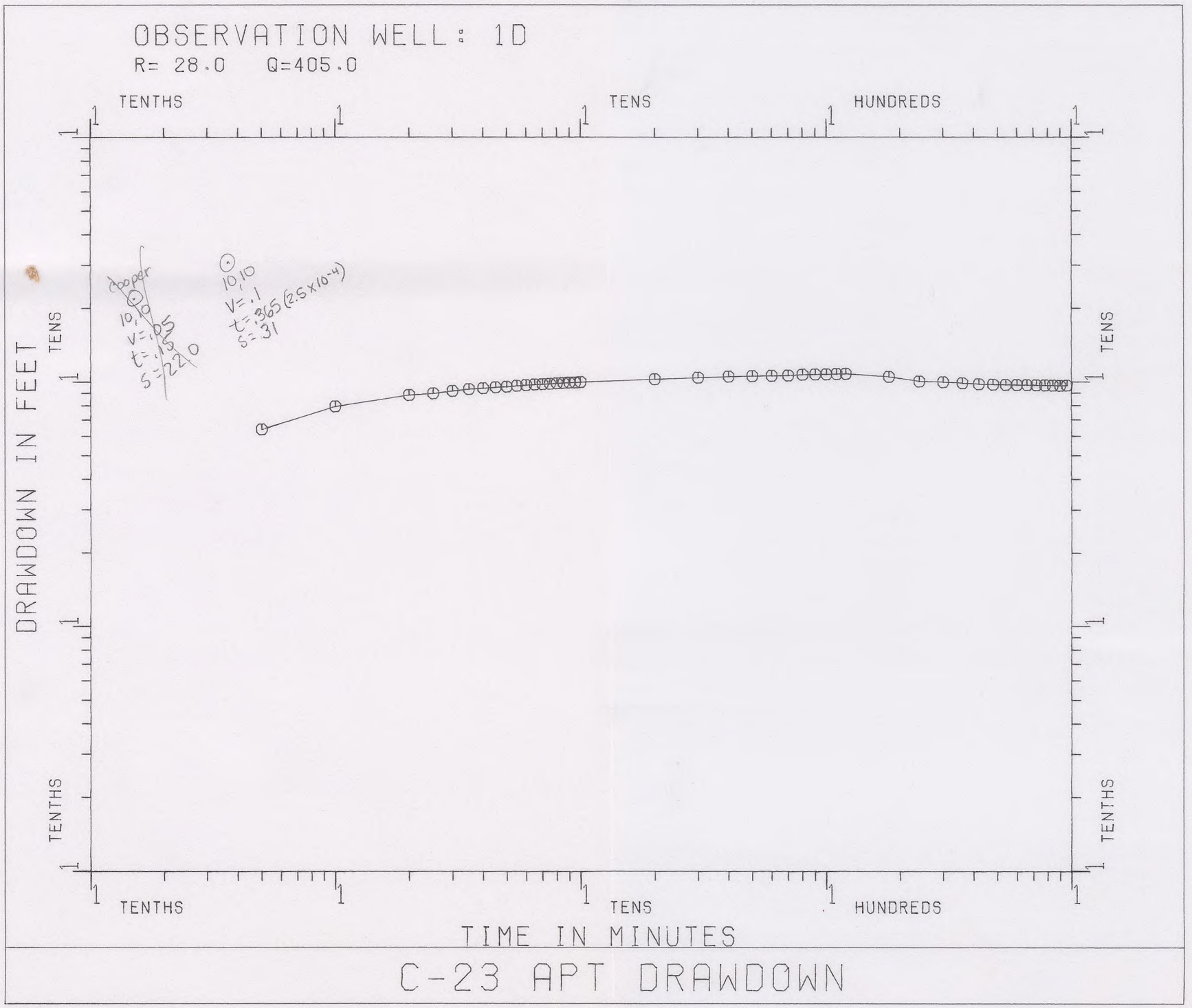
Cooper

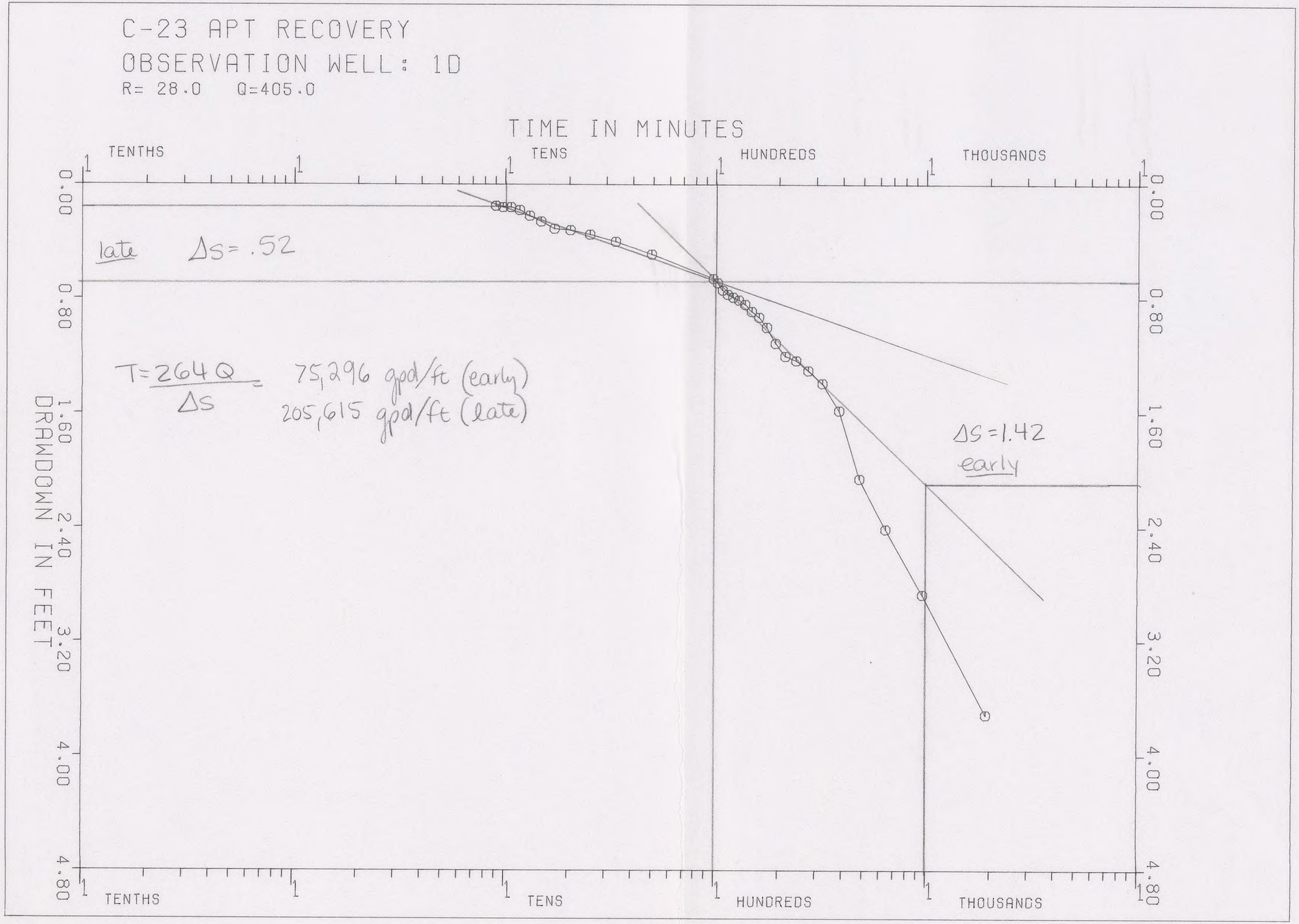
$T = \frac{1440\,Q\,L(u,v)}{4\pi s\,(7.48)} = \frac{1440(405)(10)}{4\pi(31.0)(7.48)} = 