

CRUDE OIL TESTING, INC.

DATE 4/2/84

TEST TICKET NO. 4097

Company: Hinkle Oil Co.

Company Address: 1016 Union Center Wichita KS 67202

Location: Sec. 7 Twp. 17S Range 36W Co. Wichita State KS

Well Name & Number: #1 Kalbach SW-NB-SW Code E6

ENGINEERING DATA	Elevation 3320 KB	Drill Pipe Length 3924	ID 3.8 "
	Mud Viscosity 40	Weight Pipe Length 289	ID 2.76"
	Mud Weight 9.3	Drill Collar Length	
	Water Loss 12	Top Packer Depth 4229	
	Type of Mud Starch	Bottom Packer Depth 4234	
	Anchor Length 62	Tool Joint Size 4.5	XH
	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 #	11085
	Extra Equipment	Circ. pin	

REMARKS DST #1
No blow on shutins.

FORMATION Lansing Zone Test Type Conventional
Interval 4234 To 4296 Total Depth 4296
Open 30 Shut In 30 Open 60 Shut In 45
Packer(s) Set 11:03AM Started Off Bottom 01:50PM
Blow 1st Opening Strong blow off bottom in less than 1 min.
2nd Opening Strong blow off bottom in 3 min.

RECOVERY Total Feet 2300
Recovered 2300 feet of Salt water

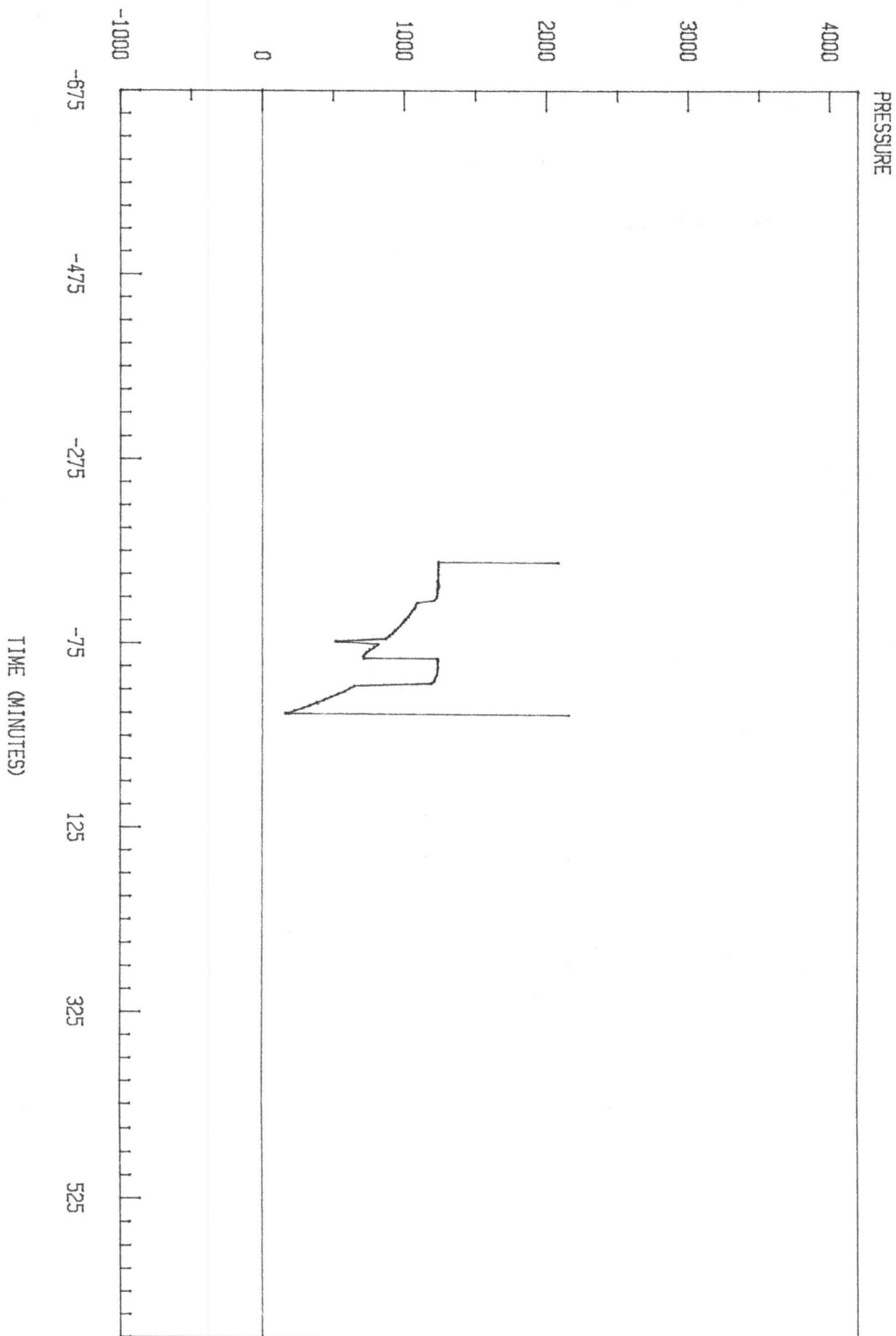
CALCULATED RECOVERY	Gas	Oil	Water 2300	Mud
	Gravity (Oil)		Test Water Chlorides	30,000 PPM
	Test Area Temperature	125F	Mud System Chlorides	25,000 PPM

