

APPENDIX 2

DRILL STEM TEST RESULTS

DRILL STEM TEST REPORT

OPERATOR: MOONIE OIL NL **DATE:** 15/4/86
WELL NAME: EAST MEREENIE **NO.** 25 **P** **BASIN:** AMADEUS
FIELD: MEREENIE **STRUCTURE:**
TEST NO: 1 **FORMATION:** PACOOTA P1 **SAND NO:** P1-80
ELEVATIONS **GL:** 2353 FT **KB:** 2373 FT **PACKER AT:** 4818.64 FT
INTERVAL: 4819 TO 4849 FT **TEST TYPE:** O.H. DUAL PACKER

TEST STATISTICS

COMPANY: HALLIBURTON **OPERATOR:** VANCE BLATT
TOOL: HYDROSPRING **CHOKE SIZE** **TOP:** .5 INS **BOTTOM:** .75 INS
ANCHOR LENGTH: 20 FT **OD:** 5 INS
PERFORATED: 4824.94 TO 4844.94 FT **LENGTH:** 20 FT
PRESSURE RECORDER: **TYPE** **POSITION** **DEPTH** **CLOCK**
1. BOURDON TUBE TOP 4796.1 FT 24 HR
2. BOURDON TUBE BOTTOM 4845.94 FT 24 HR

CAPACITIES

HOLE SIZE: 7.875 INS **INTERVAL:** 3059 TO 4819 FT
RAT HOLE: 7.875 INS **INTERVAL:** 4819 TO 4849 FT
DRILL PIPE: .01422 BLS/FT **COLLARS:** .0049 BLS/FT

TIME RECORD

ACTUAL		ELAPSED TIMES
START CLOCK:	0730 HRS	START TO SEPERATOR: 1710 HRS
START IN HOLE:	0825 HRS	STOP SEPERATOR: 1825 HRS
TOOL OPENED:	1440 HRS	IF: 23 MINS
TOOL SHUT:	1503 HRS	ISI: 47 MINS
TOOL OPENED:	1550 HRS	FF: 160 MINS
TOOL SHUT:	1830 HRS	FSI: 366 MINS
PACK PULLED:	0040 HRS	TOTAL FLOW: 183 MINS
OUT OF HOLE:	0700 HRS	SEPERATOR FLOW: 75 MINS

PRESSURE RECORD

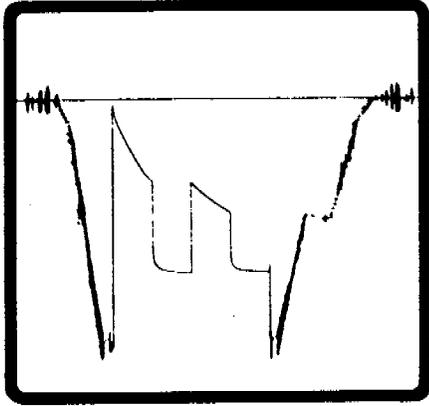
CHART: BOTTOM **CLOCK:** 24 HR
IHP: 2702.8 PSI
IFP: 404.5 PSI
ISIP: 1814.1 PSI
FFP: 603.1 PSI
FSIP: 1831.0 PSI
FHP: 2691.6 PSI
WHFP: 170 PSI

RECOVERY

GTS: 5 MIN AT 288,000 CU FT/D
OTS: 53 MIN AT 416 BLS/D (US)
WTS: MIN AT BLS/D (US)
GOR: 692 CU FT/BL
ORIFICE SIZE: .5 INS
FLOW PROVER PRESSURE: 49 PSI
SG OF GAS: .946 GM/CC
SG OF OIL: 48.6 API AT °F
WATER SALINITY: PPM
MAXIMUM TEMP: 141 °F

NATURE OF BLOW: IFP; IMMEDIATE WEAK TO MODERATE BLOW, INCREASING TO STRONG AFTER 1 MINUTE AND VERY STRONG AFTER 2 MINUTES. CONSTANT STRONG BLOW WITH MANIFOLD OPEN. MAXIMUM PRESSURE 42 PSI AFTER 9 MINUTES. FFP; IMMEDIATE STRONG BLOW (2 PSI), DECREASING TO WEAK AFTER 20 MINUTES (1 PSI). MTS 50 MINUTES (10 PSI), OTS 53 MINUTES (30 PSI), MAXIMUM MANIFOLD PRESSURE 200 PSI AFTER 77 MINUTES (1644 HRS), 180 PSI 77 TO 93 MINUTES, 170 PSI 93 TO 168 MINUTES, 160 PSI 168 TO 183 MINUTES. CHARTS INDICATE GOOD PERMEABILITY AND A MECHANICALLY SUCCESSFUL TEST.

