

BECKER

LEASE NAME

1

WELL NO.

1

TEST NO.

4538.' - 4610.'

TESTED INTERVAL

GRUSS PETROLEUM MANAGEMENT

LEASE OWNER/COMPANY NAME

LEGAL LOCATION  
SEC. - TYP. - RNG.

31-16-27W

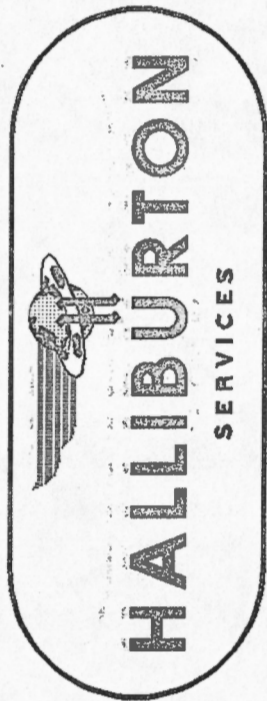
FIELD  
AREA

WILCAT

COUNTY

LANE

STATE KANSAS DR



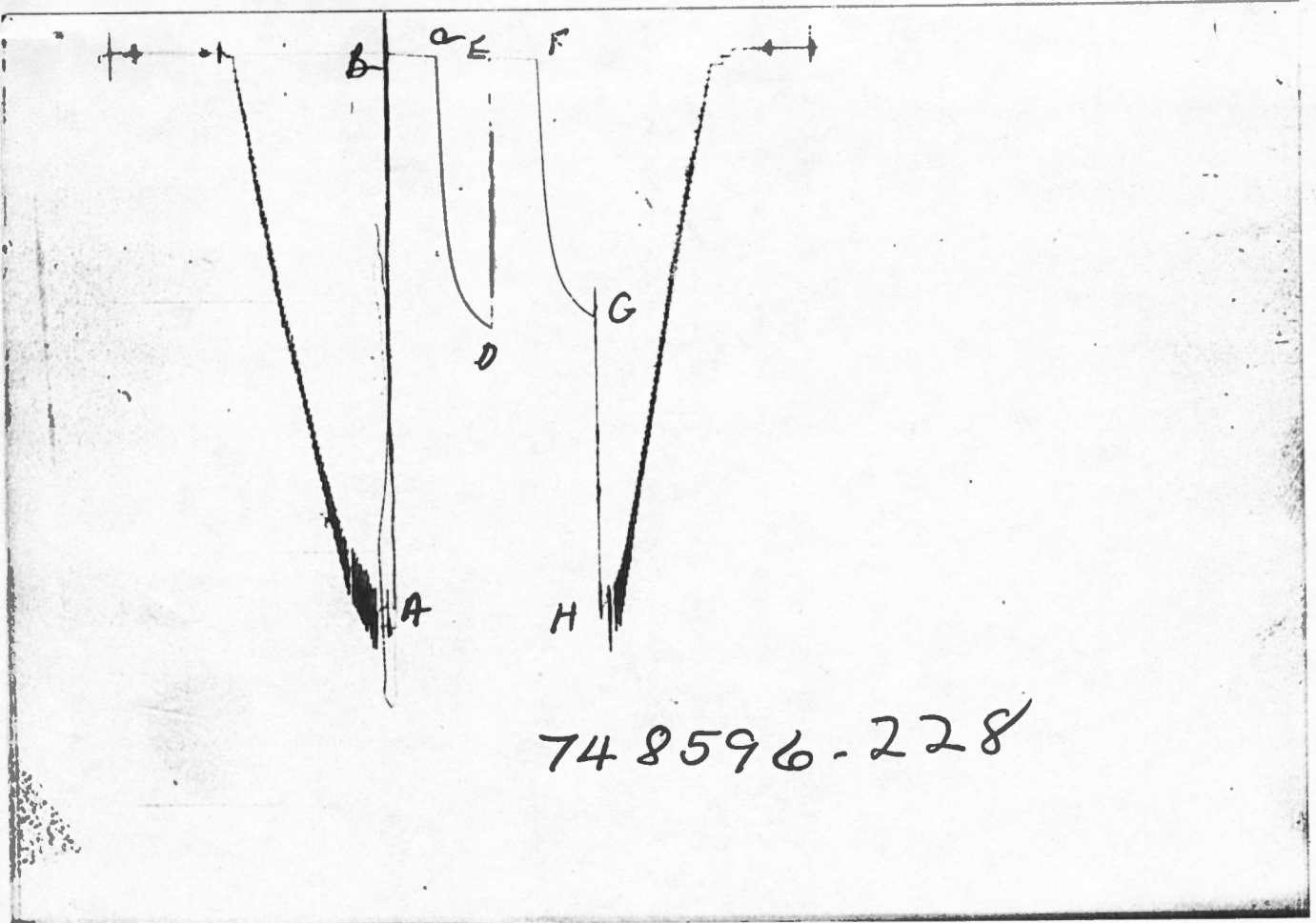
TICKET NO. 74859600

15-AUG-84

NESS CITY

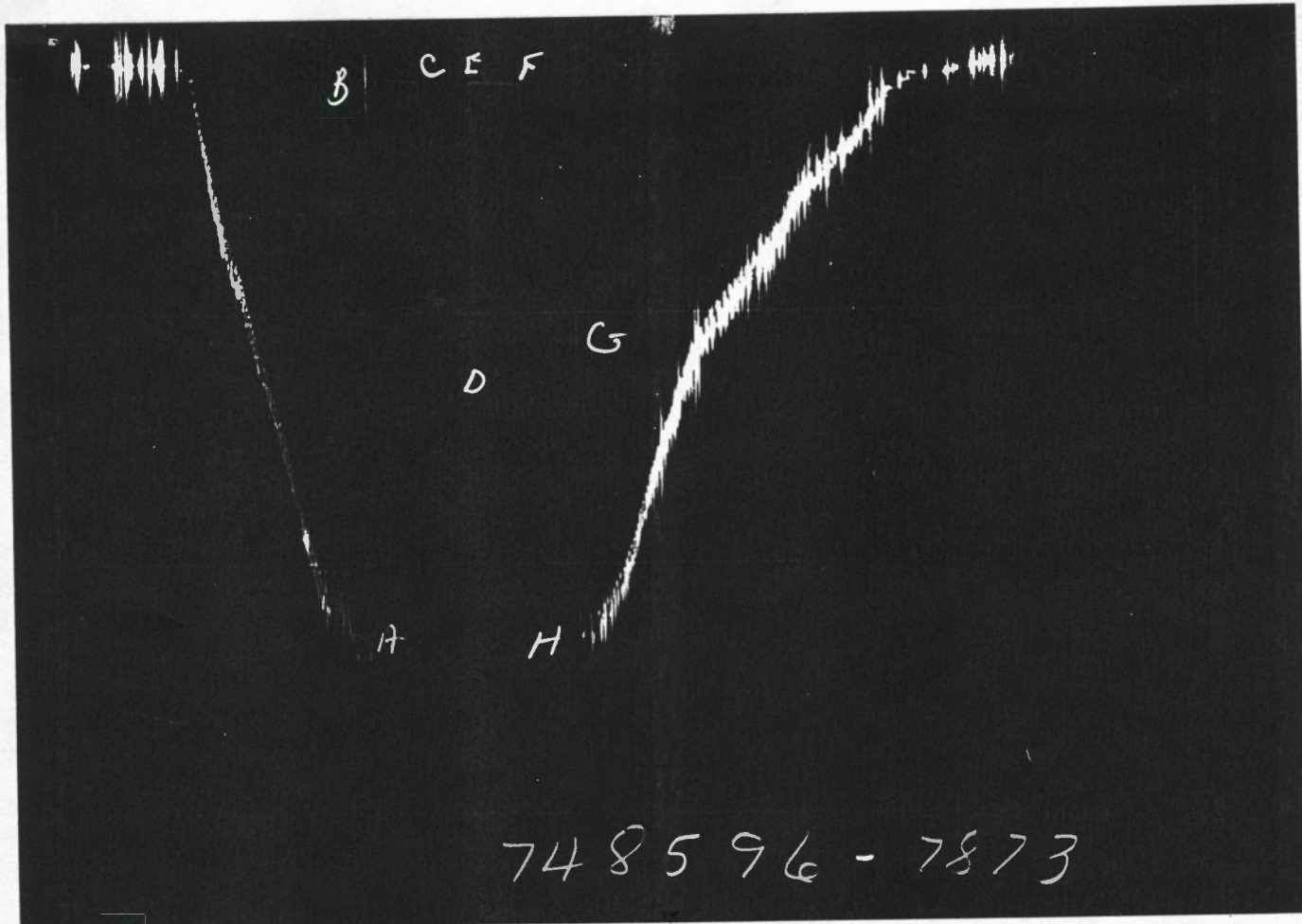
FORMATION TESTING SERVICE REPORT

11



GAUGE NO: 228 DEPTH: 4517.0 BLANKED OFF: NO HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	2006	2216.1			
B	INITIAL FIRST FLOW	12	11.7			
C	FINAL FIRST FLOW	18	25.1	30.0	30.1	F
C	INITIAL FIRST CLOSED-IN	18	25.1			
D	FINAL FIRST CLOSED-IN	1110	1114.1	30.0	29.8	C
E	INITIAL SECOND FLOW	23	39.1			
F	FINAL SECOND FLOW	25	42.1	30.0	29.2	F
F	INITIAL SECOND CLOSED-IN	25	42.1			
G	FINAL SECOND CLOSED-IN	1070	1073.3	30.0	30.9	C
