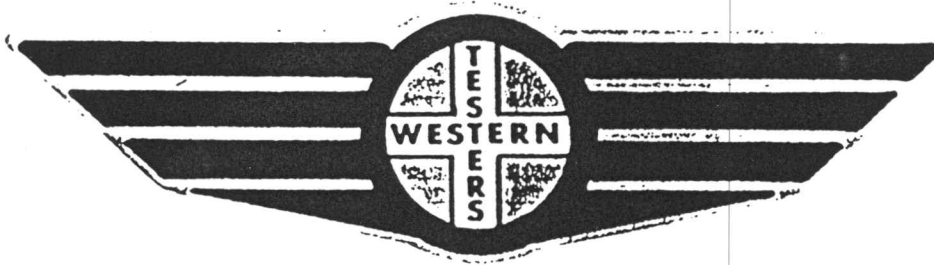


FORMATION TEST REPORT



Home Office:

Wichita, Kansas 67201

P.O. Box 1599

Phone (316) 262-5861

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE : 7-6-87
CUSTOMER : THUNDERBIRD DRILLING INC.
WELL : #1 TEST: 1
ELEVATION : 2073 GL
SECTION : 28
RANGE : 19W COUNTY : PAWNEE
GAUGE SN# : 13549 RANGE : 4100
TICKET : 12916
LEASE : WIEDEMAN
GEOLOGIST : S. PARKER
FORMATION : LANSING
TOWNSHIP : 21S
STATE : KANSAS
CLOCK : 12

INTERVAL FROM : 3826 TO : 3910 TOTAL DEPTH : 3910
DEPTH OF SELECTIVE ZONE :
PACKER DEPTH : 3821 SIZE : 6.63
PACKER DEPTH : 3826 SIZE : 6.63
PACKER DEPTH : SIZE :
PACKER DEPTH : SIZE :

DRILLING CON. : RED TIGER RIG #2
MUD TYPE : STARCH VISCOSITY : 38
WEIGHT : 9.8 WATER LOSS (CC) : 14
CHLORIDES (PPM) : 63000
JARS-MAKE : WTC SERIAL NUMBER : 411
DID WELL FLOW ? : REVERSED OUT ? :

DRILL COLLAR LENGTH : 0 FT I.D. inch : 0.00
WEIGHT PIPE LENGTH : 886 FT I.D. inch : 2.75
DRILL PIPE LENGTH : 2910 FT I.D. inch : 3.80
TEST TOOL LENGTH : 30 FT TOOL SIZE : 5.50
ANCHOR LENGTH : 84 FT ANCHOR SIZE : 5.50
SURFACE CHOKE SIZE : .75 IN BOTTOM CHOKE SIZE : .75
MAIN HOLE SIZE : 7.875 IN TOOL JOINT SIZE : 4.5 XH

BLOW COMMENT #1 : INITIAL LFOW-FAIR BLOW-OFF BOTTOM OM 5 MINUTES.
BLOW COMMENT #2 : FINAL FLOW-FAIR BLOW-OFF BOTTOM IN 6 MINUTES.
BLOW COMMENT #3 :
BLOW COMMENT #4 :

RECOVERED : 120 FT OF: 60% MUD-20% OIL-20% GAS
RECOVERED : 480 FT OF: 30% MUD-49% OIL-21% GAS
RECOVERED : 120 FT OF: 10% MUD-50% OIL-20% GAS-20% WATER
RECOVERED : 60 FT OF: 10% OIL-30% GAS-60% WATER
RECOVERED : 60 FT OF: 50% OIL-30% GAS-20% WATER

CHLORIDES: 95000 PPM

Total Barrels Fluid = 6.17
Total Fluid Prod Rate = 148.09 BFPD
Indicated Oil Rate = 57.83 BOPD
Indicated Wtr Rate = 14.10 BWPD

REMARK 1 :
REMARK 2 : RECOVERED 660 FEET OF GAS ABOVE FLUID.
REMARK 3 :
REMARK 4 :

SET PACKER(S) : 4:35 PM TIME STARTED OFF BOTTOM : 6:35 PM
WELL TEMPERATURE : 112
INITIAL HYDROSTATIC PRESSURE (A) 2003
INITIAL FLOW PERIOD MIN: 30 (B) 84 PSI TO (C) : 218
INITIAL CLOSED IN PERIOD MIN: 30 (D) 1307
FINAL FLOW PERIOD MIN: 30 (E) 271 PSI TO (F) : 360
FINAL CLOSED IN PERIOD MIN: 30 (G) 1281
FINAL HYDROSTATIC PRESSURE (H) 1954