		FIELD READING	OFFICE READING	
PRESSURE	(A) Initial Hydrostatic Mud	2098	2157	PSI
	(B) First Initial Flow Pressure	163	163	PSI
	(C) First Final Flow Pressure	645	647	PSI
	(D) Initial Closed-In Pressure	1237	1236	PSI
	(E) Second Initial Flow Pressure	700	711	PSI
	(F) Second Final Flow Pressure	1085	1089	PSI
	(G) Final Closed-In Pressure	1237	1240	PSI
	(H) Final Hydrostatic Mud	2087	2082	PSI

CRUDE OIL TESTING INC Test 4097 DST 1

FOR: Hinkle Oil Co.

04/02/84



PRESSURE BREAKDOWN

TEST TICKET NO. 4097

DST Number: 1 Recorder Number: 11085 Clock Number: 22348

First Flow Pressure	Initial Shut-In	Second Flow Pressure	Final Shut-In
Mins. Press.	Mins. Press.	Mins. Press.	Mins. Press.
0 163	0 647	0 710	0 1088
3 226	3 1191	3 714	3 1210
6 286	6 1210	6 729	6 1224
9 336	9 1215	9 758	9 1229
12 384	12 1226	12 788	12 1231
15 436	15 1230	15 816	15 1233
18 485	18 1233	18 515	18 1235
21 529	21 1235	21 868	21 1236
24 575	24 1236	24 891	24 1236
27 612	27 1236	27 915	27 1236
30 647	30 1236	30 936	30 1237
		33 955	33 1237
		36 974	36 1237
		39 991	39 1237
		42 1008	42 1238
		45 1024	45 1239
		48 1039	
		51 1052	
		54 1066	
		57 1077	
		60 1088	

EQUIPMENT DATA
TOOL SEQUENCE REPORT

DST Number: 1

TEST TICKET NO. 4097

WELL NAME: #1 Kalbach

WELL LOCATION: 7-17S-36W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	3924.00	3.826	4.50
3	Weight Pipe	289.00	2.760	4.50
8	Circulating Sub	1.00	3.000	5.00
7	Changeover Sub	2.00	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	58.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
16	Bull Plug	2.00		5.00
	Total Depth	4298.75		

CRUDE OIL TESTING, INC.

DATE 4/3/84

TEST TICKET NO. 4098

Company: Hinkle Oil Co.
 Company Address: 1016 Union Center Wichita KS 67202
 Location: Sec. 7 Twp. 17S Range 36W Co. Wichita State KS
 Well Name & Number: #1 Kalbach Code E6

ENGINEERING DATA	Elevation	3320 KB	Drill Pipe Length	4148	ID 3.8 "
	Mud Viscosity	47	Weight Pipe Length	257	ID 2.76"
	Mud Weight	9.6	Drill Collar Length		
	Water Loss	11.2	Top Packer Depth	4421	
	Type of Mud	Starch	Bottom Packer Depth	4426	
	Anchor Length	84	Tool Joint Size	4.5	XH
	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 #	11085	
	Extra Equipment		None		

REMARKS DST #2
 No blow on shutin.
 Approx. shutin pressure 30 min. in to 2nd
 shutin 1150#.