2001\ ft^2/day = 14,971\ gpd/ft$

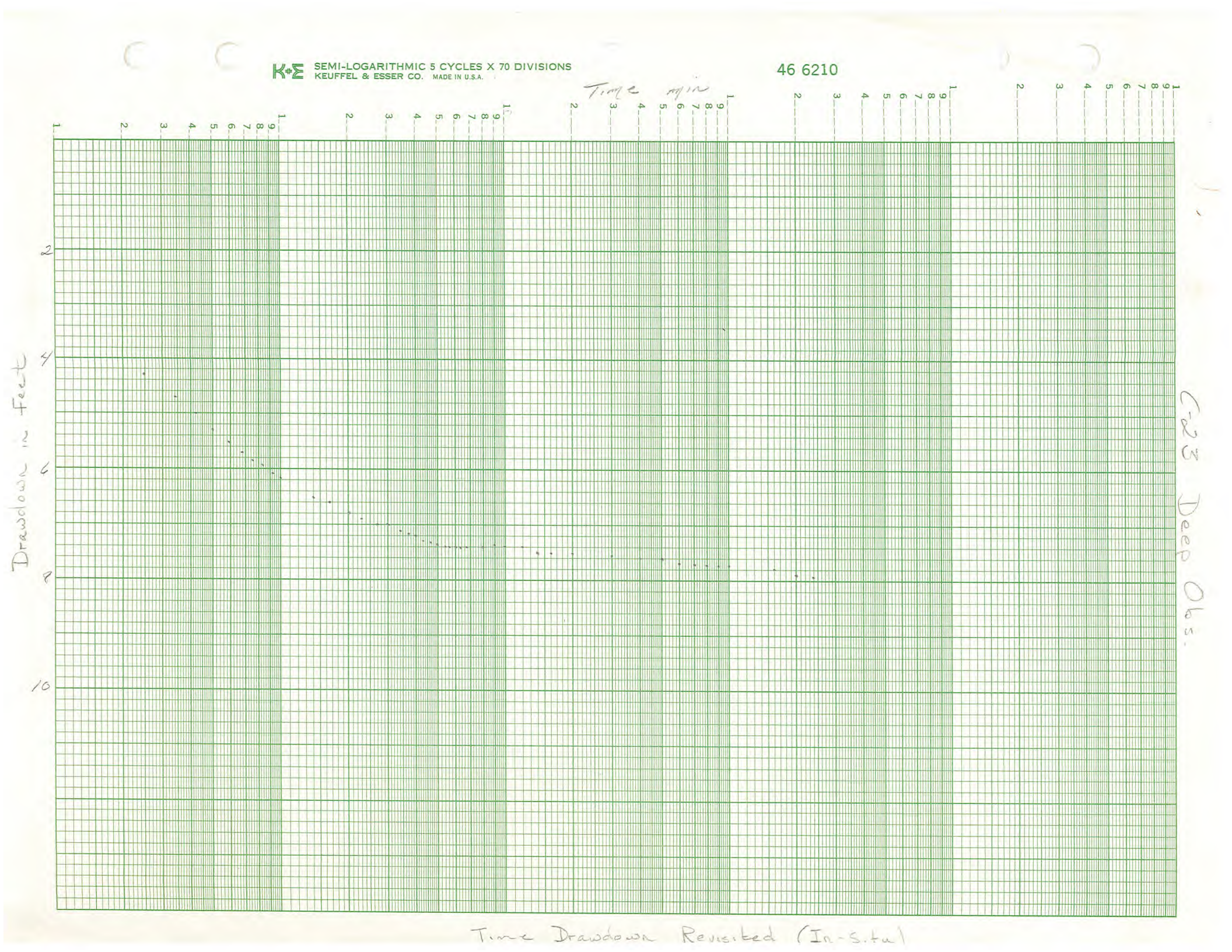
$S = 4T\frac{t/r^2}{4u} = 4(2001)\frac{2.5\times10^{-4}/28^2}{10} = 2.55\times10^{-4}$

