

15-115-21177

32-21s-4E



TICKET NO. 08830300

27-MAR-85

EL DORADO

FORMATION TESTING SERVICE REPORT

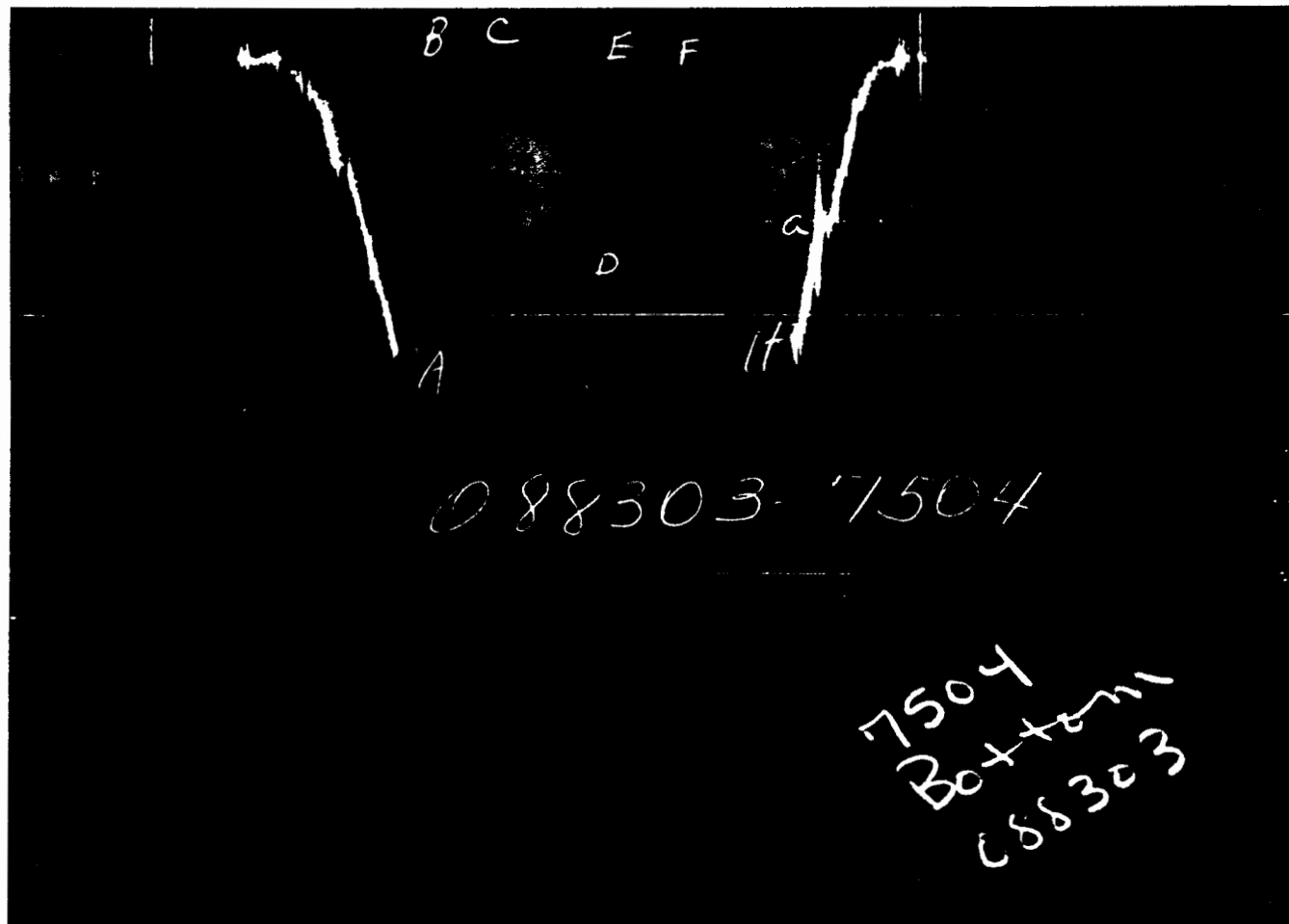
LEGAL LOCATION SEC. 14P. - RNC.	32-21-4E	FIELD AREA	COUNTY	MARION	STATE	KANSAS	SM
LEASE NAME	1	WELL NO.	1	TEST NO.	2325. - 2360. -	TESTED INTERVAL	GRUSS PETROLEUM MANAGEMENT INCORPORATED
							LEASE OWNER/COMPANY NAME

088303 - 7505

7505
TOP
088303

GAUGE NO: 7505 DEPTH: 2308.0 BLANKED OFF: NO HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		1131.1			
B	INITIAL FIRST FLOW		8.8			
C	FINAL FIRST FLOW		13.4	45.0	46.1	F
C	INITIAL FIRST CLOSED-IN		13.4			
D	FINAL FIRST CLOSED-IN		739.2	62.0	60.5	C
E	INITIAL SECOND FLOW		18.3			
F	FINAL SECOND FLOW		23.6	45.0	45.3	F
F	INITIAL SECOND CLOSED-IN		23.6			
G	FINAL SECOND CLOSED-IN		675.2	61.0	55.1	C
H	FINAL HYDROSTATIC		1122.2			



GAUGE NO: 7504 DEPTH: 2357.0 BLANKED OFF: YES HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	1240	1150.6			
B	INITIAL FIRST FLOW	20	29.5			
C	FINAL FIRST FLOW	40	36.4	45.0	46.1	F
C	INITIAL FIRST CLOSED-IN	40	36.4			
D	FINAL FIRST CLOSED-IN	761	759.9	62.0	60.5	C
E	INITIAL SECOND FLOW	40	44.7			
F	FINAL SECOND FLOW	40	44.7	45.0	45.3	F
F	INITIAL SECOND CLOSED-IN	40	44.7			
G	FINAL SECOND CLOSED-IN	701	694.4	61.0	55.1	C
H	FINAL HYDROSTATIC	1240	1142.7			

EQUIPMENT & HOLE DATA

FORMATION TESTED: MISSISSIPPI
 NET PAY (ft): 16.0
 GROSS TESTED FOOTAGE: 35.0
 ALL DEPTHS MEASURED FROM: KELLY BUSHING
 CASING PERFS. (ft): _____
 HOLE OR CASING SIZE (in): 7.875
 ELEVATION (ft): 1360
 TOTAL DEPTH (ft): 2360.0
 PACKER DEPTH(S) (ft): 2319, 2325
 FINAL SURFACE CHOKE (in): _____
 BOTTOM HOLE CHOKE (in): 0.750
 MUD WEIGHT (lb/gal): 9.40
 MUD VISCOSITY (sec): 38
 ESTIMATED HOLE TEMP. (°F): 92
 ACTUAL HOLE TEMP. (°F): @ ft

TICKET NUMBER: 08830300

DATE: 3-22-85 TEST NO: 1

TYPE DST: OPEN HOLE

HALLIBURTON CAMP:
EL DORADO

TESTER: ED LEMMON
BILL KUENY

WITNESS: MIKE BRYAN

DRILLING CONTRACTOR:
KANSAS DRILLING

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
<u>PIT</u>	<u> </u> @ <u> </u> °F	<u>1000</u> ppm
<u>DRILL PIPE</u>	<u>0.730</u> @ <u>70</u> °F	<u>2500</u> ppm
<u> </u>	<u> </u> @ <u> </u> °F	<u> </u> ppm
<u> </u>	<u> </u> @ <u> </u> °F	<u> </u> ppm
<u> </u>	<u> </u> @ <u> </u> °F	<u> </u> ppm
<u> </u>	<u> </u> @ <u> </u> °F	<u> </u> ppm

