SUPERIOR TESTERS

368 West Second, Hoisington, Kansas

COMPANY Mull Drilling Company STATE Kansas COUNTY Lane

LEASE & WELL NO. Hanks # 1 'B' ELEVATION 2704 KB. DATE 4/4/83 FORMATION TESTED Kansas City

SEC 21 TWP 17 RANGE 22 INTERVAL TESTED 4175 TO 4198 TOTAL DEPTH 4198

TEST NO. # 1 O.K. yes TOP PACKER DEPTH 4170 FT. BOTTOM PACKER DEPTH 4175 FT. PACKER SIZE 6 & 3/4

STRADDLE no CONV. yes TOOL SIZE 5½ OD. TOOL JOINT SIZE 4½ FH. ANCHOR LENGTH 23 FT.

HOLE SIZE 7 & 7/8 EXTRA EQUIPMENT none SURFACE CHOKE SIZE ½ IN. BOTTOM CHOKE SIZE ½ IN.

REVERSED OUT no VICOSITY 51 WEIGHT 9.2 DUAL PACKERS yes DID PACKER HOLD yes DID TOOL PLUG no

DRILLING CONTRACTOR Murfin # 23

TOOL JOINT SIZE 4½ XH. IN. LENGTH DRILL PIPE 3351 FT. I.D. DRILL PIPE 3.80 IN.

TOOL JOINT SIZE 4½ XH. IN. LENGTH WEIGHT PIPE 478 FT. I.D. WEIGHT PIPE 2.75 IN.

TOOL JOINT SIZE 4½ XH. IN. LENGTH DRILL COLLARS 369 FT. I.D. DRILL COLLARS 2.25 IN.

TOOL OPEN I.F.P. FROM 7:45 a. m to 8:15 a. m Hr. 30 min From (B) 52 P.S.I. to (C) 84 P.S.I.

TOOL CLOSED I.C.I.P. FROM 8:15 a. m to 9:00 a. Hr. 45 min (D) 1195 P.S.I.

TOOL OPEN F.F.P. FROM 9:00 a. m to 10:00 a. m Hr. 60 min From (E) 126 P.S.I. to (F) 199 P.S.I.

TOOL CLOSED F.C.I.P. FROM 10:00 a. m to 11:00 a. m Hr. 60 min (G) 1154 P.S.I.

INITIAL HYDROSTATIC PRESSURE (A) 2020 P.S.I. FINAL HYDROSTATIC PRESSURE (H) 2000 MAXIMUM TEMPERATURE 115 °F

BLOW Weak built to strong blow in 8 minutes 1st opening.

Weak built to strong blow in 10 minutes 2nd opening.

RECOVERY - TOTAL FEET 520

RECOVERED 390 FEET OF Gassy Oil.

RECOVERED 130 FEET OF Gassy Oil cut mud.

RECOVERED FEET OF

RECOVERED 1080 FEET OF Gas in the pipe.

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

REMARKS None.

TICKET NO. 7073

WITNESSED BY Vernon Schnag TOOL OPERATOR Craig Bucl

D.S.T. # 1

I.-2025

F.-2020

SUPERIOR TESTERS INC.
368 West 2nd St.
Hoisington, Kansas 67544

PRESSURE BREAKDOWN

First Flow Press.	Initial Shut-In	Second Flow Pressure	Final Shut-In
Breakdown: 5 Inc.	Breakdown: 9 Inc.	Breakdown: 11 Inc.	Breakdown: 12 Inc.
of 5 mins. and a	of 5 mins. and a	of 5 mins. and a	of 5 mins. and a
final inc. of 2 Min.	final inc. of 0 Min.	final inc. of 2 Min.	final inc. of 0 Min.
Time Given: 30 Mins.	Time Given: 45 Mins.	Time Given: 60 Mins.	Time Given: 60 Mins.
Time Computed: 27 Mins.	Time Computed: 45 Mins.	Time Computed: 57 Mins.	Time Computed: 60 Mins.

Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 0	= 63	0	= 88	0	= 136	0	= 201
P 2 5	= 63	5	= 577	5	= 140	5	= 703
P 3 10	= 63	10	= 1070	10	= 140	10	= 1002
P 4 15	= 69	15	= 1118	15	= 144	15	= 1043
P 5 20	= 75	20	= 1143	20	= 144	20	= 1064
P 6 25	= 84	25	= 1160	25	= 151	25	= 1085
P 7 27	= 88	30	= 1175	30	= 157	30	= 1102
P 8	=	35	= 1185	35	= 165	35	= 1114
P 9	=	40	= 1195	40	= 174	40	= 1127
P10	=	45	= 1204	45	= 182	45	= 1135
P11	=		=	50	= 191	50	= 1143
P12	=		=	55	= 197	55	= 1147
P13	=		=	57	= 201	60	= 1154
P14	=		=		=		=
P15	=		=		=		=
P16	=		=		=		=
P17	=		=		=		=
P18	=		=		=		=
P19	=		=		=		=
P20	=		=		=		=
P21	=		=		=		=
P22	=		=		=		=
P23	=		=		=		=
P24	=		=		=		=
P25	=		=		=		=
	=		=		=		=

Superior Testers, Inc.

Derby, Kansas (316) 788-2631 Great Bend, Kansas (316) 792-6902 Hays, Kansas (913) 628-3209

DRILL STEM TEST RECOVERY ANALYSIS

Company Mull Drilling Company Sec. 21 Twp. 17 Rge. 27

Lease Hanks # 1 County Lane State Kansas D.S.T.# 1

Visual D.S.T.

1 **Recovery**

1080 Gas in the pipe.
390 Gassy Oil.
130 Gas & Oil cut mud.

CENTRIFUGE PERCENTAGE ANALYSIS

Sample #	Feet of FLUID	Percent of GAS	Percent of OIL	Percent of WATER	Percent of MUD
1	390	20	80	0	0
2	10	17	46	2	35
3	60	30	21	2	47
4	60	20	19	11	50

CALCULATED FLUID RECOVERY FROM PERCENTAGES

(Formula for Calculation)

Percent of Individual Fluid x Total Footage Represented in Sample

SAMPLE #	TOTAL FOOTAGE	GAS %	×	Total	=	Feet	OIL %	×	Total	=	Feet	WATER %	×	Total	=	Feet	MUD %	×	Total	=	Feet
1	390	20	×	390	=	78	80	×	390	=	312	0	×	390	=	0	0	×	390	=	0
2	10	17	×	10	=	1.7	46	×	10	=	4.6	2	×	10	=	.2	35	×	10	=	3.5
3	60	30	×	60	=	18	21	×	60	=	12.6	2	×	60	=	1.2	47	×	60	=	28.2
4	60	20	×	60	=	12	19	×	60	=	11.4	11	×	60	=	6.6	50	×	60	=	30
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
TOTALS				109.7					340.6					18.8					61.7		