FORMATION TESTING SERVICE REPORT

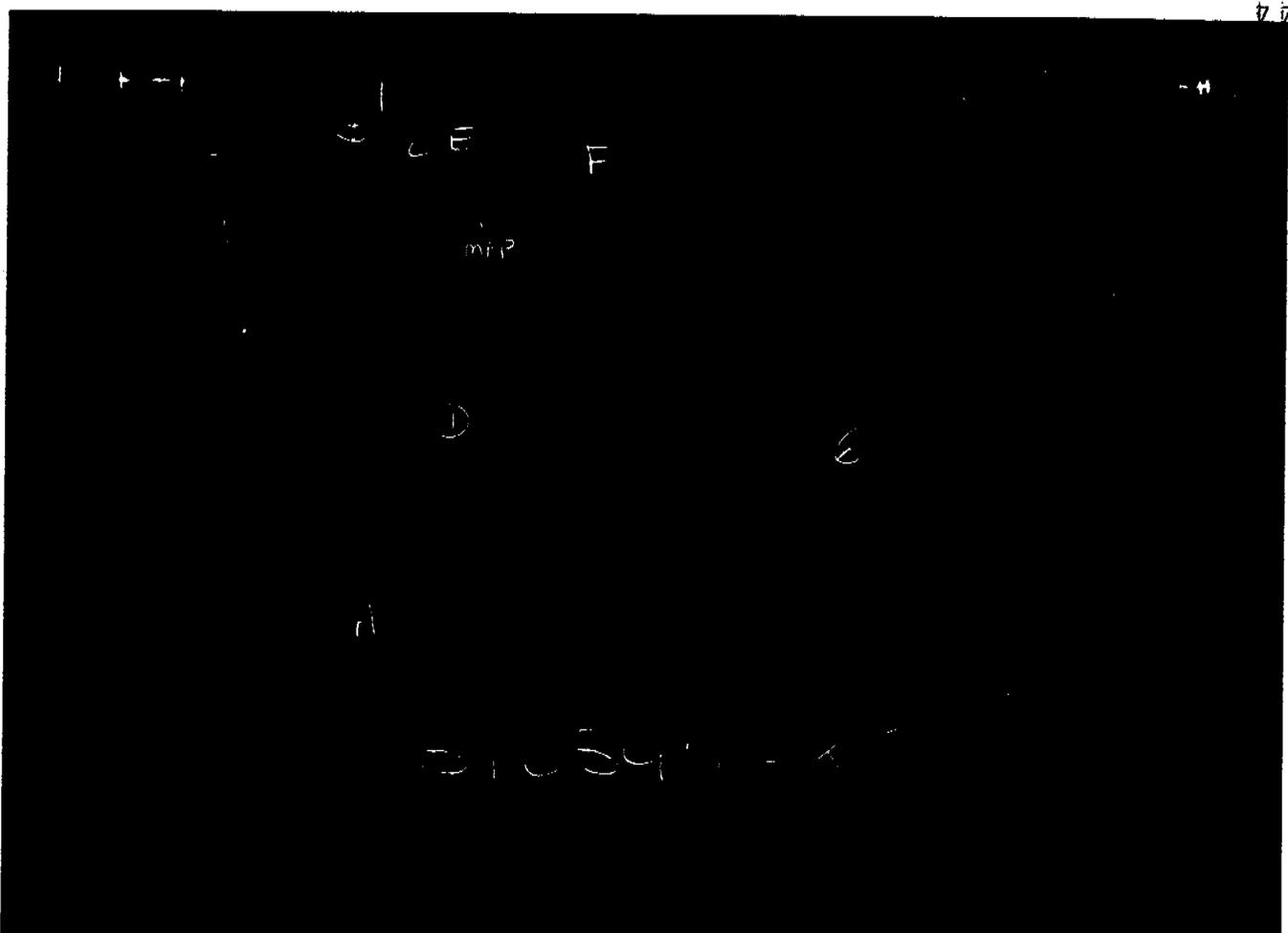


Duncan, Oklahoma 73536

 A Halliburton Company

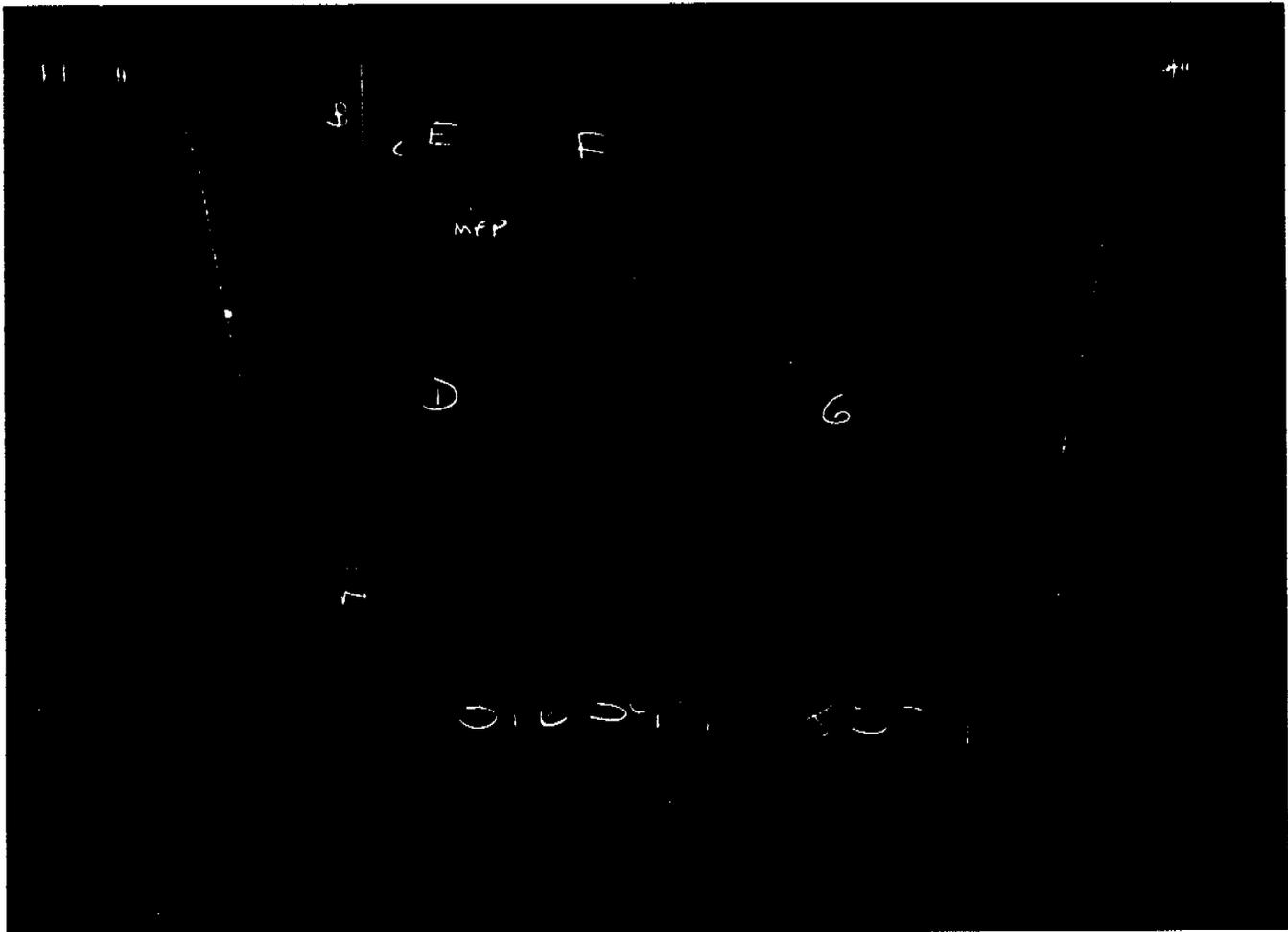
NOMENCLATURE

B	= Formation Volume Factor (Res Vol / Std Vol)	—	
c_t	= System Total Compressibility	(Vol / Vol) / psi	
DR	= Damage Ratio	—	
h	= Estimated Net Pay Thickness	Ft	
k	= Permeability	md	
m	{	= (Liquid) Slope Extrapolated Pressure Plot	psi/cycle
		= (Gas) Slope Extrapolated m(P) Plot	MM psi ² cp cycle
m(P*)	= Real Gas Potential at P*	MM psi ² cp	
m(P_i)	= Real Gas Potential at P _i	MM psi ² cp	
AOF₁	= Maximum Indicated Absolute Open Flow at Test Conditions	MCFD	
AOF₂	= Minimum Indicated Absolute Open Flow at Test Conditions	MCFD	
P*	= Extrapolated Static Pressure	Psig	
P_i	= Final Flow Pressure	Psig	
Q	= Liquid Production Rate During Test	BPD	
Q₁	= Theoretical Liquid Production w/ Damage Removed	BPD	
Q_g	= Measured Gas Production Rate	MCFD	
r_i	= Approximate Radius of Investigation	Ft	
r_w	= Radius of Well Bore	Ft	
S	= Skin Factor		
t	= Total Flow Time Previous to Closed-in	Minutes	
Δt	= Closed-in Time at Data Point	Minutes	
T	= Temperature Rankine	R	
φ	= Porosity	—	
μ	= Viscosity of Gas or Liquid	cp	
Log	= Common Log		



GAUGE NO: 8511 DEPTH: 4796.1 BLANKED OFF: NO HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	2665	2527.2			
B	INITIAL FIRST FLOW	392	256.1	23.0	22.0	F
C	FINAL FIRST FLOW	492	354.6			
C	INITIAL FIRST CLOSED-IN	492	354.6	47.0	46.1	C
D	FINAL FIRST CLOSED-IN	1795	1659.1			
E	INITIAL SECOND FLOW	561	420.5	160.0	162.7	F
F	FINAL SECOND FLOW	592	455.7			
F	INITIAL SECOND CLOSED-IN	592	455.7	370.0	369.2	C
G	FINAL SECOND CLOSED-IN	1808	1676.0			
H	FINAL HYDROSTATIC	2655	2519.8			



