

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name RUBY DIRKS #1 Test No. 1 Date 9/15/93
Company JOHN O FARMER INC Zone TOR/LKC
Address P.O. BOX 352 RUSSELL KS 67665 Elevation 3025
Co. Rep./Geo. JOHN O FARMER IV Cont. ABERCROMBIE RIG #4 Est. Ft. of Pay 13
Location: Sec. 6 Twp. 13S Rge. 33W Co. LOGAN State KS

Interval Tested 3879-3950
Anchor Length 71
Top Packer Depth 3874
Bottom Packer Depth 3879
Total Depth 3950

Drill Pipe Size 4.5" XH
Wt. Pipe I.D. - 2.7 Ft. Run 632
Drill Collar - 2.25 Ft. Run
Mud Wt. 8.9 lb/Gal.
Viscosity 43 Filtrate 9.2

Tool Open @ 3:00 PM Initial Blow FAIR TO STRONG BLOW - OFF BOTTOM IN 3 MINUTES
ISI: bled off blow - NO RETURN
Final Blow FAIR TO STRONG BLOW OFF BOTTOM IN 4 MINUTES
FSI: bled off blow - NO RETURN

Recovery - Total Feet 1711 Flush Tool? NO

Rec. <u>305</u>	Feet of	<u>SLTLY OIL CUT MUDDY WTR-10% OIL/ 50% WTR/ 40% MUD</u>
Rec. <u>3</u>	Feet of	<u>OIL</u>
Rec. <u>244</u>	Feet of	<u>SLTLY OIL & MUD CUT WTR-10% OIL/ 75% WTR/ 15% MUD</u>
Rec. <u>183</u>	Feet of	<u>SLTLY OIL CUT WTR-10% OIL/90% WTR</u>
Rec. <u>976</u>	Feet of	<u>WATER WITH TRACE OF OIL</u>

BHT 118 °F Gravity °API @ °F Corrected Gravity °API
RW 0.128 @ 79 °F Chlorides 60000 ppm Recovery Chlorides 1600 ppm System

(A) Initial Hydrostatic Mud 1872.3 PSI AK1 Recorder No. 5495 Range 4200

(B) First Initial Flow Pressure 78.7 PSI @ (depth) 3884 w / Clock No. 25813

(C) First Final Flow Pressure 566.3 PSI AK1 Recorder No. 11038 Range 5075

(D) Initial Shut-in Pressure 1165.8 PSI @ (depth) 3947 w / Clock No. 25814

(E) Second Initial Flow Pressure 600.4 PSI AK1 Recorder No. Range

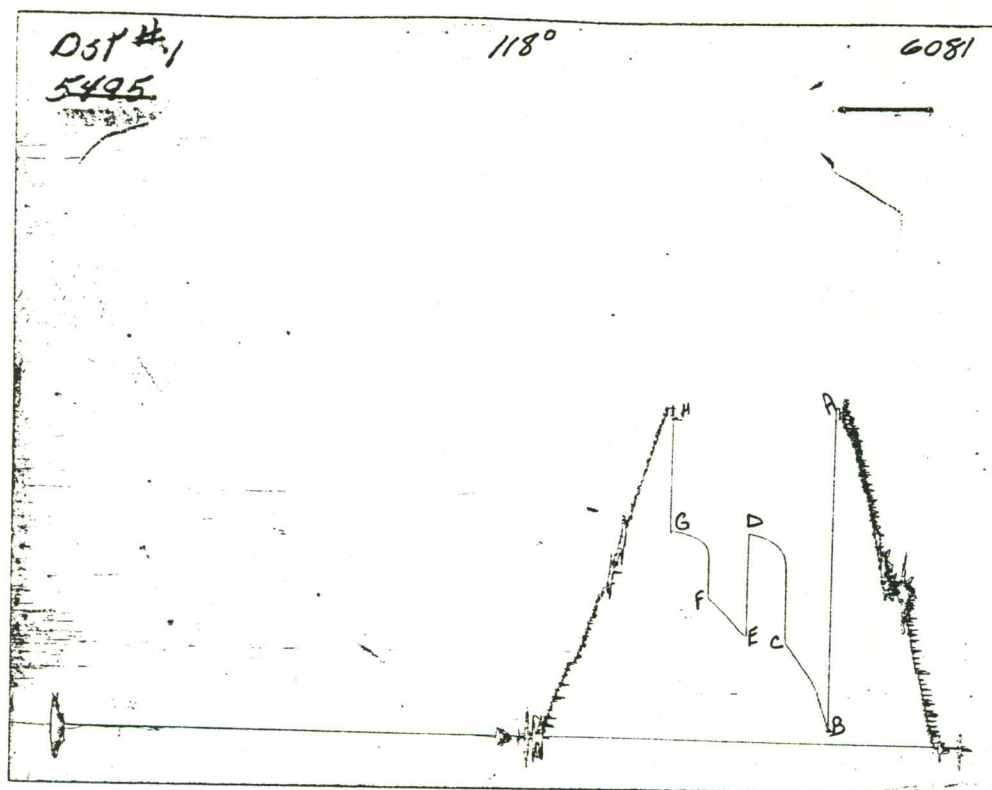
(F) Second Final Flow Pressure 799.0 PSI @ (depth) w / Clock No.

(G) Final Shut-in Pressure 1166.8 PSI Initial Opening 34 Final Flow 30

(H) Final Hydrostatic Mud 1870.9 PSI Initial Shut-in 30 Final Shut-in 30

Our Representative PETE WAGGONER

CHART PAGE



This is an actual photograph of recorder chart

FIELD
READING

OFFICE
READING

(A) INITIAL HYDROSTATIC MUD	1852	1872.3
(B) FIRST INITIAL FLOW PRESSURE	109	78.7
(C) FIRST FINAL FLOW PRESSURE	559	566.3
(D) INITIAL CLOSED-IN PRESSURE	1197	1165.8
(E) SECOND INITIAL FLOW PRESSURE	663	600.4
(F) SECOND FINAL FLOW PRESSURE	804	799
(G) FINAL CLOSED-IN PRESSURE	1222	1166.8
(H) FINAL HYDROSTATIC MUD	1852	1870.9

CALCULATED RECOVERY ANALYSIS

DST

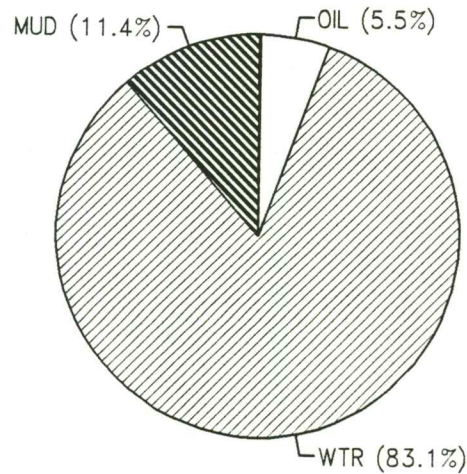
1

TICKET #

6081

SAMPLE #	TOTAL FEET	GAS %	FEET	OIL %	FEET	%	FEET	WATER %	FEET	MUD %	FEET
DRILL 1	305	0	0	10	30.5	50	152.5	40	122		
PIPE 2	3	0	0	100	3	0	0	0	0		
3	244	0	0	10	24.4	75	183	15	36.6		
4	183	0	0	10	18.3	90	164.7	0	0		
5	344	0	0	0	0	100	344	0	0		
6			0		0		0		0		
WEIGHT 1	632	0	0	0	0	100	632	0	0		
PIPE 2			0		0		0		0		
3			0		0		0		0		
4			0		0		0		0		
DRILL 1			0		0		0		0		
COLLAR 2			0		0		0		0		
3			0		0		0		0		
4			0		0		0		0		
5			0		0		0		0		
TOTAL	1711		0		76.2		1476.2		158.6		

BBL OIL=	1.083564	*	HRS OPEN	BBL/DAY
BBL WATER=	16.428524	*	1	26.005536
BBL MUD=	2.255292			394.28458
BBL GAS =	0			



TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name RUBY DIRKS #1 Test No. 2 Date 9/16/93
Company JOHN O FARMER INC Zone LKC-"B"
Address P.O. BOX 352 RUSSELL KS 67665 Elevation 3025
Co. Rep./Geo. JOHN O FARMER IV Cont. ABERCROMBIE RIG #4 Est. Ft. of Pay _____
Location: Sec. 6 Twp. 13S Rge. 33W Co. LOGAN State KS

Interval Tested <u>3945-3980</u>	Drill Pipe Size <u>4.5" XH</u>
Anchor Length <u>35</u>	Wt. Pipe I.D. - 2.7 Ft. Run <u>632</u>
Top Packer Depth <u>3940</u>	Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth <u>3945</u>	Mud Wt. <u>9</u> lb/Gal.
Total Depth <u>3980</u>	Viscosity <u>50</u> Filtrate <u>12.4</u>

Tool Open @ 3:41 AM Initial Blow FAIR BUILDING TO BOTTOM IN 20 MINUTES
ISI: bled off blow - came back to 3/4"

Final Blow FAIR BUILDING TO BOTTOM IN 45 MINUTES
FSI: bled off blow - came back to very weak surface blow 1/4"

Recovery - Total Feet 744 Flush Tool? NO

Rec. <u>62</u>	Feet of <u>GAS IN PIPE</u>
Rec. <u>248</u>	Feet of <u>CLEAN GASSY OIL-10% GAS/ 90% OIL</u>
Rec. <u>186</u>	Feet of <u>SLTLY MUD CUT GASSY OIL-20% GAS/ 75% OIL/ 5% MUD</u>
Rec. <u>124</u>	Feet of <u>GSY OIL CUT MUD-30% GAS/ 30% OIL/ 40% MUD</u>
Rec. <u>186</u>	Feet of <u>SALT WATER</u>

BHT 118 °F Gravity 36 °API @ 60 °F Corrected Gravity 36 °API
RW 0.16 @ 53 °F Chlorides 80000 ppm Recovery Chlorides 1600 ppm System

