AQUIFER TEST

PRENTICE WELL - 11N, 21E, 17N

RESULTS AND PROJECTIONS

LOWER YAKIMA VALLEY

by E. A. Nemecek

March 27, 1978

Open-File Technical Report 78-02

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MEMORANDUM

CHECK
INFORMATON ____
FOR ACTION ____
PERMIT ____
OTHER ____

TO: Bill Myers

FROM: E. A. Nemecek

SUBJECT: Aquifer Test - Prentice Well - 11N, 21E, 17N

Results and Projections. Lower Yakima Valley

DATE: March 27, 1978

State of Washington Department of Ecology

On January 10-13, 1978, a drawdown-recovery test was performed on the subject well using two observation wells to monitor the results. Response was noted in both observation wells. The nearest well (11N, 21E, 20D) is 1275 feet away. The second well is located approximately 3325 feet away (11N, 21E, 18K).

The data obtained were analyzed by use of the Jacob Modified Non-Equilibrium Formula. Both the pumping and the observation well data were used for final computations. Results indicate an average transmissivity (T) of 27,500 gal/day/ft. and a storage coefficient (S) of 6.94×10^{-5}. The second observation well analysis was used but it should be noted that the T was twice what the other two wells indicated. This is probably partly due to the well being up gradient. All T's were averaged. This gives a conservative estimate for interference drawdown among wells even and down gradient from the pumping well. Conversely wells up gradient will have less than the indicated drawdown.

The data obtained from analysis, T and S, were used to make projected drawdown vs. time curves for radii of 0.25, 0.5, 0.75, and 1.0 miles.

These curves indicate the theoretical drawdown at different pumping rates for varying periods of time. Interpolation between curves for uncomputed pumping rates is of sufficient accuracy if care is taken when calculations are made. The curves accompany this memo.

It should be noted that any other wells tapping this aquifer and within reasonable distance of each other will cause mutual interference, that is, their drawdowns will be additive upon other wells within their effective radii. Assuming similar aquifer conditions (a large assumption) a crude measure of total interference could be estimated by using the attached curves, distances between wells, pumping rates, and duration of pumpage to simply add the interference of one well to the next, and to the next and so on until all wells within interference range are accounted for.

If you have any questions concerning the above do not hesitate to call.

EAN:ee

ECY 010-4

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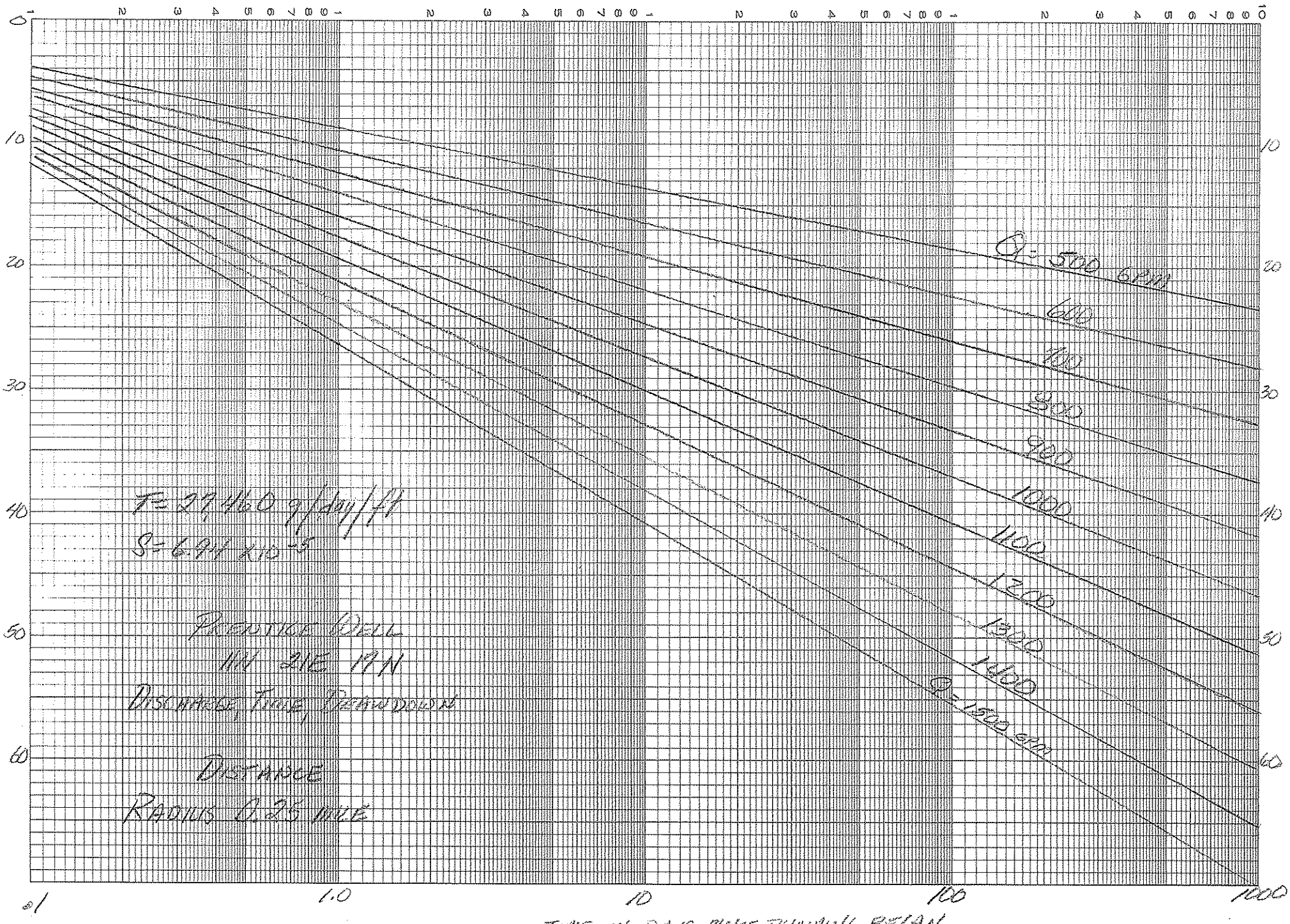

