HALLIBURTON
SERVICES

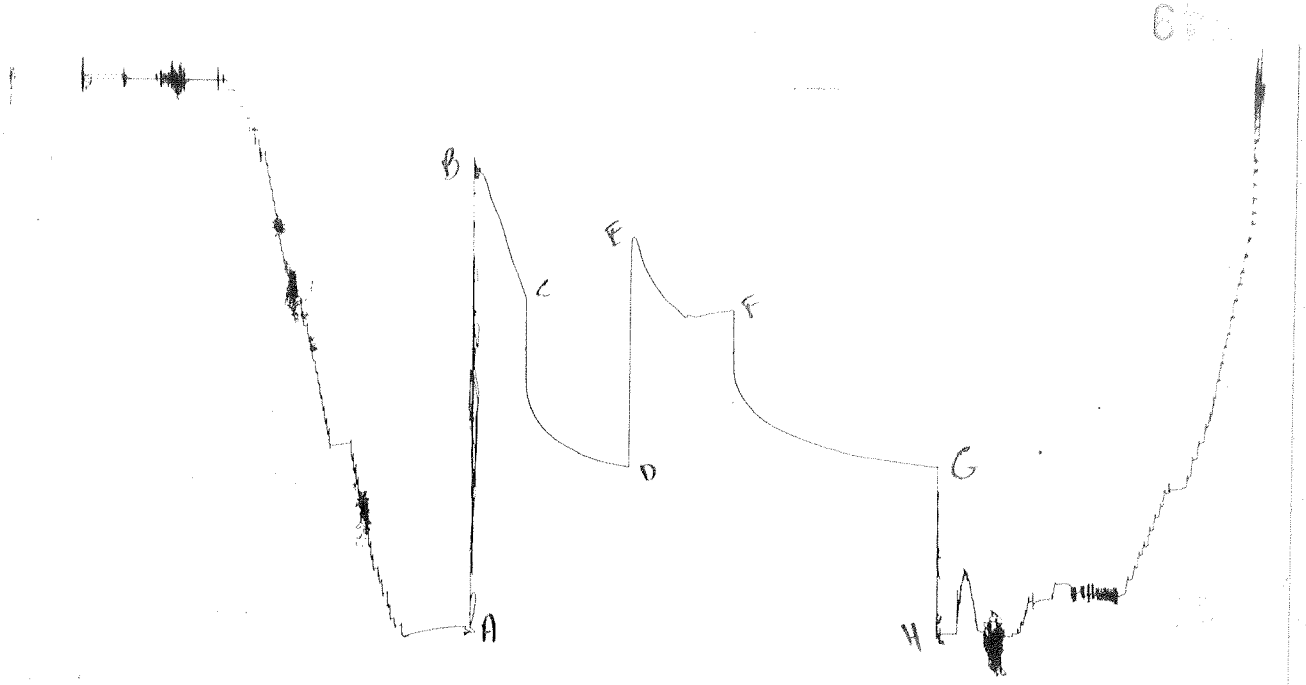
TICKET NO. 54185100
27-SEP-82
PRATT

FORMATION TESTING SERVICE REPORT

LEGAL LOCATION SEC. - TWP. - RNG.	FIELD AREA	COUNTY	STATE
23-34S-21W	WILDCAT	CLARK	KANSAS

LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME
BARBY	3-23	1	4276.' - 4317.'	RINE DRILLING COMPANY

DRBC

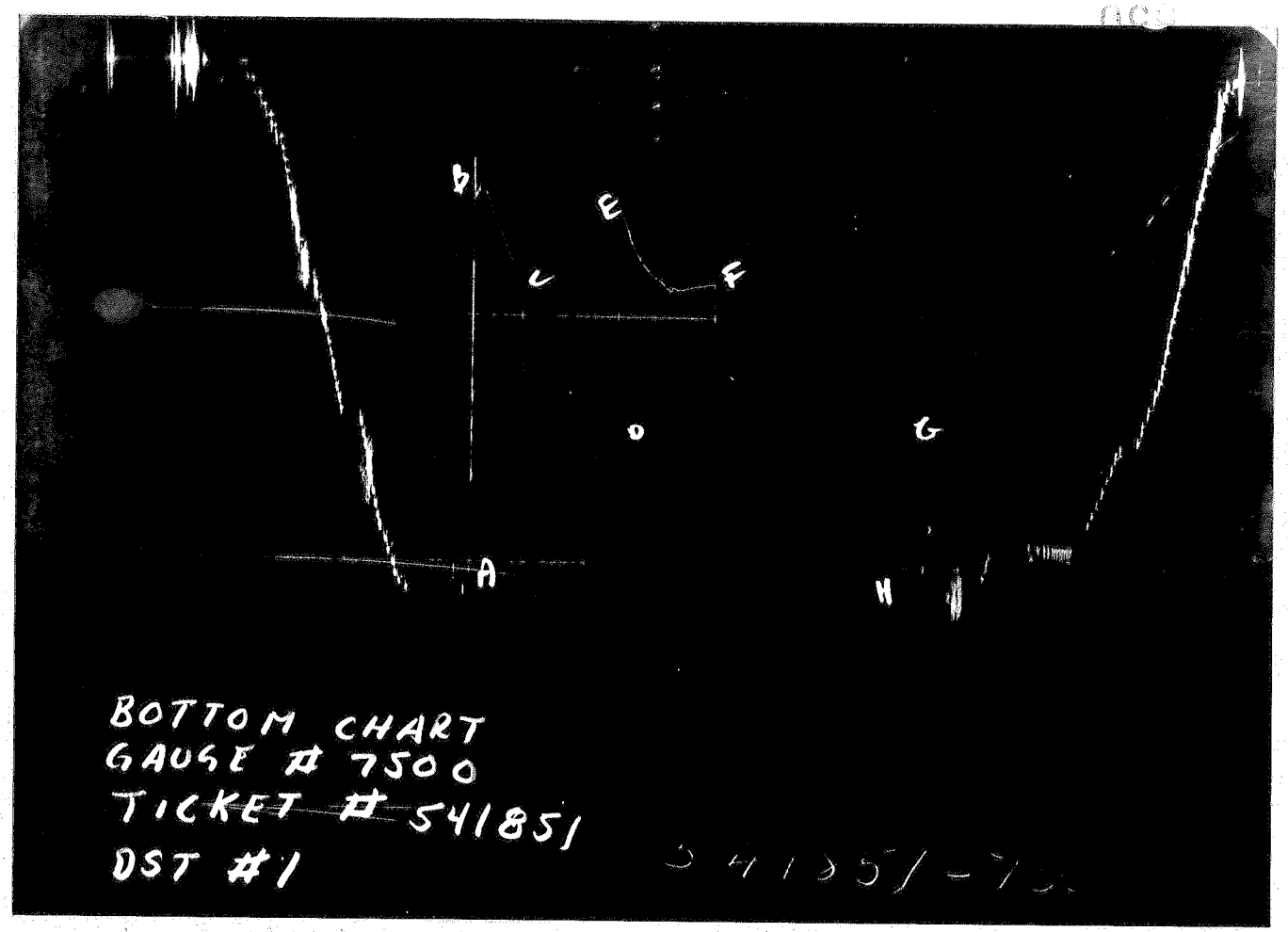


TOP CHART
GAUGE # 7501
TICKET # 541851
DST #1

541851 - 7501

GAUGE NO: 7501 DEPTH: 4255.0 BLANKED OFF: NO HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	2047.3				
B	INITIAL FIRST FLOW	272.6		30.0	30.8	F
C	FINAL FIRST FLOW	802.9				
C	INITIAL FIRST CLOSED-IN	802.9		60.0	60.0	C
D	FINAL FIRST CLOSED-IN	1436.9				
E	INITIAL SECOND FLOW	583.0		60.0	59.6	F
F	FINAL SECOND FLOW	839.4				
F	INITIAL SECOND CLOSED-IN	839.4		120.0	119.6	C
G	FINAL SECOND CLOSED-IN	1420.0				
H	FINAL HYDROSTATIC	2049.9				



GAUGE NO: 7500 DEPTH: 4314.0 BLANKED OFF: YES HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	2074.9				
B	INITIAL FIRST FLOW	365.2		30.0	30.8	F
C	FINAL FIRST FLOW	869.9				
C	INITIAL FIRST CLOSED-IN	869.9		60.0	60.0	C
D	FINAL FIRST CLOSED-IN	1460.3				
E	INITIAL SECOND FLOW	623.6		60.0	59.6	F
F	FINAL SECOND FLOW	865.6				
F	INITIAL SECOND CLOSED-IN	865.6		120.0	119.6	C
G	FINAL SECOND CLOSED-IN	1442.9				
H	FINAL HYDROSTATIC	2074.5				

EQUIPMENT & HOLE DATA

FORMATION TESTED: TORONTO
NET PAY (ft): 27.0
GROSS TESTED FOOTAGE: 41.0
ALL DEPTHS MEASURED FROM: KB
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 7.875
ELEVATION (ft): 1786
TOTAL DEPTH (ft): 4317.0
PACKER DEPTH(S) (ft): 4270, 4276
FINAL SURFACE CHOKE (in): 0.250
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.30
MUD VISCOSITY (sec): 42
ESTIMATED HOLE TEMP. (°F): 113
ACTUAL HOLE TEMP. (°F): 105 @ 4312.0 ft

TICKET NUMBER: 54185100

DATE: 9-21-82 TEST NO: 1

TYPE DST: OPEN HOLE

HALLIBURTON CAMP: PRATT

TESTER: MARTIN

WITNESS: SLADEK (GEOLOGIST)

DRILLING CONTRACTOR: RINE DRILLING COMPANY RIG #8

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY		CHLORIDES
PIT	@ °F		14000 ppm
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): @ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

RECOVERED:

MEASURED FROM TESTER VALVE

REMARKS:

TYPE & SIZE MEASURING DEVICE: _____ TICKET NO: 54185100

TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
9-21-82					
2105					CALLED OUT
2215					LEFT CAMP
9-22-82					
0045					ON LOCATION, RIG PULLED PIPE
0124					STARTED CLOCKS
0148					PICKED UP TOOL
0215					TOOL AT TABLE
0235					TOOL THROUGH TABLE
0506					TOOL ON BOTTOM, SLID ABOUT 6'.
0510					OPENED TOOL WITH A STRONG BLOW
					OFF BOTTOM OF BUCKET IN 30
					SECONDS.
0515					GAS TO SURFACE
0540					CLOSED TOOL. BLOW BEGAN TO
					SURGE & BEGAN TO UNLOAD
0640					OPENED TOOL WITH A STRONG BLOW.
					GAS TO SURFACE IMMEDIATELY.
0644					OIL TO SURFACE.
0740					CLOSED TOOL
0940					TOOL OFF BOTTOM, BY-PASS OPEN
0950					DROPPED BAR TO CIRCULATE OUT.
1035					STARTED OUT OF HOLE
1045					RIGGED UP WET CAPS
1055					PUT HEAD BACK IN TO CIRCULATE
					OUT AGAIN.
1130					STARTED OUT OF HOLE
1330					TOOL AT TABLE
1420					TOOL LAID DOWN