(A) Initial Hydrostatic Mud 1911.7 PSI AK1 Recorder No. 5495 Range 4200

(B) First Initial Flow Pressure 37.2 PSI @ (depth) 3951 w / Clock No. 25813

(C) First Final Flow Pressure 176.5 PSI AK1 Recorder No. 11038 Range 5075

(D) Initial Shut-in Pressure 1216.5 PSI @ (depth) 3977 w / Clock No. 25814

(E) Second Initial Flow Pressure 203.0 PSI AK1 Recorder No. _____ Range _____

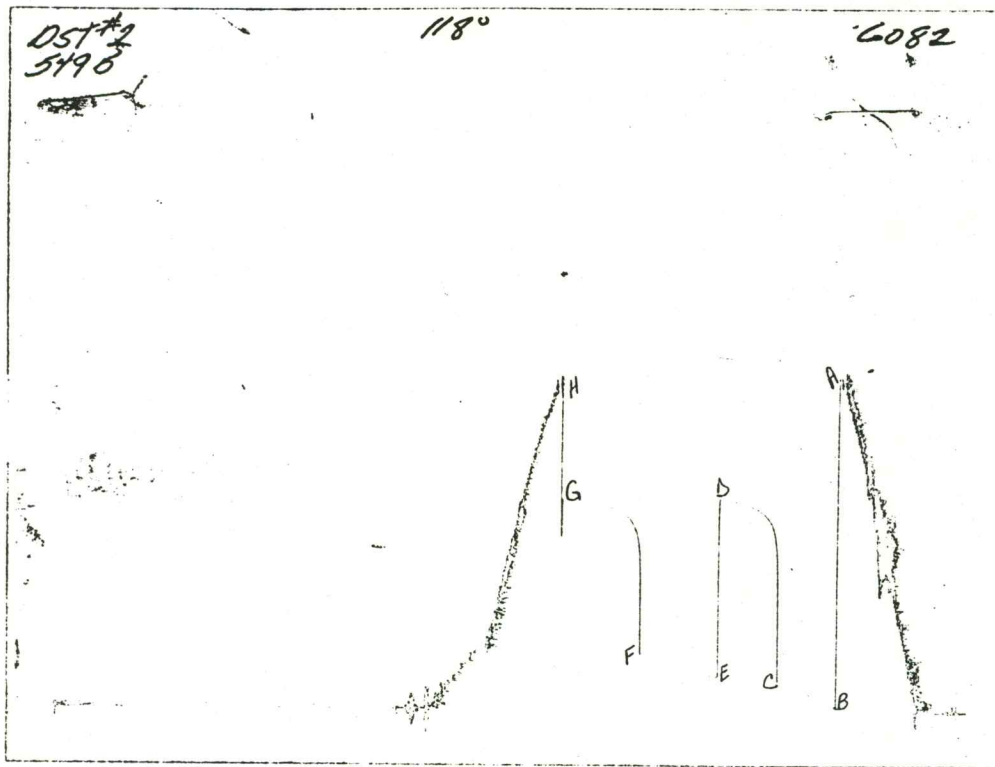
(F) Second Final Flow Pressure 328.6 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 1214.4 PSI Initial Opening 45 Final Flow 60

(H) Final Hydrostatic Mud 1870.9 PSI Initial Shut-in 45 Final Shut-in 60

Our Representative PETE WAGGONER

CHART PAGE



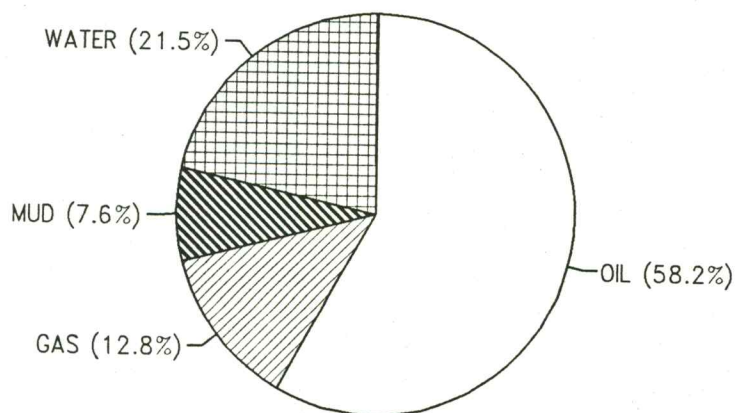
This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	1890	1911.7
(B) FIRST INITIAL FLOW PRESSURE	68	37.2
(C) FIRST FINAL FLOW PRESSURE	163	176.5
(D) INITIAL CLOSED-IN PRESSURE	1209	1216.5
(E) SECOND INITIAL FLOW PRESSURE	243	203
(F) SECOND FINAL FLOW PRESSURE	323	328.6
(G) FINAL CLOSED-IN PRESSURE	1222	1214.4
(H) FINAL HYDROSTATIC MUD	1890	1870.9

CALCULATED RECOVERY ANALYSIS

DST	2	TICKET # 6082							
SAMPLE #	TOTAL FEET	GAS %	FEET	OIL %	FEET	WATER %	FEET	MUD %	FEET
DRILL 1	112	10	11.2	90	100.8	0	0	0	0
PIPE 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
6			0		0		0		0
WEIGHT 1	136	10	13.6	90	122.4	0	0	0	0
PIPE 2	186	20	37.2	75	139.5	0	0	5	9.3
3	124	30	37.2	30	37.2	0	0	40	49.6
4	186	0	0	0	0	100	186	0	0
DRILL 1			0		0		0		0
COLLAR 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
TOTAL	744		99.2		399.9		186		58.9

			HRS OPEN	BBL/DAY
BBL OIL=	3.527076	*	1.75	48.371328
BBL WATER=	1.302	*		17.856
BBL MUD=	0.45942			
BBL GAS =	0.775264			



RUBY DIRKS #1
INITIAL

DST #2
SHUTIN

45 INITIAL FLOW TIME

SLOPE 239.4 PSI/CYCLE
P* 1285.26 PSI

	TIME(MIN)	Pws (psi)	Log Horn T	<> PRESSURE	Horn T
	3	984.1	1.204	984.1	16
	6	1068.6	0.929	84.5	9
	9	1108.7	0.778	40.1	6
	12	1129.9	0.677	21.2	5
	15	1143.6	0.602	13.7	4
	18	1157.3	0.544	13.7	4
	21	1167.9	0.497	10.6	3
	24	1177.4	0.459	9.5	3
	27	1183.7	0.426	6.3	3
X	30	1190.0	0.398	6.3	3
	33	1196.4	0.374	6.4	2
	36	1200.6	0.352	4.2	2
	39	1205.9	0.333	5.3	2
	42	1210.1	0.316	4.2	2
	45	1214.4	0.301	4.3	2
X	48	1216.5	0.287	2.1	2

RUBY DIRKS #1
FINAL

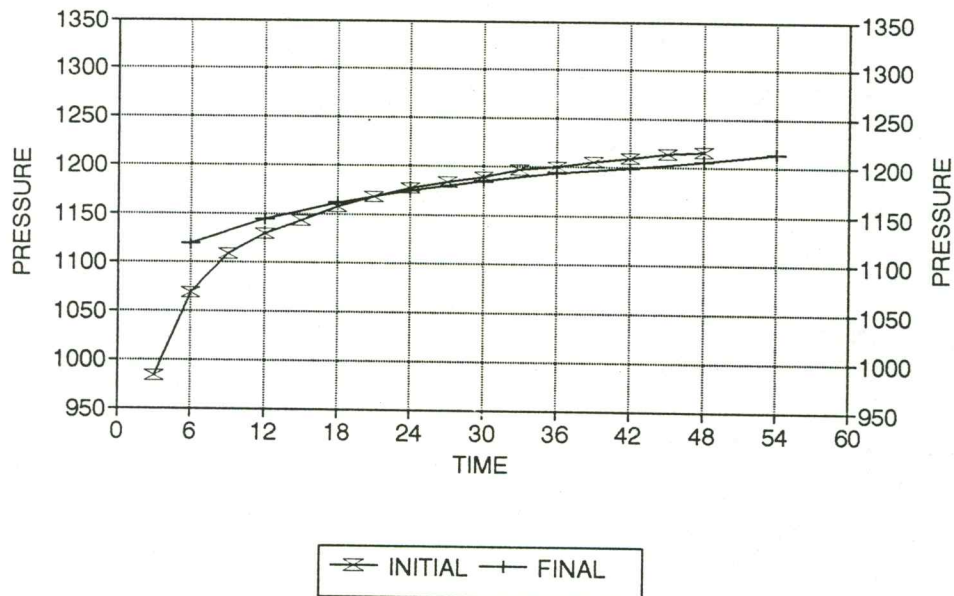
DST #2
SHUTIN

105 TOTAL FLOW TIME

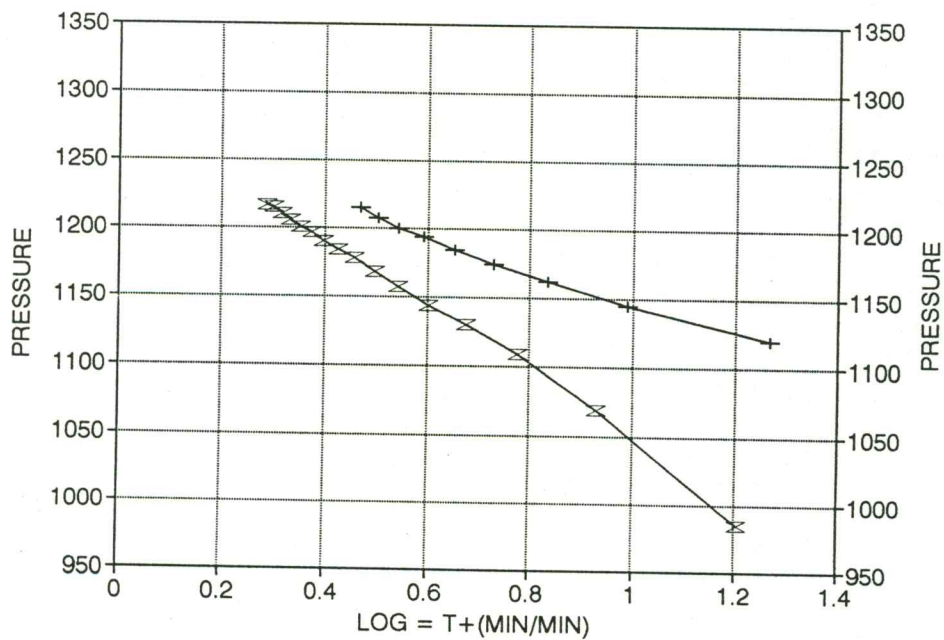
SLOPE 144.7 PSI/CYCLE
P* 1282.3 PSI

		Pws (psi)	Log Horn T	<> PRESSURE	Horn T
	6	1119.3	1.267	1119.3	19
	12	1144.6	0.989	25.3	10
X	18	1161.5	0.835	16.9	7
	24	1174.2	0.730	12.7	5
	30	1184.7	0.653	10.5	5
	36	1193.2	0.593	8.5	4
	42	1199.6	0.544	6.4	4
	48	1207.0	0.503	7.4	3
X	54	1214.4	0.469	7.4	3