SAMPLER DATA

Pstg 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
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

RECOVERED:

15 FEET OF VERY SLIGHTLY OIL CUT MUD

MEASURED FROM
TESTER VALVE

REMARKS:

[illegible]

TICKET NO: 08830300

CLOCK NO: 17419 HOUR: 12



GAUGE NO: 7505

DEPTH: 2308.0

REF	MINUTES	PRESSURE	ΔP	$\frac{1 \times \Delta t}{1 + \Delta t}$	$\log \frac{1 + \Delta t}{\Delta t}$
FIRST FLOW					
B 1	0.0	8.8			
2	6.0	8.2	-0.6		
3	12.0	9.1	0.9		
4	18.0	10.1	1.0		
5	24.0	11.2	1.1		
6	30.0	11.7	0.5		
7	36.0	12.1	0.4		
C 8	46.1	13.4	1.3		
FIRST CLOSED-IN					
C 1	0.0	13.4			
2	4.0	326.3	312.9	3.7	1.098
3	8.0	473.1	459.7	6.9	0.828
4	12.0	542.1	528.7	9.5	0.685
5	16.0	585.5	572.1	11.9	0.589
6	20.0	615.1	601.7	13.9	0.520
7	24.0	641.6	628.2	15.8	0.465
8	28.0	662.2	648.8	17.4	0.422
9	32.0	678.1	664.7	18.9	0.387
10	36.0	689.8	676.4	20.2	0.358
11	40.0	701.0	687.6	21.4	0.333
12	44.0	711.1	697.7	22.5	0.311
13	48.0	718.6	705.2	23.5	0.293
14	52.0	726.3	712.9	24.5	0.276
15	56.0	733.6	720.2	25.3	0.261
D 16	60.5	739.2	725.8	26.2	0.246
SECOND FLOW					
E 1	0.0	18.3			
2	6.0	18.4	0.1		
3	12.0	18.4	0.0		
4	18.0	19.1	0.7		
5	24.0	20.3	1.2		
6	30.0	21.2	0.9		
7	36.0	21.8	0.6		
F 8	45.3	23.6	1.8		
SECOND CLOSED-IN					
F 1	0.0	23.6			
2	4.0	307.2	283.6	3.9	1.376
3	8.0	423.8	400.2	7.3	1.096
4	12.0	488.5	464.9	10.6	0.934
5	16.0	527.1	503.5	13.6	0.827
6	20.0	559.4	535.8	16.4	0.746
7	24.0	582.1	558.5	19.0	0.683
8	26.0	595.6	576.0	21.4	0.630

REF	MINUTES	PRESSURE	ΔP	$\frac{1 \times \Delta t}{1 + \Delta t}$	$\log \frac{1 + \Delta t}{\Delta t}$
SECOND CLOSED-IN - CONTINUED					
9	32.1	616.0	592.4	23.7	0.586
10	36.0	629.5	605.9	25.8	0.549
11	40.0	641.4	617.8	27.8	0.517
12	44.0	652.6	629.0	29.7	0.488
13	48.0	661.7	638.1	31.5	0.463
14	52.0	669.8	646.2	33.1	0.441
G 15	55.1	675.2	651.6	34.4	0.425

REMARKS:

TICKET NO: 08830300

CLOCK NO: 3459 HOUR: 12



HALLIBURTON

 SERVICES

GAUGE NO: 7504

DEPTH: 2357.0

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	29.5			
2	6.0	30.5	1.0		
3	12.0	32.0	1.5		
4	18.0	33.0	1.0		
5	24.0	34.4	1.4		
6	30.0	34.5	0.1		
7	36.0	35.4	0.9		
C 8	46.1	36.4	1.0		
FIRST CLOSED-IN					
C 1	0.0	36.4			
2	4.0	361.6	325.2	3.7	1.097
3	8.0	495.2	458.9	6.8	0.828
4	12.0	563.9	527.5	9.5	0.685
5	16.0	604.8	568.5	11.9	0.590
6	20.0	637.5	601.1	13.9	0.520
7	24.0	662.6	626.2	15.8	0.466
8	28.0	682.7	646.3	17.4	0.422
9	32.0	697.2	660.8	18.9	0.387
10	36.0	709.5	673.2	20.2	0.358
11	40.0	720.4	684.0	21.4	0.333
12	44.0	730.2	693.8	22.5	0.311
13	48.0	739.1	702.7	23.5	0.292
14	52.0	746.8	710.4	24.4	0.276
15	56.0	754.3	717.9	25.3	0.261
D 16	60.5	759.9	723.5	26.2	0.246
SECOND FLOW					
E 1	0.0	44.7			
2	6.0	41.0	-3.7		
3	12.0	41.7	0.7		
4	18.0	41.7	0.0		
5	24.0	42.4	0.7		
6	30.0	43.1	0.7		
7	36.0	44.0	0.9		
F 8	45.3	44.7	0.7		
SECOND CLOSED-IN					
F 1	0.0	44.7			
2	4.0	328.9	284.2	3.8	1.381
3	8.0	449.1	404.5	7.3	1.096
4	12.0	509.1	464.4	10.6	0.935
5	16.0	551.0	506.4	13.6	0.828
6	20.0	580.9	536.2	16.4	0.746
7	24.0	603.6	559.0	19.0	0.682
8	28.0	620.1	575.4	21.4	0.630

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
SECOND CLOSED-IN - CONTINUED					
9	32.0	636.7	592.0	23.7	0.586
10	36.0	650.5	605.8	25.8	0.549
11	40.0	661.8	617.2	27.8	0.516
12	44.0	672.6	627.9	29.7	0.488
13	48.0	681.5	636.8	31.5	0.463
14	52.0	688.7	644.0	33.1	0.441
G 15	55.1	694.4	649.7	34.4	0.425

REMARKS:

C.D.

I.D.

LENGTH

WEIGHT

1		DRILL PIPE.....	4.500	3.625	1930.0	
3		DRILL COLLARS.....	6.250	2.250	240.0	
50		IMPACT REVERSING SUB.....	5.000	2.120	1.0	
3		DRILL COLLARS.....	6.250	2.250	100.0	
5		CROSSOVER.....	5.875	2.250	1.0	
11		HANDLING SUB & CHOKE ASSEMBLY...	5.750	2.250	5.0	
12		DUAL CIP VALVE.....	5.030	0.870	5.0	
60		HYDROSPRING TESTER.....	5.000	0.750	5.0	
80		AP RUNNING CASE.....	5.000	2.250	4.0	
16		VR SAFETY JOINT.....	5.000	1.000	4.0	
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	20.0	
81		BLANKED-OFF RUNNING CASE.....	5.000		4.0	

