18-16S-10W
SE-NE-NW

DRILL STEM TEST ANALYSIS
DATA SHEET

TEST #1

LEASE AND WELL: NOVOTONY
OPERATOR: WOODMAN - IANNITTI
LOCATION: 18-16-10
COUNTY, STATE: ELLSWORTH, KANS
FIELD: _____
TEST DATE: 1-2-64
SERVICE COMPANY: SUN
TICKET NO.: 3753 T
ANALYZED BY: DM
ANALYSIS DATE: 1-2-64

DATUM ELEVATION: _____ FT.
GAUGE DEPTH: _____ FT. (-)
INTERVAL TESTED: 3382 FT. (-) TO 3391 FT. (-)
FORMATION: ARB. THICKNESS: _____ FT. DST 9 FT. LOG _____ FT.
OTHER _____ FT.
_____ FT. PACKER TO BOTTOM OF PAY

RECOVERIES: FLOW RATES _____ BBLS, MCF/DAY IN _____ MIN. _____ BLOW
_____ BBLS, MCF/DAY IN _____ MIN. _____ BLOW
_____ BBLS, MCF/DAY IN _____ MIN. _____ BLOW

NON-FLOW RECOVERIES FROM DRILL PIPE:

90 FT. OF MUDDY OIL
60 FT. OF HVY OIL CUT MUD 50%
_____ FT. OF _____
_____ FT. OF _____
_____ FT. OF _____
_____ FT. TOTAL FLUID

PRESSURES:

INITIAL	FINAL
HYDROSTATIC MUD = _____ PSIG	HYDROSTATIC MUD = _____ PSIG
FFP = _____ PSIG AFTER 3 MIN	FFP = 57 PSIG AFTER _____ MIN.
IFP = 19 PSIG	IFP = 28 PSIG
ΔP = _____ PSI	ΔP = _____ PSI
EXTRAPOLATED SIP, P_f = _____ PSIG	EXTRAPOLATED SIP, P_f = _____ PSIG
FSIP AFTER 30 MIN. = 959 PSIG	FSIP AFTER 30 MIN. = 460 PSIG
ΔP = _____ PSI	ΔP = _____ PSI

MUD WEIGHT: 10.2 LBS/GAL.
SIZE OF HOLE: 7 7/8 IN., _____ FT.
SIZE OF ANCHOR: 5 1/2 IN.
SIZE OF DRILL COLLARS: _____ IN.; ID _____ IN.; LENGTH _____ FT.
SIZE OF DRILL PIPE: 4 1/2 IN.; ID _____ IN.

DRILL STEM TEST RESULTS

OIL AND/OR WATER

RESERVOIR PRESSURE, 625 PSIG

POTIOMETRIC SURFACE, _____ FT. SEA LEVEL

	INITIAL	FINAL	
TRANSMISSIBILITY, $\frac{Kh}{\mu}$			
CAPACITY, Kh			MD-FT.
PERMEABILITY	2.0 md.	0.6	MD.
DAMAGE RATIO	3.44	1.46	
PRODUCTIVITY INDEX			B/D/PSI
PRODUCTION RATE, Q NATURAL	50	50	BOD
Q MAXIMUM	172	73	BOD

WATER CUT, 0 %

GOR, 300 CF/B

DRAINAGE RADIUS DURING TEST, _____ FT.

IS A BOUNDARY REFLECTED? NO

RESERVOIR DRAINAGE RADIUS, — FT.

OIL IN PLACE, — BBL.

ESTIMATED RECOVERY, _____ %, _____ BBLS.

ACTUAL COMPLETION RESULTS

STATIC FLUID LEVEL, _____ FT.

PRODUCTION RATE, Q NATURAL _____ BOD, SWAB FROM _____ FT.

Q AFTER TREATMENT _____ BOD, SWAB FROM _____ FT.

WATER CUT _____ %

POTENTIAL TEST _____ BOD, _____ % WATER _____ GOR

CALCULATED MAXIMUM POTENTIAL, _____ BOD

RESULTS: 1 BHP — SUPERCHARGED

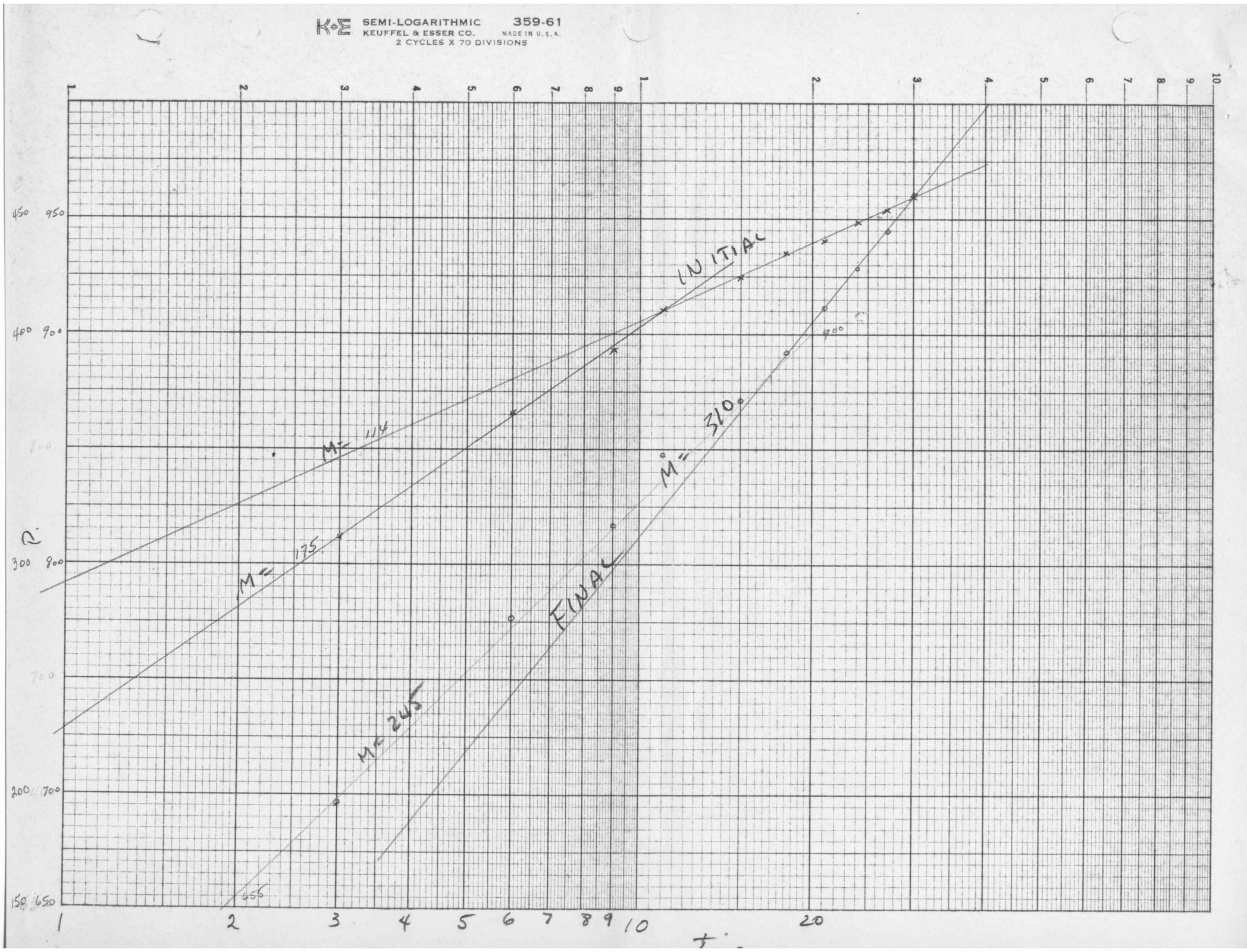
Brannum w/ Sun Oil Testers
reported information received
from Dick Tammitti on DST
of their well