FORMATION	Marmaton	Zone	Test Type	Conventional
	Interval 4426	To 4510	Total Depth	4510
	Open 30	Shut In 30	Open 90	Shut In 60
	Packer(s) Set	12:13PM	Started Off Bottom	03:45PM
	Blow 1st Opening	6 inches in water in 30 min.		
	2nd Opening	8 inches in water in 90 min.		

RECOVERY Total Feet 315
 Recovered 45 feet of Rotary mud
 Recovered 90 feet of Gassy slightly oil cut mud
 Recovered 180 feet of Gassy heavy oil cut mud

CALCULATED RECOVERY	Gas	10.8	Oil	90	Water	28.8	Mud	185.4
	Gravity (Oil)				Test Water Chlorides		PPM	
	Test Area Temperature	121F	Mud System Chlorides	25,000	PPM			

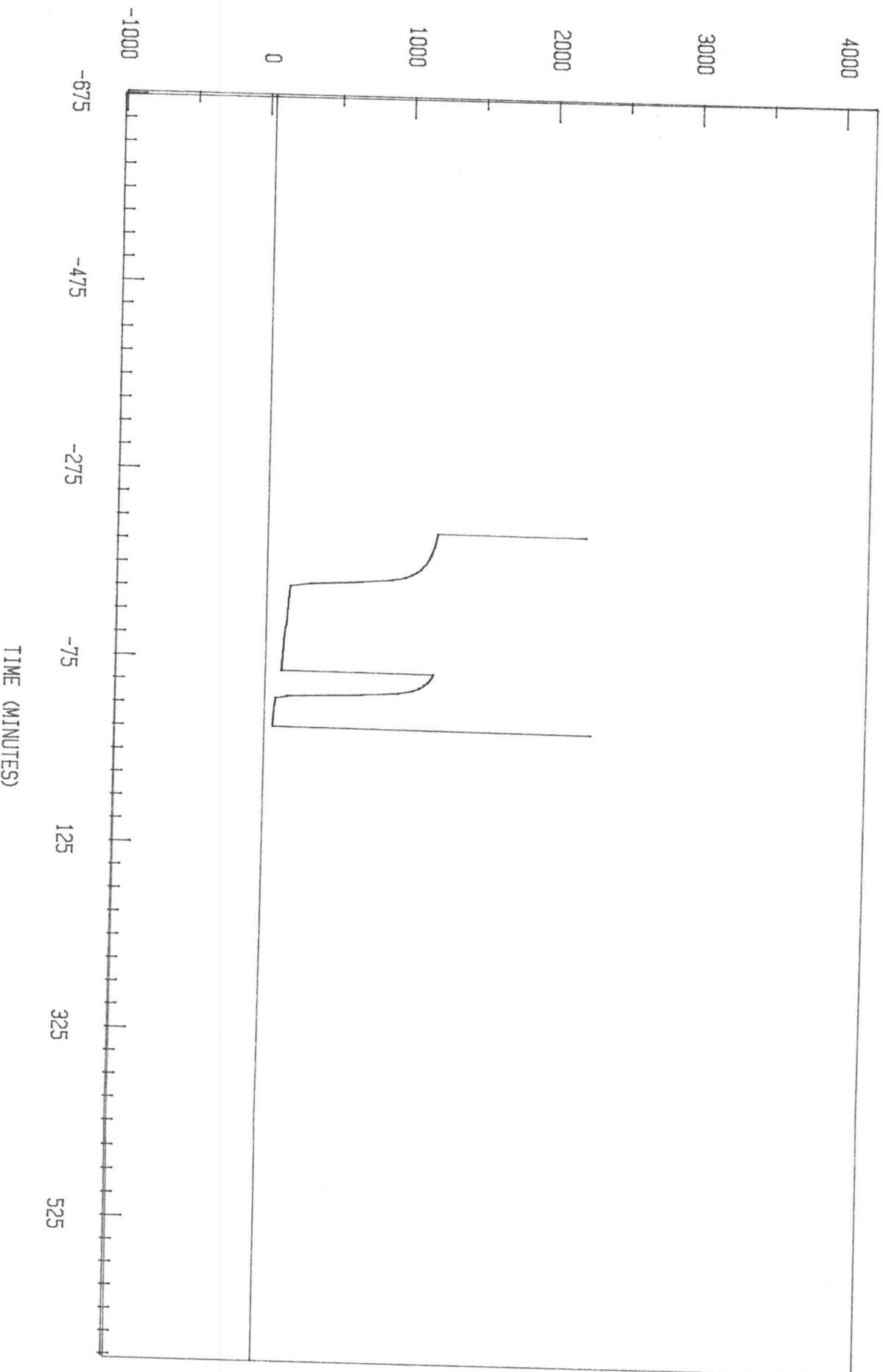
		FIELD READING	OFFICE READING	
PRESSURE	(A) Initial Hydrostatic Mud	2284	2312	PSI
	(B) First Initial Flow Pressure	99	106	PSI
	(C) First Final Flow Pressure	121	121	PSI
	(D) Initial Closed-In Pressure	1202	1211	PSI
	(E) Second Initial Flow Pressure	154	158	PSI
	(F) Second Final Flow Pressure	209	206	PSI
	(G) Final Closed-In Pressure	1213	1220	PSI
	(H) Final Hydrostatic Mud	2241	2252	PSI

