

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name ROYALTY #1 Test No. 1 Date 9/26/93
Company RITCHIE EXPLORATION, INC. Zone LKC
Address 125 N MARKET SUITE 1000 WICHITA KS 67202 Elevation 2763
Co. Rep./Geo. KEVIN KESSLER Cont. WHT & ELLIS RIG #9 Est. Ft. of Pay _____
Location: Sec. 9 Twp. 19S Rge. 28W Co. LANE State KS

Interval Tested 4200-4239 Drill Pipe Size 4.5" XH
Anchor Length 39 Wt. Pipe I.D. - 2.7 Ft. Run _____
Top Packer Depth 4195 Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth 4200 Mud Wt. 9.1 lb/Gal.
Total Depth 4239 Viscosity 51 Filtrate 11.2

Tool Open @ 12:52 AM Initial Blow WEAK 1/4" BLOW STEADY THROUGHOUT

Final Blow VERY WEAK SURFACE BLOW THROUGHOUT

Recovery - Total Feet 55 Flush Tool? NO

Rec. 55 Feet of MUDDY WATER WITH SPECKS OF OIL IN TOOL-80% WTR/20% MUD
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____

BHT 116 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW 0.13 @ 70 °F Chlorides 60000 ppm Recovery Chlorides 2500 ppm System

(A) Initial Hydrostatic Mud 2104.7 PSI AK1 Recorder No. 13309 Range 4700

(B) First Initial Flow Pressure 66.3 PSI @ (depth) 4229 w / Clock No. 26199

(C) First Final Flow Pressure 65.2 PSI AK1 Recorder No. 13339 Range 4025

(D) Initial Shut-in Pressure 1074.8 PSI @ (depth) 4234 w / Clock No. 25810

(E) Second Initial Flow Pressure 70.2 PSI AK1 Recorder No. _____ Range _____

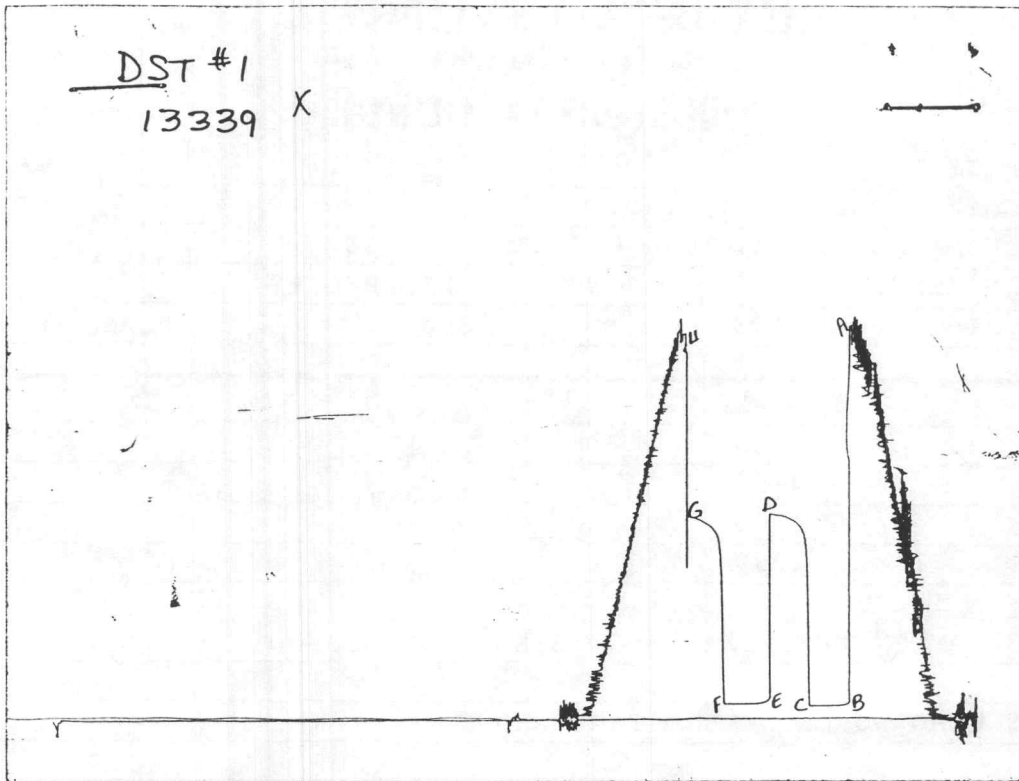
(F) Second Final Flow Pressure 70.2 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 1056.9 PSI Initial Opening 30 Final Flow 30