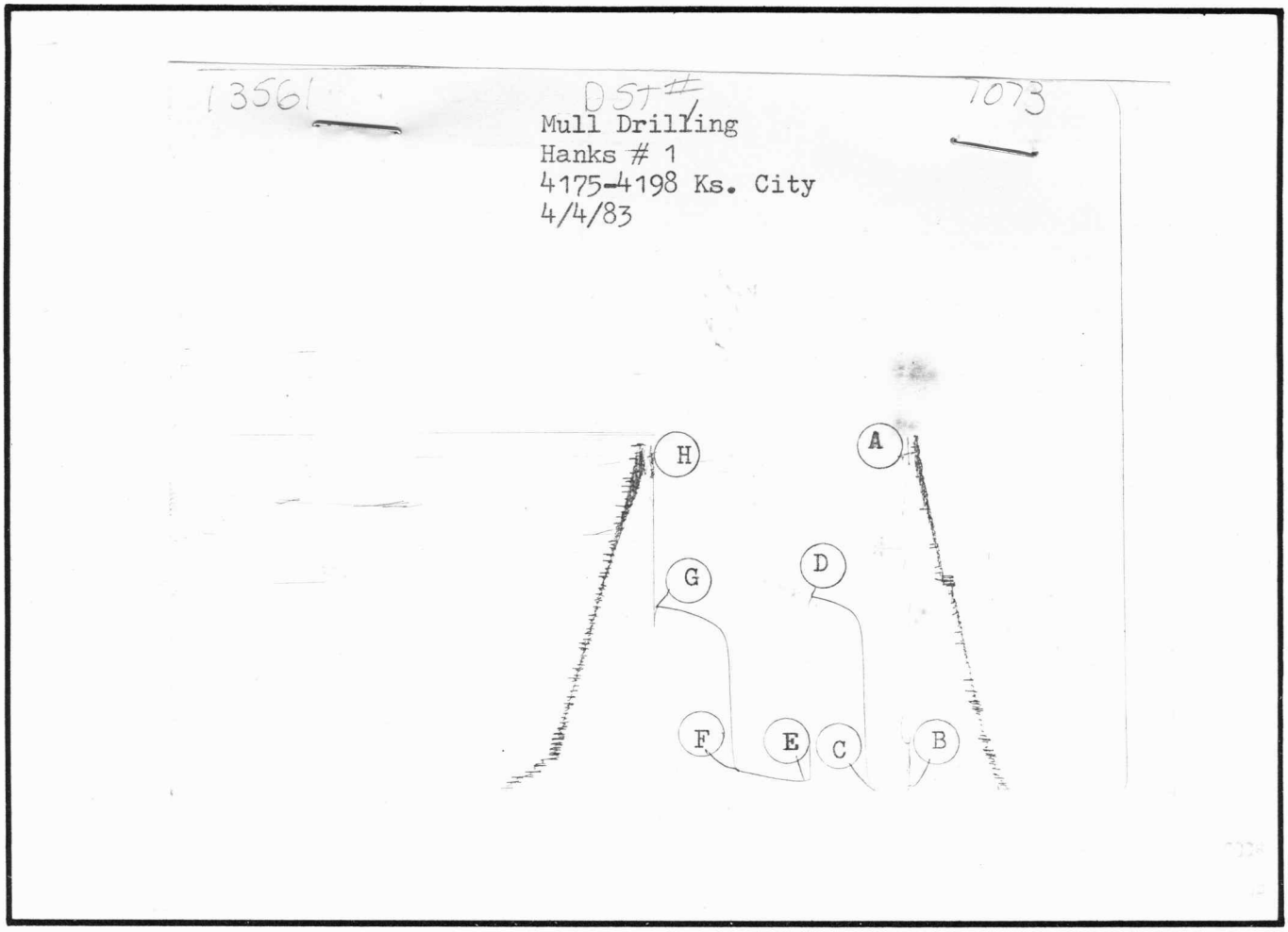
Calculated D.S.T. Recovery =

Gas	109.7	Feet
Oil	340.6	Feet
Wtr.	18.8	Feet
Mud	61.7	Feet
Total Fluid	530.8	Feet

Chlorides Mud System _____

Chlorides D.S.T. Water _____

Gravity of Oil _____



This is an actual photograph of recorder chart.

POINT		PRESSURE FIELD READING	PRESSURE OFFICE READING	
(A)	Initial Hydrostatic Mud	2020	2025	P.S.I.
(B)	First Initial Flow Pressure	52	63	P.S.I.
(C)	First Final Flow Pressure	84	88	P.S.I.
(D)	Initial Closed-in Pressure	1195	1204	P.S.I.
(E)	Second Initial Flow Pressure	126	136	P.S.I.
(F)	Second Final Flow Pressure	199	201	P.S.I.
(G)	Final Closed-in Pressure	1154	1154	P.S.I.
(H)	Final Hydrostatic Mud	2000	2020	P.S.I.

COMPANY Mull Drilling Company LEASE- WELL NO. Hanks # 1 SEC. 21 TWP. 17 RGE. 27 TEST NO. 1 DATE

SUPERIOR TESTERS

368 West Second, Hoisington, Kansas

COMPANY Mull Drilling Company STATE Kansas COUNTY Lane

LEASE & WELL NO. Hanks # 1 'B' ELEVATION 2704 KB. DATE 4/5/83 FORMATION TESTED Kansas City

SEC 21 TWP 17 RANGE 27 INTERVAL TESTED 4243 TO 4263 TOTAL DEPTH 4263

TEST NO. # 2 O.K. yes TOP PACKER DEPTH 4238 FT. BOTTOM PACKER DEPTH 4243 FT. PACKER SIZE 6 & 3/4

STRADDLE no CONV. yes TOOL SIZE 5½ OD. TOOL JOINT SIZE 4½ FH. ANCHOR LENGTH 20 FT.

HOLE SIZE 7 & 7/8 EXTRA EQUIPMENT none SURFACE CHOKE SIZE ½ IN. BOTTOM CHOKE SIZE ½ IN.

REVERSED OUT no VICOSITY 42 WEIGHT 9.1 DUAL PACKERS yes DID PACKER HOLD yes DID TOOL PLUG no

DRILLING CONTRACTOR Murfin # 23

TOOL JOINT SIZE 4½ XH. IN. LENGTH DRILL PIPE 3416 FT. I.D. DRILL PIPE 3.80 IN.

TOOL JOINT SIZE 4½ XH. IN. LENGTH WEIGHT PIPE 478 FT. I.D. WEIGHT PIPE 2.75 IN.

TOOL JOINT SIZE 4½ XH. IN. LENGTH DRILL COLLARS 367 FT. I.D. DRILL COLLARS 2.25 IN.

TOOL OPEN I.F.P. FROM 2:15 p. m to 2:45 p. m Hr. 30 min From (B) 94 P.S.I. to (C) 310 P.S.I.

TOOL CLOSED I.C.I.P. FROM 2:45 p. m to 3:30 p. m Hr. 45 min (D) 871 P.S.I.

TOOL OPEN F.F.P. FROM 3:30 p. m to 4:30 p. m Hr. 60 min From (E) 283 P.S.I. to (F) 388 P.S.I.

TOOL CLOSED F.C.I.P. FROM 4:30 p. m to 5:30 p. m Hr. 60 min (G) 871 P.S.I.

INITIAL HYDROSTATIC PRESSURE (A) 2062 P.S.I. FINAL HYDROSTATIC PRESSURE (H) 2041 MAXIMUM TEMPERATURE 124F

BLOW Weak built to strong blow in 5 minutes 1st opening.

Weak built to strong blow in 9 minutes 2nd opening.

RECOVERY - TOTAL FEET 900

RECOVERED 225 FEET OF Gassy muddy Oil.

RECOVERED 300 FEET OF Gassy slightly muddy Oil.

RECOVERED 375 FEET OF Gas cut water.

RECOVERED FEET OF

RECOVERED 1100 FEET OF Gas in the pipe.

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

REMARKS None.

TICKET NO. 7074

WITNESSED BY Vernon Schrag TOOL OPERATOR Craig Bucl

SUPERIOR TESTERS INC.
368 West 2nd St.
Hoisington, Kansas 67544

D.S.T. # 2

I.-2073

F.-2041

PRESSURE BREAKDOWN

First Flow Press.	Initial Shut-In	Second Flow Pressure	Final Shut-In
Breakdown: 6 Inc.	Breakdown: 9 Inc.	Breakdown: 11 Inc.	Breakdown: 12 Inc.
of 5 mins. and a	of 5 mins. and a	of 5 mins. and a	of 5 mins. and a
final inc. of 0 Min.	final inc. of 0 Min.	final inc. of 2 Min.	final inc. of 3 Min.
Time Given: 30 Mins.	Time Given: 45 Mins.	Time Given: 60 Mins.	Time Given: 60 Mins.
Time Computed: 30 Mins.	Time Computed: 45 Mins.	Time Computed: 57 Mins.	Time Computed: 63 Mins.

Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 0	94	0	237	0	287	0	386
P 2 5	96	5	756	5	289	5	714
P 3 10	113	10	792	10	292	10	787
P 4 15	136	15	823	15	304	15	810
P 5 20	161	20	840	20	315	20	827
P 6 25	184	25	850	25	325	25	842
P 7 30	237	30	861	30	340	30	848
P 8		35	867	35	348	35	855
P 9		40	873	40	357	40	861
P10		45	878	45	365	45	865
P11				50	371	50	867
P12				55	380	55	869
P13				57	386	60	871
P14						63	871
P15							
P16							
P17							
P18							
P19							
P20							
P21							
P22							
P23							
P24							
P25							

Superior Testers, Inc.

Derby, Kansas (316) 788-2631 Great Bend, Kansas (316) 792-6902 Hays, Kansas (913) 628-3209

DRILL STEM TEST RECOVERY ANALYSIS

Company Mull Drilling Company Sec. 21 Twp. 17 Rge. 27

Lease Hanks # 1 County Lane State Kansas D.S.T.# 2

Visual D.S.T. Recovery 1100 Gas in the pipe, 225 Gassy muddy Oil, 300' Gassy slightly muddy Oil, 375' Gas cut water.

CENTRIFUGE PERCENTAGE ANALYSIS

Sample #	Feet of FLUID	Percent of GAS	Percent of OIL	Percent of WATER	Percent of MUD
1	45	10	35	5	50
2	60	25	40	10	25
3	120	45	40	10	05
4	60	14	75	10	01
5	120	34	63	02	01
6	120	35	60	05	0
7	375	0	0	95	05

CALCULATED FLUID RECOVERY FROM PERCENTAGES

(Formula for Calculation)

Percent of Individual Fluid x Total Footage Represented in Sample

SAMPLE #	TOTAL FOOTAGE	GAS %	×	Total	=	Feet	OIL %	×	Total	=	Feet	WATER %	×	Total	=	Feet	MUD %	×	Total	=	Feet
1	45	10	×	45	=	4.5	35	×	45	=	15.7	95	×	45	=	2.2	50	×	45	=	22.5
2	60	25	×	60	=	15	40	×	60	=	24	10	×	60	=	6	25	×	60	=	15
3	120	45	×	120	=	54	40	×	120	=	48	10	×	120	=	12	5	×	120	=	6
4	60	14	×	60	=	8.4	75	×	60	=	45	10	×	60	=	6	1	×	60	=	.6
5	120	34	×	120	=	40.8	63	×	120	=	75.6	02	×	120	=	2.4	1	×	120	=	1.2
6	120	35	×	120	=	42	60	×	120	=	72	05	×	120	=	6	0	×	120	=	0
7	375	0	×	375	=	00	0	×	375	=	00	95	×	375	=	356.25	5	×	375	=	18.7
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
TOTALS						164.7					280.3					390.9					64

Calculated D.S.T. Recovery =

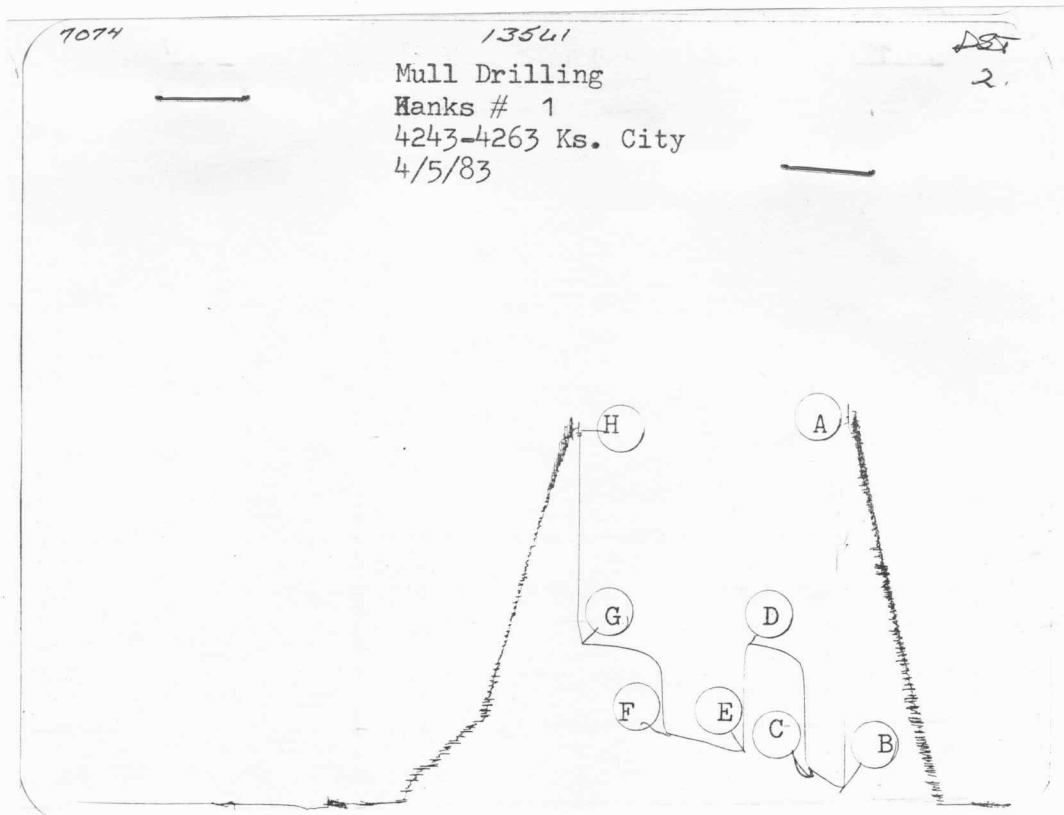
Gas	164.7	Feet
Oil	280.3	Feet
Wtr.	390.9	Feet
Mud	64	Feet
Total Fluid	900	Feet

Chlorides Mud System 15,000

Chlorides D.S.T. Water 60,000

Gravity of Oil

COMPANY Mull Drilling Company LEASE- WELL NO. Hanks # 1 SEC. 21 TWP. 11 RGE. 21 TEST NO. 1 DATE 4/5/83



This is an actual photograph of recorder chart.

POINT		PRESSURE FIELD READING	PRESSURE OFFICE READING	
(A)	Initial Hydrostatic Mud	2062	2073	P.S.I.
(B)	First Initial Flow Pressure	94	94	P.S.I.
(C)	First Final Flow Pressure	210	237	P.S.I.
(D)	Initial Closed-in Pressure	871	878	P.S.I.
(E)	Second Initial Flow Pressure	283	287	P.S.I.
(F)	Second Final Flow Pressure	388	386	P.S.I.
(G)	Final Closed-in Pressure	871	871	P.S.I.
(H)	Final Hydrostatic Mud	2041	2041	P.S.I.

SUPERIOR TESTERS

368 West Second, Hoisington, Kansas

COMPANY Mull Drilling Company STATE Kansas COUNTY Lane

LEASE & WELL NO. Hanks # 1 'B' ELEVATION 2707 KB. DATE 4/6/83 FORMATION TESTED Kansas City

SEC 21 TWP 17 RANGE 27 INTERVAL TESTED 4280 TO 4298 TOTAL DEPTH 4298

TEST NO. # 3 O.K. yes TOP PACKER DEPTH 4275 FT. BOTTOM PACKER DEPTH 4280 FT. PACKER SIZE 6 & 3/4

STRADDLE no CONV. yes TOOL SIZE 5½ OD. TOOL JOINT SIZE 4½ FH. ANCHOR LENGTH 18 FT.

HOLE SIZE 7 & 7/8 EXTRA EQUIPMENT none SURFACE CHOKE SIZE ½ IN. BOTTOM CHOKE SIZE ½ IN.

REVERSED OUT no VICOSITY 42 WEIGHT 9.1 DUAL PACKERS yes DID PACKER HOLD yes DID TOOL PLUG no

DRILLING CONTRACTOR Murfin # 23

TOOL JOINT SIZE 4½ XH. IN. LENGTH DRILL PIPE 3412 FT. I.D. DRILL PIPE 3.80 IN.

TOOL JOINT SIZE 4½ XH. IN. LENGTH WEIGHT PIPE 478 FT. I.D. WEIGHT PIPE 2.75 IN.