H	FINAL HYDROSTATIC	2206	2210.9			



GAUGE NO: 7873 DEPTH: 4607.0 BLANKED OFF: YES HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		2260.5			
B	INITIAL FIRST FLOW		58.8			
C	FINAL FIRST FLOW		75.6	30.0	30.1	F
C	INITIAL FIRST CLOSED-IN		75.6			
D	FINAL FIRST CLOSED-IN		1162.6	30.0	29.8	C
E	INITIAL SECOND FLOW		81.6			
F	FINAL SECOND FLOW		87.6	30.0	29.2	F
F	INITIAL SECOND CLOSED-IN		87.6			
G	FINAL SECOND CLOSED-IN		1121.2	30.0	30.9	C
H	FINAL HYDROSTATIC		2253.6			

## EQUIPMENT & HOLE DATA

FORMATION TESTED: JOHNSON-CHEROKEE  
 NET PAY (ft): 10.0  
 GROSS TESTED FOOTAGE: 72.0  
 ALL DEPTHS MEASURED FROM: KELLY BUSHING  
 CASING PERFS. (ft): \_\_\_\_\_  
 HOLE OR CASING SIZE (in): 7.875  
 ELEVATION (ft): 0  
 TOTAL DEPTH (ft): 4610.0  
 PACKER DEPTH(S) (ft): 4532, 4538  
 FINAL SURFACE CHOKE (in): \_\_\_\_\_  
 BOTTOM HOLE CHOKE (in): 0.750  
 MUD WEIGHT (lb/gal): 9.30  