$K'/b' = 4T\frac{v^2}{r^2} = 4(2001)\frac{.1^2}{28^2} = .103$

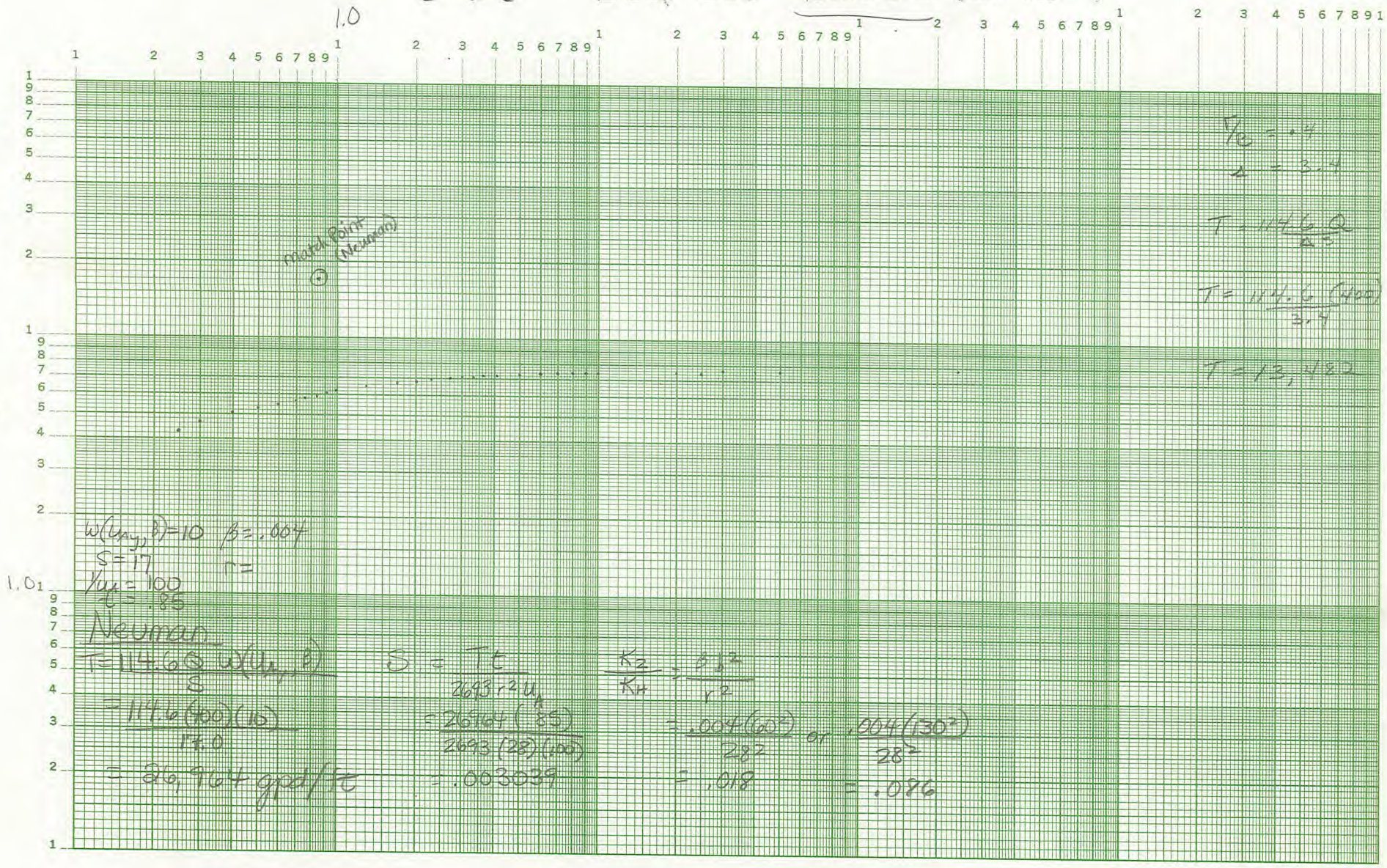


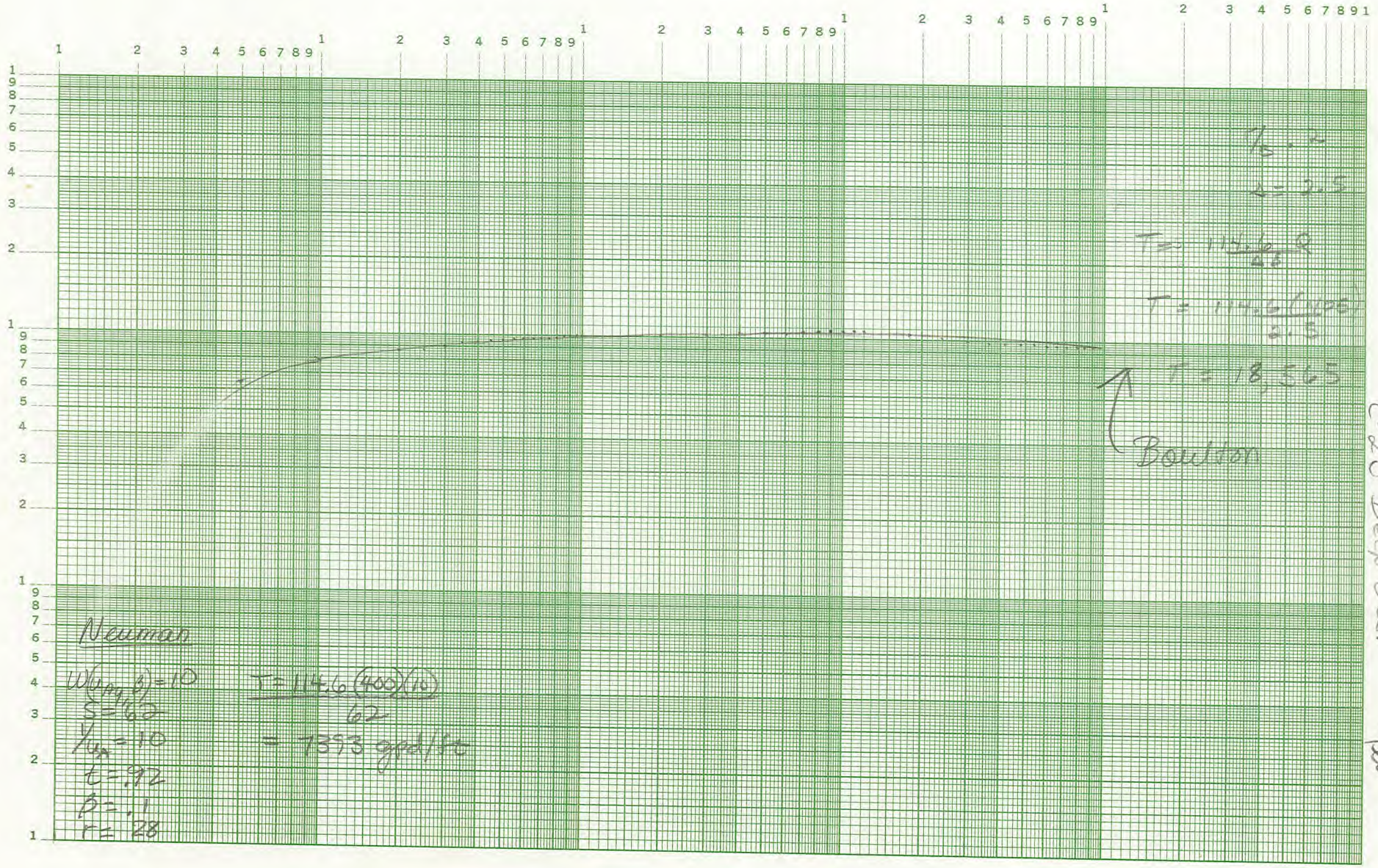
C-23 APT DRAWDOWN


C-23 APT RECOVERY
OBSERVATION WELL: 1D
R= 28.0 Q=405.0
TIME IN MINUTES
TENTHS
TENS
HUNDREDS
THOUSANDS
DRAWDOWN IN FEET
0.00
0.80
1.60
2.40
3.20
4.00
4.80
