

# **PUMPTEST DATA REDUCTION SUBMITTAL SHEET**

NAME OF PUMPTEST DATA TAPE: Alico A Run 2  
 METHOD OF COLLECTION:

1. INITIAL WATER LEVEL SET TO ZERO
2. INITIAL WATER LEVEL IS ACTUAL DEPTH TO WATER FROM TOP OF CASING

PLEASE ENTER NUMBER: 2

## **INSITU TRANSDUCER INFORMATION:**

INPUT #	WELL NAME	WELL RADIUS	PUMPAGE QUANTITY	STATIC LEVEL	PLOTTING SCALING FACTOR(1.0)
1	1S	199.5	948 1171	0	1.0
2	1I	200.8			
3	1D	202.65			
4	2S	101.5			
5	2I	101.7			
6	2D	99.75	↓	↓	↓
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

## **HERMIT INFORMATION:**

Please check the run no(s) used.

SERIAL NO.	RUN NO.:	0	1	2	3	4	5	6	7	8	9
419	H19R - HMT		X								
420	H20R - HMT		X								

Farwell - H19R1.HMT

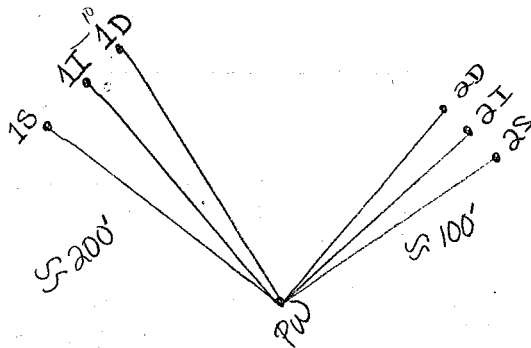
H20R1.HMT

Alico A



gate  
x29

DITCH



DITCH

PW	6" X 182' cased 92'
IS	2" X 7' cased 3'
1I	2" X 60' cased 20'
1D	2" X 182' cased 90'
2S	2" X 7' cased 3'
2I	2" X 60' cased 20'
2D	2" X 182' cased 92'

**HGC INC.**

#####

OBS	COMPUTED	VALUE	2 STD DEV	INTERVAL ON T
WELL	T	S	LOWER	UPPER
1	.1088E+06	.1306E-02	.1065E+06	.1111E+06
2	.1075E+06	.3906E-03	.1042E+06	.1111E+06
3	.9754E+05	.6190E-02	.9534E+05	.9986E+05
4	.1004E+06	.4091E-03	.9810E+05	.1028E+06

AVERAGE .1036E+06 .2074E-02

TO CONTINUE ENTER "RETURN" >

AlioA all wells

OPTIMIZATION BY LEVENBERG-MARQUARDT MINIMIZATION ALGORITHM

$$T = 735, 209$$
$$\zeta = 6.31 \times 10^{-3}$$

ITER	FUNCTION	TRANSMISS	STORTIVITY
1	2.33	.1036E+06	.2074E-02
3	2.23	.1061E+06	.4531E-02
4	2.22	.9919E+05	.5764E-02
5	2.22	.9884E+05	.6143E-02
6	2.22	.9838E+05	.6262E-02
7	2.22	.9833E+05	.6298E-02

TERMINATION DUE TO PARAMETER CONVERGENCE

## FINAL RESULTS

ITER	FUNCTION	TRANSMISS	STORTIVITY
7	2.22	.9829E+05	.6310E-02

### FRACTIONAL COMPONENTS OF FUNCTION VALUE

WELL #	1	2	3	4
	.2722	.7277E-01	.5423	.1127

DO YOU WANT A SENSITIVITY ANALYSIS ? (Y/N)

## SENSITIVITY ANALYSIS

TWO STANDARD DEVIATION CONFIDENCE INTERVALS

TRANSMISS	.9829E+05	0.9751E+05	0.9907E+05
STORTIVTY	.6310E-02	0.0000	0.3106E-01

PARAMETER	VALUE	LOWER LIMIT	UPPER LIMIT
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# OPTIMIZATION BY LEVENBERG-MARQUARDT MINIMIZATION ALGORITHM

ITER	FUNCTION	TRANSMISS	STORTIVTY
1	1.23	.1039E+06	.3999E-03
3	.433	.1179E+06	.2499E-02
4	.414	.1002E+06	.5251E-02
5	.412	.9918E+05	.5965E-02
6	.412	.9833E+05	.6199E-02
7	.412	.9820E+05	.6271E-02

TERMINATION DUE TO PARAMETER CONVERGENCE

## FINAL RESULTS

ITER	FUNCTION	TRANSMISS	STORTIVTY
7	.412	.9813E+05	.6294E-02

## FRACTIONAL COMPONENTS OF FUNCTION VALUE

WELL #	1	2	3	4
	.0000	.3920	.0000	.6080

DO YOU WANT A SENSITIVITY ANALYSIS ? (Y/N)

## SENSITIVITY ANALYSIS

### TWO STANDARD DEVIATION CONFIDENCE INTERVALS

PARAMETER	VALUE	LOWER LIMIT	UPPER LIMIT
TRANSMISS	.9813E+05	0.9735E+05	0.9891E+05
STORTIVTY	.6294E-02	0.0000	0.3094E-01

TO CONTINUE ENTER "RETURN"

*Alio A deep wells only*

*T = 734,012 gpd/ft*

*S = 6.294 x 10<sup>-3</sup>*

*(shallow wells only  
wouldn't run)*



# OPTIMIZATION BY LEVENBERG-MARQUARDT MINIMIZATION ALGORITHM

ITER	FUNCTION	TRANSMISS	STORTIVITY
1	.162	.9829E+05	.6310E-02
3	.160	.9017E+05	.6674E-02
5	.159	.9135E+05	.6833E-02
6	.159	.9088E+05	.6882E-02

TERMINATION DUE TO PARAMETER CONVERGENCE

## FINAL RESULTS

ITER	FUNCTION	TRANSMISS	STORTIVITY
6	.159	.9090E+05	.6901E-02

## FRACTIONAL COMPONENTS OF FUNCTION VALUE

WELL #	1	2	3	4
	.0000	1.000	.0000	.0000

DO YOU WANT A SENSITIVITY ANALYSIS ? (Y/N)

## SENSITIVITY ANALYSIS

### TWO STANDARD DEVIATION CONFIDENCE INTERVALS

PARAMETER	VALUE	LOWER LIMIT	UPPER LIMIT
TRANSMISS	.9090E+05	0.8967E+05	0.9213E+05
STORTIVITY	.6901E-02	0.0000	0.4581E-01

TO CONTINUE ENTER "RETURN"

