CRUDE OIL TESTING, INC.

DATE 5/12/84 TEST TICKET NO. 4191

Company: A. Scott Ritchie
Company Address: 125 N. Market Suite 950 Wichita KS 67202
Location: Sec. 18 Twp. 6S Range 21W Co. Graham State KS
Well Name & Number: #1 Worchester Trust Code E4

ENGINEERING DATA

Elevation	2332 KB	Drill Pipe Length	2436	ID 3.8 "
Mud Viscosity	45	Weight Pipe Length	728	ID 2.76"
Mud Weight	9.7	Drill Collar Length	330	ID 2.25"
Water Loss	6.4	Top Packer Depth	3484	
Type of Mud	Drispac	Bottom Packer Depth	3489	
Anchor Length	37	Tool Joint Size	4.5 FH	
Hole Size	7 7/8	Test Tool Size	5 1/2	
Casing Size	8 5/8	Packer Size	6 3/4	
Surface Choke	3/4	Reversed Out	Yes	
Bottom Choke	3/4	Recorder #	11084	
Extra Equipment		Circ. sub		

REMARKS

DST #1
Mud pit sample 5000 ppm.
No blow on either of the shutins.

FORMATION

Topeka Zone Test Type Conventional
Interval 3489 To 3526 Total Depth 3526
Open 30 Shut In 45 Open 30 Shut In 45
Packer(s) Set 11:58PM Started Off Bottom 02:30AM
Blow 1st Opening Strong increasing blow off bottom in 2 min.
2nd Opening Strong increasing blow off bottom in 3 min.

RECOVERY

Total Feet 1810
Recovered 1810 feet of Slightly oil & mud cut water

CALCULATED RECOVERY

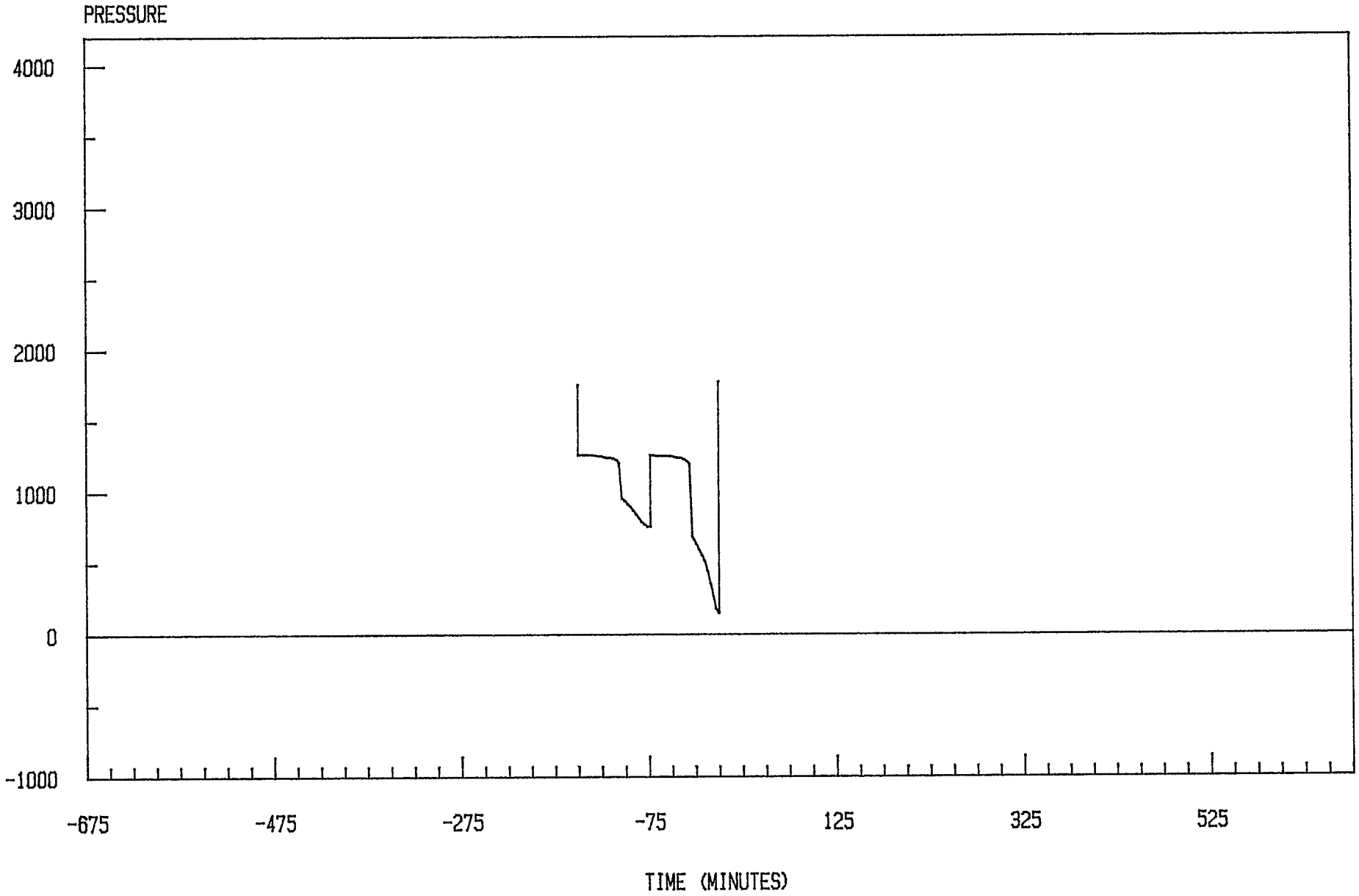
Gas Oil 41.7 Water 1674.2 Mud 94.1
Gravity (Oil) Test Water Chlorides 79,000 PPM
Test Area Temperature 89F Mud System Chlorides 3,000 PPM

PRESSURE

	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud	1778	1779	PSI
(B) First Initial Flow Pressure	186	152	PSI
(C) First Final Flow Pressure	667	688	PSI
(D) Initial Closed-In Pressure	1250	1262	PSI
(E) Second Initial Flow Pressure	764	758	PSI
(F) Second Final Flow Pressure	948	957	PSI
(G) Final Closed-In Pressure	1250	1264	PSI
(H) Final Hydrostatic Mud	1756	1755	PSI

CRUDE OIL TESTING INC Test 4191 DST 1

FOR: A. Scott Ritchie 05/12/84



PRESSURE BREAKDOWN

TEST TICKET NO. 4191

DST Number: 1 Recorder Number: 11084 Clock Number: 22337

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Mins.	Press.	Mins.	Press.	Mins.	Press.	Mins.	Press.
0	151	0	687	0	758	0	956
3	181	3	1201	3	760	3	1209
6	269	6	1220	6	774	6	1228
9	360	9	1233	9	792	9	1238
12	445	12	1241	12	820	12	1242
15	517	15	1243	15	847	15	1243
18	559	18	1247	18	873	18	1246
21	596	21	1253	21	898	21	1252
24	637	24	1254	24	918	24	1254
27	672	27	1255	27	940	27	1257
28	687	30	1258	30	956	30	1258
		33	1258			33	1260
		36	1258			36	1261
		39	1258			39	1262
		42	1260			42	1262
		45	1262			45	1262
						47	1264

