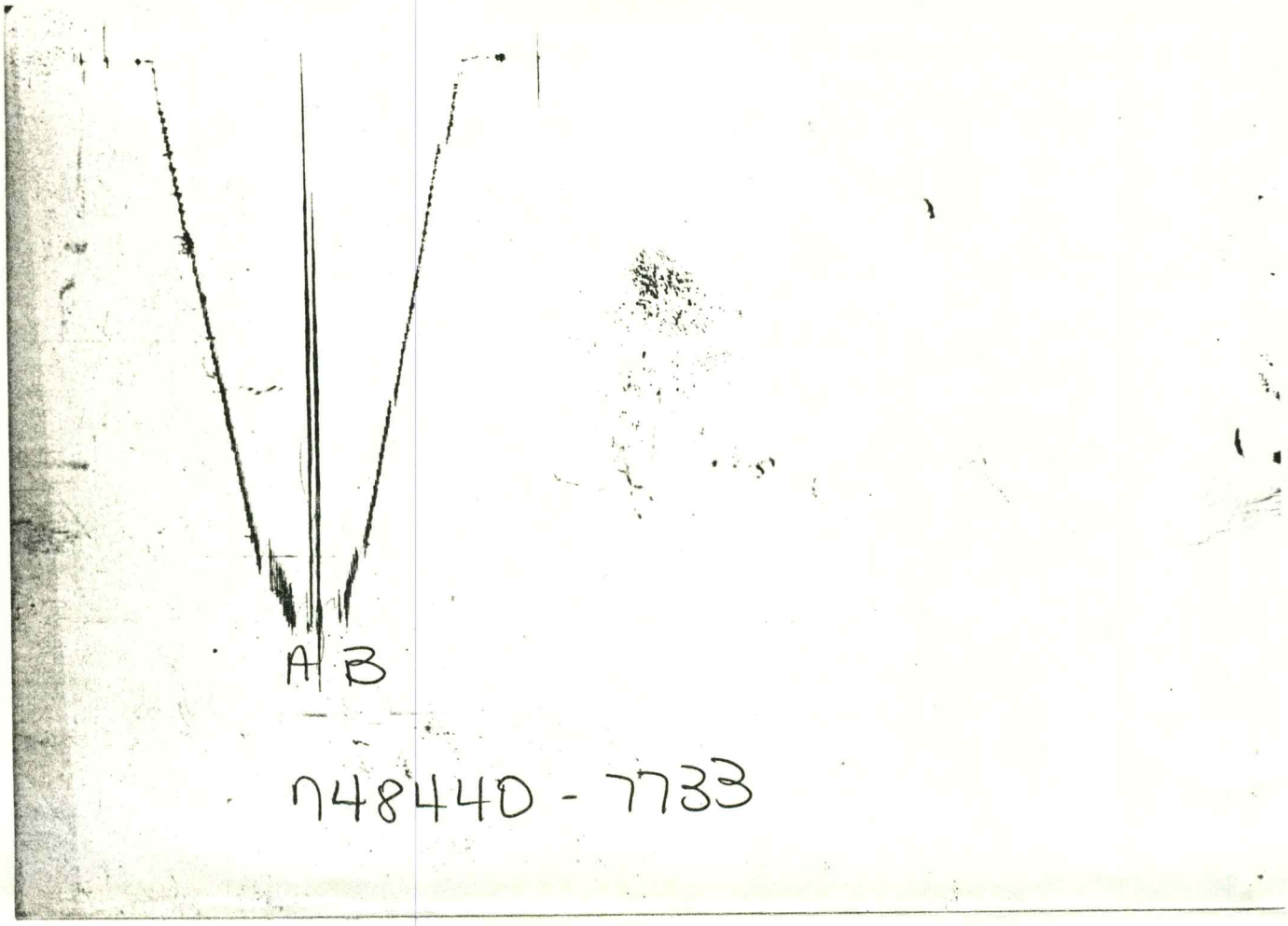
TICKET NO. 74844000
05-JUL-84
NESS CITY

C NE - NE

LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME
DUMLER	W-1	1	3982.' - 3995.'	DONALD C. SLAWSON

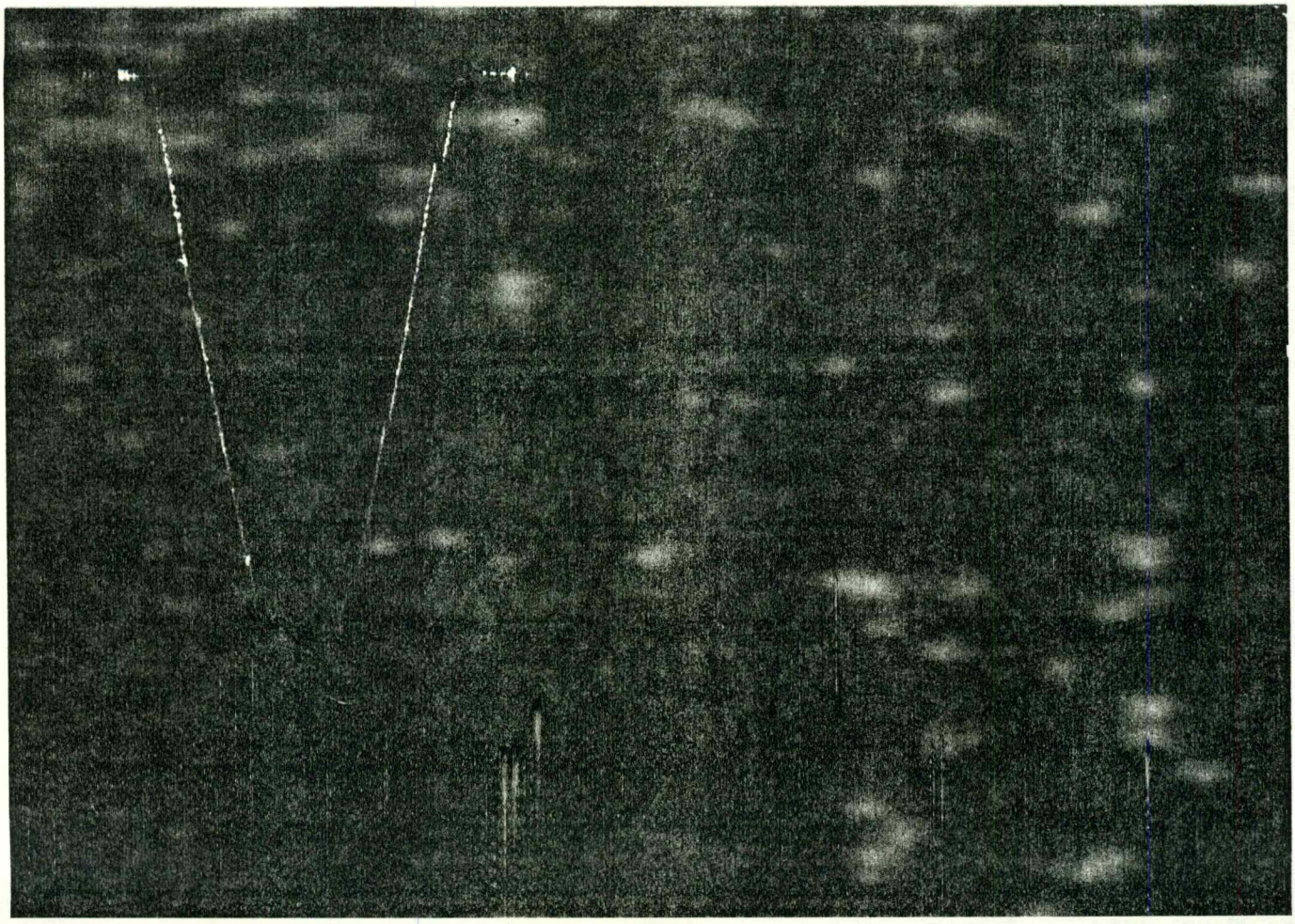
LEGAL LOCATION SEC. - TWP. - RNG.	FIELD AREA	COUNTY	STATE
21 - 14 SOUTH - 22 WEST		TREGO	KANSAS

FORMATION TESTING SERVICE REPORT



GAUGE NO: 7733 DEPTH: 3972.0 BLANKED OFF: NO HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		1944.4			
B	FINAL HYDROSTATIC		1932.4			



GAUGE NO: 7740 DEPTH: 3992.0 BLANKED OFF: YES HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		1947.9			
B	FINAL HYDROSTATIC		1935.6			

EQUIPMENT & HOLE DATA

FORMATION TESTED: PAWNEE
NET PAY (ft): 6.0
GROSS TESTED FOOTAGE: 13.0
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 7.875
ELEVATION (ft): 2227
TOTAL DEPTH (ft): 3995.0
PACKER DEPTH(S) (ft): 3982
FINAL SURFACE CHOKE (in):
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.50
MUD VISCOSITY (sec): 51
ESTIMATED HOLE TEMP. (°F):
ACTUAL HOLE TEMP. (°F): 111 @ 3990.0 ft

TICKET NUMBER: 74844000

DATE: 7-1-84 TEST NO: 1

TYPE DST: OPEN HOLE

HALLIBURTON CAMP: NESS CITY

TESTER: B. CROSSWHITE

WITNESS: G. MUELLER

DRILLING CONTRACTOR: COMPANY TOOLS #2

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY		CHLORIDES
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): @ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

RECOVERED:

MEASURED FROM TESTER VALVE

REMARKS:

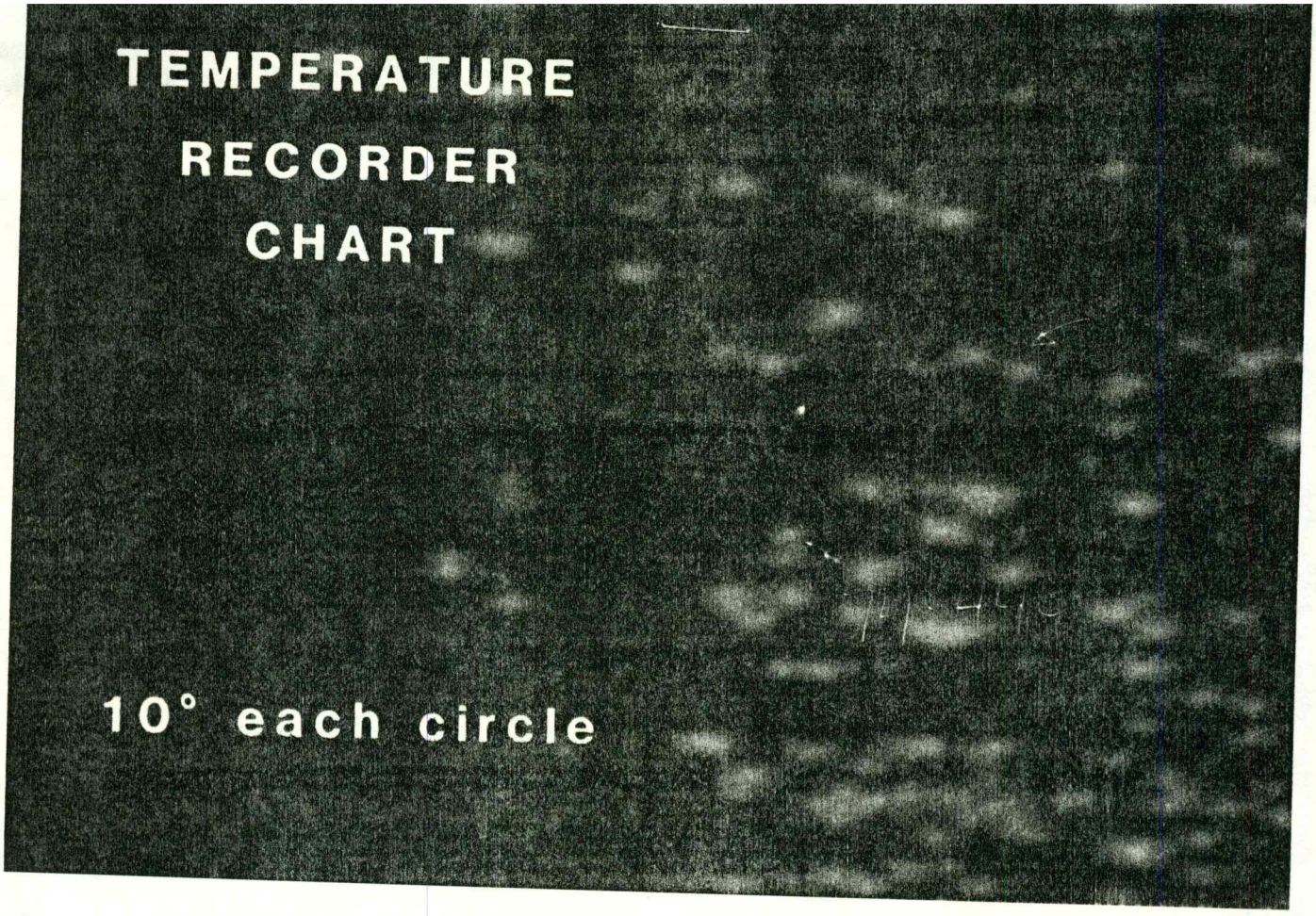
MISRUN - PACKER SEAT FAILED
- UNSUCCESSFUL TEST -