(H) Final Hydrostatic Mud 2070.8 PSI Initial Shut-in 30 Final Shut-in 30

Our Representative ROD STEINBRINK

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2093	2104.7
(B) FIRST INITIAL FLOW PRESSURE	62	66.3
(C) FIRST FINAL FLOW PRESSURE	62	65.2
(D) INITIAL CLOSED-IN PRESSURE	1070	1074.8
(E) SECOND INITIAL FLOW PRESSURE	72	70.2
(F) SECOND FINAL FLOW PRESSURE	72	70.2
(G) FINAL CLOSED-IN PRESSURE	1050	1056.9
(H) FINAL HYDROSTATIC MUD	2073	2070.8

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Drill-Stem Test Data

Well Name ROYALTY #1 Test No. 2 Date 9/27/93
Company RITCHIE EXPLORATION, INC. Zone LKC "J"
Address 125 N MARKET SUITE 1000 WICHITA KS 67202 Elevation 2763
Co. Rep./Geo. KEVIN KESSLER Cont. WHT & ELLIS RIG #9 Est. Ft. of Pay 8
Location: Sec. 9 Twp. 19S Rge. 28W Co. LANE State KS

Interval Tested 4237-4263
Anchor Length 26
Top Packer Depth 4232
Bottom Packer Depth 4237
Total Depth 4263

Drill Pipe Size 4.5" XH
Wt. Pipe I.D. - 2.7 Ft. Run _____
Drill Collar - 2.25 Ft. Run _____
Mud Wt. 9.1 lb/Gal.
Viscosity 51 Filtrate 11.2

Tool Open @ 1:30 AM Initial Blow SURFACE BLOW SLOWLY BUILT TO BOTTOM IN 13 MINUTES
ISI: BLD OFF BLOW - NO RETURN
Final Blow SURFACE RETURN BUILT TO BOTTOM IN 17 MINUTES
FSI: BLD OFF BLOW - NO RETURN

Recovery - Total Feet 500 Flush Tool? NO

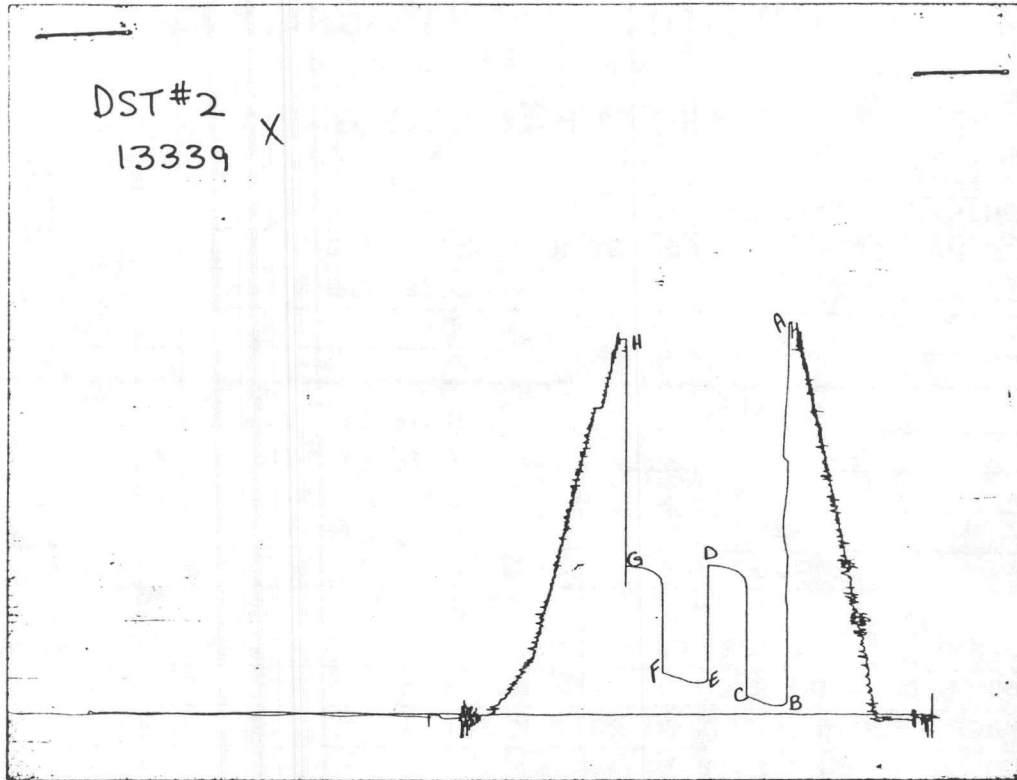
Rec. 80 Feet of WATER CUT MUD-10% WTR/ 90% MUD
Rec. 420 Feet of SULFUR WATER
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____