RUBY DIRKS #1 / DST #2 DELTA T DELTA P



HORNER PLOT



TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name RUBY DIRKS #1 Test No. 3 Date 9/16/93
Company JOHN O FARMER INC Zone LKC-"D"
Address P.O. BOX 352 RUSSELL KS 67665 Elevation 3025
Co. Rep./Geo. JOHN O FARMER IV Cont. ABERCROMBIE RIG #4 Est. Ft. of Pay _____
Location: Sec. 6 Twp. 13S Rge. 33W Co. LOGAN State KS

Interval Tested <u>3998-4022</u>	Drill Pipe Size <u>4.5" XH</u>
Anchor Length <u>24</u>	Wt. Pipe I.D. - 2.7 Ft. Run <u>632</u>
Top Packer Depth <u>3993</u>	Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth <u>3998</u>	Mud Wt. <u>9.1</u> lb/Gal.
Total Depth <u>4022</u>	Viscosity <u>47</u> Filtrate <u>9.4</u>

Tool Open @ 5:43 Initial Blow VERY WEAK SURFACE BLOW 1/4"

Final Blow VERY WEAK SURFACE BLOW 1/4"

Recovery - Total Feet 11 Flush Tool? NO

Rec. <u>1</u>	Feet of <u>OIL</u>
Rec. <u>10</u>	Feet of <u>DRILLING MUD WITH SPECKS OF OIL</u>
Rec. _____	Feet of _____
Rec. _____	Feet of _____
Rec. _____	Feet of _____

BHT 100 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides _____ ppm System

(A) Initial Hydrostatic Mud 1911.7 PSI AK1 Recorder No. 5495 Range 4200

(B) First Initial Flow Pressure 19.2 PSI @ (depth) 4002 w / Clock No. 25813

(C) First Final Flow Pressure 24.8 PSI AK1 Recorder No. 11038 Range 5075

(D) Initial Shut-in Pressure 876.2 PSI @ (depth) 4019 w / Clock No. 25814

(E) Second Initial Flow Pressure 27.1 PSI AK1 Recorder No. _____ Range _____

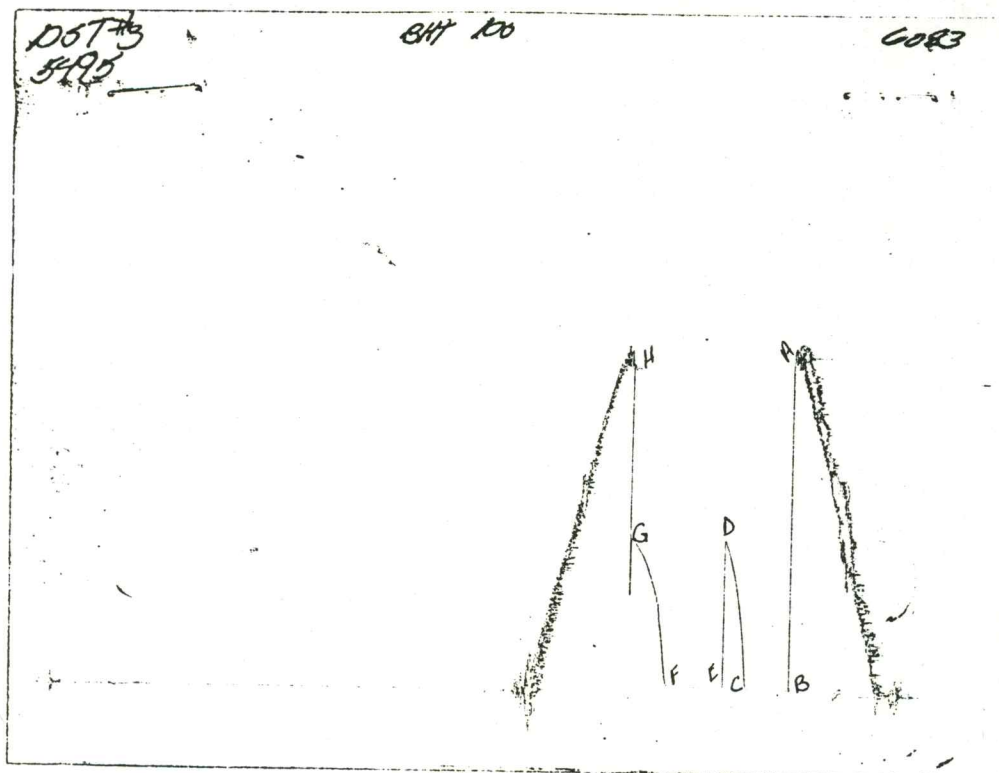
(F) Second Final Flow Pressure 33.8 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 879.4 PSI Initial Opening 30 Final Flow 30

(H) Final Hydrostatic Mud 1870.9 PSI Initial Shut-in 30 Final Shut-in 30

Our Representative PETE WAGGONER

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	1890	1911.7
(B) FIRST INITIAL FLOW PRESSURE	41	19.2
(C) FIRST FINAL FLOW PRESSURE	41	24.8
(D) INITIAL CLOSED-IN PRESSURE	855	876.2
(E) SECOND INITIAL FLOW PRESSURE	55	27.1
(F) SECOND FINAL FLOW PRESSURE	55	33.8
(G) FINAL CLOSED-IN PRESSURE	868	879.4
(H) FINAL HYDROSTATIC MUD	1890	1870.9

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name RUBY DIRKS #1 Test No. 4 Date 9/17/93
Company JOHN O FARMER INC Zone LKC-"H&I"
Address P.O. BOX 352 RUSSELL KS 67665 Elevation 3025
Co. Rep./Geo. JOHN O FARMER IV Cont. ABERCROMBIE RIG #4 Est. Ft. of Pay _____
Location: Sec. 6 Twp. 13S Rge. 33W Co. LOGAN State KS

Interval Tested 4077-4142
Anchor Length 65
Top Packer Depth 4072
Bottom Packer Depth 4077
Total Depth 4142

Drill Pipe Size 4.5" XH
Wt. Pipe I.D. - 2.7 Ft. Run 632
Drill Collar - 2.25 Ft. Run _____
Mud Wt. 9.2 lb/Gal.
Viscosity 55 Filtrate 9.8

Tool Open @ 10:06 AM Initial Blow VERY WEAK BLOW BUILDING TO 2 1/2"
ISI: bled off blow - NO RETURN
Final Blow VERY WEAK BLOW BUILDING TO 2"
FSI: bled off blow - NO RETURN

Recovery - Total Feet 340 Flush Tool? NO

Rec. 280 Feet of GAS IN PIPE
Rec. 154 Feet of CLEAN GASSY OIL
Rec. 186 Feet of GAS & OIL CUT MUD-10% GAS/10% OIL/80%MUD
Rec. _____ Feet of _____
Rec. _____ Feet of _____

BHT 112 °F Gravity 34 °API @ 80 °F Corrected Gravity 32 °API
RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides _____ ppm System

(A) Initial Hydrostatic Mud 2006.9 PSI AK1 Recorder No. 5495 Range 4200

(B) First Initial Flow Pressure 32.7 PSI @ (depth) 4082 w / Clock No. 25813

(C) First Final Flow Pressure 94.4 PSI AK1 Recorder No. 11038 Range 5075

(D) Initial Shut-in Pressure 1255.6 PSI @ (depth) 4139 w / Clock No. 25814

(E) Second Initial Flow Pressure 113.3 PSI AK1 Recorder No. _____ Range _____

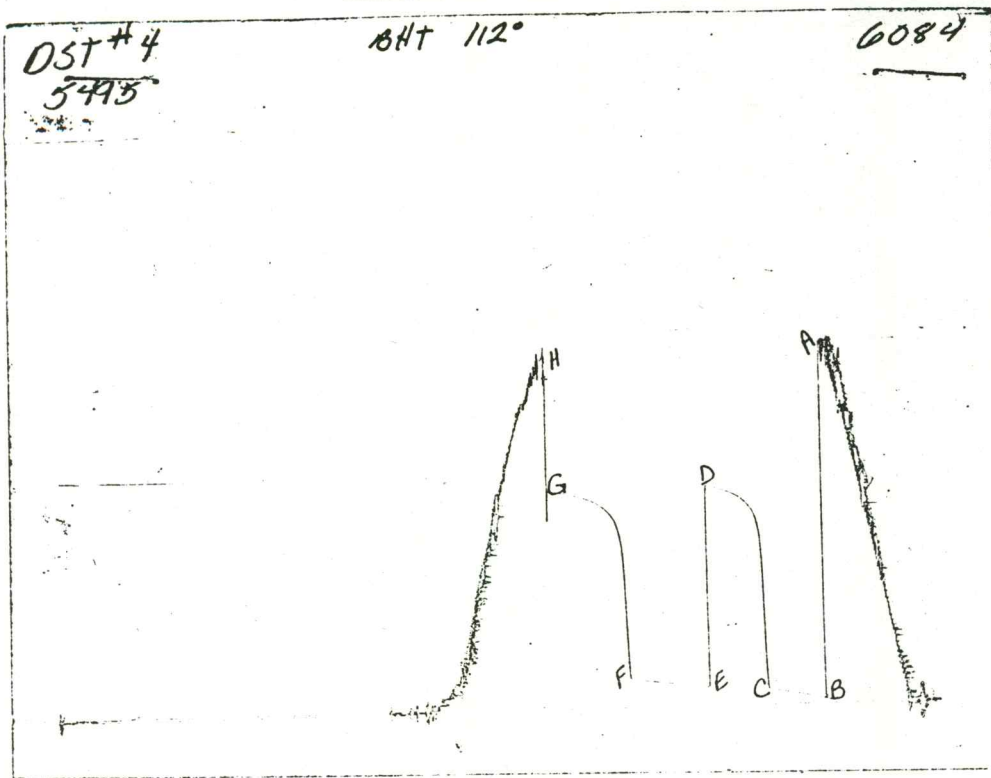
(F) Second Final Flow Pressure 171.1 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 1241.8 PSI Initial Opening 45 Final Flow 60