TYPE & SIZE MEASURING DEVICE:					TICKET NO: 74844000
TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
6-30-84					
0630					CALLED OUT
0740					ON LOCATION - RIG SHORT
					TRIPPING.
1140					PICKED-UP AND MADE-UP TOOL
1155					SET TOOL IN TABLE
					STARTED DRILL PIPE
					TOOL ON BOTTOM
1325					OPENED TOOL - PACKER SEAT
					FAILURE.
					TRIED RESEATING PACKER - FAILED
1340					TOOL OFF BOTTOM
1515					TOOL IN TABLE
1540					TOOL BROKE AND LAID DOWN
					JOB COMPLETED

TICKET NO. 74844000

		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	3835.0	
50	IMPACT REVERSING SUB.....	5.000	3.000	1.0	3835.0
1	DRILL PIPE.....	4.500	3.826	124.0	
12	DUAL CIP VALVE.....	5.000	0.870	6.0	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	3970.0
80	AP RUNNING CASE.....	5.000	3.060	4.0	3972.0
16	VR SAFETY JOINT.....	5.000	1.000	3.0	
70	OPEN HOLE PACKER.....	6.750	1.530	6.0	3982.0
20	FLUSH JOINT ANCHOR.....	5.000	2.750	6.0	
83	HT-500 TEMPERATURE CASE.....	5.000		1.0	3990.0
81	BLANKED-OFF RUNNING CASE.....	5.000		4.0	3992.0
	TOTAL DEPTH				3995.0

EQUIPMENT DATA



Indicated Flow Capacity	$kh = \frac{1637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151 \left[\frac{m(P^*) - m(P_f)}{m} - \text{LOG} \frac{k(t/60)}{\phi\ \mu\ c_t r_w^2} + 3.23 \right]$	—
Damage Ratio	$DR = \frac{m(P^*) - m(P_f)}{m(P^*) - m(P_f) - 0.87\ mS}$	—
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\ m(P^*)}{m(P^*) - m(P_f)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g \sqrt{\frac{m(P^*)}{m(P^*) - m(P_f)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032 \sqrt{\frac{k(t/60)}{\phi \mu c_t}}$	ft

DUMLER | W-1 | 2 | 3874. - 3995. | DUNHLU L. SLAWSUN

LEASE NAME | WELL NO. | TEST NO. | TESTED INTERVAL | LEASE OWNER/COMPANY NAME

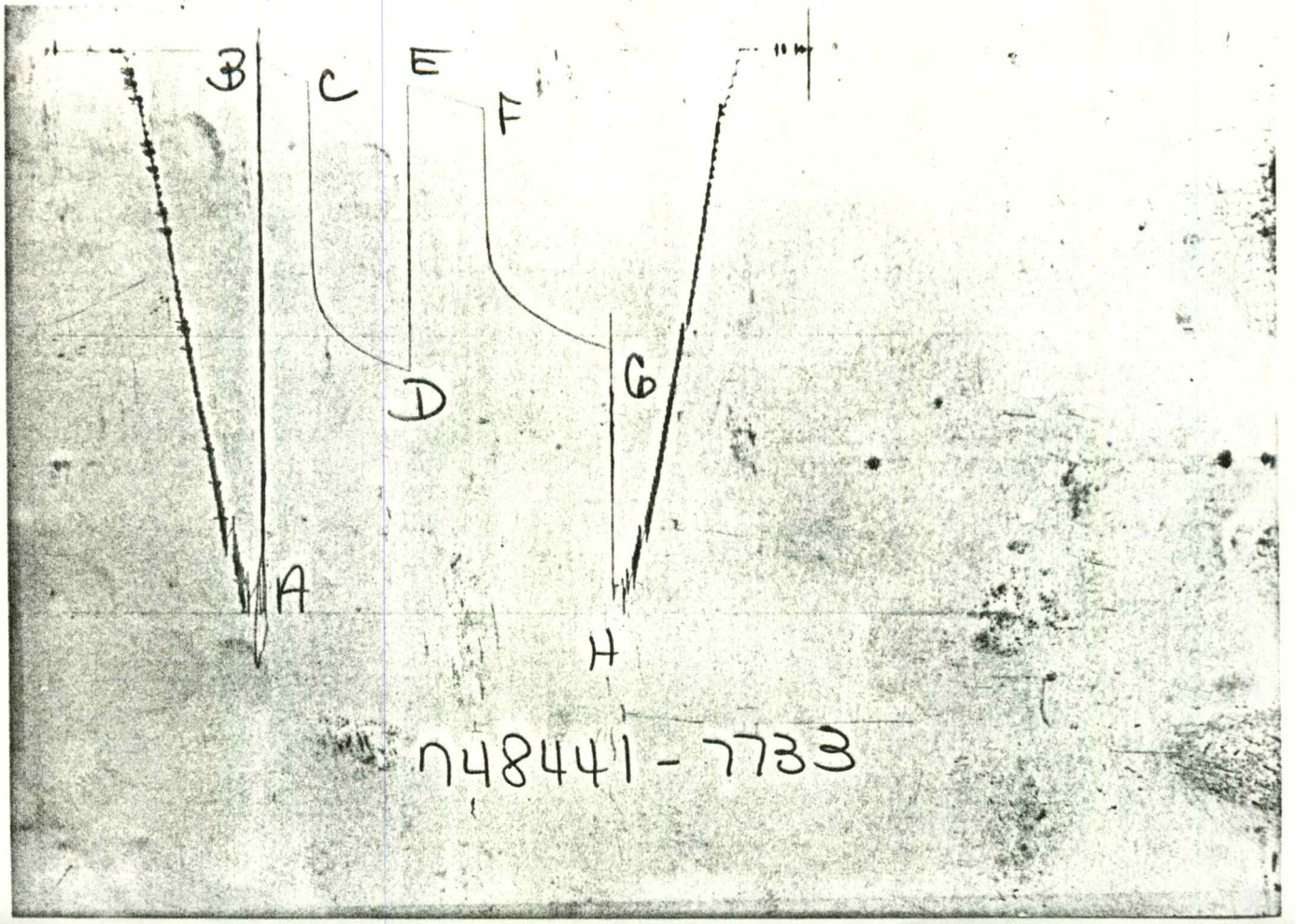
LEGAL LOCATION SEC. - TWP. - RNG. 21 - 14 SOUTH - 22 WEST | FIELD AREA WILDCAT | COUNTY TREGO | STATE KANSAS | PW

C NE - NE

HALLIBURTON
SERVICES

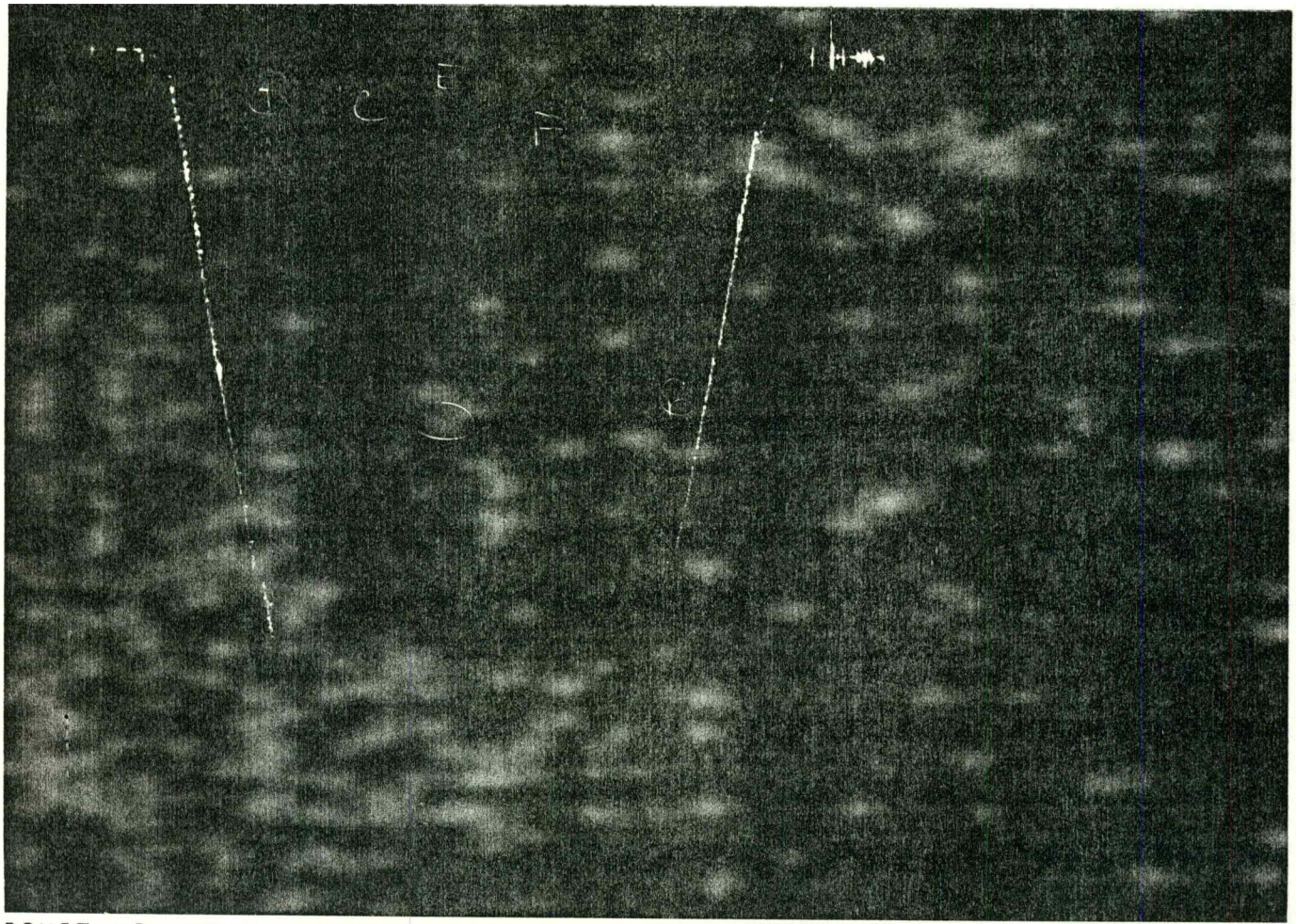
TICKET NO. 74844100
05-JUL-84
NESS CITY

FORMATION TESTING SERVICE REPORT



GAUGE NO: 7733 DEPTH: 3864.0 BLANKED OFF: NO HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	1896	1899.5			
B	INITIAL FIRST FLOW	26	27.5	30.0	29.6	F
C	FINAL FIRST FLOW	107	105.1			
C	INITIAL FIRST CLOSED-IN	107	105.1	60.0	59.9	C
D	FINAL FIRST CLOSED-IN	1128	1138.9			
E	INITIAL SECOND FLOW	116	122.8	45.0	45.2	F
F	FINAL SECOND FLOW	206	208.4			
F	INITIAL SECOND CLOSED-IN	206	208.4	75.0	75.3	C
G	FINAL SECOND CLOSED-IN	1056	1060.7			
H	FINAL HYDROSTATIC	1896	1906.8			



GAUGE NO: 7740 DEPTH: 3992.0 BLANKED OFF: YES HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		1960.9			
B	INITIAL FIRST FLOW		88.8	30.0	29.6	F
C	FINAL FIRST FLOW		175.8			
C	INITIAL FIRST CLOSED-IN		175.8	60.0	59.9	C
D	FINAL FIRST CLOSED-IN		1197.7			
E	INITIAL SECOND FLOW		185.3	45.0	45.2	F
F	FINAL SECOND FLOW		267.5			
F	INITIAL SECOND CLOSED-IN		267.5	75.0	75.3	C
G	FINAL SECOND CLOSED-IN		1117.2			
H	FINAL HYDROSTATIC		1962.8			

EQUIPMENT & HOLE DATA

FORMATION TESTED: PAWNEE
NET PAY (ft): 6.0
GROSS TESTED FOOTAGE: 121.0
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 7.875
ELEVATION (ft): 2227
TOTAL DEPTH (ft): 3995.0
PACKER DEPTH(S) (ft): 3874
FINAL SURFACE CHOKE (in):
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.50
MUD VISCOSITY (sec): 51
ESTIMATED HOLE TEMP. (°F):
ACTUAL HOLE TEMP. (°F): 115 @ 3990.0 ft

TICKET NUMBER: 74844100

DATE: 7-1-84 TEST NO: 2

TYPE DST: OPEN HOLE

HALLIBURTON CAMP: NESS CITY

TESTER: B. CROSSWHITE

WITNESS: G. MUELLER

DRILLING CONTRACTOR: COMPANY TOOLS #2

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY			CHLORIDES
RECOVERY		@	°F	45000 ppm
SYSTEM		@	°F	17000 ppm
		@	°F	ppm
		@	°F	ppm
		@	°F	ppm
		@	°F	ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): @ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

RECOVERED:

165 FEET OF SLIGHTLY GAS CUT DRILLING MUD WITH SPOTS OF OIL.
248 FEET OF SALTWATER
30 FEET OF DRILLING MUD

MEASURED FROM TESTER VALVE

REMARKS:

CHARTS INDICATE PARTIAL PLUGGING OF THE ANCHOR PIPE PERFORATIONS DURING INITIAL FLOW PERIOD.