BHT 119 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW 0.27 @ _____ °F Chlorides 39000 ppm Recovery Chlorides 2500 ppm System

(A) Initial Hydrostatic Mud 2096.3 PSI AK1 Recorder No. 13309 Range 4700
(B) First Initial Flow Pressure 65.2 PSI @ (depth) 4253 w / Clock No. 25810
(C) First Final Flow Pressure 118.9 PSI AK1 Recorder No. 13339 Range 4025
(D) Initial Shut-in Pressure 814.3 PSI @ (depth) 4258 w / Clock No. 26199
(E) Second Initial Flow Pressure 191.2 PSI AK1 Recorder No. _____ Range _____
(F) Second Final Flow Pressure 233.4 PSI @ (depth) _____ w / Clock No. _____
(G) Final Shut-in Pressure 814.3 PSI Initial Opening 30 Final Flow 30
(H) Final Hydrostatic Mud 2055.7 PSI Initial Shut-in 30 Final Shut-in 30

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CHART PAGE



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	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2073	2096.3
(B) FIRST INITIAL FLOW PRESSURE	62	65.2
(C) FIRST FINAL FLOW PRESSURE	114	118.9
(D) INITIAL CLOSED-IN PRESSURE	809	814.3
(E) SECOND INITIAL FLOW PRESSURE	187	191.2
(F) SECOND FINAL FLOW PRESSURE	228	233.4
(G) FINAL CLOSED-IN PRESSURE	809	814.3
(H) FINAL HYDROSTATIC MUD	2053	2055.7

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Drill-Stem Test Data

Well Name ROYALTY #1 Test No. 3 Date 9/27/93
Company RITCHIE EXPLORATION, INC. Zone LKC "K"
Address 125 N MARKET SUITE 1000 WICHITA KS 67202 Elevation 2763
Co. Rep./Geo. KEVIN KESSLER Cont. WHT & ELLIS RIG #9 Est. Ft. of Pay 5
Location: Sec. 9 Twp. 19S Rge. 28W Co. LANE State KS

Interval Tested 4267-4292 Drill Pipe Size 4.5" XH
Anchor Length 25 Wt. Pipe I.D. - 2.7 Ft. Run _____
Top Packer Depth single pkr Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth 4267 Mud Wt. 9.1 lb/Gal.
Total Depth 4292 Viscosity 49 Filtrate 10.4

Tool Open @ 3:30 PM Initial Blow SURFACE BLOW BUILT TO BOTTOM IN 18 MINUTES
ISI: bled off blow-weak surface return steady throughout
Final Blow SURFACE BLOW BUILT TO BOTTOM IN 18 MINUTES
FSI: bled off blow- no return

Recovery - Total Feet 360 Flush Tool? NO

Rec. 120 Feet of GAS IN PIPE ABOVE FLUID
Rec. 10 Feet of FREE OIL-5% GAS/ 95% OIL
Rec. 110 Feet of GSY OIL & WTR CUT MUD-5%GAS/5%OIL/10%WTR/80%MUD
Rec. 60 Feet of MUDDY WATER-70% WTR/ 30% MUD
Rec. 180 Feet of SULFER WATER

BHT 120 °F Gravity 38 °API @ 80 °F Corrected Gravity 36 °API
RW 0.19 @ 75 °F Chlorides 34000 ppm Recovery Chlorides 4000 ppm System