TOTAL DEPTH

EQUIPMENT DATA



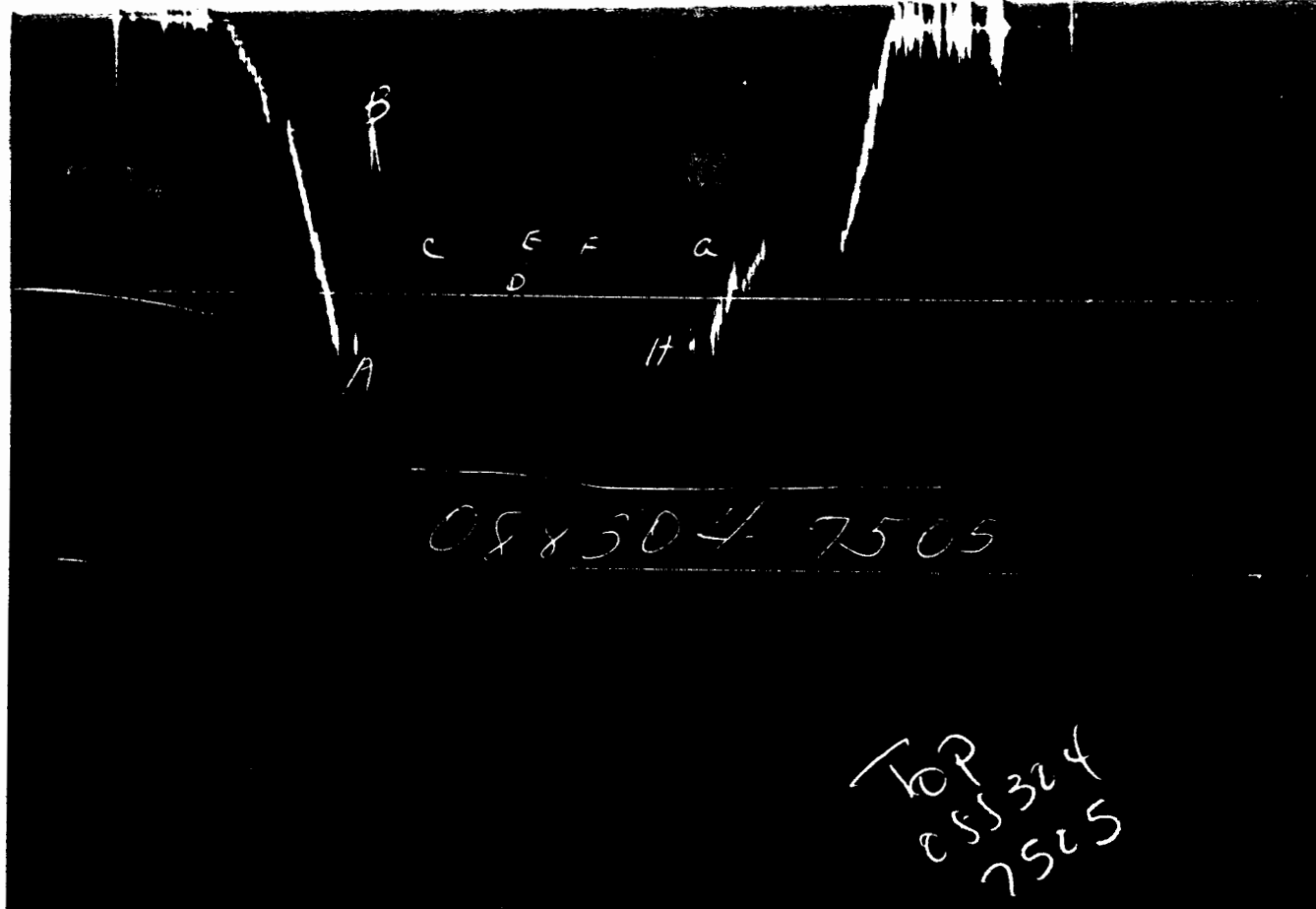
TICKET NO. 08830400

27-MAR-85

EL DORADO

FORMATION TESTING SERVICE REPORT

BETHEL COLLEGE	1	2	2463.1 - 2515.1	GRUSS PETROLEUM MANAGEMENT INCORPORATED
LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME
LEGAL LOCATION SEC. - TWP. - RNG.	32-21S-4E	FIELD AREA	COUNTY	MARION
			STATE	KANSAS
				SM



GAUGE NO: 7505 DEPTH: 2446.0 BLANKED OFF: NO HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC		1208.5			
B	INITIAL FIRST FLOW		388.2			
C	FINAL FIRST FLOW		888.6	31.0	30.3	F
C	INITIAL FIRST CLOSED-IN		888.6			
D	FINAL FIRST CLOSED-IN		900.6	60.0	57.8	C
E	INITIAL SECOND FLOW		889.0			
F	FINAL SECOND FLOW		900.9	31.0	33.1	F
F	INITIAL SECOND CLOSED-IN		900.9			
G	FINAL SECOND CLOSED-IN		902.6	59.0	59.8	C
H	FINAL HYDROSTATIC		1188.1			

B

C E F G

D

H

A

088304-7504

088304
BottomGAUGE NO: 7504 DEPTH: 2512.0 BLANKED OFF: YES HOUR OF CLOCK: 12

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	1240	1235.8			
B	INITIAL FIRST FLOW	480	491.2	31.0	30.3	F
C	FINAL FIRST FLOW	900	911.9			
C	INITIAL FIRST CLOSED-IN	900	911.9	60.0	57.6	C
D	FINAL FIRST CLOSED-IN	920	924.9			
E	INITIAL SECOND FLOW	900	913.7	31.0	33.1	F
F	FINAL SECOND FLOW	920	924.6			
F	INITIAL SECOND CLOSED-IN	920	924.6	59.0	59.8	C
G	FINAL SECOND CLOSED-IN	920	926.0			
H	FINAL HYDROSTATIC	1200	1211.1			

EQUIPMENT & HOLE DATA

FORMATION TESTED: HUNTON DOLOMITE
 NET PAY (ft): 18.0
 GROSS TESTED FOOTAGE: 52.0
 ALL DEPTHS MEASURED FROM: KELLY BUSHING
 CASING PERFS. (ft): _____
 HOLE OR CASING SIZE (in): 7.875
 ELEVATION (ft): 1360
 TOTAL DEPTH (ft): 2515.0
 PACKER DEPTH(S) (ft): 2457, 2463
 FINAL SURFACE CHOKE (in): 1.000
 BOTTOM HOLE CHOKE (in): 0.750
 MUD WEIGHT (lb/gal): 9.30
 MUD VISCOSITY (sec): 32
 ESTIMATED HOLE TEMP. (°F): 95
 ACTUAL HOLE TEMP. (°F): @ ft

TICKET NUMBER: 08830400

DATE: 3-23-85 TEST NO: 2

TYPE DST: OPEN HOLE

HALLIBURTON CAMP:
EL DORADO

TESTER: ED LEMMON
BILL KUENY

WITNESS: MIKE BRAYAN

DRILLING CONTRACTOR:
KANSAS DRILLING

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
PIT	<u> </u> @ <u> </u> °F	<u>900</u> ppm
DRILL PIPE	<u>1.168</u> @ <u>70</u> °F	<u>10086</u> ppm
_____	<u> </u> @ <u> </u> °F	<u> </u> ppm
_____	<u> </u> @ <u> </u> °F	<u> </u> ppm
_____	<u> </u> @ <u> </u> °F	<u> </u> ppm
_____	<u> </u> @ <u> </u> °F	<u> </u> 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:

73 FEET OF DRILLING MUD
 2000 FEET OF SALT WATER

MEASURED FROM
TESTER VALVE

REMARKS:

TYPE & SIZE MEASURING DEVICE:

TICKET NO: 08830400

[illegible]