*Aliso A 1D*  
*T = 679,932 gpd/ft*  
*S = 6.901 x 10<sup>-3</sup>*

# OPTIMIZATION BY LEVENBERG-MARQUARDT MINIMIZATION ALGORITHM

ITER	FUNCTION	TRANSMISS	STORTIVITY
1	.259	.9090E+05	.6901E-02
3	.250	.1017E+06	.6583E-02
5	.250	.9993E+05	.6410E-02

TERMINATION DUE TO PARAMETER CONVERGENCE

## FINAL RESULTS

ITER	FUNCTION	TRANSMISS	STORTIVITY
6	.250	.1002E+06	.6387E-02

## FRACTIONAL COMPONENTS OF FUNCTION VALUE

WELL #	1	2	3	4
	.0000	.0000	.0000	1.000

DO YOU WANT A SENSITIVITY ANALYSIS ? (Y/N)

*A lica A 20*

*T = 749,496 gpd/ft*

*S = 6.387 × 10<sup>-3</sup>*

## SENSITIVITY ANALYSIS

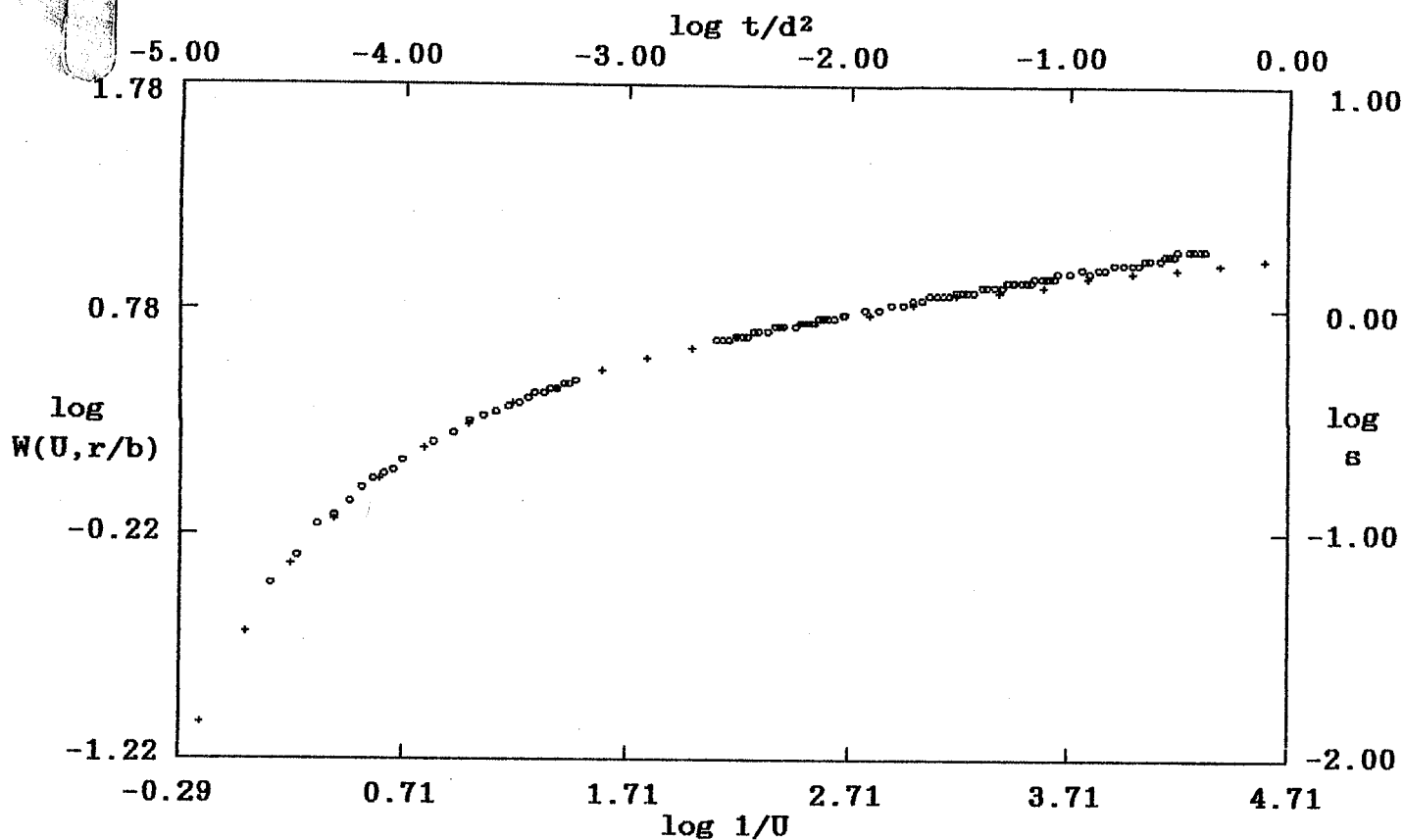
### TWO STANDARD DEVIATION CONFIDENCE INTERVALS

PARAMETER	VALUE	LOWER LIMIT	UPPER LIMIT
TRANSMISS	.1002E+06	0.9919E+05	0.1013E+06
STORTIVITY	.6387E-02	0.0000	0.3994E-01

TO CONTINUE ENTER "RETURN"