late Δs= .52
T=264Q/Δs = 75,296 gpd/ft (early)
205,615 gpd/ft (late)
Δs=1.42
early


K&E SEMI-LOGARITHMIC 5 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
46 6210
Time min
Drawdown in feet
C23 Deep Obs.
Time Drawdown Revisited (In-Situ)

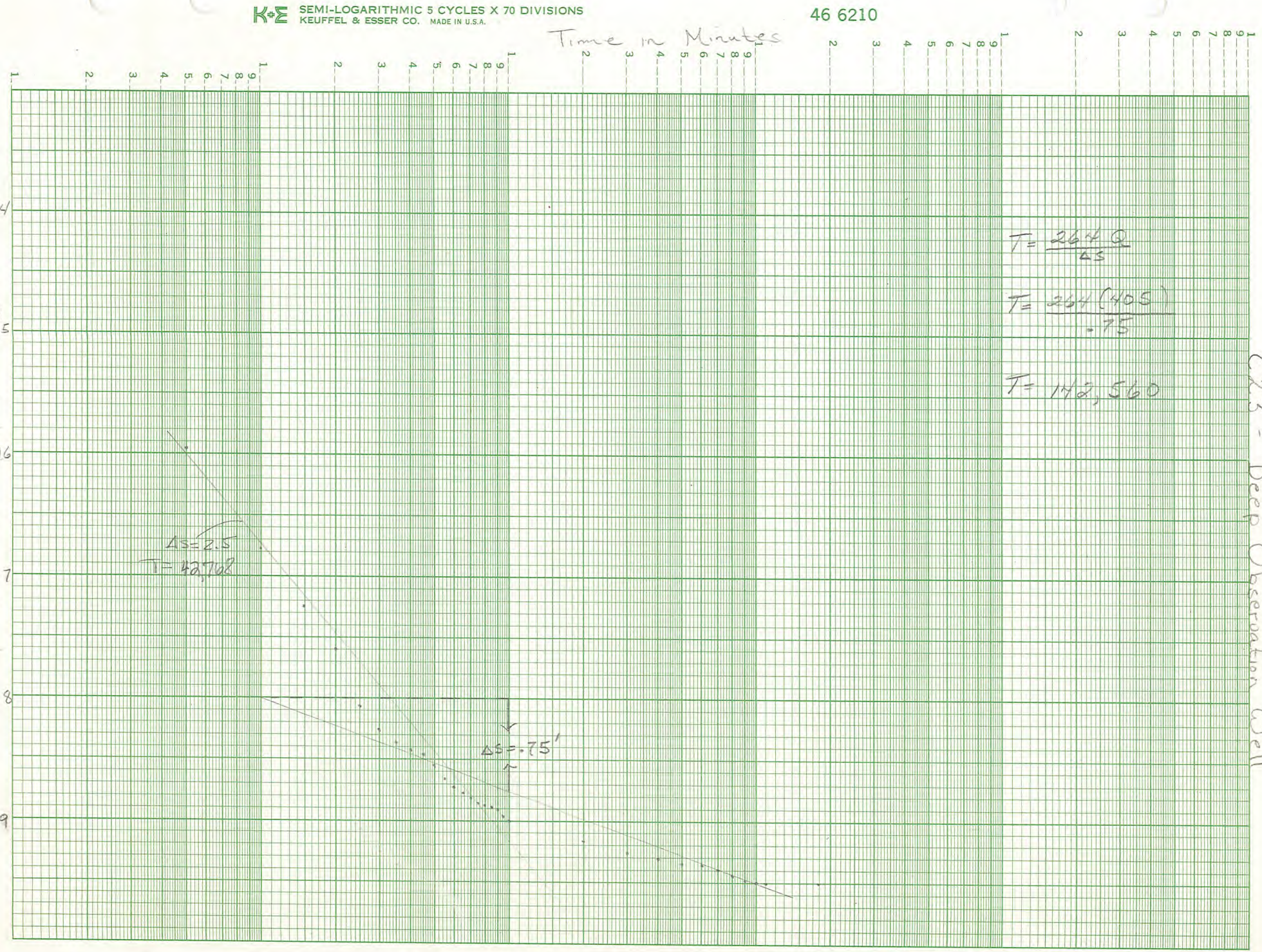
C-23 - Deep Obs Revisited (In-situ)