TICKET NO: 08830400

CLOCK NO: 17419 HOUR: 12



HALLIBURTON

 SERVICES

GAUGE NO: 7505

DEPTH: 446.0

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	388.2			
2	5.0	569.5	181.3		
3	10.0	713.9	144.4		
4	15.0	807.5	93.6		
5	20.0	859.6	52.2		
6	25.0	879.9	20.3		
C 7	30.3	888.6	8.7		

FIRST CLOSED-IN

C 1	0.0	888.6			
2	2.0	896.1	7.4	1.9	1.213
3	4.0	896.6	7.9	3.6	0.931
4	6.0	897.0	8.3	5.0	0.782
5	8.0	897.1	8.4	6.4	0.678
6	10.0	897.5	8.8	7.5	0.605
7	20.0	898.3	9.6	12.1	0.400
8	30.0	899.1	10.4	15.1	0.303
9	40.0	899.7	11.0	17.3	0.245
10	50.0	899.7	11.0	18.9	0.206
D 11	57.8	900.6	11.9	19.9	0.183

SECOND FLOW

E 1	0.0	889.0			
2	2.0	891.1	2.1		
3	4.0	894.5	3.4		
4	6.0	896.6	2.0		
5	8.0	897.7	1.1		
6	10.0	898.4	0.7		
7	15.0	899.3	0.9		
8	20.0	899.9	0.6		
9	25.0	900.1	0.2		
F 10	33.1	900.9	0.8		

SECOND CLOSED-IN

F 1	0.0	900.9			
G 2	59.8	902.6	1.7	30.8	0.314

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
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REMARKS:

TICKET NO: 08830400

CLOCK NO: 3459 HOUR: 12


 HALLIBURTON
SERVICES

GAUGE NO: 7504

DEPTH: 2512.0

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
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FIRST FLOW

B	1	0.0	491.2		
	2	5.0	657.7	166.5	
	3	10.0	773.5	115.8	
	4	15.0	845.4	71.9	
	5	20.0	885.5	40.1	
	6	25.0	903.2	17.8	
C	7	30.3	911.9	8.7	

FIRST CLOSED-IN

C	1	0.0	911.9		
	2	2.0	919.5	7.6	1.9 1.204
	3	4.0	920.8	8.9	3.5 0.935
	4	6.0	920.8	8.9	5.0 0.783
	5	8.0	921.0	9.1	6.3 0.681
	6	10.0	921.4	9.5	7.5 0.605
	7	20.0	922.5	10.6	12.1 0.401
	8	30.0	923.7	11.8	15.1 0.303
	9	40.0	923.7	11.8	17.2 0.245
	10	50.0	924.1	12.2	18.9 0.206
D	11	57.8	924.9	13.0	19.9 0.183

SECOND FLOW

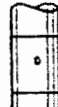
E	1	0.0	913.7		
	2	2.0	914.6	0.9	
	3	4.0	917.6	3.0	
	4	6.0	920.2	2.6	
	5	8.0	921.1	0.9	
	6	10.0	922.3	1.2	
	7	15.0	923.9	1.6	
	8	20.0	924.2	0.3	
	9	25.0	924.2	0.0	
F	10	33.1	924.6	0.4	

SECOND CLOSED-IN

F	1	0.0	924.6		
G	2	59.8	926.0	1.4	30.8 0.314

REF	MINUTES	PRESSURE	ΔP	$\frac{t \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
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REMARKS:

		O.D.	I.D.	LENGTH	DEPTH	
1		DRILL PIPE.....	4.500	3.625	2068.0	
3		DRILL COLLARS.....	6.250	2.000	240.0	
50		IMPACT REVERSING SUB.....	5.000	2.120	1.0	2308.0
3		DRILL COLLARS.....	6.250	2.250	120.0	
5		CROSSOVER.....	5.875	2.250	1.0	
11		HANDLING SUB & CHOKE ASSEMBLY...	5.750	2.250	5.0	
12		DUAL CIP VALVE.....	5.030	0.870	5.0	
60		HYDROSPRING TESTER.....	5.000	0.750	5.0	2444.0
80		AP RUNNING CASE.....	5.000	2.250	4.0	2446.0
16		VR SAFETY JOINT.....	5.000	2.250	4.0	
70		OPEN HOLE PACKER.....	6.750	1.560	6.0	2457.0
70		OPEN HOLE PACKER.....	6.750	1.560	6.0	2463.0
20		FLUSH JOINT ANCHOR.....	5.000	2.370	12.0	
5		CROSSOVER.....	5.500	2.370	2.0	
1		DRILL PIPE.....	4.500	3.625	30.0	
5		CROSSOVER.....	5.500	2.370	2.0	
81		BLANKED-OFF RUNNING CASE.....	5.000		4.0	2512.0
TOTAL DEPTH					2515.0	