CRUDE OIL TESTING INC TEST 4191 DST 1

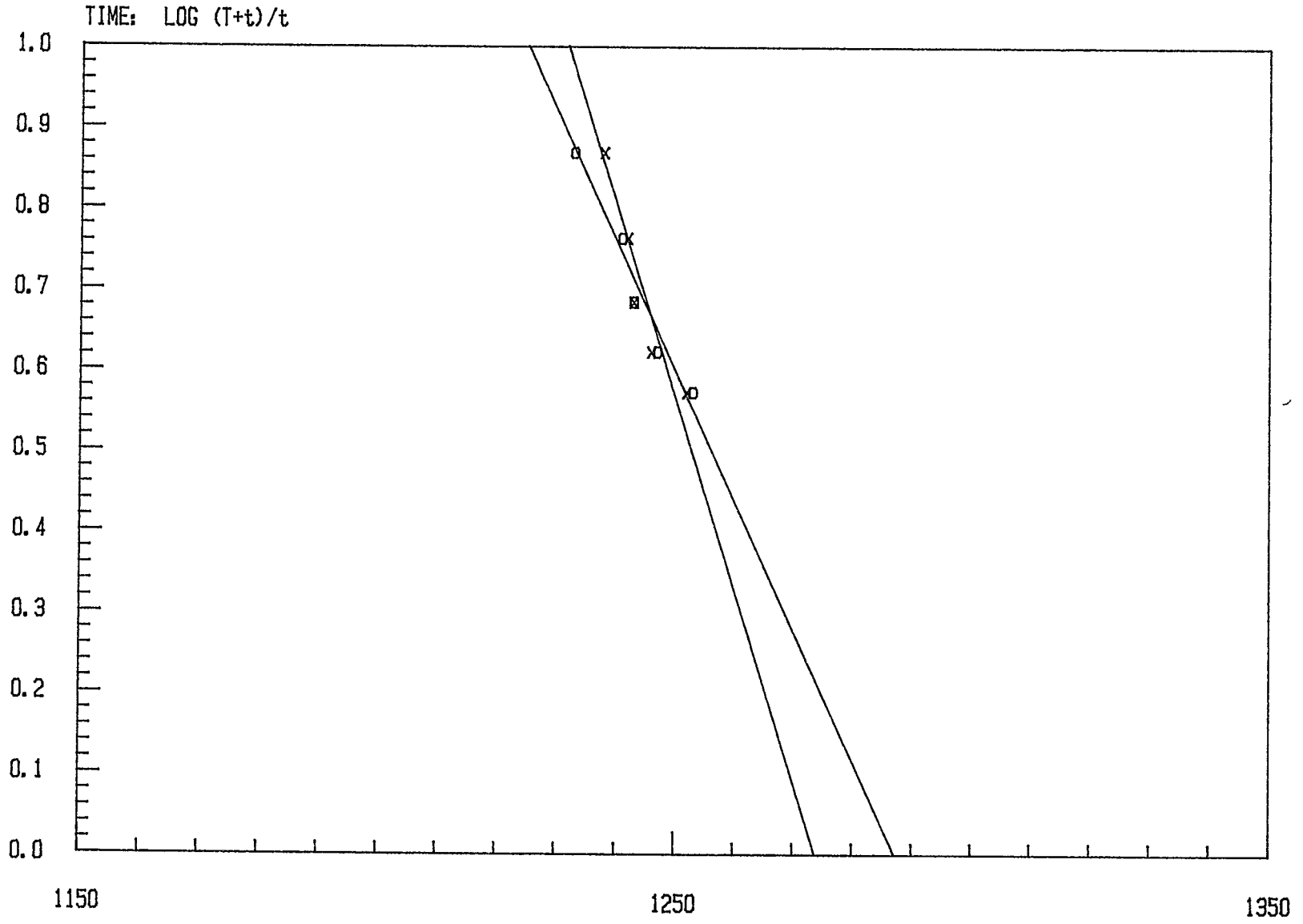
FOR: A. Scott Ritchie 5/12/84

o = Initial Shut-In

oooo

x = Final Shut-In

xxxx



ZONE EVALUATION - Page 1

DST NUMBER 1 TEST TICKET NO. 4191

Company: A. Scott Ritchie Date: 5/12/84

Drill Collar Feet	Drill Collar ID	Weight Pipe Feet	Weight Pipe ID	Drill Pipe Feet	Drill Pipe ID	Average ID	Gals/ Foot
42	2.250	0	2.760	0	3.800	2.2500	0.207

Bbls Recovered/Test = 0.2121 Est Bbls/Day = 5.2671 T = 58

Initial Shut-In

PRESS.	TIME	T/t	(T+t)/t	LOG T/t	LOG (T+t)/t
1253	21	2.762	3.762	0.44121	0.57541
1247	18	3.222	4.222	0.50816	0.62554
1243	15	3.867	4.867	0.58734	0.68723
1241	12	4.833	5.833	0.68425	0.76592
1233	9	6.444	7.444	0.80919	0.87183

Final Shut-In

Press.	Time	T/t	(T+t)/t	Log T/t	Log (T+t)/t
1252	21	2.762	3.762	0.44121	0.57541
1246	18	3.222	4.222	0.50816	0.62554
1243	15	3.867	4.867	0.58734	0.68723
1242	12	4.833	5.833	0.68425	0.76592
1238	9	6.444	7.444	0.80919	0.87183

Time Option is Log (T+t)/t

IP(0)	IP(1)	FP(0)	FP(1)	M	Kh/B	DR	Q1	Pts
1304.5	1215.0	1298.3	1217.8	80.5	10.641	1.641	8.644	1,3
1303.4	1214.9	1296.9	1217.6	79.3	10.803	1.651	8.696	1-3
1286.6	1225.4	1278.8	1229.0	49.8	17.184	1.035	5.454	1-4
1287.1	1225.1	1273.7	1231.9	41.9	20.460	1.233	6.493	1-5

Graph Data For Points

Initial Time	Initial Pressure	Final Time	Final Pressure
0.5754	1253	0.5754	1252
0.6255	1247	0.6255	1246
0.6872	1243	0.6872	1243
0.7659	1241	0.7659	1242
0.8718	1233	0.8718	1238

Graph Data For Lines

0	1287.07	0	1273.72
1	1225.14	1	1231.86

ZONE EVALUATION - Page 2

DST Number 1 TEST TICKET NO. 4191

Company: A. Scott Ritchie Date: 5/12/84

P.S.I. Slope Cycle (From Log $\frac{T + t}{t}$)

$M = G_0 - G_1$ 41.86

Damage Ratio:

$DR = .183 \frac{Ps - Pf}{M}$ 1.23

Effective Pay:

$\frac{Kh}{B} = \frac{162.6\ Q}{M}$ 20.46 Md. Ft.

Theoretical Potential With
Damage Removed (for DR greater than 1):

$Q_1 = Q\ DR$ 6.49 Bbls/Day

Production: 0.21 Bbls/Hour

$Q = \frac{1440\ R}{T}$ 5.27 Bbls/Day

These calculations are based upon information furnished by you and taken from drill stem test pressure charts and are furnished for your information. In furnishing such calculations and evaluations, Crude Oil Testing Inc. is merely expressing an opinion. You agree that Crude Oil Testing Inc. makes no warranty as to the accuracy of such calculations or opinions, and Crude Oil Testing Inc. shall not be liable for any loss or damage, whether due to negligence or otherwise in connection with such calculations and opinions.