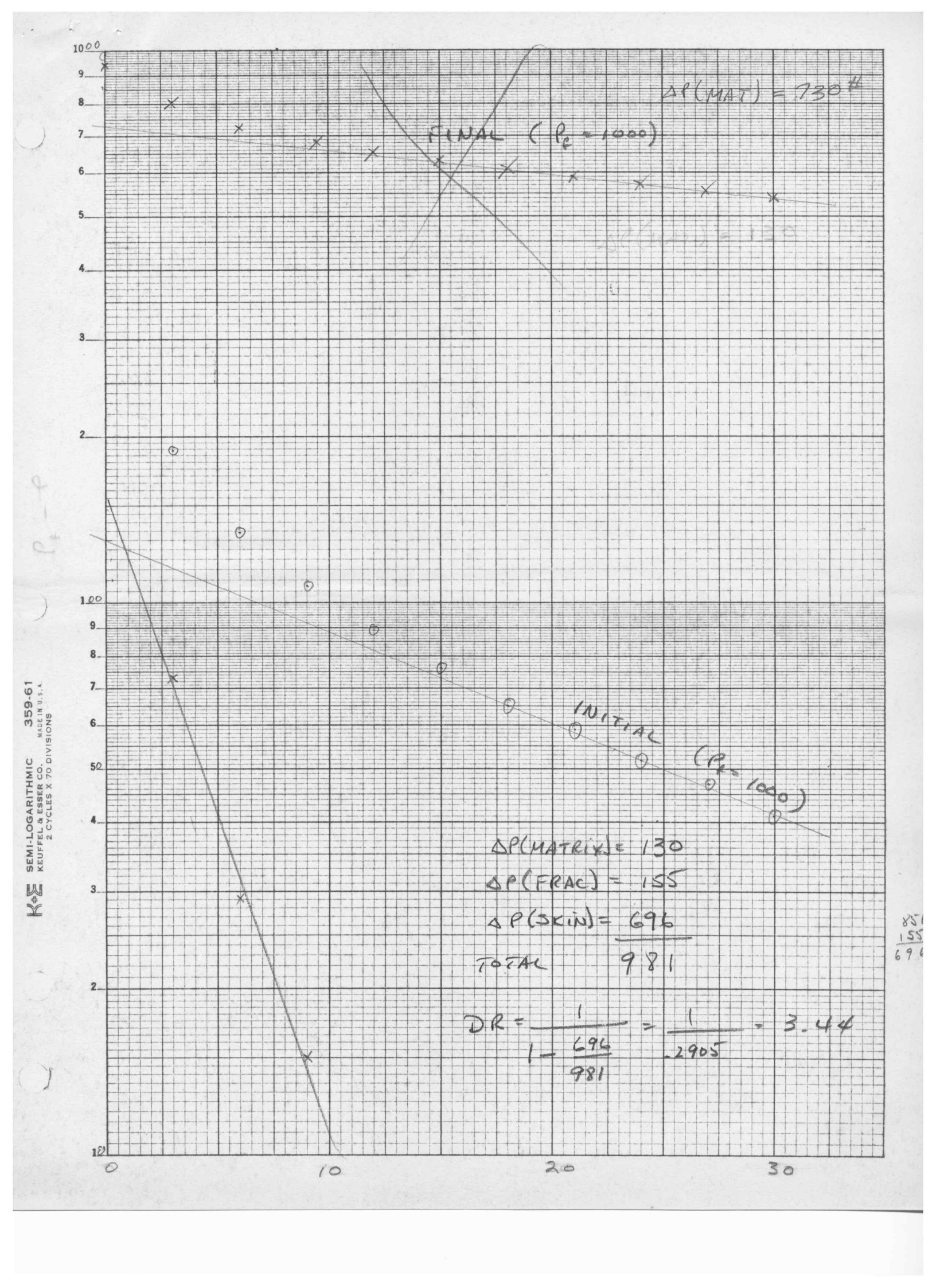
50% oil
40% mud
10% water (filtrate)