(H) Final Hydrostatic Mud 2001.8 PSI Initial Shut-in 45 Final Shut-in 60

Our Representative PETE WAGGONER

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2004	2006.9
(B) FIRST INITIAL FLOW PRESSURE	68	32.7
(C) FIRST FINAL FLOW PRESSURE	109	94.4
(D) INITIAL CLOSED-IN PRESSURE	1235	1255.6
(E) SECOND INITIAL FLOW PRESSURE	149	113.3
(F) SECOND FINAL FLOW PRESSURE	176	171.1
(G) FINAL CLOSED-IN PRESSURE	1247	1241.8
(H) FINAL HYDROSTATIC MUD	2004	2001.8

CALCULATED RECOVERY ANALYSIS

WEIGHT PIPE

DST #

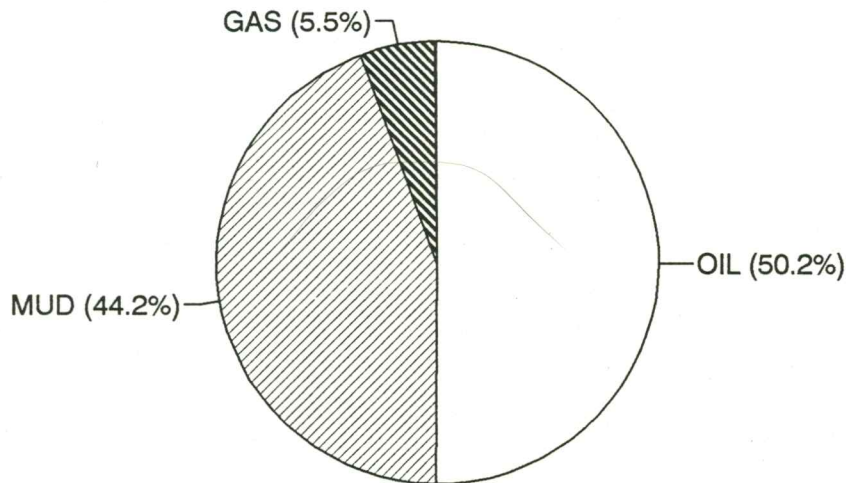
4

TICKET #

6084

SAMPLE #	TOTAL FEET	GAS		OIL		WATER		MUD	
		%	FEET	%	FEET	%	FEET	%	FEET
1	154	0	0	100	154	0	0	0	0
2	186	10	18.6	10	15	0	0	80	148.8
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
TOTAL	340	5.471	18.6	49.705882	169	0	0	43.765	148.8

			HRS OPEN	BBL/DAY
BBL OIL=	1.183	*	1.75	16.224
BBL WATER=	0	*		0
BBL MUD=	1.0416			
BBL GAS=	0.1302			



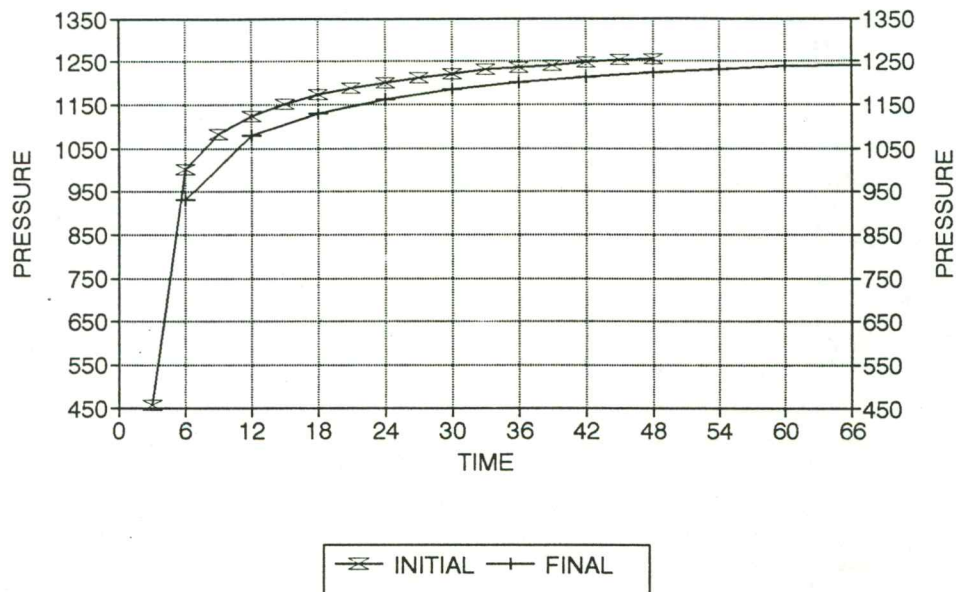
RUBY DIRKS #1
INITIAL

		DST #4			
		SHUTIN			
45	INITIAL FLOW TIME	SLOPE	232.1	PSI/CYCLE	
		P*	1322.26	PSI	
		Log	<>		
	TIME(MIN)	Pws (psi)	Horn T	PRESSURE	Horn T
		-----	-----	-----	-----
	3	456.0	1.204	456.0	16
	6	999.9	0.929	543.9	9
	9	1083.3	0.778	83.4	6
	12	1122.5	0.677	39.2	5
	15	1151.0	0.602	28.5	4
	18	1173.1	0.544	22.1	4
	21	1189.0	0.497	15.9	3
	24	1200.6	0.459	11.6	3
	27	1212.2	0.426	11.6	3
X	30	1221.8	0.398	9.6	3
	33	1230.2	0.374	8.4	2
	36	1236.6	0.352	6.4	2
	39	1240.8	0.333	4.2	2
	42	1247.1	0.316	6.3	2
	45	1252.4	0.301	5.3	2
X	48	1255.6	0.287	3.2	2

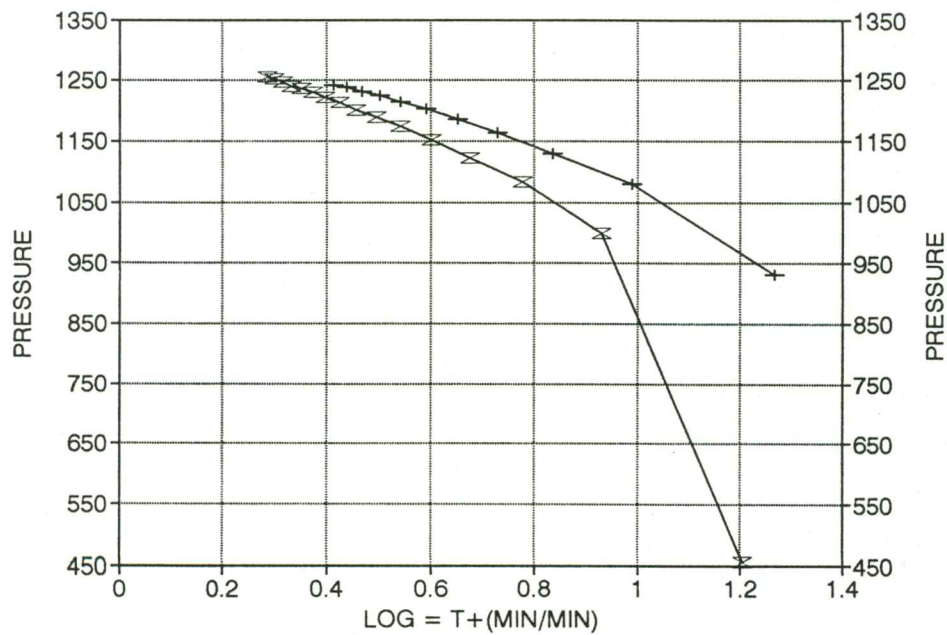
RUBY DIRKS #1
FINAL

		DST #4			
		SHUTIN			
105	TOTAL FLOW TIME	SLOPE	189.0	PSI/CYCLE	
		P*	1319.9	PSI	
		Log	<>		
	Pws (psi)	Horn T	PRESSURE	Horn T	
		-----	-----	-----	-----
	6	931.2	1.267	931.2	19
	12	1080.2	0.989	149.0	10
	18	1129.9	0.835	49.7	7
	24	1162.6	0.730	32.7	5
	30	1185.8	0.653	23.2	5
	36	1202.7	0.593	16.9	4
	42	1214.4	0.544	11.7	4
	48	1223.9	0.503	9.5	3
X	54	1231.3	0.469	7.4	3
	60	1238.7	0.439	7.4	3
X	66	1241.8	0.413	3.1	3