EQUIPMENT DATA



TICKET NO. 08830300

04-APR-85

EL DORADO

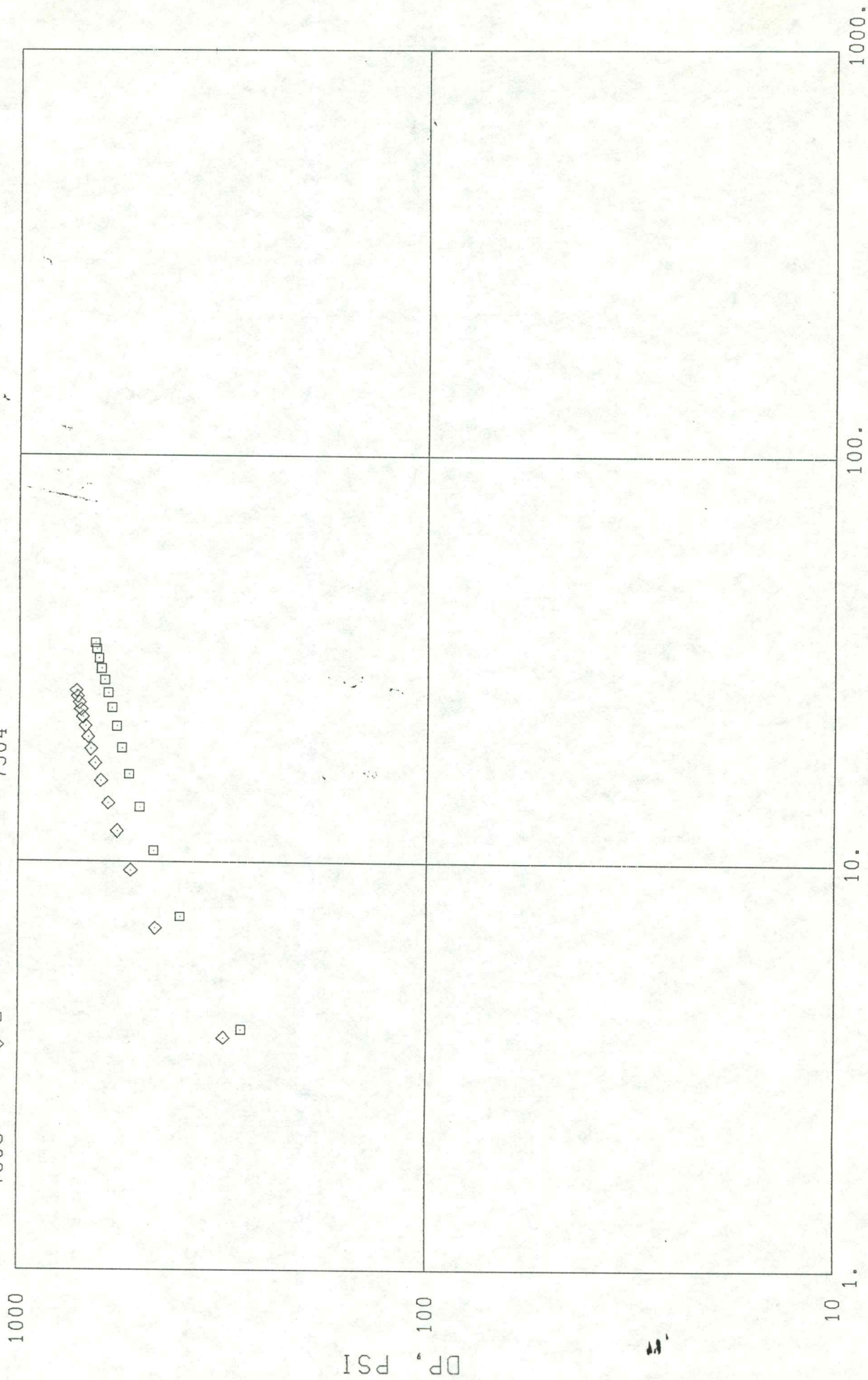
FORMATION TESTING SERVICE REPORT

BETHEL COLLEGE	1	1	2325.1 - 2360.1	GRUSS PETROLEUM MANAGEMENT INCORPORATED
LEASE NAME	WELL NO.	TEST NO.	TESTED INTERVAL	LEASE OWNER/COMPANY NAME
LEGAL LOCATION SEC. - TWP. - RNG.	32-21-4E	FIELD AREA	COUNTY	MARION
			STATE	KANSAS
				SM

TICKET NO 08830300

GAUGE NO CIP 1-2
7504

GAUGE NO CIP 1 2
7505



TICKET NO 08830300

GAUGE NO CIP 1 2
7504

GAUGE NO CIP 1 2
7505

1000

DP, PSI

100

10

1.

10.

100.

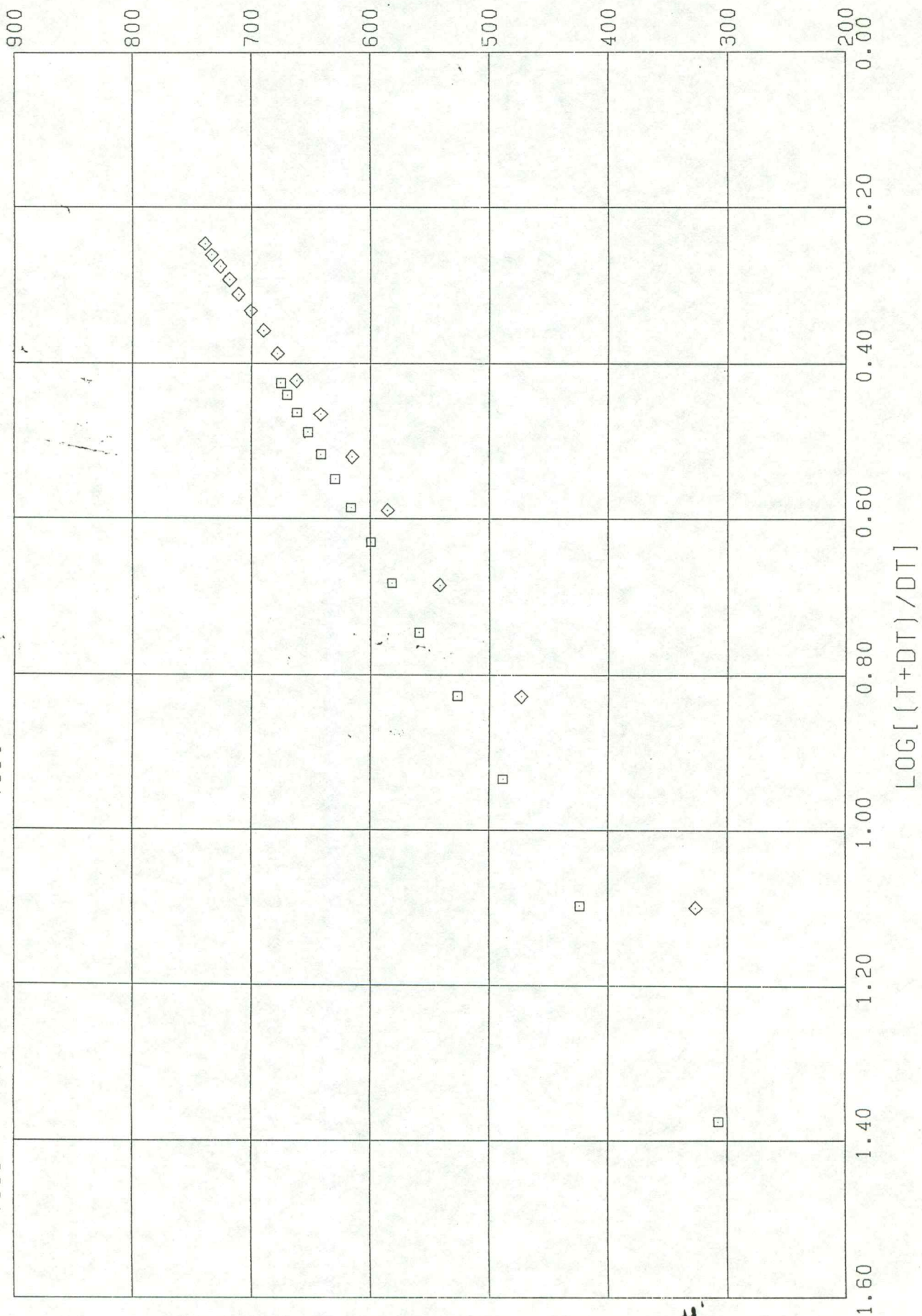
1000.