CRUDE OIL TESTING INC Test 4098 DST 2

FOR: Hinkle Oil Co.

04/09/84

PRESSURE



PRESSURE BREAKDOWN

TEST TICKET NO. 4098

DST Number: 2 Recorder Number: 11085 Clock Number: 22348

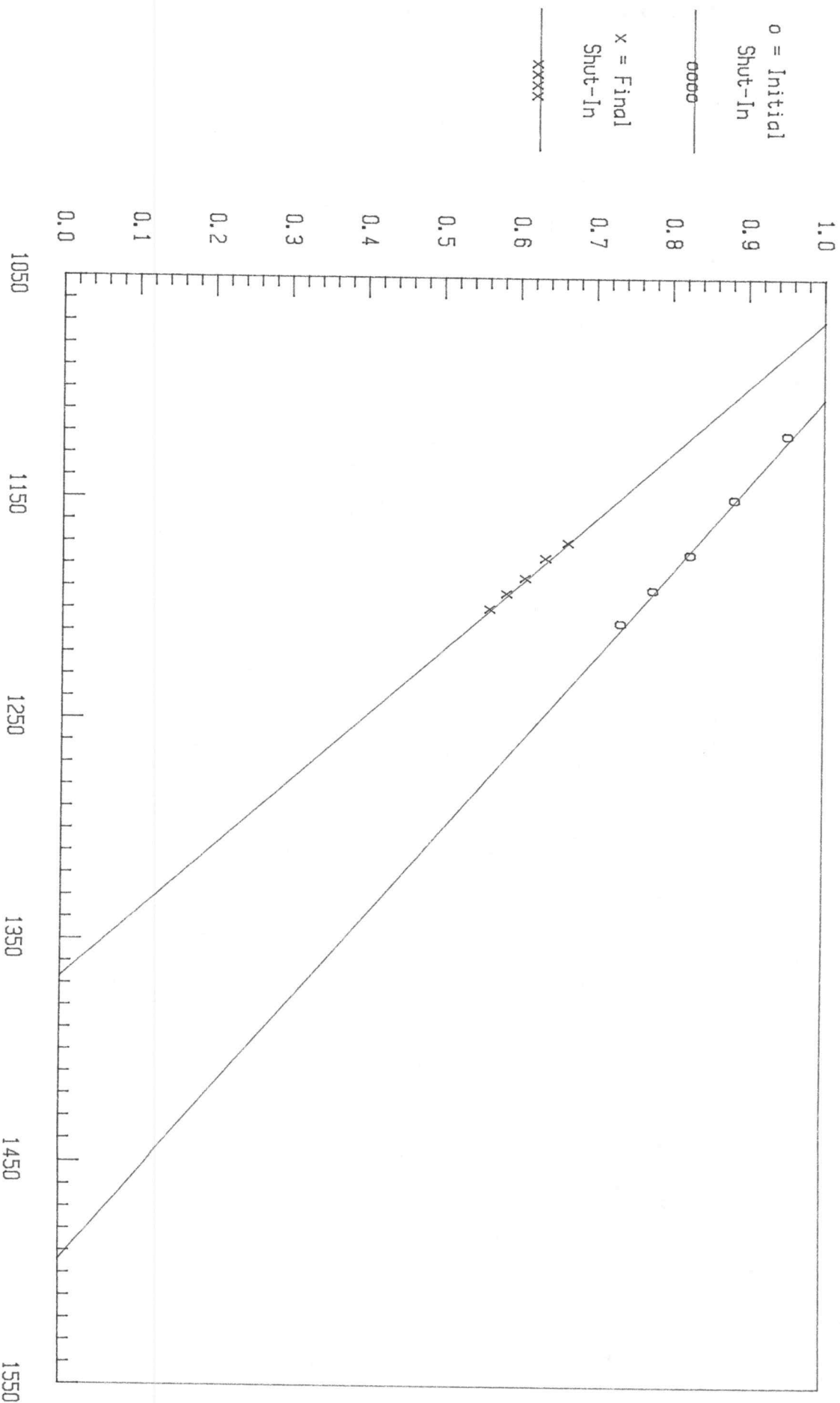
First Flow Pressure	Initial Shut-In	Second Flow Pressure	Final Shut-In
Mins. Press.	Mins. Press.	Mins. Press.	Mins. Press.
0 106	0 121	0 157	0 206
3 106	3 208	3 158	3 347
6 108	6 720	6 159	6 702
9 108	9 973	9 162	9 914
12 109	12 1070	12 162	12 1007
15 110	15 1120	15 163	15 1050
18 112	18 1149	18 163	18 1084
21 114	21 1174	21 166	21 1109
24 117	24 1190	24 167	24 1126
27 119	27 1205	27 168	27 1146
30 121	30 1211	30 169	30 1157
		33 170	33 1169
		36 172	36 1176
		39 175	39 1185
		42 176	42 1192
		45 179	45 1199
		48 184	48 1205
		51 186	51 1210
		54 188	54 1214
		57 189	57 1218
		60 190	60 1220
		63 191	
		66 194	
		69 195	
		72 195	
		75 196	
		78 199	
		81 201	
		84 202	
		87 205	
		90 206	