# PUMP TEST DATA

*Alco A 2I*



o - Data

+ - Type Curve

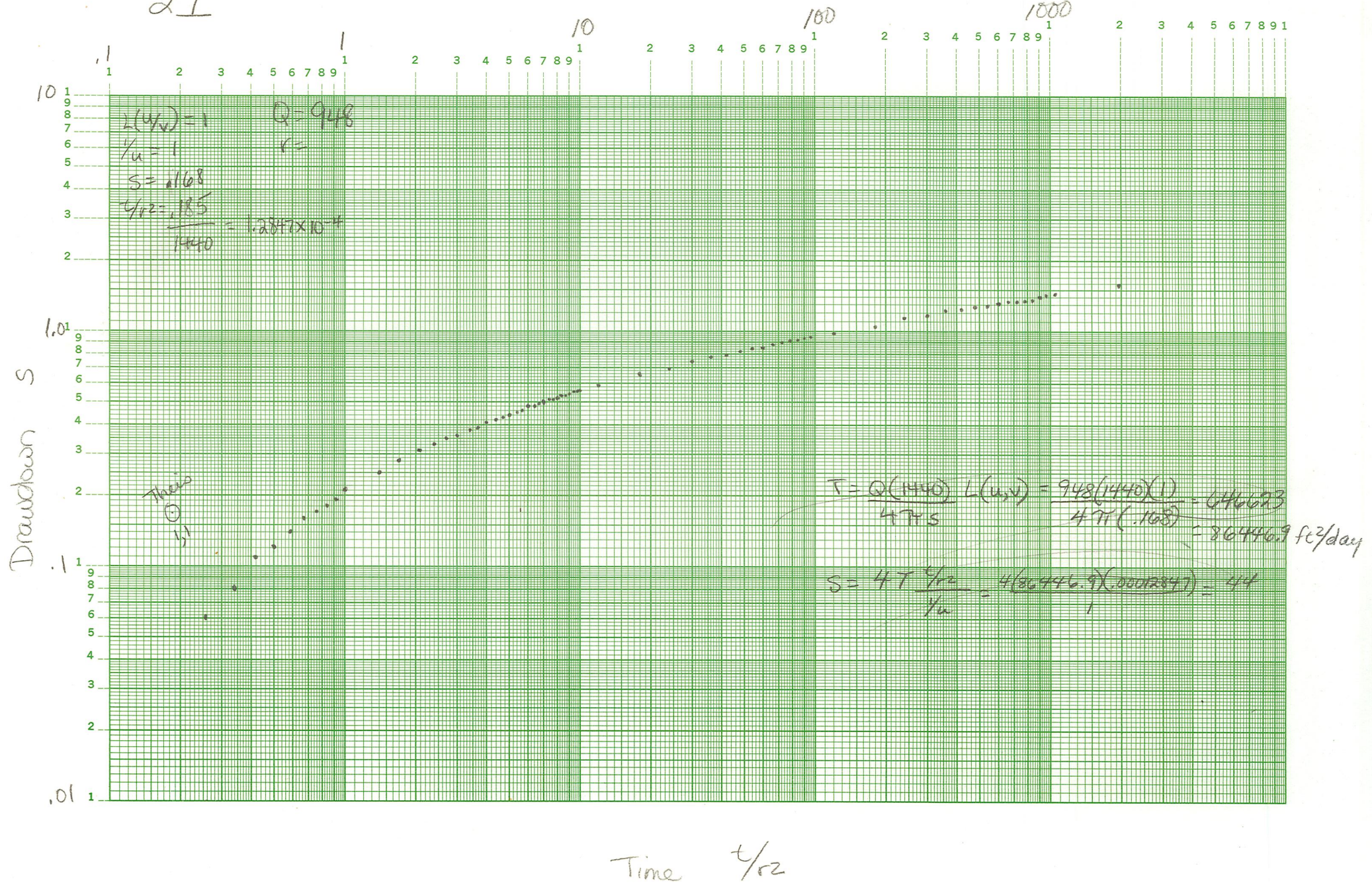
Confined Leaky:  $r/B = \text{Theis}$

## SOLUTION

Transmissivity =  $6.077\text{E}+01$  ft.<sup>2</sup>/min. 654,566 GPD/FT  
 Storativity =  $4.739\text{E}-03$



2I





$$T = \frac{1440 Q L_{uv}}{4 \pi S 7.48}$$

$$= \frac{(1440)(1171)(10)}{(4 \times \pi)(1.58)(7.48)}$$

$$= 113,540 \text{ ft}^3/\text{day}$$

$$= 849,283 \text{ gpd}/\text{ft}$$

$$S = \frac{4T t/r^2}{1/4}$$

$$= \frac{(4)(113540)(.00125)}{101.72}$$

$$= 5.49 \times 10^{-3}$$

OBSERVATION WELL: 21

R=101.7 Q=948.0

1171

TENTHS

TENS

HUNDREDS

THOUSANDS

Match Point (Thos)