TICKET NO: 54185100	GAUGE NO: 7501
CLOCK NO: 6947 HOUR: 12	DEPTH: 4255.0

HALLIBURTON SERVICES

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			FIRST FLOW			
B	1	0.0	272.6			
	2	5.0	336.9	64.3		
	3	10.0	431.3	94.4		
	4	15.0	508.2	76.8		
	5	20.0	615.4	107.3		
	6	25.0	707.7	92.2		
C	7	30.8	802.9	95.3		
			FIRST CLOSED-IN			
C	1	0.0	802.9			
	2	4.0	1234.3	431.3	3.5	0.940
	3	8.0	1277.9	475.0	6.3	0.685
	4	12.0	1308.2	505.3	8.6	0.552
	5	16.0	1331.6	528.7	10.5	0.465
	6	20.0	1350.0	547.1	12.1	0.405
	7	24.0	1364.2	561.2	13.5	0.358
	8	28.0	1377.9	575.0	14.7	0.322
	9	32.0	1392.4	589.4	15.7	0.292
	10	36.0	1402.7	599.8	16.6	0.268
	11	40.0	1410.4	607.4	17.4	0.248
	12	44.0	1417.4	614.4	18.1	0.230
	13	48.0	1424.3	621.4	18.8	0.215
	14	52.0	1428.3	625.4	19.3	0.202
	15	56.0	1433.5	630.5	19.9	0.190
D	16	60.0	1436.9	634.0	20.3	0.180
			SECOND FLOW			
E	1	0.0	583.0			
	2	10.0	703.7	120.7		
	3	20.0	802.1	98.3		
	4	30.0	859.8	57.8		
[1]	5	33.0	869.4	9.6		
	6	40.0	863.0	-6.5		
	7	50.0	847.1	-15.9		
F	8	59.6	839.4	-7.7		
			SECOND CLOSED-IN			
F	1	0.0	839.4			
	2	8.0	1190.2	350.8	7.3	1.091
	3	16.0	1244.1	404.7	13.6	0.822
	4	24.0	1277.1	437.7	19.0	0.678
	5	32.0	1300.8	461.4	23.6	0.583
	6	40.0	1322.2	482.8	27.7	0.513
	7	48.0	1339.9	500.6	31.4	0.460
	8	56.0	1355.4	516.0	34.6	0.417

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			SECOND CLOSED-IN - CONTINUED			
	9	64.0	1369.7	530.3	37.5	0.382
	10	72.0	1381.9	542.5	40.1	0.353
	11	80.0	1389.7	550.4	42.4	0.328
	12	88.0	1396.9	557.5	44.6	0.307
	13	96.0	1404.1	564.7	46.6	0.288
	14	104.0	1410.2	570.8	48.4	0.272
	15	112.0	1416.3	576.9	50.0	0.257
G	16	119.6	1420.0	580.6	51.5	0.244

LEGEND:
[1] MAXIMUM FLOW PRESSURE

REMARKS:

TICKET NO: 54185100		GAUGE NO: 7500
CLOCK NO: 3004 HOUR: 12	HALLIBURTON SERVICES	DEPTH: 4314.0

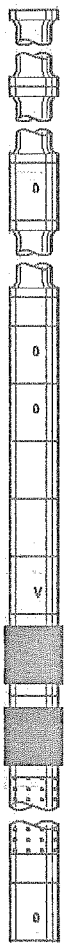
REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			FIRST FLOW			
B	1	0.0	365.2			
	2	5.0	475.5	110.4		
	3	10.0	538.4	62.9		
	4	15.0	632.0	93.6		
	5	20.0	713.7	81.7		
	6	25.0	787.3	73.5		
C	7	30.8	869.9	82.7		
			FIRST CLOSED-IN			
C	1	0.0	869.9			
	2	4.0	1256.1	386.2	3.5	0.940
	3	8.0	1302.0	432.1	6.3	0.687
	4	12.0	1332.4	462.5	8.6	0.551
	5	16.0	1354.5	484.5	10.5	0.466
	6	20.0	1374.4	504.4	12.1	0.405
	7	24.0	1390.3	520.3	13.5	0.358
	8	28.0	1404.1	534.1	14.7	0.322
	9	32.0	1415.3	545.4	15.7	0.292
	10	36.0	1424.9	554.9	16.6	0.268
	11	40.0	1432.8	562.9	17.4	0.248
	12	44.0	1440.1	570.2	18.1	0.230
	13	48.0	1445.9	576.0	18.8	0.215
	14	52.0	1451.9	582.0	19.3	0.202
	15	56.0	1457.3	587.3	19.9	0.190
D	16	60.0	1460.3	590.3	20.3	0.180
			SECOND FLOW			
E	1	0.0	623.6			
	2	10.0	737.9	114.3		
	3	20.0	829.0	91.1		
	4	30.0	885.2	56.2		
[1]	5	33.0	894.6	9.3		
	6	40.0	887.5	-7.0		
	7	50.0	873.2	-14.4		
F	8	59.6	865.6	-7.6		
			SECOND CLOSED-IN			
F	1	0.0	865.6			
	2	8.0	1217.4	351.8	7.4	1.088
	3	16.0	1266.6	401.0	13.6	0.823
	4	24.0	1300.5	434.9	19.0	0.678
	5	32.0	1326.3	460.7	23.6	0.582
	6	40.0	1348.2	482.6	27.7	0.513
	7	48.0	1365.3	499.8	31.3	0.460
	8	56.0	1380.6	515.0	34.6	0.417

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			SECOND CLOSED-IN - CONTINUED			
	9	64.0	1393.9	528.3	37.5	0.382
	10	72.0	1404.5	538.9	40.1	0.353
	11	80.0	1413.1	547.5	42.4	0.328
	12	88.0	1421.1	555.5	44.6	0.307
	13	96.0	1427.5	561.9	46.6	0.288
	14	104.0	1433.8	568.2	48.4	0.271
	15	112.0	1439.0	573.5	50.0	0.257
G	16	119.6	1442.9	577.3	51.5	0.244

LEGEND:
[1] MAXIMUM FLOW PRESSURE

REMARKS:

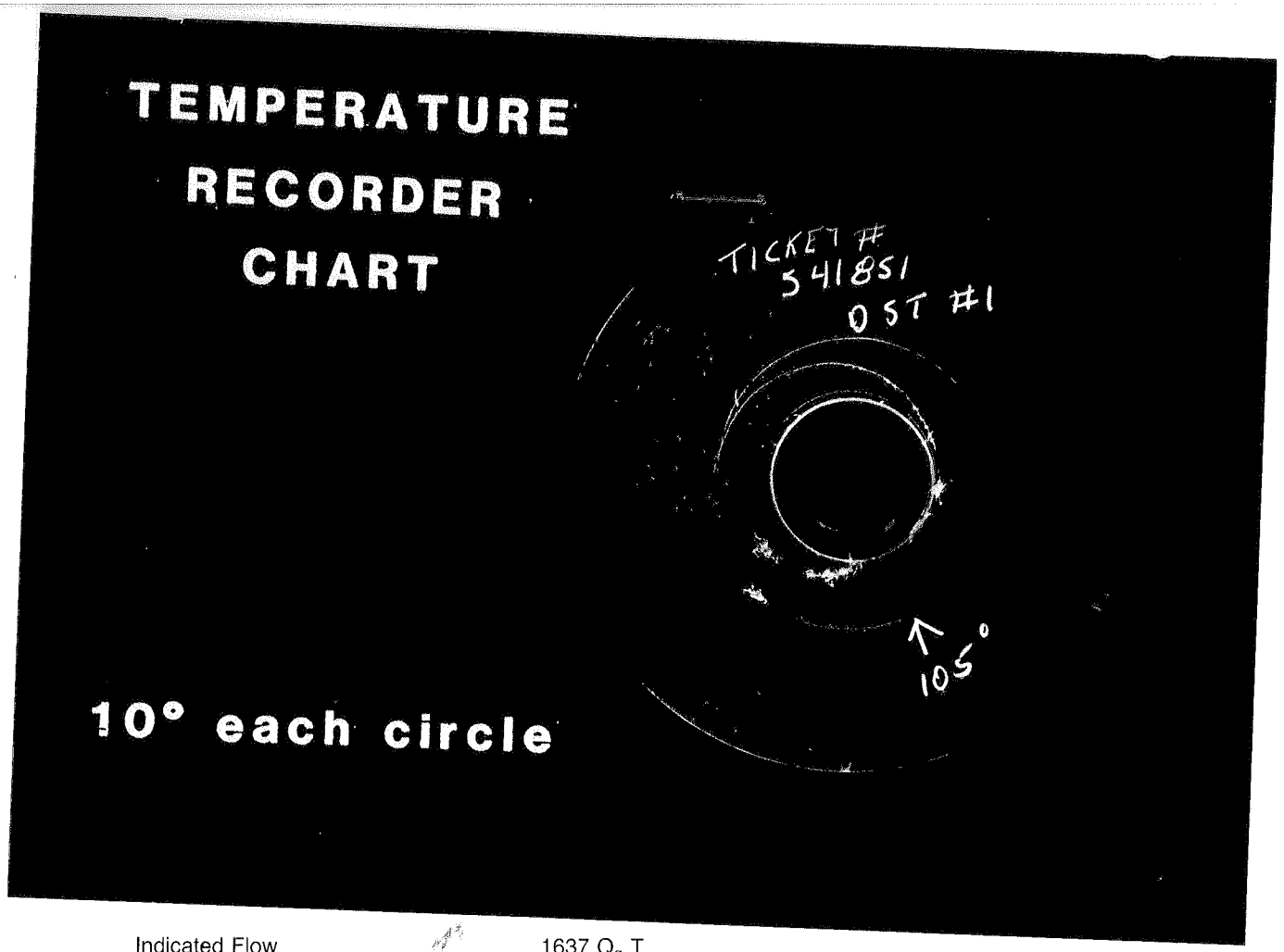
TICKET NO. 54185100



		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	3702.0	
4	FLEX WEIGHT.....	6.250	2.250	420.0	
50	IMPACT REVERSING SUB.....	5.750	2.750	1.0	4122.0
4	FLEX WEIGHT.....	6.250	2.250	120.0	
5	CROSSOVER.....	6.250	2.250	1.0	
12	DUAL CIP VALVE.....	5.000	0.870	5.0	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	4253.0
80	AP RUNNING CASE.....	5.000	3.060	4.0	4255.0
15	JAR.....	5.000	1.500	5.0	
16	VR SAFETY JOINT.....	5.000	1.000	3.0	
70	OPEN HOLE PACKER.....	6.750	1.530	6.0	4270.0
70	OPEN HOLE PACKER.....	6.750	1.530	6.0	4276.0
20	FLUSH JOINT ANCHOR.....	5.000	2.370	34.0	
83	HT-500 TEMPERATURE CASE.....	5.000		1.0	4312.0
81	BLANKED-OFF RUNNING CASE.....	5.000		4.0	4314.0
	TOTAL DEPTH				4317.0