CRUDE OIL TESTING INC TEST 4098 DST 2

FOR: Hinkle Oil Co.

4/3/84

TIME: LOG (T+t)/t



ZONE EVALUATION - Page 1

DST NUMBER 2

TEST TICKET NO. 4098

Company: Hinkle Oil Co.

Date: 4/3/84

Drill Collar Feet	ID	Weight Pipe Feet	ID	Drill Pipe Feet	ID	Average ID	Gals/ Foot
0	0.000	90	2.760	0	3.800	2.7600	0.311

Bbls Recovered/Test = 0.3330 Est Bbls/Day = 3.9960 T = 120

Initial Shut-In					
PRESS.	TIME	T/t	(T+t)/t	LOG T/t	LOG (T+t)/t
1205	27	4.444	5.444	0.64782	0.73595
1190	24	5.000	6.000	0.69897	0.77815
1174	21	5.714	6.714	0.75696	0.82700
1149	18	6.667	7.667	0.82391	0.88461
1120	15	8.000	9.000	0.90309	0.95424

Final Shut-In					
Press.	Time	T/t	(T+t)/t	Log T/t	Log (T+t)/t
1199	45	2.667	3.667	0.42597	0.56427
1192	42	2.857	3.857	0.45593	0.58627
1185	39	3.077	4.077	0.48812	0.61033
1176	36	3.333	4.333	0.52288	0.63682
1169	33	3.636	4.636	0.56067	0.66618

Time Option is Log (T+t)/t								
IP(0)	IP(1)	FP(0)	FP(1)	M	Kh/B	DR	Q1	Pts
1455.6	1115.1	1370.5	1066.6	303.9	2.138	1.580	6.313	1,3
1455.1	1115.0	1370.3	1066.5	303.7	2.139	1.580	6.314	1-3
1480.5	1107.2	1376.6	1062.0	314.7	2.065	1.560	6.234	1-4
1494.0	1103.6	1366.9	1068.7	298.2	2.179	1.591	6.358	1-5

Graph Data For Points

Initial		Final	
Time	Pressure	Time	Pressure
0.7359	1205	0.5642	1199
0.7781	1190	0.5862	1192
0.8269	1174	0.6103	1185
0.8846	1149	0.6368	1176
0.9542	1120	0.6661	1169

Graph Data For Lines

0	1494.00	0	1366.91
1	1103.56	1	1068.74

ZONE EVALUATION - Page 2

DST Number 2

TEST TICKET NO. 4098

Company: Hinkle Oil Co.