$T \cdot DT / (T + DT)$

TICKET NO 08830300

GAUGE NO CIP 1 2
7504

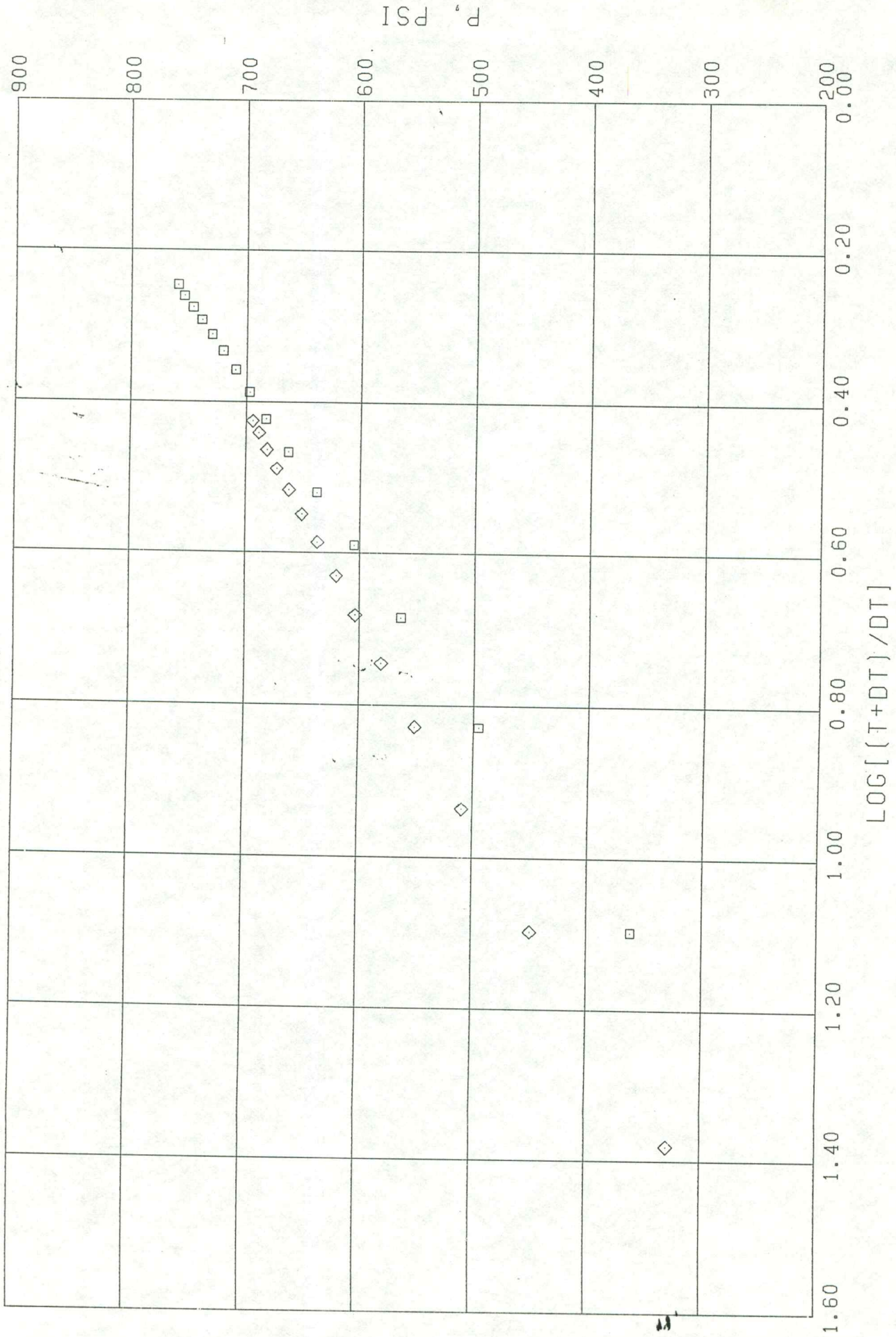
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7505