TYPE & SIZE MEASURING DEVICE: _____ TICKET NO: 74844100

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
7-1-84					
0630					CALLED OUT
0740					ON LOCATION - RIG SHORT
					TRIPPING.
1600					PICKED-UP AND MADE-UP TOOL
1630					SET TOOL IN TABLE
					STARTED DRILL PIPE
1749					TOOL ON BOTTOM
1751					OPENED TOOL - WEAK BLOW
					INCREASING TO 2" - DECREASING
					TO 1" IN BUCKET.
1821					CLOSED TOOL
1921					REOPENED TOOL - WEAK BLOW 1/2"
					DECREASING TO A VERY WEAK
					SURFACE BLOW.
2006					CLOSED TOOL
2121					TOOL OFF BOTTOM
2255					TOOL IN TABLE
2340					TOOL BROKE AND LAID DOWN
2355					JOB COMPLETED

TICKET NO: 74844100	GAUGE NO: 7733
CLOCK NO: 26748 HOUR: 12	DEPTH: 3864.0

HALLIBURTON SERVICES

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			FIRST FLOW			
B	1	0.0	27.5			
	2	5.0	39.6	12.1		
	3	10.0	55.6	16.0		
	4	15.0	69.3	13.6		
	5	20.0	84.9	15.7		
	6	25.0	93.8	8.9		
C	7	29.6	105.1	11.3		
			FIRST CLOSED-IN			
C	1	0.0	105.1			
	2	4.0	869.9	764.8	3.5	0.926
	3	8.0	929.4	824.3	6.3	0.673
	4	12.0	968.7	863.6	8.6	0.539
	5	16.0	996.7	891.6	10.4	0.455
	6	20.0	1018.2	913.1	11.9	0.395
	7	24.0	1037.5	932.4	13.3	0.349
	8	28.0	1054.6	949.5	14.4	0.313
	9	32.0	1069.0	963.9	15.4	0.284
	10	36.0	1082.4	977.3	16.3	0.260
	11	40.0	1094.8	989.7	17.0	0.241
	12	44.0	1104.8	999.7	17.7	0.224
	13	48.0	1114.9	1009.8	18.3	0.209
	14	52.0	1123.6	1018.5	18.9	0.196
	15	56.0	1132.1	1027.0	19.4	0.184
D	16	59.9	1138.9	1033.8	19.8	0.174
			SECOND FLOW			
E	1	0.0	122.8			
	2	5.0	125.0	2.2		
	3	10.0	137.8	12.8		
	4	15.0	150.5	12.7		
	5	20.0	161.7	11.2		
	6	25.0	171.3	9.6		
	7	30.0	181.5	10.1		
	8	35.0	189.7	8.2		
	9	40.0	198.9	9.2		
F	10	45.2	208.4	9.5		
			SECOND CLOSED-IN			
F	1	0.0	208.4			
	2	5.0	770.7	562.2	4.7	1.200
	3	10.0	824.0	615.5	8.8	0.927
	4	15.0	859.9	651.5	12.5	0.777
	5	20.0	890.6	682.2	15.8	0.675
	6	25.0	916.3	707.9	18.8	0.601
	7	30.0	937.0	728.6	21.4	0.543

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			SECOND CLOSED-IN - CONTINUED			
	8	35.0	956.5	748.1	23.9	0.496
	9	40.0	975.6	767.2	26.1	0.458
	10	45.0	990.8	782.4	28.1	0.425
	11	50.0	1004.6	796.2	29.9	0.397
	12	55.0	1018.1	809.7	31.7	0.373
	13	60.0	1029.6	821.2	33.3	0.352
	14	65.0	1040.5	832.0	34.8	0.332
	15	70.0	1050.5	842.1	36.2	0.316
G	16	75.3	1060.7	852.3	37.5	0.299

REMARKS:

TICKET NO: 74844100

CLOCK NO: 26733 HOUR: 12

HALLIBURTON SERVICES

GAUGE NO: 7740

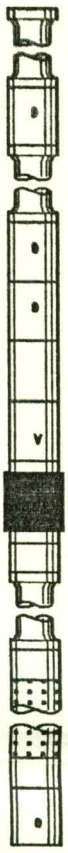
DEPTH: 3992.0

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
			FIRST FLOW			
B	1	0.0	88.8			
C	2	29.6	175.8	87.0		
			FIRST CLOSED-IN			
C	1	0.0	175.8			
	2	4.0	937.1	761.2	3.6	0.921
	3	8.0	995.6	819.8	6.3	0.672
	4	12.0	1031.1	855.3	8.5	0.540
	5	16.0	1058.5	882.6	10.4	0.455
	6	20.0	1080.7	904.8	11.9	0.394
	7	24.0	1099.9	924.1	13.2	0.349
	8	28.0	1115.9	940.1	14.4	0.314
	9	32.0	1131.1	955.3	15.4	0.284
	10	36.0	1144.0	968.2	16.2	0.261
	11	40.0	1155.2	979.4	17.0	0.241
	12	44.0	1165.3	989.4	17.7	0.223
	13	48.0	1174.6	998.8	18.3	0.209
	14	52.0	1183.6	1007.7	18.9	0.196
	15	56.0	1191.7	1015.9	19.4	0.184
D	16	59.9	1197.7	1021.9	19.8	0.174
			SECOND FLOW			
E	1	0.0	185.3			
	2	5.0	185.0	-0.4		
	3	10.0	197.9	12.9		
	4	15.0	209.7	11.8		
	5	20.0	220.3	10.6		
	6	25.0	231.0	10.7		
	7	30.0	240.4	9.4		
	8	35.0	249.6	9.1		
	9	40.0	258.7	9.1		
F	10	45.2	267.5	8.8		
			SECOND CLOSED-IN			
F	1	0.0	267.5			
	2	5.0	828.3	560.9	4.7	1.201
	3	10.0	882.9	615.4	8.8	0.929
	4	15.0	919.5	652.1	12.5	0.777
	5	20.0	950.0	682.5	15.8	0.676
	6	25.0	975.4	707.9	18.7	0.601
	7	30.0	997.4	730.0	21.4	0.543
	8	35.0	1016.5	749.0	23.8	0.497
	9	40.0	1034.5	767.1	26.0	0.458
	10	45.0	1050.0	782.5	28.1	0.425
	11	50.0	1063.3	795.8	30.0	0.397
	12	55.0	1075.4	808.0	31.7	0.373

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
			SECOND CLOSED-IN - CONTINUED			
	13	60.0	1087.3	819.8	33.3	0.352
	14	65.0	1097.7	830.2	34.8	0.333
	15	70.0	1108.0	840.6	36.2	0.316
G	16	75.3	1117.2	849.7	37.5	0.299

REMARKS:

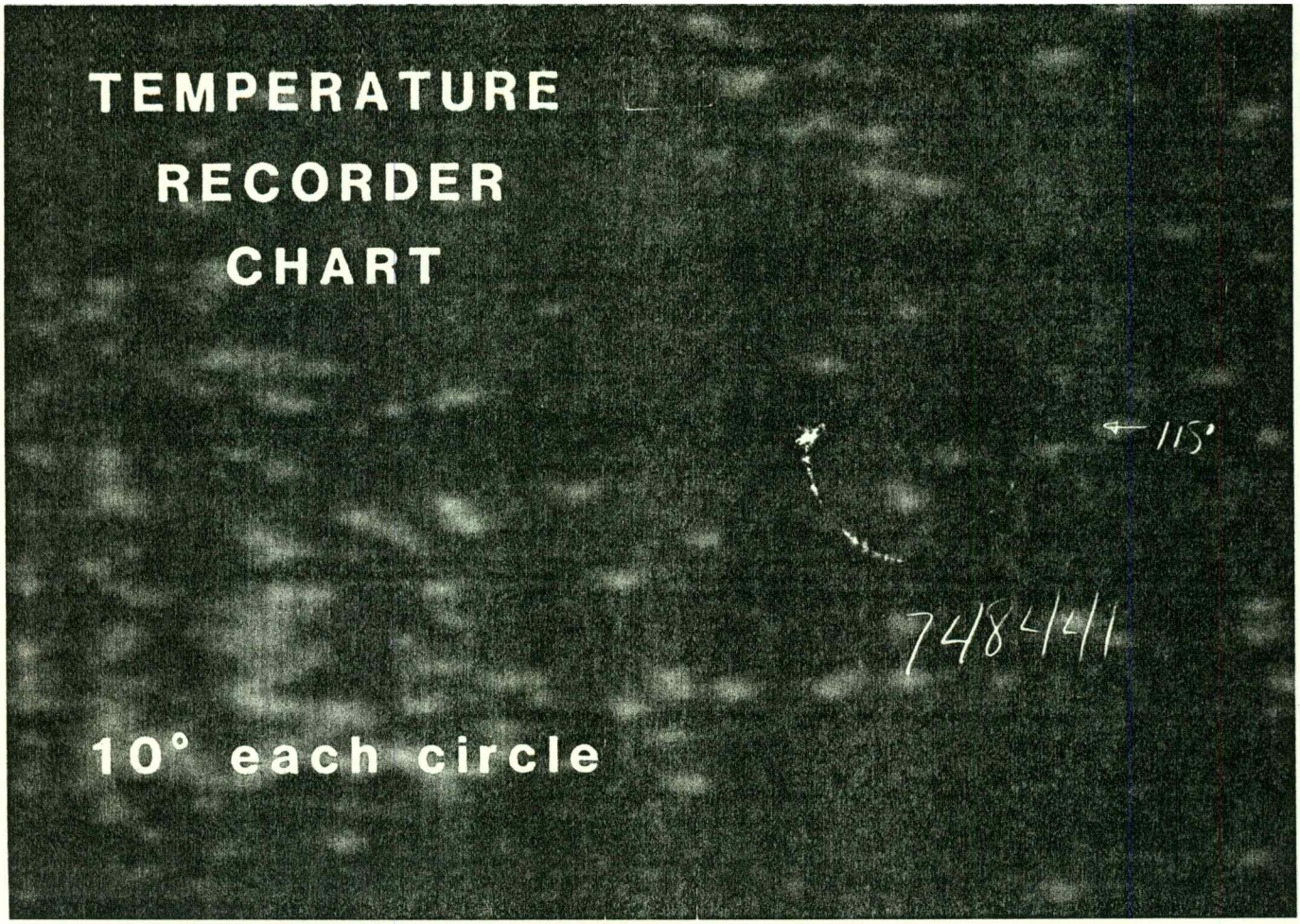
TICKET NO. 74844100



		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	3758.0	
50	IMPACT REVERSING SUB.....	5.000	3.000	1.0	3758.0
1	DRILL PIPE.....	4.500	3.826	93.0	
12	DUAL CIP VALVE.....	5.000	0.870	6.0	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	3862.0
80	AP RUNNING CASE.....	5.000	3.060	4.0	3864.0
16	VR SAFETY JOINT.....	5.000	1.000	3.0	
70	OPEN HOLE PACKER.....	6.750	1.530	6.0	3874.0
5	CROSSOVER.....	5.000	3.000	1.0	
1	DRILL PIPE.....	4.500	3.826	93.0	
5	CROSSOVER.....	5.000	3.000	1.0	
20	FLUSH JOINT ANCHOR.....	5.000	2.750	19.0	
83	HT-500 TEMPERATURE CASE.....	5.000		1.0	3990.0
81	BLANKED-OFF RUNNING CASE.....	5.000		4.0	3992.0