Date: 4/3/84

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

$$M = G_0 - G_1 \quad 298.16$$

Damage Ratio:

$$DR = .183 \frac{P_s - P_f}{M} \quad 1.59$$

Effective Pay:

$$\frac{Kh}{B} = \frac{162.6 Q}{M} \quad 2.18 \text{ Md. Ft.}$$

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

$$Q_1 = Q DR \quad 6.36 \text{ Bbls/Day}$$

Production:

0.33 Bbls/Hour

$$Q = \frac{1440 R}{T} \quad 4.00 \text{ Bbls/Day}$$

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: 2

TEST TICKET NO. 4098

WELL NAME: #1 Kalbach

WELL LOCATION: 7-17S-36W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	4148.00	3.826	4.50
3	Weight Pipe	257.00	2.760	4.50
8	Circulating Sub	1.00	3.000	5.00
7	Changeover Sub	2.00	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	80.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
16	Bull Plug	2.00		5.00
	Total Depth	4512.75		

CALCULATED RECOVERY ANALYSIS

DST Number: 2

TEST TICKET NO. 4098

Sample #	Total Feet	***** Gas %	**** Feet	***** Oil %	**** Feet	***** Mud %	**** Feet
1	45	0.00	0.00	0.00	0.00	100.00	45.00
2	90	3.00	2.70	4.00	3.60	90.00	81.00
3	90	3.00	2.70	41.00	36.90	45.00	40.50
4	90	6.00	5.40	55.00	49.50	21.00	18.90
TOTAL	<u>315</u>	3.43	<u>10.80</u>	28.57	<u>90.00</u>	58.86	<u>185.40</u>

Sample #	**** Water %	*** Feet	Chlorides (PPM)	Resistivity (Ohms)	Temperature (Deg)
1	0.00	0.00			
2	3.00	2.70			
3	11.00	9.90			
4	18.00	16.20			
TOTAL	9.14	<u>28.80</u>			

CRUDE OIL TESTING, INC.

DATE 4/4/84

TEST TICKET NO. 4101

Company: Hinkle Oil Co.
 Company Address: 1016 Union Center Wichita KS 67202
 Location: Sec. 7 Twp. 17S Range 36W Co. Wichita State KS
 Well Name & Number: #1 Kalbach Code E6

ENGINEERING DATA	Elevation	3320 KB	Drill Pipe Length	4253	ID 3.8 "
	Mud Viscosity	45	Weight Pipe Length	257	ID 2.76"
	Mud Weight	9.5	Drill Collar Length		
	Water Loss	10.8	Top Packer Depth	4526	
	Type of Mud	Starch	Bottom Packer Depth	4531	
	Anchor Length	84	Tool Joint Size	4.5	XH
	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 #	11085	
	Extra Equipment		None		

REMARKS DST #3
 Misrun - Started losing fluid in hole when
 packers seated but before tool opened.
 Tried to fill hole but couldn't.

FORMATION	Ft.Scott/Ch. Zone		Test Type Conventional
	Interval 4531 To 4615		Total Depth 4615
	Open 0 Shut In 0		Open 0 Shut In 0
	Packer(s) Set 09:20AM		Started Off Bottom 09:22AM
	Blow 1st Opening 0 2nd Opening 0		

RECOVERY Total Feet 0
 Recovered 0 feet of 0

CALCULATED RECOVERY	Gas	Oil	Water	Mud	
	Gravity (Oil)		Test Water Chlorides		PPM
	Test Area Temperature		Mud System Chlorides	32,000	PPM

		FIELD READING	OFFICE READING	
PRESSURE	(A) Initial Hydrostatic Mud	2163		PSI
	(B) First Initial Flow Pressure			PSI
	(C) First Final Flow Pressure			PSI
	(D) Initial Closed-In Pressure			PSI
	(E) Second Initial Flow Pressure			PSI
	(F) Second Final Flow Pressure			PSI
	(G) Final Closed-In Pressure			PSI
	(H) Final Hydrostatic Mud	2219		PSI