EQUIPMENT DATA

TOOL SEQUENCE REPORT

DST Number: 1 TEST TICKET NO. 4191

WELL NAME: #1 Worchester Trust WELL LOCATION: 18-6S-21W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	2436.00	3.826	4.50
3	Weight Pipe	728.00	2.760	4.50
4	Drill Collar - 6"	330.00	2.250	6.00
8	Circulating Sub	1.00	3.000	5.00
9	Shut-In Tool	5.45	0.870	5.00
10	Hydraulic Tool	5.60	1.000	5.00
14	Packer	5.35	1.530	6.75
14	Packer	5.35	1.530	6.75
6	Anchor	33.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
16	Bull Plug	2.00		5.00
	Total Depth	3552.75		

CALCULATED RECOVERY ANALYSIS

DST Number: 1 TEST TICKET NO. 4191

Sample #	Total Feet	***** Gas %	**** Feet	***** Oil %	**** Feet	***** Mud %	**** Feet
1	10	0.00	0.00	3.00	0.30	35.00	3.50
2	60	0.00	0.00	3.00	1.80	25.00	15.00
3	300	0.00	0.00	4.00	12.00	1.00	3.00
4	300	0.00	0.00	4.00	12.00	1.00	3.00
5	780	0.00	0.00	2.00	15.60	2.00	15.60
6	180	0.00	0.00	0.00	0.00	15.00	27.00
7	180	0.00	0.00	0.00	0.00	15.00	27.00
TOTAL	1810	0.00	0.00	2.30	41.70	5.20	94.10

Sample #	**** Water %	*** Feet	Chlorides (PPM)	Resistivity (Ohms)	Temperature (Deg)
1	62.00	6.20	79,000		
2	72.00	43.20	79,000		
3	95.00	285.00	79,000		
4	95.00	285.00	79,000		
5	96.00	748.80	79,000		
6	85.00	153.00	79,000		
7	85.00	153.00	79,000		
TOTAL	92.50	1674.20			

CRUDE OIL TESTING, INC.

DATE 5/12/84 TEST TICKET NO. 4192

Company: A. Scott Ritchie
Company Address: 125 N. Market Suite 950 Wichita KS 67202
Location: Sec. 18 Twp. 6S Range 21W Co. Graham State KS
Well Name & Number: #1 Worchester Trust Code E4

ENGINEERING DATA

Elevation	2332 KB	Drill Pipe Length	2499 ID 3.8 "
Mud Viscosity	43	Weight Pipe Length	728 ID 2.76"
Mud Weight	9.4	Drill Collar Length	330 ID 2.25"
Water Loss	9.2	Top Packer Depth	3530
Type of Mud	Drispac	Bottom Packer Depth	
Anchor Length	67	Tool Joint Size	4.5 FH
Hole Size	7 7/8	Test Tool Size	5 1/2
Casing Size	8 5/8	Packer Size	6 3/4
Surface Choke	3/4	Reversed Out	No
Bottom Choke	3/4	Recorder #	11084
Extra Equipment		None	

REMARKS

DST #2
Mud pit sample 7000 ppm.
No blow on shutins.
Tool plugged on 1st opening.

FORMATION

Toronto/KC Zone A Test Type Conventional
Interval 3530 To 3597 Total Depth 3597
Open 30 Shut In 45 Open 30 Shut In 45
Packer(s) Set 04:58PM Started Off Bottom 07:30PM
Blow 1st Opening Strong blow off bottom in 7 min.
2nd Opening Strong blow off bottom in 7 min.

RECOVERY

Total Feet 850
Recovered 70 feet of Slightly oil spotted mud
Recovered 780 feet of Slightly oil cut water

CALCULATED RECOVERY

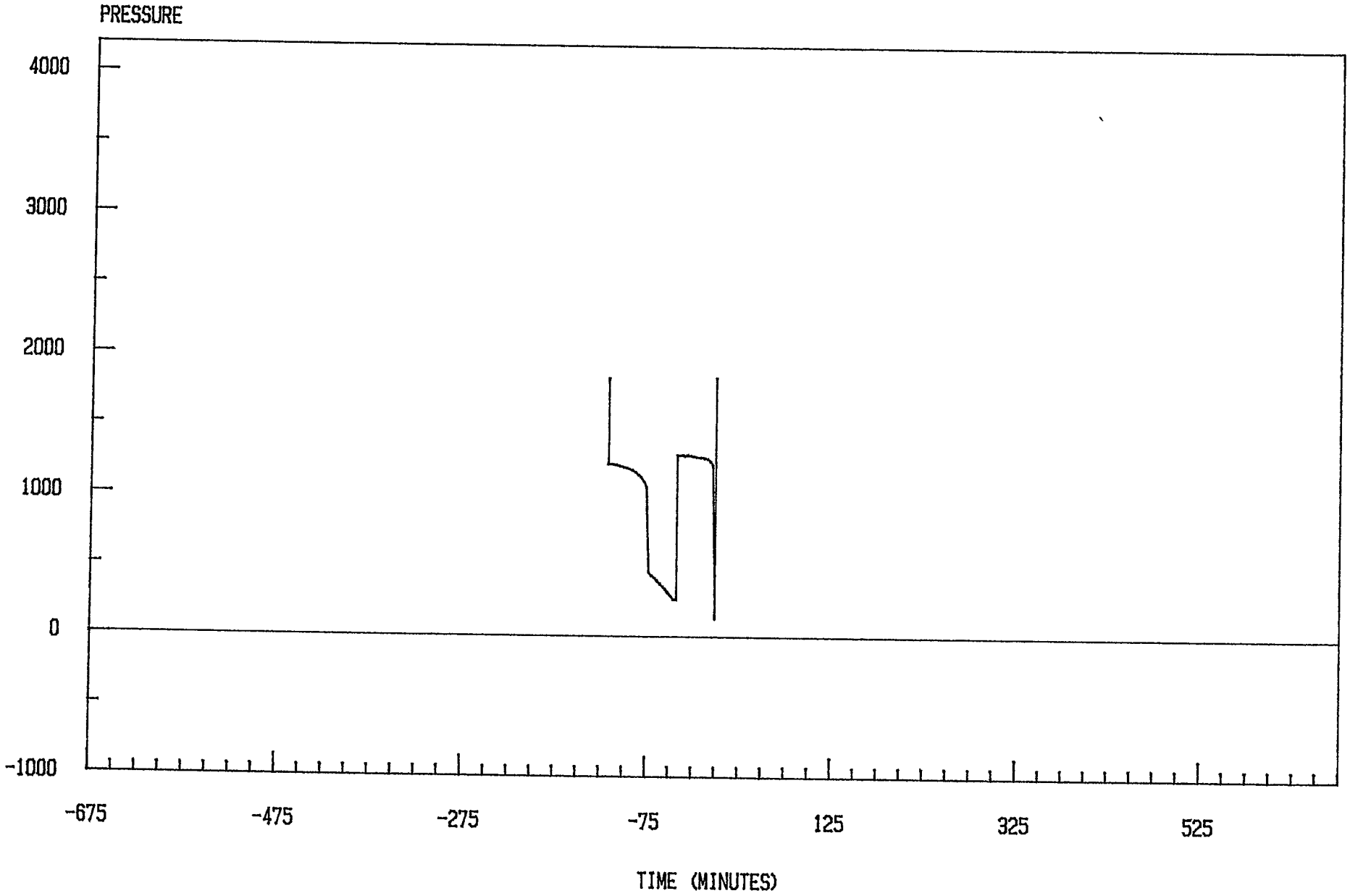
Gas 27 Oil 75.6 Water 603 Mud 144.4
Gravity (Oil) Test Water Chlorides 42,000 PPM
Test Area Temperature 112F Mud System Chlorides 3,000 PPM

PRESSURE

	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud	1843	1843	PSI
(B) First Initial Flow Pressure		118	PSI
(C) First Final Flow Pressure			PSI
(D) Initial Closed-In Pressure	1293	1296	PSI
(E) Second Initial Flow Pressure	274	264	PSI
(F) Second Final Flow Pressure	439	454	PSI
(G) Final Closed-In Pressure	1228	1228	PSI
(H) Final Hydrostatic Mud	1821	1836	PSI