t = 1.2

S = 1.58

L<sub>uv</sub> = 10

1/4 = 10

○

DRAWDOWN IN FEET

TENTHS

1

HUNDRETHS

TENTHS

1

HUNDRETHS

TENTHS

TENS

HUNDREDS

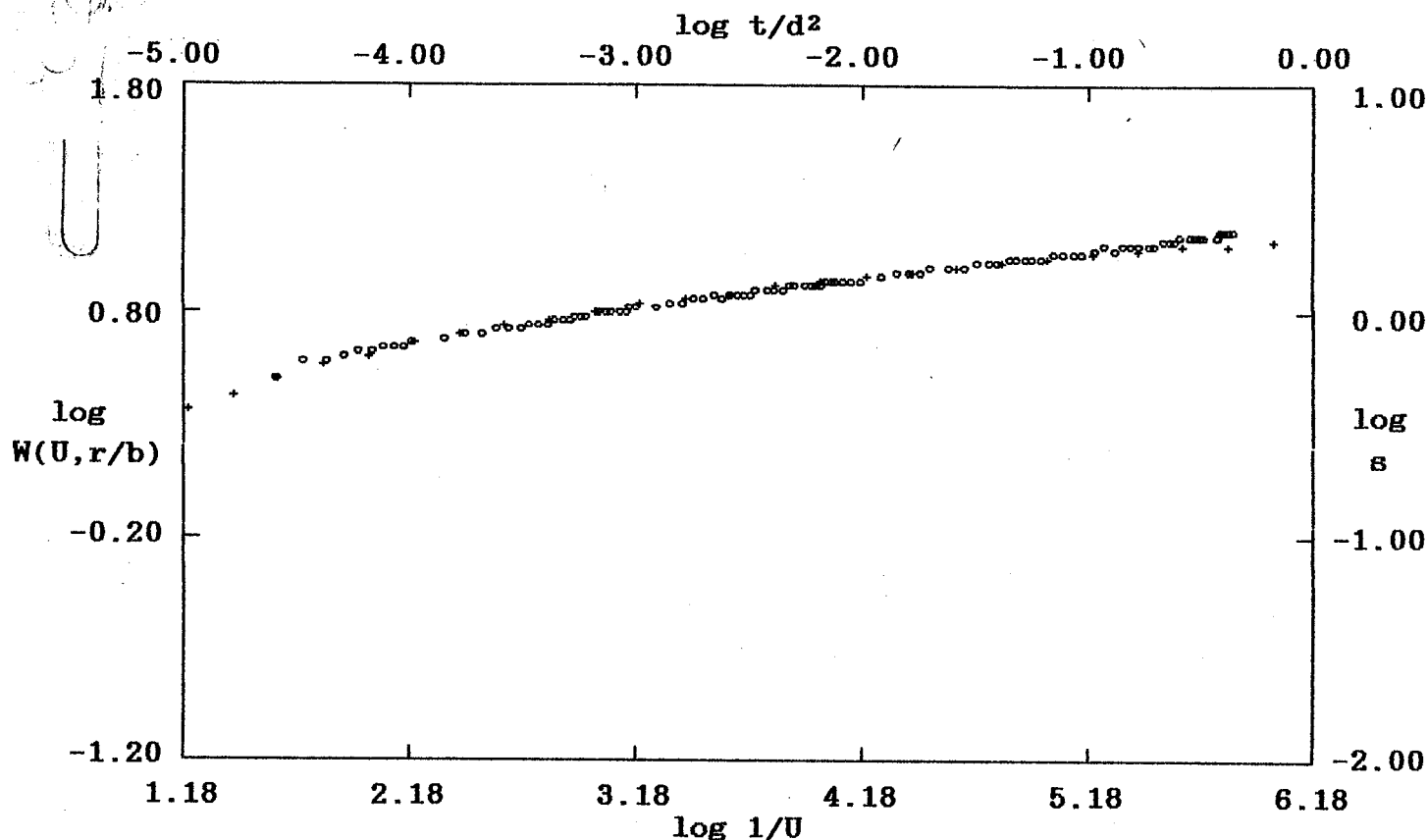
THOUSANDS

TIME IN MINUTES

ALICO A DRAWDOWN

Alico A 2D

# PUMP TEST DATA



o - Data

+ - Type Curve

Confined Leaky:  $r/B = \text{Theis}$

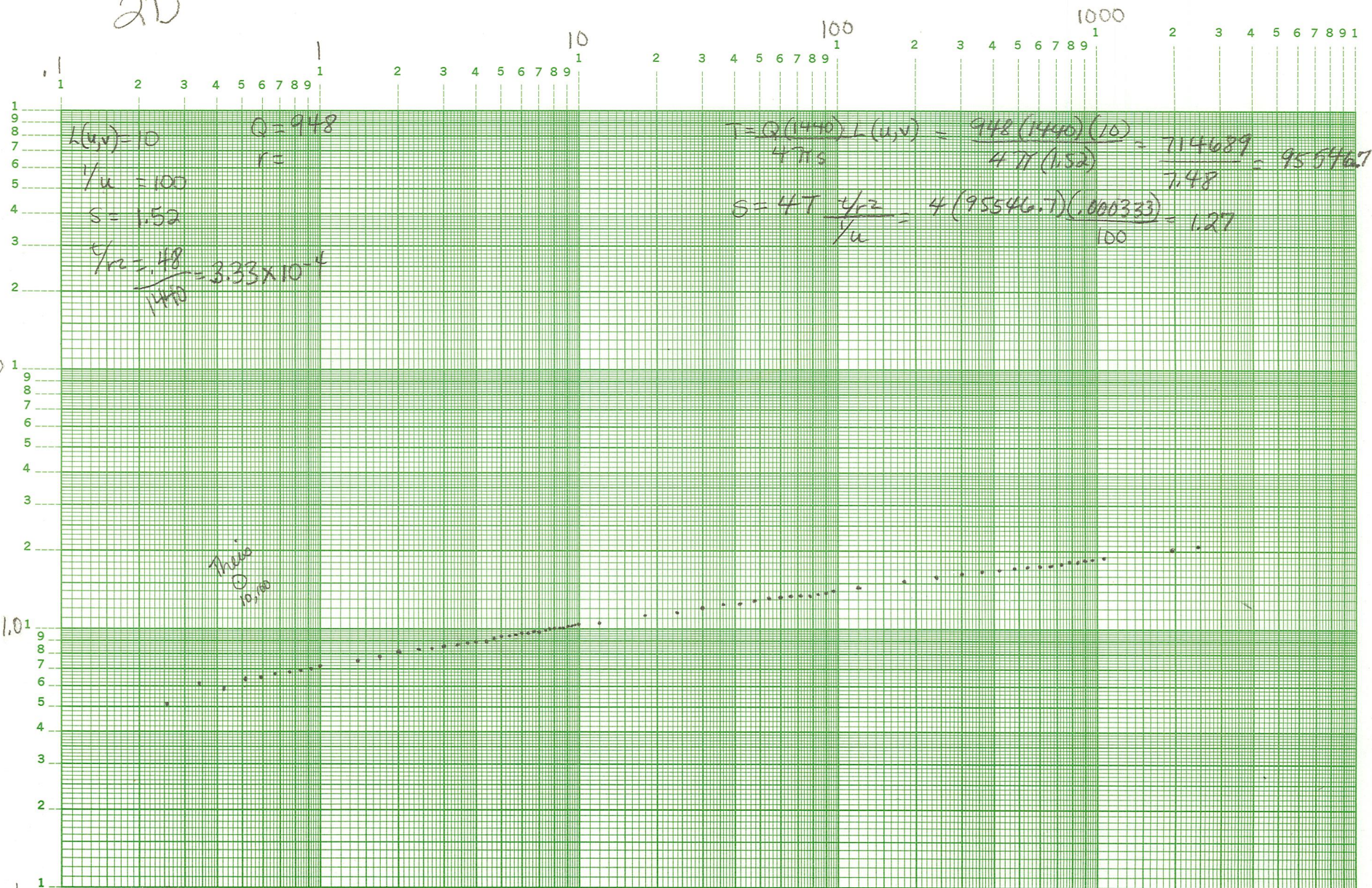
## SOLUTION

Transmissivity =  $6.363\text{E}+01$  ft.<sup>2</sup>/min. 685,371 GPD/FT  
Storativity =  $1.682\text{E}-04$



2D

Drawdown S



Time  $t/r^2$



$$T = \frac{1440 Q L_{uv}}{4\pi S 7.48}$$

$$= \frac{(1440)(1171)(10)}{4\pi (1.43)(7.48)}$$

$$= 125,450$$

$$= 938,368$$

$$S = \frac{4T \epsilon/r^2}{1/4}$$

$$= \frac{(4)(125,450) \left( \frac{.0003}{99.8^2} \right)}{100}$$

$$1.51 \times 10^{-4}$$

OBSERVATION WELL: 2D

R= 99.8 Q=948.0

1171

TENTHS

TENS

HUNDREDS

THOUSANDS

Match Point (Theis)