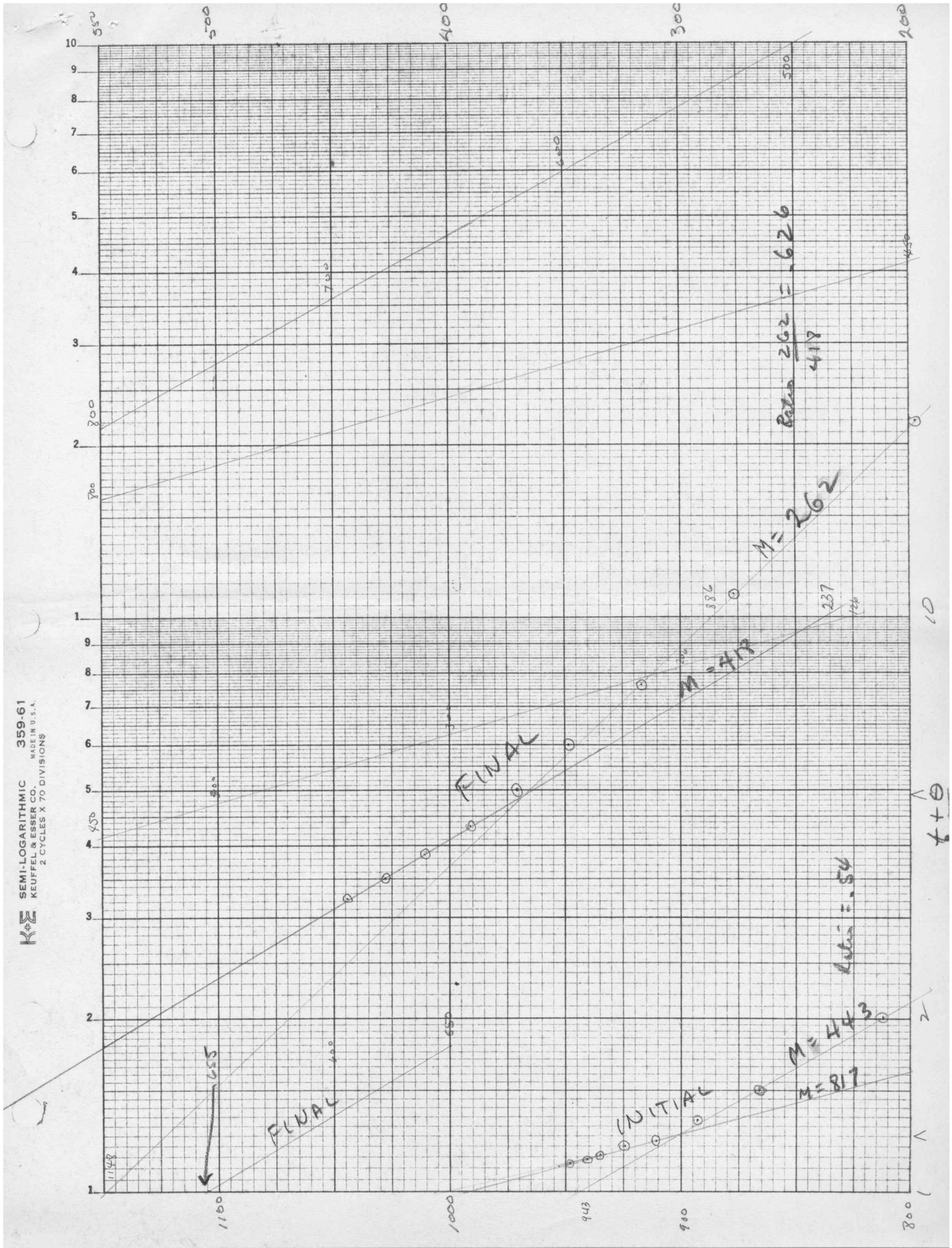
38° API grav.

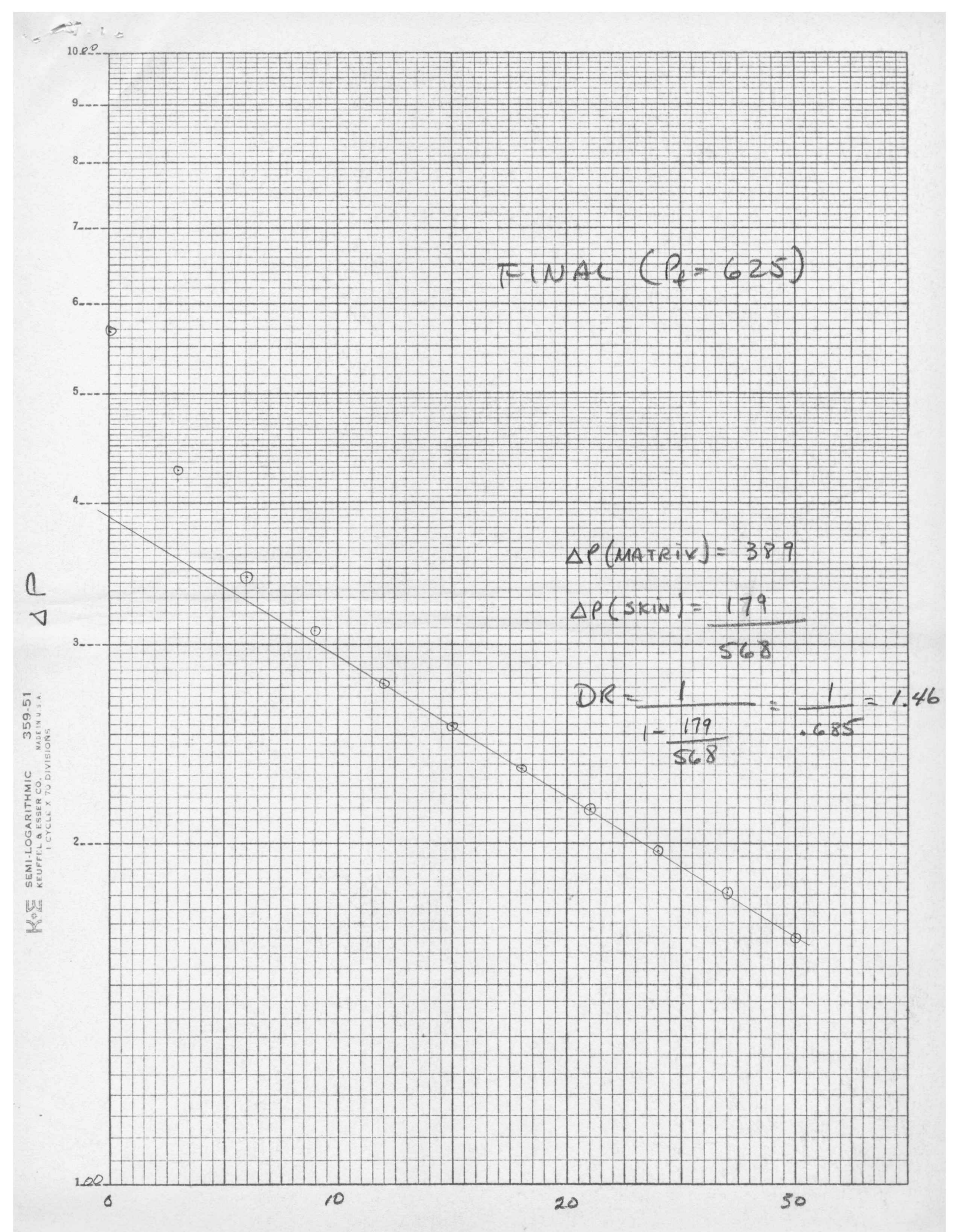
Brannum still has samples if
you wish Tom Gordon to
run check on them - Gordon
was out of town