WESTERN TESTING CO. INC.
WICHITA - KANSAS

Pressure Transient Report

COMPANY : THUNDERBIRD DRILLING INC.
RIG : PAWNEE-KANSAS
FIELD : WIEDEMAN
WELL : #1
DATE : 7-6-87
GAUGE NO : 13549

OPERATIONAL COMMENTS

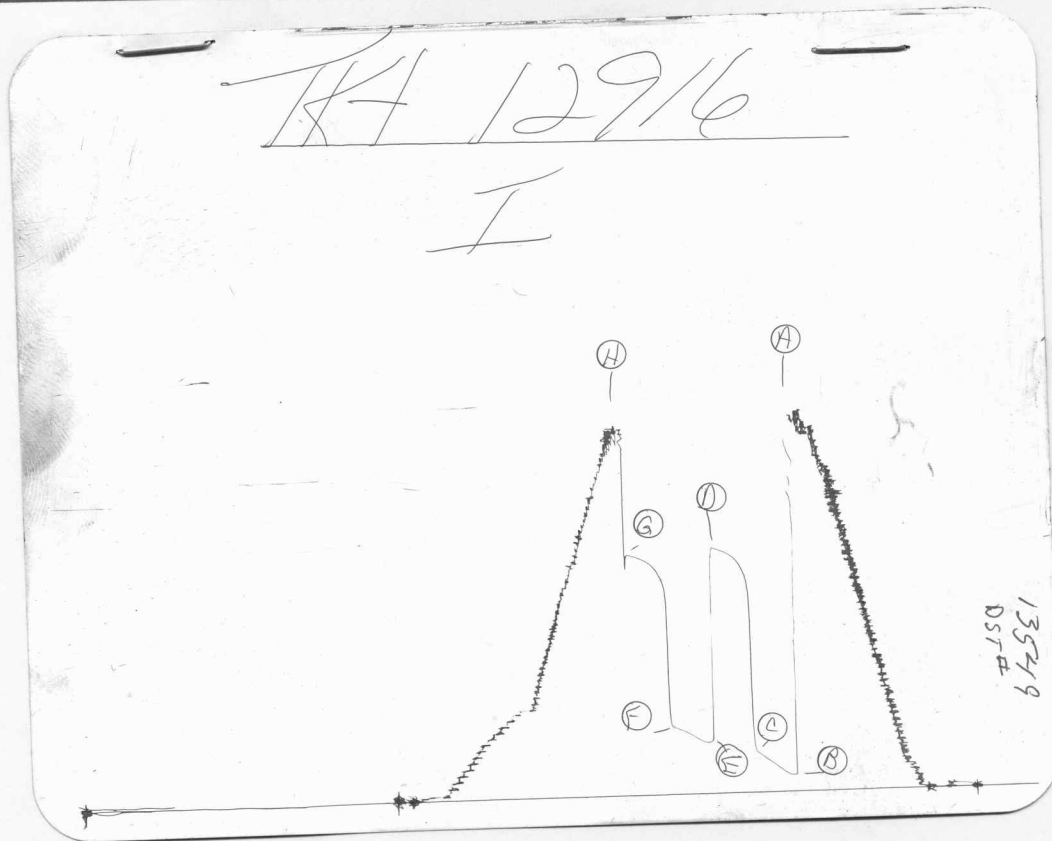
RECOVERED 660 FEET OF GAS ABOVE FLUID.