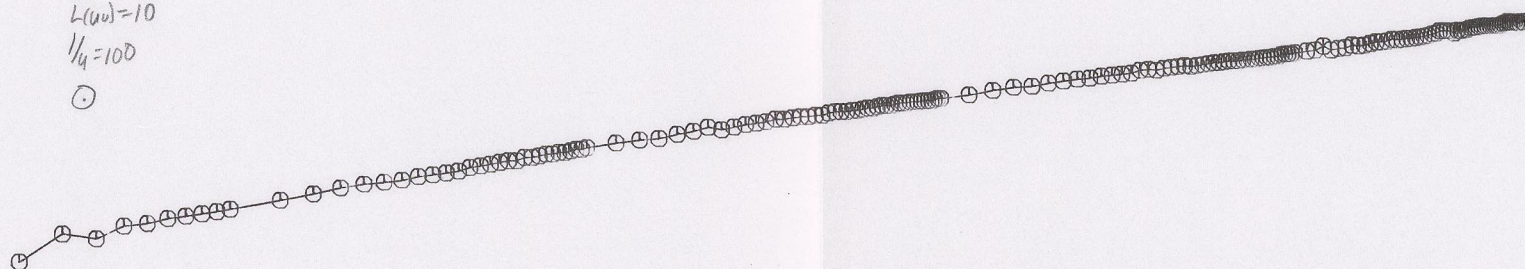
$$t = .39$$

$$S = 1.43$$

$$L(u) = 10$$

$$1/4 = 100$$

○



TENTHS

TENTHS

TENTHS

TENS

HUNDREDS

THOUSANDS

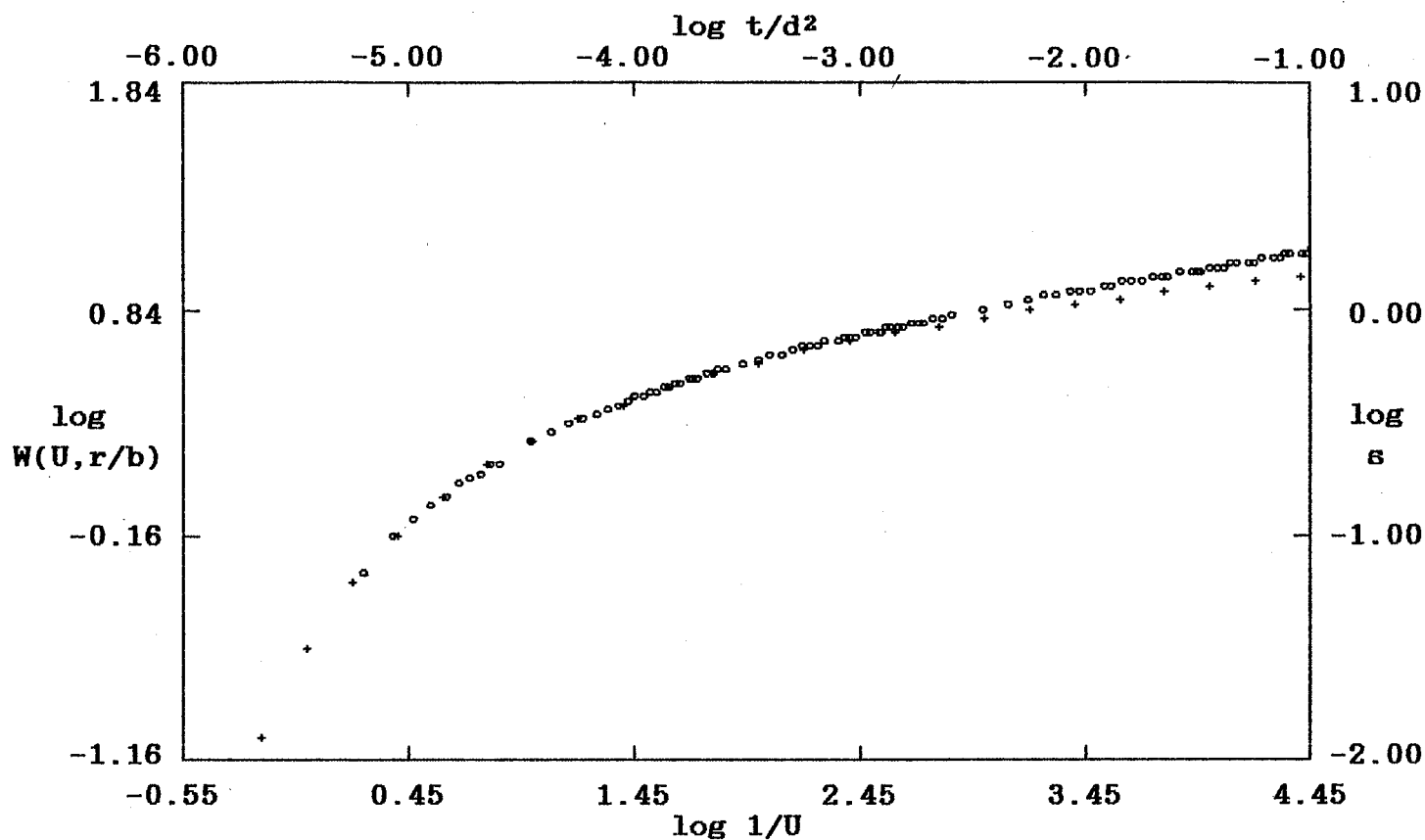
TIME IN MINUTES

ALICO A DRAWDOWN



# PUMP TEST DATA

*Alico A 1I*



o - Data

+ - Type Curve

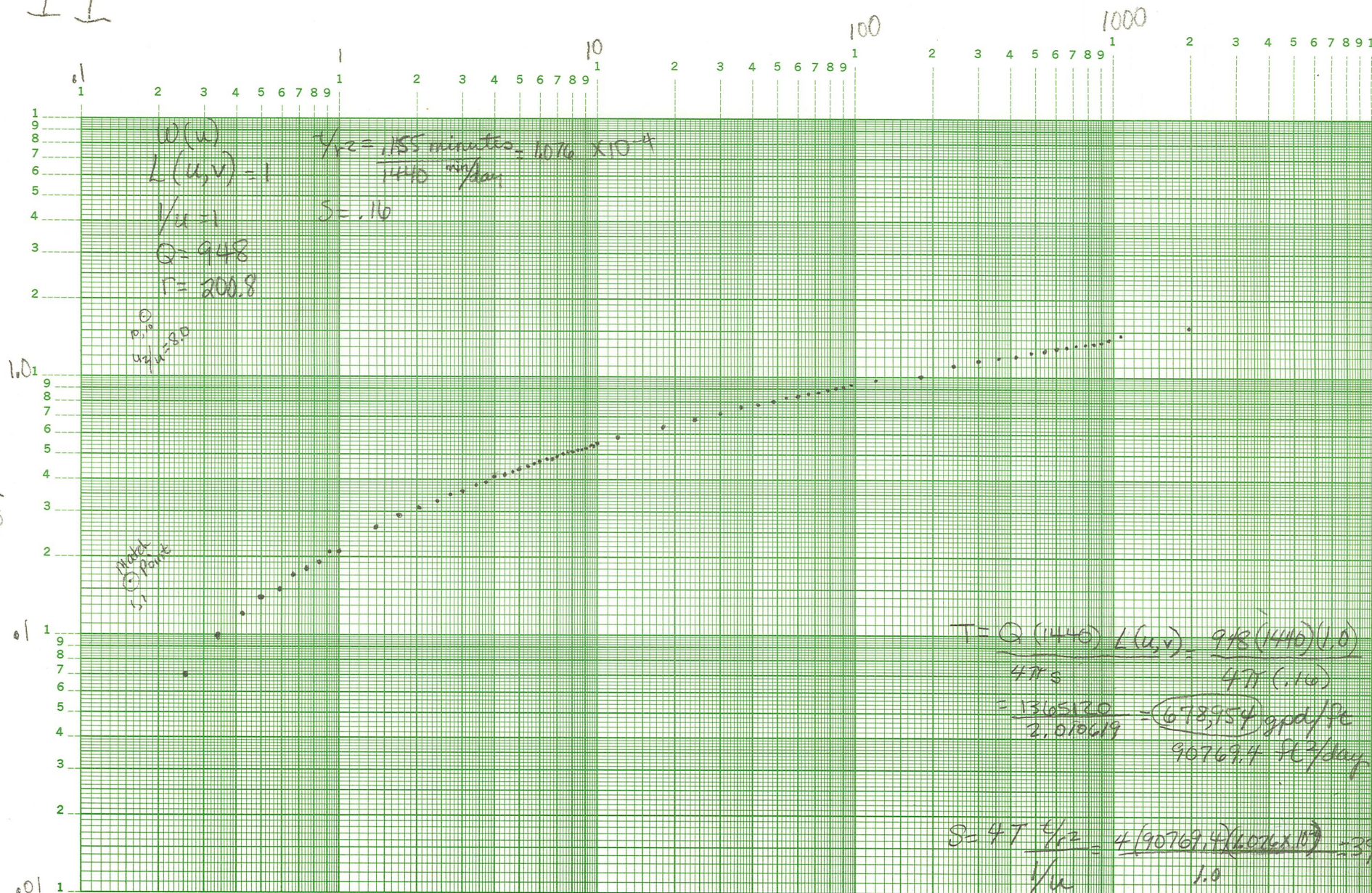
Confined Leaky:  $r/B = \text{Theis}$

## SOLUTION

Transmissivity =  $6.977\text{E}+01$  ft.<sup>2</sup>/min. 751,507 GPD/FT  
 Storativity =  $9.902\text{E}-04$