GAUGE NO: 8531 DEPTH: 4846.0 BLANKED OFF: YES HOUR OF CLOCK: 24

ID	DESCRIPTION	PRESSURE		TIME		TYPE
		REPORTED	CALCULATED	REPORTED	CALCULATED	
A	INITIAL HYDROSTATIC	2703	2543.5			
B	INITIAL FIRST FLOW	405	266.2			
C	FINAL FIRST FLOW	506	366.4	23.0	22.0	F
C	INITIAL FIRST CLOSED-IN	506	366.4			
D	FINAL FIRST CLOSED-IN	1814	1673.0	47.0	46.1	C
E	INITIAL SECOND FLOW	567	427.1			
F	FINAL SECOND FLOW	603	464.9	160.0	162.7	F
F	INITIAL SECOND CLOSED-IN	603	464.9			
G	FINAL SECOND CLOSED-IN	1831	1688.2	370.0	369.2	C
H	FINAL HYDROSTATIC	2692	2540.7			

EQUIPMENT & HOLE DATA

FORMATION TESTED: PACQUITA
 NET PAY (ft): _____
 GROSS TESTED FOOTAGE: 30.4
 ALL DEPTHS MEASURED FROM: KB
 CASING PERFS. (ft): _____
 HOLE OR CASING SIZE (in): 7.625
 ELEVATION (ft): 2373.0 KELLY BUSHING
 TOTAL DEPTH (ft): 4849.0
 PACKER DEPTH(S) (ft): 4811. 4819
 FINAL SURFACE CHOKE (in): 0.50000
 BOTTOM HOLE CHOKE (in): 0.750
 MUD WEIGHT (lb/gal): 10.00
 MUD VISCOSITY (sec): 58
 ESTIMATED HOLE TEMP. (°F): _____
 ACTUAL HOLE TEMP. (°F): 141 @ 4844.9 ft

TICKET NUMBER: 31639700

DATE: 4-15-86 TEST NO: 1

TYPE DST: OPEN HOLE

HALLIBURTON CAMP:
ALICE SPRINGS

TESTER: VANCE BLATT

WITNESS: R. YOUNG ???

DRILLING CONTRACTOR:
MEREENIE #1

FLUID PROPERTIES FOR RECOVERED MUD & WATER

SOURCE	RESISTIVITY	CHLORIDES
_____	_____ @ _____ °F	_____ ppm
_____	_____ @ _____ °F	_____ ppm
_____	_____ @ _____ °F	_____ ppm
_____	_____ @ _____ °F	_____ ppm
_____	_____ @ _____ °F	_____ ppm
_____	_____ @ _____ °F	_____ ppm

SAMPLER DATA

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

HYDROCARBON PROPERTIES

OIL GRAVITY (°API): 48.6 @ _____ °F
 GAS/OIL RATIO (cu.ft. per bbl): 692
 GAS GRAVITY: 0.946

CUSHION DATA

TYPE	AMOUNT	WEIGHT
_____	_____	_____
_____	_____	_____

RECOVERED:

416 BBLs. OF OIL/DAY AND 288 MCFD.....

MEASURED FROM
TESTER VALVE

REMARKS:

LEGAL LOCATION: LAT. 24 DEGREES - 4' - 2" SOUTH
 LONG. 131 DEGREES - 39' - 55" EAST

TYPE & SIZE MEASURING DEVICE: .5" SURFACE CHOKE				TICKET NO: 31639700	
TIME	CHOKE SIZE	SURFACE PRESSURE PSI	GAS RATE MCF	LIQUID RATE BPD	REMARKS
4-15-86					
0825					LOADED CLOCKS AND B.T.'S
0915					PICKED-UP TOOLS
0930					MADE-UP TOOLS
1030					STARTED TOOLS INTO HOLE
1400					MADE-UP HEAD AND MANIFOLD
1436					WEIGHT ON PACKER - 32,000#
1440					OPENED TOOL - STRONG BLOW WITH MANIFOLD CLOSED.
1442	.50"	8			STRONG BLOW - OPENED TO FLARE PIT.
1444	.50"	30			STRONG BLOW
1446	.50"	37			STRONG BLOW - GAS TO SURFACE
1448	.50"	41			GAS TO SURFACE
1450	.50"	41			"
1452	.50"	40.5			"
1454	.50"	39			SLOW LOSS OF PRESSURE
1456	.50"	36			"
1458	.50"	33			"
1500	"	30			"
1503		26			CLOSED TOOL
1550	.50"				REOPENED TOOL - STRONG BLOW
1553	.50"	2			STRONG BLOW
1600	"	1			"
1610	.50"				WEAK TO MODERATE BLOW
1617	.50"				MUD TO SURFACE
1618	.50"	18			PRESSURE SLUGGING
1620	.50"	40			OIL TO SURFACE
1622	.50"	55			"
1624	.50"	90			"
1630	.50"	120			"
1634	.50"	150			"
1640	"	180			"
1644	"	200			"
1652	"	180			SLIGHT DROP IN PRESSURE
1700	"	175			"
1715	.50"	170			START TO SEPARATOR

TICKET NO: 31639700
 CLOCK NO: 29475 HOUR: 24



GAUGE NO: 8511
 DEPTH: 4796.1

REF	MINUTES	PRESSURE	AP	$\frac{1 \times \Delta t}{1 + \Delta t}$	$\log \frac{1 + \Delta t}{\Delta t}$
FIRST FLOW					
B 1	0.0	256.1			
2	2.0	255.7	-0.4		
3	4.0	255.7	0.0		
4	6.0	259.3	3.7		
5	8.0	269.7	10.4		
6	10.0	280.8	11.1		
7	12.0	294.1	13.3		
8	14.0	306.4	12.4		
9	16.0	319.1	12.6		
10	18.0	331.1	12.0		
11	20.0	344.7	13.7		
C 12	22.0	354.6	9.9		
FIRST CLOSED-IN					
C 1	0.0	354.6			
2	1.0	838.3	483.7	0.9	1.369
3	2.0	1158.0	803.4	1.9	1.074
4	3.0	1282.5	927.9	2.6	0.927
5	4.0	1356.1	1001.5	3.4	0.813
6	5.0	1406.1	1051.5	4.0	0.736
7	6.0	1444.0	1089.4	4.7	0.668
8	7.0	1472.8	1118.2	5.3	0.620
9	8.0	1493.6	1139.0	5.9	0.576
10	9.0	1513.4	1158.8	6.4	0.538
11	10.0	1530.7	1176.1	6.9	0.505
12	12.0	1558.0	1203.4	7.8	0.452
13	14.0	1575.6	1221.0	8.6	0.410
14	16.0	1590.3	1235.7	9.3	0.376
15	18.0	1601.8	1247.2	9.9	0.347
16	20.0	1612.3	1257.7	10.5	0.322
17	22.0	1619.3	1264.7	11.0	0.301
18	24.0	1625.5	1270.9	11.5	0.283
19	26.0	1631.4	1276.8	11.9	0.267
20	28.0	1636.4	1281.7	12.3	0.252
21	30.0	1640.2	1285.6	12.7	0.239
22	35.0	1648.6	1294.0	13.5	0.212
23	40.0	1656.3	1301.7	14.2	0.191
D 24	46.1	1659.1	1304.4	14.9	0.170
SECOND FLOW					
E 1	0.0	420.5			
2	2.0	420.4	-0.1		
3	4.0	424.5	4.1		
4	6.0	429.1	4.6		
5	8.0	442.8	13.7		
6	10.0	460.5	17.8		
7	12.0	477.1	16.6		