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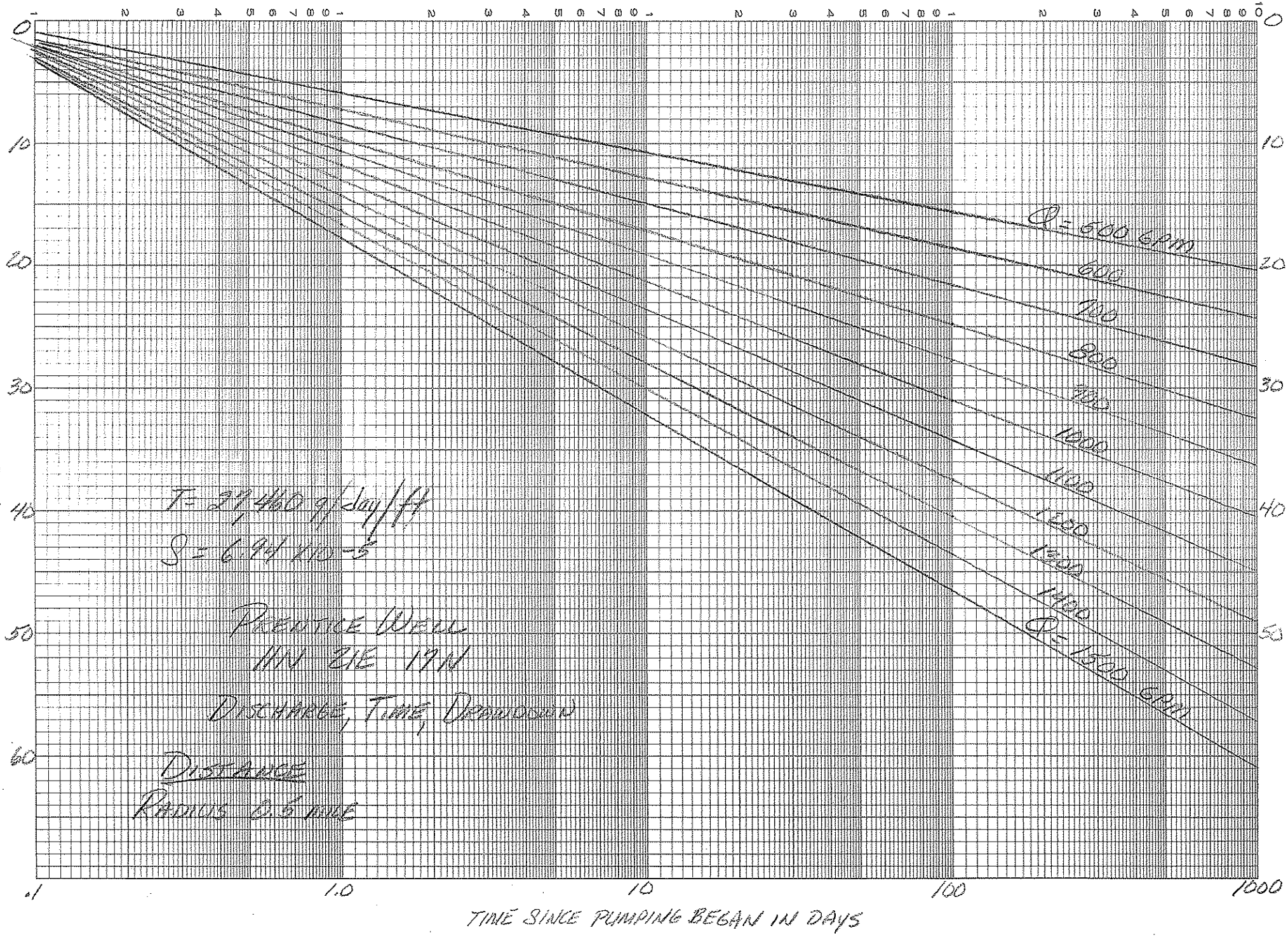