1I



Time minutes  $T/r^2$



$$T = \frac{1440 Q L_{uv}}{4\pi s 7.48}$$

$$= \frac{(1440)(1171)(1)}{4\pi (1.58)(7.48)}$$

$$= 113540 \text{ ft}^2/\text{day}$$

$$= 849283 \text{ gpd/ft}$$

$$s = \frac{4T^{1/2}}{1/4}$$

$$= \frac{(4)(113540) \left( \frac{.00011}{200.8^2} \right)}{1}$$

$$1.24 \times 10^{-3}$$

OBSERVATION WELL: 1I

R=200.8 Q=948.0

1171

TENTHS

TENS

HUNDREDS

THOUSANDS

Match Point Theis

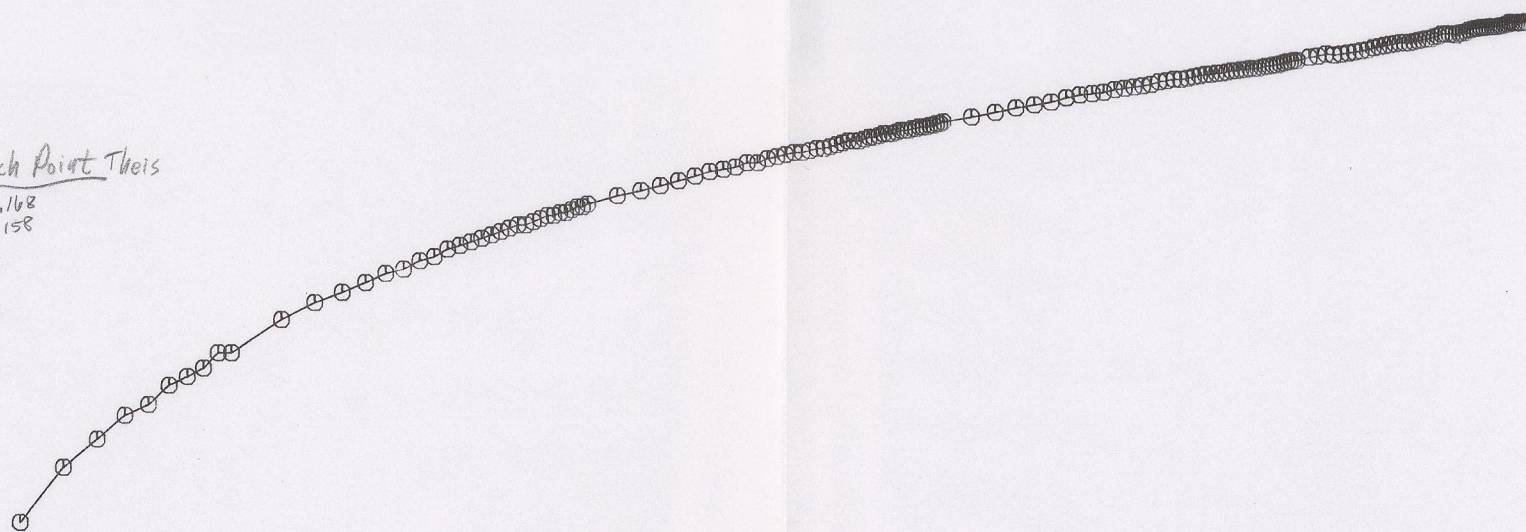