EQUIPMENT DATA

TEMPERATURE RECORDER CHART



Indicated Flow Capacity	$kh = \frac{1637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151 \left[\frac{m(P^*) - m(P_f)}{m} - \text{LOG} \frac{kt}{\phi\ \mu\ c_t r_w^2} + 3.23 \right]$	—
Damage Ratio	$DR = \frac{m(P^*) - m(P_f)}{m(P^*) - m(P_f) - 0.87\ mS}$	—
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\ m(P^*)}{m(P^*) - m(P_f)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g \sqrt{\frac{m(P^*)}{m(P^*) - m(P_f)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032 \sqrt{\frac{kt}{\phi \mu c_t}}$	ft

HALLIBURTON SERVICES

Lease Name BARBY Well No. 3-23 Test No. 1
Lease Owner RINE DRILLING CO. Date 9-21-82 Ticket No. 541851

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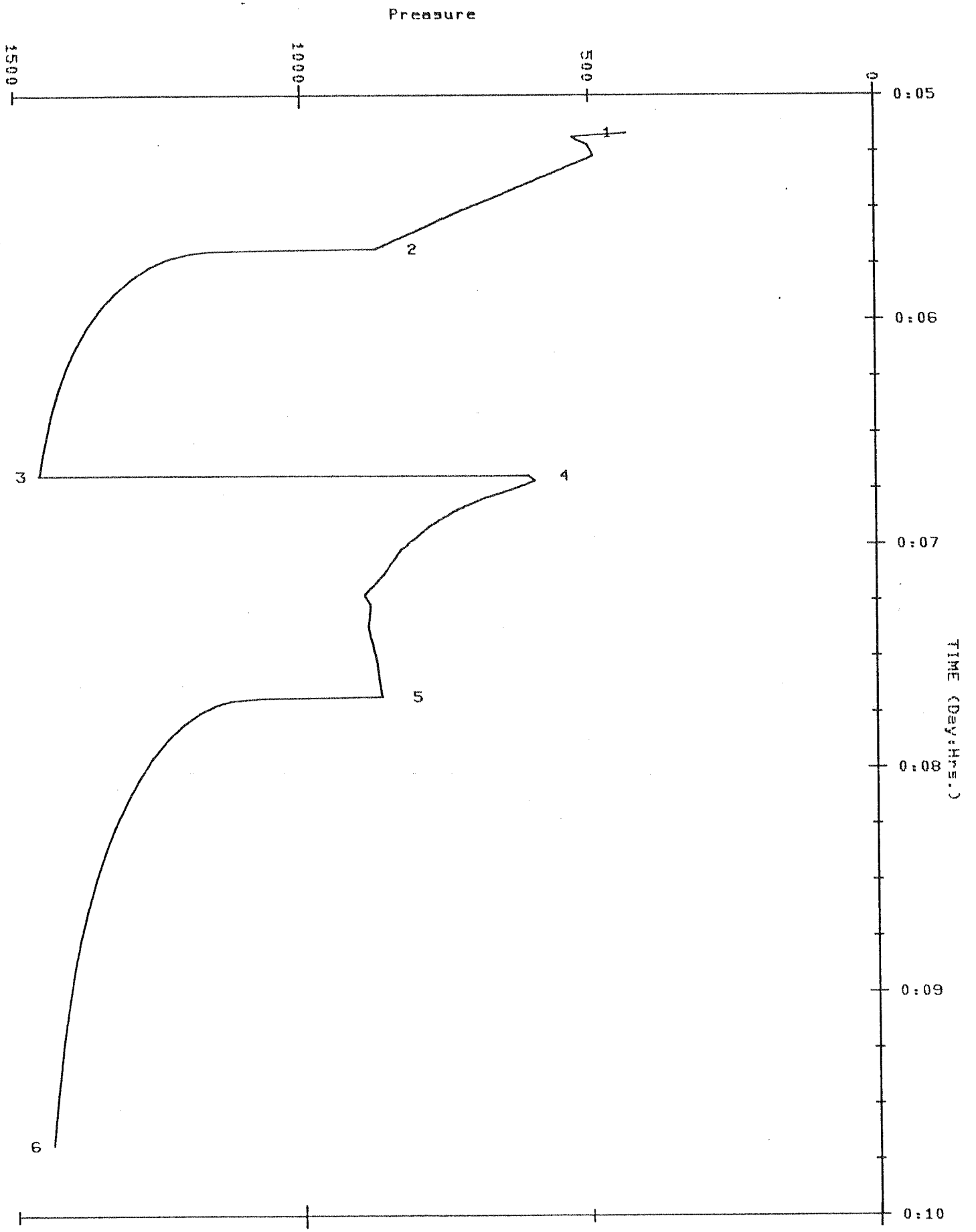
Lease Name BARBY | Well No. 3-23 | Test No. 1

Lease Owner RINE DRILLING CO. | Date 9-21-82 | Ticket no. 541851

Gauge Sn. 007500



Lease Name BARBY | Well No. 3-23 | Test No. 1
Lease Owner RINE DRILLING CO. | Date 9-21-82 | Ticket no. 541851
Gauge Sn. 007500

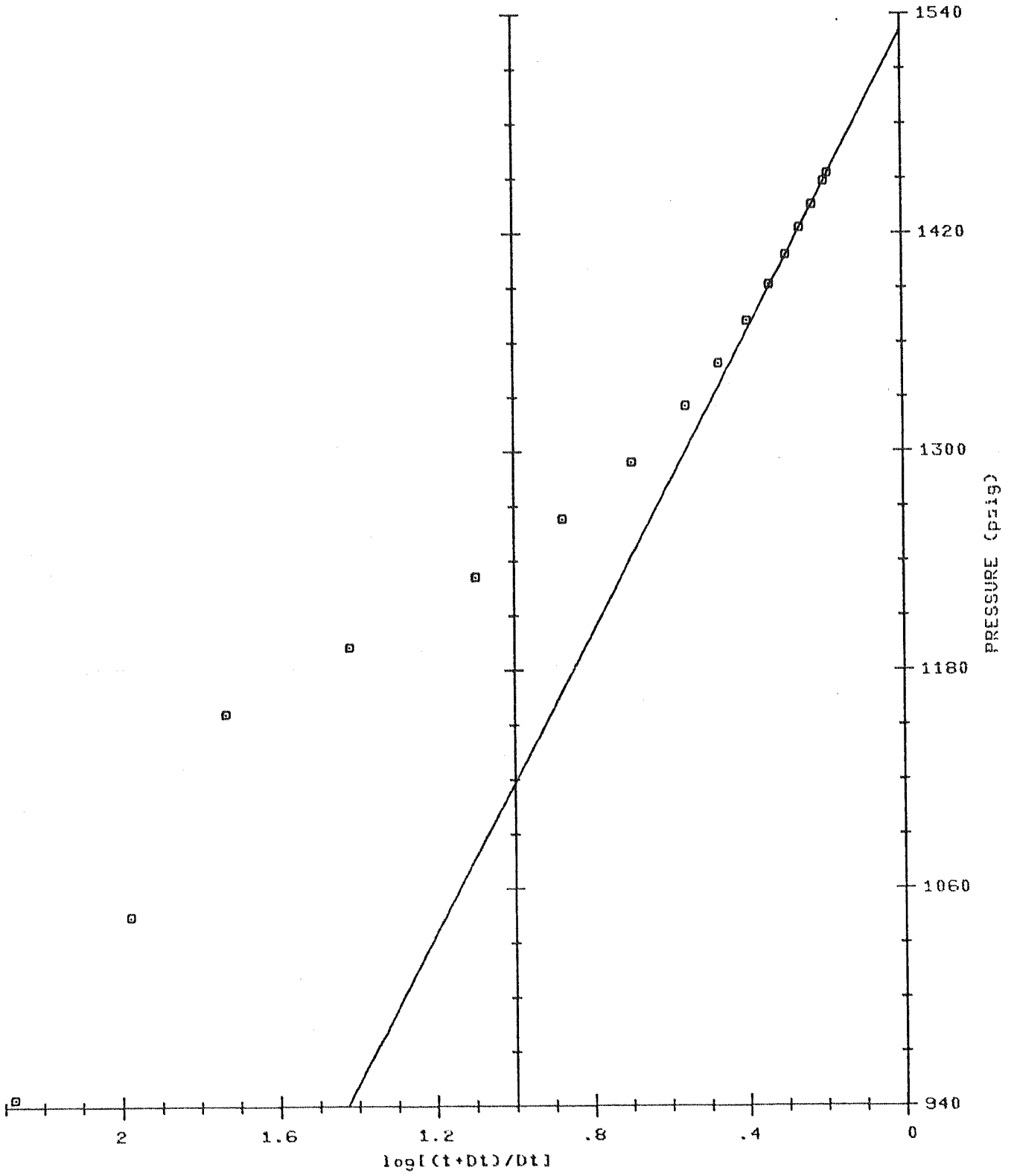
loc.	Time	Description	Press.	Delta t	Time int.
0	0:05:10:00	Start Time			
1	0:05:10:00	inital flow # 1	527.14	0.000	0 1
2	0:05:40:53	final flow # 1	868.39	30.883	1 2
3	0:06:41:16	closed in # 1	1456.41	60.383	2 3
4	0:06:41:26	inital flow # 2	606.23	.167	3 4
5	0:07:40:36	final flow # 2	862.45	59.167	4 5
6	0:09:40:55	closed in # 2	1437.38	120.317	5 6
7	0:09:40:55	inital flow # 3	0.00	0.000	6 7