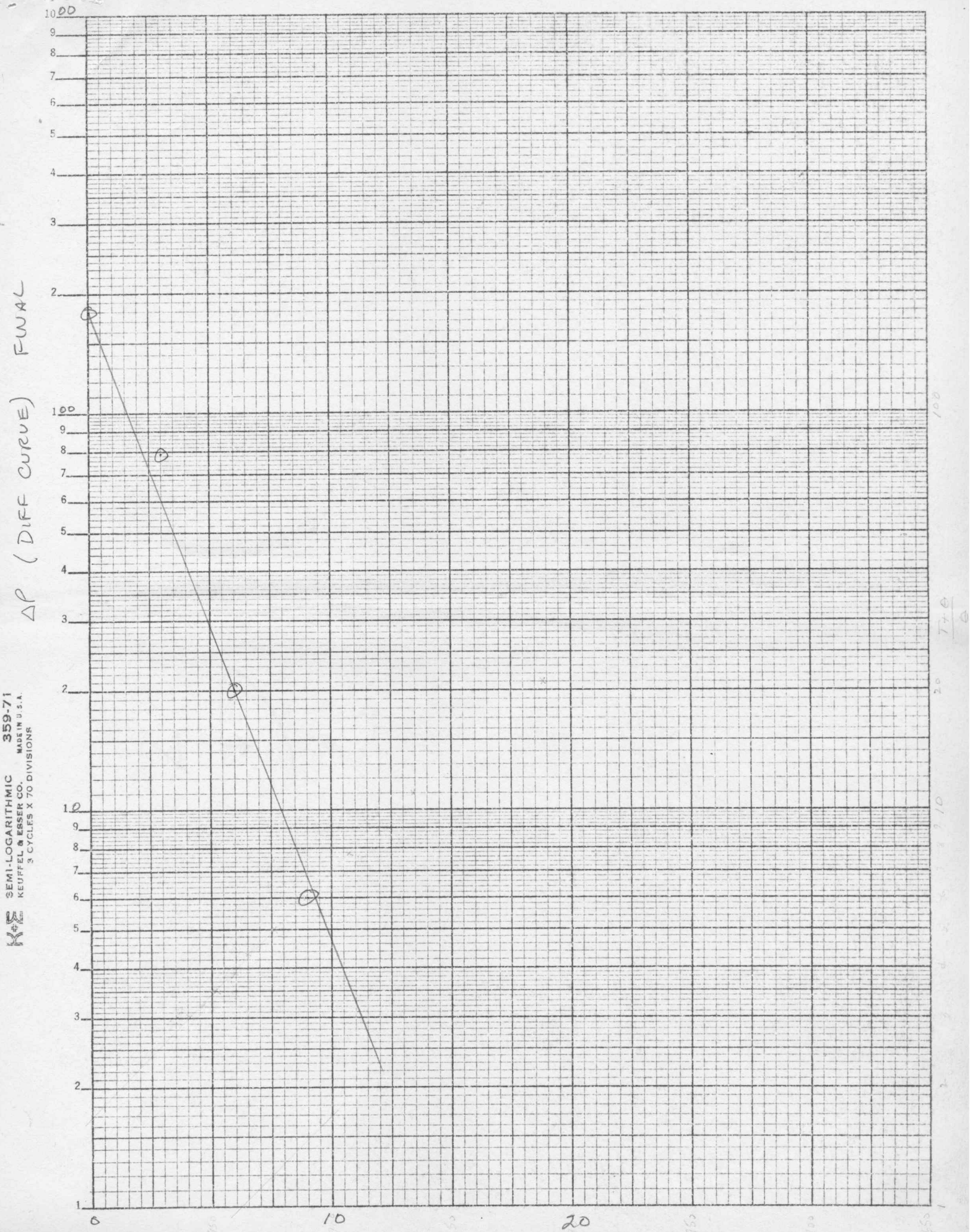
for Don Mooney


K+E SEMI-LOGARITHMIC 359-61
KEUFFEL & ESSER CO. MADE IN U.S.A.
2 CYCLES X 70 DIVISIONS
INITIAL
FINAL
M= 114
M= 175
M= 245
M= 310
655
900
450 950
400 900
300 800
200 700
150 650
1 2 3 4 5 6 7 8 9 10 20


ΔP(MAT) = 730 #
FINAL (Pi = 1000)
INITIAL (Pi = 1000)
ΔP(MATRIX) = 130
ΔP(FRAC) = 155
ΔP(SKIN) = 696
TOTAL 981
DR = 1 / (1 − 696/981) = 1/.2905 = 3.44
SEMI-LOGARITHMIC 359-61
KEUFFEL & ESSER CO. MADE IN U.S.A.
2 CYCLES X 70 DIVISIONS


SEMI-LOGARITHMIC 359-61
KEUFFEL & ESSER CO. MADE IN U.S.A.
2 CYCLES X 70 DIVISIONS
FINAL
M = 262
M = 418
Ratio 262/418 = .626
FINAL
M = 443
Ratio = .56
INITIAL
M = 817
S = 2.5


FINAL (P_f = 625)
ΔP(MATRIX) = 389
ΔP(SKIN) = 179
568
$DR = \frac{1}{1 - \frac{179}{568}} = \frac{1}{.685} = 1.46$
SEMI-LOGARITHMIC 359-51
KEUFFEL & ESSER CO. MADE IN U.S.A.
1 CYCLE X 70 DIVISIONS
10.00
9
8
7
6
5
4
3
2
1.00
0
10
20
50


ΔP (DIFF CURVE) FINAL
SEMI-LOGARITHMIC 359-71
KEUFFEL & ESSER CO. MADE IN U.S.A.
3 CYCLES X 70 DIVISIONS
1000
100
10
1
0
10
20

Set pipe @ 3378

DRILL STEM TEST ANALYSIS
DATA SHEET

TEST #2

18 - 16 S - 10 W
SE - NE - NW

LEASE AND WELL: NOVOTONY #1 OPERATOR: WOODMAN & IANNITTI
LOCATION: 18-16-10 COUNTY, STATE: ELLSWORTH
FIELD: _____ TEST DATE: 1-3-64
SERVICE COMPANY: SUN TICKET NO.: 3297 T
ANALYZED BY: DM ANALYSIS DATE: 1-3-64

DATUM ELEVATION: _____ FT. GAUGE DEPTH: _____ FT. (-)
INTERVAL TESTED: 3380 FT. (-) TO 3391 FT. (-)
FORMATION: _____ THICKNESS: _____ FT. DST 11 FT. LOG _____ FT.
OTHER _____ FT.
_____ FT. PACKER TO BOTTOM OF PAY

RECOVERIES: FLOW RATES _____ BBLS, MCF/DAY IN 15 MIN. WEAK BLOW
_____ BBLS, MCF/DAY IN _____ MIN. _____ BLOW
_____ BBLS, MCF/DAY IN _____ MIN. _____ BLOW

BHT = 100°F

NON-FLOW RECOVERIES FROM DRILL PIPE:
65 FT. OF HOCM
_____ FT. OF _____
_____ FT. OF _____
_____ FT. OF _____
_____ FT. OF _____
_____ FT. TOTAL FLUID

38° API oil

TOP SAMPLE 50% MUD
50% OIL

BOTTOM SAMPLE 10% OIL
90% MUD

PRESSURES:

INITIAL	FINAL
HYDROSTATIC MUD = 2100 PSIG	HYDROSTATIC MUD = 2100 PSIG
FFP = 48 PSIG AFTER 15 MIN.	FFP = 70 PSIG AFTER 30 MIN.
IFP = 44 PSIG	IFP = 58 PSIG
ΔP = 4 PSI	ΔP = 12 PSI
EXTRAPOLATED SIP, P_f = _____ PSIG	EXTRAPOLATED SIP, P_f = _____ PSIG
FSIP AFTER 60 MIN. = 803 PSIG	FSIP AFTER 93 MIN. = 696 PSIG
ΔP = _____ PSI	ΔP = _____ PSI

MUD WEIGHT: 10 LBS/GAL.
SIZE OF HOLE: 7 7/8 IN., _____ FT.
SIZE OF ANCHOR: 5 1/2 IN.
SIZE OF DRILL COLLARS: _____ IN.; ID _____ IN.; LENGTH _____ FT.
SIZE OF DRILL PIPE: 4½" FH IN.; ID _____ IN.