TOOL JOINT SIZE 4½ XH. IN. LENGTH DRILL COLLARS 369 FT. I.D. DRILL COLLARS 2.25 IN.

TOOL OPEN I.F.P. FROM 6:45 a. m to 7:15 a. m Hr. 30 min From (B) 52 P.S.I. to (C) 73 P.S.I.

TOOL CLOSED I.C.I.P. FROM 7:15 a. m to 8:00 a. Hr. 45 min (D) 1112 P.S.I.

TOOL OPEN F.F.P. FROM 8:00 a. m to 9:00 a. m Hr. 60 min From (E) 115 P.S.I. to (F) 157 P.S.I.

TOOL CLOSED F.C.I.P. FROM 9:00 a. m to 10:00 a. m Hr. 60 min (G) 1102 P.S.I.

INITIAL HYDROSTATIC PRESSURE (A) 2052 P.S.I. FINAL HYDROSTATIC PRESSURE (H) 2031 MAXIMUM TEMPERATURE 121 °F

BLOW Weak built to strong blow in 14 minutes 1st opening.

Weak built to strong blow in 12 minutes 2nd opening.

RECOVERY - TOTAL FEET 370

RECOVERED 130 FEET OF Gassy slightly muddy Oil.

RECOVERED 240 FEET OF Gas & Oil cut mud.

RECOVERED FEET OF

RECOVERED 690 FEET OF Gas in the pipe.

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

REMARKS Slid tool 2 ft. to bottom.

TICKET NO. 7075

WITNESSED BY Vernon Schrag TOOL OPERATOR Craig Bucl

D.S.T. # 3

I.-1989

F.-1985

SUPERIOR TESTERS INC.
368 West 2nd St.
Hoisington, Kansas 67544

PRESSURE BREAKDOWN

First Flow Press.	Initial Shut-In	Second Flow Pressure	Final Shut-In
Breakdown: 6 Inc.	Breakdown: 9 Inc.	Breakdown: 11 Inc.	Breakdown: 12 Inc.
of 5 mins. and a	of 5 mins. and a	of 5 mins. and a	of 5 mins. and a
final inc. of 0 Min.	final inc. of 0 Min.	final inc. of 3 Min.	final inc. of 0 Min.
Time Given: 30 Mins.	Time Given: 45 Mins.	Time Given: 60 Mins.	Time Given: 60 Mins.
Time Computed: 30 Mins.	Time Computed: 45 Mins.	Time Computed: 58 Mins.	Time Computed: 60 Mins.

Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 0	= 58	0	= 67	0	= 113	0	= 159
P 2 5	= 58	5	= 285	5	= 113	5	= 306
P 3 10	= 58	10	= 981	10	= 113	10	= 972
P 4 15	= 58	15	= 1056	15	= 117	15	= 1027
P 5 20	= 60	20	= 1070	20	= 117	20	= 1050
P 6 25	= 65	25	= 1083	25	= 121	25	= 1062
P 7 30	= 67	30	= 1093	30	= 128	30	= 1064
P 8	=	35	= 1102	35	= 134	35	= 1081
P 9	=	40	= 1106	40	= 140	40	= 1087
P10	=	45	= 1108	45	= 147	45	= 1093
P11	=		=	50	= 151	50	= 1095
P12	=		=	55	= 157	55	= 1097
P13	=		=	58	= 159	60	= 1100
P14	=		=		=		=
P15	=		=		=		=
P16	=		=		=		=
P17	=		=		=		=
P18	=		=		=		=
P19	=		=		=		=
P20	=		=		=		=
P21	=		=		=		=
P22	=		=		=		=
P23	=		=		=		=
P24	=		=		=		=
P25	=		=		=		=
	=		=		=		=

Superior Testers, Inc.

Derby, Kansas (316) 788-2631 Great Bend, Kansas (316) 792-6902 Hays, Kansas (913) 628-3209

DRILL STEM TEST RECOVERY ANALYSIS

Company Mull Drilling Company Sec. 21 Twp. 17 Rge. 27

Lease Hanks # 1 County Lane State Kansas D.S.T.# 3

Visual D.S.T. Recovery

690' Gas in the pipe, 130' Gassy slightly muddy Oil,
240' Gas & Oil cut mud.

CENTRIFUGE PERCENTAGE ANALYSIS

Sample #	Feet of FLUID	Percent of GAS	Percent of OIL	Percent of WATER	Percent of MUD
1	70	25	70	0	5
2	60	45	40	7	8
3	120	23	25	2	50
4	60	40	20	10	30
5	60	40	40	10	10

CALCULATED FLUID RECOVERY FROM PERCENTAGES

(Formula for Calculation)

Percent of Individual Fluid x Total Footage Represented in Sample

SAMPLE #	TOTAL FOOTAGE	GAS %	×	Total	=	Feet	OIL %	×	Total	=	Feet	WATER %	×	Total	=	Feet	MUD %	×	Total	=	Feet
1	70	25	×	70	=	17.5	70	×	70	=	49	0	×	70	=	0	5	×	70	=	3.5
2	60	45	×	60	=	27	40	×	60	=	24	7	×	60	=	4.2	8	×	60	=	4.8
3	120	23	×	120	=	27.6	25	×	120	=	30	2	×	120	=	2.4	50	×	120	=	60
4	60	40	×	60	=	24	20	×	60	=	12	10	×	60	=	6	30	×	60	=	18
5	60	40	×	60	=	24	40	×	60	=	24	10	×	60	=	6	10	×	60	=	6
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
TOTALS						120.2					139					18.6					92.3

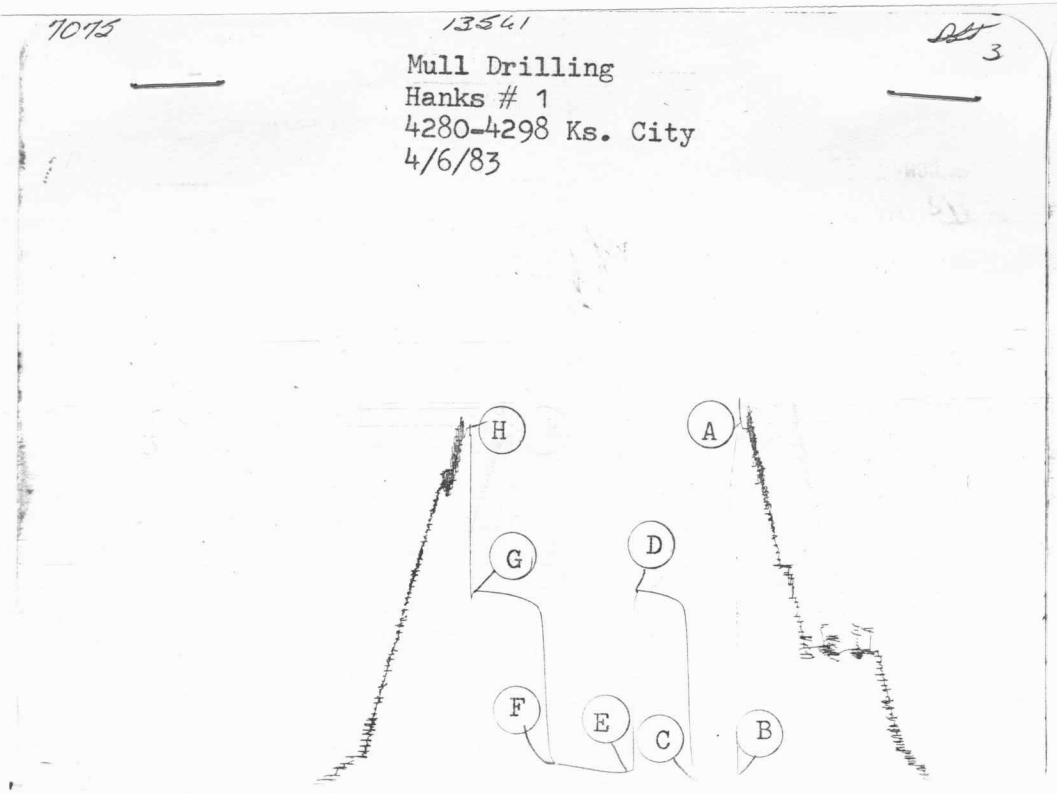
Calculated D.S.T. Recovery =

Gas	120.2	Feet
Oil	129	Feet
Wtr.	18.6	Feet
Mud	92.3	Feet
Total Fluid	370	Feet

Chlorides Mud System _____

Chlorides D.S.T. Water _____

Gravity of Oil _____



This is an actual photograph of recorder chart.