REF	MINUTES	PRESSURE	AP	$\frac{1 \times \Delta t}{1 + \Delta t}$	$\log \frac{1 + \Delta t}{\Delta t}$
SECOND FLOW - CONTINUED					
8	14.0	493.8	16.7		
9	16.0	511.4	17.6		
10	18.0	526.3	14.9		
11	20.0	539.7	13.4		
12	22.0	556.2	16.4		
13	24.0	576.7	20.5		
14	26.0	602.1	25.4		
15	28.0	627.5	25.4		
16	30.0	645.5	18.0		
17	40.0	687.8	42.2		
<input type="checkbox"/> 18	50.0	696.1	8.3		
19	60.0	676.3	-19.7		
20	70.0	631.8	-44.5		
21	80.0	603.6	-28.3		
22	90.0	584.1	-19.5		
23	100.0	570.0	-14.1		
24	110.0	554.7	-15.3		
25	120.0	537.1	-17.6		
26	130.0	517.2	-19.9		
27	140.0	500.7	-16.6		
28	150.0	489.7	-10.9		
29	160.0	469.7	-20.0		
F 30	162.7	455.7	-14.1		
SECOND CLOSED-IN					
F 1	0.0	455.7			
2	1.0	732.4	276.7	1.0	2.263
3	2.0	1053.7	598.0	2.0	1.964
4	3.0	1132.6	677.0	3.0	1.794
5	4.0	1187.7	732.1	3.9	1.674
6	5.0	1230.3	774.6	4.9	1.578
7	6.0	1268.4	812.7	5.8	1.504
8	7.0	1302.6	847.0	6.7	1.439
9	8.0	1331.6	875.9	7.7	1.382
10	9.0	1354.6	898.9	8.6	1.331
11	10.0	1376.4	920.7	9.5	1.290
12	12.0	1410.8	955.2	11.3	1.215
13	14.0	1439.3	983.6	13.0	1.152
14	16.0	1463.4	1007.8	14.7	1.099
15	18.0	1482.5	1026.8	16.4	1.051
16	20.0	1498.3	1042.6	18.0	1.010
17	22.0	1512.6	1056.9	19.7	0.973
18	24.0	1524.1	1068.5	21.2	0.939
19	26.0	1532.5	1076.9	22.8	0.909
20	28.0	1541.5	1085.8	24.3	0.881
21	30.0	1548.8	1093.2	25.8	0.855
22	35.0	1565.1	1109.4	29.4	0.797
23	40.0	1577.3	1121.6	32.9	0.750
24	45.0	1587.9	1132.3	36.2	0.708
25	50.0	1595.8	1140.1	39.4	0.671
26	55.0	1603.4	1147.8	42.4	0.640

LEGEND:
 MAXIMUM FLOW PRESSURE

REMARKS:

TICKET NO: 31639700

CLOCK NO: 29491 HOUR: 24



GAUGE NO: 8531

DEPTH: 4846.0

REF	MINUTES	PRESSURE	AP	$\frac{1 \times \Delta t}{1 + \Delta t}$	$\log \frac{1 + \Delta t}{\Delta t}$
FIRST FLOW					
B 1	0.0	266.2			
2	2.0	266.2	0.0		
3	4.0	265.9	-0.3		
4	6.0	267.4	1.5		
5	8.0	277.9	10.5		
6	10.0	292.7	14.7		
7	12.0	305.1	12.4		
8	14.0	317.7	12.6		
9	16.0	330.3	12.6		
10	18.0	344.0	13.6		
11	20.0	355.9	11.9		
C 12	22.0	366.4	10.5		
FIRST CLOSED-IN					
C 1	0.0	366.4			
2	1.0	813.2	446.8	0.9	1.378
3	2.0	1152.8	786.3	1.8	1.082
4	3.0	1274.9	908.4	2.6	0.928
5	4.0	1351.4	985.0	3.4	0.810
6	5.0	1401.1	1034.7	4.1	0.735
7	6.0	1437.8	1071.3	4.7	0.672
8	7.0	1473.3	1106.9	5.3	0.617
9	8.0	1499.2	1132.7	5.9	0.575
10	9.0	1521.3	1154.8	6.4	0.539
11	10.0	1540.0	1173.6	6.9	0.507
12	12.0	1567.5	1201.0	7.8	0.452
13	14.0	1587.2	1220.8	8.6	0.411
14	16.0	1603.4	1236.9	9.3	0.376
15	18.0	1615.4	1248.9	9.9	0.347
16	20.0	1625.4	1258.9	10.5	0.322
17	22.0	1633.0	1266.5	11.0	0.302
18	24.0	1639.6	1273.1	11.5	0.283
19	26.0	1644.9	1278.5	11.9	0.267
20	28.0	1649.7	1283.3	12.3	0.252
21	30.0	1653.8	1287.4	12.7	0.239
22	35.0	1662.3	1295.8	13.5	0.212
23	40.0	1668.3	1301.9	14.2	0.190
D 24	46.1	1673.0	1306.5	14.9	0.170
SECOND FLOW					
E 1	0.0	427.1			
2	2.0	431.6	4.5		
3	4.0	427.9	-3.7		
4	6.0	440.7	12.8		
5	8.0	460.0	19.2		
6	10.0	477.8	17.8		
7	12.0	494.2	16.4		

REF	MINUTES	PRESSURE	AP	$\frac{1 \times \Delta t}{1 + \Delta t}$	$\log \frac{1 + \Delta t}{\Delta t}$
SECOND FLOW - CONTINUED					
8	14.0	510.3	16.1		
9	16.0	527.0	16.7		
10	18.0	542.5	15.5		
11	20.0	559.9	17.4		
12	22.0	574.4	14.5		
13	24.0	591.1	16.7		
14	26.0	606.3	15.2		
15	28.0	621.6	15.3		
16	30.0	637.2	15.6		
17	40.0	692.9	55.7		
<input type="checkbox"/> 18	50.0	706.0	13.1		
19	60.0	695.3	-10.7		
20	70.0	647.5	-47.8		
21	80.0	615.9	-31.6		
22	90.0	594.6	-21.3		
23	100.0	576.3	-18.2		
24	110.0	557.8	-18.5		
25	120.0	538.9	-18.9		
26	130.0	522.8	-16.0		
27	140.0	510.4	-12.4		
28	150.0	498.3	-12.1		
29	160.0	480.9	-17.4		
F 30	162.7	464.9	-16.0		
SECOND CLOSED-IN					
F 1	0.0	464.9			
2	1.0	820.6	355.7	1.0	2.272
3	2.0	1013.1	548.2	1.9	1.979
4	3.0	1125.1	660.3	3.0	1.791
5	4.0	1186.3	721.4	3.9	1.673
6	5.0	1235.0	770.1	4.9	1.577
7	6.0	1270.6	805.7	5.8	1.501
8	7.0	1300.4	835.5	6.8	1.437
9	8.0	1329.2	864.3	7.7	1.381
10	9.0	1352.6	887.8	8.6	1.334
11	10.0	1375.8	910.9	9.5	1.288
12	12.0	1411.5	946.6	11.3	1.213
13	14.0	1441.5	976.6	13.0	1.151
14	16.0	1464.3	999.4	14.7	1.099
15	18.0	1483.6	1018.7	16.4	1.052
16	20.0	1501.0	1036.1	18.0	1.010
17	22.0	1514.6	1049.8	19.6	0.973
18	24.0	1527.3	1062.4	21.3	0.939
19	26.0	1538.6	1073.7	22.8	0.908
20	28.0	1547.2	1082.3	24.3	0.881
21	30.0	1555.6	1090.7	25.8	0.855
22	35.0	1572.3	1107.4	29.5	0.797
23	40.0	1586.5	1121.6	32.9	0.749
24	45.0	1596.9	1132.0	36.2	0.708
25	50.0	1605.9	1141.0	39.4	0.671
26	55.0	1613.4	1148.5	42.4	0.639

LEGEND:

MAXIMUM FLOW PRESSURE

REMARKS:

TICKET NO: 31639700

CLOCK NO: 29491 HOUR: 24



GAUGE NO: 8531

DEPTH: 4846.0

REF	MINUTES	PRESSURE	AP	$\frac{1 \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$	REF	MINUTES	PRESSURE	AP	$\frac{1 \times \Delta t}{t + \Delta t}$	$\log \frac{t + \Delta t}{\Delta t}$
SECOND CLOSED-IN - CONTINUED											
27	60.0	1620.3	1155.4	45.3	0.610						
28	70.0	1629.6	1164.7	50.8	0.561						
29	80.0	1637.9	1173.0	55.8	0.520						
30	90.0	1643.4	1178.5	60.5	0.485						
31	100.0	1648.7	1183.8	64.9	0.454						
32	110.0	1653.2	1188.4	69.0	0.428						
33	120.0	1656.2	1191.3	72.7	0.405						
34	135.0	1662.3	1197.4	78.0	0.374						
35	150.0	1665.6	1200.7	82.8	0.349						
36	165.0	1668.9	1204.0	87.2	0.326						
37	180.0	1671.0	1206.1	91.2	0.307						
38	195.0	1673.7	1208.8	94.9	0.289						
39	210.0	1675.2	1210.3	98.3	0.274						
40	225.0	1677.3	1212.4	101.4	0.260						
41	240.0	1679.0	1214.1	104.4	0.248						
42	260.0	1681.0	1216.1	108.0	0.233						
43	280.0	1683.0	1218.1	111.3	0.220						
44	300.0	1684.2	1219.3	114.3	0.208						
45	320.0	1685.1	1220.2	117.1	0.198						
46	340.0	1686.6	1221.7	119.7	0.188						
47	360.0	1688.0	1223.1	122.1	0.180						
G 48	369.2	1688.2	1223.3	123.1	0.176						

LEGEND:
 MAXIMUM FLOW PRESSURE

REMARKS:

TICKET NO. 31639700

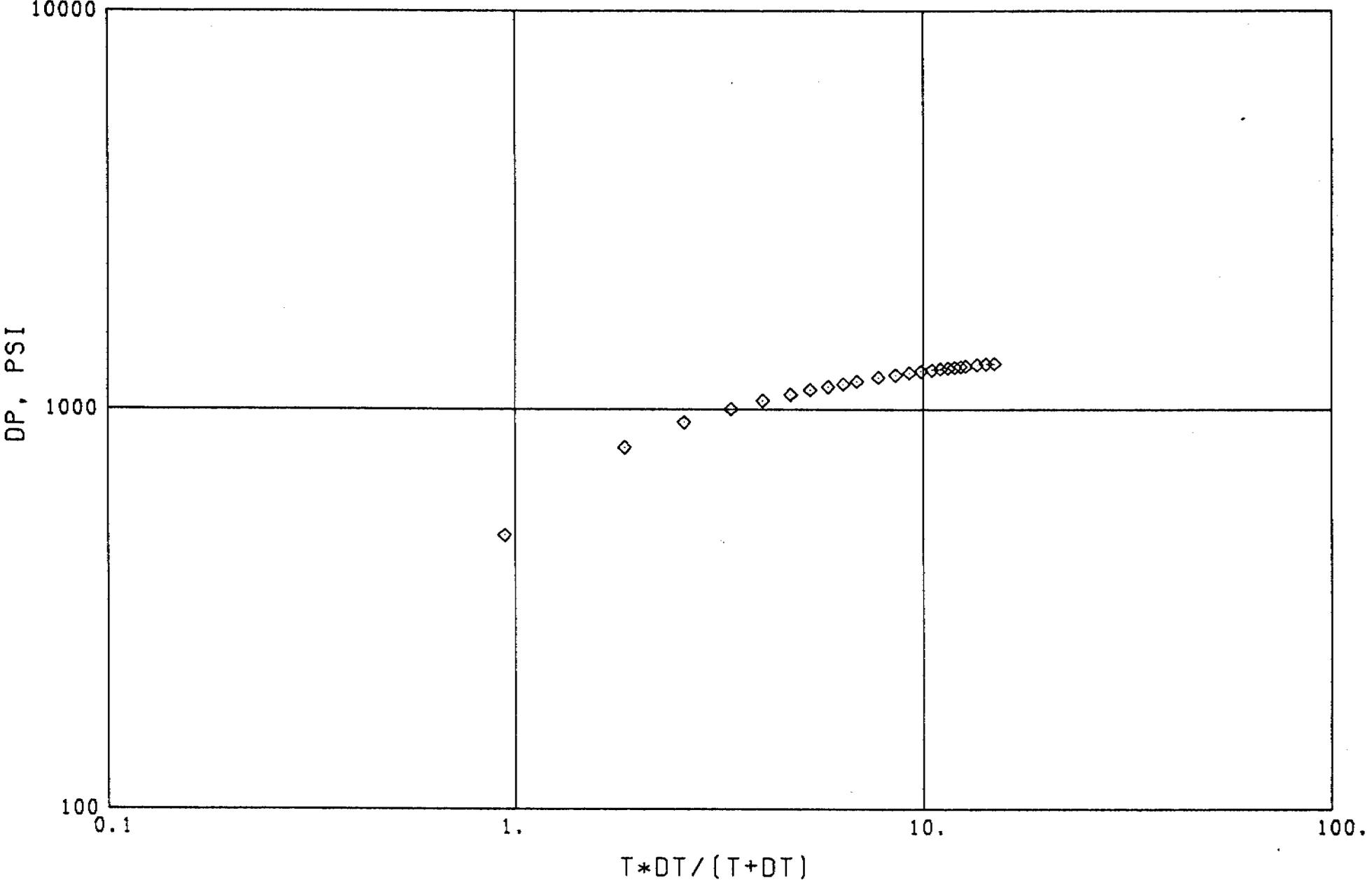
		O.D.	I.D.	LENGTH	DEPTH	
1		DRILL PIPE.....	4.500	3.826	4031.0	
4		FLEX WEIGHT.....	5.880	2.764	375.0	
3		DRILL COLLARS.....	6.380	2.880	346.0	
50		IMPACT REVERSING SUB.....	6.000	3.000	1.0	4752.0
3		DRILL COLLARS.....	6.380	2.880	31.0	
5		CROSSOVER.....	5.750		1.0	
12		DUAL CIP VALVE.....	5.000	0.870	4.9	
60		HYDROSPRING TESTER.....	5.000	0.750	5.3	4794.0
80		AP RUNNING CASE.....	5.000	2.250	4.1	4796.1
15		JAR.....	5.000	1.750	5.0	
16		VR SAFETY JOINT.....	5.000	1.000	2.8	
70		OPEN HOLE PACKER.....	5.000	1.530	5.8	4810.8
18		DISTRIBUTOR VALVE.....	5.000	1.680	2.0	
70		OPEN HOLE PACKER.....	5.000	1.530	5.8	4818.6
19		ANCHOR PIPE SAFETY JOINT.....	5.000	1.500	4.3	
20		FLUSH JOINT ANCHOR.....	5.000	2.370	20.0	
81		BLANKED-OFF RUNNING CASE.....	5.000		4.1	4846.0
		TOTAL DEPTH				4849.0