TOTAL DEPTH 3995.0

EQUIPMENT DATA



Indicated Flow Capacity	$kh = \frac{1637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151 \left[\frac{m(P^*) - m(P_f)}{m} - \text{LOG} \frac{k(t/60)}{\phi\ \mu\ c_t r_w^2} + 3.23 \right]$	—
Damage Ratio	$DR = \frac{m(P^*) - m(P_f)}{m(P^*) - m(P_f) - 0.87\ mS}$	—
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\ m(P^*)}{m(P^*) - m(P_f)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g \sqrt{\frac{m(P^*)}{m(P^*) - m(P_f)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032 \sqrt{\frac{k(t/60)}{\phi \mu c_t}}$	ft

LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME
DUMLER	W-1	3	4032.' - 4105.'	DONALD C. SLAWSON

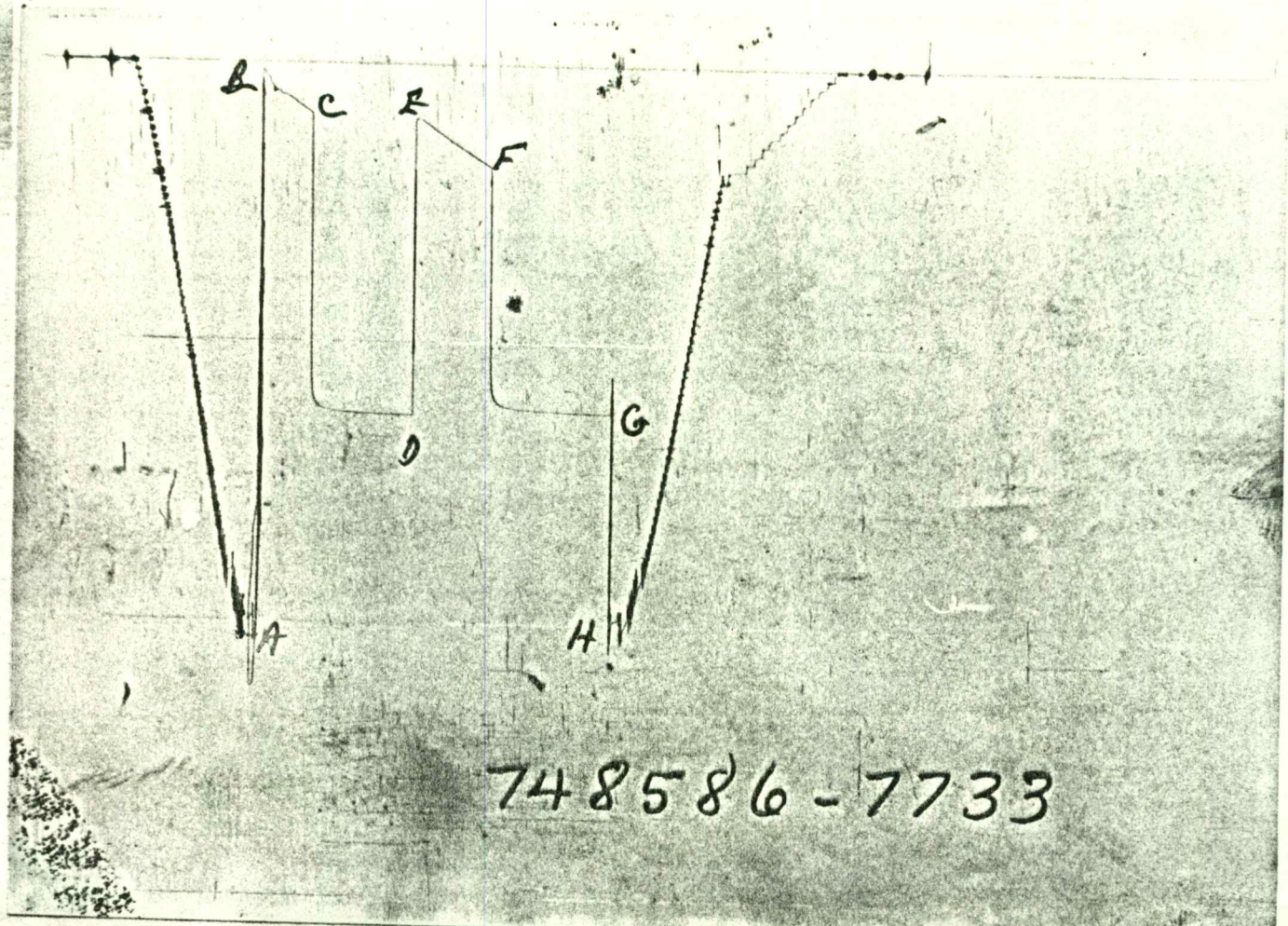
LEGAL LOCATION SEC. - TWP. - RNG.	FIELD AREA	COUNTY	STATE
21-14S-22W	WILDCAT	TERGO	KANSAS DR

C NE-NE

HALLIBURTON
SERVICES

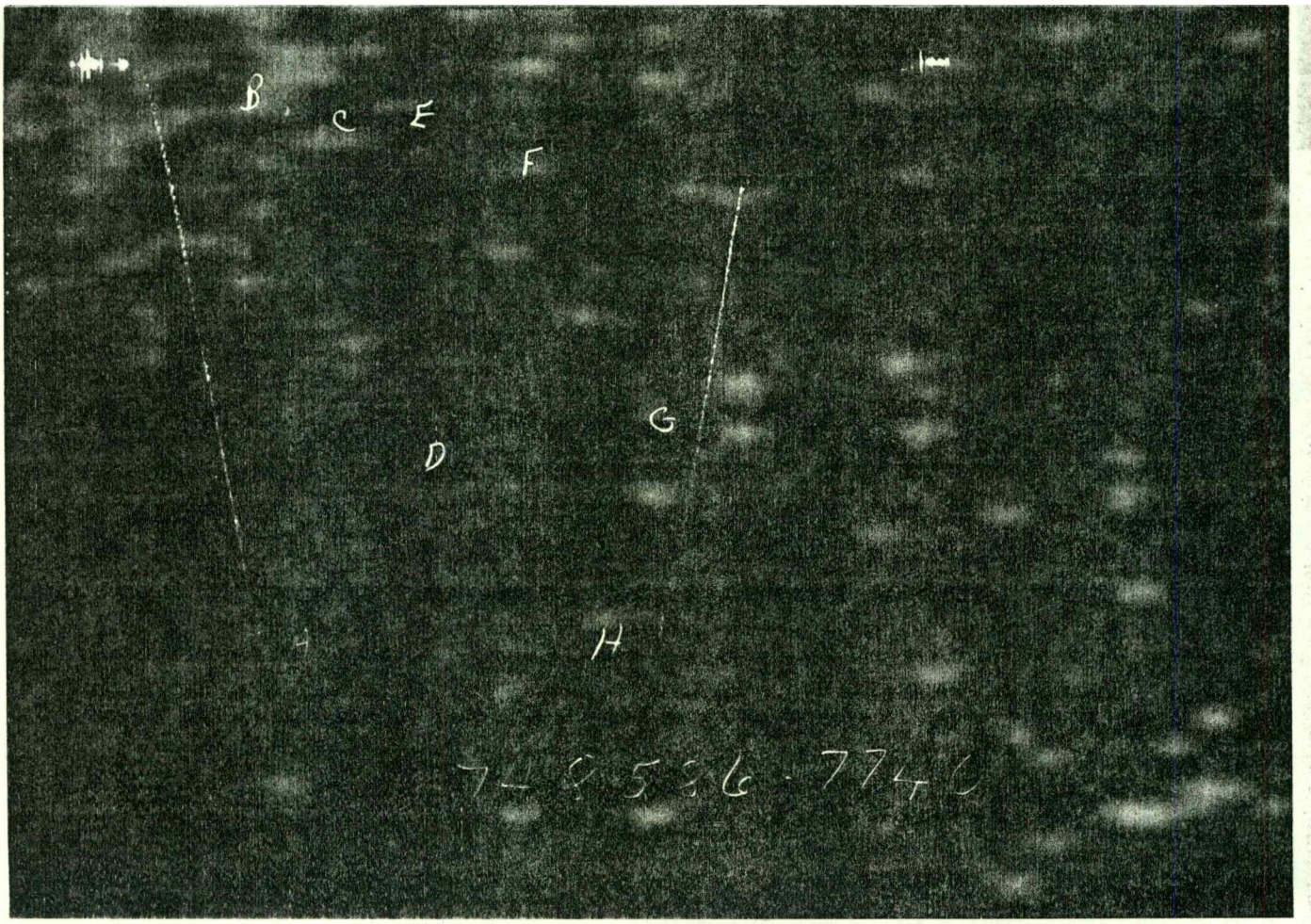
TICKET NO. 74858600
05-JUL-84
NESS CITY

FORMATION TESTING SERVICE REPORT



GAUGE NO: 7733 DEPTH: 4017.0 BLANKED OFF: NO HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	1979	1979.7			
B	INITIAL FIRST FLOW	18	27.2	30.0	30.1	F
C	FINAL FIRST FLOW	179	178.7			
C	INITIAL FIRST CLOSED-IN	179	179.7	60.0	60.6	C
D	FINAL FIRST CLOSED-IN	1255	1260.9			
E	INITIAL SECOND FLOW	197	195.2	45.0	46.1	F
F	FINAL SECOND FLOW	359	365.2			
F	INITIAL SECOND CLOSED-IN	359	365.2	75.0	73.3	C
G	FINAL SECOND CLOSED-IN	1237	1249.5			
H	FINAL HYDROSTATIC	1966	1978.0			



GAUGE NO: 7740 DEPTH: 4102.0 BLANKED OFF: YES HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		2017.8			
B	INITIAL FIRST FLOW		65.6	30.0	30.1	F
C	FINAL FIRST FLOW		217.9			
C	INITIAL FIRST CLOSED-IN		217.9	60.0	60.6	C
D	FINAL FIRST CLOSED-IN		1294.5			
E	INITIAL SECOND FLOW		231.5	45.0	46.1	F
F	FINAL SECOND FLOW		401.4			
F	INITIAL SECOND CLOSED-IN		401.4	75.0	73.3	C
G	FINAL SECOND CLOSED-IN		1281.4			
H	FINAL HYDROSTATIC		2009.3			

EQUIPMENT & HOLE DATA

FORMATION TESTED: CHEROKEE
NET PAY (ft): 5.0
GROSS TESTED FOOTAGE: 73.0
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 7.875
ELEVATION (ft): 2227
TOTAL DEPTH (ft): 4105.0
PACKER DEPTH(S) (ft): 4032
FINAL SURFACE CHOKE (in):
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.40
MUD VISCOSITY (sec): 47
ESTIMATED HOLE TEMP. (°F): 106
ACTUAL HOLE TEMP. (°F): 118 @ 4100.0 ft

TICKET NUMBER: 74858600

DATE: 7-2-84 TEST NO: 3

TYPE DST: OPEN HOLE

HALLIBURTON CAMP: NESS CITY

TESTER: THOMPSON

WITNESS: MUELLER

DRILLING CONTRACTOR: COMPANY TOOLS #2

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY		CHLORIDES
SYSTEMS	@ °F		12000 ppm
RECOVERY	@ °F		34000 ppm
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): 36.4 @ 60°F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

RECOVERED:

10' OF CLEAN GASSY OIL
40' OF OIL CUT MUD (10% OIL, 30% WATER, 60% MUD)
124' OF THIN OIL CUT MUD (4% OIL, 45% WATER, 51% MUD)
684' OF MUDDY SALTWATER

MEASURED FROM TESTER VALVE

REMARKS:

CHARTS INDICATE PARTIAL PLUGGING OF THE ANCHOR PIPE PERFORATIONS DURING INITIAL FLOW PERIOD.