 MUD VISCOSITY (sec): 40  
 ESTIMATED HOLE TEMP. (°F): 122  
 ACTUAL HOLE TEMP. (°F): 128 @ 4605.0 ft

TICKET NUMBER: 74859600  
 DATE: 8-8-84 TEST NO: 1  
 TYPE DST: OPEN HOLE  
 HALLIBURTON CAMP: \_\_\_\_\_  
NESS CITY  
 TESTER: JIM THOMPSON  
 WITNESS: RHOADS  
 DRILLING CONTRACTOR: \_\_\_\_\_  
DNB #2

### FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
<u>SYSTEMS</u>	<u>    </u> @ <u>    </u> °F	<u>8000</u> ppm
<u>RECOVERY</u>	<u>    </u> @ <u>    </u> °F	<u>9000</u> ppm
_____	<u>    </u> @ <u>    </u> °F	<u>    </u> ppm
_____	<u>    </u> @ <u>    </u> °F	<u>    </u> ppm
_____	<u>    </u> @ <u>    </u> °F	<u>    </u> ppm
_____	<u>    </u> @ <u>    </u> °F	<u>    </u> ppm

### SAMPLER DATA

Pctg 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:

60' OF DRILLING MUD, NO SHOW OF OIL

MEASURED FROM TESTER VALVE

### REMARKS:



TICKET NO: 74859600'