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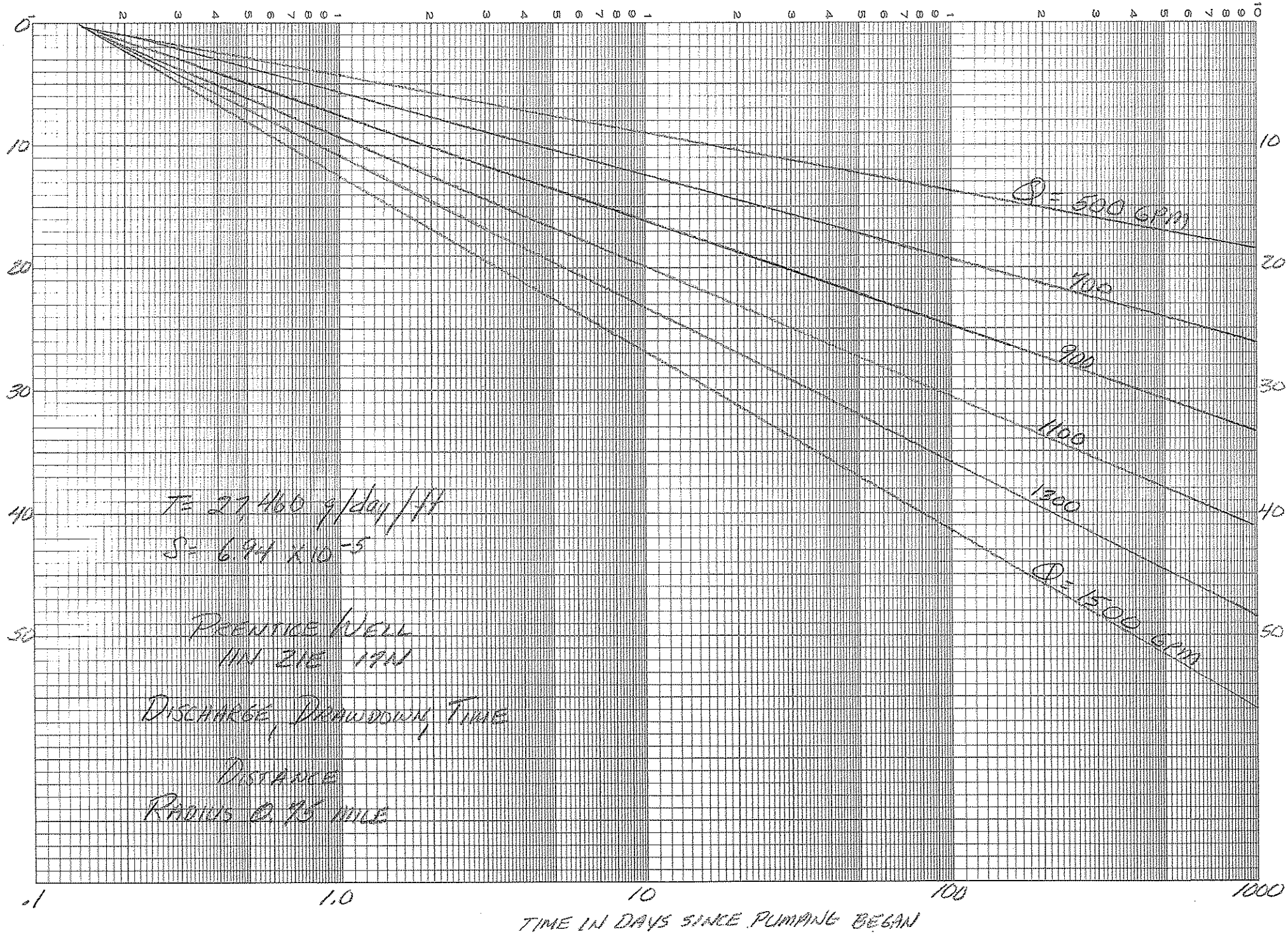