(A) Initial Hydrostatic Mud 2096.3 PSI AK1 Recorder No. 13309 Range 4700

(B) First Initial Flow Pressure 37.5 PSI @ (depth) 4282 w / Clock No. 25810

(C) First Final Flow Pressure 80.9 PSI AK1 Recorder No. 13339 Range 4025

(D) Initial Shut-in Pressure 814.3 PSI @ (depth) 4287 w / Clock No. 26199

(E) Second Initial Flow Pressure 155.2 PSI AK1 Recorder No. _____ Range _____

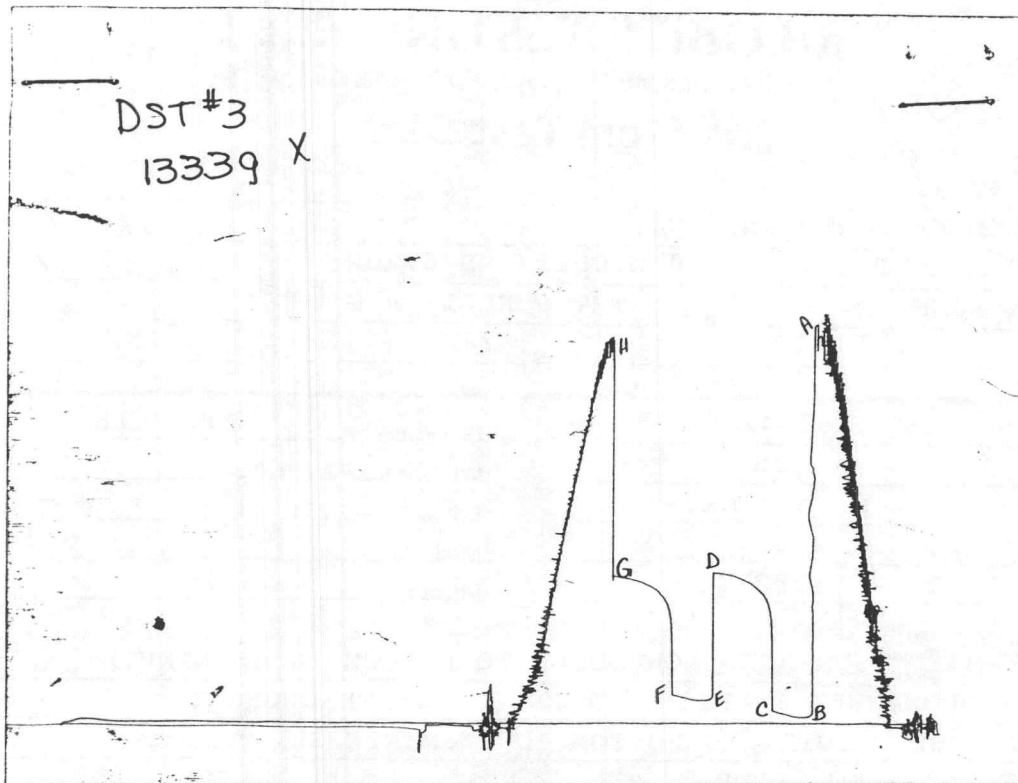
(F) Second Final Flow Pressure 170.8 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 796.3 PSI Initial Opening 30 Final Flow 30

(H) Final Hydrostatic Mud 2055.7 PSI Initial Shut-in 45 Final Shut-in 45

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CHART PAGE



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	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2083	2096.3
(B) FIRST INITIAL FLOW PRESSURE	41	37.5
(C) FIRST FINAL FLOW PRESSURE	83	80.9
(D) INITIAL CLOSED-IN PRESSURE	809	814.3
(E) SECOND INITIAL FLOW PRESSURE	145	155.2
(F) SECOND FINAL FLOW PRESSURE	166	170.8
(G) FINAL CLOSED-IN PRESSURE	789	796.3
(H) FINAL HYDROSTATIC MUD	2033	2055.7

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Drill-Stem Test Data

Well Name ROYALTY #1 Test No. 4 Date 9/29/93
Company RITCHIE EXPLORATION, INC. Zone JOHNSON
Address 125 N MARKET SUITE 1000 WICHITA KS 67202 Elevation 2763
Co. Rep./Geo. KEVIN KESSLER Cont. WHT & ELLIS RIG #9 Est. Ft. of Pay _____
Location: Sec. 9 Twp. 19S Rge. 28W Co. LANE State KS

Interval Tested 4516-4605 Drill Pipe Size 4.5" XH
Anchor Length 89 Wt. Pipe I.D. - 2.7 Ft. Run _____
Top Packer Depth 4511 Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth 4516 Mud Wt. 9.2 lb/Gal.
Total Depth 4605 Viscosity 49 Filtrate 11.2