EQUIPMENT DATA

TOOL SEQUENCE REPORT

DST Number: 3

TEST TICKET NO. 4101

WELL NAME: #1 Kalbach

WELL LOCATION: 7-17S-36W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	4253.00	3.826	4.50
3	Weight Pipe	257.00	2.760	4.50
8	Circulating Sub	1.00	3.000	5.00
7	Changeover Sub	2.00	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	80.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
16	Bull Plug	2.00		5.00
	Total Depth	4617.75		

CRUDE OIL TESTING, INC.

DATE 4/4/84

TEST TICKET NO. 4100

Company: Hinkle Oil Co.
 Company Address: 1016 Union Center Wichita KS 67202
 Location: Sec. 7 Twp. 17S Range 36W Co. Wichita State KS
 Well Name & Number: #1 Kalbach Code E6

ENGINEERING DATA	Elevation 3320 KB	Drill Pipe Length 4253	ID 3.8 "
	Mud Viscosity 50	Weight Pipe Length 257	ID 2.76"
	Mud Weight 9.3	Drill Collar Length	
	Water Loss 10.8	Top Packer Depth 4526	
	Type of Mud Starch	Bottom Packer Depth 4531	
	Anchor Length 84	Tool Joint Size 4.5	XH
	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 # 11085	
	Extra Equipment	None	

REMARKS DST #4
 No blow on shutin.

FORMATION	Ft.Scott/Ch. Zone	Test Type Conventional
	Interval 4531 To 4615	Total Depth 4615
	Open 30 Shut In 30	Open 60 Shut In 45
	Packer(s) Set 07:43PM	Started Off Bottom 10:30PM
	Blow 1st Opening Strong blow 12 inches in water in 1 min.	
	2nd Opening Strong blow 12 inches in water in 1 min.	

RECOVERY Total Feet 2800
 Recovered 1800 feet of Muddy water
 Recovered 200 feet of Mud
 Recovered 800 feet of Water (oil scum on top) slight mud cut

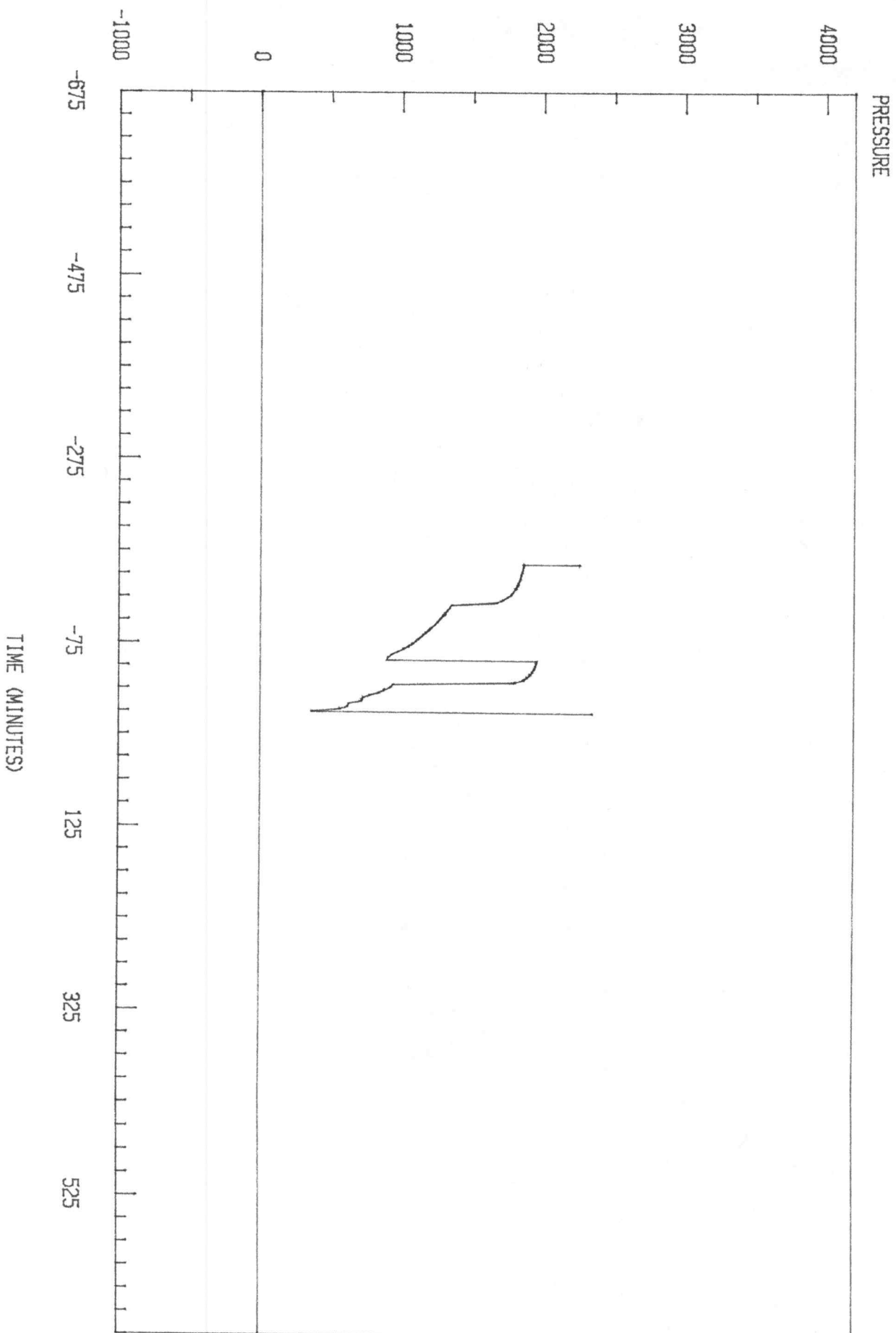
CALCULATED RECOVERY	Gas	Oil	Water 1700	Mud 1100
	Gravity (Oil)	Test Water Chlorides	31,000 PPM	
	Test Area Temperature 119F	Mud System Chlorides	32,000 PPM	