DRILL STEM TEST RESULTS

OIL AND/OR WATER

RESERVOIR PRESSURE, _____ PSIG

POTIOMETRIC SURFACE, _____ FT. SEA LEVEL

	INITIAL	FINAL	
TRANSMISSIBILITY, $\frac{Kh}{\mu}$			
CAPACITY, Kh			MD-FT.
PERMEABILITY		1.5	MD.
DAMAGE RATIO	1.35	1.35	
PRODUCTIVITY INDEX			B/D/PSI
PRODUCTION RATE, Q NATURAL		30	BOD
Q MAXIMUM		40	BOD

WATER CUT, _____ %

GOR, _____ CF/B

DRAINAGE RADIUS DURING TEST, _____ FT.

IS A BOUNDARY REFLECTED? YES

RESERVOIR DRAINAGE RADIUS, 45 FT.

OIL IN PLACE, _____ BBL.

ESTIMATED RECOVERY, _____ %, _____ BBLS.

ACTUAL COMPLETION RESULTS

STATIC FLUID LEVEL, _____ FT.

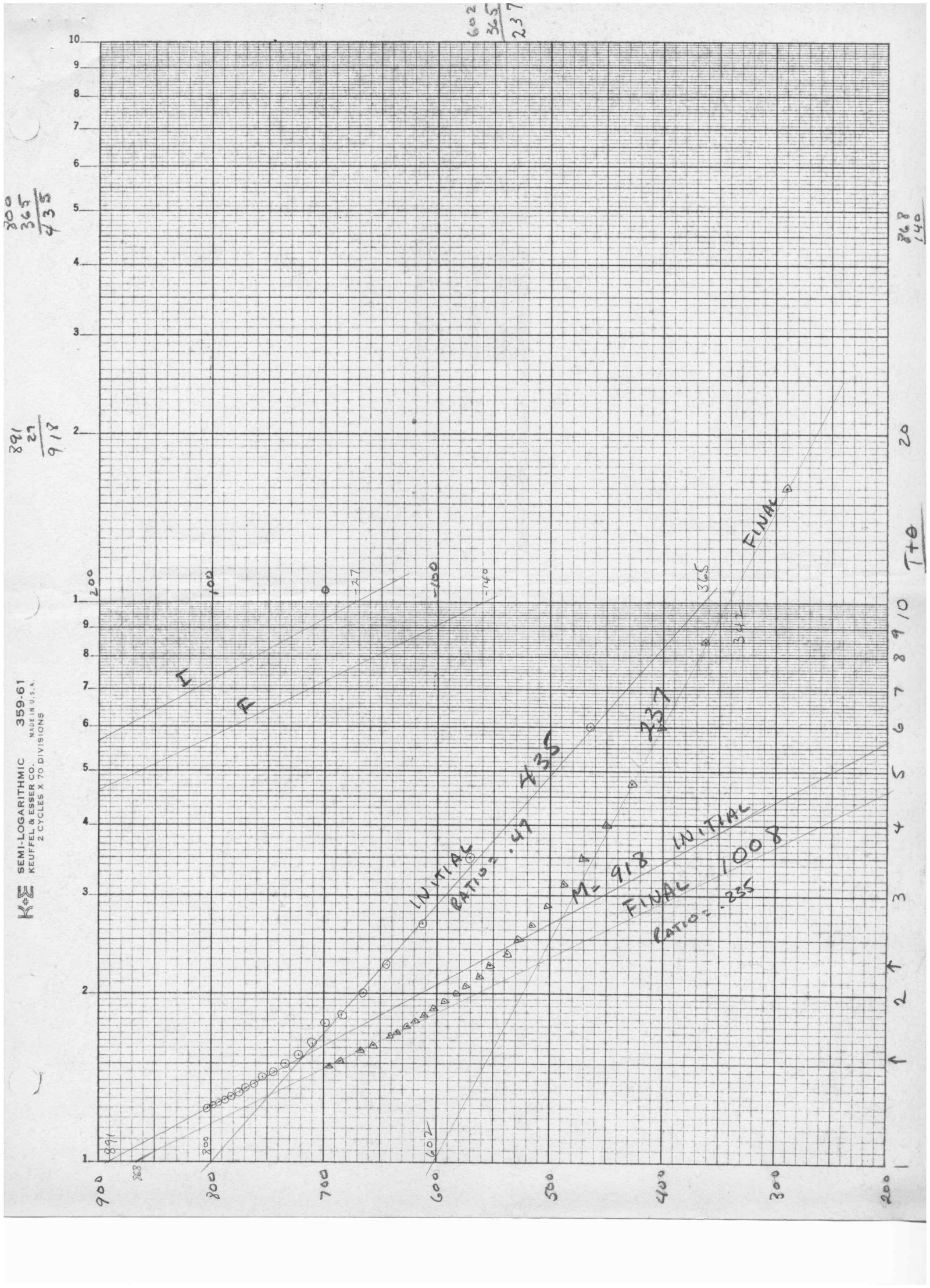
PRODUCTION RATE, Q NATURAL _____ BOD, SWAB FROM _____ FT.

Q AFTER TREATMENT _____ BOD, SWAB FROM _____ FT.