WELL : #1
GAUGE # : 13549
DATE : 6/ 7/87

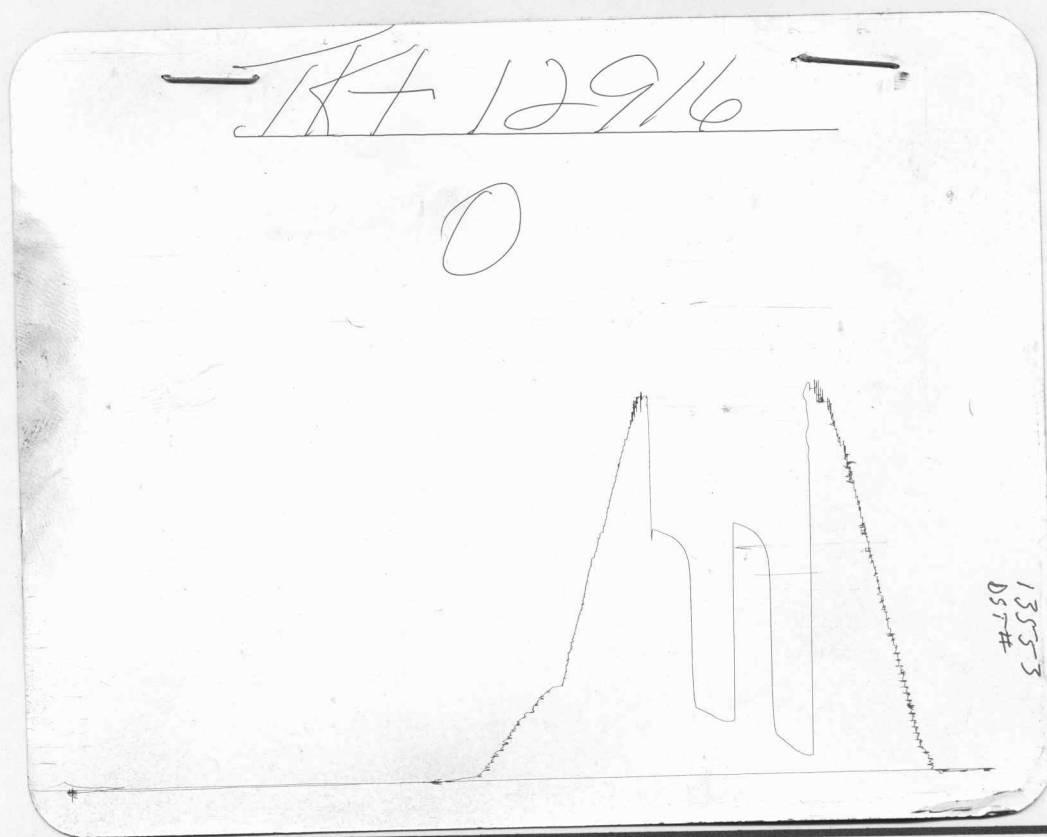
JOB # : 12916
DEPTH : 3910
TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
1	4:35: 0	0.000	84.000	112.00	0.000
2	4:39:59	0.083	84.000	112.00	0.000
3	4:45: 0	0.167	109.000	112.00	25.000
4	4:50: 0	0.250	139.000	112.00	30.000
5	4:54:59	0.333	164.000	112.00	25.000
6	5: 0: 0	0.417	192.000	112.00	28.000
7	5: 5: 0	0.500	218.000	112.00	26.000
8	5: 8: 0	0.550	1032.000	112.00	814.000
9	5:11: 0	0.600	1164.000	112.00	132.000
10	5:14: 0	0.650	1212.000	112.00	48.000
11	5:17: 0	0.700	1241.000	112.00	29.000
12	5:20: 0	0.750	1262.000	112.00	21.000
13	5:23: 0	0.800	1276.000	112.00	14.000
14	5:26: 0	0.850	1288.000	112.00	12.000
15	5:29: 0	0.900	1296.000	112.00	8.000
16	5:32: 0	0.950	1303.000	112.00	7.000
17	5:35: 0	1.000	1307.000	112.00	4.000
18	5:36: 0	1.017	271.000	112.00	-1036.000
19	5:39:59	1.083	271.000	112.00	0.000
20	5:45: 0	1.167	285.000	112.00	14.000
21	5:50: 0	1.250	306.000	112.00	21.000
22	5:54:59	1.333	328.000	112.00	22.000
23	6: 0: 0	1.417	345.000	112.00	17.000
24	6: 5: 0	1.500	360.000	112.00	15.000
25	6: 8: 0	1.550	1032.000	112.00	672.000
26	6:11: 0	1.600	1144.000	112.00	112.000
27	6:14: 0	1.650	1190.000	112.00	46.000
28	6:17: 0	1.700	1216.000	112.00	26.000
29	6:20: 0	1.750	1237.000	112.00	21.000
30	6:23: 0	1.800	1248.000	112.00	11.000
31	6:26: 0	1.850	1257.000	112.00	9.000
32	6:29: 0	1.900	1265.000	112.00	8.000
33	6:32: 0	1.950	1274.000	112.00	9.000
34	6:35: 0	2.000	1281.000	112.00	7.000

WESTERN TESTING CO. INC.



Inside Recorder



Outside Recorder

FORMATION TEST REPORT



Home Office:

Wichita, Kansas 67201

P.O. Box 1599

Phone (316) 262-5861

COMPANY THUNDERBIRD DRILLING, INC. LEASE & WELL NO. WIEDEMAN 1 SEC. 28 TWP. 21S RGE. 19W TEST NO. 2 DATE 7/7/87

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE : 7-7-87 TICKET : 12917
CUSTOMER : THUNDERBIRD DRILLING INC. LEASE : WIEDEMAN
WELL : #1 TEST: 2 GEOLOGIST : S. PARKER
ELEVATION : 2073 GL FORMATION : PAWNEE
SECTION : 28 TOWNSHIP : 21S
RANGE : 19W COUNTY : PAWNEE STATE : KANSAS
GAUGE SN# : 13549 RANGE : 4100 CLOCK : 12

INTERVAL FROM : 4006 TO : 4160 TOTAL DEPTH : 4160
DEPTH OF SELECTIVE ZONE :
PACKER DEPTH : 4001 SIZE : 6.63
PACKER DEPTH : 4006 SIZE : 6.63
PACKER DEPTH : SIZE :
PACKER DEPTH : SIZE :

DRILLING CON. : RED TIGER RIG #2
MUD TYPE : STARCH VISCOSITY : 44
WEIGHT : 9.5 WATER LOSS (CC) : 14.0
CHLORIDES (PPM) : 67000
JARS-MAKE : WTC SERIAL NUMBER : 411
DID WELL FLOW ? : - REVERSED OUT ? : -

DRILL COLLAR LENGTH : 0 FT I.D. inch : 0.00
WEIGHT PIPE LENGTH : 886 FT I.D. inch : 2.75
DRILL PIPE LENGTH : 3090 FT I.D. inch : 3.80
TEST TOOL LENGTH : 30 FT TOOL SIZE : 5.50
ANCHOR LENGTH : 154 FT ANCHOR SIZE : 5.50
SURFACE CHOKE SIZE : .75 IN BOTTOM CHOKE SIZE : .75
MAIN HOLE SIZE : 7.875 IN TOOL JOINT SIZE : 4.5 XH