Tool Open @ 6:55 AM Initial Blow SURFACE BLOW BUILT TO 1/2" THEN DIED BACK TO 1/4" AT
FINAL
Final Blow NO BLOW-FLUSHED TOOL / GOOD SURGE - NO RETURN BLOW

Recovery - Total Feet 5 Flush Tool? YES

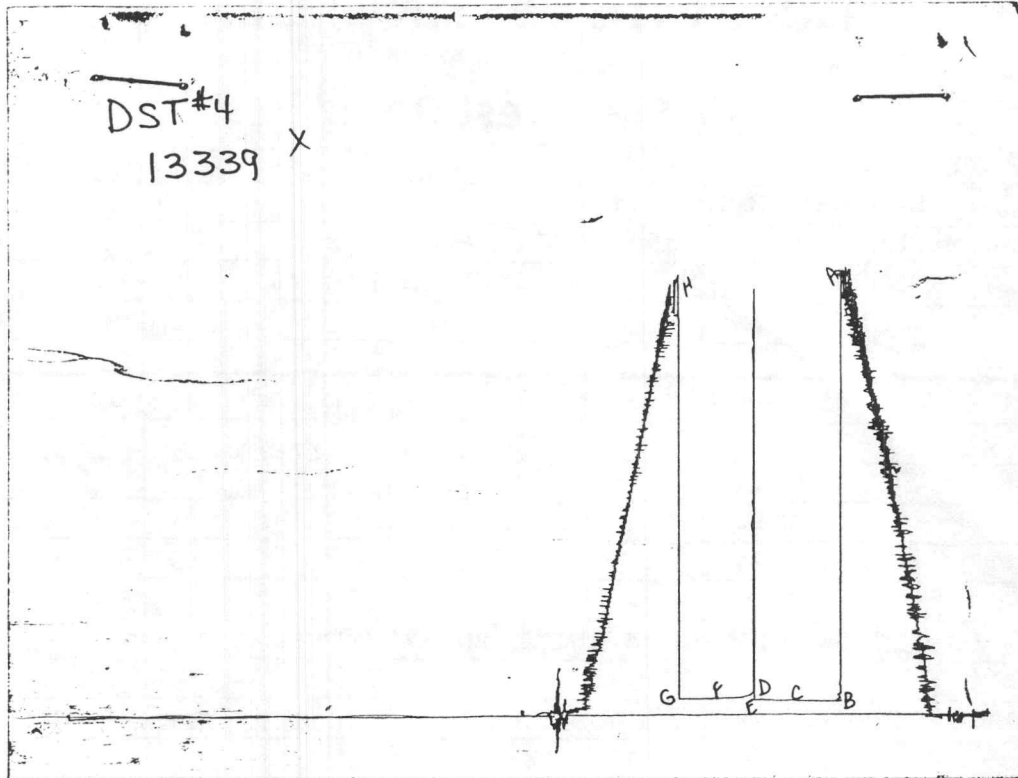
Rec. 5 Feet of DRILLING MUD WITH SPOTS OIL IN TOOL
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____

BHT 120 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides 3500 ppm System

(A) Initial Hydrostatic Mud 2288.6 PSI AK1 Recorder No. 13309 Range 4700
(B) First Initial Flow Pressure 50.9 PSI @ (depth) 4595 w / Clock No. 25810
(C) First Final Flow Pressure 50.9 PSI AK1 Recorder No. 13339 Range 4025
(D) Initial Shut-in Pressure 50.9 PSI @ (depth) 4600 w / Clock No. 26199
(E) Second Initial Flow Pressure 50.9 PSI AK1 Recorder No. _____ Range _____
(F) Second Final Flow Pressure 50.9 PSI @ (depth) _____ w / Clock No. _____
(G) Final Shut-in Pressure 50.9 PSI Initial Opening 30 Final Flow 30
(H) Final Hydrostatic Mud 2260.7 PSI Initial Shut-in 30 Final Shut-in 30

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CHART PAGE



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	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2283	2288.6
(B) FIRST INITIAL FLOW PRESSURE	52	50.9
(C) FIRST FINAL FLOW PRESSURE	52	50.9
(D) INITIAL CLOSED-IN PRESSURE	52	50.9
(E) SECOND INITIAL FLOW PRESSURE	52	50.9
(F) SECOND FINAL FLOW PRESSURE	52	50.9
(G) FINAL CLOSED-IN PRESSURE	52	50.9
(H) FINAL HYDROSTATIC MUD	2263	2260.7