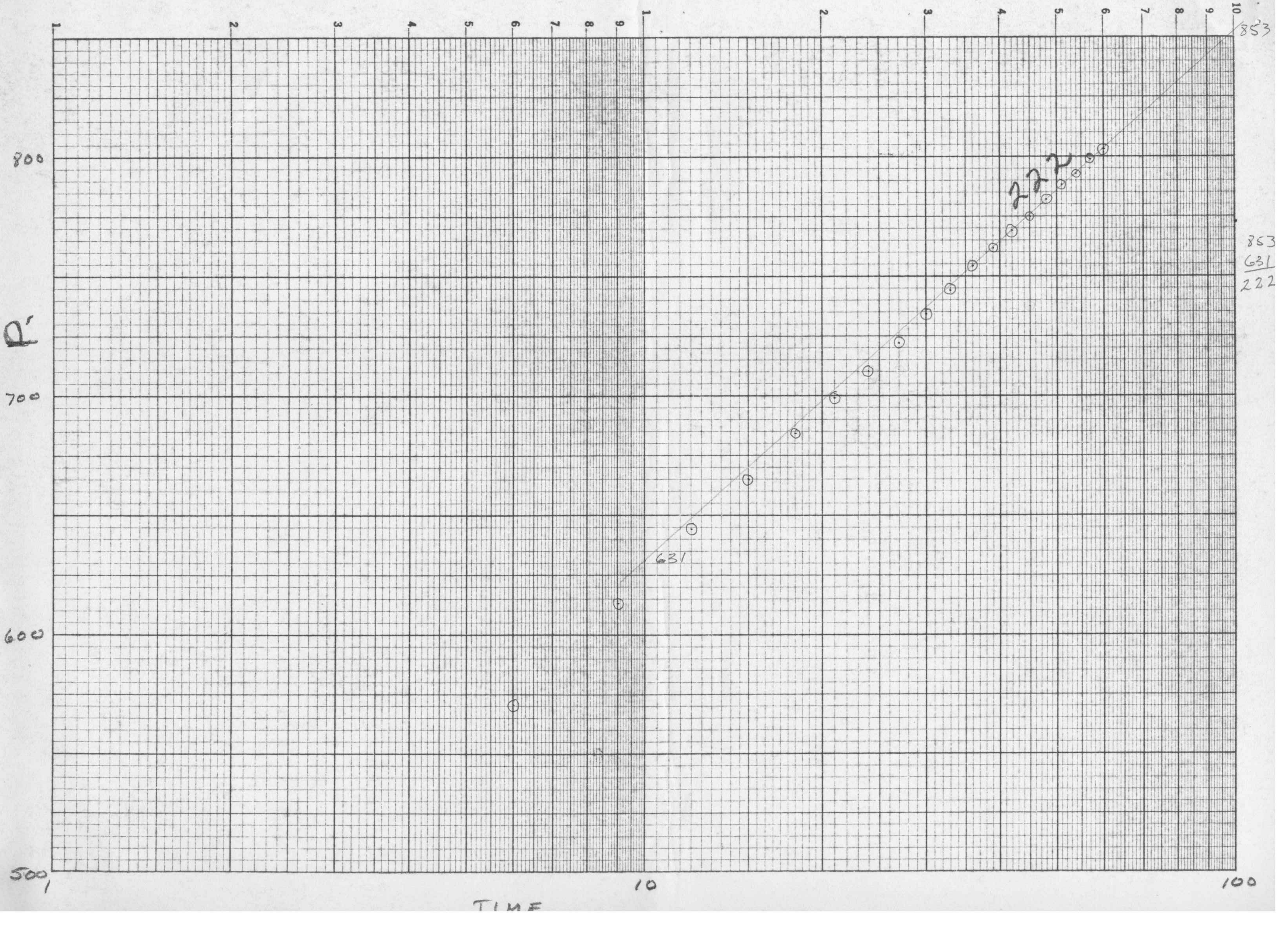
WATER CUT _____ %

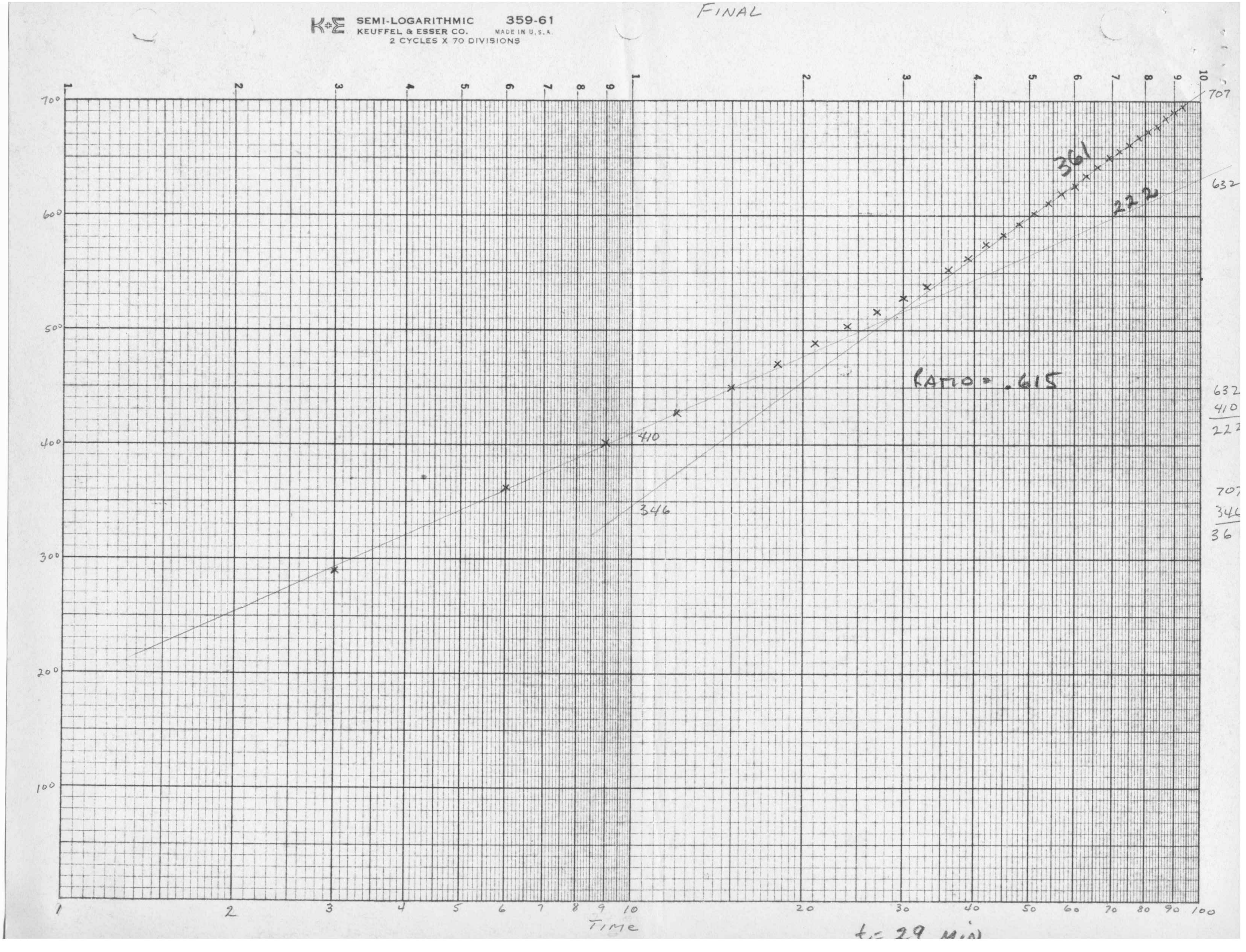
POTENTIAL TEST _____ BOD, _____ % WATER _____ GOR