BLOW COMMENT #1 : INITIAL FLOW-WEAK BLOW-BUILDING TO 1".
BLOW COMMENT #2 : FINAL FLOW-NO BLOW.
BLOW COMMENT #3 :
BLOW COMMENT #4 :

RECOVERED : 10 FT OF: MUD

Total Barrels Fluid = 0.07
Total Fluid Prod Rate = 1.76 BFPD
Indicated Wtr Rate = 0.18 BWPD

REMARK 1 :
REMARK 2 :
REMARK 3 :
REMARK 4 :

SET PACKER(S) : 3:30 AM

TIME STARTED OFF BOTTOM : 5:30 AM

WELL TEMPERATURE : 117

INITIAL HYDROSTATIC PRESSURE

(A) 2125

INITIAL FLOW PERIOD MIN: 30

(B) 38 PSI TO (C) : 38

INITIAL CLOSED IN PERIOD MIN: 30

(D) 82

FINAL FLOW PERIOD MIN: 30

(E) 51 PSI TO (F) : 51

FINAL CLOSED IN PERIOD MIN: 30

(G) 76

FINAL HYDROSTATIC PRESSURE

(H) 2094

WESTERN TESTING CO. INC.
WICHITA - KANSAS

Pressure Transient Report

COMPANY : THUNDERBIRD DRILLING IN
RIG : PAWNEE-KANSAS
FIELD : WIEDEMAN
WELL : #1
DATE : 7-7-87
GAUGE NO : 13549

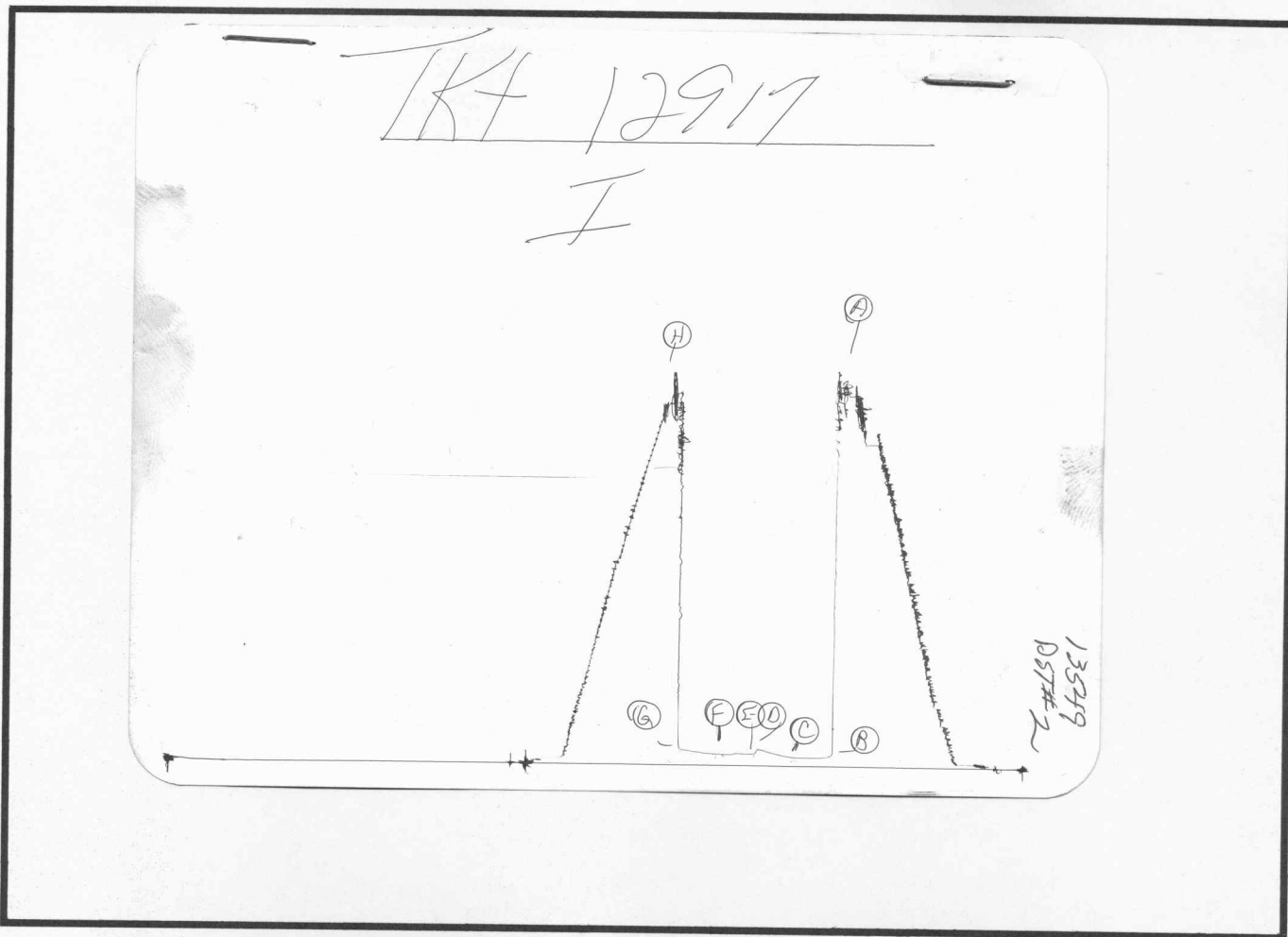
OPERATIONAL COMMENTS

WELL : #1
GAUGE # : 13549
DATE : 7/ 7/87

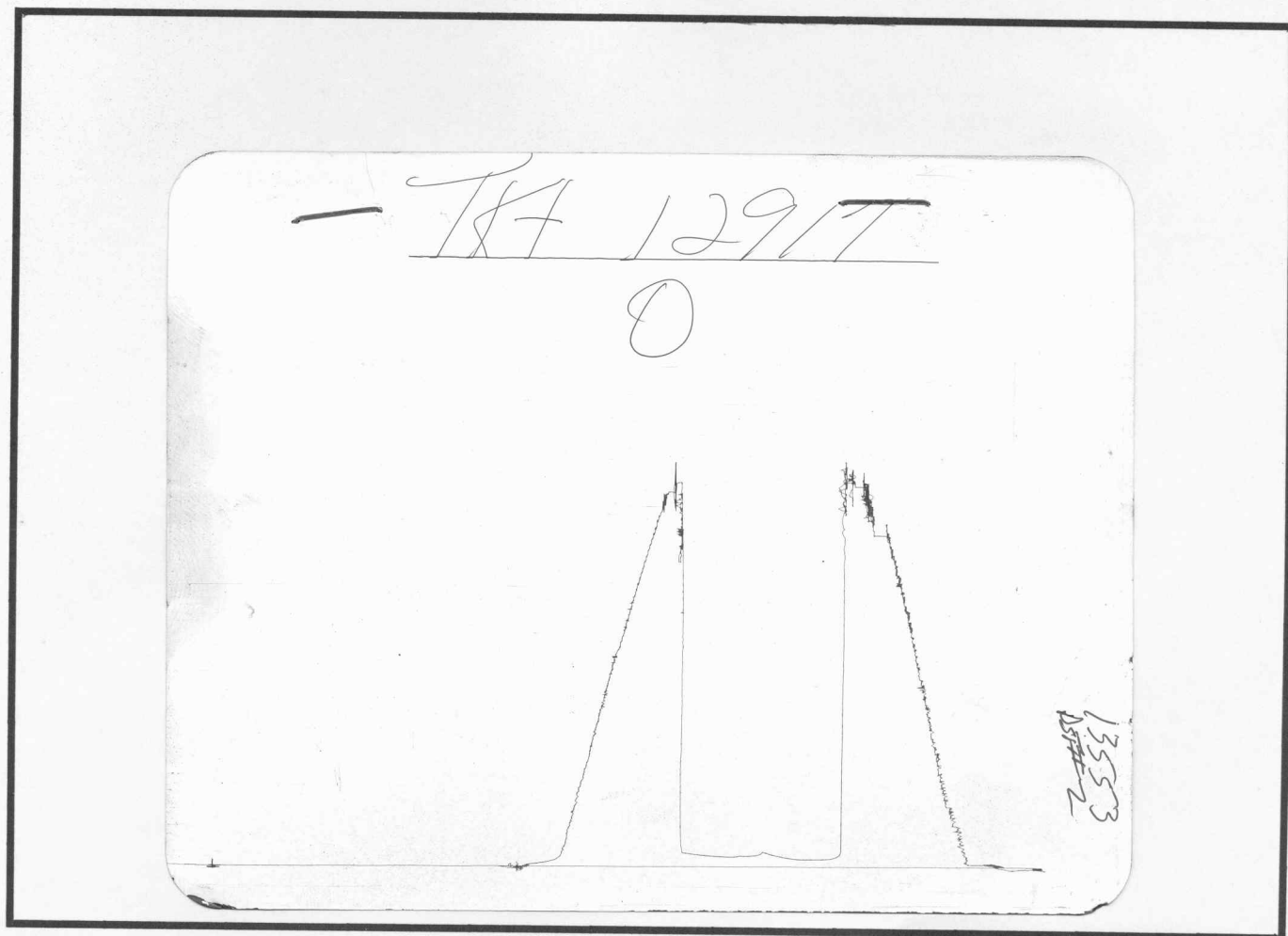
JOB # : 12917
DEPTH : 4160
TEST :