POINT		PRESSURE FIELD READING	PRESSURE OFFICE READING	
(A)	Initial Hydrostatic Mud	2052	1989	P.S.I.
(B)	First Initial Flow Pressure	52	58	P.S.I.
(C)	First Final Flow Pressure	73	67	P.S.I.
(D)	Initial Closed-in Pressure	1112	1108	P.S.I.
(E)	Second Initial Flow Pressure	115	113	P.S.I.
(F)	Second Final Flow Pressure	157	159	P.S.I.
(G)	Final Closed-in Pressure	1102	1100	P.S.I.
(H)	Final Hydrostatic Mud	2031	1985	P.S.I.

SUPERIOR TESTERS

368 West Second, Hoisington, Kansas

COMPANY Mull Drilling Company STATE Kansas COUNTY Lane

LEASE & WELL NO. Hanks # 1 'B' ELEVATION 2707 KB. DATE 4/7/83 FORMATION TESTED Marmaton

SEC 21 TWP 17 RANGE 27 INTERVAL TESTED 4312 TO 4354 TOTAL DEPTH 4354

TEST NO. # 4 O.K. yes TOP PACKER DEPTH 4307 FT. BOTTOM PACKER DEPTH 4312 FT. PACKER SIZE 4312

STRADDLE no CONV. yes TOOL SIZE 5½ OD. TOOL JOINT SIZE 4½ FH. ANCHOR LENGTH 42 FT.

HOLE SIZE 7 & 7/8 EXTRA EQUIPMENT none SURFACE CHOKE SIZE ½ IN. BOTTOM CHOKE SIZE ½ IN.

REVERSED OUT no VICOSITY 45 WEIGHT 89 DUAL PACKERS yes DID PACKER HOLD yes DID TOOL PLUG no

DRILLING CONTRACTOR Murfin # 23

TOOL JOINT SIZE 4½ XH. IN. LENGTH DRILL PIPE 3444 FT. I.D. DRILL PIPE 3.80 IN.

TOOL JOINT SIZE 4½ XH. IN. LENGTH WEIGHT PIPE 478 FT. I.D. WEIGHT PIPE 2.25 IN.

TOOL JOINT SIZE 4½ XH. IN. LENGTH DRILL COLLARS 369 FT. I.D. DRILL COLLARS 2.25 IN.

TOOL OPEN I.F.P. FROM 11:30 p. m to 12:00 a. m Hr. 30 min From (B) 157 P.S.I. to (C) 262 P.S.I.

TOOL CLOSED I.C.I.P. FROM 12:00 a. m to 12:45 a. Hr. 45 min (D) 1185 P.S.I.

TOOL OPEN F.F.P. FROM 12:45 a. m to 1:45 a. m Hr. 60 min From (E) 346 P.S.I. to (F) 472 P.S.I.

TOOL CLOSED F.C.I.P. FROM 1:45 a. m to 2:45 a. m Hr. 60 min (G) 1133 P.S.I.

INITIAL HYDROSTATIC PRESSURE (A) 2062 P.S.I. FINAL HYDROSTATIC PRESSURE (H) 1041 MAXIMUM TEMPERATURE 125 °F

BLOW Weak built to strong in 8 minutes 1st opening.

Weak built to strong in 12 minutes 2nd opening.

RECOVERY - TOTAL FEET 1050

RECOVERED 90 FEET OF Gas Oil & mud cut water.

RECOVERED 120 FEET OF Gas cut Oily water.

RECOVERED 60 FEET OF Gas & Oil cut water.

RECOVERED 780 FEET OF Gas cut water.

RECOVERED FEET OF

RECOVERED 210 FEET OF Gas in the pipe.

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

REMARKS None.

TICKET NO. 6848

WITNESSED BY Vernon Schrag TOOL OPERATOR Craig Bucl

D.S.T. # 4
I.-2027
F.-2002

SUPERIOR TESTERS INC.
368 West 2nd St.
Hoisington, Kansas 67544

PRESSURE BREAKDOWN

First Flow Press.
Breakdown: 6 Inc.
of 5 mins. and a
final inc. of 0 Min.

Initial Shut-In
Breakdown: 8 Inc.
of 5 mins. and a
final inc. of 3 Min.

Second Flow Pressure
Breakdown: 12 Inc.
of 5 mins. and a
final inc. of 0 Min.

Final Shut-In
Breakdown: 12 Inc.
of 5 mins. and a
final inc. of 0 Min.

Time Given	Time Computed	Time Given	Time Computed	Time Given	Time Computed	Time Given	Time Computed
30 Mins.	30 Mins.	45 Mins.	43 Mins.	60 Mins.	60 Mins.	60 Mins.	60 Mins.

Point Mins.	Press.	Point Minutes	Press.	Point Minutes	Press.	Point Minutes	Press.
P 1 0	153	0	262	0	336	0	476
P 2 5	153	5	1081	5	348	5	1008
P 3 10	165	10	1120	10	352	10	1039
P 4 15	189	15	1135	15	365	15	1060
P 5 20	220	20	1150	20	382	20	1075
P 6 25	243	25	1162	25	397	25	1085
P 7 30	262	30	1170	30	413	30	1093
P 8		35	1181	35	424	35	1102
P 9		40	1185	40	436	40	1108
P10		43	1189	45	447	45	1114
P11				50	457	50	1120
P12				55	466	55	1125
P13				60	476	60	1131
P14							
P15							
P16							
P17							
P18							
P19							
P20							
P21							
P22							
P23							
P24							
P25							

Superior Testers, Inc.

Derby, Kansas (316) 788-2631 Great Bend, Kansas (316) 792-6902 Hays, Kansas (913) 628-3209

DRILL STEM TEST RECOVERY ANALYSIS

Company Mull Drilling Company Sec. 21 Twp. 17 Rge. 21

Lease Hanks # 1 County Lane State Kansas D.S.T.# 4

Visual D.S.T. Recovery

210' Gas in the pipe, 90' Gas, Oil & mud cut water.
120' Gas cut Oily water, 60' Gas & Oil cut water.
780' Gas cut water.

CENTRIFUGE PERCENTAGE ANALYSIS

Sample #	Feet of FLUID	Percent of GAS	Percent of OIL	Percent of WATER	Percent of MUD
1	30	30	20	30	20
2	60	10	45	35	10
3	60	30	30	35	5
4	60	10	20	65	5
5	60	6	5	86	3
6	780	3	0	95	2

CALCULATED FLUID RECOVERY FROM PERCENTAGES

(Formula for Calculation)

Percent of Individual Fluid x Total Footage Represented in Sample

SAMPLE #	TOTAL FOOTAGE	GAS %	×	Total	=	Feet	OIL %	×	Total	=	Feet	WATER %	×	Total	=	Feet	MUD %	×	Total	=	Feet
1	30	30	×	30	=	9	20	×	30	=	6	30	×	30	=	9	20	×	30	=	6
2	60	10	×	60	=	6	45	×	60	=	27	35	×	60	=	21	10	×	60	=	6
3	60	30	×	60	=	18	30	×	60	=	18	35	×	60	=	21	5	×	60	=	3
4	60	10	×	60	=	6	20	×	60	=	12	65	×	60	=	39	5	×	60	=	3
5	60	6	×	60	=	3.6	5	×	60	=	3	86	×	60	=	51.6	3	×	60	=	1.8
6	780	3	×	780	=	23.4	0	×	780	=	0	95	×	780	=	741	2	×	780	=	15.6
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
TOTALS		66					66					882.6					35.4				