TYPE & SIZE MEASURING DEVICE: _____ TICKET NO: 74858600

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
7-2-84					
1300					CALLED OUT
1500					ON LOCATION, RIG PULLING
					COLLARS
1525					PICKED UP AND MADE UP TOOL
1605					SET TOOL IN TABLE
1620					RIG STARTED PIPE
1737					TOOL ON BOTTOM
1740					OPENED TOOL WITH A STRONG BLOW
					10" IN BUCKET
1810					CLOSED TOOL
1910					OPENED TOOL WITH A STRONG BLOW
					8" IN BUCKET
1955					CLOSED TOOL
2110					OFF BOTTOM
2330					TOOL THROUGH TABLE
7-3-84					
0000					RIG BROKE AND LAID TOOL DOWN
0030					JOB COMPLETED

TICKET NO: 74858600	GAUGE NO: 7733
CLOCK NO: 13855 HOUR: 12	DEPTH: 4017.0

HALLIBURTON SERVICES

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			FIRST FLOW			
B	1	0.0	27.2			
	2	14.0	112.9	85.7		
	3	16.0	119.9	7.0		
	4	18.0	128.5	8.6		
	5	20.0	137.6	9.1		
	6	22.0	146.8	9.1		
	7	24.0	155.0	8.2		
	8	26.0	163.1	8.1		
	9	28.0	171.1	8.0		
C	10	30.1	179.7	8.6		
			FIRST CLOSED-IN			
C	1	0.0	179.7			
	2	1.0	1184.1	1004.4	1.0	1.501
	3	2.0	1210.0	1030.3	1.9	1.198
	4	3.0	1220.4	1040.7	2.7	1.047
	5	4.0	1228.6	1048.9	3.5	0.930
	6	5.0	1233.4	1053.8	4.3	0.846
	7	6.0	1237.0	1057.4	5.0	0.780
	8	7.0	1240.3	1060.6	5.7	0.724
	9	8.0	1242.8	1063.1	6.3	0.678
	10	9.0	1244.0	1064.3	6.9	0.638
	11	10.0	1245.7	1066.0	7.5	0.604
	12	12.0	1247.9	1068.3	8.6	0.545
	13	14.0	1250.0	1070.3	9.6	0.498
	14	16.0	1251.0	1071.3	10.5	0.460
	15	18.0	1252.0	1072.3	11.3	0.427
	16	20.0	1252.8	1073.1	12.0	0.399
	17	22.0	1253.9	1074.2	12.7	0.374
	18	24.0	1254.2	1074.6	13.4	0.353
	19	26.0	1254.8	1075.1	14.0	0.334
	20	28.0	1255.4	1075.7	14.5	0.317
	21	30.0	1255.8	1076.1	15.0	0.302
	22	35.0	1257.0	1077.4	16.2	0.269
	23	40.0	1257.8	1078.2	17.2	0.244
	24	45.0	1258.8	1079.2	18.0	0.222
	25	50.0	1259.6	1080.0	18.8	0.205
	26	55.0	1260.2	1080.5	19.5	0.190
D	27	60.6	1260.9	1081.2	20.1	0.175
			SECOND FLOW			
E	1	0.0	195.2			
	2	3.0	195.6	0.4		
	3	6.0	204.0	8.4		
	4	9.0	216.6	12.5		
	5	12.0	229.7	13.2		
	6	15.0	243.7	14.0		
	7	18.0	256.7	13.0		

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			SECOND FLOW - CONTINUED			
	8	21.0	268.6	11.9		
	9	24.0	281.6	13.0		
	10	27.0	293.3	11.6		
	11	30.0	304.5	11.2		
	12	33.0	316.2	11.7		
	13	36.0	328.0	11.8		
	14	39.0	339.6	11.6		
	15	42.0	350.5	10.9		
	16	45.0	361.6	11.0		
F	17	46.1	365.2	3.7		
			SECOND CLOSED-IN			
F	1	0.0	365.2			
	2	1.0	1170.9	805.7	1.0	1.900
	3	2.0	1194.3	829.1	1.9	1.601
	4	3.0	1205.9	840.6	2.9	1.421
	5	4.0	1212.6	847.4	3.8	1.301
	6	5.0	1217.7	852.4	4.7	1.213
	7	6.0	1222.1	856.8	5.6	1.134
	8	7.0	1225.1	859.9	6.4	1.072
	9	8.0	1227.1	861.9	7.3	1.021
	10	9.0	1228.9	863.7	8.0	0.977
	11	10.0	1230.3	865.0	8.8	0.935
	12	12.0	1232.3	867.1	10.4	0.866
	13	14.0	1233.7	868.5	11.8	0.809
	14	16.0	1235.8	870.5	13.2	0.760
	15	18.0	1237.2	872.0	14.5	0.719
	16	20.0	1238.0	872.8	15.8	0.682
	17	22.0	1238.7	873.5	17.1	0.650
	18	24.0	1239.7	874.5	18.3	0.620
	19	26.0	1240.4	875.1	19.4	0.595
	20	28.0	1241.1	875.8	20.5	0.571
	21	30.0	1242.0	876.7	21.5	0.549
	22	35.0	1243.2	878.0	24.0	0.502
	23	40.0	1244.6	879.4	26.2	0.463
	24	45.0	1245.5	880.3	28.3	0.430
	25	50.0	1246.6	881.3	30.2	0.402
	26	55.0	1247.1	881.9	31.9	0.378
	27	60.0	1248.2	883.0	33.6	0.356
	28	70.0	1249.5	884.3	36.5	0.320
G	29	73.3	1249.5	884.3	37.3	0.310

REMARKS:
FIRST PART OF INITIAL FLOW NOT SEGMENTED, DUE TO PLUGGING

TICKET NO: 74858600	GAUGE NO: 7740
CLOCK NO: 27248 HOUR: 12	DEPTH: 4102.0

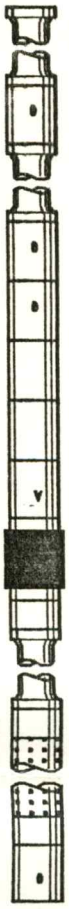
HALLIBURTON SERVICES

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			FIRST FLOW			
B	1	0.0	65.6			
	2	14.0	154.1	88.5		
	3	16.0	159.5	5.4		
	4	18.0	168.0	8.5		
	5	20.0	175.7	7.6		
	6	22.0	184.6	9.0		
	7	24.0	192.8	8.2		
	8	26.0	200.8	8.0		
	9	28.0	209.1	8.3		
C	10	30.1	217.9	8.8		
			FIRST CLOSED-IN			
C	1	0.0	217.9			
	2	1.0	1214.3	996.4	0.9	1.503
	3	2.0	1247.1	1029.2	1.9	1.200
	4	3.0	1258.0	1040.1	2.7	1.044
	5	4.0	1265.0	1047.1	3.5	0.933
	6	5.0	1269.6	1051.7	4.3	0.846
	7	6.0	1273.3	1055.4	5.0	0.779
	8	7.0	1276.2	1058.3	5.7	0.725
	9	8.0	1278.2	1060.3	6.3	0.678
	10	9.0	1279.8	1061.8	7.0	0.636
	11	10.0	1281.0	1063.1	7.5	0.603
	12	12.0	1282.8	1064.8	8.6	0.544
	13	14.0	1284.1	1066.2	9.5	0.499
	14	16.0	1285.1	1067.1	10.4	0.460
	15	18.0	1286.6	1068.6	11.3	0.427
	16	20.0	1287.2	1069.3	12.0	0.399
	17	22.0	1288.0	1070.1	12.7	0.374
	18	24.0	1288.6	1070.7	13.4	0.353
	19	26.0	1289.0	1071.1	14.0	0.334
	20	28.0	1289.3	1071.4	14.5	0.318
	21	30.0	1289.8	1071.9	15.0	0.302
	22	35.0	1291.0	1073.1	16.2	0.270
	23	40.0	1291.5	1073.6	17.2	0.244
	24	45.0	1292.2	1074.3	18.0	0.223
	25	50.0	1293.0	1075.1	18.8	0.205
	26	55.0	1293.6	1075.7	19.5	0.190
D	27	60.6	1294.5	1076.6	20.1	0.175
			SECOND FLOW			
E	1	0.0	231.5			
	2	3.0	232.9	1.4		
	3	6.0	244.7	11.9		
	4	9.0	256.7	12.0		
	5	12.0	269.1	12.4		
	6	15.0	281.9	12.8		
	7	18.0	294.4	12.5		

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			SECOND FLOW - CONTINUED			
	8	21.0	306.8	12.4		
	9	24.0	318.1	11.3		
	10	27.0	330.8	12.7		
	11	30.0	342.4	11.6		
	12	33.0	353.3	10.9		
	13	36.0	364.2	11.0		
	14	39.0	375.2	11.0		
	15	42.0	386.4	11.2		
	16	45.0	398.2	11.8		
F	17	46.1	401.4	3.3		
			SECOND CLOSED-IN			
F	1	0.0	401.4			
	2	1.0	1202.8	801.4	1.0	1.872
	3	2.0	1230.9	829.5	1.9	1.595
	4	3.0	1242.0	840.6	2.9	1.421
	5	4.0	1248.7	847.3	3.8	1.305
	6	5.0	1253.5	852.1	4.7	1.210
	7	6.0	1257.1	855.7	5.5	1.140
	8	7.0	1259.0	857.6	6.4	1.073
	9	8.0	1261.4	860.0	7.2	1.022
	10	9.0	1262.6	861.2	8.1	0.975
	11	10.0	1264.0	862.6	8.8	0.936
	12	12.0	1265.9	864.5	10.4	0.866
	13	14.0	1267.4	866.0	11.8	0.809
	14	16.0	1268.9	867.5	13.2	0.760
	15	18.0	1269.8	868.4	14.6	0.718
	16	20.0	1270.7	869.3	15.8	0.682
	17	22.0	1271.6	870.1	17.0	0.650
	18	24.0	1272.4	871.0	18.3	0.620
	19	26.0	1273.2	871.8	19.4	0.595
	20	28.0	1273.3	871.9	20.5	0.570
	21	30.0	1274.0	872.6	21.5	0.549
	22	35.0	1275.4	873.9	24.0	0.502
	23	40.0	1276.8	875.4	26.2	0.463
	24	45.0	1277.4	876.0	28.3	0.430
	25	50.0	1278.3	876.9	30.2	0.402
	26	55.0	1279.2	877.7	31.9	0.378
	27	60.0	1279.8	878.4	33.6	0.356
	28	70.0	1281.3	879.9	36.5	0.320
G	29	73.3	1281.4	880.0	37.3	0.310