RUBY DIRKS #1 / DST #4 DELTA T DELTA P



HORNER PLOT



WELL NAME John O. Farmer DST # 4 RECORDER # 5495

INIT. HYD. MUD.		FINAL HYD. MUD	
INITIAL FLOW	INITIAL SHUTIN	FINAL FLOW	FINAL SHUTIN
MINUTES	MINUTES <u>45</u>	MINUTES <u>60</u>	MINUTES <u>60</u>
INTERVAL	INTERVAL <u>3</u>	INTERVAL	INTERVAL <u>10</u>
<u>.029</u>	<u>32.7</u>	1 <u>.101</u>	<u>113.3</u>
	<u>.415</u>	2	<u>.862</u>
	<u>.927</u>	3	<u>1.003</u>
	<u>1.006</u>	4	<u>1.050</u>
	<u>1.043</u>	5	<u>1.081</u>
	<u>1.070</u>	6	<u>1.103</u>
	<u>1.091</u>	7	<u>1.119</u>
	<u>1.106</u>	8	<u>1.130</u>
	<u>1.117</u>	9	<u>1.139</u>
	<u>1.128</u>	10	<u>1.146</u>
<u>.084</u>	<u>1.137</u>	11	<u>1.153</u>
	<u>1.145</u>	12	<u>1.156</u> <u>124.8</u>
	<u>1.151</u>	13	
	<u>1.155</u>	14	
	<u>1.161</u>	15	
	<u>1.166</u>	16	
	<u>1.169</u> <u>1255.6</u>	17	
		18	
		19	
		20	
		21 <u>.153</u>	<u>171.1</u>
		22	
		23	
		24	
		25	
		26	
		27	

#4

1	0.415	456.0571
2	0.927	999.9705
3	1.006	1083.398
4	1.043	1122.517
5	1.07	1151.031
6	1.091	1173.189
7	1.106	1189.028
8	1.117	1200.664
9	1.128	1212.296
10	1.137	1221.81
11	1.145	1230.265
12	1.151	1236.605
13	1.155	1240.831
14	1.161	1247.169
15	1.166	1252.45
16	1.169	1255.618

1	0.862	931.2875
2	1.003	1080.224
3	1.05	1129.912
4	1.081	1162.639
5	1.103	1185.854
6	1.119	1202.779
7	1.13	1214.41
8	1.139	1223.924
9	1.146	1231.322
10	1.153	1238.718
11	1.156	1241.888

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name RUBY DIRKS #1 Test No. 5 Date 9/18/93
Company JOHN O FARMER INC Zone LKC - "J-K"
Address P.O. BOX 352 RUSSELL KS 67665 Elevation 3025
Co. Rep./Geo. JOHN O FARMER IV Cont. ABERCROMBIE RIG #4 Est. Ft. of Pay _____
Location: Sec. 6 Twp. 13S Rge. 33W Co. LOGAN State KS

Interval Tested	<u>4138-4198</u>	Drill Pipe Size	<u>4.5" XH</u>
Anchor Length	<u>60</u>	Wt. Pipe I.D. - 2.7 Ft. Run	<u>632</u>
Top Packer Depth	<u>4133</u>	Drill Collar - 2.25 Ft. Run	_____
Bottom Packer Depth	<u>4138</u>	Mud Wt.	<u>9.2</u> lb/Gal.
Total Depth	<u>4198</u>	Viscosity	<u>55</u>
		Filtrate	<u>9.8</u>

Tool Open @ 2:43 AM Initial Blow WEAK BUILDING TO STRONG-OFF BOTTOM IN 8 MINUTES
ISI: bled off blow-NO RETURN
Final Blow WEAK BUILDING TO STRONG - OFF BOTTOM IN 12 MINUTES
FSI: bled off blow - VERY WEAK SURFACE BLOW

Recovery - Total Feet 923 Flush Tool? NO

Rec. <u>62</u>	Feet of	<u>GAS IN PIPE</u>
Rec. <u>5</u>	Feet of	<u>CLEAN GASSY OIL-10%GAS/90%OIL</u>
Rec. <u>298</u>	Feet of	<u>GAS & OIL CUT MUD-10%GAS/30%OIL/60%MUD</u>
Rec. <u>186</u>	Feet of	<u>GAS & OIL CUT MUDDY WATER -5%GAS/5%OIL/60%WTR/30%MUD</u>
Rec. <u>434</u>	Feet of	<u>WTR WITH TRACE OF OIL</u>

BHT 120 °F Gravity 30 °API @ 60 °F Corrected Gravity 30 °API
RW 0.183 @ 60 °F Chlorides 80000 ppm Recovery Chlorides 3500 ppm System

(A) Initial Hydrostatic Mud 2077.9 PSI AK1 Recorder No. 5495 Range 4200

(B) First Initial Flow Pressure 49.6 PSI @ (depth) 4148 w / Clock No. 25813

(C) First Final Flow Pressure 302.5 PSI AK1 Recorder No. 11038 Range 5075

(D) Initial Shut-in Pressure 1232.3 PSI @ (depth) 4195 w / Clock No. 25814

(E) Second Initial Flow Pressure 342.7 PSI AK1 Recorder No. _____ Range _____

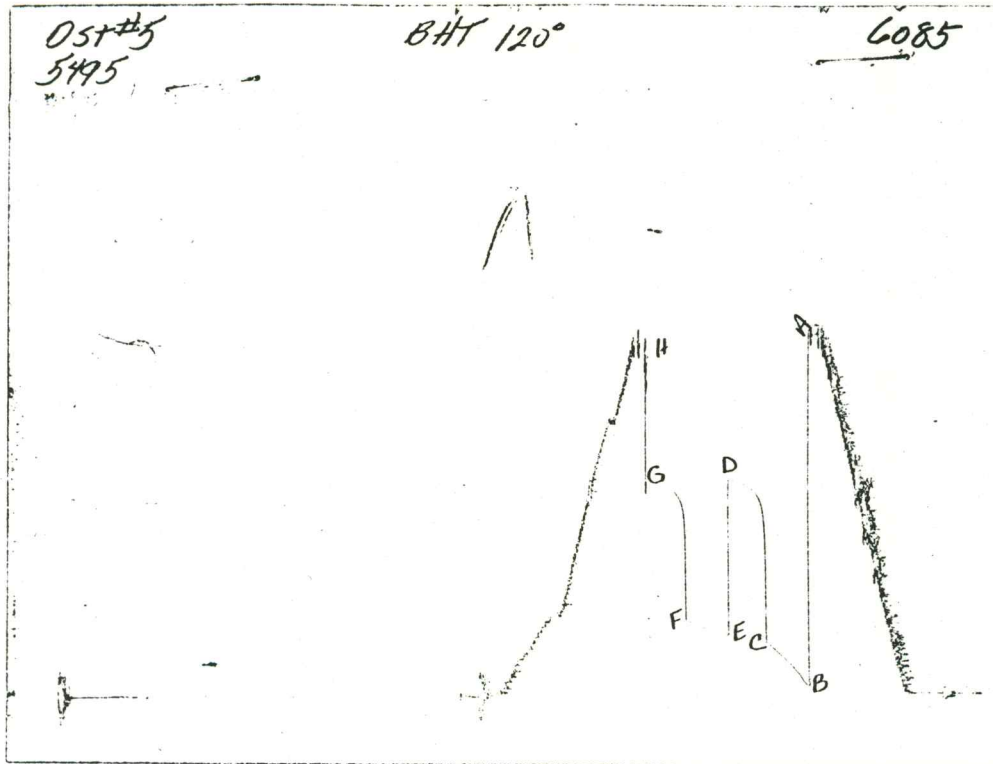
(F) Second Final Flow Pressure 439.9 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 1222.8 PSI Initial Opening 30 Final Flow 30

(H) Final Hydrostatic Mud 2055.8 PSI Initial Shut-in 30 Final Shut-in 30

Our Representative PETE WAGGONER

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2068	2077.9
(B) FIRST INITIAL FLOW PRESSURE	109	49.6
(C) FIRST FINAL FLOW PRESSURE	310	302.5
(D) INITIAL CLOSED-IN PRESSURE	1222	1232.3
(E) SECOND INITIAL FLOW PRESSURE	402	342.7
(F) SECOND FINAL FLOW PRESSURE	520	439.9
(G) FINAL CLOSED-IN PRESSURE	1247	1222.8
(H) FINAL HYDROSTATIC MUD	2068	2055.8

CALCULATED RECOVERY ANALYSIS

DST

5

TICKET #

6085

SAMPLE	TOTAL	GAS		OIL		WATER		MUD	
#	FEET	%	FEET	%	FEET	%	FEET	%	FEET
DRILL 1	5	10	0.5	90	4.5	0	0	0	0
PIPE 2	286	10	28.6	30	85.8	0	0	60	171.6
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
6			0		0		0		0
WEIGHT 1	12	10	1.2	90	10.8	0	0	60	7.2
PIPE 2	186	5	9.3	5	9.3	60	111.6	30	55.8
3	434	0	0	0	0	100	434	0	0
4			0		0		0		0
DRILL 1			0		0		0		0
COLLAR 2			0		0		0		0
3			0		0		0		0
4			0		0		0		0
5			0		0		0		0
TOTAL	923		39.6		110.4		545.6		234.6

HRS OPEN BBL/DAY

BBL OIL= 1.424766 *

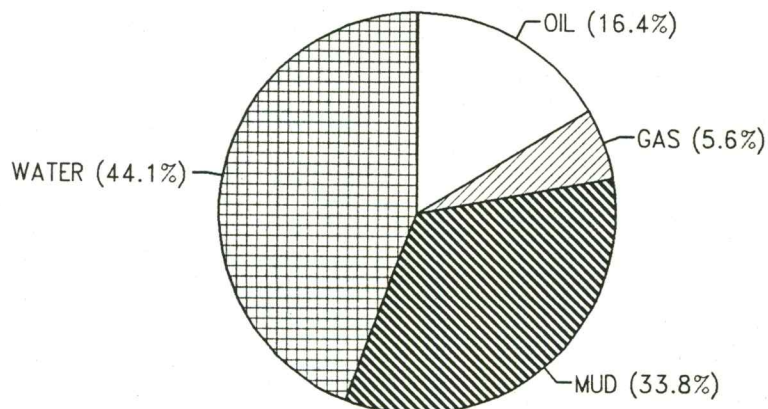
1 34.194384

BBL WATER= 3.8192 *

91.6608

BBL MUD= 2.931552

BBL GAS = 0.487302



TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name RUBY DIRKS #1 Test No. 6 Date 9/18/93
Company JOHN O FARMER INC Zone LKC-"L"
Address P.O. BOX 352 RUSSELL KS 67665 Elevation 3025
Co. Rep./Geo. JOHN O FARMER IV Cont. ABERCROMBIE RIG #4 Est. Ft. of Pay _____
Location: Sec. 6 Twp. 13S Rge. 33W Co. LOGAN State KS