EQUIPMENT DATA

TICKET NO 31639700

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8511 ◇

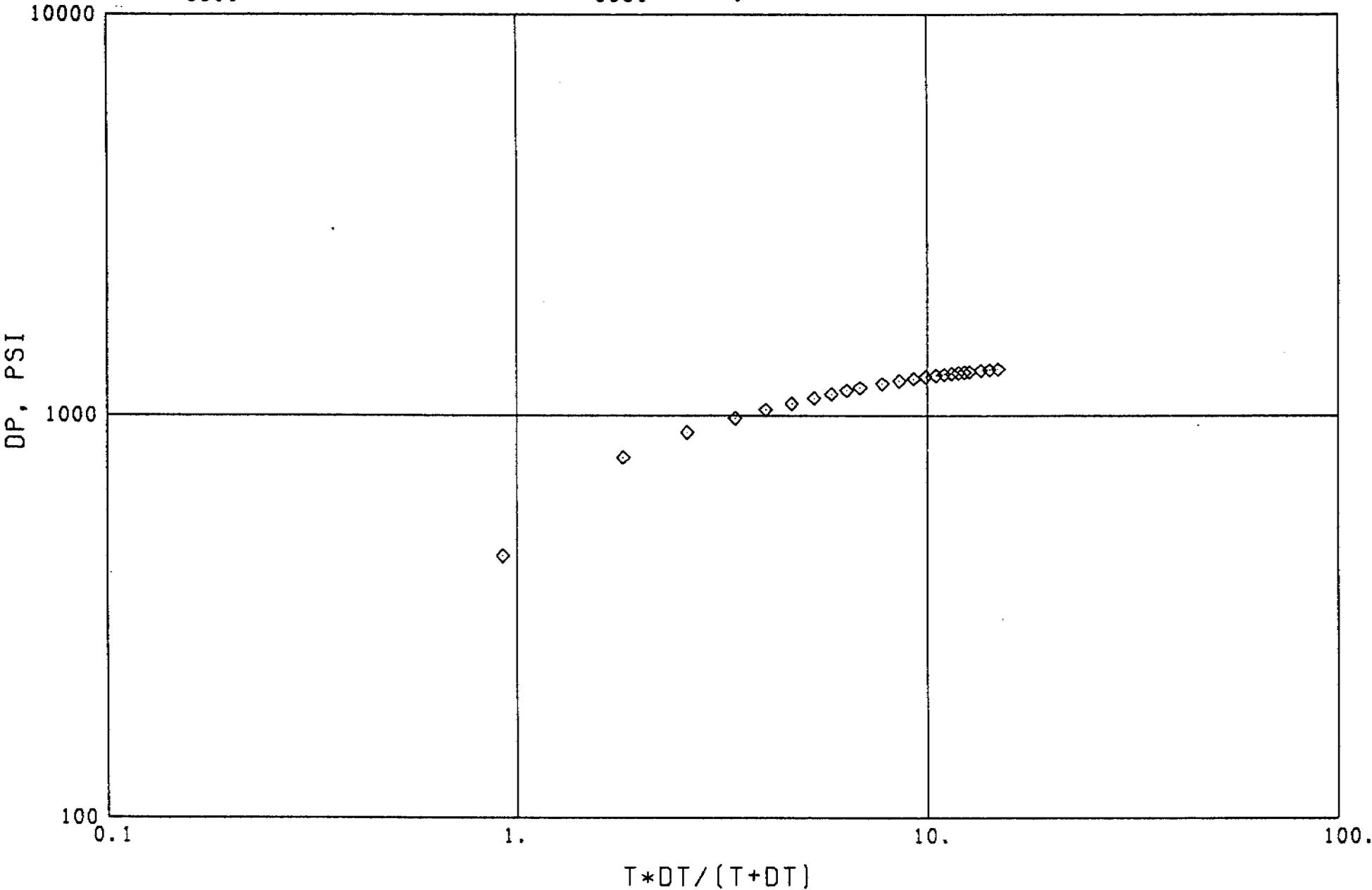
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TICKET NO 31639700