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Drill-Stem Test Data

Well Name ROYALTY #1 Test No. 5 Date 9/30/93
Company RITCHIE EXPLORATION, INC. Zone LKC - "L"
Address 125 N MARKET SUITE 1000 WICHITA KS 67202 Elevation 2763
Co. Rep./Geo. KEVIN KESSLER Cont. WHT & ELLIS RIG #9 Est. Ft. of Pay _____
Location: Sec. 9 Twp. 19S Rge. 28W Co. LANE State KS

Interval Tested 4309-4326 Drill Pipe Size 4.5" XH
Anchor Length 17 Wt. Pipe I.D. - 2.7 Ft. Run _____
Top Packer Depth 4309 Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth 4326 Mud Wt. 9.2 lb/Gal.
Total Depth 4654 Viscosity 48 Filtrate 12

Tool Open @ 3:52 AM Initial Blow SURFACE BLOW BUILT TO BOTTOM IN 8 MINUTES
ISI: BLED OFF BLOW - NO RETURN
Final Blow SURFACE RETURN BUILT TO BOTTOM IN 13 MINUTES
FSI: BLED OFF BLOW - NO RETURN

Recovery - Total Feet 630 Flush Tool? YES

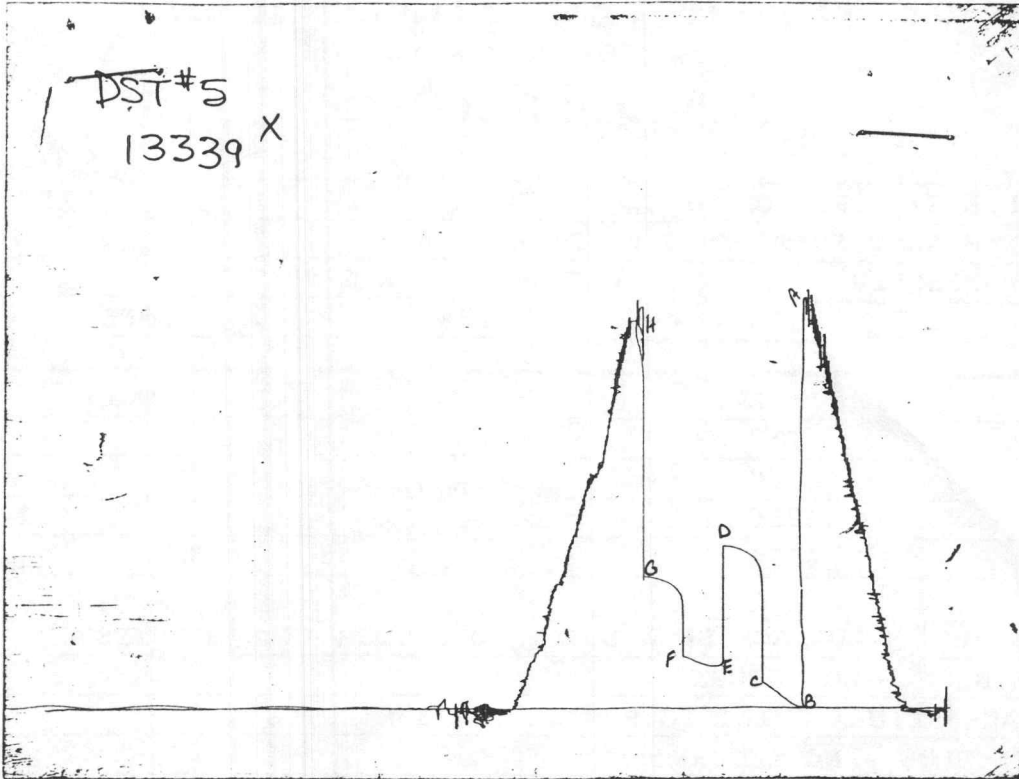
Rec. 630 Feet of SULFER WATER
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____

BHT 122 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW 0.26 @ 48 °F Chlorides 45000 ppm Recovery Chlorides 4000 ppm System