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
1	3:30: 0	0.000	38.000	117.00	0.000
2	3:34:59	0.083	38.000	117.00	0.000
3	3:40: 0	0.167	38.000	117.00	0.000
4	3:45: 0	0.250	38.000	117.00	0.000
5	3:49:59	0.333	38.000	117.00	0.000
6	3:55: 0	0.417	38.000	117.00	0.000
7	4: 0: 0	0.500	38.000	117.00	0.000
8	4: 3: 0	0.550	38.000	117.00	0.000
9	4: 6: 0	0.600	41.000	117.00	3.000
10	4: 9: 0	0.650	45.000	117.00	4.000
11	4:12: 0	0.700	49.000	117.00	4.000
12	4:15: 0	0.750	55.000	117.00	6.000
13	4:18: 0	0.800	60.000	117.00	5.000
14	4:21: 0	0.850	67.000	117.00	7.000
15	4:24: 0	0.900	73.000	117.00	6.000
16	4:27: 0	0.950	78.000	117.00	5.000
17	4:30: 0	1.000	82.000	117.00	4.000
18	4:31: 0	1.017	51.000	117.00	-31.000
19	4:34:59	1.083	51.000	117.00	0.000
20	4:40: 0	1.167	51.000	117.00	0.000
21	4:45: 0	1.250	51.000	117.00	0.000
22	4:49:59	1.333	51.000	117.00	0.000
23	4:55: 0	1.417	51.000	117.00	0.000
24	5: 0: 0	1.500	51.000	117.00	0.000
25	5: 3: 0	1.550	52.000	117.00	1.000
26	5: 6: 0	1.600	53.000	117.00	1.000
27	5: 9: 0	1.650	55.000	117.00	2.000
28	5:12: 0	1.700	58.000	117.00	3.000
29	5:15: 0	1.750	60.000	117.00	2.000
30	5:18: 0	1.800	64.000	117.00	4.000
31	5:21: 0	1.850	66.000	117.00	2.000
32	5:24: 0	1.900	69.000	117.00	3.000
33	5:27: 0	1.950	73.000	117.00	4.000
34	5:30: 0	2.000	76.000	117.00	3.000

WESTERN TESTING CO. INC.

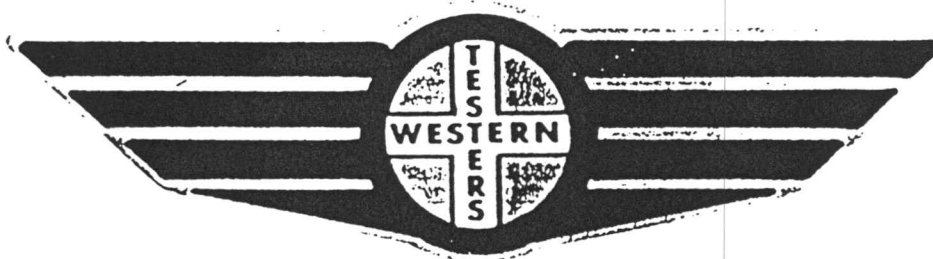


Inside Recorder



Outside Recorder

FORMATION TEST REPORT



Home Office:

Wichita, Kansas 67201

P.O. Box 1599

Phone (316) 262-5861

COMPANY THUNDERBIRD DRILLING, INC. LEASE & WELL NO. WIEDEMAN 1 SEC. 28 TWP. 21S RGE. 19W TEST NO. 3 DATE 7/8/87

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

DATE : 7-8-87
CUSTOMER : THUNDERBIRD DRILLING INC.
WELL : #1 TEST: 3
ELEVATION : 2073 GL
SECTION : 28
RANGE : 19W COUNTY : PAWNEE
GAUGE SN# : 13549 RANGE : 4100
TICKET : 12918
LEASE : WIEDEMAN
GEOLOGIST : S. PARKER
FORMATION : CHEROKEE SD
TOWNSHIP : 21S
STATE : KANSAS
CLOCK : 12

INTERVAL FROM : 4174 TO : 4196 TOTAL DEPTH : 4196
DEPTH OF SELECTIVE ZONE :
PACKER DEPTH : 4169 SIZE : 6.63
PACKER DEPTH : 4174 SIZE : 6.63
PACKER DEPTH : SIZE :
PACKER DEPTH : SIZE :

DRILLING CON. : RED TIGER RIG #2
MUD TYPE : STARCH VISCOSITY : 39
WEIGHT : 9.6 WATER LOSS (CC) : 13.6
CHLORIDES (PPM) : 61000
JARS-MAKE : WTC SERIAL NUMBER : 411
DID WELL FLOW ? : REVERSED OUT ? :

DRILL COLLAR LENGTH : 0 FT I.D. inch : 0.00
WEIGHT PIPE LENGTH : 886 FT I.D. inch : 2.75
DRILL PIPE LENGTH : 3258 FT I.D. inch : 3.80
TEST TOOL LENGTH : 30 FT TOOL SIZE : 5.50
ANCHOR LENGTH : 22 FT ANCHOR SIZE : 5.50
SURFACE CHOKE SIZE : .75 IN BOTTOM CHOKE SIZE : .75
MAIN HOLE SIZE : 7.875 IN TOOL JOINT SIZE : 4.5 XH

BLOW COMMENT #1 : INITIAL FLOW-WEAK BLOW OFF BOTTOM IN 10 MINUTES.
BLOW COMMENT #2 :
BLOW COMMENT #3 :
BLOW COMMENT #4 :