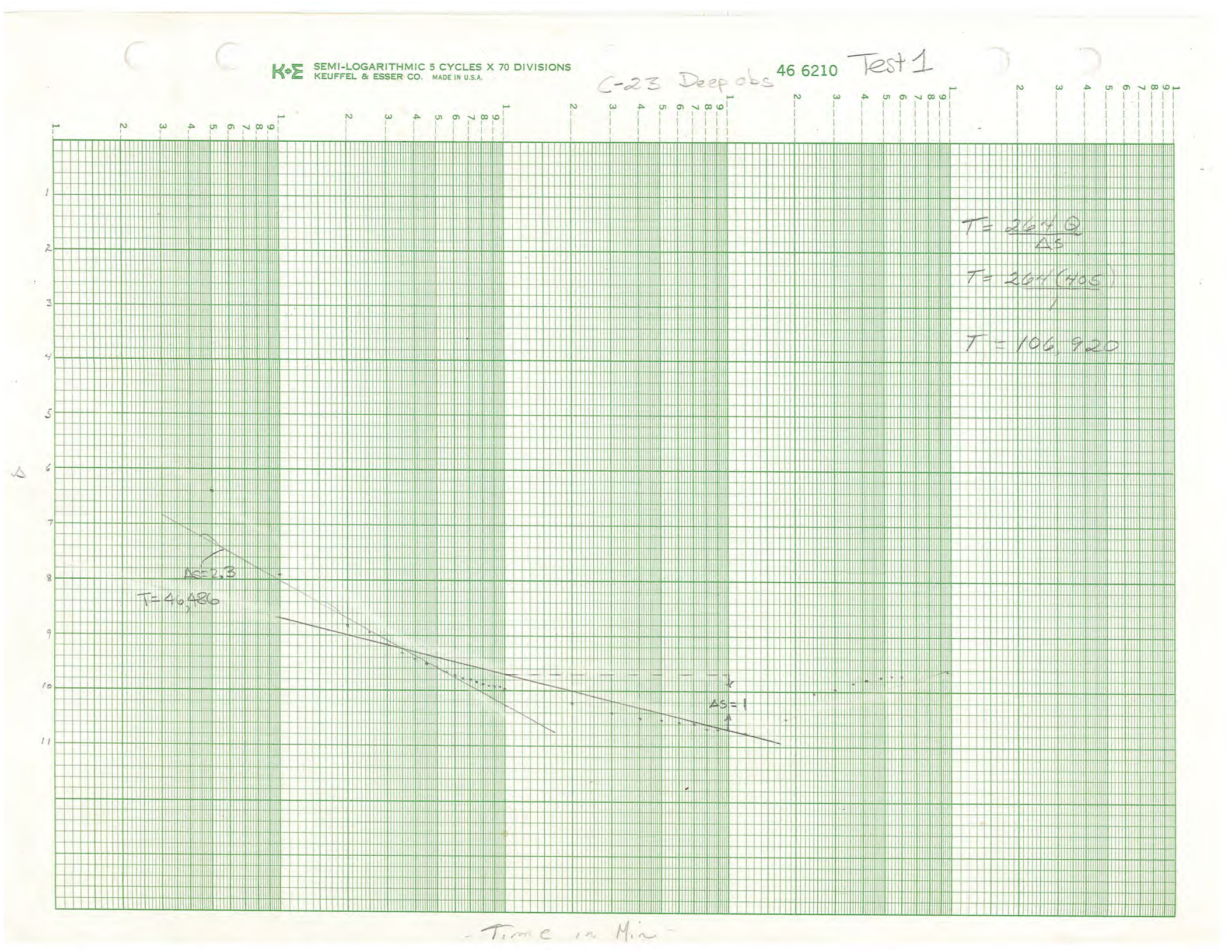


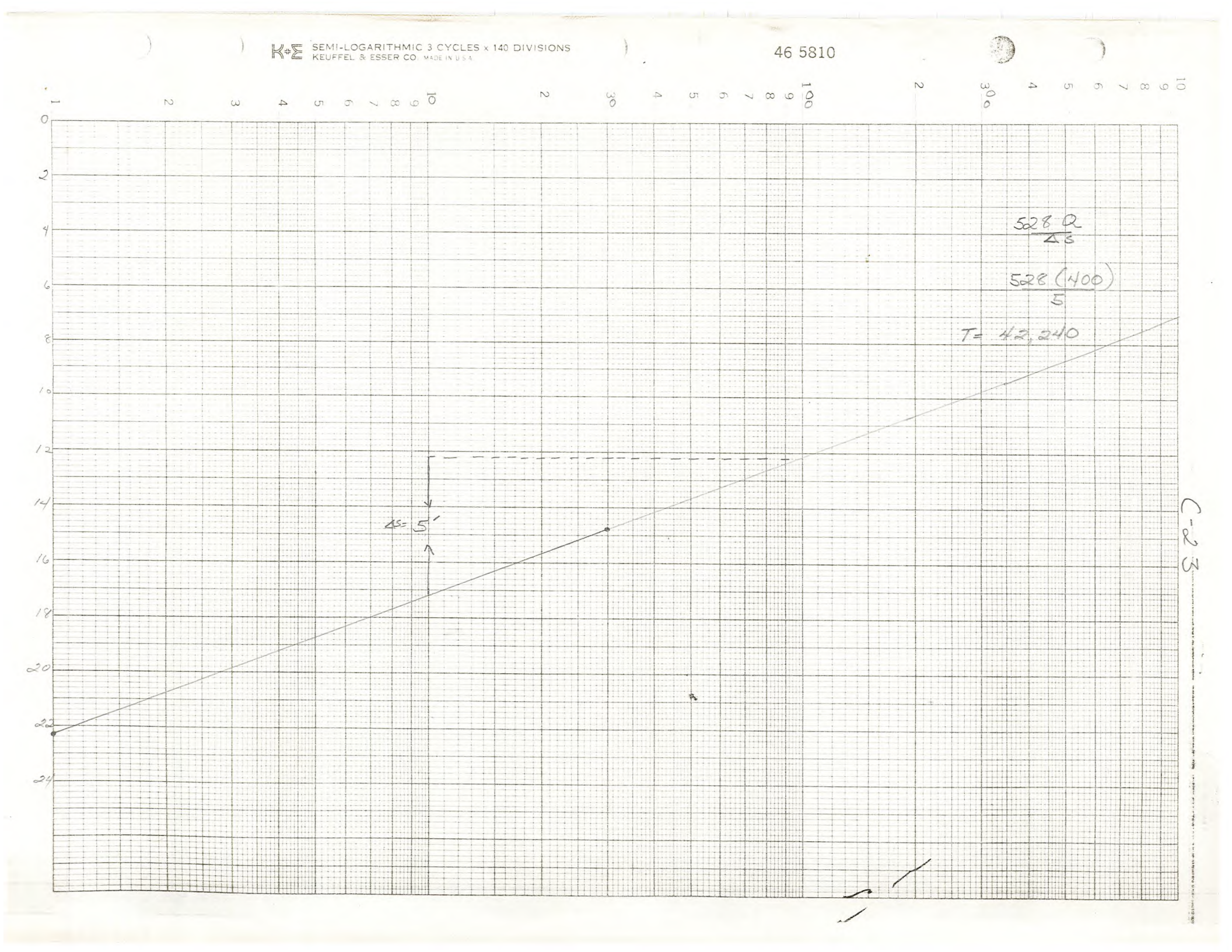


C-23 Deep Obs.

Test 1


K+E SEMI-LOGARITHMIC 5 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
46 6210
Time in Minutes
Calculated Recovery in Feet
C23 - Deep Observation Well
T = 264 Q / Δs
T = 264 (40.5') / .75
T = 142,560
Δs = 2.5'
T = 42,768
Δs = .75'


K&E SEMI-LOGARITHMIC 5 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
46 6210
C-23 Deep obs
Test 1
T = 264 Q / ΔS
T = 264 (405) / 1
T = 106, 920
ΔS = 2.3
T = 46,486
ΔS = 1
Time in Min


K+E SEMI-LOGARITHMIC 3 CYCLES x 140 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
46 5810
528 Q / Δs
528 (400) / 5
T = 42,240
Δs = 5'
C-23

Total gallons start 18315

" " end 18704

GPM = 405

C-23

C2352

11/13/84

PUMP WELL NUMBER ____

Measuring Point ____ ft above land surface.

Elevation of Measuring Point ____ ft above mean sea level.

Well Location: T. ____, R. ____, Sec. ____