(A) Initial Hydrostatic Mud 2177.8 PSI AK1 Recorder No. 13309 Range 4700
(B) First Initial Flow Pressure 22.1 PSI @ (depth) 4312 w / Clock No. 25810
(C) First Final Flow Pressure 140.8 PSI AK1 Recorder No. 13339 Range 4025
(D) Initial Shut-in Pressure 870.1 PSI @ (depth) 4317 w / Clock No. 26199
(E) Second Initial Flow Pressure 233.4 PSI AK1 Recorder No. 13276 Range 4000
(F) Second Final Flow Pressure 300.5 PSI @ (depth) 4649 w / Clock No. _____
(G) Final Shut-in Pressure 722.4 PSI Initial Opening 30 Final Flow 30
(H) Final Hydrostatic Mud 2120.6 PSI Initial Shut-in 30 Final Shut-in 30

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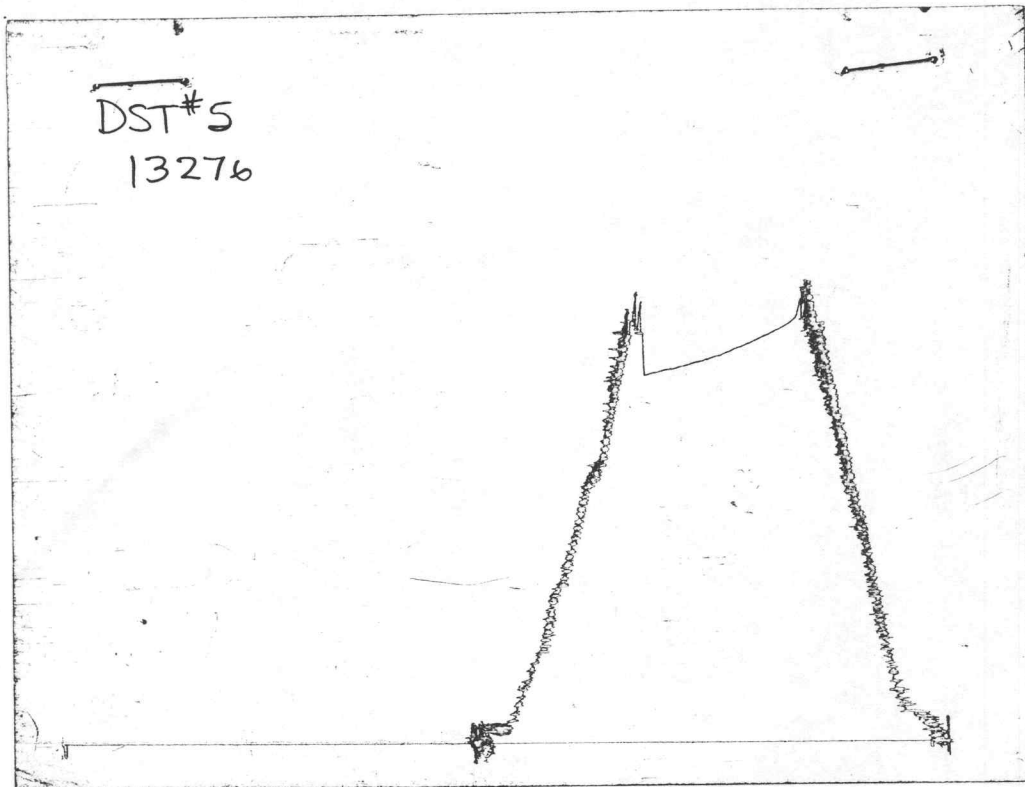
CHART PAGE



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	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2163	2177.8
(B) FIRST INITIAL FLOW PRESSURE	20	22.1
(C) FIRST FINAL FLOW PRESSURE	135	140.8
(D) INITIAL CLOSED-IN PRESSURE	869	870.1
(E) SECOND INITIAL FLOW PRESSURE	228	233.4
(F) SECOND FINAL FLOW PRESSURE	291	300.5
(G) FINAL CLOSED-IN PRESSURE	719	722.4
(H) FINAL HYDROSTATIC MUD	2123	2120.6

CHART PAGE



This is an actual photograph of recorder chart

FIELD
READING

OFFICE
READING

- (A) INITIAL HYDROSTATIC MUD
- (B) FIRST INITIAL FLOW PRESSURE
- (C) FIRST FINAL FLOW PRESSURE
- (D) INITIAL CLOSED-IN PRESSURE
- (E) SECOND INITIAL FLOW PRESSURE
- (F) SECOND FINAL FLOW PRESSURE
- (G) FINAL CLOSED-IN PRESSURE
- (H) FINAL HYDROSTATIC MUD