Lease Name BARBY Date 9-21-82 Ticket No. 541851 Period # 0

Time	Press.	Temp	Delta t	Ps	P10	CCc	
0:05:10:58	527.14	103					inital flow # 1
0:05:11:43	519.94	103	1.7				
0:05:13:04	500.49	103	3.1				
0:05:16:07	489.33	103	6.1				
0:05:23:15	602.04	103	13.2				
0:05:27:21	665.95	103	17.4				
0:05:31:05	726.65	103	21.1				
0:05:35:49	793.77	103	25.8				
0:05:40:53	868.39	103	30.9				final flow # 1
0:05:41:03	944.46	103	.2				
0:05:41:13	1044.76	103	.3				
0:05:41:28	1156.41	103	.6				
0:05:42:07	1192.91	103	1.2				
0:05:43:35	1231.36	103	2.7				
0:05:45:38	1263.01	103	4.8	1480.84	1261.77	.960357	
0:05:48:41	1294.17	103	7.8	1379.89	1248.87	.996954	
0:05:52:45	1325.15	103	11.9	1392.69	1252.46	.993343	
0:05:56:39	1348.45	103	15.8	1429.55	1243.89	.992959	
0:06:01:35	1371.84	103	20.7	1455.49	1230.14	.993239	
0:06:07:04	1391.94	103	26.2	1480.37	1207.69	.995735	
0:06:12:19	1408.25	103	31.4	1500.50	1181.61	.997784	
0:06:18:31	1423.01	103	37.6	1513.20	1160.19	.998490	
0:06:25:19	1435.73	103	44.4	1522.72	1139.64	.999309	
0:06:34:14	1448.54	103	53.4	1528.44	1124.35	.999949	
0:06:37:59	1452.91	103	57.1	1529.57	1120.78	.999965	
0:06:41:16	1456.41	103	60.4	1530.51	1117.25	.999996	closed in # 1

Lease Name BARBY | Well No. 3-23 | Test No. 1
Lease Owner RINE DRILLING CO. | Date 9-21-82 | Ticket no. 541851
Gauge Sn. 007500

HORNER PLOT
Ps= 1530.51
P10= 1117.25
CC= .999996
PERIOD # 1



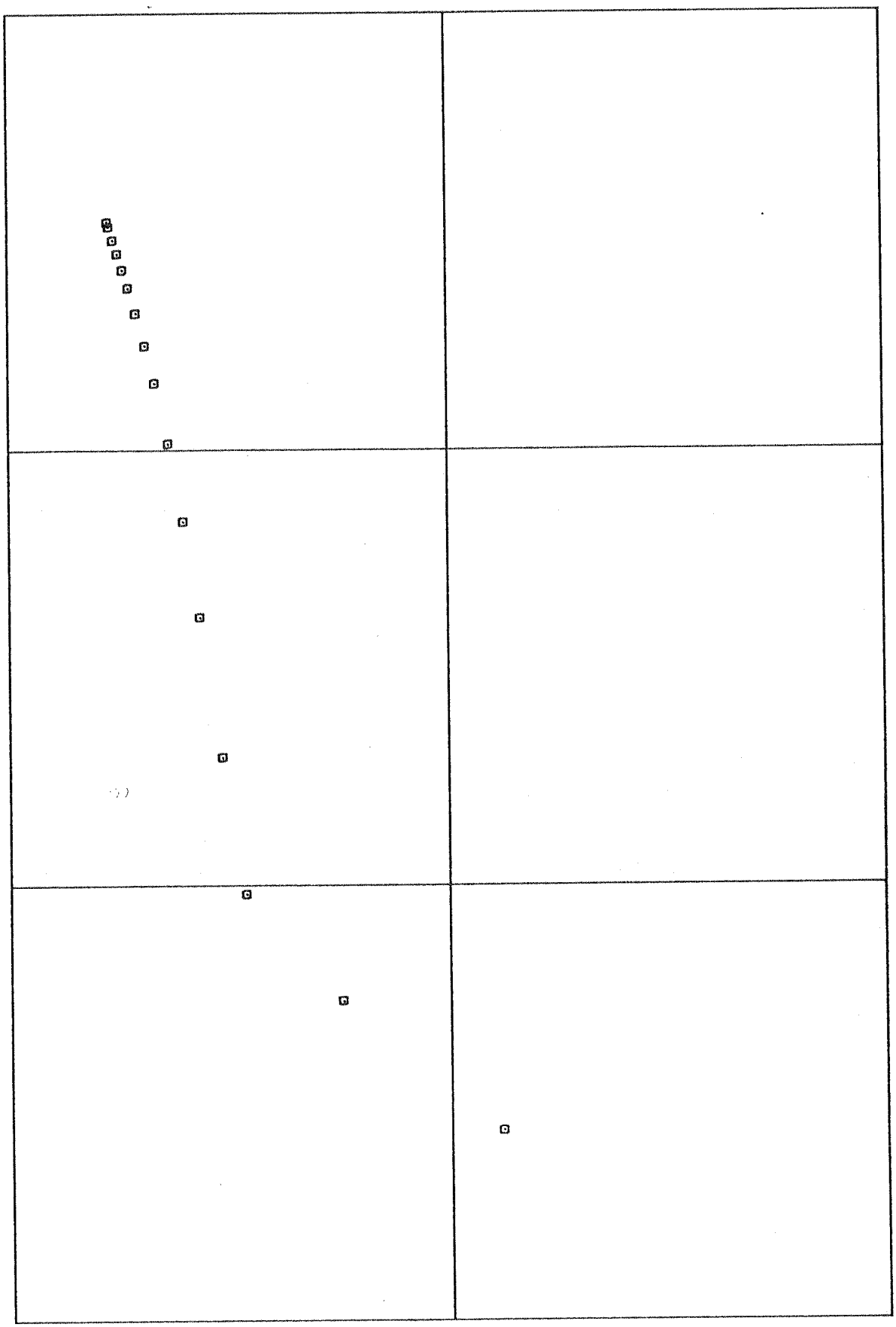
Lease Name BARBY | Well No. 3-23 | Test No. 1

Lease Owner RINE DRILLING CO. | Date 9-21-82 | Ticket no. 541851

Gauge Sn. 007500

Log-Log PLOT

PERIOD # 1

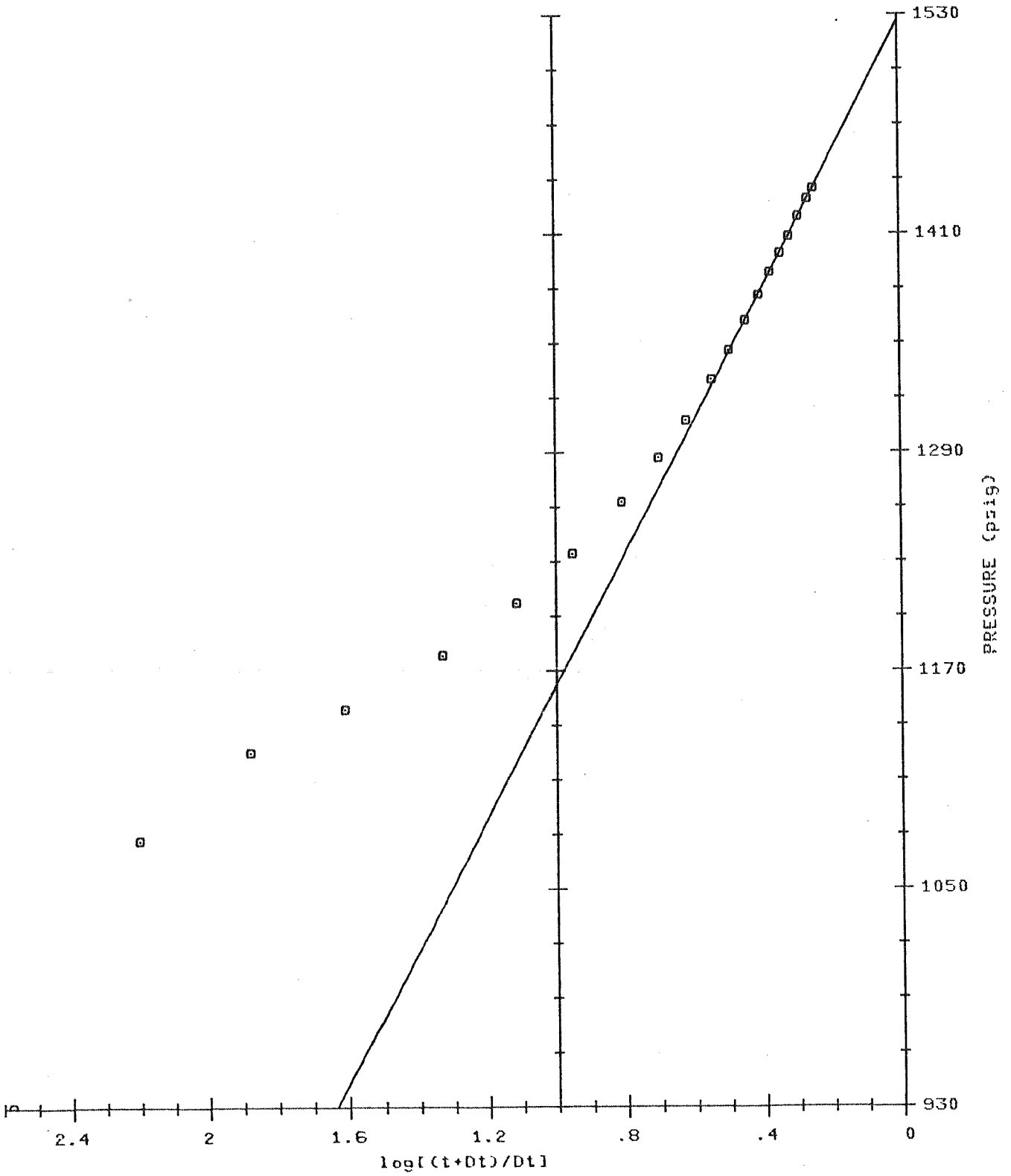


Lease Name BARBY Date 9-21-82 Ticket No. 541851 Period # 1

Time	Press.	Temp	Delta t	Ps	P10	CCc	
0:06:41:26	606.23	103					inital flow # 2
0:06:42:45	594.16	103	1.3				
0:06:44:59	631.03	103	3.5				
0:06:47:34	684.44	103	6.1				
0:06:50:41	731.71	103	9.3				
0:06:55:11	780.06	103	13.8				
0:07:01:34	829.38	103	20.1				
0:07:07:55	859.05	103	26.5				
0:07:13:28	890.86	103	32.0				
0:07:16:00	880.25	103	34.6				
0:07:21:50	884.24	103	40.4				
0:07:30:52	870.82	103	49.4				
0:07:40:36	862.45	103	59.2				
0:07:40:50	930.54	103	.2				final flow # 2
0:07:41:10	1077.38	103	.6				
0:07:41:48	1125.63	103	1.2				
0:07:42:53	1149.13	103	2.3				
0:07:45:01	1178.83	103	4.4				
0:07:48:07	1207.48	103	7.5	1418.44	1246.31	.949325	
0:07:51:56	1234.56	103	11.3	1343.51	1223.61	.996331	
0:07:57:08	1262.82	103	16.5	1399.95	1236.76	.966351	
0:08:02:54	1287.18	103	22.3	1403.08	1230.89	.994167	
0:08:08:44	1307.67	103	28.1	1431.10	1227.26	.996743	
0:08:16:09	1330.19	103	35.6	1455.40	1220.23	.996591	
0:08:22:42	1346.12	103	42.1	1476.57	1209.56	.997765	
0:08:30:13	1362.33	103	49.6	1494.19	1197.17	.998765	
0:08:37:50	1376.21	103	57.2	1506.96	1185.63	.999259	
0:08:45:38	1388.83	103	65.0	1517.57	1173.94	.999291	
0:08:54:02	1399.32	103	73.4	1523.75	1165.40	.999834	
0:09:02:38	1408.64	103	82.0	1525.69	1162.13	.999928	
0:09:13:37	1419.51	103	93.0	1526.96	1160.28	.999898	
0:09:26:45	1429.03	103	106.2	1526.79	1160.53	.999932	
0:09:36:16	1434.85	103	115.7	1526.42	1161.11	.999941	
0:09:40:55	1437.38	103	120.3	1526.10	1161.63	.999941	closed in # 2