$z = .168$

$s = .158$

$1/4 = 1$

$L_{uv} = 1$

○



HUNDRETHS

HUNDRETHS

TENTHS

TENS

HUNDREDS

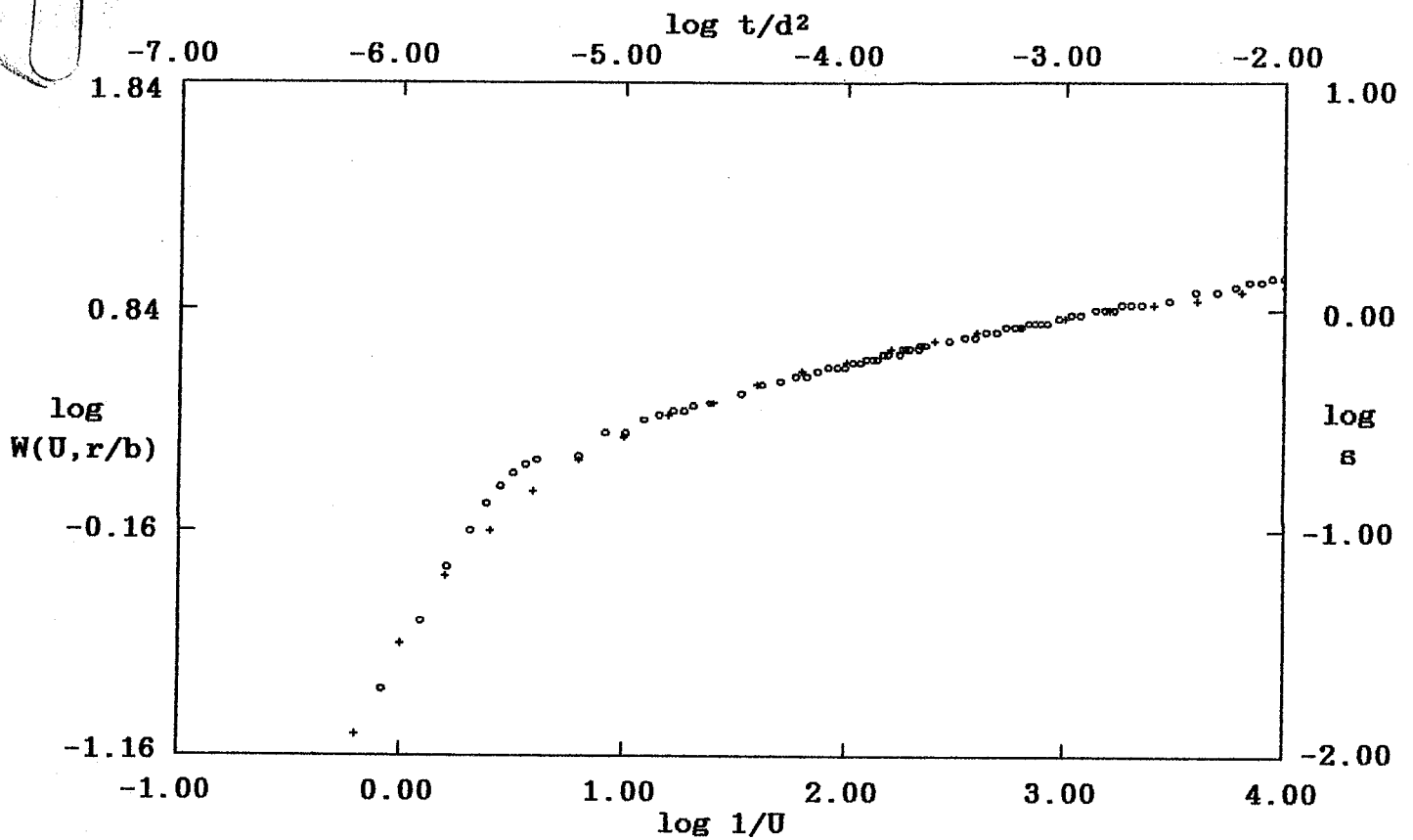
THOUSANDS

TIME IN MINUTES

ALICO A DRAWDOWN

# PUMP TEST DATA

Alico A 1D



o - Data

+ - Type Curve

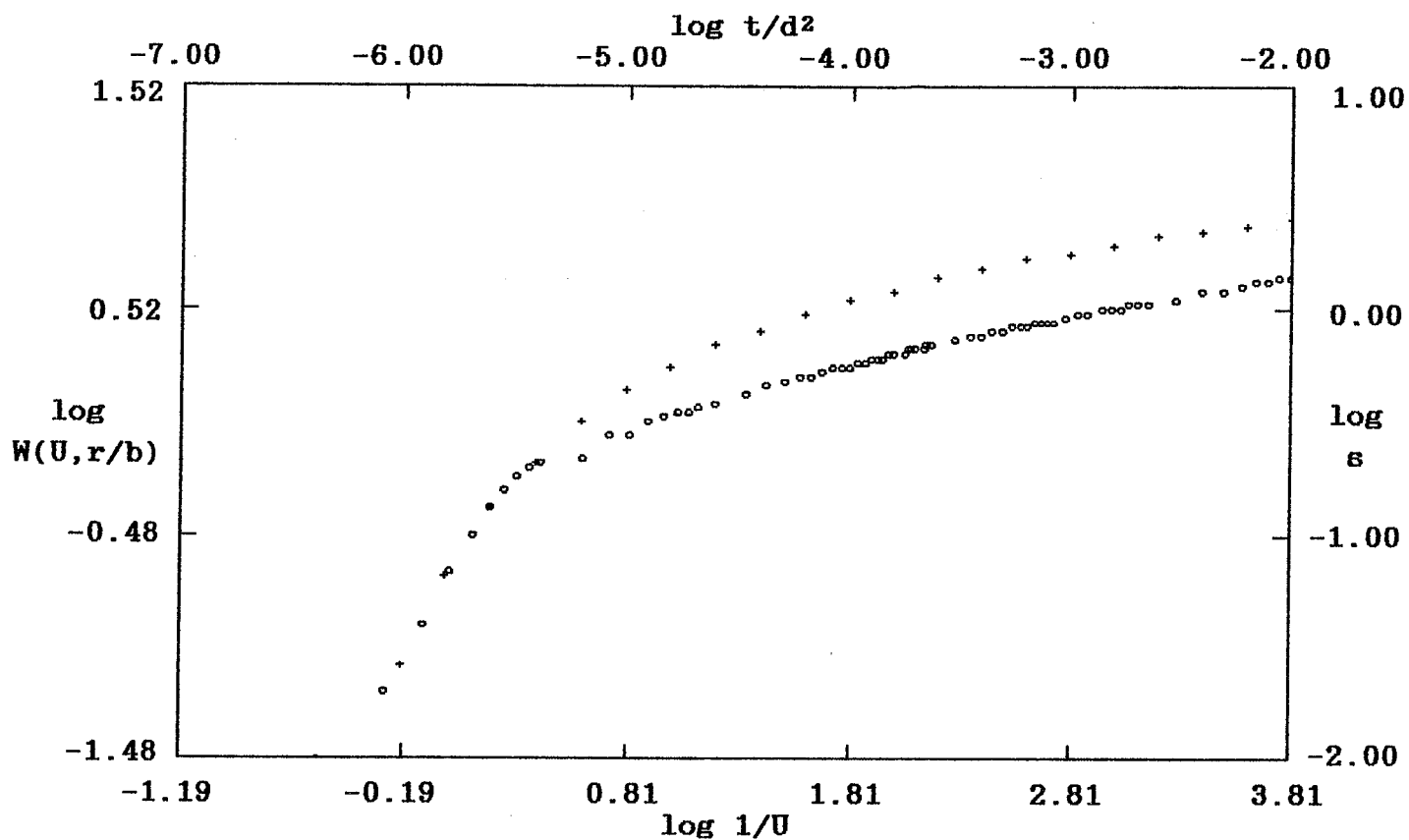
Confined Leaky:  $r/B = \text{Theis}$

## SOLUTION

Transmissivity =  $6.977\text{E}+01$  ft.<sup>2</sup>/min. 751,507 GPD/FT  
Storativity =  $2.791\text{E}-04$