TICKET NO 08830300

GAUGE NO CIP 1 2
7504

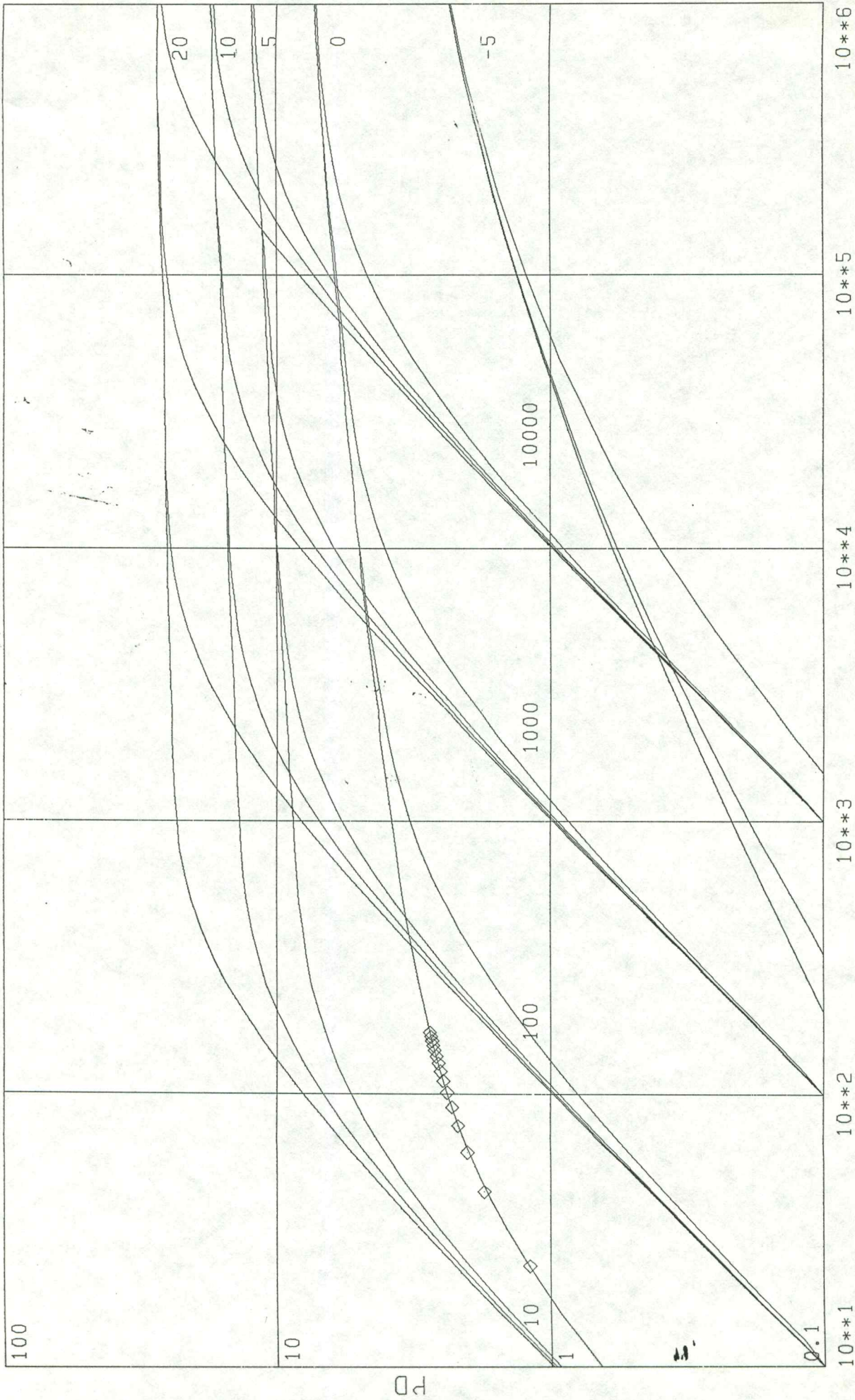
GAUGE NO CIP 1 2
7505



TICKET NO 08830300

CIP 1

GAUGE NO 7505



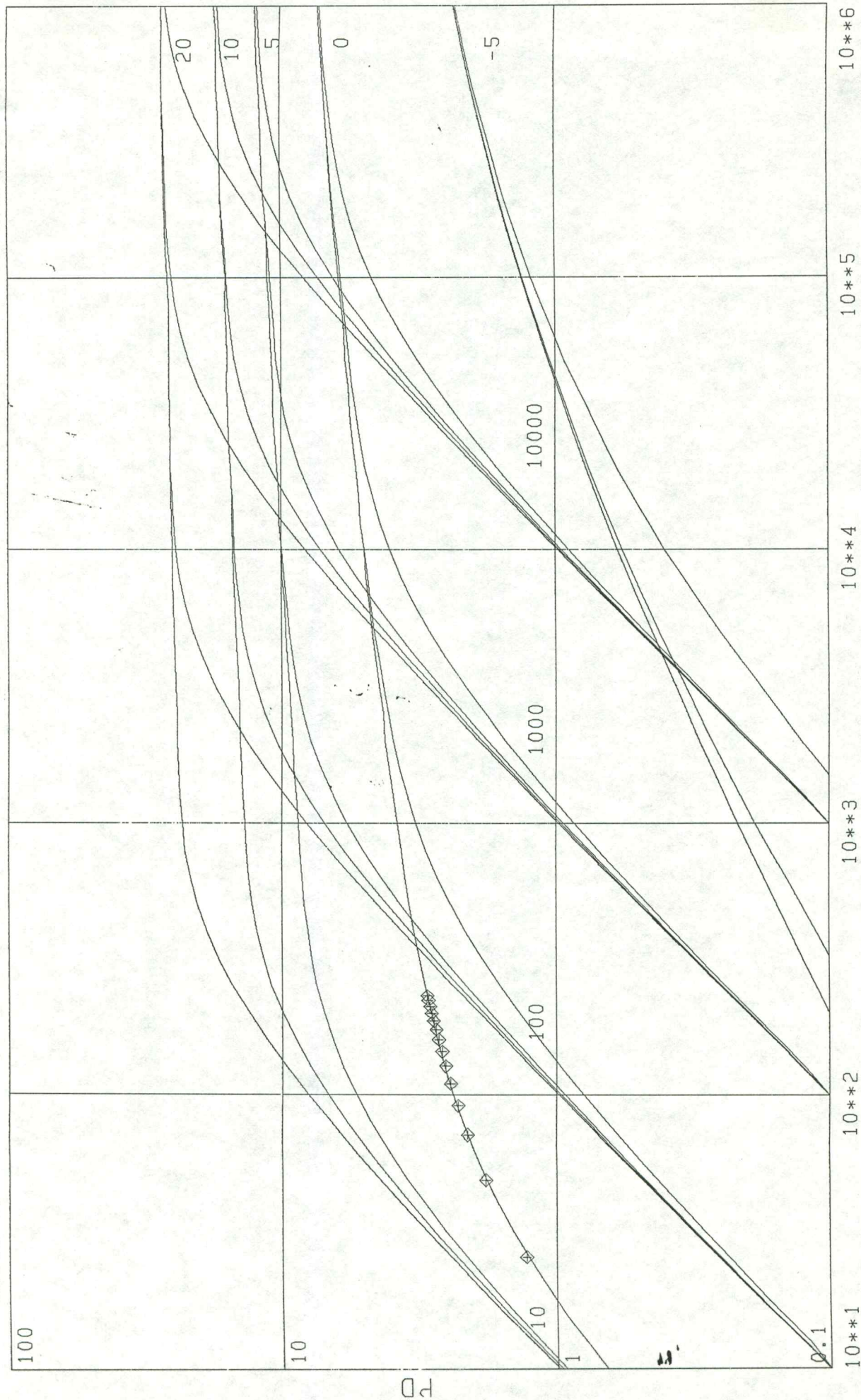
TD

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TICKET NO 08830300

CIP 2

GAUGE NO 7505

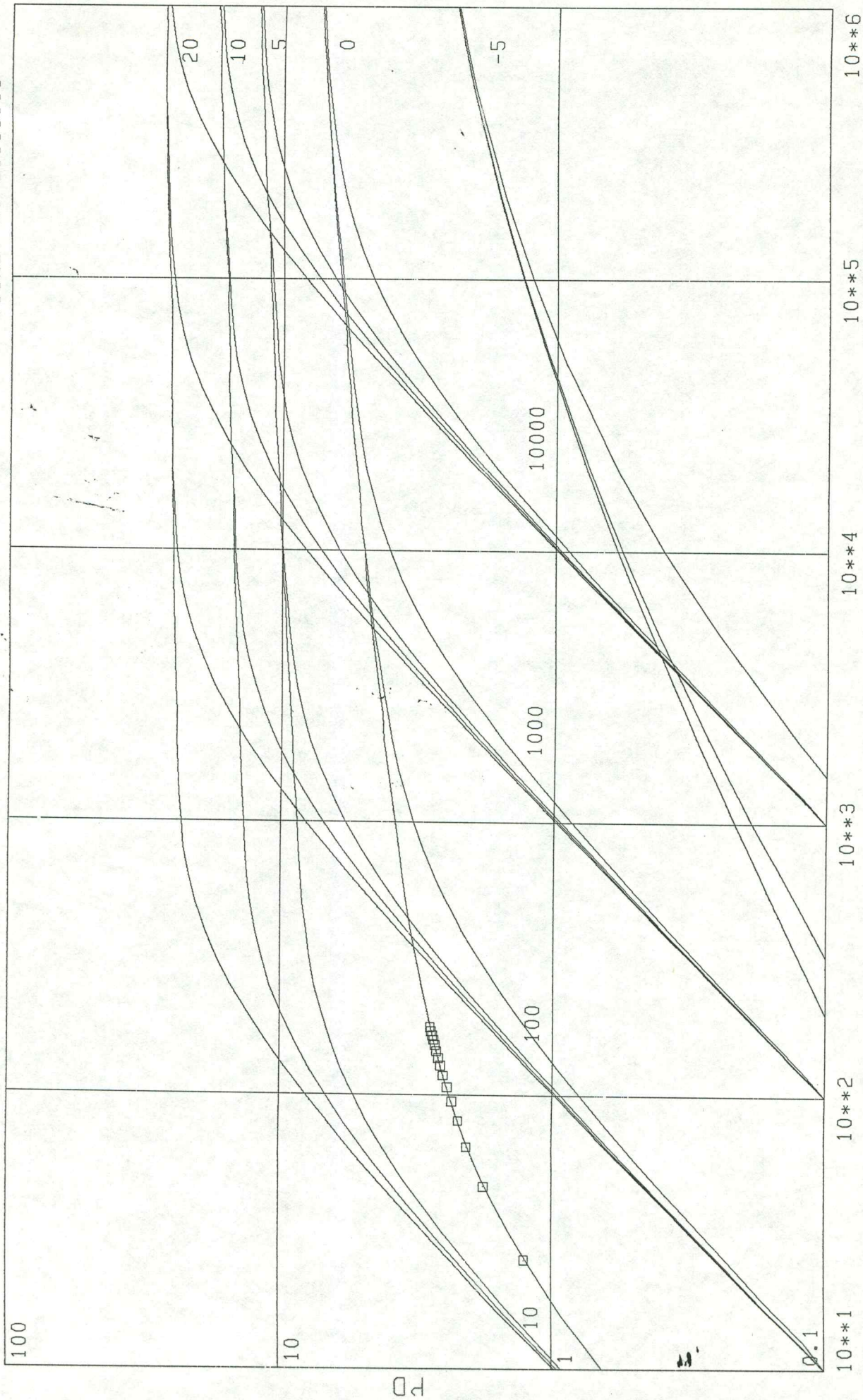


TD

GAUGE NO 7504

CIP 1

TICKET NO 08830300



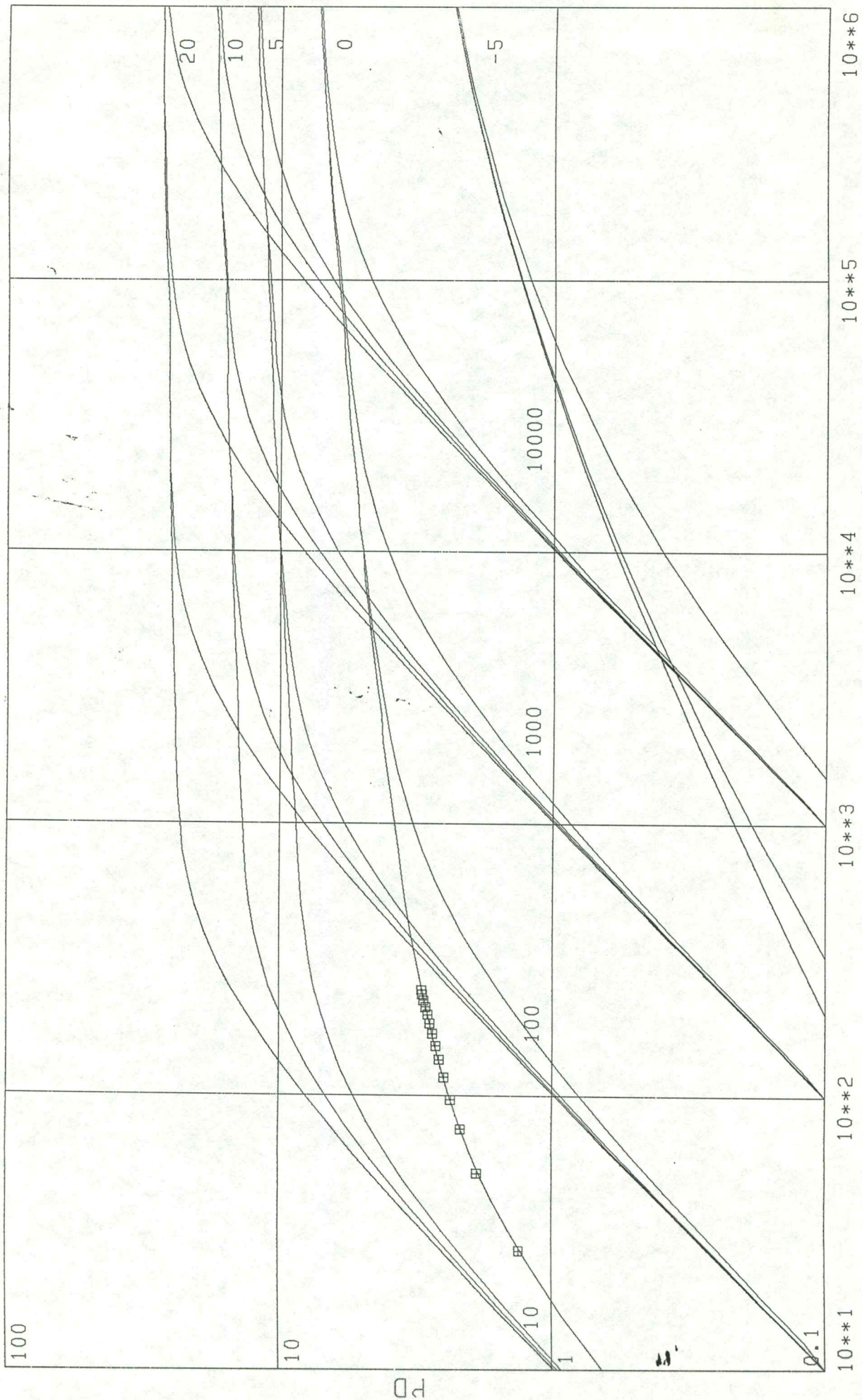
TD

2 2 2

GAUGE NO 7504

CIP 2

TICKET NO 08830300



TD

ccc

SUMMARY OF RESERVOIR PARAMETERS

USING CURVE MATCH METHOD FOR LIQUID WELLS

OIL GRAVITY 35.0 °API@60°F WATER SALINITY 0.0 % SALT
 GAS GRAVITY 0.700 FLUID GRADIENT 0.3682 psi/ft
 GAS/OIL RATIO 170.9 SCF/STB FLUID PROPERTIES AT 850.0 psig
 TEMPERATURE 92.0 °F VISCOSITY 3.965 cp
 NET PAY 16.0 ft FMT VOL FACTOR 1.098 Rvol/Svol
 POROSITY 10.0 % SYSTEM COMPRESSIBILITY 10.68 ×10⁻⁶ vol/vol/psi
 PIPE CAPACITY FACTORS 0.00492 0.01422 bbl/ft

GAUGE NUMBER		7505	7505	7504	7504			
GAUGE DEPTH		2308.0	2308.0	2357.0	2357.0			
FLOW AND CIP PERIOD		1	2	1	2			UNITS
FINAL FLOW PRESSURE	P _f	13.4	23.6	36.4	44.7			psig
TOTAL FLOW TIME	t	46.1	91.5	46.1	91.5			min
PRODUCTION RATE	Q	2.5	2.0	2.5	2.1			BPD
t _d AT 1 HOUR		167.	243.	177.	259.			
P _d AT 100 psi		0.380	0.454	0.387	0.464			
C _d		11.8	12.5	14.1	9.4			
SKIN	S	0.0	0.0	0.0	0.0			
TRANSMISSIBILITY	kh/μ	1.5	1.4	1.5	1.5			md-ft cp
FLOW CAPACITY	kh	5.84711	5.66459	5.91697	6.02221			md-ft