Lease Name BARBY | Well No. 3-23 | Test No. 1
Lease Owner RINE DRILLING CO. | Date 9-21-82 | Ticket no. 541851
Gauge Sn. 007500

HORNER PLOT
Ps= 1526.10
P10= 1161.63
CC= .999941
PERIOD # 2



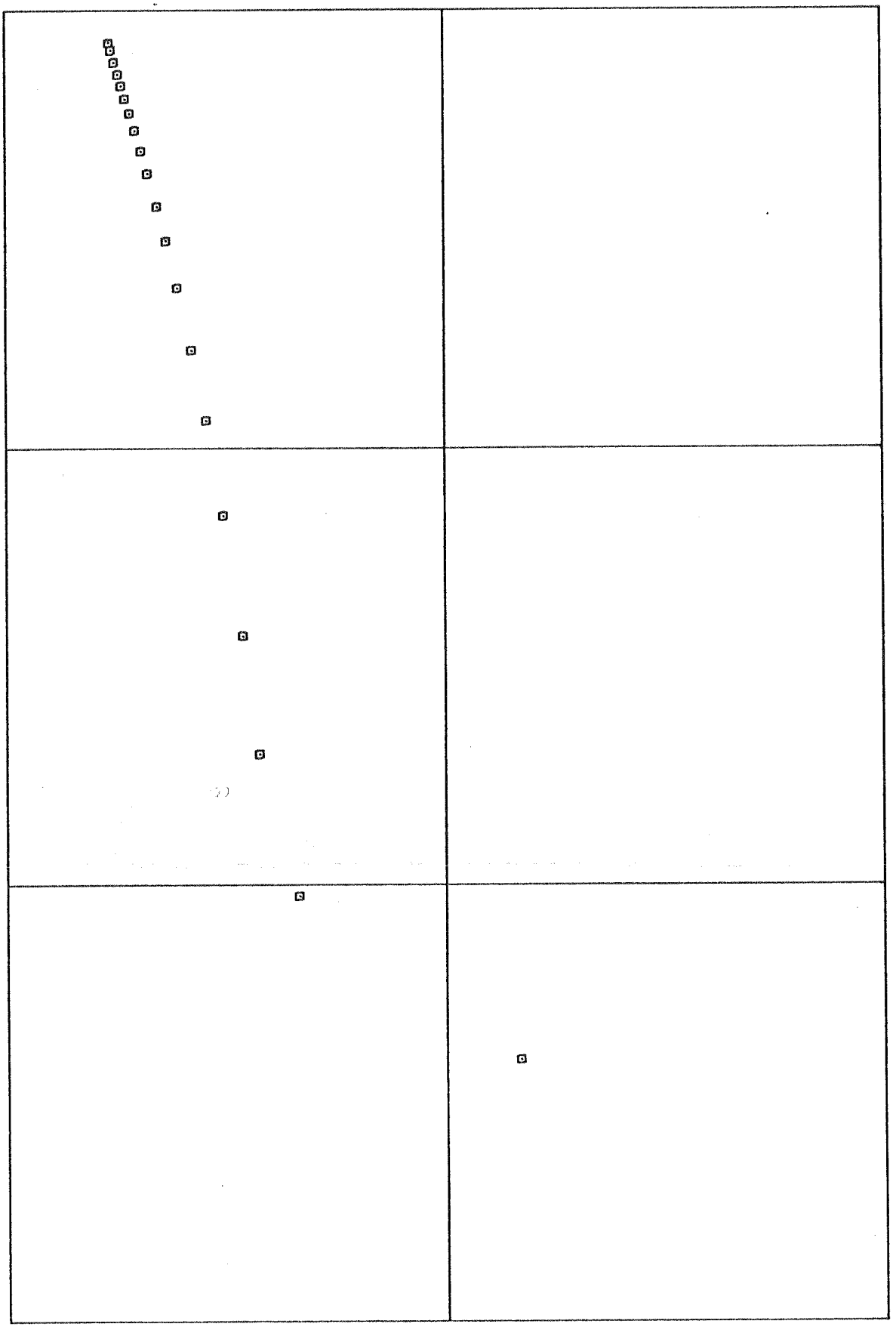
Lease Name BARBY | Well No. 3-23 | Test No. 1

Lease Owner RINE DRILLING CO. | Date 9-21-82 | Ticket no. 541851

Gauge Sn. 007500

Log-Log PLOT

PERIOD # 2



HALLIBURTON SERVICES

Lease Name BARBY Well No. 3-23 Test No. 1
Lease Owner RINE DRILLING CO. Date 9-21-82 Ticket no. 541851
Gauge Sn. 007500

LIQUID PRODUCTION FOR OIL
PERIOD # 2

GAS GRAVITY	.650000		FLUID GRADIENT	.357504	psi/ft
GAS/OIL RATIO	250.000000	cfpb	FORMATION VOL FACTOR	1.139327	v/v
TEMPERATURE	103.000000	F	FLUID PROPERTIES AT	1437.378641	Psig
VISCOSITY	1.787404	cp	NET PAY	27.000000	ft
PIPE CAPACITY FACTOR	.004918		.014220 bbl/ft		

GAUGE DEPTH		4314.000000	ft
FINAL FLOW PRESSURE	Pf	862.451362	Psig
TOTAL FLOW TIME	t	90.040498	min
EXTRAPOLATED PRESS.	Ps	1526.104092	Psig
ONE CYCLE PRESSURE		1161.625367	Psig
PRODUCTION RATE	Q	690.900000	BPD
TRANSMISSIBILITY	kh/u	351.165454	mf/c
FLOW CAPACITY	kh	627.674589	mdft
PERMEABILITY	k	23.247207	md
DAMAGE RATIO	DR	.333211	
POTENTIAL RATE	Q1	690.900000	BPD
RADIUS OF INVEST.	ri	211.828956	ft