Calculated D.S.T. Recovery =

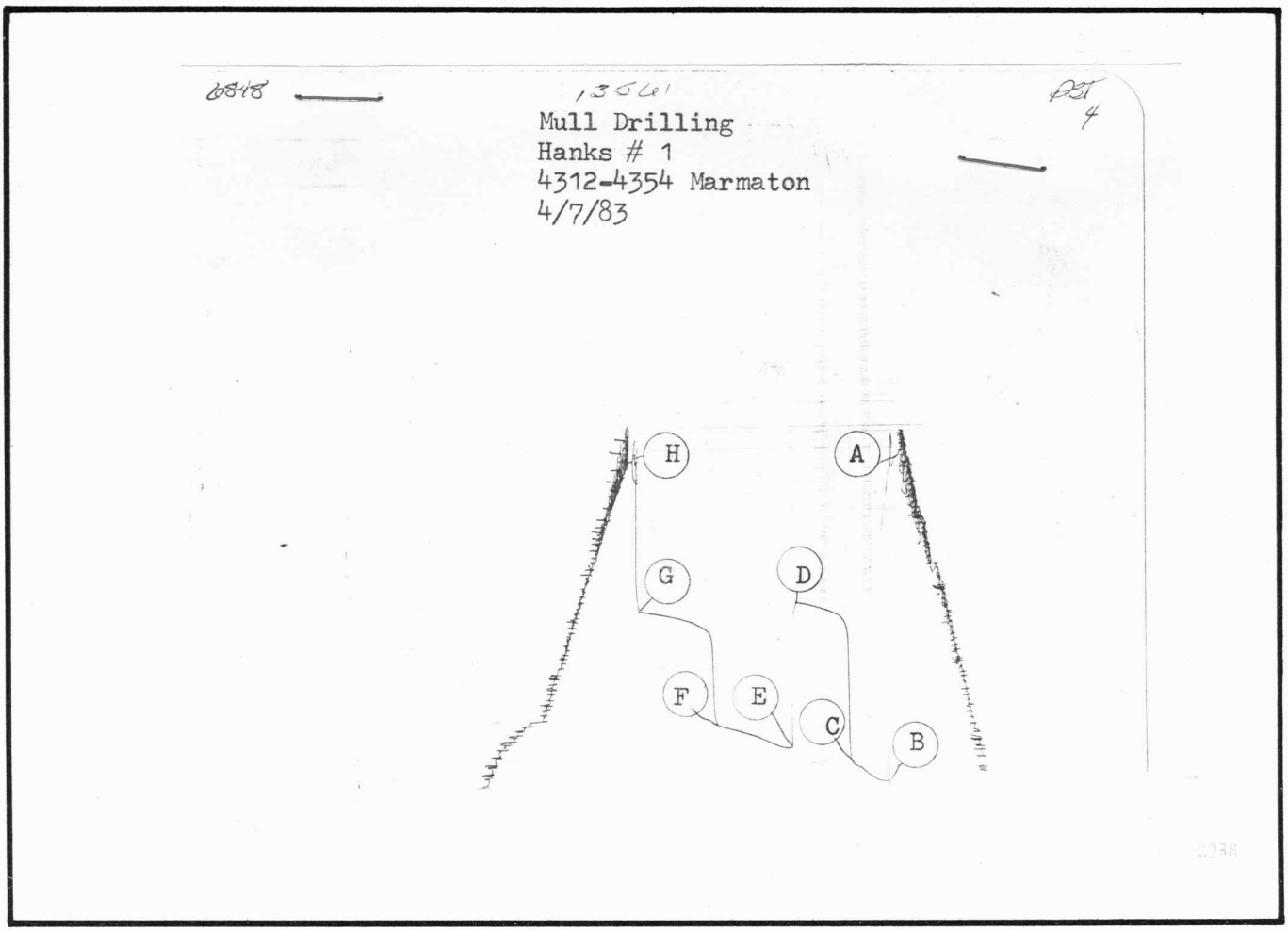
	Gas	Feet
	Oil	Feet
	Wtr.	Feet
	Mud	Feet
Total Fluid		Feet

Chlorides Mud System _____

Chlorides D.S.T. Water _____

Gravity of Oil _____

COMPANY Mull Drilling Company LEASE- WELL NO. Hanks # 1 SEC. 11 TWP. 11 RGE. 11 TEST NO. 11 DATE 11



This is an actual photograph of recorder chart.

POINT		PRESSURE FIELD READING	PRESSURE OFFICE READING	
(A)	Initial Hydrostatic Mud	2062	2027	P.S.I.
(B)	First Initial Flow Pressure	157	157	P.S.I.
(C)	First Final Flow Pressure	262	262	P.S.I.
(D)	Initial Closed-in Pressure	1185	1189	P.S.I.
(E)	Second Initial Flow Pressure	346	336	P.S.I.
(F)	Second Final Flow Pressure	472	476	P.S.I.
(G)	Final Closed-in Pressure	1133	1131	P.S.I.
(H)	Final Hydrostatic Mud	2041	2002	P.S.I.

SUPERIOR TESTERS

368 West Second, Hoisington, Kansas

COMPANY Mull Drilling STATE Kansas COUNTY Lane

LEASE & WELL NO. Hanks # 1 "B" ELEVATION 2707 KB. DATE 4/7/83 FORMATION TESTED Pawnee

SEC 21 TWP 17 RANGE 27 INTERVAL TESTED 4438 TO 4470 TOTAL DEPTH 4470

TEST NO. # 5 O.K. yes TOP PACKER DEPTH 4433 FT. BOTTOM PACKER DEPTH 4438 FT. PACKER SIZE 6 & 3/4

STRADDLE no CONV. yes TOOL SIZE 5½ OD. TOOL JOINT SIZE 4½ FH. ANCHOR LENGTH 38 FT.

HOLE SIZE 7 & 7/8 EXTRA EQUIPMENT none SURFACE CHOKE SIZE ½ IN. BOTTOM CHOKE SIZE ½ IN.

REVERSED OUT no VICOSITY 46 WEIGHT 8.9 DUAL PACKERS yes DID PACKER HOLD yes DID TOOL PLUG no

DRILLING CONTRACTOR Murfin # 23

TOOL JOINT SIZE 4½ XH. IN. LENGTH DRILL PIPE 3580 FT. I.D. DRILL PIPE 3.80 IN.

TOOL JOINT SIZE 4½ XH. IN. LENGTH WEIGHT PIPE 478 FT. I.D. WEIGHT PIPE 2.75 IN.

TOOL JOINT SIZE 4½ XH. IN. LENGTH DRILL COLLARS 369 FT. I.D. DRILL COLLARS 2.25 IN.

TOOL OPEN I.F.P. FROM 9:45 p. m to 10:15 p. m Hr. 30 min From (B) 31 P.S.I. to (C) 31 P.S.I.

TOOL CLOSED I.C.I.P. FROM 10:15 p. m to 11:00 p. Hr. 45 min (D) 31 P.S.I.

TOOL OPEN F.F.P. FROM 11:00 p. m to 11:30 p. m Hr. 30 min From (E) 42 P.S.I. to (F) 42 P.S.I.

TOOL CLOSED F.C.I.P. FROM 11:30 p. m to 12:00 a. m Hr. 30 min (G) 42 P.S.I.

INITIAL HYDROSTATIC PRESSURE (A) 2198 P.S.I. FINAL HYDROSTATIC PRESSURE (H) 2177 MAXIMUM TEMPERATURE 121 °F

BLOW Weak slightly built to 3/4" in water 1st opening.

No blow 2nd opening.

RECOVERY - TOTAL FEET 5

RECOVERED 5 FEET OF Mud.