RECOVERED : 260 FT OF: MUDDY WATER
10% MUD-90% WATER

CHLORIDES: 120000 PPM

Total Barrels Fluid = 1.91
Total Fluid Prod Rate = 183.35 BFPD
Indicated Wtr Rate = 162.20 BWPD

REMARK 1 : FLUSHED TOOL.
REMARK 2 : SLID TOOL 8 FEET TO BOTTOM.
REMARK 3 :
REMARK 4 :

SET PACKER(S) :	8:15 PM	TIME STARTED OFF BOTTOM :	8:30 PM
WELL TEMPERATURE :	119		
INITIAL HYDROSTATIC PRESSURE		(A)	2200
INITIAL FLOW PERIOD MIN:	15	(B)	94 PSI TO (C) : 128
INITIAL CLOSED IN PERIOD MIN:	0	(D)	0
FINAL FLOW PERIOD MIN:	0	(E)	0 PSI TO (F) : 0
FINAL CLOSED IN PERIOD MIN:	0	(G)	0
FINAL HYDROSTATIC PRESSURE		(H)	2159

WESTERN TESTING CO. INC.
WICHITA - KANSAS

Pressure Transient Report

COMPANY : THUNDERBIRD DRILLING INC.
RIG : PAWNEE-KANSAS
FIELD : WIEDEMAN
WELL : #1
DATE : 7-8-87
GAUGE NO : 13549

OPERATIONAL COMMENTS

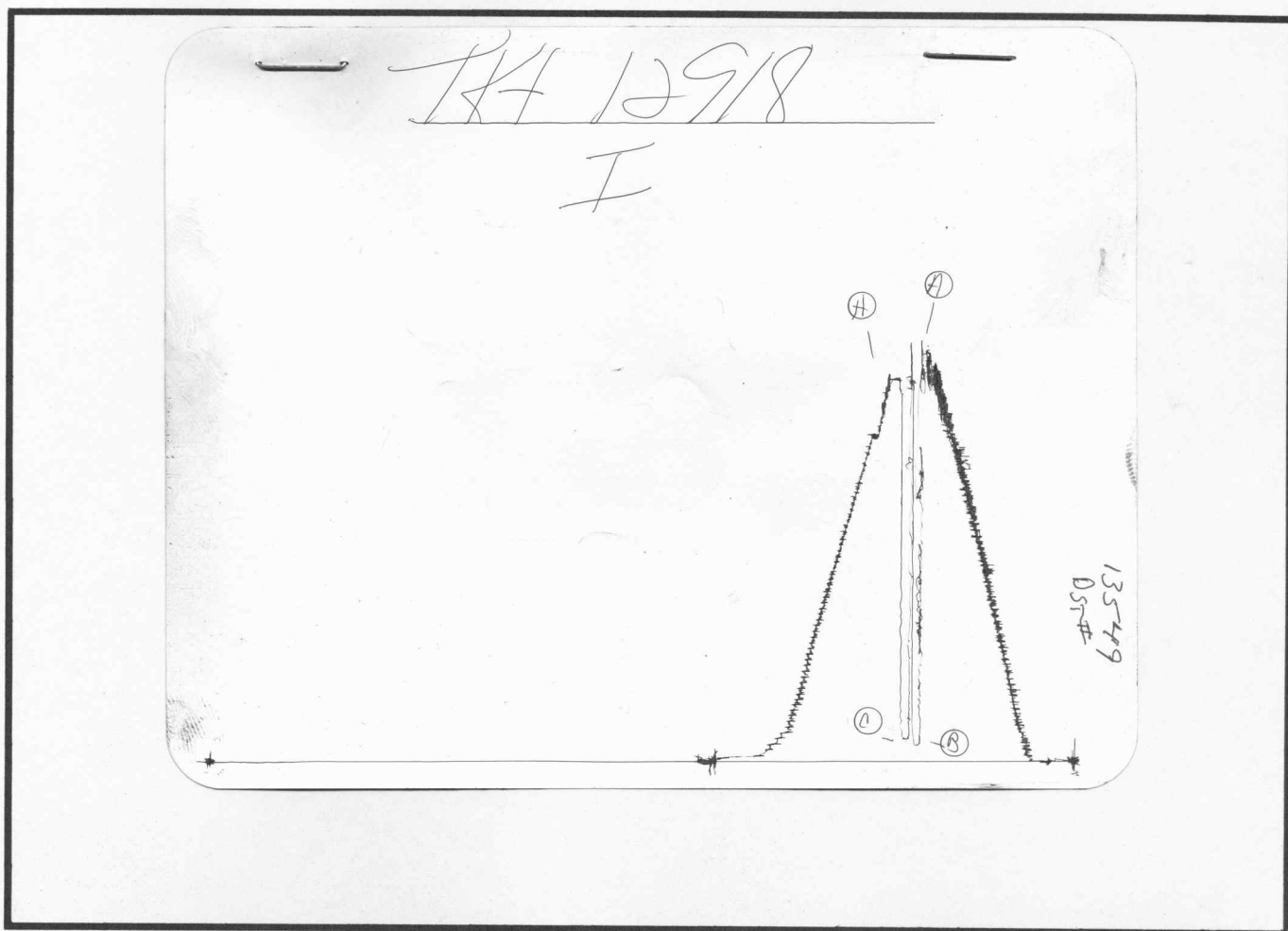
FLUSHED TOOL.
SLID TOOL 8 FEET TO BOTTOM.