HALLIBURTON

SERVICES

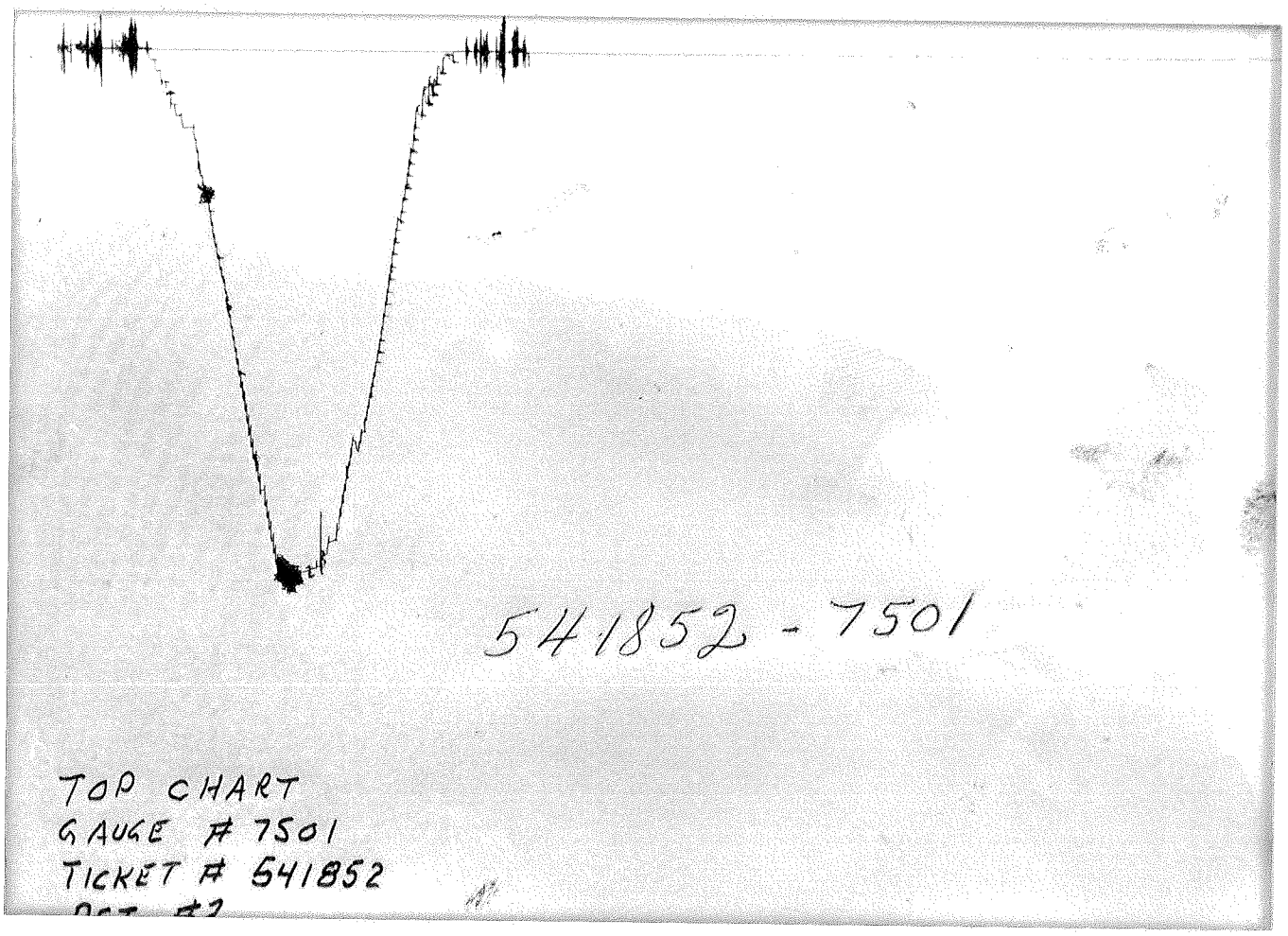
TICKET NO. 54185200

29-SEP-82

PRATT

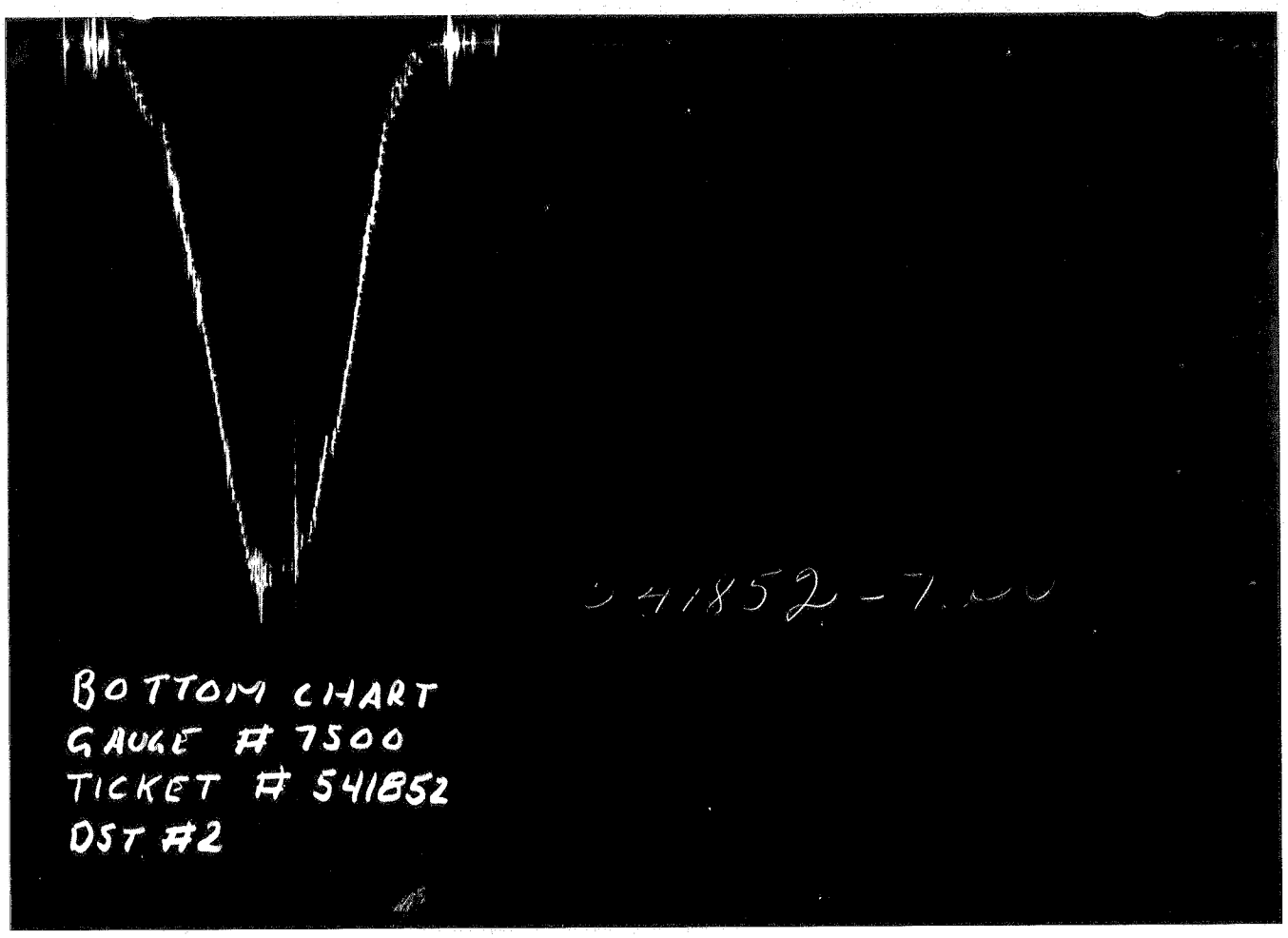
FORMATION TESTING SERVICE REPORT

LEGAL LOCATION SEC. 23 TWP. 34S RNG. 21W	FIELD AREA SNAKE CREEK	COUNTY CLARK	STATE KANSAS	DR/IC	
BARBY LEASE NAME	3-23 WELL NO.	2 TEST NO.	TESTED INTERVAL	RINE DRILLING COMPANY LEASE OWNER/COMPANY NAME	



GAUGE NO: 7501 DEPTH: 4296.0 BLANKED OFF: NO HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	DID NOT REACH BOTTOM					



GAUGE NO: 7500 DEPTH: 4355.0 BLANKED OFF: YES HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	DID NOT REACH BOTTOM					

EQUIPMENT & HOLE DATA

FORMATION TESTED: TORONTO
NET PAY (ft):
GROSS TESTED FOOTAGE:
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 7.875
ELEVATION (ft): 1786
TOTAL DEPTH (ft): 4358.0
PACKER DEPTH(S) (ft):
FINAL SURFACE CHOKE (in): 0.250
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.00
MUD VISCOSITY (sec): 46
ESTIMATED HOLE TEMP. (°F): 114
ACTUAL HOLE TEMP. (°F): ____ @ ____ ft

TICKET NUMBER: 54185200

DATE: 9-22-82 TEST NO: 2

TYPE DST: OPEN HOLE

HALLIBURTON CAMP: PRATT

TESTER: ROBERT E. MARTIN

WITNESS: BILL SLADEK (GEOL.)

DRILLING CONTRACTOR: RINE DRILLING RIG #8

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY		CHLORIDES
PIT	____ @ ____ °F		18000 ppm
	____ @ ____ °F		____ ppm
	____ @ ____ °F		____ ppm
	____ @ ____ °F		____ ppm
	____ @ ____ °F		____ ppm
	____ @ ____ °F		____ ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): ____ @ ____ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

RECOVERED:

MEASURED FROM TESTER VALVE

REMARKS:

HT-500 TEMPERATURE CHART WAS NOT SENT IN FOR PROCESSING.

TYPE & SIZE MEASURING DEVICE: _____ TICKET NO: 54185200

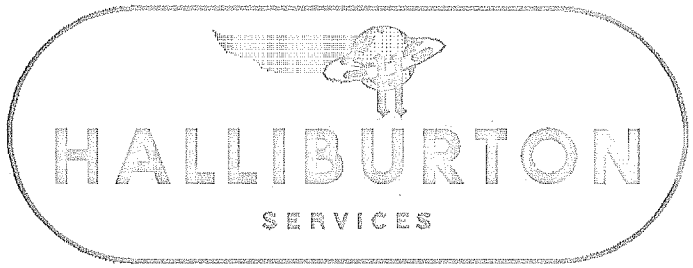
TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
9-22-82					
					STAYED ON LOCATION
2225					STARTED CLOCKS
2245					PICKED UP TOOL
2305					TOOL AT TABLE
2320					TOOL THROUGH TABLE
9-23-82					
0057					HIT BRIDGE AT 4235'-MADE IT
					THROUGH
0105					HIT SECOND BRIDGE AT 4265'-
					UNSUCCESSFUL AT GETTING
					THROUGH
0150					STARTED OUT OF HOLE
0305					TOOL AT TABLE
0330					TOOL LAID DOWN

TICKET NO. 54185200

		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	3743.0	
3	DRILL COLLARS.....	6.250	2.250	450.0	
50	IMPACT REVERSING SUB.....	5.750	2.750	1.0	
3	DRILL COLLARS.....	6.250	2.250	90.0	
5	CROSSOVER.....	6.250	2.250	1.0	
12	DUAL CIP VALVE.....	5.000	0.870	5.0	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	
80	AP RUNNING CASE.....	5.000	3.060	4.0	
15	JAR.....	5.000	1.500	5.0	
16	VR SAFETY JOINT.....	5.000	1.000	3.0	
70	OPEN HOLE PACKER.....	6.750	1.530	6.0	
70	OPEN HOLE PACKER.....	6.750	1.530	6.0	
20	FLUSH JOINT ANCHOR.....	5.000	2.370	31.0	
83	HT-500 TEMPERATURE CASE.....	5.000		1.0	
81	BLANKED-OFF RUNNING CASE.....	5.000		4.0	