REMARKS:
FIRST PART OF INITIAL FLOW PERIOD NOT SEGMENTED, DUE TO PLUGGING

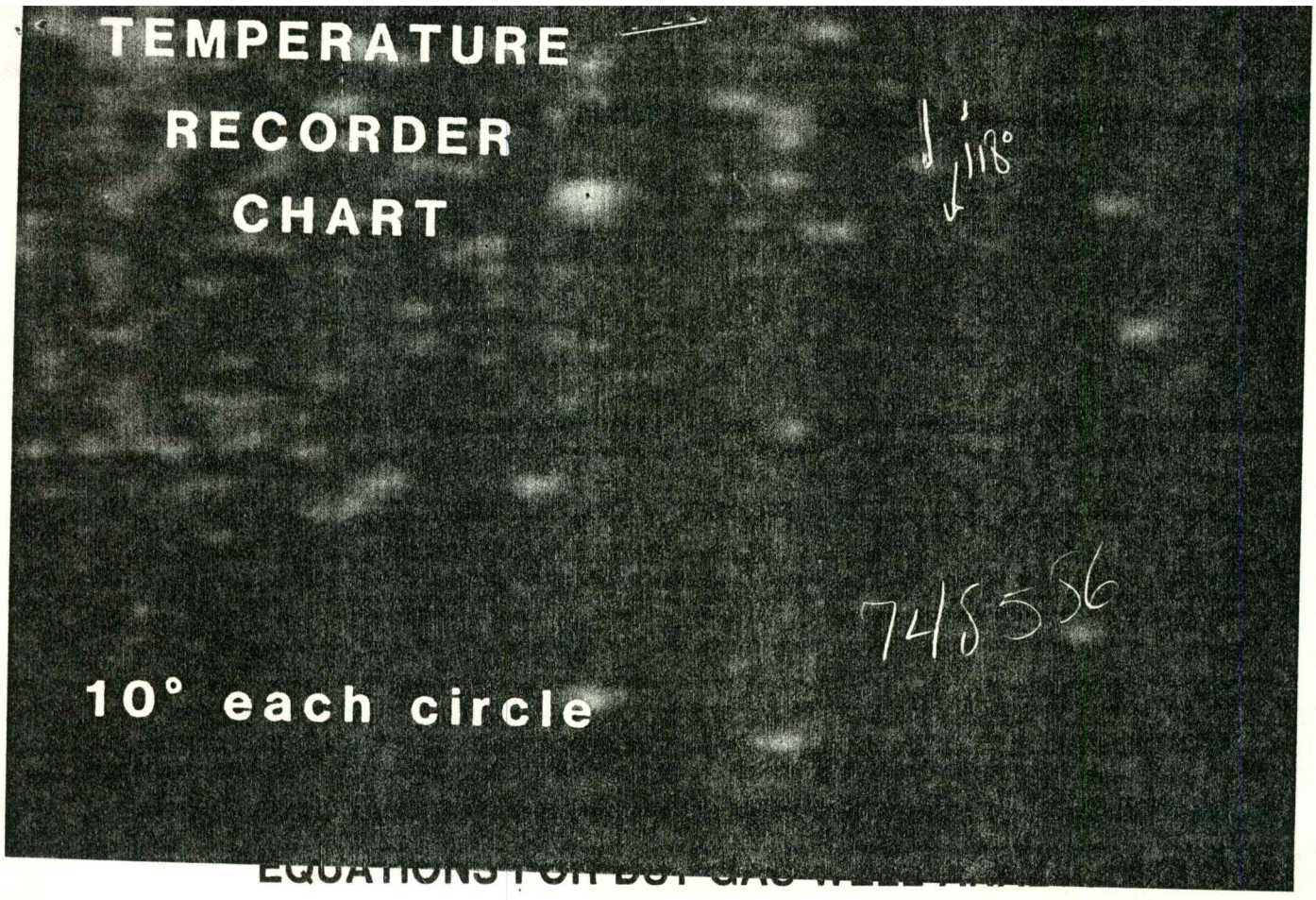
TICKET NO. 74858600



		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	3880.0	
50	IMPACT REVERSING SUB.....	5.000	2.700	1.0	3881.0
4	FLEX WEIGHT.....	4.500	2.764	124.0	
12	DUAL CIP VALVE.....	5.000	0.870	6.0	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	4015.0
80	AP RUNNING CASE.....	5.000	2.250	4.0	4017.0
15	JAR.....	5.000	1.750	5.0	
16	VR SAFETY JOINT.....	5.000	1.000	3.0	
70	OPEN HOLE PACKER.....	6.750	1.530	6.0	4032.0
5	CROSSOVER.....	5.000	2.750	1.0	
1	DRILL PIPE.....	4.500	3.826	31.0	
5	CROSSOVER.....	5.000	2.750	1.0	
20	FLUSH JOINT ANCHOR.....	5.000	2.375	33.0	
83	HT-500 TEMPERATURE CASE.....	5.000		1.0	4100.0
81	BLANKED-OFF RUNNING CASE.....	5.000		4.0	4102.0

TOTAL DEPTH 4105.0

EQUIPMENT DATA



EQUATIONS FOR DRY GAS WELLS

Indicated Flow Capacity	$kh = \frac{1637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151 \left[\frac{m(P^*) - m(P_f)}{m} - \text{LOG} \frac{k(t/60)}{\phi\ \mu\ c_t r_w^2} + 3.23 \right]$	—
Damage Ratio	$DR = \frac{m(P^*) - m(P_f)}{m(P^*) - m(P_f) - 0.87\ mS}$	—
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\ m(P^*)}{m(P^*) - m(P_f)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g \sqrt{\frac{m(P^*)}{m(P^*) - m(P_f)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032 \sqrt{\frac{k(t/60)}{\phi \mu c_t}}$	ft

LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME
DUMLER W	1	4	4101.' - 4148.'	DUNHILL L. SLAWSON

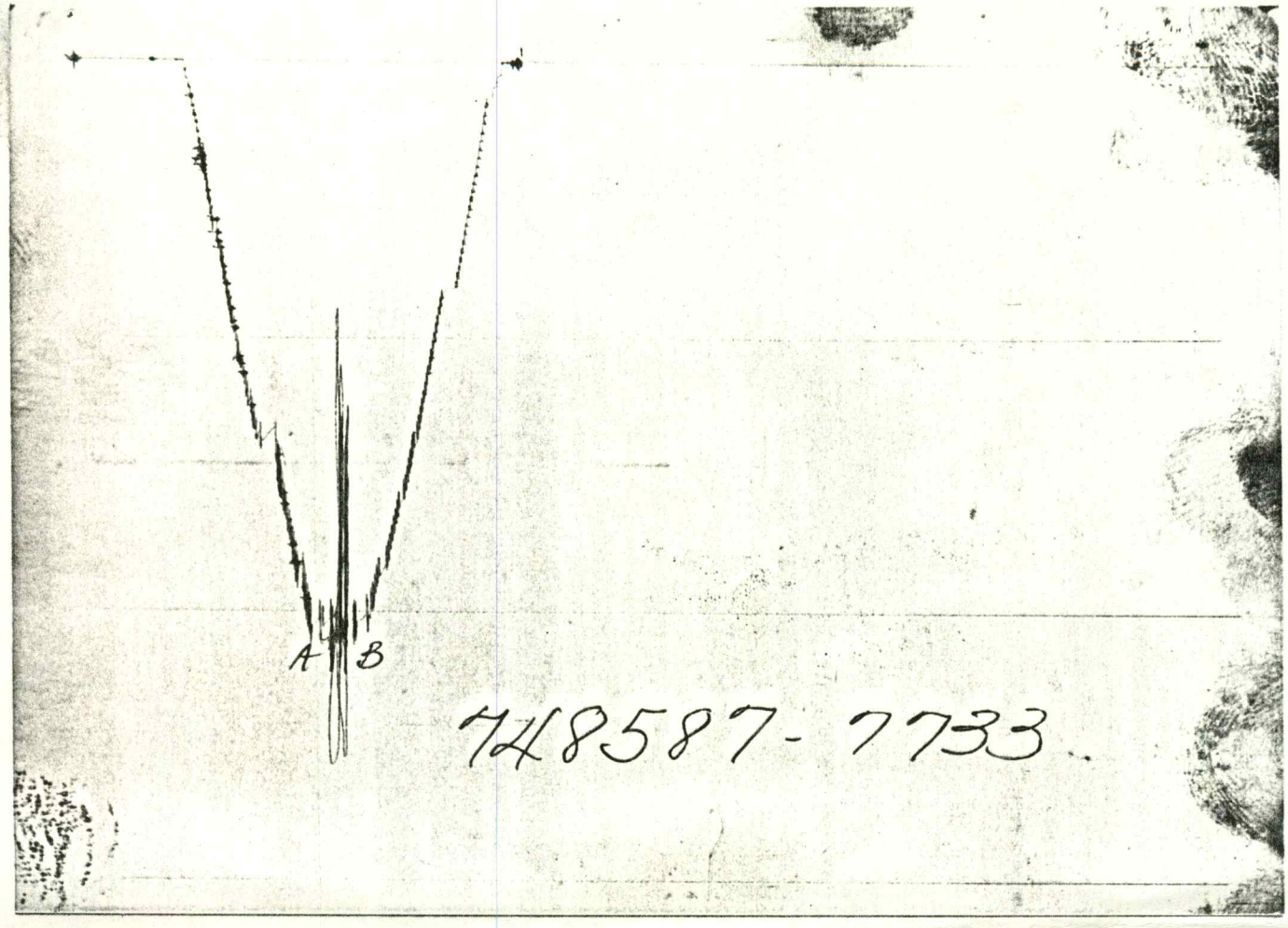
LEGAL LOCATION SEC. - TWP. - RNG.	FIELD AREA	COUNTY	STATE
21-14-22	WILDCAT	TREGO	KANSAS SM

C NE-NE

HALLIBURTON
SERVICES

TICKET NO. 74858700
10-JUL-84
NESS CITY

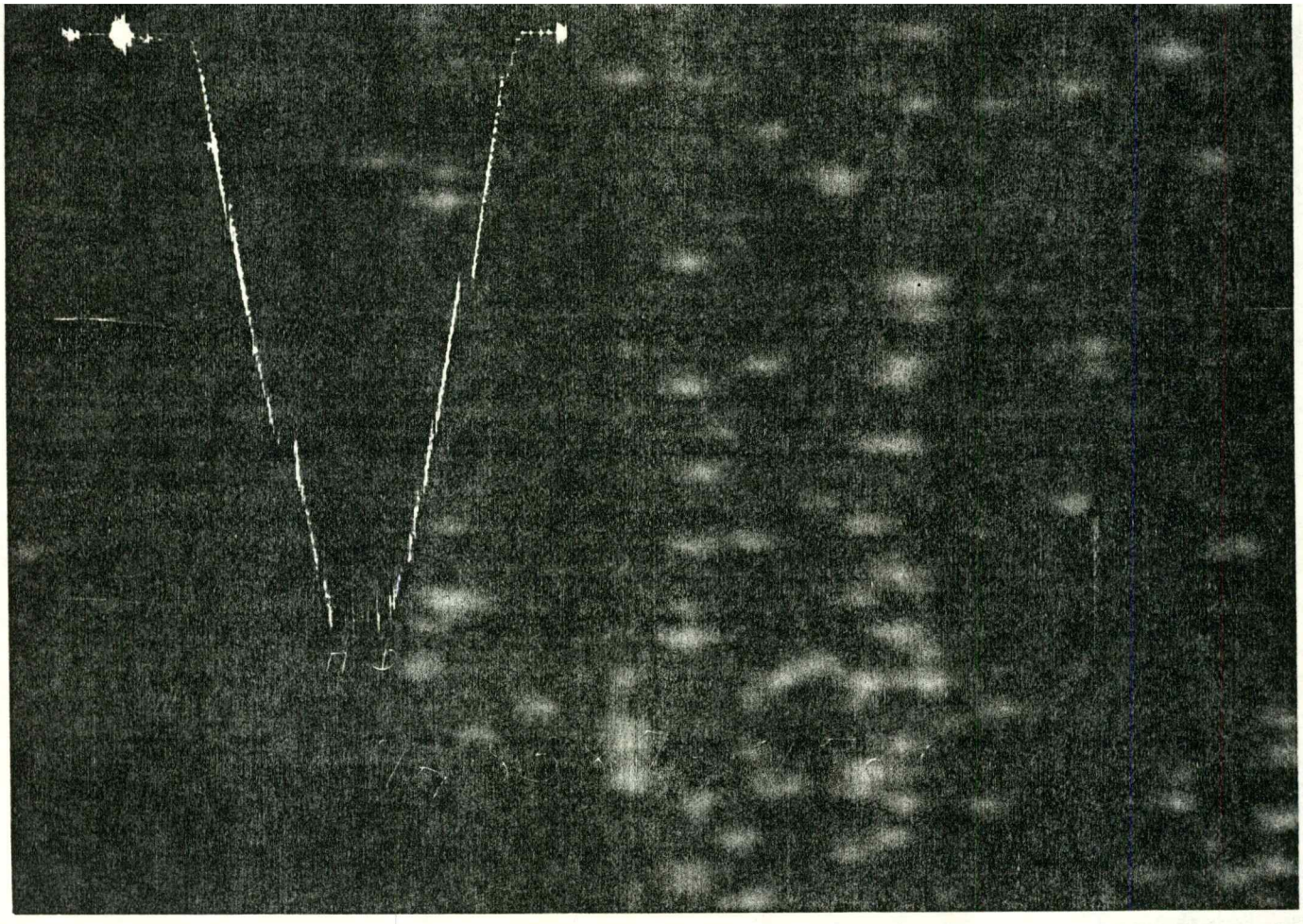
FORMATION TESTING SERVICE REPORT



748587-7733

GAUGE NO: 7733 DEPTH: 4086.0 BLANKED OFF: NO HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		2061.3			
B	FINAL HYDROSTATIC		2061.3			



GAUGE NO: 7740 DEPTH: 4145.0 BLANKED OFF: YES HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		2089.6			
B	FINAL HYDROSTATIC		2089.6			

EQUIPMENT & HOLE DATA

FORMATION TESTED: CHEROKEE SAND
NET PAY (ft):
GROSS TESTED FOOTAGE: 47.0
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 7.875
ELEVATION (ft): 2227
TOTAL DEPTH (ft): 4148.0
PACKER DEPTH(S) (ft): 4101
FINAL SURFACE CHOKE (in):
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.50
MUD VISCOSITY (sec): 47
ESTIMATED HOLE TEMP. (°F): 110
ACTUAL HOLE TEMP. (°F): ___ @ ___ ft

TICKET NUMBER: 74858700

DATE: 7-3-84 TEST NO: 4

TYPE DST: OPEN HOLE

HALLIBURTON CAMP: NESS CITY

TESTER: J. THOMPSON

WITNESS: MR. G. MUELLER

DRILLING CONTRACTOR: COMPANY TOOLS #2

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
SYSTEMS	___ @ ___ °F	15000 ppm
	___ @ ___ °F	___ ppm
	___ @ ___ °F	___ ppm
	___ @ ___ °F	___ ppm
	___ @ ___ °F	___ ppm
	___ @ ___ °F	___ ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): ___ @ ___ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

RECOVERED:

MEASURED FROM TESTER VALVE

REMARKS:

MISRUN - PACKER SEAT FAILED.