Well Coordinates: ____ ft N. ____ ft E.

MARTIN CO

Orifice Size: 6" C-23

TAPE START at 6' Shallow OBS

Hour	Depth to Water Held Wet Depth START-TIME: 13:47 (ft) DTW-11.97	Elevation of Water Level (ft)	Piezometer Head (in)	Discharge (gpm)	Remarks (Include method of measuring water level)
0	11.97				Meter water gal 21863
.25	12.13	.16			
.50	12.16	.19			
.75	12.17	.2			
1	12.17	.2			
1.5	12.18	.21			
2	12.21	.24			
2.5	12.21	.24			
3	12.21	.24			
3.5	12.22	.25			
4	12.22	.25			
4.5	12.22	.25			
5	12.23	.26			
5.5	12.23	.26			
6	12.24	.27			
6.5	12.24	.27			
7	12.24	.27			
7.5	12.24	.27			
8	12.24	.27			
8.5	12.25	.28			
9	12.25	.28			
9.5	12.25	.28			
10	12.25	.28		390	
20	12.27	.3			
30	12.28	.3			
40	12.28	.31			
50	12.29	.32		375	
60	12.30	.33			
70	12.30	.33			
80	12.32	.35			
90	12.32	.35			
100	12.33	.36		375	
150	12.37	.4			
200	12.42	.45			
240 250	12.45	.48			
300					

C23S2R

PUMP WELL NUMBER _____

Measuring Point _____ ft above land surface.