Interval Tested 4196-4224
Anchor Length 28
Top Packer Depth 4191
Bottom Packer Depth 4196
Total Depth 4224

Drill Pipe Size 4.5" XH
Wt. Pipe I.D. - 2.7 Ft. Run 632
Drill Collar - 2.25 Ft. Run _____
Mud Wt. 9.2 lb/Gal.
Viscosity 47 Filtrate 9.6

Tool Open @ 2:40 PM Initial Blow VERY WEAK BUILDING TO 1 1/2"
ISI: BLED OFF BLOW - NO RETURN
Final Blow VERY WEAK BLOW BUILDING TO 1/2"
FSI: BLED OFF BLOW - NO RETURN

Recovery - Total Feet 90 Flush Tool? NO

Rec. 90 Feet of DRILLING MUD
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____

BHT 106 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides _____ ppm System

(A) Initial Hydrostatic Mud 2077.9 PSI AK1 Recorder No. 5495 Range 4200

(B) First Initial Flow Pressure 99.3 PSI @ (depth) 4202 w / Clock No. 25813

(C) First Final Flow Pressure 99.3 PSI AK1 Recorder No. 11038 Range 5075

(D) Initial Shut-in Pressure 1267.9 PSI @ (depth) 4219 w / Clock No. 25814

(E) Second Initial Flow Pressure 126.9 PSI AK1 Recorder No. _____ Range _____

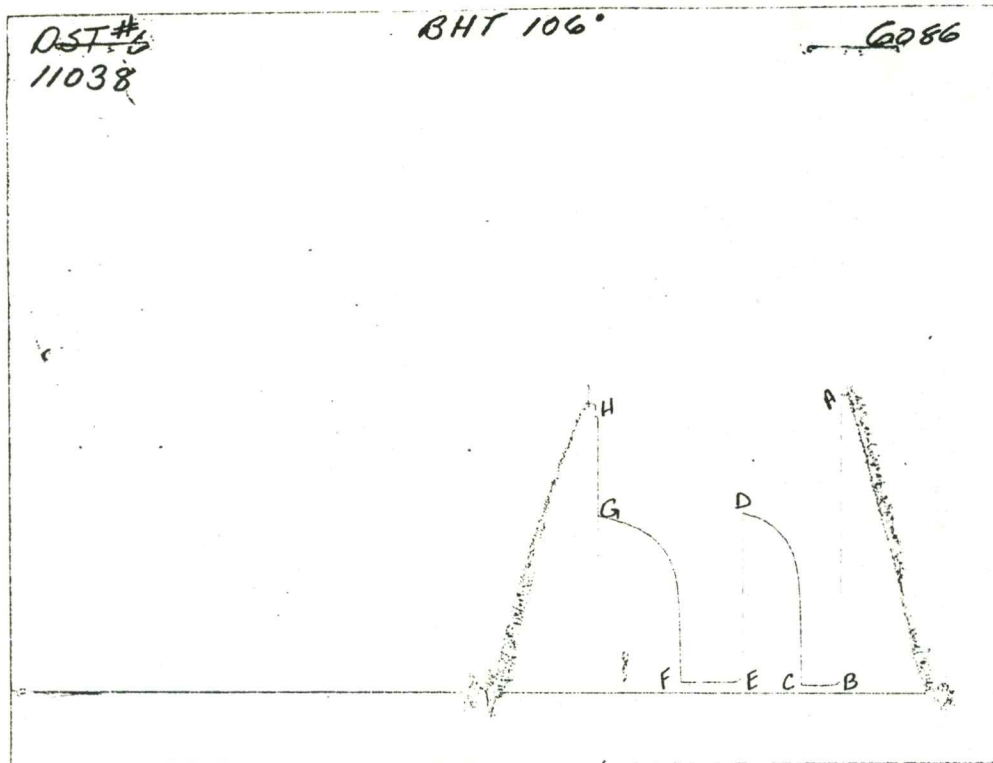
(F) Second Final Flow Pressure 130.5 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 1244.3 PSI Initial Opening 30 Final Flow 45

(H) Final Hydrostatic Mud 2055.8 PSI Initial Shut-in 45 Final Shut-in 60

Our Representative PETE WAGGONER

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2055	2077.9
(B) FIRST INITIAL FLOW PRESSURE	68	99.3
(C) FIRST FINAL FLOW PRESSURE	68	99.3
(D) INITIAL CLOSED-IN PRESSURE	1247	1267.9
(E) SECOND INITIAL FLOW PRESSURE	95	126.9
(F) SECOND FINAL FLOW PRESSURE	95	130.5
(G) FINAL CLOSED-IN PRESSURE	1222	1244.3
(H) FINAL HYDROSTATIC MUD	2055	2055.8

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name RUBY DIRKS #1 Test No. 7 Date 9/19/93
Company JOHN O FARMER INC Zone MYRIK/FT SCT
Address P.O. BOX 352 RUSSELL KS 67665 Elevation 3025
Co. Rep./Geo. JOHN O FARMER IV Cont. ABERCROMBIE RIG #4 Est. Ft. of Pay _____
Location: Sec. 6 Twp. 13S Rge. 33W Co. LOGAN State KS

Interval Tested 4390-4471 Drill Pipe Size 4.5" XH
Anchor Length 81 Wt. Pipe I.D. - 2.7 Ft. Run 570
Top Packer Depth 4385 Drill Collar - 2.25 Ft. Run _____
Bottom Packer Depth 4390 Mud Wt. 9.4 lb/Gal.
Total Depth 4471 Viscosity 44 Filtrate 10

Tool Open @ 3:34 PM Initial Blow VERY WEAK BLOW 1/4"

Final Blow VERY WEAK BLOW 1/4"

Recovery - Total Feet 30 Flush Tool? NO

Rec. 30 Feet of DRILLING MUD WITH SPECKS OF OIL
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____
Rec. _____ Feet of _____

BHT 108 °F Gravity _____ °API @ _____ °F Corrected Gravity _____ °API
RW _____ @ _____ °F Chlorides _____ ppm Recovery Chlorides _____ ppm System

(A) Initial Hydrostatic Mud 2197.6 PSI AK1 Recorder No. 5495 Range 4200

(B) First Initial Flow Pressure 77.3 PSI @ (depth) 4400 w / Clock No. 25813

(C) First Final Flow Pressure 77.3 PSI AK1 Recorder No. 11038 Range 5075

(D) Initial Shut-in Pressure 955.2 PSI @ (depth) 4468 w / Clock No. 25814

(E) Second Initial Flow Pressure 110.6 PSI AK1 Recorder No. _____ Range _____

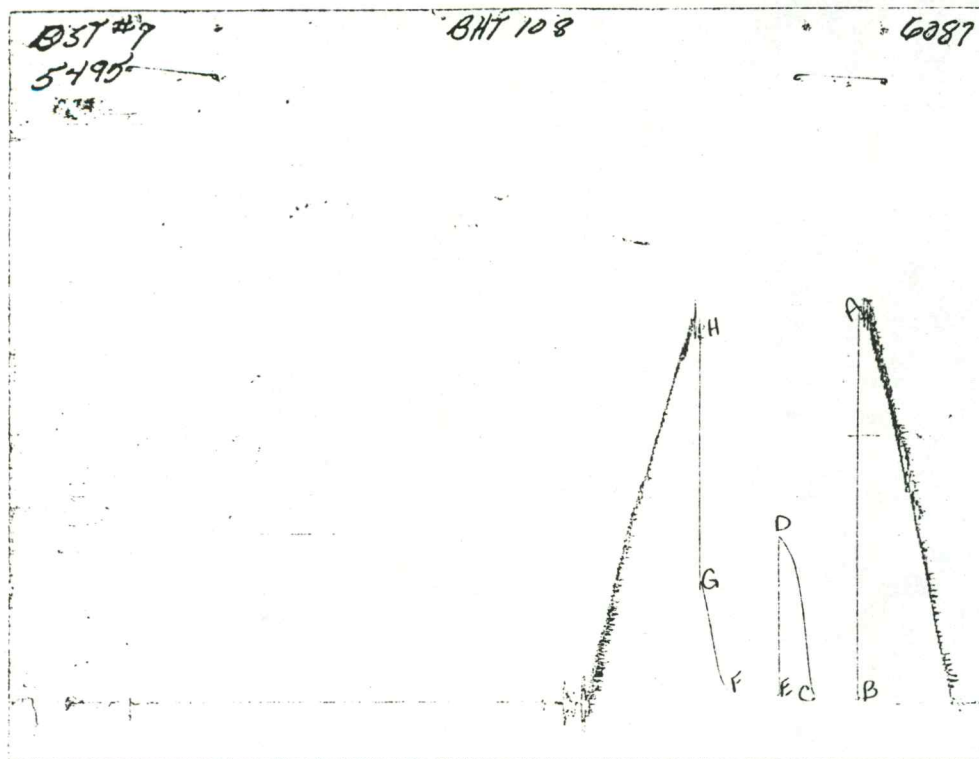
(F) Second Final Flow Pressure 112.8 PSI @ (depth) _____ w / Clock No. _____

(G) Final Shut-in Pressure 730.9 PSI Initial Opening 30 Final Flow 30

(H) Final Hydrostatic Mud 2135.4 PSI Initial Shut-in 30 Final Shut-in 30

Our Representative PETE WAGGONER

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2182	2197.6
(B) FIRST INITIAL FLOW PRESSURE	82	77.3
(C) FIRST FINAL FLOW PRESSURE	82	77.3
(D) INITIAL CLOSED-IN PRESSURE	970	955.2
(E) SECOND INITIAL FLOW PRESSURE	95	110.6
(F) SECOND FINAL FLOW PRESSURE	95	112.8
(G) FINAL CLOSED-IN PRESSURE	715	730.9
(H) FINAL HYDROSTATIC MUD	2131	2135.4

TRILOBITE TESTING, L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Drill-Stem Test Data