CRUDE OIL TESTING INC Test 4192 DST 2

FOR: A. Scott Ritchie 05/12/84



PRESSURE BREAKDOWN

TEST TICKET NO. 4192

DST Number: 2 Recorder Number: 11084 Clock Number: 22337

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Mins.	Press.	Mins.	Press.	Mins.	Press.	Mins.	Press.
0	129	0	299	0	264	0	454
		3	1225	3	266	3	1063
		6	1253	6	291	6	1107
		9	1265	9	311	9	1137
		12	1273	12	334	12	1153
		15	1277	15	356	15	1170
		18	1278	18	377	18	1183
		21	1281	21	399	21	1191
		24	1285	24	419	24	1198
		27	1289	27	437	27	1205
		30	1291	30	454	30	1210
		33	1292			33	1215
		36	1293			36	1222
		39	1294			39	1224
		42	1295			42	1227
						45	1227

EQUIPMENT DATA

TOOL SEQUENCE REPORT

DST Number: 2 TEST TICKET NO. 4192

WELL NAME: #1 Worchester Trust WELL LOCATION: 18-6S-21W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	2499.00	3.826	4.50
3	Weight Pipe	728.00	2.760	4.50
4	Drill Collar - 6"	330.00	2.250	6.00
8	Circulating Sub	1.00	3.000	5.00
9	Shut-In Tool	5.45	0.870	5.00
10	Hydraulic Tool	5.60	1.000	5.00
14	Packer	5.35	1.530	6.75
6	Anchor	63.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
16	Bull Plug	2.00		5.00
	Total Depth	3640.40		

CALCULATED RECOVERY ANALYSIS

DST Number: 2 TEST TICKET NO. 4192

Sample #	Total Feet	***** Gas %	**** Feet	***** Oil %	**** Feet	***** Mud %	**** Feet
1	10	0.00	0.00	0.00	0.00	100.00	10.00
2	60	0.00	0.00	1.00	0.60	99.00	59.40
3	120	10.00	12.00	5.00	6.00	35.00	42.00
4	300	5.00	15.00	10.00	30.00	5.00	15.00
5	300	0.00	0.00	10.00	30.00	5.00	15.00
6	60	0.00	0.00	15.00	9.00	5.00	3.00
TOTAL	850	3.18	27.00	8.89	75.60	16.99	144.40

Sample #	**** Water *** %	Feet	Chlorides (PPM)	Resistivity (Ohms)	Temperature (Deg)
1	0.00	0.00	42,000		
2	0.00	0.00	42,000		
3	50.00	60.00	42,000		
4	80.00	240.00	42,000		
5	85.00	255.00	42,000		
6	80.00	48.00	42,000		
TOTAL	70.94	603.00			

CRUDE OIL TESTING, INC.

DATE 5/13/84

TEST TICKET NO. 4193

Company: A. Scott Ritchie
Company Address: 125 N. Market Suite 950 Wichita KS 67202
Location: Sec. 18 Twp. 6S Range 21W Co. Graham State KS
Well Name & Number: #1 Worchester Trust Code E4

ENGINEERING DATA

Elevation	2332 KB	Drill Pipe Length	2655 ID 3.8 "
Mud Viscosity	45	Weight Pipe Length	728 ID 2.76"
Mud Weight	9.6	Drill Collar Length	330 ID 2.25"
Water Loss	8	Top Packer Depth	3681
Type of Mud	Drispac	Bottom Packer Depth	3686
Anchor Length	61	Tool Joint Size	4.5 FH
Hole Size	7 7/8	Test Tool Size	5 1/2
Casing Size	8 5/8	Packer Size	6 3/4
Surface Choke	3/4	Reversed Out	No
Bottom Choke	3/4	Recorder #	11084
Extra Equipment			None

REMARKS

DST #3
Mud pit sample 5000 ppm.

FORMATION

Lansing/KC Zone 140 160 180 Test Type Conventional
Interval 3686 To 3747 Total Depth 3747
Open 30 Shut In 30 Open 30 Shut In 30
Packer(s) Set 06:58PM Started Off Bottom 09:00PM
Blow 1st Opening Very weak steady blow on top of bucket.
2nd Opening Weak blow, died in 10 min. flushed tool.

RECOVERY

Total Feet 65
Recovered 65 feet of Oil cut mud

CALCULATED RECOVERY

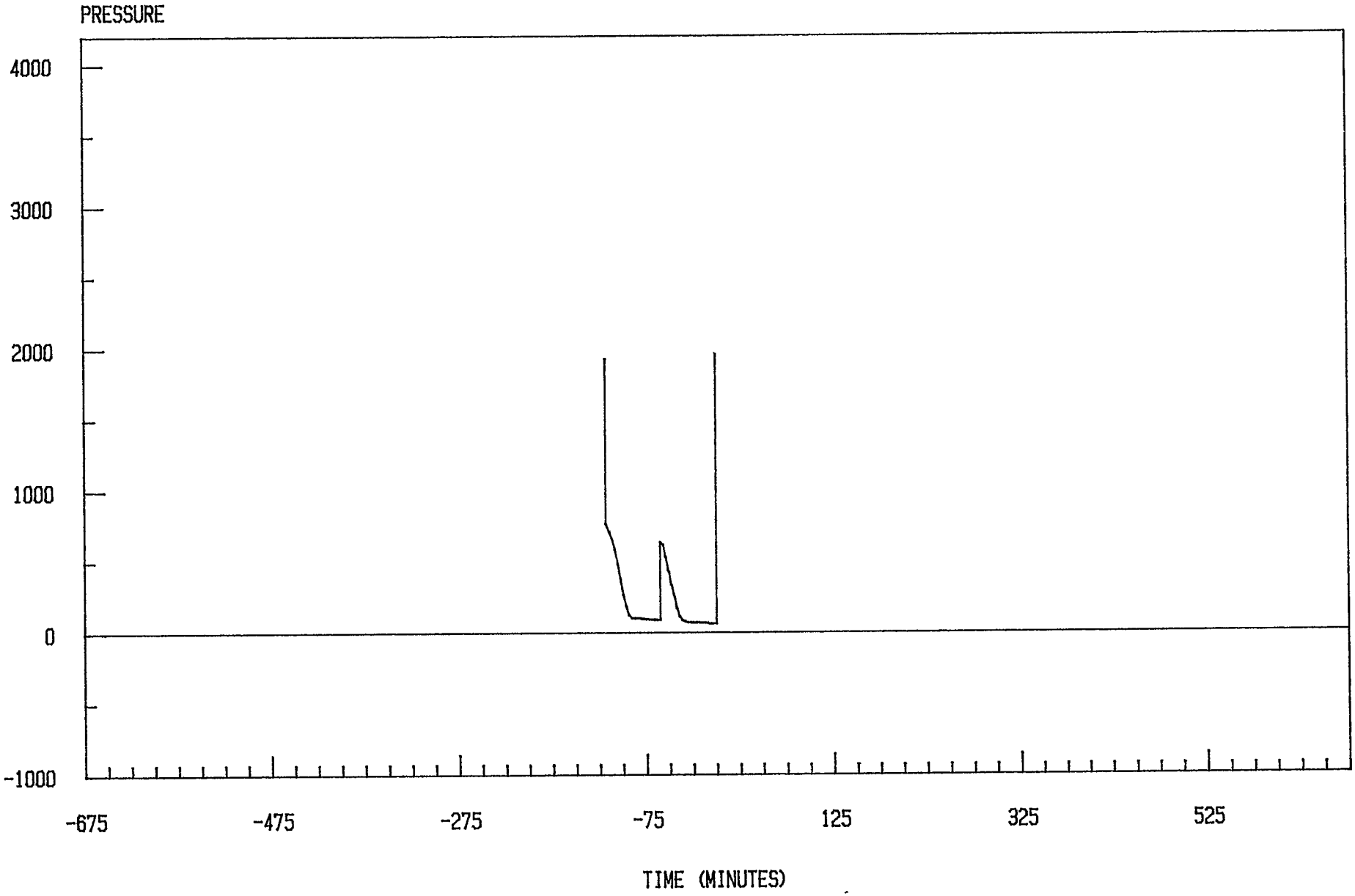
Gas Oil 9.75 Water Mud 55.25
Gravity (Oil) Test Water Chlorides PPM
Test Area Temperature 115F Mud System Chlorides 3,000 PPM