GAUGE NO CIP 1 2
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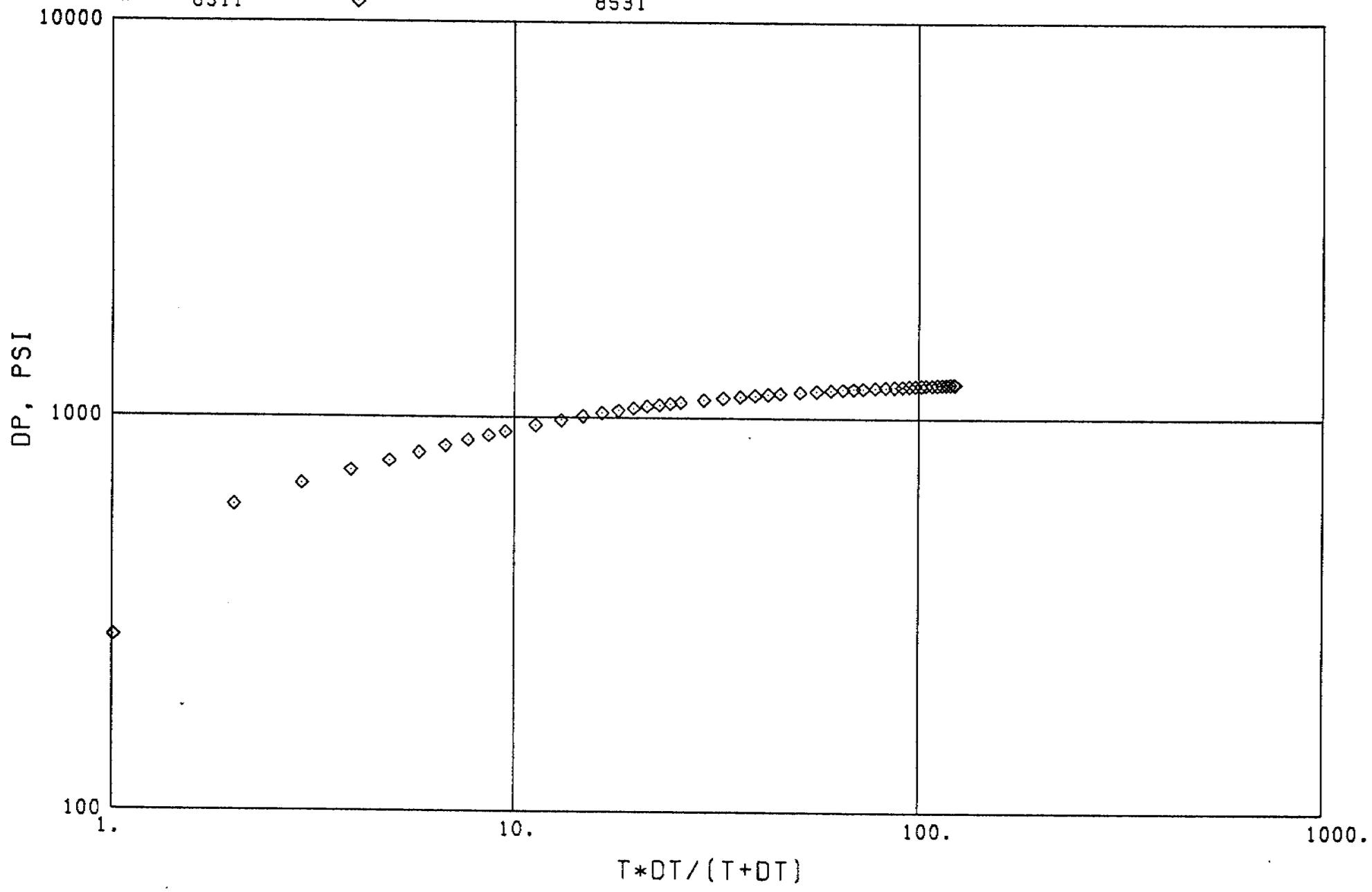
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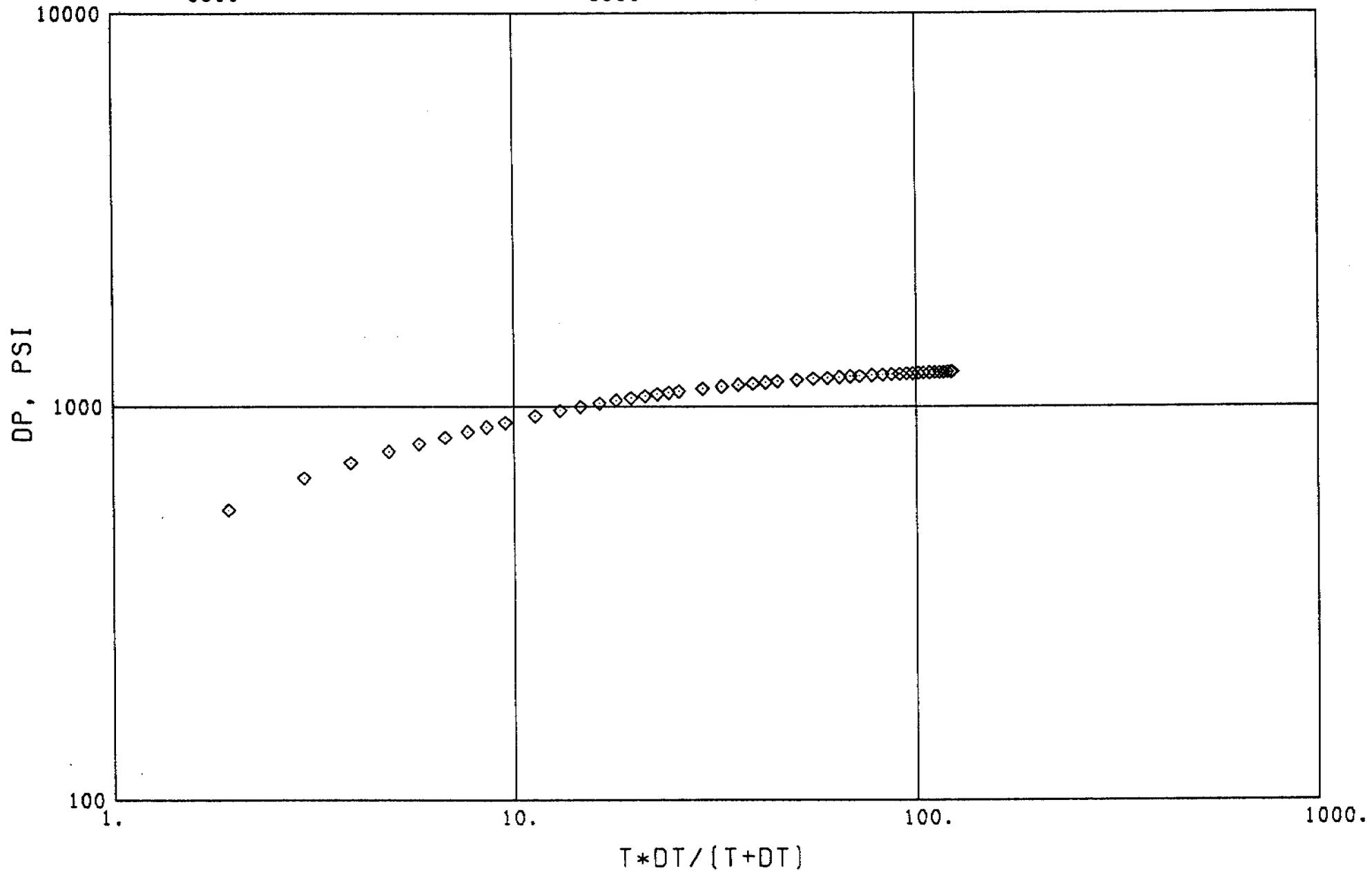