CLOCK NO: 16165 HOUR: 12



GAUGE NO: 228

DEPTH: 4517.0

REF	MINUTES	PRESSURE	AP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
FIRST FLOW					
B 1	0.0	11.7			
2	5.0	14.7	3.0		
3	10.0	16.8	2.1		
4	15.0	18.4	1.5		
5	20.0	20.8	2.4		
6	25.0	22.4	1.6		
C 7	30.1	25.1	2.6		
FIRST CLOSED-IN					
C 1	0.0	25.1			
2	2.0	485.5	460.4	1.9	1.207
3	4.0	699.3	674.2	3.6	0.928
4	6.0	809.0	783.9	5.0	0.782
5	8.0	887.4	862.3	6.3	0.678
6	10.0	937.6	912.5	7.5	0.603
7	12.0	974.6	949.6	8.6	0.544
8	14.0	1003.0	977.9	9.6	0.498
9	16.0	1024.5	999.4	10.5	0.459
10	18.0	1044.2	1019.1	11.3	0.427
11	20.0	1059.3	1034.2	12.0	0.399
12	22.0	1074.3	1049.2	12.7	0.374
13	24.0	1086.4	1061.4	13.4	0.353
14	26.0	1096.9	1071.8	14.0	0.334
15	28.0	1107.1	1082.0	14.5	0.317
D 16	29.8	1114.1	1089.0	15.0	0.304
SECOND FLOW					
E 1	0.0	39.1			
2	5.0	34.8	-4.3		
3	10.0	34.9	0.1		
4	15.0	35.0	0.1		
5	20.0	36.8	1.8		
6	25.0	39.6	2.8		
F 7	29.2	42.1	2.5		
SECOND CLOSED-IN					
F 1	0.0	42.1			
2	2.0	417.1	375.0	2.0	1.481
3	4.0	632.9	590.8	3.7	1.202
4	6.0	756.3	714.3	5.4	1.039
5	8.0	833.0	790.9	7.0	0.927
6	10.0	885.6	843.5	8.6	0.841
7	12.0	922.5	880.4	10.0	0.776
8	14.0	952.4	910.3	11.3	0.719
9	16.0	975.3	933.2	12.6	0.673
10	18.0	995.1	953.0	13.8	0.633

REF	MINUTES	PRESSURE	AP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
SECOND CLOSED-IN - CONTINUED					
11	20.0	1011.6	969.5	15.0	0.599
12	22.0	1027.8	985.7	16.1	0.568
13	24.0	1039.1	997.0	17.1	0.540
14	26.0	1050.4	1008.3	18.1	0.516
15	28.0	1060.8	1018.7	19.0	0.494
G 16	30.9	1073.3	1031.2	20.3	0.466

REMARKS:

TICKET NO: 74859600

CLOCK NO: 28814 HOUR: 12




















GAUGE NO: 7873

DEPTH: 4607.0

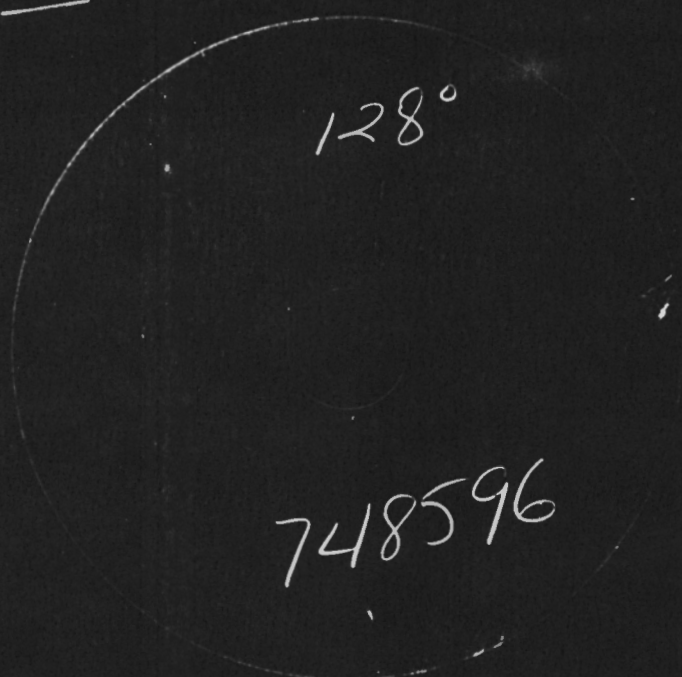
REF	MINUTES	PRESSURE	AP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
FIRST FLOW					
B	1	0.0	58.8		
	2	5.0	62.1	3.3	
	3	10.0	64.3	2.2	
	4	15.0	67.4	3.1	
	5	20.0	70.8	3.3	
	6	25.0	73.2	2.4	
C	7	30.1	75.6	2.4	
FIRST-CLOSED-IN					
C	1	0.0	75.6		
	2	2.0	409.1	333.5	1.8 1.214
	3	4.0	701.3	625.6	3.5 0.930
	4	6.0	840.4	764.8	5.0 0.781
	5	8.0	929.4	853.8	6.3 0.676
	6	10.0	982.5	906.9	7.5 0.603
	7	12.0	1023.1	947.5	8.6 0.546
	8	14.0	1051.9	976.3	9.6 0.498
	9	16.0	1076.1	1000.4	10.4 0.460
	10	18.0	1094.8	1019.2	11.3 0.427
	11	20.0	1110.0	1034.4	12.0 0.399
	12	22.0	1122.6	1047.0	12.7 0.375
	13	24.0	1135.3	1059.7	13.4 0.353
	14	26.0	1145.7	1070.1	14.0 0.334
	15	28.0	1155.2	1079.6	14.5 0.317
D	16	29.8	1162.6	1087.0	15.0 0.304
SECOND FLOW					
E	1	0.0	81.6		
	2	5.0	80.4	-1.2	
	3	10.0	80.6	0.2	
	4	15.0	82.7	2.1	
	5	20.0	84.6	1.9	
	6	25.0	87.0	2.4	
F	7	29.2	87.6	0.6	
SECOND CLOSED-IN					
F	1	0.0	87.6		
	2	2.0	406.4	318.7	1.9 1.488
	3	4.0	659.8	572.2	3.8 1.199
	4	6.0	804.6	717.0	5.5 1.035
	5	8.0	880.3	792.7	7.1 0.925
	6	10.0	935.9	848.3	8.6 0.840
	7	12.0	977.1	889.4	10.0 0.773
	8	14.1	1006.3	918.7	11.4 0.718
	9	16.0	1029.4	941.8	12.6 0.673
	10	18.0	1049.1	961.4	13.8 0.633

REF	MINUTES	PRESSURE	AP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
SECOND CLOSED-IN - CONTINUED					
	11	20.0	1064.4	976.7	15.0 0.599
	12	22.0	1078.7	991.1	16.1 0.568
	13	24.0	1090.4	1002.8	17.1 0.540
	14	26.0	1100.6	1013.0	18.1 0.516
	15	28.0	1109.8	1022.2	19.0 0.494
G	16	30.9	1121.2	1033.5	20.3 0.466

REMARKS:

		O.D.	I.D.	LENGTH	DEPTH	
1		DRILL PIPE.....	4.500	3.826	4386.0	
50		IMPACT REVERSING SUB.....	5.000	2.750	1.0	4387.0
3		DRILL COLLARS.....	6.250	2.250	117.0	
5		CROSSOVER.....	5.000	2.750	1.0	
12		DUAL CIP VALVE.....	5.000	0.870	6.0	
60		HYDROSPRING TESTER.....	5.000	0.750	5.0	4515.0
80		AP RUNNING CASE.....	5.000	2.250	4.0	4517.0
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	4532.0
70		OPEN HOLE PACKER.....	6.750	1.530	6.0	4538.0
5		CROSSOVER.....	5.000	2.750	2.0	
1		DRILL PIPE.....	4.500	3.826	30.0	
5		CROSSOVER.....	5.000	2.750	2.0	
20		FLUSH JOINT ANCHOR.....	5.000	2.370	31.0	
83		HT-500 TEMPERATURE CASE.....	5.000		1.0	4605.0
81		BLANKED-OFF RUNNING CASE.....	5.000		4.1	4607.0
TOTAL DEPTH					4610.0	

# TEMPERATURE RECORDER CHART



10° each circle

## EQUATIONS FOR GAS WELL ANALYSIS

Indicated Flow Capacity  $kh = \frac{1637 Q_g T}{m}$  md-ft

Average Effective Permeability  $k = \frac{kh}{h}$  md

Skin Factor  $S = 1.151 \left[ \frac{m(P^*) - m(P_f)}{m} - \text{LOG} \frac{k(t/60)}{\phi \mu c_f r_w^2} + 3.23 \right]$  —

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  $r_i = 0.032 \sqrt{\frac{k(t/60)}{\phi \mu c_f}}$  ft