WELL : #1
GAUGE # : 13549
DATE : 8/ 7/87

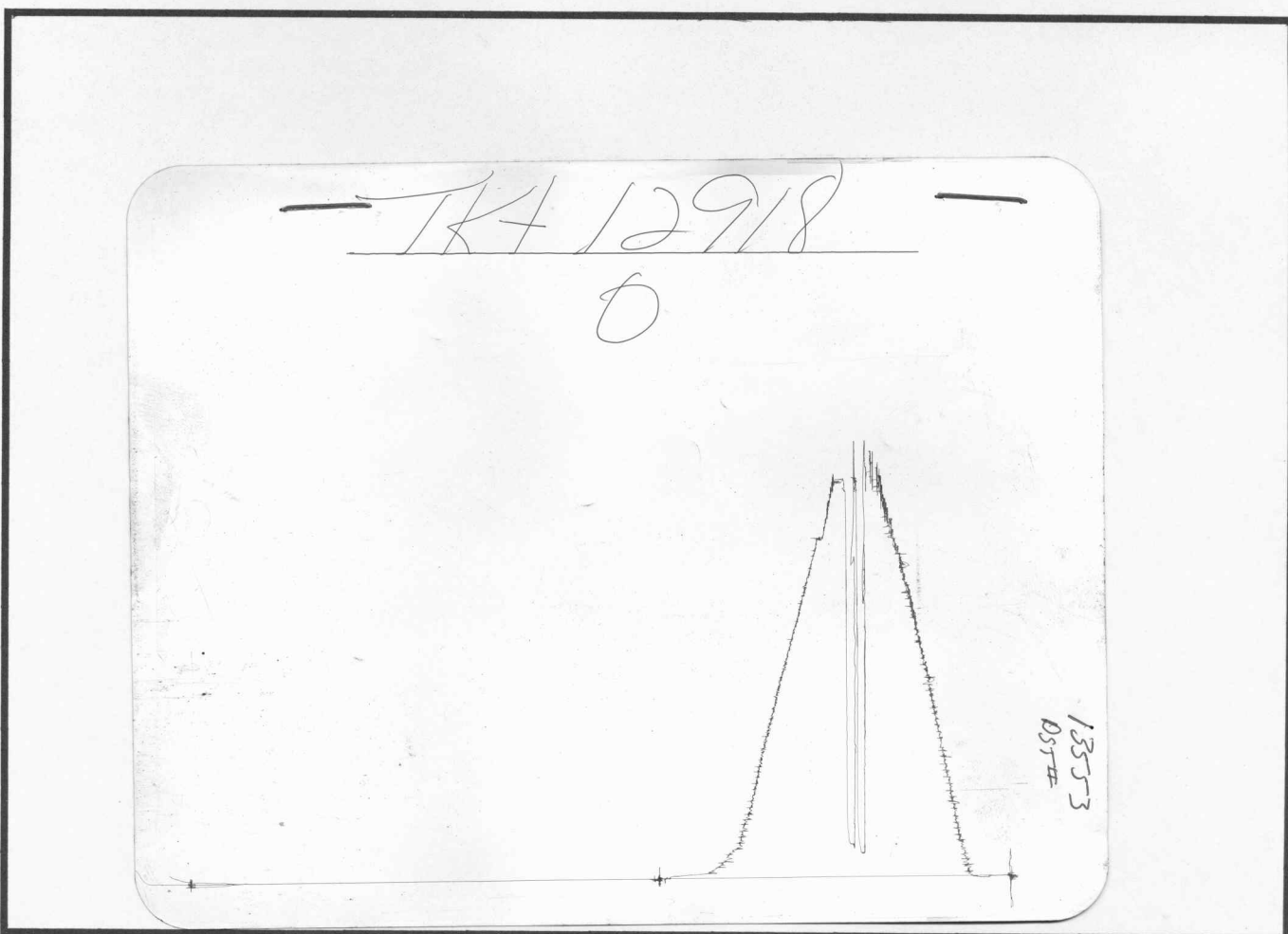
JOB # : 12918
DEPTH : 4196
TEST : FLUSHED TOOL.

DATA No.	REAL TIME HR:MN:SS	ELAPSE TIME DELTA HOURS	PRESSURE PSIG	TEMP DEG F	DELTA P Pi-P(i-1)
1	8:15: 0	0.000	94.000	119.00	0.000
2	8:19:59	0.083	94.000	119.00	0.000
3	8:25: 0	0.167	128.000	119.00	34.000
4	8:30: 0	0.250	128.000	119.00	0.000

WESTERN TESTING CO. INC.



Inside Recorder



Outside Recorder