TOTAL DEPTH 4358.0

EQUIPMENT DATA



TICKET NO. 54185300

29-SEP-82

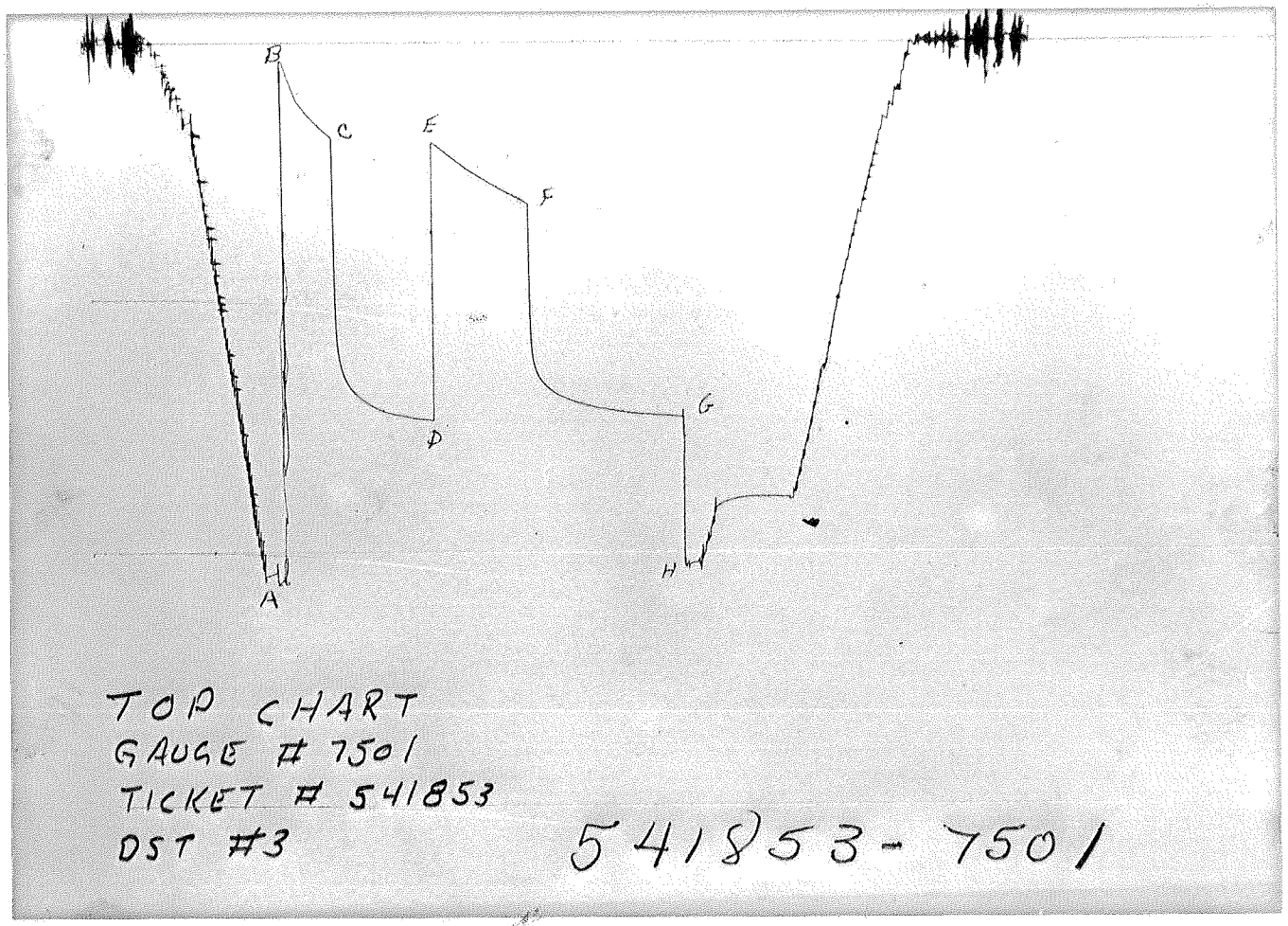
PRATT

FORMATION TESTING SERVICE REPORT

LEGAL LOCATION SEC. _ TWP. _ RNG.	FIELD AREA	COUNTY	STATE	
23-34S-21W	SNAKE CREEK	CLARK	KANSAS	DR/IC

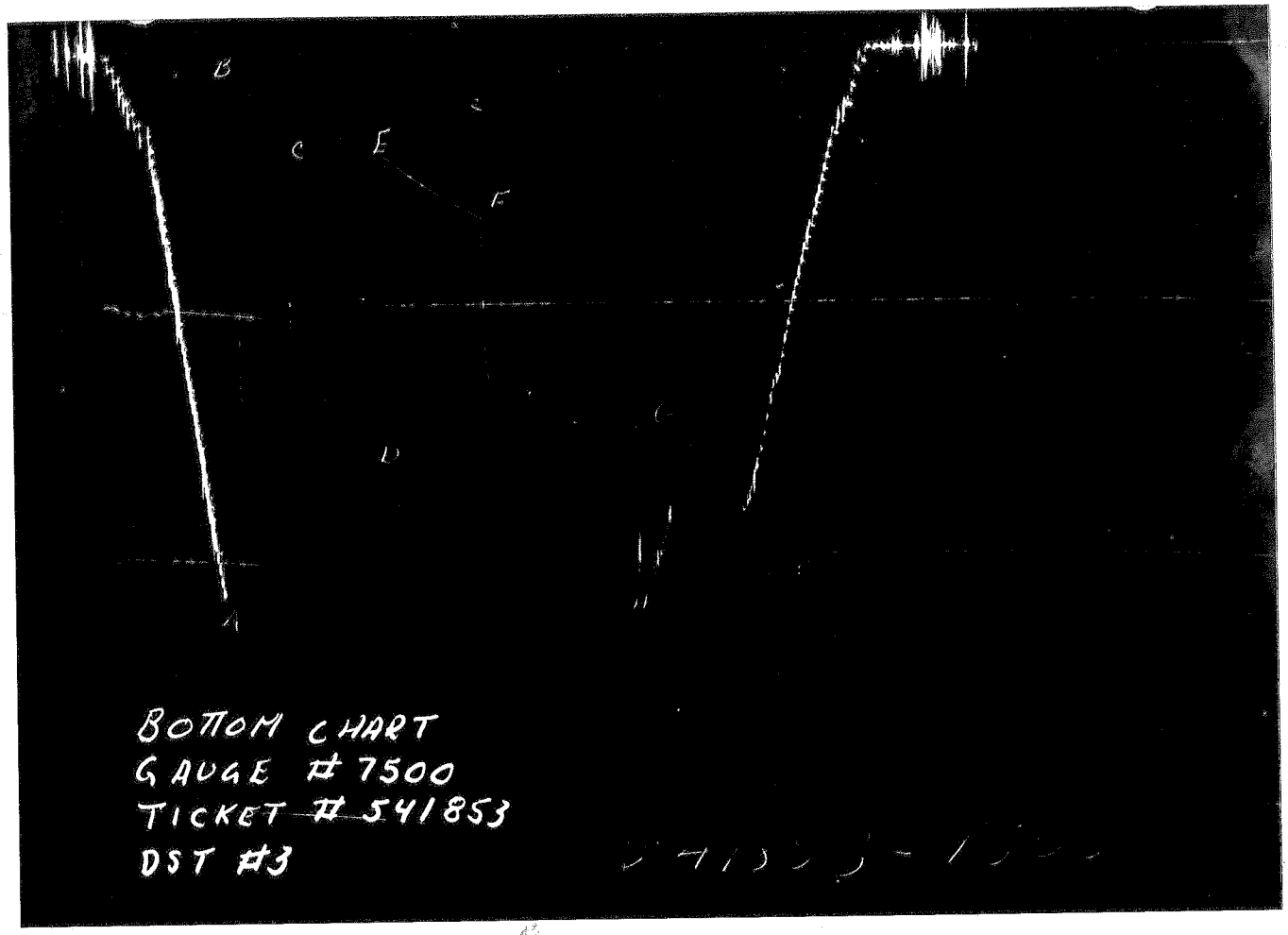
LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL
BARBY	3-23	3	4317' - 4358'

LEASE OWNER/COMPANY NAME
RINE DRILLING COMPANY



GAUGE NO: 7501 DEPTH: 4296.0 BLANKED OFF: NO HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	2087.2				
B	INITIAL FIRST FLOW	71.6		30.0	30.6	F
C	FINAL FIRST FLOW	369.1				
C	INITIAL FIRST CLOSED-IN	369.1		60.0	60.4	C
D	FINAL FIRST CLOSED-IN	1485.5				
E	INITIAL SECOND FLOW	390.2		60.0	58.5	F
F	FINAL SECOND FLOW	632.0				
F	INITIAL SECOND CLOSED-IN	632.0		93.0	93.5	C
G	FINAL SECOND CLOSED-IN	1473.6				
H	FINAL HYDROSTATIC	2049.7				



GAUGE NO: 7500 DEPTH: 4355.0 BLANKED OFF: YES HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	2112.7				
B	INITIAL FIRST FLOW	93.1		30.0	30.6	F
C	FINAL FIRST FLOW	401.1				
C	INITIAL FIRST CLOSED-IN	401.1		60.0	60.4	C
D	FINAL FIRST CLOSED-IN	1513.9				
E	INITIAL SECOND FLOW	423.1		60.0	58.5	F
F	FINAL SECOND FLOW	661.6				
F	INITIAL SECOND CLOSED-IN	661.6		93.0	93.5	C
G	FINAL SECOND CLOSED-IN	1503.3				
H	FINAL HYDROSTATIC	2079.9				

EQUIPMENT & HOLE DATA

FORMATION TESTED: TORONTO
NET PAY (ft): 27.0
GROSS TESTED FOOTAGE: 41.0
ALL DEPTHS MEASURED FROM: KELLY BUSHING
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 7.875
ELEVATION (ft): 1786
TOTAL DEPTH (ft): 4358.0
PACKER DEPTH(S) (ft): 4311, 4317
FINAL SURFACE CHOKE (in): 0.250
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.30
MUD VISCOSITY (sec): 55
ESTIMATED HOLE TEMP. (°F): 114
ACTUAL HOLE TEMP. (°F): 103 @ 4353.0 ft

TICKET NUMBER: 54185300

DATE: 9-23-82 TEST NO: 3

TYPE DST: OPEN HOLE

HALLIBURTON CAMP: PRATT

TESTER: ROBERT E. MARTIN

WITNESS: BILL SLADEK (GEOL.)

DRILLING CONTRACTOR: RINE DRILLING RIG #8

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY		CHLORIDES
PIT	@ °F		18000 ppm
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm
	@ °F		ppm

SAMPLER DATA

Psig AT SURFACE:
cu.ft. OF GAS:
cc OF OIL:
cc OF WATER:
cc OF MUD:
TOTAL LIQUID cc:

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): @ °F
GAS/OIL RATIO (cu.ft. per bbl):
GAS GRAVITY:

CUSHION DATA

TYPE	AMOUNT	WEIGHT

RECOVERED:

2650 FEET OF SALTWATER
20 FEET OF HEAVY OIL AND GAS CUT MUD
2670 FEET OF TOTAL RECOVERY

MEASURED FROM TESTER VALVE

REMARKS:

TYPE & SIZE MEASURING DEVICE:					TICKET NO: 54185300
TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
9-23-82					
					STAYED ON LOCATION
1150					STARTED CLOCKS
1205					PICKED UP TOOLS
1217					TOOL AT TABLE
1228					TOOL THROUGH TABLE
1341					ON BOTTOM-DID NOT SLIDE
1344					OPENED TOOL WITH BLOW OFF
					BOTTOM OF BUCKET IN 2 MINUTES
1414					CLOSED TOOL
1514					OPENED TOOL WITH BLOW OFF BOTTOM
					OF BUCKET IN 8 MINUTES
1614					CLOSED TOOL
1747					OFF BOTTOM-BYPASS OPEN
1805					RIG ENGINE BEING REPAIRED
1910					STARTED OUT OF HOLE
2035					TOOL AT TABLE
2100					TOOL LAID DOWN

TICKET NO: 54185300		GAUGE NO: 7501
CLOCK NO: 6947 HOUR: 12	HALLIBURTON SERVICES	DEPTH: 4296.0

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			FIRST FLOW			
B	1	0.0	71.6			
	2	5.0	144.9	73.4		
	3	10.0	227.9	83.0		
	4	15.0	271.0	43.0		
	5	20.0	305.4	34.4		
	6	25.0	336.8	31.4		
C	7	30.6	369.1	32.3		
			FIRST CLOSED-IN			
C	1	0.0	369.1			
	2	4.0	1275.5	906.4	3.6	0.935
	3	8.0	1340.1	971.1	6.3	0.684
	4	12.0	1374.5	1005.4	8.6	0.550
	5	16.0	1399.3	1030.2	10.5	0.464
	6	20.0	1418.3	1049.2	12.1	0.403
	7	24.0	1432.5	1063.4	13.5	0.357
	8	28.0	1444.0	1075.0	14.6	0.321
	9	32.0	1453.9	1084.8	15.6	0.292
	10	36.0	1461.2	1092.1	16.5	0.267
	11	40.0	1465.5	1096.4	17.3	0.247
	12	44.0	1471.0	1101.9	18.1	0.229
	13	48.0	1475.6	1106.5	18.7	0.214
	14	52.0	1479.5	1110.4	19.3	0.201
	15	56.0	1482.2	1113.1	19.8	0.189
D	16	60.4	1485.5	1116.5	20.3	0.178
			SECOND FLOW			
E	1	0.0	390.2			
	2	10.0	435.6	45.4		
	3	20.0	485.0	49.4		
	4	30.0	526.7	41.7		
	5	40.0	566.0	39.3		
	6	50.0	601.5	35.5		
F	7	58.5	632.0	30.6		
			SECOND CLOSED-IN			
F	1	0.0	632.0			
	2	6.0	1314.4	682.3	5.6	1.203
	3	12.0	1360.4	728.3	10.6	0.924
	4	18.0	1386.8	754.8	14.9	0.776
	5	24.0	1404.7	772.7	18.9	0.674
	6	30.0	1418.5	786.4	22.4	0.599
	7	36.0	1428.9	796.9	25.6	0.541
	8	42.0	1438.2	806.2	28.6	0.494
	9	48.0	1444.6	812.6	31.2	0.456
	10	54.0	1451.6	819.5	33.6	0.423