RECOVERED ____ FEET OF ____

RECOVERED ____ FEET OF ____

RECOVERED ____ FEET OF ____

RECOVERED ____ FEET OF ____

RECOVERED ____ FEET OF ____

RECOVERED ____ FEET OF ____

RECOVERED ____ FEET OF ____

RECOVERED ____ FEET OF ____

RECOVERED ____ FEET OF ____

RECOVERED ____ FEET OF ____

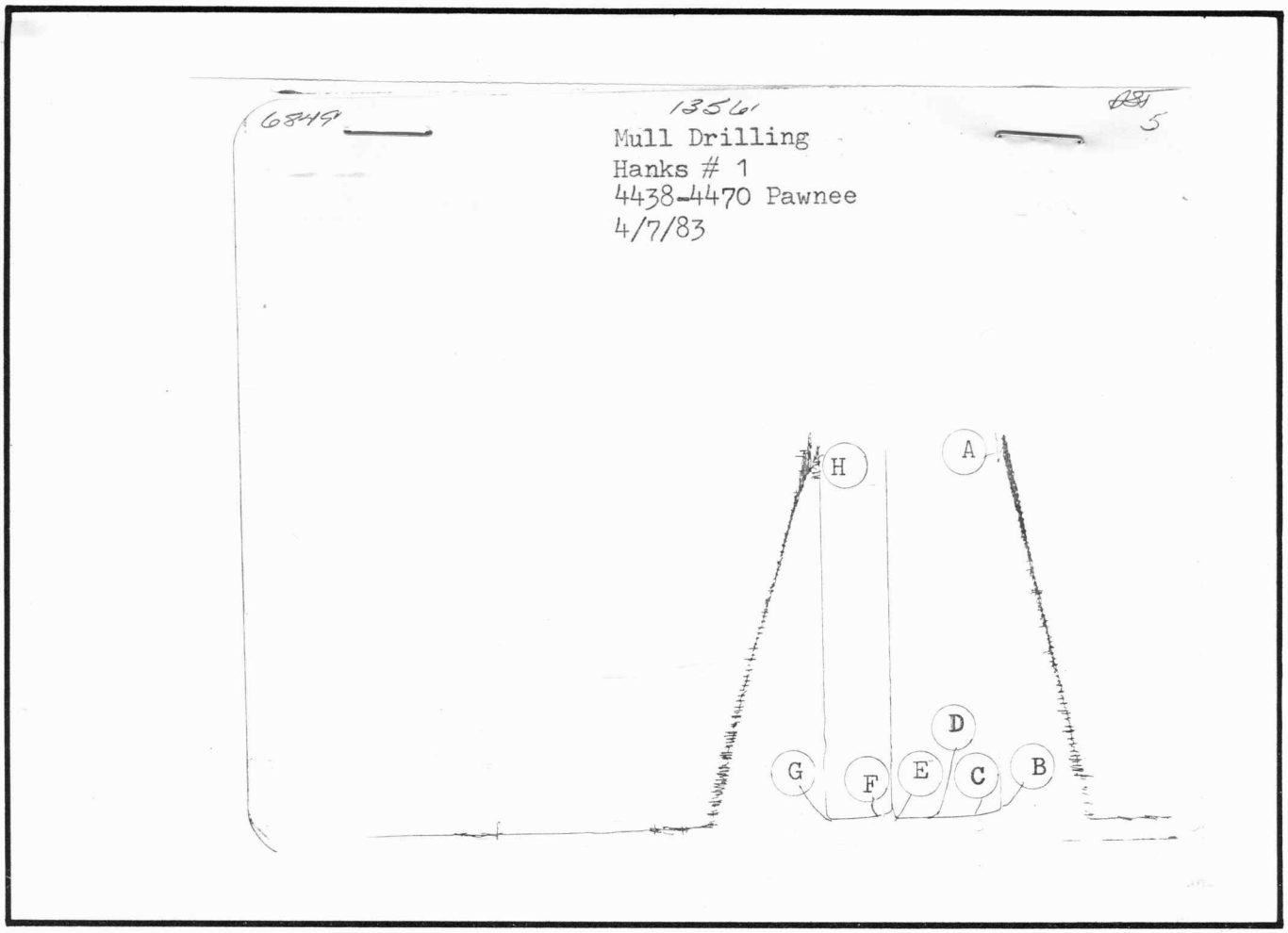
RECOVERED ____ FEET OF ____

RECOVERED ____ FEET OF ____

REMARKS Flushed tool 2nd opening, No help.

TICKET NO. 6849

WITNESSED BY Vernon Schrag TOOL OPERATOR Craig Bucl



This is an actual photograph of recorder chart.

POINT		PRESSURE FIELD READING	PRESSURE OFFICE READING	
(A)	Initial Hydrostatic Mud	2198	2177	P.S.I.
(B)	First Initial Flow Pressure	31	52	P.S.I.
(C)	First Final Flow Pressure	31	31	P.S.I.
(D)	Initial Closed-in Pressure	31	31	P.S.I.
(E)	Second Initial Flow Pressure	42	42	P.S.I.
(F)	Second Final Flow Pressure	42	42	P.S.I.
(G)	Final Closed-in Pressure	42	42	P.S.I.
(H)	Final Hydrostatic Mud	2177	2155	P.S.I.

COMPANY Mull Drilling Company LEASE - WELL NO Hanks # 1 SEC 21 TWP 11 RGE. 21 TEST NO. # 2 DATE 4/7/83

SUPERIOR TESTERS

368 West Second, Hoisington, Kansas

COMPANY Mull Drilling Company STATE Kansas COUNTY Lane

LEASE & WELL NO. Hanks # 1 'B' ELEVATION 2707 KB. DATE 4/9/83 FORMATION TESTED Cherokee

SEC 21 TWP 17 RANGE 27 INTERVAL TESTED 4559 TO 4580 TOTAL DEPTH 4580

TEST NO. # 6 O.K. yes TOP PACKER DEPTH 4554 FT. BOTTOM PACKER DEPTH 4559 FT. PACKER SIZE 6 & 3/4

STRADDLE no CONV. yes TOOL SIZE 5½ OD. TOOL JOINT SIZE 4½ FH. ANCHOR LENGTH 21 FT.

HOLE SIZE 7 & 7/8 EXTRA EQUIPMENT none SURFACE CHOKE SIZE ½ IN. BOTTOM CHOKE SIZE ½ IN.

REVERSED OUT no VICOSITY 58 WEIGHT 9.0 DUAL PACKERS yes DID PACKER HOLD yes DID TOOL PLUG no

DRILLING CONTRACTOR Murfin # 23

TOOL JOINT SIZE 4½ XH. IN. LENGTH DRILL PIPE 3691 FT. I.D. DRILL PIPE 3.80 IN.

TOOL JOINT SIZE 4½ XH. IN. LENGTH WEIGHT PIPE 478 FT. I.D. WEIGHT PIPE 2.75 IN.

TOOL JOINT SIZE 4½ XH. IN. LENGTH DRILL COLLARS 369 FT. I.D. DRILL COLLARS 2.25 IN.

TOOL OPEN I.F.P. FROM 11:30 p. m to 12:00 p. m Hr 30 min From (B) 105 P.S.I. to (C) 220 P.S.I.

TOOL CLOSED I.C.I.P. FROM 12:00 a. m to 12:45 a. Hr 45 min (D) 598 P.S.I.

TOOL OPEN F.F.P. FROM 12:45 a. m to 1:45 a. m Hr 60 min From (E) 294 P.S.I. to (F) 367 P.S.I.

TOOL CLOSED F.C.I.P. FROM 1:45 a. m to 2:45 a. m Hr 60 min (G) 598 P.S.I.

INITIAL HYDROSTATIC PRESSURE (A) 2219 P.S.I. FINAL HYDROSTATIC PRESSURE (H) 2198 MAXIMUM TEMPERATURE 130 °F

BLOW Weak built to bottom of bucket in 10 minutes 1st opening.

Weak built to bottom of bucket in 12 minutes 2nd opening.

RECOVERY - TOTAL FEET 930

RECOVERED 40 FEET OF Gas & Mud cut Oil.

RECOVERED 650 FEET OF Gassy slightly muddy Oil.

RECOVERED 30 FEET OF Gas, mud & water cut Oil.

RECOVERED 210 FEET OF Slightly gas & Oil cut muddy water.

RECOVERED FEET OF (Gravity 39°)

RECOVERED 110 FEET OF Gas in the pipe.

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

RECOVERED FEET OF

REMARKS None.