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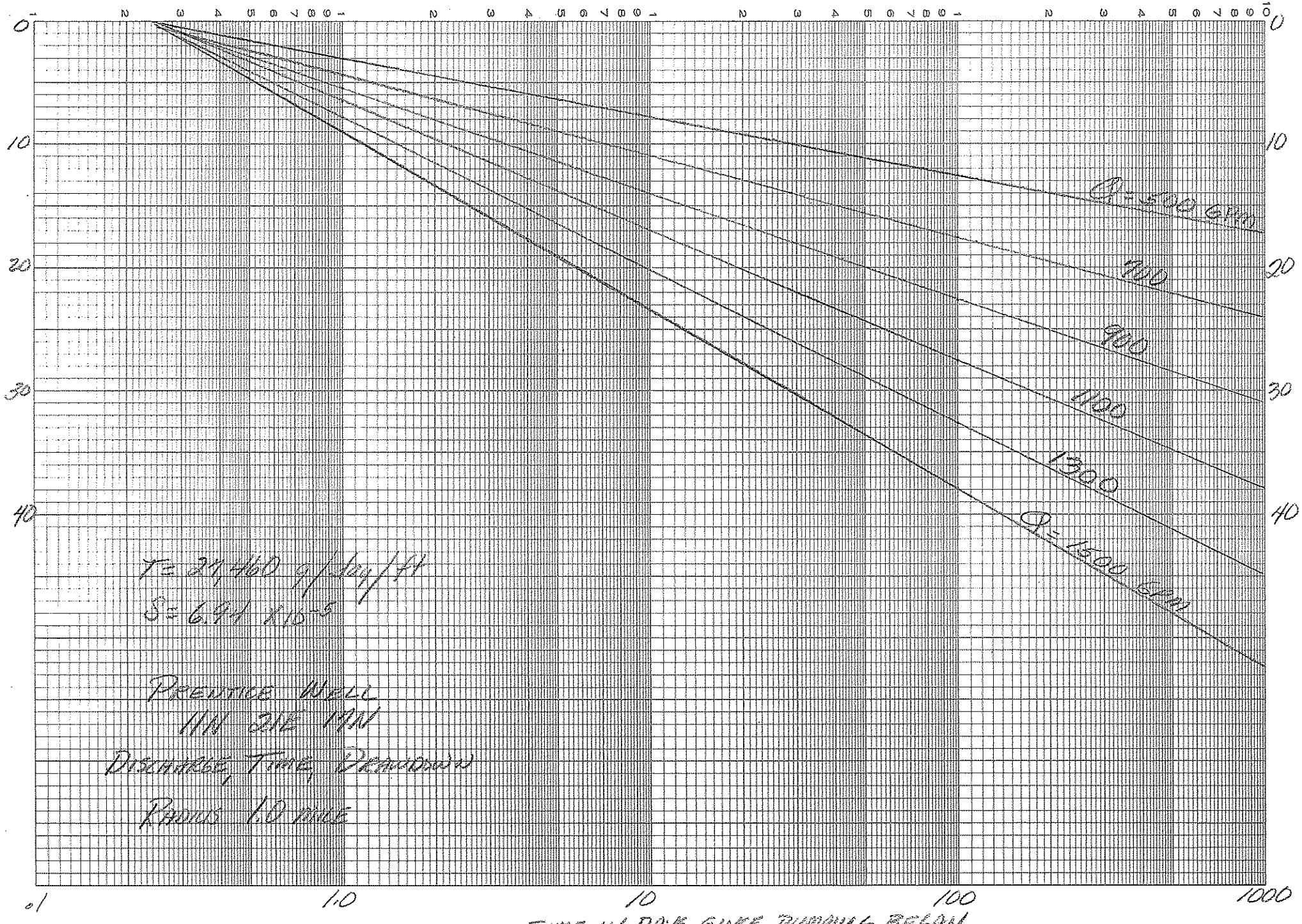