	FIELD READING	OFFICE READING	
PRESSURE (A) Initial Hydrostatic Mud	2327	2343	PSI
(B) First Initial Flow Pressure	560	361	PSI
(C) First Final Flow Pressure	930	934	PSI
(D) Initial Closed-In Pressure	1939	1952	PSI
(E) Second Initial Flow Pressure	886	893	PSI
(F) Second Final Flow Pressure	1343	1347	PSI
(G) Final Closed-In Pressure	1852	1857	PSI
(H) Final Hydrostatic Mud	2284	2254	PSI

CRUDE OIL TESTING INC Test 4100 DST 4

FOR: Hinkle Oil Co.

04/03/84



PRESSURE BREAKDOWN

TEST TICKET NO. 4100

DST Number: 4 Recorder Number: 11085 Clock Number: 22348

First Flow Pressure	Initial Shut-In	Second Flow Pressure	Final Shut-In
Mins. Press.	Mins. Press.	Mins. Press.	Mins. Press.
0 360	0 934	0 892	0 1346
3 563	3 1795	3 900	3 1668
6 614	6 1857	6 928	6 1711
9 621	9 1882	9 970	9 1744
12 714	12 1903	12 1008	12 1768
15 722	15 1918	15 1045	15 1784
18 770	18 1931	18 1073	18 1797
21 837	21 1941	21 1097	21 1809
24 874	24 1947	24 1122	24 1820
27 917	27 1951	27 1145	27 1827
30 934		30 1167	30 1835
		33 1190	33 1839
		36 1211	36 1846
		39 1233	39 1851
		42 1252	42 1854
		45 1268	45 1856
		48 1286	
		51 1301	
		54 1318	
		57 1335	
		60 1346	

EQUIPMENT DATA
TOOL SEQUENCE REPORT

DST Number: 4

TEST TICKET NO. 4100

WELL NAME: #1 Kalbach

WELL LOCATION: 7-17S-36W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	4253.00	3.826	4.50
3	Weight Pipe	257.00	2.760	4.50
8	Circulating Sub	1.00	3.000	5.00
7	Changeover Sub	2.00	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	80.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
16	Bull Plug	2.00		5.00
	Total Depth	4617.75		