Elevation of Measuring Point _____ ft above mean sea level. TAPE START 6'

Shallow OBS "Recovery"

Well Location: T. ____, R. ____, Sec. ____

Well Coordinates: _____ ft N. MARTIN Co _____ ft E.

Orifice Size: 6" C-23

Hour	Depth to Water Held Wet Depth (ft) 12.45-DTW	Elevation of Water Level (ft)	Piezometer Head (in)	Discharge (gpm)	Remarks (Include method of measuring water level)
0					
.25	12.39	.06			
.50	12.38	.07			
.75	12.34	.11			
1	12.32	.13			
1.5	12.31	.14			
2	12.28	.17			
2.5	12.28	.17			
3	12.27	.18			
3.5	12.26	.19			
4	12.25	.2			
4.5	12.25	.2			
5	12.25	.2			
5.5	12.25	.2			
6	12.24	.21			
6.5	12.24	.21			
7	12.24	.21			
7.5	12.23	.22			
8	12.23	.22			
8.5	12.23	.22			
9	12.23	.22			
9.5	12.23	.22			
10	12.23	.22			
20					
30					
40					
50					
60					
70					
80					
90					
100					
150					
200					
250					
300					

C23D2
C23D2R

PUMP WELL NUMBER _____

11/13/84

C-23

Measuring Point _____ ft above land surface.

Elevation of Measuring Point _____ ft above mean sea level.

Well Location: T. ____, R. ____, Sec. ____

Well Coordinates: _____ ft N. _____ ft E.

TAPE START 30' D-OBS. Orifice Size: 6"

Hour	Depth to Water Held Wet Depth (ft)	Elevation of Water Level (ft) DTW=36.88	Piezometer Head (in) Recovery 44.80-DTW	Discharge (gpm)	Remarks (Include method of measuring water level)
0	36.75	36.88	44.80		
.25		41.7	40.41		
.50	"	42.5	39.38		
.75	42.30	42.8	38.90		
1	43.10	43.03	38.56		
1.5	43.45	43.42	38.34		
2	43.73	43.66	38.15		
2.5	43.95	43.85	37.96		
3	44.15	43.95	37.90		
3.5	44.24	44.05	37.85		
4	44.30	44.12	37.80		
4.5	44.34	44.20	37.75		
5	44.37	44.25	37.70		
5.5	44.42	44.30	37.66		
6	44.46	44.34	37.62		
6.5	44.49	44.36	37.57		
7	44.53	44.36	37.55		
7.5	44.54	44.36	37.54		
8	44.58	44.36	37.54		
8.5	44.60	44.36	37.52		
9	44.60	44.36	37.50		
9.5	44.64	44.36	37.50		
10	44.65	44.36	37.48		
20	44.50 } flow drops	44.40			
30	44.47 } off	44.46			
40	start over →	44.50			
50		44.51			
60		44.55			
70		44.58			
80		44.61			
90		44.61			
100		44.62			
150		44.68			
200		44.73			
~~250~~ 240		44.80			
300					

PUMP WELL NUMBER Pumped OBS.

Tape begins @ 10.00' MARK

Measuring Point _____ ft above land surface.

Elevation of Measuring Point _____ ft above mean sea level.

Well Location: T.____, R.____, Sec.____

Well Coordinates: _____ ft N. _____ ft E.

Orifice Size: C-23

Hour	Depth to Water Held Wet Depth (ft)	Elevation of Water Level (ft)	Piezometer Head (in)	Discharge (gpm)	Remarks (Include method of measuring water level)
0	14.95'				
.25		425GPM			
.50					
.75					
1					
1.5					
2					
2.5					
3					
3.5					
4					
4.5					
5	30.60				
5.5	30.64				
6	30.70				
6.5	30.72				
7	30.90				
7.5	30.97				
8	30.99				
8.5	31.03				
9	31.12				
9.5	31.14				
10	31.17	400GPM			
20	31.60				
30	31.75				
40	31.82'				
50	31.91'				
60	31.96'				
70	31.98'				
80	32.00'				
90	32.03'				
100	32.04'				
150	32.13'				
200	32.22'				
250	32.28'				
300					

PUMP WELL NUMBER ____

Measuring Point _____ ft above land surface.

Elevation of Measuring Point _____ ft above mean sea level.

Well Location: T. ____, R. ____, Sec. ____

Well Coordinates: Pump Well ft N.
_____ ft E.

Orifice Size: C-23

Hour	Depth to Water Held Wet Depth Recovery (ft)	Elevation of Water Level (ft)	Piezometer Head (in)	Discharge (gpm)	Remarks (include method of measuring water level)
0	15.98				
.25	15.81				
.50	15.77				
.75	15.67				
1					
1.5	15.63				
2	15.58				
2.5	15.56				
3	15.48				
3.5	15.44				
4	15.42				
4.5	15.38				
5	15.34				
5.5	15.38				
6	15.32				
6.5	15.30				
7	15.28				
7.5	15.23				
8	15.25				
8.5	15.25				
9	15.25				
9.5	15.25				
10	15.25				
20					
30					
40					
50					
60					
70					
80					
90					
100					
150					
200					
250					
300					

PUMP WELL NUMBER _____

Tape starts at 6.00' mark

Measuring Point _____ ft above land surface.

Elevation of Measuring Point _____ ft above mean sea level.

Well Location: T. ____, R. ____, Sec. ____

Well Coordinates: _____ ft N. _____ ft E.