PRESSURE

	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud	1907	1960	PSI
(B) First Initial Flow Pressure	66	63	PSI
(C) First Final Flow Pressure	66	72	PSI
(D) Initial Closed-In Pressure	634	638	PSI
(E) Second Initial Flow Pressure	88	89	PSI
(F) Second Final Flow Pressure	99	104	PSI
(G) Final Closed-In Pressure	742	763	PSI
(H) Final Hydrostatic Mud	1886	1929	PSI

CRUDE OIL TESTING INC Test 4193 DST 3

FOR: A. Scott Ritchie 05/13/84



PRESSURE BREAKDOWN

TEST TICKET NO. 4193

DST Number: 3 Recorder Number: 11084 Clock Number: 22337

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Mins.	Press.	Mins.	Press.	Mins.	Press.	Mins.	Press.
0	62	0	71	0	89	0	103
3	62	3	78	3	89	3	122
6	62	6	88	6	90	6	187
9	65	9	113	9	91	9	266
12	68	12	175	12	92	12	380
15	68	15	262	15	94	15	485
18	69	18	338	18	95	18	585
21	70	21	434	21	99	21	658
24	70	24	534	24	100	24	710
27	70	27	621	27	101	27	755
30	71	30	637	30	103	28	762

EQUIPMENT DATA

TOOL SEQUENCE REPORT

DST Number: 3 TEST TICKET NO. 4193

WELL NAME: #1 Worchester Trust WELL LOCATION: 18-6S-21W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	2655.00	3.826	4.50
3	Weight Pipe	728.00	2.760	4.50
4	Drill Collar - 6"	330.00	2.250	6.00
8	Circulating Sub	1.00	3.000	5.00
9	Shut-In Tool	5.45	0.870	5.00
10	Hydraulic Tool	5.60	1.000	5.00
14	Packer	5.35	1.530	6.75
14	Packer	5.35	1.530	6.75
6	Anchor	57.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
16	Bull Plug	2.00		5.00
	Total Depth	3795.75		

CALCULATED RECOVERY ANALYSIS

DST Number: 3 TEST TICKET NO. 4193

Sample #	Total Feet	***** Gas %	**** Feet	***** Oil %	**** Feet	***** Mud %	**** Feet
1	65	0.00	0.00	15.00	9.75	85.00	55.25
TOTAL	65	0.00	0.00	15.00	9.75	85.00	55.25

Sample #	**** Water %	*** Feet	Chlorides (PPM)	Resistivity (Ohms)	Temperature (Deg)
1	0.00	0.00			
TOTAL	0.00	0.00			

CRUDE OIL TESTING, INC.

DATE 5/14/84 TEST TICKET NO. 4194

Company: A. Scott Ritchie
Company Address: 125 N. Market Suite 950 Wichita KS 67202
Location: Sec. 18 Twp. 6S Range 21W Co. Graham State KS
Well Name & Number: #1 Worchester Trust Code E4

ENGINEERING DATA

Elevation	2332 KB	Drill Pipe Length	2748 ID 3.8 "
Mud Viscosity	45	Weight Pipe Length	728 ID 2.76"
Mud Weight	9.6	Drill Collar Length	330 ID 2.25"
Water Loss	8	Top Packer Depth	
Type of Mud	Drispac	Bottom Packer Depth	3742
Anchor Length	73	Tool Joint Size	4.5 FH
Hole Size	7 7/8	Test Tool Size	5 1/2
Casing Size	8 5/8	Packer Size	6 3/4
Surface Choke	3/4	Reversed Out	No
Bottom Choke	3/4	Recorder #	11084
Extra Equipment			None

REMARKS

DST #4
Mud pit sample 6000 ppm.

FORMATION

Lansing/KC Zone 200 & 220 Test Type Conventional
Interval 3742 To 3815 Total Depth 3815
Open 30 Shut In 45 Open 30 Shut In 45
Packer(s) Set 12:58AM Started Off Bottom 03:30PM
Blow 1st Opening Weak increasing blow to 3/4 in. in bucket.
2nd Opening No blow, flushed tool, good surge.

RECOVERY

Total Feet 70
Recovered 70 feet of Rotary mud

CALCULATED RECOVERY

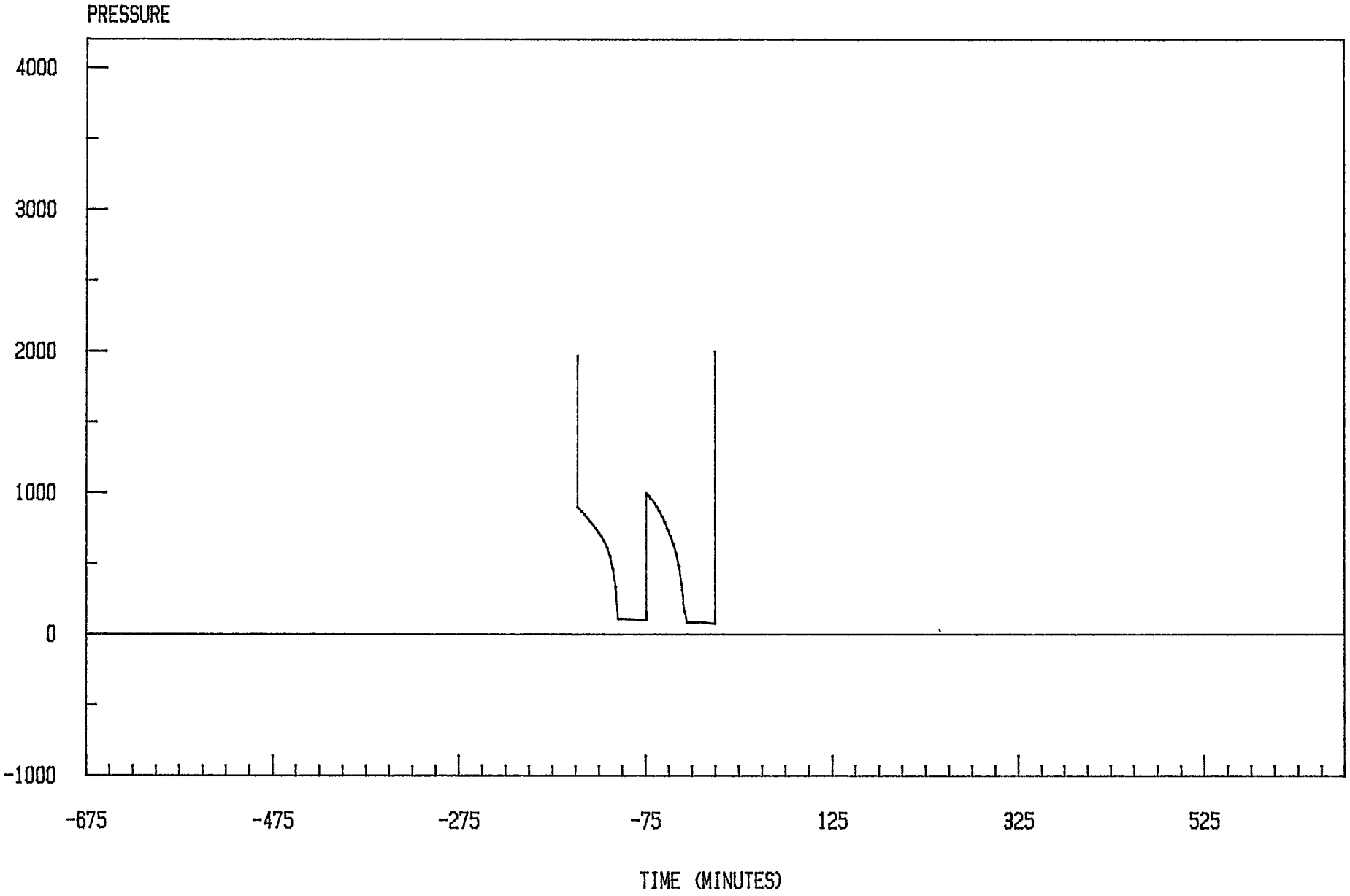
Gas Oil Water 7 Mud 63
Gravity (Oil) Test Water Chlorides PPM
Test Area Temperature 120F Mud System Chlorides 5,000 PPM