PERMEABILITY	k	0.36544	0.35404	0.36981	0.37639			md
DAMAGE RATIO	DR	1.0	1.0	1.0	1.0			
POTENTIAL RATE	Q ₁	2.5	2.0	2.5	2.1			BPD
RADIUS OF INVESTIGATION	r _i	8.2	11.4	8.3	11.8			ft

REMARKS:

CALCULATIONS ARE BASED ON 100% OIL PRODUCTION.

THE RATES SHOWN WERE DETERMINED USING THE FLOW PERIOD DATA AND THE PRESSURE CHANGE METHOD. DUE TO THE LOW VOLUME OF FLUID RECOVERED THESE RATES ARE SOMEWHAT QUESTIONABLE.

THE LOG-LOG PLOTS OF THE CIP DATA SHOW INSUFFICIENT BUILD-UP, OR CLOSURE, FOR ACCURATE HORNER SEMILOG ANALYSIS, AND THUS ONLY TYPE CURVE MATCHING ANALYSIS WAS PERFORMED.

THE ENCLOSED HORNER PLOTS ARE FOR YOUR INFORMATION. A VISUAL EXTRAPOLATION OF THE CIP DATA YIELDS AN APPROXIMATE BASE PRESSURE OF 850 PSI. BECAUSE CIP DEVELOPMENT IS INSUFFICIENT FOR ACCURATE EXTRAPOLATION, THIS VALUE SHOULD BE CONSIDERED AS AN UPPER LIMIT. ACTUAL STATIC RESERVOIR PRESSURE IS PROBABLY SLIGHTLY LOWER.

NOTICE:

THESE CALCULATIONS ARE BASED UPON INFORMATION FURNISHED BY YOU AND TAKEN FROM DRILL STEM PRESSURE CHARTS, AND ARE FURNISHED TO YOU FOR YOUR INFORMATION. IN FURNISHING SUCH CALCULATIONS AND EVALUATIONS BASED THEREON, HALLIBURTON IS MERELY EXPRESSING ITS OPINION. YOU AGREE THAT HALLIBURTON MAKES NO WARRANTY EXPRESS OR IMPLIED AS TO THE ACCURACY OF SUCH CALCULATIONS OR OPINIONS, AND THAT HALLIBURTON SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE, WHETHER DUE TO NEGLIGENCE OR OTHERWISE, IN CONNECTION WITH SUCH OPINIONS.