Well Name RUBY DIRKS #1 Test No. 8 Date 9/20/93
Company JOHN O FARMER INC Zone JOHNSON
Address P.O. BOX 352 RUSSELL KS 67665 Elevation 3025
Co. Rep./Geo. JOHN O FARMER IV Cont. ABERCROMBIE RIG #4 Est. Ft. of Pay 10-12
Location: Sec. 6 Twp. 13S Rge. 33W Co. LOGAN State KS

Interval Tested	<u>4467-4524</u>	Drill Pipe Size	<u>4.5" XH</u>
Anchor Length	<u>57</u>	Wt. Pipe I.D. - 2.7 Ft. Run	<u>632</u>
Top Packer Depth	<u>4462</u>	Drill Collar - 2.25 Ft. Run	<u> </u>
Bottom Packer Depth	<u>4467</u>	Mud Wt.	<u>9.4</u> lb/Gal.
Total Depth	<u>4524</u>	Viscosity	<u>44</u> Filtrate <u>10</u>

Tool Open @ 5:40 AM Initial Blow VERY STRONG BLOW - BOTTOM OF BUCKET IN 1 1/2 MIN
bled off blow - weak blow - BUILT TO BOTTOM OF BUCKET IN 17 MINUTES
Final Blow BOTTOM OF BUCKET AS TOOL OPENED
bled off blow - weak blow - BUILT TO BOTTOM OF BUCKET IN 15 MINUTES

Recovery - Total Feet 1400 Flush Tool? NO

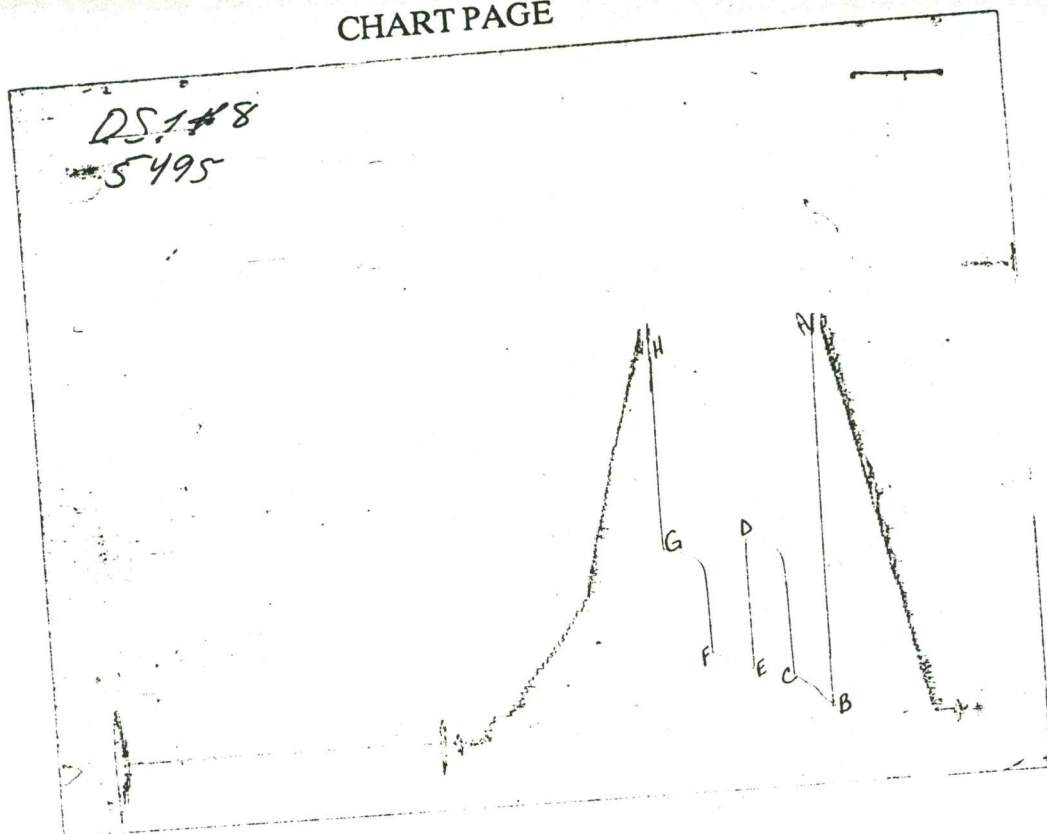
Rec. <u>2183</u>	Feet of	<u>GAS IN PIPE</u>
Rec. <u>1028</u>	Feet of	<u>CLEAN GASSY OIL-20% GAS/ 80% MUD</u>
Rec. <u>372</u>	Feet of	<u>GAS & OIL CUT MUD- 15% GAS/ 30% OIL/ 55% MUD</u>
Rec. <u> </u>	Feet of	<u> </u>
Rec. <u> </u>	Feet of	<u> </u>

BHT 110 °F Gravity 37 °API @ 70 °F Corrected Gravity 36.3 °API
RW @ °F Chlorides ppm Recovery Chlorides 3800 ppm System

(A) Initial Hydrostatic Mud	<u>2221.7</u> PSI	AK1 Recorder No.	<u>5495</u>	Range	<u>4200</u>
(B) First Initial Flow Pressure	<u>86.6</u> PSI	@ (depth)	<u>4472</u>	w / Clock No.	<u>25813</u>
(C) First Final Flow Pressure	<u>269.8</u> PSI	AK1 Recorder No.	<u>11038</u>	Range	<u>5075</u>
(D) Initial Shut-in Pressure	<u>1058.0</u> PSI	@ (depth)	<u>4521</u>	w / Clock No.	<u>25814</u>
(E) Second Initial Flow Pressure	<u>310.1</u> PSI	AK1 Recorder No.	<u> </u>	Range	<u> </u>
(F) Second Final Flow Pressure	<u>430.2</u> PSI	@ (depth)	<u> </u>	w / Clock No.	<u> </u>
(G) Final Shut-in Pressure	<u>1028.5</u> PSI	Initial Opening	<u>30</u>	Final Flow	<u>30</u>
(H) Final Hydrostatic Mud	<u>2211.2</u> PSI	Initial Shut-in	<u>30</u>	Final Shut-in	<u>30</u>

Our Representative TOM HORACEK

CHART PAGE



This is an actual photograph of recorder chart

	FIELD READING	OFFICE READING
(A) INITIAL HYDROSTATIC MUD	2246	2221.7
(B) FIRST INITIAL FLOW PRESSURE	149	86.6
(C) FIRST FINAL FLOW PRESSURE	283	269.8
(D) INITIAL CLOSED-IN PRESSURE	1096	1058
(E) SECOND INITIAL FLOW PRESSURE	363	310.1
(F) SECOND FINAL FLOW PRESSURE	455	430.2
(G) FINAL CLOSED-IN PRESSURE	1058	1028.5
(H) FINAL HYDROSTATIC MUD	2233	2211.2

COMPUTER OIL EVALUATION BY TRILOBITE TESTING, L.L.C.

JOHN O FARMER INC

RUBY DIRKS #1

DST 8

6 13S 33W

LOGAN KS

```
*****
ELEVATION:          3025 KB      EST. PAY          8 FT
DATUM:              -1448      ZONE TESTED:     JOHNSON
TEST INTERVAL:      4467-4524   TIME INTERVALS:  30-30-30-30
RECORDER DEPTH:     4472      VISCOSITY:       6.96 CP
BOTTOM HOLE TEMP:   110       HOLE SIZE:       7.875 IN
*****
```

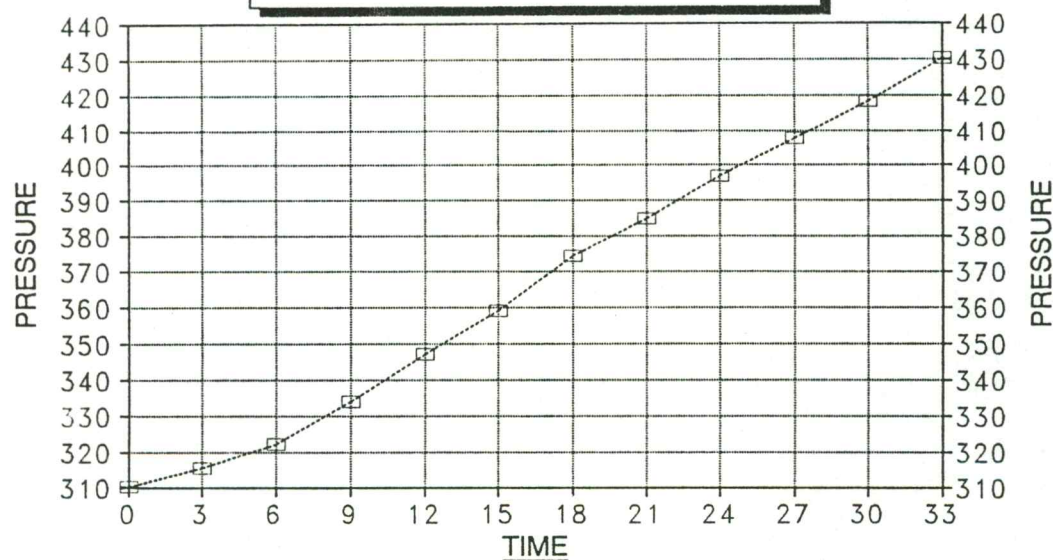
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*****
CUBIC FEET OF GAS IN PIPE:      174
TOTAL FEET OF RECOVERY:        1400.00  CORRECTED PIPE FILLUP:      1175.410
TOTAL BARRELS OF RECOVERY:     15.34  CORR. BARRELS OF RECOVERY:  12.145 BBL
BARRELS IN DRILL PIPE:         10.92  API GRAVITY:              36
BARRELS IN WEIGHT PIPE:        4.42  FLUID GRADIENT:          0.366
BARRELS IN DRILL COLLARS:       0.00
GAS OIL RATIO:                 11.36  CU.FT/BBL
BUBBLE POINT PRESSURE:         93
UNCORRECTED INITIAL PRODUCTION:                                368.28 BBL
INITIAL PRODUCTION CORRECTED TO FINAL FLOW PRESSURE:           291.49 BBL/DAY
INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:      216.726
*****
```

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*****
INITIAL SLOPE          132.02 PSI/CYCL FINAL SLOPE          117.85 PSI/CYCLE
INITIAL P*             1097.74 PSI      FINAL P*           1081.53 PSI
*****
```