CALCULATED MAXIMUM POTENTIAL, _____ BOD


602
365
237
300
365
435
891
27
918
868
140
T+0
SEMI-LOGARITHMIC 359-61
KEUFFEL & ESSER CO. MADE IN U.S.A.
2 CYCLES X 70 DIVISIONS
I
F
-27
-100
-140
365
347
FINAL
INITIAL
RATIO = .49
435
237
M = 918
INITIAL
FINAL
RATIO = .235
1008
891
868
200
602
900
800
700
600
500
400
300
200

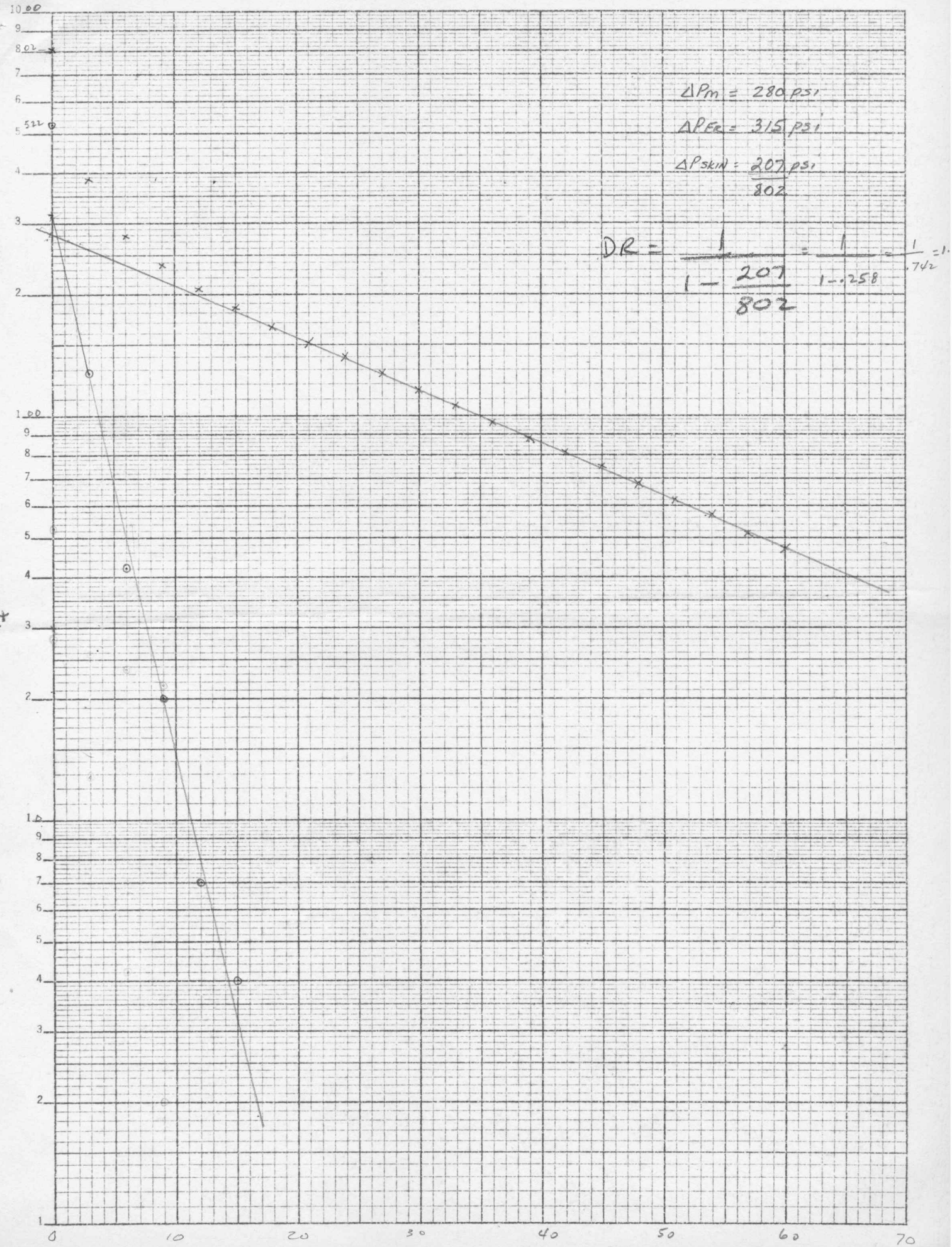
INITIAL





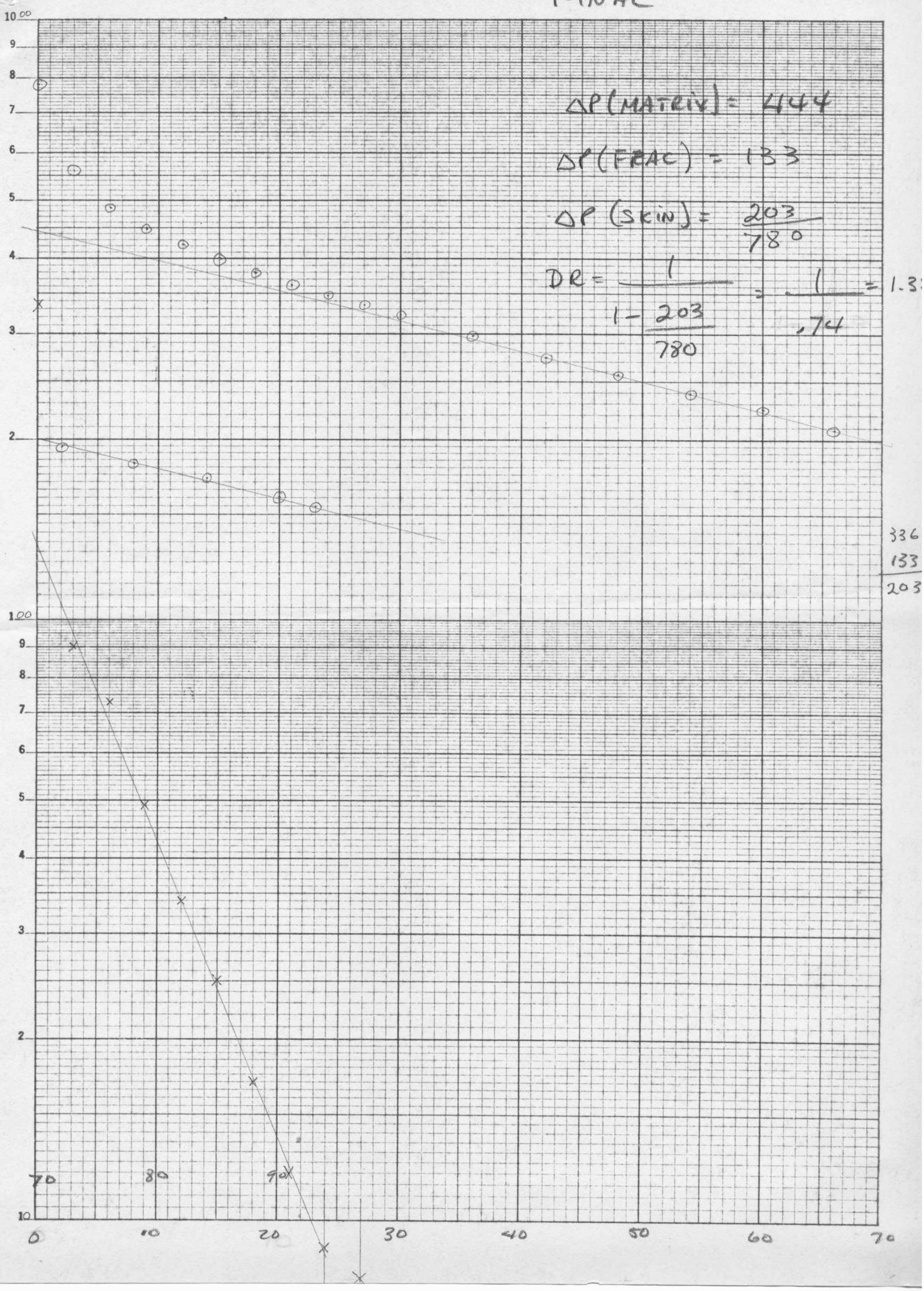
FINAL
K+E SEMI-LOGARITHMIC 359-61
KEUFFEL & ESSER CO. MADE IN U.S.A.
2 CYCLES X 70 DIVISIONS
707
632
361
222
RATIO = .615
410
346
632
410
222
707
346
361
TIME