PRESSURE

	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud	1972	1999	PSI
(B) First Initial Flow Pressure	88	74	PSI
(C) First Final Flow Pressure	88	84	PSI
(D) Initial Closed-In Pressure	991	992	PSI
(E) Second Initial Flow Pressure	110	99	PSI
(F) Second Final Flow Pressure	110	109	PSI
(G) Final Closed-In Pressure	894	894	PSI
(H) Final Hydrostatic Mud	1950	1964	PSI

CRUDE OIL TESTING INC Test 4194 DST 4

FOR: A. Scott Ritchie 05/14/84



PRESSURE BREAKDOWN

TEST TICKET NO. 4194

DST Number: 4 Recorder Number: 11084 Clock Number: 22337

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Mins.	Press.	Mins.	Press.	Mins.	Press.	Mins.	Press.
0	73	0	83	0	99	0	109
3	75	3	162	3	99	3	336
6	77	6	353	6	99	6	467
9	77	9	482	9	100	9	555
12	79	12	577	12	102	12	615
15	81	15	641	15	104	15	658
18	83	18	695	18	106	18	690
21	83	21	742	21	106	21	719
24	83	24	792	24	107	24	746
27	83	27	833	27	107	27	775
30	83	30	872	30	109	30	796
		33	904			33	820
		36	934			36	846
		39	958			39	867
		42	980			42	887
		44	992			44	893

EQUIPMENT DATA

TOOL SEQUENCE REPORT

DST Number: 4 TEST TICKET NO. 4194

WELL NAME: #1 Worchester Trust WELL LOCATION: 18-6S-21W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	2748.00	3.826	4.50
3	Weight Pipe	728.00	2.760	4.50
4	Drill Collar - 6"	330.00	2.250	6.00
8	Circulating Sub	1.00	3.000	5.00
9	Shut-In Tool	5.45	0.870	5.00
10	Hydraulic Tool	5.60	1.000	5.00
14	Packer	5.35	1.530	6.75
6	Anchor	69.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
16	Bull Plug	2.00		5.00
	Total Depth	3895.40		

CALCULATED RECOVERY ANALYSIS

DST Number: 4 TEST TICKET NO. 4194

Sample #	Total Feet	***** Gas %	**** Feet	***** Oil %	**** Feet	***** Mud %	**** Feet
1	10	0.00	0.00	0.00	0.00	90.00	9.00
2	60	0.00	0.00	0.00	0.00	90.00	54.00
TOTAL	70	0.00	0.00	0.00	0.00	90.00	63.00

Sample #	**** Water %	*** Feet	Chlorides (PPM)	Resistivity (Ohms)	Temperature (Deg)
1	10.00	1.00			
2	10.00	6.00			
TOTAL	10.00	7.00			

CRUDE OIL TESTING, INC.

DATE 5/15/84 TEST TICKET NO. 4195

Company: A. Scott Ritchie
Company Address: 125 N. Market Suite 950 Wichita KS 67202
Location: Sec. 18 Twp. 6S Range 21W Co. Graham State KS
Well Name & Number: #1 Worchester Trust Code E4

ENGINEERING DATA

Elevation	2332 KB	Drill Pipe Length	2748 ID 3.8 "
Mud Viscosity	52	Weight Pipe Length	728 ID 2.76"
Mud Weight	9.7	Drill Collar Length	330 ID 2.25"
Water Loss	8.4	Top Packer Depth	3795
Type of Mud	Drispac	Bottom Packer Depth	3800
Anchor Length	40	Tool Joint Size	4.5 FH
Hole Size	7 7/8	Test Tool Size	5 1/2
Casing Size	8 5/8	Packer Size	6 3/4
Surface Choke	3/4	Reversed Out	Yes
Bottom Choke	3/4	Recorder #	11084
Extra Equipment		Circ. sub	

REMARKS

DST #5
Mud pit sample 5000 ppm.
No blow on shutins.
Reversed out 1380' water.

FORMATION

Congl. sand Zone Test Type Conventional
Interval 3800 To 3840 Total Depth 3840
Open 30 Shut In 30 Open 30 Shut In 30
Packer(s) Set 02:13AM Started Off Bottom 04:15AM
Blow 1st Opening Strong increasing blow off bottom in 1 min.
2nd Opening Strong increasing blow off bottom in 1 min.

RECOVERY

Total Feet 1860
Recovered 120 feet of Slightly oil & water cut mud
Recovered 1740 feet of Slightly oil cut water

CALCULATED RECOVERY

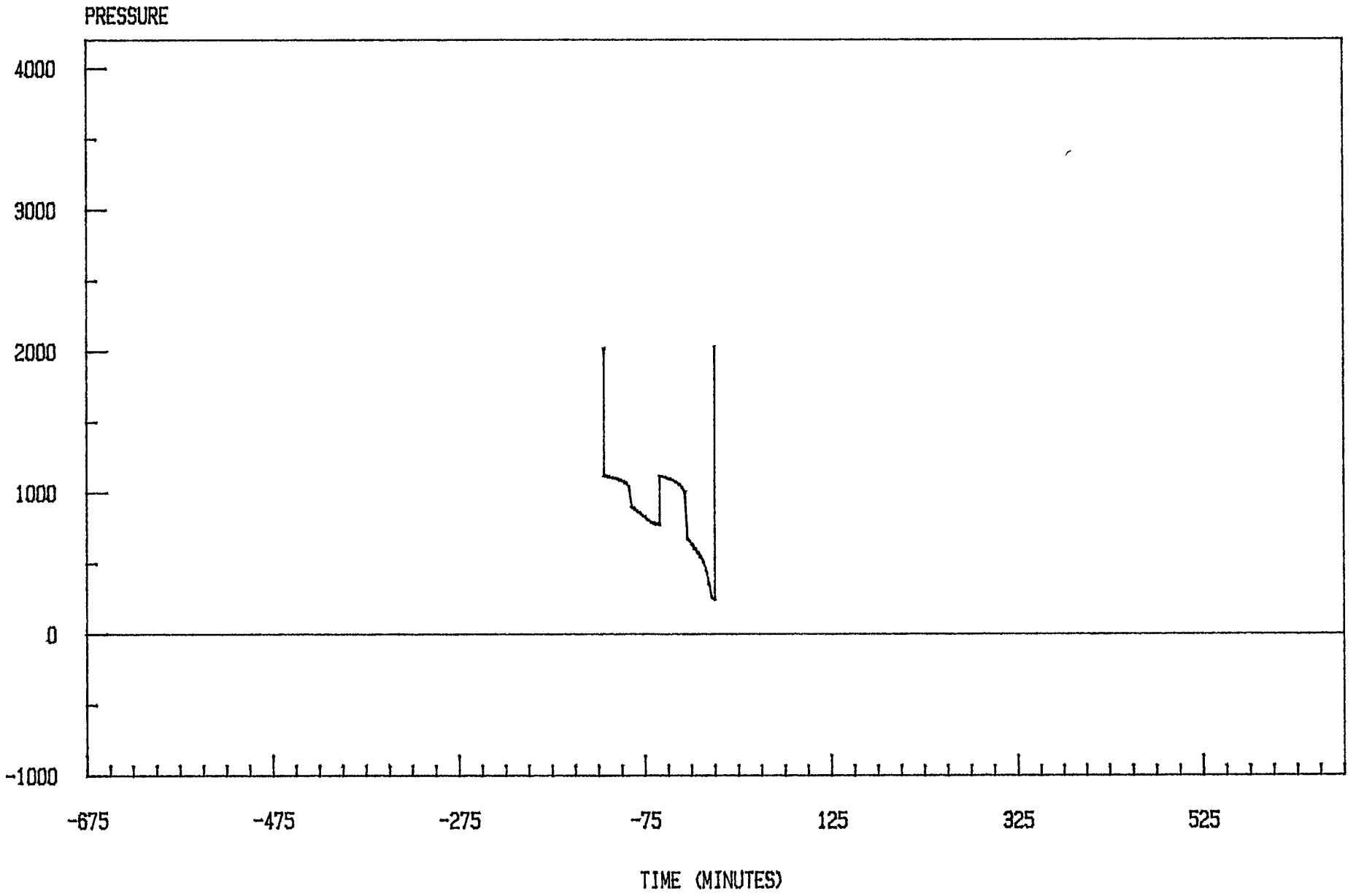
Gas Oil 93.6 Water 1654.8 Mud 111.6
Gravity (Oil) Test Water Chlorides 38,000 PPM
Test Area Temperature 121F Mud System Chlorides 3,000 PPM