# PUMP TEST DATA

*Alico A 10*



o - Data

+ - Type Curve

Confined Leaky:  $r/B = \text{Theis}$

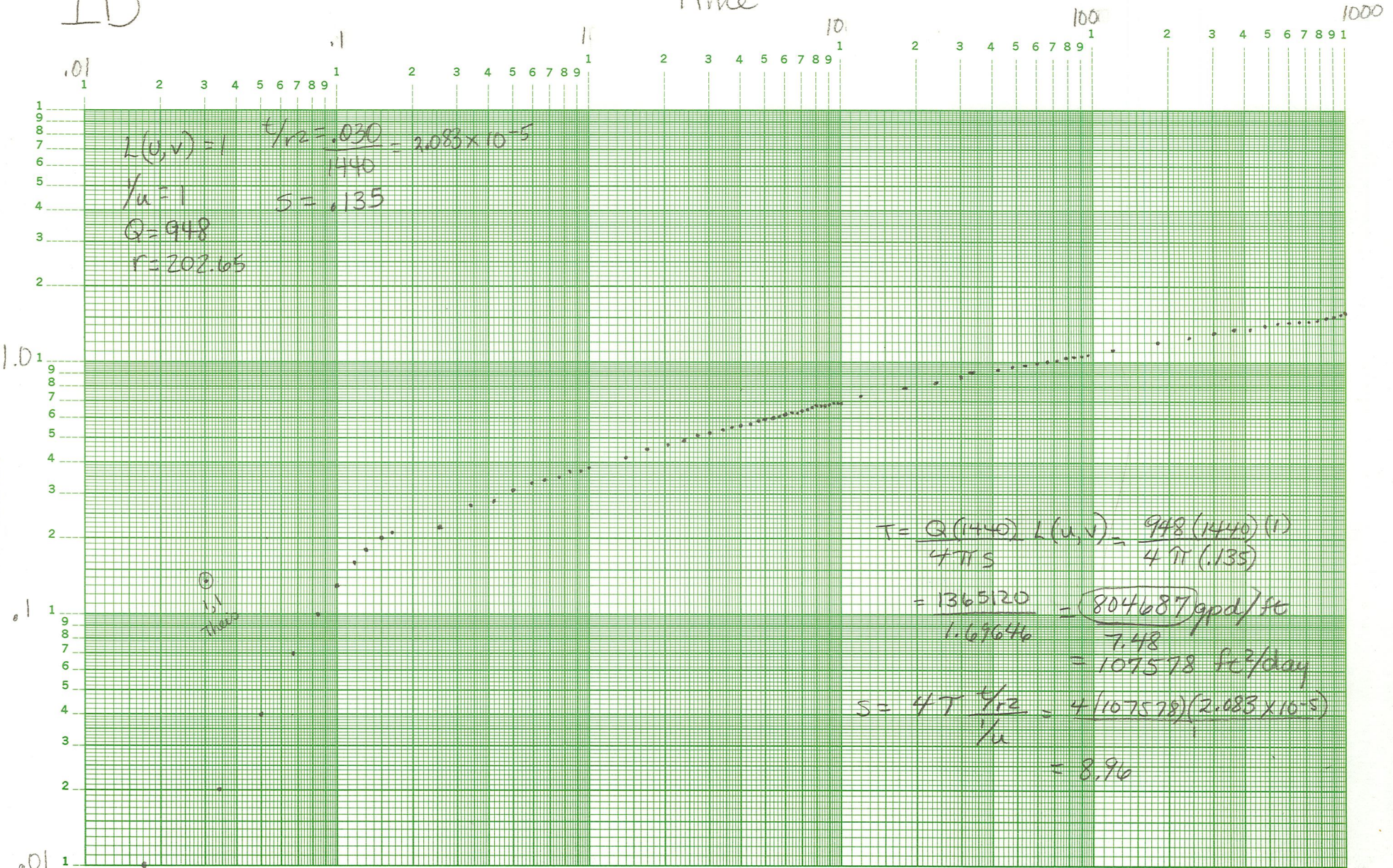
## SOLUTION

Transmissivity =  $3.339\text{E}+01$  ft.<sup>2</sup>/min. *359,650 GPD/FT*  
 Storativity =  $2.069\text{E}-04$



1D

Time



$$L(u,v) = 1$$

$$\frac{4}{r^2} = \frac{0.030}{1440} = 2.083 \times 10^{-5}$$

$$u = 1$$

$$S = 0.135$$

$$Q = 948$$

$$r = 202.65$$

$$T = \frac{Q(1440) L(u,v)}{4\pi S} = \frac{948(1440)(1)}{4\pi(0.135)}$$

$$= \frac{1365120}{1.67646} = 804687 \text{ gpd/ft}$$

$$= 107578 \text{ ft}^3/\text{day}$$

$$S = \frac{4T \frac{4}{r^2}}{u} = \frac{4(107578)(2.083 \times 10^{-5})}{1}$$

$$= 8.96$$

$T/r^2$



OBSERVATION WELL: 1D

R=202.6 Q=948.0

1171

DRAWDOWN IN FEET

TENTHS

HUNDREDTHS

THOUSANDTHS

HUNDREDTHS

TENTHS

TENS

HUNDREDS

THOUSANDS

TENTHS

HUNDREDTHS

THOUSANDTHS

Match Point (Late) This

$z = .044$   
 $S = .146$   
 $L_w = 1$   
 $1/4 = 1$

Match Point (early) This

$z = .075$   
 $S = .37$   
 $L_w = 1$   
 $1/4 = 1$

Early

$$T = \frac{1440 Q L_w}{4 \pi S 7.48}$$

$$= \frac{(1440)(948)(1)}{4 \pi (.37)(7.48)}$$

$$= 39252 \text{ ft}^2/\text{d}$$

$$= 293,602 \text{ gpd}/\text{ft}$$

$$S = \frac{4T z^2/r^2}{1/4}$$

$$= \frac{(4)(39252)(.0005)}{202.6^2}$$

$$= 4 \times 10^{-2}$$

Late

$$T = \frac{1440 Q L_w}{4 \pi S 7.48}$$

$$= \frac{(1440)(1171)(1)}{4 \pi (.146)(7.48)}$$

$$= 122872 \text{ ft}^2/\text{day}$$

$$= 919087 \text{ gpd}/\text{ft}$$

$$S = \frac{4T z^2/r^2}{1/4}$$

$$= \frac{(4)(122872)(.0003)}{202.6^2}$$

$$= 3.6 \times 10^{-4}$$

TIME IN MINUTES

ALICO A DRAWDOWN