Pumped Well

Orifice Size: C-23

Hour	Depth to Water Held Wet Depth (ft)	Elevation of Water Level (ft)	Piezometer Head (in)	Discharge (gpm)	Remarks (Include method of measuring water level)
0	11.70'				
.25	15.				
.50	27.03				
.75	27.09				
1	27.12				
1.5	27.17				
2	27.27				
2.5	27.32				
3	27.41				
3.5	27.45				
4	27.47				
4.5	27.55	4256PM			
5	27.56				
5.5	27.57				
6	27.59				
6.5	27.61				
7	27.63				
7.5	27.66				
8	27.67				
8.5	27.68	4256AM			
9	27.69				
9.5	27.71				
10	27.73				
20	28.60				
30					
40					
50					
60					
70					
80					
90					
100					
150					
200					
250					
300					

C2351

20' from P well
shallow well

6:45 pm ≈ 325 gpm

Time (min)	W.L.	
0	35.96	0
.5	36.09	.13
1	36.11	.15
1.5	36.12	.16
2	36.13	.17
2.5	36.13	.17
3	36.13	.17
3.5	36.14	.18
4	36.15	.19
4.5	36.16	.20
5	36.16	.20
5.5	36.16	.20
6	36.15	.19
6.5	36.16	.20
7	36.16	.20
7.5	36.16	.20
8	36.17	.21
8.5	36.17	.21
9	36.17	.21
9.5	36.17	.21
10	36.17	.21
20	36.20	.24
30	36.21	.25
40	36.23	.27
50	36.25	.29
60	36.26	30
70	36.26	30

Time	W.L
80	36.26 .30
90	36.26 .30
100	36.26 .30
110	36.28 .32
120	36.27 .31
180	36.32 .36
240	36.35 .39
300	36.32 36
360	36.35 39
420	36.31 35
480	36.31 35
540	36.31 35
600	36.32 36
660	36.32 36
720	36.33 37
780	36.33 37
840	36.34 38
900	36.34 38
960	36.34 38
1040	
1100	
1160	
1220	
1280	
1320	
1380	
1440	

Recovery C2351R

Time	20' from pumping well shallow well				
0	36.34	0	100	36.10	.24
.5	36.32	.02	110	36.11	.23
1	36.23	.11	120	36.10	.24
1.5	36.21	.13			
2.0	36.20	.14			
2.5	36.19	.15			
3.0	36.18	.16			
3.5	36.17	.17			
4	36.17	.17			
4.5	36.16	.18			
5	36.16	.18			
5.5	36.16	.18			
6	36.15	.19			
6.5	36.15	.19			
7	36.15	.19			
7.5	36.15	.19			
8	36.15	.19			
8.5	36.15	.19			
9	36.15	.19			
9.5	36.15	.19			
10	36.15	.19			
20	36.13	.19			
30	36.12	.22			
40	36.11	.23			
50	36.11	.23			
60	36.11	.23			
70	36.11	.23			
80	36.11	.23			
90	36.11	.23			

C23D1

3 deep obs

C-23

8/27/84

28' x 30' from p well

START Time: 17:35 (appx 350 GPM) GAL. START 18315

Time (min)	W.L.	s		Time	W.L.	
0	7.80	0		80	18.50	10.7
.5	14.20	6.4		90	18.52	10.72
1	15.74	7.94		100	[redacted] 18.53	10.73
1.5		—		110	18.56	10.76
2	16.63	8.83		120	18.57	10.77
2.5	16.76	8.96		180	18.28	10.48
3	16.98	9.18		240	17.83	10.03
3.5	17.13	9.33		300	17.77	9.97
4	17.22	9.42		360	17.67	9.87
4.5	17.30	9.5		420	17.58	9.78
5	17.36	9.56		480	1754	9.74
5.5	17.44	9.64	21°	540	1752	9.72
6	17.50	9.7		600	1751	9.71
6.5	17.56	9.76		660	1750	9.7
7	17.58	9.78		720	1748	9.68
7.5	17.62	9.82		780	1747	9.67
8	17.66	9.86	73°	840	17.45	9.65
85	17.70	9.9		900	17.44	9.64
9	17.72	9.92		960	17.46	9.66
9.5	17.74	9.94		1040		
10	17.77	9.97		1100		
20	18.05	10.25		1160		
30	18.20	10.4		1220		
40	18.30	10.5		1280		
50	18.35	10.55		1320		
60	18.38	10.58		1380		
70	18.40	10.6		1440		

Recovery C23D1R

3 28' from pumping well deep obs

Total gal 18704 Max

Time		s	s'
0	17.45	9.65	0
.5	11.50	3.7	5.95
1	10.66	2.86	6.79
1.5	10.2	2.4	7.25
2	9.95	2.05	7.6
2.5	9.37	1.57	8.08
3	9.18	1.38	8.27
3.5	9.09	1.29	8.36
4	9.02	1.22	8.43
4.5	8.99	1.19	8.46
5	8.90	1.1	8.55
5.5	8.79	.99	8.66
6	8.72	.92	8.73
6.5	8.68	.88	8.77
7	8.63	.83	8.82
7.5	8.60	.8	8.85
8	8.58	.78	8.87
8.5	8.55	.75	8.89
9	8.53	.73	8.92
9.5	8.48	.68	8.97
10	8.45	.65	9
20	8.28	.48	9.17
30	8.19	.39	9.26
40	8.14	.34	9.31
50	8.11	.31	9.34
60	8.10	.3	9.35
70	8.05	.25	9.4
80	8.01	.21	9.44
90	7.97	.17	9.48
100	7.95	.15	9.5
110	7.95	.15	9.5
120	7.94	.14	9.51

10.1
9.1