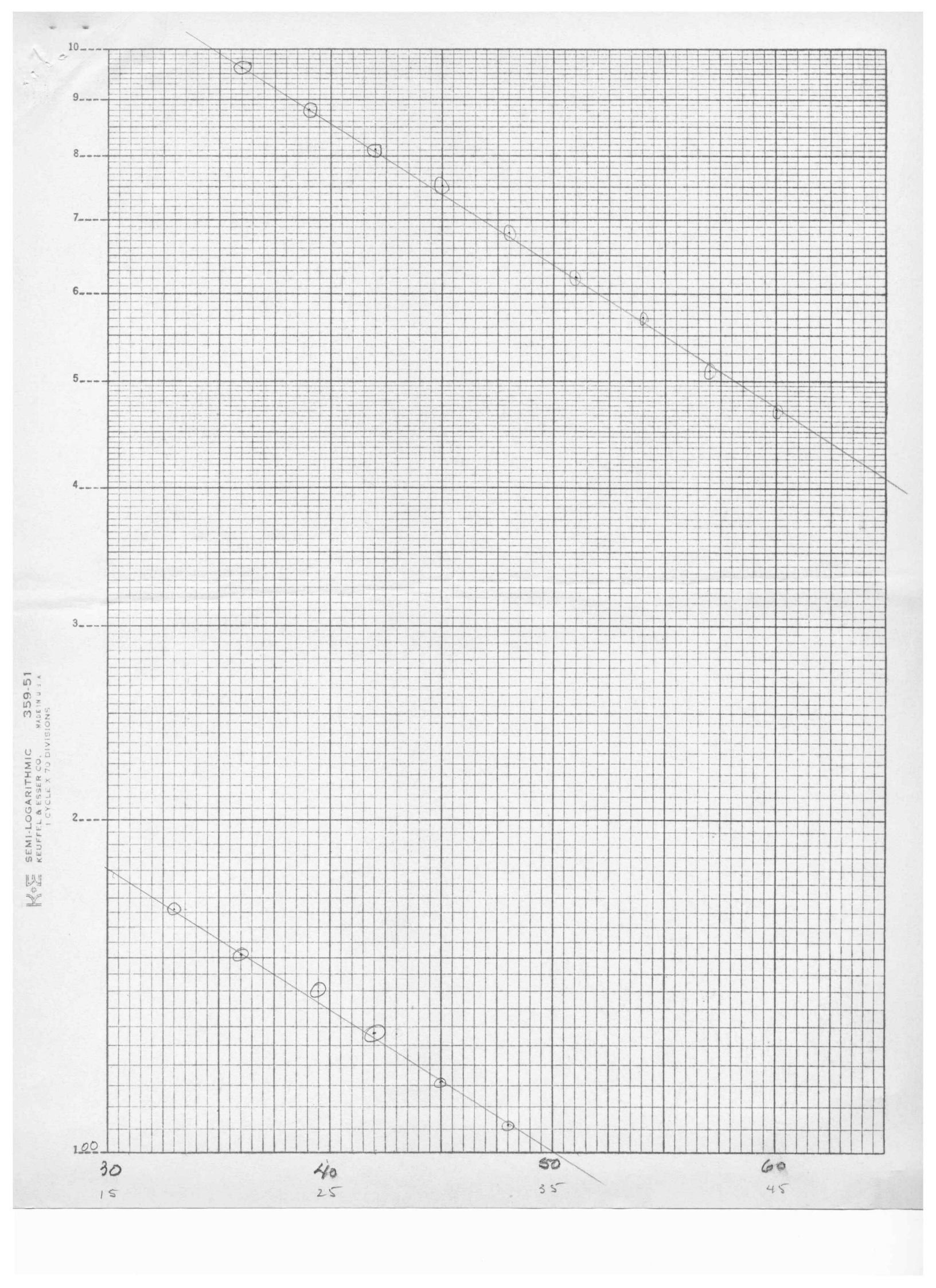
INITIAL



SEMI-LOGARITHMIC 359-71
KEUFFEL & ESSER CO. MADE IN U.S.A.
3 CYCLES X 70 DIVISIONS

FINAL


ΔP(MATRIX) = 444
ΔP(FRAC) = 133
ΔP (SKIN) = 203/780
DR = 1 / (1 − 203/780) = 1/,74 = 1.3
336
133
203
SEMI-LOGARITHMIC 359-61
KEUFFEL & ESSER CO. MADE IN U.S.A.
2 CYCLES X 70 DIVISIONS
10.00
9
8
7
6
5
4
3
2
1.00
9
8
7
6
5
4
3
2
10
70
80
90
0
10
20
30
40
50
60
70


10
9
8
7
6
5
4
3
2
1.00
30
40
50
60
15
25
35
45
SEMI-LOGARITHMIC 359-51
KEUFFEL & ESSER CO. MADE IN U.S.A.
1 CYCLE X 70 DIVISIONS