PRESSURE

	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud	2004	2031	PSI
(B) First Initial Flow Pressure	263	254	PSI
(C) First Final Flow Pressure	656	675	PSI
(D) Initial Closed-In Pressure	1110	1119	PSI
(E) Second Initial Flow Pressure	775	775	PSI
(F) Second Final Flow Pressure	894	897	PSI
(G) Final Closed-In Pressure	1110	1123	PSI
(H) Final Hydrostatic Mud	1983	2017	PSI

CRUDE OIL TESTING INC Test 4195 DST 5

FOR: A. Scott Ritchie 05/15/84



PRESSURE BREAKDOWN

TEST TICKET NO. 4195

DST Number: 5 Recorder Number: 11084 Clock Number: 22337

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Mins.	Press.	Mins.	Press.	Mins.	Press.	Mins.	Press.
0	244	0	674	0	774	0	897
3	258	3	1005	3	776	3	1045
6	353	6	1036	6	781	6	1067
9	446	9	1059	9	792	9	1081
12	511	12	1075	12	807	12	1089
15	547	15	1085	15	823	15	1097
18	576	18	1095	18	837	18	1103
21	602	21	1101	21	852	21	1108
24	633	24	1108	24	868	24	1113
27	659	27	1114	27	884	27	1118
29	674	30	1118	30	897	30	1122

CRUDE OIL TESTING INC TEST 4195 DST 5

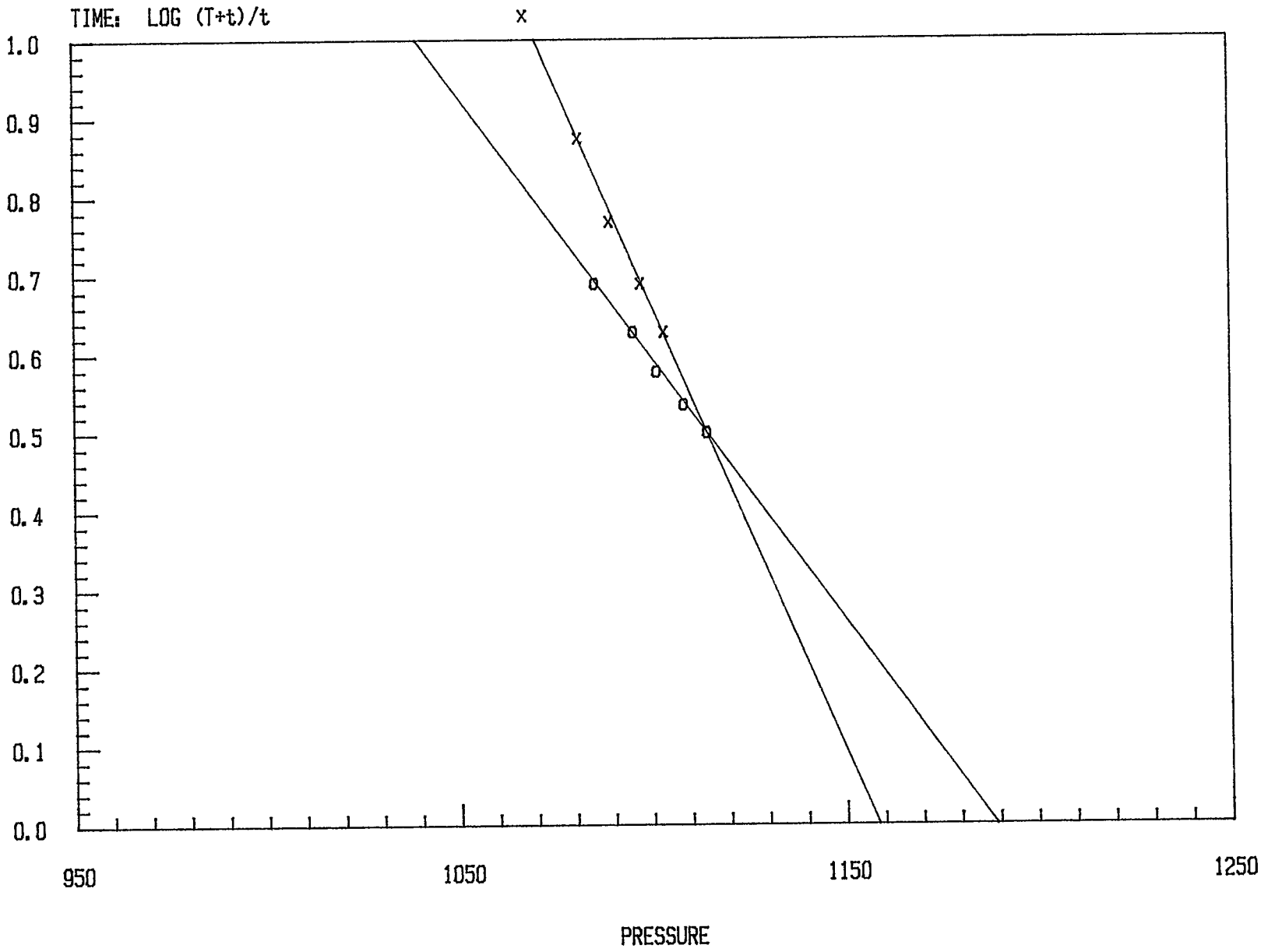
FOR: A. Scott Ritchie 5/15/84

o = Initial Shut-In

oooo

x = Final Shut-In

xxxx



ZONE EVALUATION - Page 1

DST NUMBER 5 TEST TICKET NO. 4195

Company: A. Scott Ritchie Date: 5/15/84

Drill Collar Feet	Drill Collar ID	Weight Pipe Feet	Weight Pipe ID	Drill Pipe Feet	Drill Pipe ID	Average ID	Gals/ Foot
94	2.250	0	2.760	0	3.800	2.2500	0.207