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
			SECOND CLOSED-IN - CONTINUED			
	11	60.0	1456.6	824.6	35.9	0.395
	12	66.0	1461.7	829.7	37.9	0.371
	13	72.0	1464.6	832.6	39.8	0.350
	14	78.0	1467.0	835.0	41.6	0.331
	15	84.0	1468.8	836.7	43.3	0.314
	16	90.0	1471.7	839.7	44.8	0.299
G	17	93.5	1473.6	841.6	45.6	0.291

REMARKS:

TICKET NO: 54185300		GAUGE NO: 7500
CLOCK NO: 3004 HOUR: 12	HALLIBURTON SERVICES	DEPTH: 4355.0

FIRST FLOW

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
B	1	0.0	93.1			
	2	5.0	167.8	74.8		
	3	10.0	258.7	90.9		
	4	15.0	300.7	42.0		
	5	20.0	340.0	39.3		
	6	25.0	368.6	28.6		
C	7	30.6	401.1	32.5		

FIRST CLOSED-IN

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
C	1	0.0	401.1			
	2	4.0	1304.3	903.2	3.6	0.934
	3	8.0	1372.0	971.0	6.3	0.685
	4	12.0	1404.9	1003.8	8.6	0.550
	5	16.0	1428.7	1027.7	10.5	0.464
	6	20.0	1446.1	1045.0	12.1	0.403
	7	24.0	1460.3	1059.2	13.4	0.357
	8	28.0	1471.2	1070.1	14.6	0.321
	9	32.0	1480.0	1078.9	15.6	0.291
	10	36.0	1487.5	1086.4	16.5	0.267
	11	40.0	1493.3	1092.2	17.3	0.247
	12	44.0	1499.0	1098.0	18.1	0.229
	13	48.0	1503.3	1102.2	18.7	0.214
	14	52.0	1507.2	1106.1	19.3	0.201
	15	56.0	1510.7	1109.6	19.8	0.189
D	16	60.4	1513.9	1112.8	20.3	0.178

SECOND FLOW

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
E	1	0.0	423.1			
	2	10.0	469.6	46.5		
	3	20.0	517.0	47.5		
	4	30.0	558.9	41.8		
	5	40.0	598.4	39.6		
	6	50.0	634.4	36.0		
F	7	58.5	661.6	27.1		

SECOND CLOSED-IN

REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
F	1	0.0	661.6			
	2	6.0	1342.9	681.3	5.6	1.201
	3	12.0	1389.3	727.7	10.5	0.927
	4	18.0	1414.9	753.3	14.9	0.776
	5	24.0	1433.2	771.6	18.9	0.673
	6	30.0	1446.6	785.0	22.5	0.599
	7	36.0	1457.3	795.7	25.7	0.541
	8	42.0	1465.2	803.7	28.6	0.494
	9	48.0	1472.8	811.2	31.2	0.456
	10	54.0	1478.6	817.1	33.6	0.423

SECOND CLOSED-IN - CONTINUED

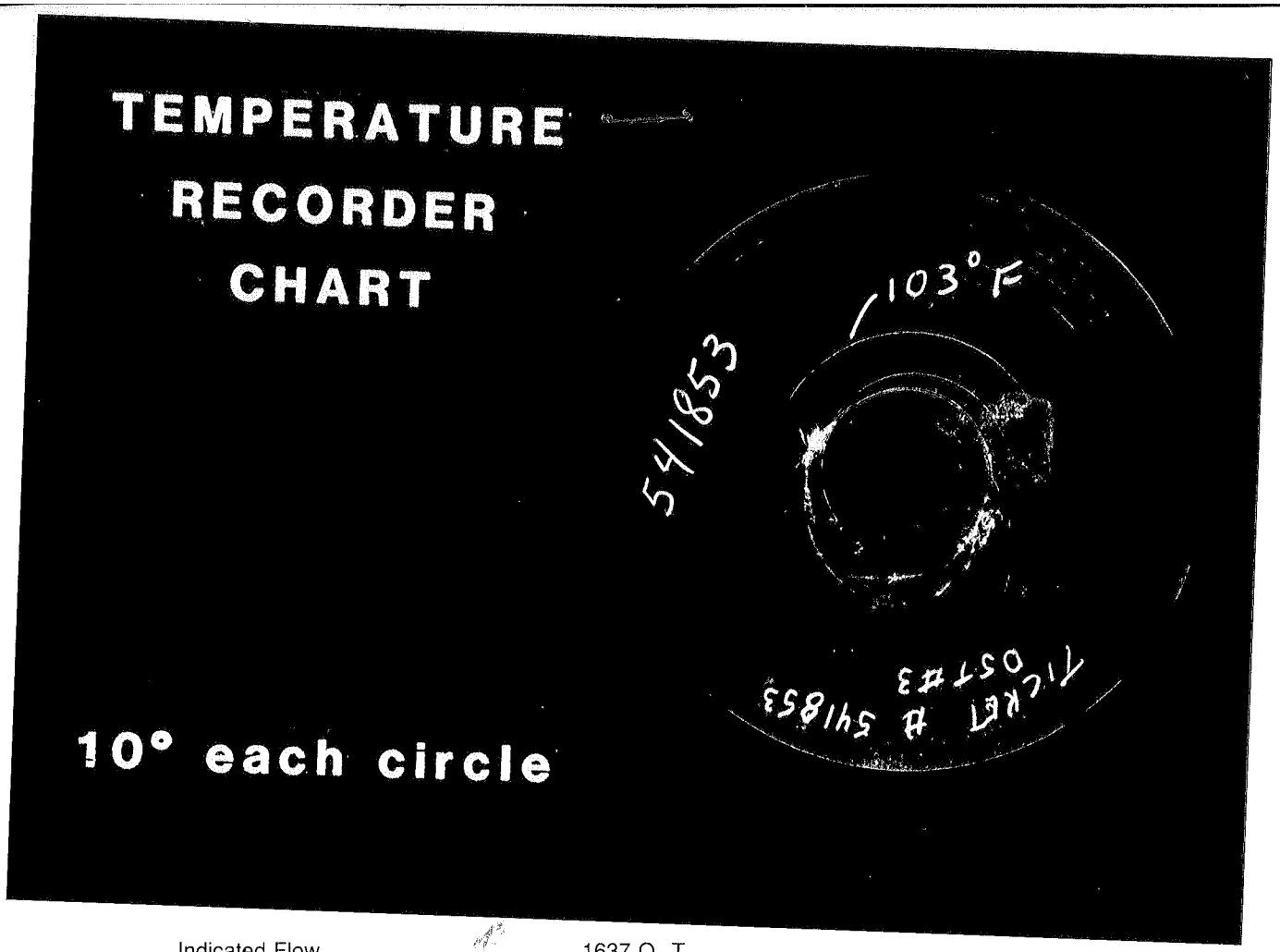
REF		MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t+\Delta t}$	$\log \frac{t+\Delta t}{\Delta t}$
	11	60.0	1484.1	822.5	35.9	0.395
	12	66.0	1488.6	827.1	37.9	0.371
	13	72.0	1492.0	830.5	39.8	0.350
	14	78.0	1495.6	834.1	41.6	0.331
	15	84.0	1499.0	837.5	43.2	0.314
	16	90.0	1501.4	839.8	44.8	0.299
G	17	93.5	1503.3	841.7	45.6	0.291

REMARKS:

TICKET NO. 54185300

		O.D.	I.D.	LENGTH	DEPTH
1	DRILL PIPE.....	4.500	3.826	3743.0	
3	DRILL COLLARS.....	6.250	2.250	450.0	
50	IMPACT REVERSING SUB.....	5.750	2.750	1.0	4193.0
3	DRILL COLLARS.....	6.250	2.250	90.0	
1	DRILL PIPE.....	6.250	2.250	1.0	
12	DUAL CIP VALVE.....	5.000	0.870	5.0	
60	HYDROSPRING TESTER.....	5.000	0.750	5.0	4294.0
80	AP RUNNING CASE.....	5.000	3.060	4.0	4296.0
15	JAR.....	5.000	1.500	5.0	
16	VR SAFETY JOINT.....	5.000	1.000	3.0	
70	OPEN HOLE PACKER.....	6.750	1.530	6.0	4311.0
70	OPEN HOLE PACKER.....	6.750	1.530	6.0	4317.0
20	FLUSH JOINT ANCHOR.....	5.000	2.370	34.0	
83	HT-500 TEMPERATURE CASE.....	5.000		1.0	4353.0
81	BLANKED-OFF RUNNING CASE.....	5.000		4.0	4355.0
	TOTAL DEPTH				4358.0

EQUIPMENT DATA



Indicated Flow Capacity	$kh = \frac{1637\ Q_g\ T}{m}$	md-ft
Average Effective Permeability	$k = \frac{kh}{h}$	md
Skin Factor	$S = 1.151 \left[\frac{m(P^*) - m(P_f)}{m} - \text{LOG} \frac{kt}{\phi\ \mu\ c_t r_w^2} + 3.23 \right]$	—
Damage Ratio	$DR = \frac{m(P^*) - m(P_f)}{m(P^*) - m(P_f) - 0.87\ mS}$	—
Indicated Flow Rate (Maximum)	$AOF_1 = \frac{Q_g\ m(P^*)}{m(P^*) - m(P_f)}$	MCFD
Indicated Flow Rate (Minimum)	$AOF_2 = Q_g \sqrt{\frac{m(P^*)}{m(P^*) - m(P_f)}}$	MCFD
Approx. Radius of Investigation	$r_i = 0.032 \sqrt{\frac{kt}{\phi \mu c_t}}$	ft