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*****
TRANSMISSIBILITY                                402.16 (MD.-FT./CP.)
PERMEABILITY                                349.77 (MD.)
INDICATED FLOW CAPACITY                     2798.19 (MD.FT)
PRODUCTIVITY INDEX                           0.45 (BARREL/DAY/PSI)
DAMAGE RATIO                                1.01
RADIUS OF INVESTIGATION                     144.87 (FT,)
POTENTIOMETRIC SURFACE                     1061.07 (FT.)
DRAWDOWN FACTOR                             1.477 (%)
THEORETICAL POTENTIAL FROM FINAL FLOW PRESSURE 294.80
THEORETICAL POTENTIAL FROM PSEUDO STEADY FLOW STATE 219.19
*****
```


DELTA T DELTA P

FINAL FLOW / DST #8



--- RUBY DIRKS #1

INITIAL PRODUCTION CORRECTED TO PSEUDO STEADY FLOW STATE:

216.726

FINAL FLOW

RECORDER 5495

DST # 8

TIME(MIN) PRESSURE <> PRESSURE

0	310.1	310.1
3	315.6	5.5
6	322.1	6.5
9	334.0	11.9
12	347.1	13.1
15	359.0	11.9
18	374.1	15.1
21	384.9	10.8
24	396.8	11.9
27	407.6	10.8
30	418.4	10.8
33	430.2	11.8

RUBY DIRKS #1
INITIAL

DST #8
SHUTIN

30 INITIAL FLOW TIME SLOPE 132.0 PSI/CYCLE
P* 1097.74 PSI

Log <>
TIME(MIN) Pws (psi) Horn T PRESSURE Horn T

3 958.7 1.041 958.7 11
6 986.2 0.778 27.5 6
9 1003.1 0.637 16.9 4
12 1015.8 0.544 12.7 4
15 1027.4 0.477 11.6 3
18 1034.8 0.426 7.4 3
21 1043.2 0.385 8.4 2
24 1048.5 0.352 5.3 2
X 27 1054.9 0.325 6.4 2
X 30 1058.0 0.301 3.1 2

RUBY DIRKS #1
FINAL

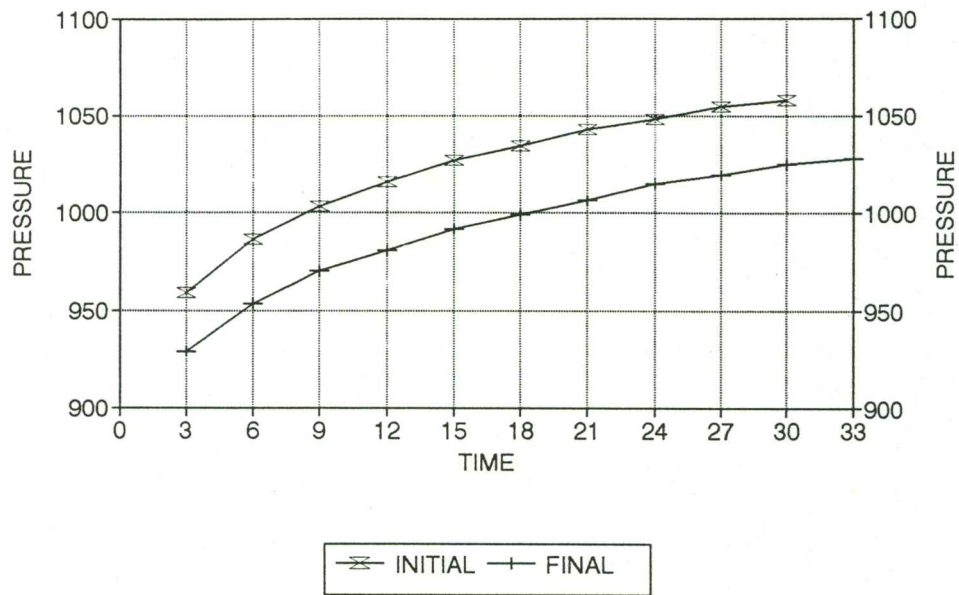
DST #8
SHUTIN

60 TOTAL FLOW TIME SLOPE 117.9 PSI/CYCLE
P* 1081.5 PSI

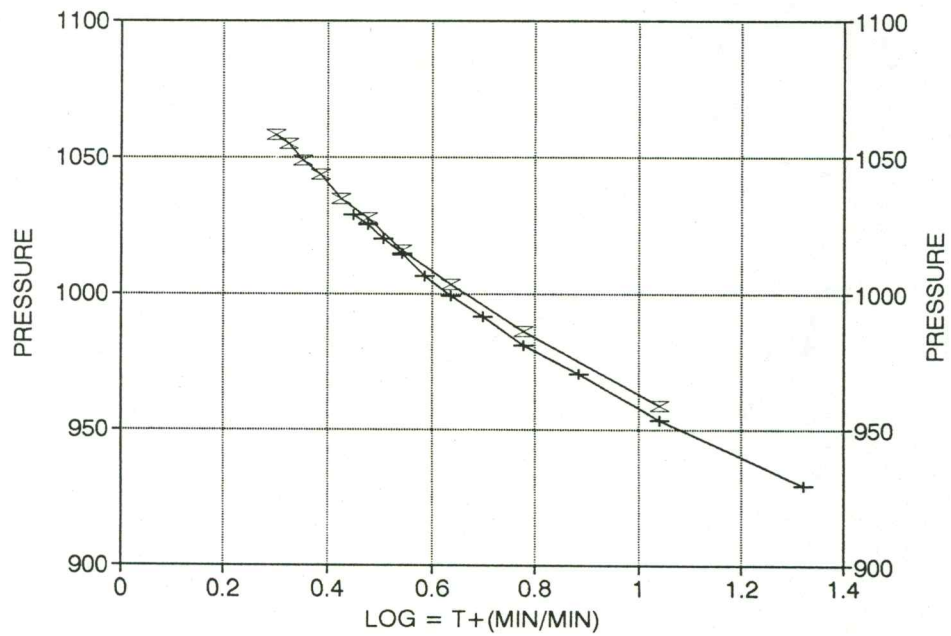
Log <>
Pws (psi) Horn T PRESSURE Horn T

3 929.1 1.322 929.1 21
6 953.4 1.041 24.3 11
9 970.3 0.885 16.9 8
12 980.9 0.778 10.6 6
15 991.5 0.699 10.6 5
18 998.9 0.637 7.4 4
21 1006.3 0.586 7.4 4
24 1014.7 0.544 8.4 4
27 1020.0 0.508 5.3 3
X 30 1025.3 0.477 5.3 3
X 33 1028.5 0.450 3.2 3

RUBY DIRKS #1 / DST #8 DELTA T DELTA P



HORNER PLOT



WELL NAME John O. Farmer DST # 8 RECORDER # 5495
INIT. HYD. MUD. 2.084 2221.7 FINAL HYD. MUD 2.074 2211.2

INITIAL FLOW		INITIAL SHUTIN		FINAL FLOW		FINAL SHUTIN	
MINUTES	INTERVAL	MINUTES	INTERVAL	MINUTES	INTERVAL	MINUTES	INTERVAL
<u>.077</u>	<u>86.6</u>			1	<u>280</u> <u>310.1</u>		
<u>.089</u>		<u>.888</u>		2	<u>285</u>	<u>860</u>	
<u>.108</u>		<u>.914</u>		3	<u>291</u>	<u>883</u>	
<u>.133</u>		<u>.930</u>		4	<u>302</u>	<u>899</u>	
<u>.163</u>		<u>.943</u>		5	<u>314</u>	<u>909</u>	
<u>.177</u>		<u>.953</u>		6	<u>.325</u>	<u>919</u>	
<u>.188</u>		<u>.960</u>		7	<u>.339</u>	<u>926</u>	
<u>.203</u>		<u>.968</u>		8	<u>.349</u>	<u>933</u>	
<u>.208</u>		<u>.973</u>		9	<u>.360</u>	<u>941</u>	
<u>.234</u>		<u>.979</u>		10	<u>370</u>	<u>946</u>	
<u>.243</u>	<u>269.8</u>	<u>.982</u>	<u>1058.0</u>	11	<u>380</u>	<u>951</u>	
				12	<u>391</u> <u>430.2</u>	<u>954</u> <u>1028.5</u>	
				13			
				14			
				15			
				16			
				17			
				18			
				19			
				20			
				21			
				22			
				23			
				24			
				25			
				26			
				27			

IF

1	0.077	86.61778
2	0.089	100.0177
3	0.108	121.1799
4	0.133	148.9219
5	0.163	182.0784
6	0.177	197.5098
7	0.188	209.6114
8	0.203	226.0855
9	0.208	231.5749
10	0.234	260.0583
11	0.243	269.894

FF

1	0.28	310.1999
2	0.285	315.6306
3	0.291	322.1425
4	0.302	334.0731
5	0.314	347.1004
6	0.325	359.0255
7	0.339	374.1799
8	0.349	384.9888
9	0.36	396.8634
10	0.37	407.6447
11	0.38	418.4129
12	0.391	430.2428

ISI

1	0.888	958.7415
2	0.914	986.2185
3	0.93	1003.143
4	0.942	1015.829
5	0.953	1027.451
6	0.96	1034.845
7	0.968	1043.292
8	0.973	1048.57
9	0.979	1054.901
10	0.982	1058.067

1	0.86	929.1741
2	0.883	953.4648
3	0.899	970.3454
4	0.909	980.9272
5	0.919	991.5086
6	0.926	998.9129
7	0.933	1006.315
8	0.941	1014.772
9	0.946	1020.939
10		
11	0.954	1028.508

FSI

1	0.86	929.1741
2	0.883	953.4648
3	0.899	970.3454
4	0.909	980.9272
5	0.919	991.5086
6	0.926	998.9129
7	0.933	1006.315
8	0.941	1014.772
9	0.946	1020.056
10	0.951	1025.339
11	0.954	1028.508