TICKET NO. 6850

WITNESSED BY Vernon Schrag TOOL OPERATOR Craig Bucl

SUPERIOR TESTERS INC.
368 West 2nd St.
Hoisington, Kansas 67544

PRESSURE BREAKDOWN

First Flow Press.
Breakdown: 6 Inc.
of 5 mins. and a
final inc. of 0 Min.

Time Given: 30 Mins.
Time Computed: 30 Mins.

Point Mins.	Press.
P 1 0	105
P 2 5	111
P 3 10	136
P 4 15	165
P 5 20	186
P 6 25	210
P 7 30	220
P 8	
P 9	
P10	
P11	
P12	
P13	
P14	
P15	
P16	
P17	
P18	
P19	
P20	
P21	
P22	
P23	
P24	
P25	

Initial Shut-In
Breakdown: 8 Inc.
of 5 mins. and a
final inc. of 0 Min.

Time Given: 45 Mins.
Time Computed: 40 Mins.

Point Minutes	Press.
0	220
5	483
10	512
15	533
20	548
25	560
30	571
35	579
40	584

Second Flow Pressure
Breakdown: 10 Inc.
of 5 mins. and a
final inc. of 4 Min.

Time Given: 60 Mins.
Time Computed: 54 Mins.

Point Minutes	Press.
0	296
5	296
10	304
15	317
20	327
25	338
30	346
35	352
40	361
45	365
50	369
54	371

Final Shut-In
Breakdown: 12 Inc.
of 5 mins. and a
final inc. of 0 Min.

Time Given: 60 Mins.
Time Computed: 60 Mins.

Point Minutes	Press.
0	371
5	493
10	518
15	535
20	550
25	563
30	571
35	577
40	581
45	584
50	590
55	592
60	594

I.-2202
F.-2146

D.S.T. # 6

Superior Testers, Inc.

Derby, Kansas (316) 788-2631 Great Bend, Kansas (316) 792-6902 Hays, Kansas (913) 628-3209

DRILL STEM TEST RECOVERY ANALYSIS

Company Mull Drilling Company Sec. 21 Twp. 17 Rge. 27

Lease HHanks # 1 County Lane State Kansas D.S.T.# 6

Visual D.S.T. Recovery 110' Gas in the pipe, 40' Gas & mud cut Oil, 650' Gassy slightly muddy Oil, 30' Gas cut mud & water cut Oil, 210' Slightly gas & Oil cut muddy water.

CENTRIFUGE PERCENTAGE ANALYSIS

Sample #	Feet of FLUID	Percent of GAS	Percent of OIL	Percent of WATER	Percent of MUD
1	40	9	52	0	39
2	120	40	54	0	6
3	120	50	32	0	18
4	120	25	65	0	10
5	290	20	77	0	3
6	30	12	51	8	34
7	110	2	2	22	74
8	100	5	2	25	38

CALCULATED FLUID RECOVERY FROM PERCENTAGES

(Formula for Calculation)

Percent of Individual Fluid x Total Footage Represented in Sample

SAMPLE #	TOTAL FOOTAGE	GAS %	×	Total	=	Feet	OIL %	×	Total	=	Feet	WATER %	×	Total	=	Feet	MUD %	×	Total	=	Feet
1	40	9	×	40	=	3.6	52	×	40	=	20.8	0	×	0	=	0	39	×	40	=	15.6
2	120	40	×	120	=	48	54	×	120	=	64.8	0	×	0	=	0	6	×	120	=	7.2
3	120	50	×	120	=	60	32	×	120	=	38.4	0	×	0	=	0	18	×	120	=	21.6
4	120	25	×	120	=	30	65	×	120	=	78	0	×	0	=	0	10	×	120	=	12
5	290	20	×	290	=	58	77	×	290	=	223.3	0	×	0	=	0	3	×	290	=	8.7
6	30	12	×	30	=	3.6	51	×	30	=	15.3	8	×	31	=	2.4	34	×	30	=	10.2
7	110	2	×	110	=	2.2	2	×	110	=	2.2	22	×	110	=	24.2	74	×	110	=	81.4
8	100	5	×	100	=	5	2	×	100	=	2	55	×	100	=	55	38	×	100	=	38
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
			×		=			×		=			×		=			×		=	
TOTALS				210.4					444.8					81.6					194.7		

Calculated D.S.T. Recovery =

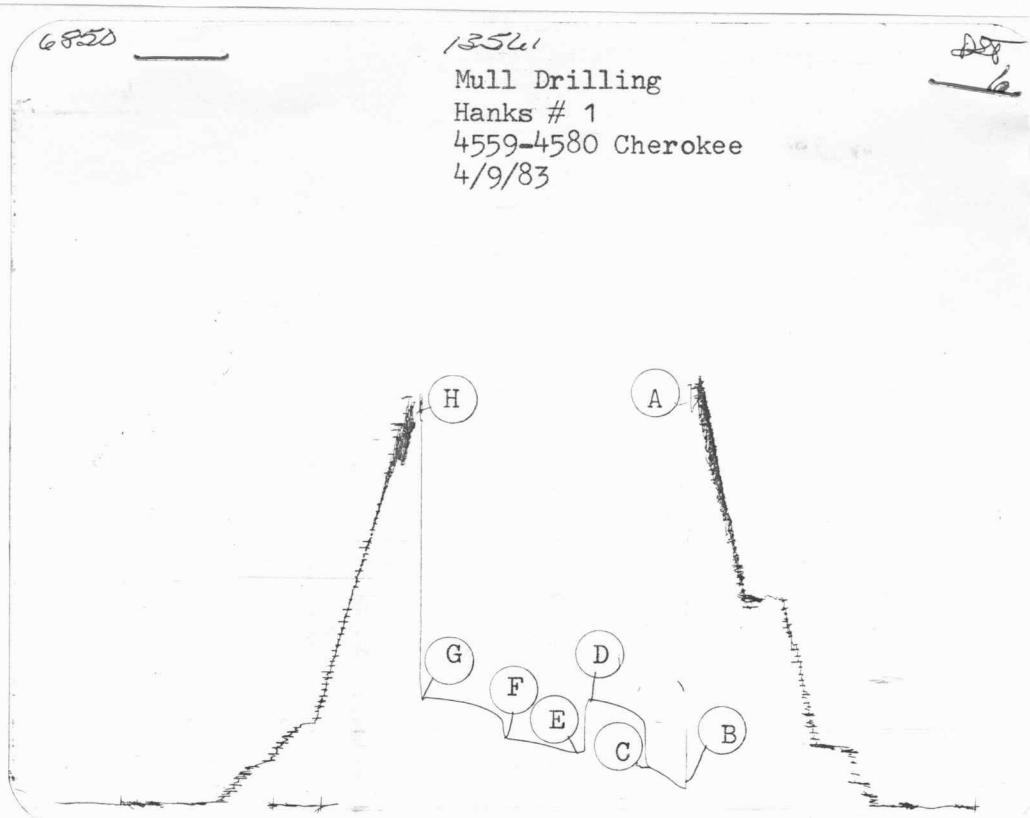
Gas	210.4	Feet
Oil	444.8	Feet
Wtr.	81.6	Feet
Mud	194.7	Feet
Total Fluid	931	Feet

Chlorides Mud System 12,000

Chlorides D.S.T. Water 10,000

Gravity of Oil 39° corrected

COMPANY Mull Drilling Company LEASE- WELL NO. Hanks # 1 SEC. 21 TWP. 17 RGE. 27 TEST NO. # 6 DATE 4/9/83



This is an actual photograph of recorder chart.

POINT		PRESSURE FIELD READING	PRESSURE OFFICE READING	
(A)	Initial Hydrostatic Mud	2219	2202	P.S.I.
(B)	First Initial Flow Pressure	105	105	P.S.I.
(C)	First Final Flow Pressure	220	220	P.S.I.
(D)	Initial Closed-in Pressure	598	584	P.S.I.
(E)	Second Initial Flow Pressure	294	296	P.S.I.
(F)	Second Final Flow Pressure	367	371	P.S.I.
(G)	Final Closed-in Pressure	598	594	P.S.I.
(H)	Final Hydrostatic Mud	2198	2146	P.S.I.