HT - 500 TEMPERATURE CHART WAS NOT RECEIVED FOR PROCESSING.

TYPE & SIZE MEASURING DEVICE:					TICKET NO: 74858700
TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
7-3-84					
0830					CALLED OUT
1030					ON LOCATION, RIG PULLING PIPE
1050					PICKED UP AND MADE UP TOOL
1130					SET TOOL IN TABLE
1145					RIG STARTED PIPE
1325					TOOL ON BOTTOM
1330					OPENED TOOL, PACKER SEAT
					FAILURE.
1335					SET TOOL ON BOTTOM AGAIN.
1340					OPENED TOOL SECOND TIME.
1345					PACKER SEAT FAILURE
					RIG STARTED OUT FOR DST #5.

TICKET NO. 74858700

		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	3949.0	
50	IMPACT REVERSING SUB.....	5.000	2.750	1.0	3950.0
4	FLEX WEIGHT.....	4.500	2.250	124.0	
12	DUAL CIP VALVE.....	5.000	0.870	6.0	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	4084.0
80	AP RUNNING CASE.....	5.000	2.250	4.0	4086.0
15	JAR.....	5.000	1.750	5.0	
16	VR SAFETY JOINT.....	5.000	1.000	3.0	
70	OPEN HOLE PACKER.....	6.750	1.530	6.0	4101.0
20	FLUSH JOINT ANCHOR.....	5.000	2.370	40.0	
83	HT-500 TEMPERATURE CASE.....	5.000		1.0	4143.0
81	BLANKED-OFF RUNNING CASE.....	5.000		4.0	4145.0
	TOTAL DEPTH				4148.0

EQUIPMENT DATA

LEASE NAME	WELL NO.	TEST NO.
DUMLER "W"	1	5

LEGAL LOCATION SEC. - TWP. - RNG.	FIELD AREA	TESTED INTERVAL	COUNTY	STATE
21-14-22	WILDCAT	4104.' - 4148.'	TREGO	KANSAS

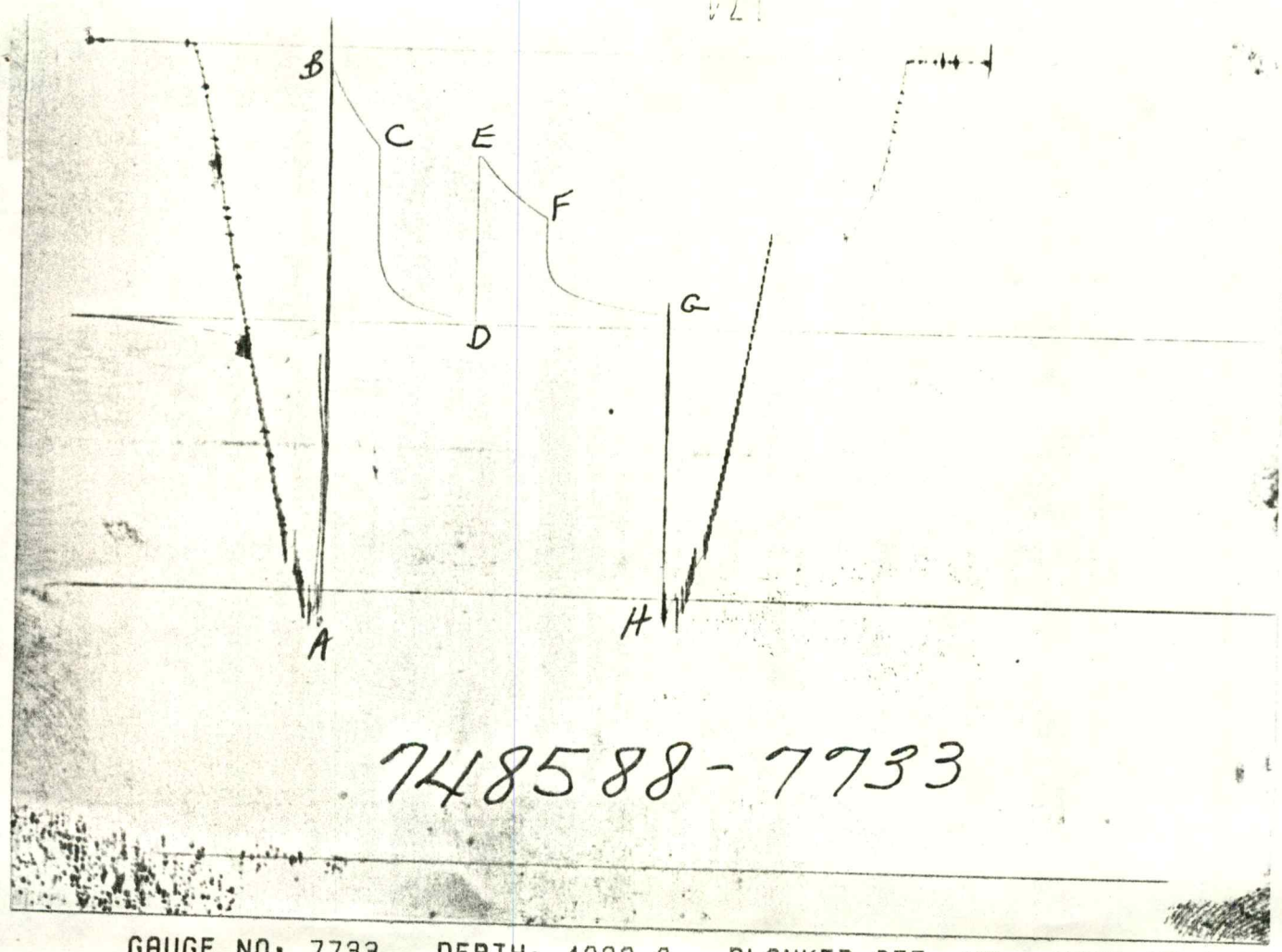
LEASE OWNER/COMPANY NAME: DONALD C. SLAWSON

C NE-NE

HALLIBURTON
SERVICES

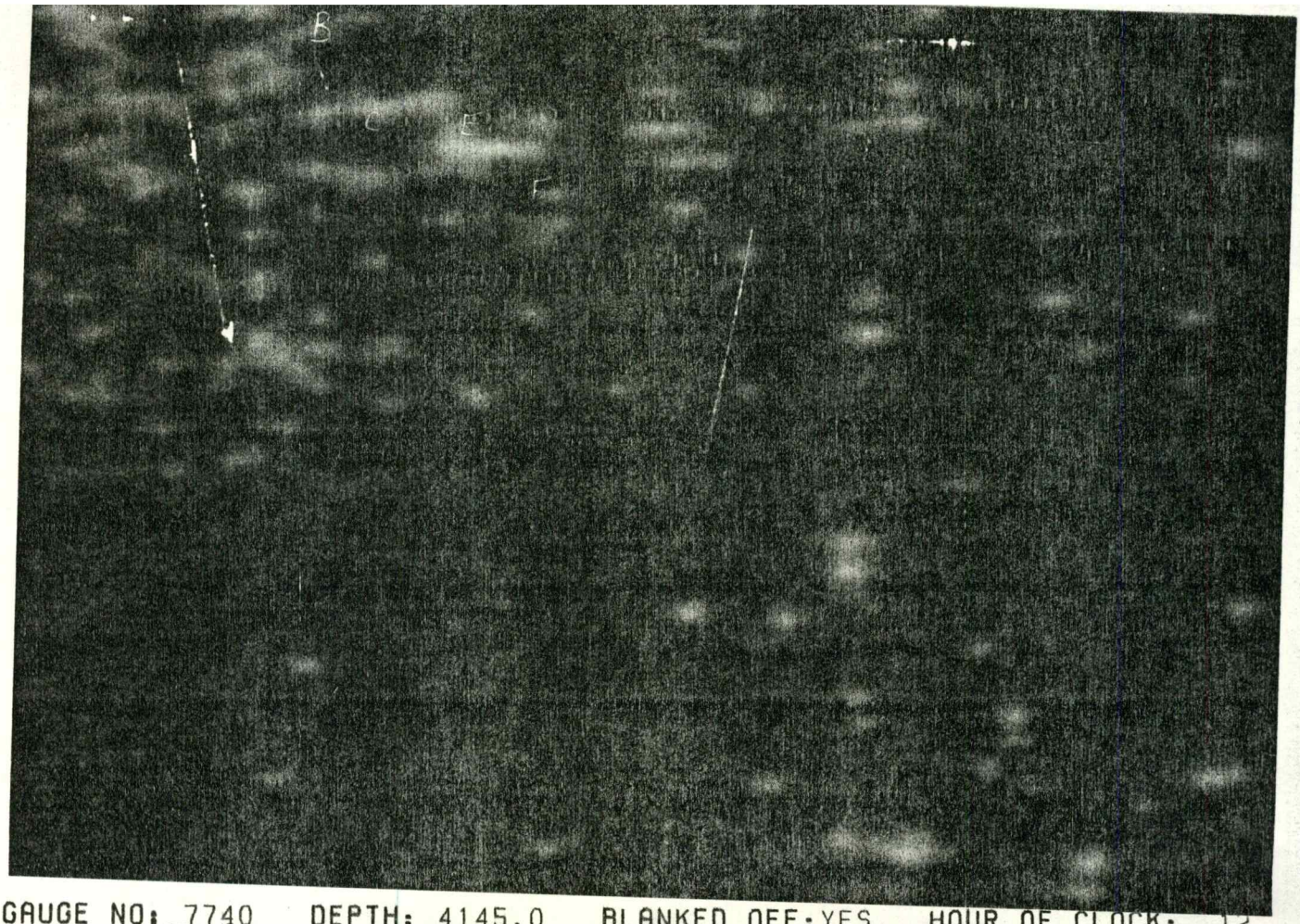
TICKET NO. 74858800
11-JUL-84
NESS CITY

FORMATION TESTING SERVICE REPORT



GAUGE NO: 7733 DEPTH: 4089.0 BLANKED OFF: NO HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	2033	2053.5			
B	INITIAL FIRST FLOW	36	54.2	30.0	30.2	F
C	FINAL FIRST FLOW	359	357.1			
C	INITIAL FIRST CLOSED-IN	359	357.1	60.0	61.6	C
D	FINAL FIRST CLOSED-IN	988	989.6			
E	INITIAL SECOND FLOW	316	387.4	45.0	42.3	F
F	FINAL SECOND FLOW	591	604.5			
F	INITIAL SECOND CLOSED-IN	591	604.5	75.0	75.8	C
G	FINAL SECOND CLOSED-IN	949	951.5			
H	FINAL HYDROSTATIC	1996	2032.8			



GAUGE NO: 7740 DEPTH: 4145.0 BLANKED OFF: YES HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	2081.5				
B	INITIAL FIRST FLOW	84.1		30.0	30.2	F
C	FINAL FIRST FLOW	398.2				
C	INITIAL FIRST CLOSED-IN	398.2		60.0	61.6	C
D	FINAL FIRST CLOSED-IN	1016.2				
E	INITIAL SECOND FLOW	414.4		45.0	42.3	F
F	FINAL SECOND FLOW	630.5				
F	INITIAL SECOND CLOSED-IN	630.5		75.0	75.8	C
G	FINAL SECOND CLOSED-IN	976.3				
H	FINAL HYDROSTATIC	2054.8				

EQUIPMENT & HOLE DATA

FORMATION TESTED: CHEROKEE
NET PAY (ft): 4.0
GROSS TESTED FOOTAGE: 44.0
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 7.875
ELEVATION (ft): 2227
TOTAL DEPTH (ft): 4148.0
PACKER DEPTH(S) (ft): 4104
FINAL SURFACE CHOKE (in):
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.50
MUD VISCOSITY (sec): 51
ESTIMATED HOLE TEMP. (°F): 120
ACTUAL HOLE TEMP. (°F): 110 @ 4143.0 ft

TICKET NUMBER: 74858800

DATE: 7-3-84 TEST NO: 5

TYPE DST: OPEN HOLE

HALLIBURTON CAMP: NESS CITY

TESTER: J. THOMPSON

WITNESS: MR. G. MUELLER

DRILLING CONTRACTOR: COMPANY TOOLS #2

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY		CHLORIDES
SYSTEMS	@ °F		15000 ppm
RECOVERY	@ °F		21000 ppm
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): @ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

RECOVERED:

1364 FEET OF MUDDY SALT WATER

MEASURED FROM TESTER VALVE

REMARKS:

CHARTS INDICATE SLIGHT PLUGGING OF ANCHOR PERFORATIONS DURING THE EARLY PORTION OF THE INITIAL FLOW PERIOD.