Bbls Recovered/Test = 0.4681 Est Bbls/Day = 11.4251 T = 59

Initial Shut-In

PRESS.	TIME	T/t	(T+t)/t	LOG T/t	LOG (T+t)/t
1114	27	2.185	3.185	0.33949	0.50313
1108	24	2.458	3.458	0.39064	0.53887
1101	21	2.810	3.810	0.44863	0.58087
1095	18	3.278	4.278	0.51558	0.63122
1085	15	3.933	4.933	0.59476	0.69314

Final Shut-In

Press.	Time	T/t	(T+t)/t	Log T/t	Log (T+t)/t
1103	18	3.278	4.278	0.51558	0.63122
1097	15	3.933	4.933	0.59476	0.69314
1089	12	4.917	5.917	0.69167	0.77208
1081	9	6.556	7.556	0.81661	0.87827
1067	6	9.833	10.833	0.99270	1.03476

Time Option is Log (T+t)/t

IP(0)	IP(1)	FP(0)	FP(1)	M	Kh/B	DR	Q1	Pts
1198.1	1030.9	1165.7	1066.3	99.4	18.691	1.313	15.001	1,3
1198.1	1030.9	1165.8	1066.4	99.5	18.675	1.313	14.998	1-3
1188.6	1039.4	1159.1	1069.5	89.5	20.746	1.347	15.394	1-4
1189.0	1039.0	1158.2	1069.9	88.3	21.050	1.353	15.453	1-5

Graph Data For Points

Initial Time	Initial Pressure	Final Time	Final Pressure
0.5031	1114	0.6312	1103
0.5388	1108	0.6931	1097
0.5808	1101	0.7720	1089
0.6312	1095	0.8782	1081
0.6931	1085	1.0347	1067

Graph Data For Lines

0	1188.99	0	1158.17
1	1039.03	1	1069.92

ZONE EVALUATION - Page 2

DST Number 5 TEST TICKET NO. 4195

Company: A. Scott Ritchie Date: 5/15/84

P.S.I. Slope Cycle (From Log $\frac{T + t}{t}$)

$M = G_0 - G_1$ 88.25

Damage Ratio:

$DR = .183 \frac{Ps - Pf}{M}$ 1.35

Effective Pay:

$\frac{Kh}{B} = \frac{162.6\ Q}{M}$ 21.05 Md. Ft.

Theoretical Potential With
Damage Removed (for DR greater than 1):

$Q_1 = Q\ DR$ 15.45 Bbls/Day

Production: 0.47 Bbls/Hour

$Q = \frac{1440\ R}{T}$ 11.43 Bbls/Day

These calculations are based upon information furnished by you and taken from drill stem test pressure charts and are furnished for your information. In furnishing such calculations and evaluations, Crude Oil Testing Inc. is merely expressing an opinion. You agree that Crude Oil Testing Inc. makes no warranty as to the accuracy of such calculations or opinions, and Crude Oil Testing Inc. shall not be liable for any loss or damage, whether due to negligence or otherwise in connection with such calculations and opinions.

EQUIPMENT DATA

TOOL SEQUENCE REPORT

DST Number: 5 TEST TICKET NO. 4195

WELL NAME: #1 Worchester Trust WELL LOCATION: 18-6S-21W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	2748.00	3.826	4.50
3	Weight Pipe	728.00	2.760	4.50
4	Drill Collar - 6"	330.00	2.250	6.00
8	Circulating Sub	1.00	3.000	5.00
9	Shut-In Tool	5.45	0.870	5.00
10	Hydraulic Tool	5.60	1.000	5.00
14	Packer	5.35	1.530	6.75
14	Packer	5.35	1.530	6.75
6	Anchor	36.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
16	Bull Plug	2.00		5.00
	Total Depth	3867.75		

CALCULATED RECOVERY ANALYSIS

DST Number: 5

TEST TICKET NO. 4195

Sample #	Total Feet	***** Gas %	**** Feet	***** Oil %	**** Feet	***** Mud %	**** Feet
1	60	0.00	0.00	10.00	6.00	50.00	30.00
2	60	0.00	0.00	5.00	3.00	50.00	30.00
3	240	0.00	0.00	5.00	12.00	5.00	12.00
4	1380	0.00	0.00	5.00	69.00	2.00	27.60
5	120	0.00	0.00	3.00	3.60	10.00	12.00
TOTAL	1860	0.00	0.00	5.03	93.60	6.00	111.60

Sample #	**** Water %	*** Feet	Chlorides (PPM)	Resistivity (Ohms)	Temperature (Deg)
1	40.00	24.00	38,000		
2	45.00	27.00	38,000		
3	90.00	216.00	38,000		
4	93.00	% 1283.4	38,000		
5	87.00	104.40	38,000		
TOTAL	88.97	1654.80			

CRUDE OIL TESTING, INC.

DATE 5/16/84 TEST TICKET NO. 4196

Company: A. Scott Ritchie
Company Address: 125 N. Market Suite 950 Wichita KS 67202
Location: Sec. 18 Twp. 6S Range 21W Co. Graham State KS
Well Name & Number: #1 Worchester Trust Code E4

ENGINEERING DATA

Elevation	2332 KB	Drill Pipe Length	2811 ID 3.8 "
Mud Viscosity	42	Weight Pipe Length	728 ID 2.76"
Mud Weight	9.7	Drill Collar Length	330 ID 2.25"
Water Loss	9.2	Top Packer Depth	3573
Type of Mud	Drispac	Bottom Packer Depth	3590
Anchor Length	17	Tool Joint Size	4.5 FH
Hole Size	7 7/8	Test Tool Size	5 1/2
Casing Size	8 5/8	Packer Size	6 3/4
Surface Choke	3/4	Reversed Out	No
Bottom Choke	3/4	Recorder #	11084
Extra Equipment		None	

REMARKS

DST #6
Mud pit sample 5000 ppm.

FORMATION

Lansing/KC Zone A Test Type Straddle
Interval 3573 To 3590 Total Depth 3590
Open 30 Shut In 45 Open 30 Shut In 45
Packer(s) Set 05:58AM Started Off Bottom 08:30AM
Blow 1st Opening Weak decreasing blow died in 5 min.
2nd Opening No blow, flushed tool.

RECOVERY

Total Feet 1
Recovered 1 feet of Drilling mud (spots of oil in tool)

CALCULATED RECOVERY

Gas Oil Water Mud 1
Gravity (Oil) Test Water Chlorides PPM
Test Area Temperature 120F Mud System Chlorides 3,000 PPM

PRESSURE

	FIELD READING	OFFICE READING	
(A) Initial Hydrostatic Mud	1843		PSI
(B) First Initial Flow Pressure	22		PSI
(C) First Final Flow Pressure	22		PSI
(D) Initial Closed-In Pressure	22		PSI
(E) Second Initial Flow Pressure	22		PSI
(F) Second Final Flow Pressure	22		PSI
(G) Final Closed-In Pressure	22		PSI
(H) Final Hydrostatic Mud	1821		PSI

EQUIPMENT DATA

TOOL SEQUENCE REPORT

DST Number: 6 TEST TICKET NO. 4196

WELL NAME: #1 Worchester Trust WELL LOCATION: 18-6S-21W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	2811.00	3.826	4.50
3	Weight Pipe	728.00	2.760	4.50
4	Drill Collar - 6"	330.00	2.250	6.00
8	Circulating Sub	1.00	3.000	5.00
9	Shut-In Tool	5.45	0.870	5.00
10	Hydraulic Tool	5.60	1.000	5.00
14	Packer	5.35	1.530	6.75
6	Anchor	17.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
7	Changeover Sub	2.00	3.000	5.00
14	Packer	5.35	1.530	6.75
7	Changeover Sub	2.00	3.000	5.00
6	Anchor	312.00	2.750	5.00
16	Bull Plug	2.00		5.00
	Total Depth	4227.75		