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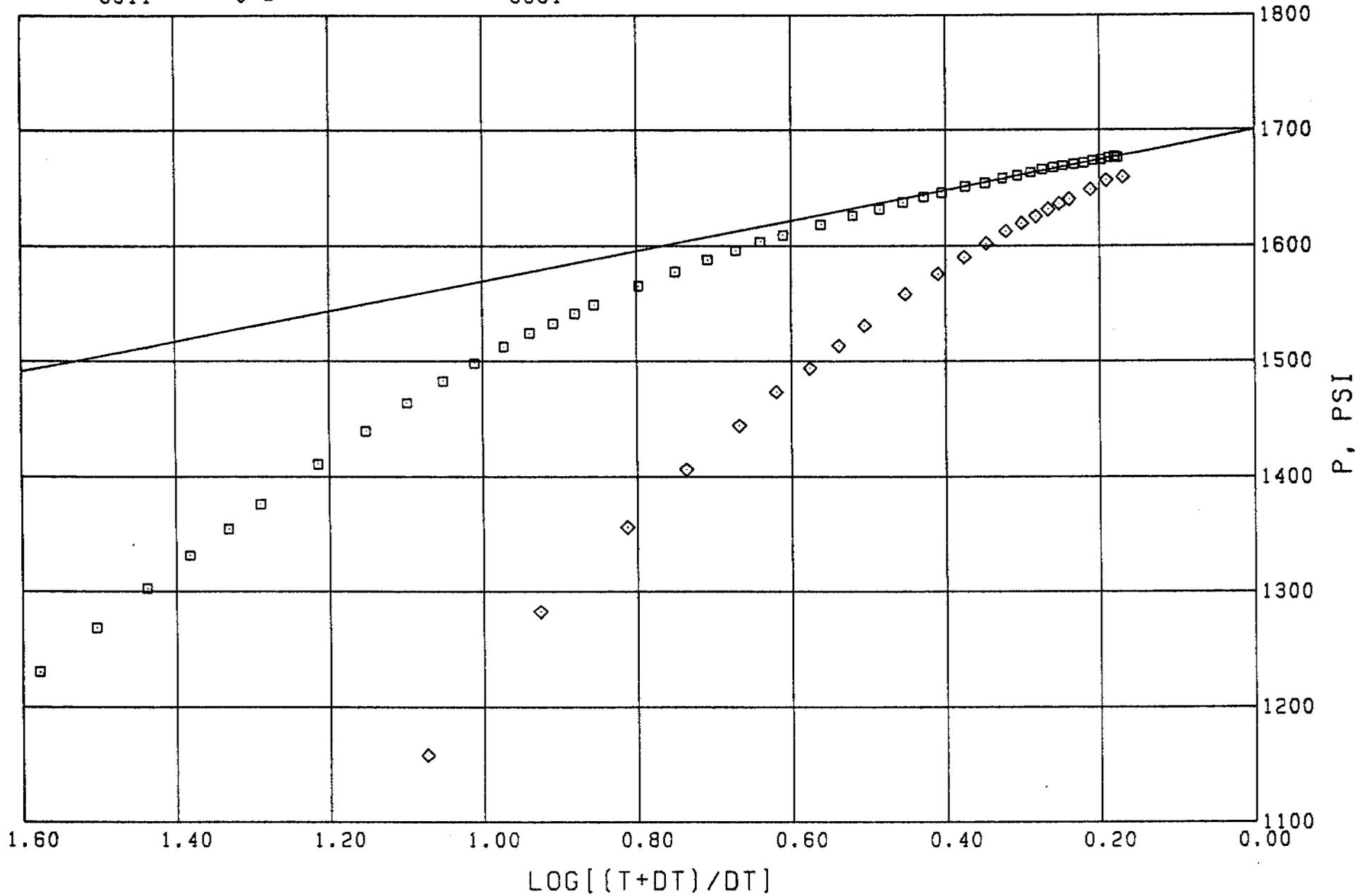
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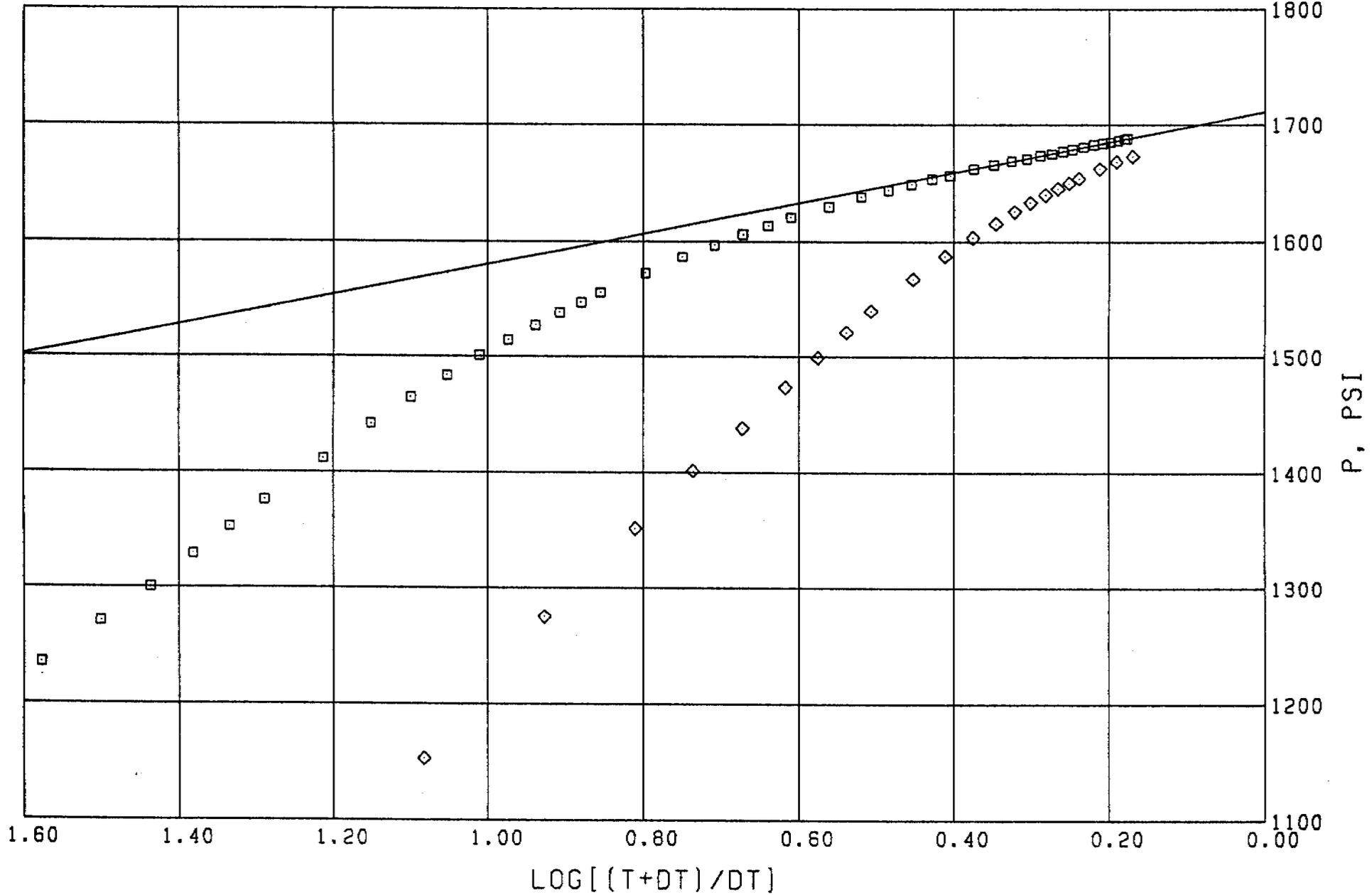


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TICKET NUMBER 31639700

SUMMARY OF RESERVOIR PARAMETERS USING HORNER METHOD FOR LIQUID WELLS

OIL GRAVITY <u>48.6</u> °API@60°F	WATER SALINITY <u>0.0</u> % SALT
GAS GRAVITY <u>0.946</u>	FLUID GRADIENT <u>0.3404</u> psi/ft
GAS/OIL RATIO <u>692.0</u> SCF/STB	FLUID PROPERTIES AT <u>1711.4</u> psig
TEMPERATURE <u>141.0</u> °F	VISCOSITY <u>0.400</u> cp
NET PAY <u>0.0</u> ft	FMT VOL FACTOR <u>1.366</u> Rvol/Svol
POROSITY <u>10.0</u> %	SYSTEM COMPRESSIBILITY <u>20.81</u> ×10 ⁻⁶ vol/vol/psig
PIPE CAPACITY FACTORS _____	_____ bbl/ft

GAUGE NUMBER	8511	8531					
GAUGE DEPTH	4796.1	4846.0					
FLOW AND CIP PERIOD	2	2					UNITS
FINAL FLOW PRESSURE P_f	455.7	464.9					psig
TOTAL FLOW TIME t	184.7	184.7					min
EXTRAPOLATED PRESSURE P^*	1700.4	1711.4					psig
ONE CYCLE PRESSURE	1569.5	1580.2					psig
PRODUCTION RATE Q	416.0	416.0					BPD
TRANSMISSIBILITY kh/μ	706.1	704.3					md-ft cp
FLOW CAPACITY kh	282.479	281.767					md-ft
PERMEABILITY k	9.30436	9.28089					md
SKIN FACTOR S	4.8	4.8					
DAMAGE RATIO DR	1.8	1.8					
POTENTIAL RATE Q_1	747.7	747.1					BPD
RADIUS OF INVESTIGATION r_1	187.7	187.5					ft

REMARKS:

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.

EQUATIONS FOR DST LIQUID WELL ANALYSIS

Transmissibility $\frac{kh}{\mu} = \frac{162.6 QB}{m}$ $\frac{\text{md-ft}}{\text{cp}}$

Indicated Flow Capacity $kh = \frac{kh}{\mu} \mu$ md-ft

Average Effective Permeability $k = \frac{kh}{h}$ md

Skin Factor $S = 1.151 \left[\frac{P^* - P_f}{m} \cdot \text{LOG} \left(\frac{k(t/60)}{d_b \mu C_{if} w^2} \right) + 3.23 \right] -$

Damage Ratio $DR = \frac{P^* - P_f}{P^* - P_f - 0.87 mS}$ —

Theoretical Potential w/ Damage Removed $Q_1 = Q DR$ BPD

Approx. Radius of Investigation $r_i = 0.032 \sqrt{\frac{k(t/60)}{d_b \mu C_i}}$ ft

EQUATIONS FOR DST GAS WELL ANALYSIS

Indicated Flow Capacity $kh = \frac{1637 Q_g T}{m}$ md-ft

Average Effective Permeability $k = \frac{kh}{h}$ md

Skin Factor $S = 1.151 \left[\frac{m(P^*) - m(P_f)}{m} \cdot \text{LOG} \left(\frac{k(t/60)}{d_b \mu C_{if} w^2} \right) + 3.23 \right] -$

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 $r_i = 0.032 \sqrt{\frac{k(t/60)}{d_b \mu C_i}}$ ft