TYPE & SIZE MEASURING DEVICE: _____ TICKET NO: 74858800

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
7-3-84					
1520					RIG OUT OF HOLE AFTER MISRUN
1520					CHANGED ANCHOR AND CHARTS
1600					RIG REPLACED TONG DIES
1625					RIG STARTED IN HOLE WITH TOOLS
1757					TOOL ON BOTTOM
1800					OPENED TOOL WITH STRONG BLOW OFF
					BOTTOM OF BUCKET IN 4 MINUTES.
1830					CLOSED TOOL
1930					OPENED TOOL WITH STRONG BLOW
					OFF BOTTOM
2015					CLOSED TOOL
2130					OFF BOTTOM
2300					STARTED REVERSING
2325					FINISHED REVERSING
7-4-84					
0005					TOOL THROUGH THE TABLE
0045					RIG BROKE AND LAID DOWN TOOL
0115					JOB COMPLETE

TICKET NO: 74858800	GAUGE NO: 7733
CLOCK NO: 16165 HOUR: 12	DEPTH: 4089.0

HALLIBURTON SERVICES

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			FIRST FLOW			
B	1	0.0	54.2			
	2	5.0	128.8	74.6		
	3	10.0	180.8	52.1		
	4	15.0	228.0	47.1		
	5	20.0	275.4	47.4		
	6	25.0	315.8	40.4		
C	7	30.2	357.1	41.3		
			FIRST CLOSED-IN			
C	1	0.0	357.1			
	2	4.0	821.0	463.9	3.5	0.937
	3	8.0	867.1	510.0	6.3	0.680
	4	12.0	894.1	537.0	8.6	0.546
	5	16.0	913.1	556.1	10.5	0.461
	6	20.0	926.0	568.9	12.0	0.400
	7	24.0	938.0	580.9	13.4	0.354
	8	28.0	947.6	590.5	14.5	0.318
	9	32.0	954.7	597.7	15.6	0.289
	10	36.0	961.4	604.4	16.4	0.265
	11	40.0	967.4	610.4	17.2	0.244
	12	44.0	972.6	615.6	17.9	0.227
	13	48.0	977.1	620.0	18.5	0.212
	14	52.0	981.2	624.1	19.1	0.199
	15	56.0	984.7	627.6	19.6	0.188
D	16	61.6	989.6	632.5	20.3	0.173
			SECOND FLOW			
E	1	0.0	387.4			
	2	6.0	418.3	30.9		
	3	12.0	460.0	41.8		
	4	18.0	495.4	35.4		
	5	24.0	527.6	32.2		
	6	30.0	554.6	26.9		
	7	36.0	579.5	25.0		
F	8	42.3	604.5	25.0		
			SECOND CLOSED-IN			
F	1	0.0	604.5			
	2	5.0	832.6	228.2	4.7	1.192
	3	10.0	861.0	256.5	8.8	0.916
	4	15.0	878.8	274.3	12.4	0.767
	5	20.0	891.1	286.7	15.6	0.666
	6	25.0	900.5	296.1	18.6	0.592
	7	30.0	907.8	303.3	21.2	0.534
	8	35.0	914.4	309.9	23.6	0.488
	9	40.0	920.4	315.9	25.8	0.449

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			SECOND CLOSED-IN - CONTINUED			
	10	45.0	925.8	321.3	27.8	0.417
	11	50.0	930.5	326.0	29.6	0.389
	12	55.0	935.2	330.7	31.3	0.365
	13	60.0	939.5	335.1	32.8	0.344
	14	65.0	943.6	339.1	34.3	0.326
	15	70.0	947.6	343.1	35.6	0.309
G	16	75.8	951.5	347.0	37.1	0.292

REMARKS:

TICKET NO: 74858800	GAUGE NO: 7740
CLOCK NO: 26733 HOUR: 12	DEPTH: 4145.0

HALLIBURTON SERVICES

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
		FIRST FLOW				
B	1	0.0	84.1			
	2	5.0	181.6	97.5		
	3	10.0	246.5	64.9		
	4	15.0	281.6	35.1		
	5	20.0	325.6	43.9		
	6	25.0	362.4	36.8		
C	7	30.2	398.2	35.9		
		FIRST CLOSED-IN				
C	1	0.0	398.2			
	2	4.0	849.1	450.9	3.5	0.935
	3	8.0	894.4	496.1	6.3	0.680
	4	12.0	921.7	523.5	8.6	0.545
	5	16.0	940.8	542.5	10.5	0.461
	6	20.0	954.4	556.2	12.0	0.400
	7	24.0	965.3	567.1	13.4	0.354
	8	28.0	974.2	576.0	14.5	0.318
	9	32.0	982.0	583.7	15.5	0.289
	10	36.0	988.2	590.0	16.4	0.265
	11	40.0	994.0	595.8	17.2	0.245
	12	44.0	998.9	600.6	17.9	0.227
	13	48.0	1003.7	605.5	18.5	0.212
	14	52.0	1007.6	609.4	19.1	0.199
	15	56.0	1011.6	613.3	19.6	0.187
D	16	61.6	1016.2	617.9	20.3	0.173
		SECOND FLOW				
E	1	0.0	414.4			
	2	6.0	445.2	30.8		
	3	12.0	487.4	42.3		
	4	18.0	523.0	35.5		
	5	24.0	554.7	31.7		
	6	30.0	584.0	29.3		
	7	36.0	608.0	24.0		
F	8	42.3	630.5	22.4		
		SECOND CLOSED-IN				
F	1	0.0	630.5			
	2	5.0	861.4	231.0	4.6	1.194
	3	10.0	887.4	257.0	8.8	0.916
	4	15.0	903.8	273.3	12.5	0.766
	5	20.0	916.4	285.9	15.7	0.665
	6	25.0	926.3	295.9	18.6	0.591
	7	30.0	934.9	304.4	21.2	0.534
	8	35.0	941.6	311.2	23.6	0.488
	9	40.0	947.6	317.2	25.8	0.449

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
		SECOND CLOSED-IN - CONTINUED				
	10	45.0	953.0	322.5	27.8	0.417
	11	50.0	957.5	327.0	29.6	0.389
	12	55.0	961.8	331.3	31.3	0.365
	13	60.0	965.7	335.2	32.9	0.344
	14	65.0	968.9	338.5	34.3	0.326
	15	70.0	972.8	342.3	35.6	0.309
G	16	75.8	976.3	345.9	37.1	0.292

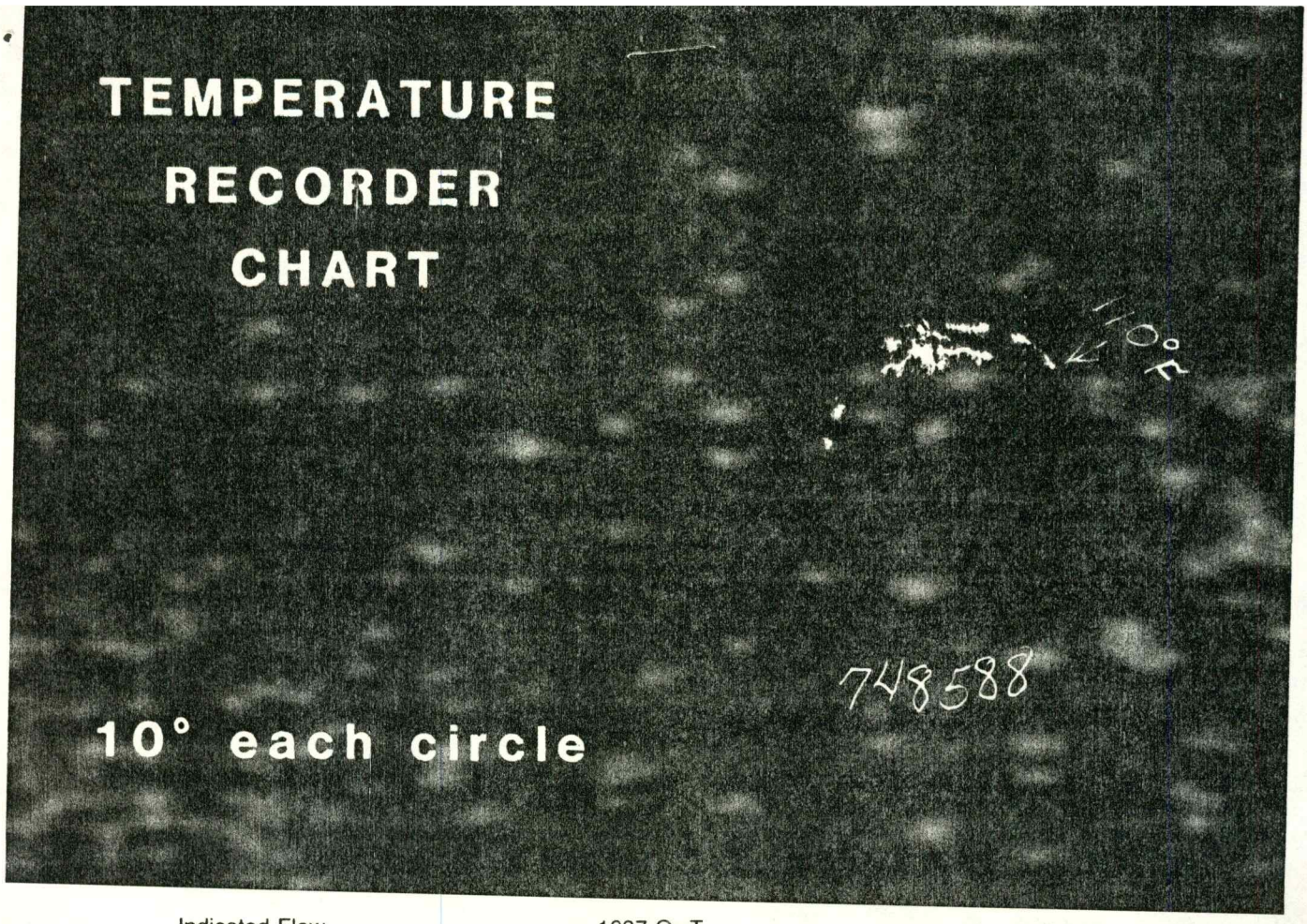
REMARKS:

TICKET NO. 74858800

		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	3952.0	
50	IMPACT REVERSING SUB.....	5.000	2.750	1.0	3953.0
4	FLEX WEIGHT.....	4.500	3.725	124.0	
12	DUAL CIP VALVE.....	5.000	0.870	6.0	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	4087.0
80	AP RUNNING CASE.....	5.000	2.250	4.0	4089.0
15	JAR.....	5.000	1.750	5.0	
16	VR SAFETY JOINT.....	5.000	1.000	3.0	
70	OPEN HOLE PACKER.....	6.750	1.530	6.0	4104.0
20	FLUSH JOINT ANCHOR.....	5.000	2.370	37.0	
83	HT-500 TEMPERATURE CASE.....	5.000		1.0	4143.0
81	BLANKED-OFF RUNNING CASE.....	5.000		4.0	4145.0

TOTAL DEPTH 4148.0

EQUIPMENT DATA



Indicated Flow Capacity	$kh = \frac{1637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151 \left[\frac{m(P^*) - m(P_f)}{m} - \text{LOG} \frac{k(t/60)}{\phi\ \mu\ c_t r_w^2} + 3.23 \right]$	—
Damage Ratio	$DR = \frac{m(P^*) - m(P_f)}{m(P^*) - m(P_f) - 0.87\ mS}$	—
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\ m(P^*)}{m(P^*) - m(P_f)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g \sqrt{\frac{m(P^*)}{m(P^*) - m(P_f)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032 \sqrt{\frac{k(t/60)}{\phi \mu c_t}}$	ft