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AQUIFER TEST

Sheet 1 of 4

Owner PRENTICE Location _____ Well No. _____

Date JAN 10-13 '78 Meas. by NEMECEK Test DD-2 County _____

Meas. point AIRLINE - GAGE Elev. Meas. Point 1144 TOP OF METER

Meas. equipment AIRLINE LENGTH 400 FEET * BROAD CRESTED WEIR 7.0 FT. ACROSS

DTW$_o$ 245.2 t_o _____ Q 1090 GPM r _____

** BP = Back Pressure

INITIAL SPARLING READING 0.81 BP = 20

Date	Hour	Water level			s	t	$\frac{1440r^2}{t}$	Remarks
		Held (DTW)	Wet (DTW)	Depth (DTW)				
JAN 10	1030	66.75						
	1145	67.0	178.2	245.2		0		PUMP on
	1147	53.0	122.4	297.6	32.4	2		
	1200							Q = 1040 TRANSITORY
	1205	50.0	115.5	294.5	39.3	20		
	1215							Q = 1090 GPM "
	1220	49.25	113.8	286.2	41.0	35		*
	1308	47.75	110.3	289.7	44.5	83		
	1315							Q = 1040 TRANSITORY
	1350							Q = 1130 GPM
	1353	47.0	108.6	291.4	46.2	128		* WEIR .19 ** BP 20
	1424	46.50	109.4	292.6	47.4	159		
	1452	46.0	106.3	293.7	48.5	187		
	1523	45.75	105.9	294.3	49.1	217		.18 20
	1558	45.50	105.1	294.9	49.7	253		.18 20
	1627	45.0	104.0	296.0	50.8	282		.18 20
	1700	44.50	102.3	297.2	52.0	315		.18 20
	1800	43.75	98.8	301.2				.19 25
	1900	40.75	94.1	305.9				.19 20
	2000	38.50	88.9	311.1				.18 20
	2105	37.75	87.2	312.8				.19 20
	2200	36.50	83.2	316.8				.19 19
	2305	34.75	80.3	319.7				.18 20

MEASUREMENTS SUSPENDED AT 2305 DUE TO FREEZING WEATHER

ECY 070-37

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AQUIFER TEST

Sheet ____ of 4

Owner [illegible] Location _____ Well No. _____

Date [illegible] 13 [illegible] Meas. by [illegible] Test [illegible] County _____

Meas. point _____ Elev. Meas. Point _____

Meas. equipment AIRLINE 400 FT. LONG

DTW_o _____ t_o _____ Q _____ r _____

Date	Hour	Water level ~~Held~~ PSI	~~Wet~~ HEAD	Depth (DTW)	s	t		$\frac{1440r^2}{t}$	Remarks
JAN 11	0000	32.25	76.8	323.2					.18 [illegible]
	0058	31.75	73.3	326.7					.18 20#
	0159	30.25	69.9	330.1					.18 20#
	0259	29.25	67.6	332.4					.18 20#
	0400	27.0							[illegible]
	0815	40.0	92.40	307.6					Small air [illegible]
	0825								.18 20#
	0910	40.0	92.40	307.6					
	1025	39.0	90.1	309.9					
	1040								1090 TRAJECTORY
	1122	41.25	95.3	304.7	59.5	1417			Good air bottle
	1143	41.0	94.7	305.3	60.1	1438			Returned
	1145					1440		t/t'	Pump off
	1147	55.5	128.2	271.8	26.6	1442	2	721	
	1149	56.5	130.5	269.5	24.3	1444	4	361	
	1153	[illegible]	131.7	268.3	23.1	1448	8	181	
	1158	[illegible]	132.8	267.2	22.0	1453	13	112	
	1205	[illegible]	134.0	266.0	20.8	1460	20	73	
	1210	58.5	135.1	264.9	19.7	1465	25	58.6	
	1220	59.0	136.3	263.7	18.5	1475	35	42.1	
	1230	59.5	137.4	262.6	17.4	1485	45	33	
	[illegible]	[illegible]	138.0	262.0	16.8	1495	55	27.2	
	[illegible]	[illegible]	138.6	261.4	16.2	1505	65	23.2	

MEASUREMENTS SUSPECT

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Sheet 3 of 4

Owner [illegible] Location _____ Well No. _____

Date [illegible] 13 Meas. by Newcomb Test [illegible] County _____

Meas. point _____ Elev. Meas. Point _____

Meas. equipment _____

DTW_o _____ t_o _____ Q _____ r _____

Date	Hour	Water level			s	t & t'		$\frac{1440r^2}{t/t'}$	Remarks
		Held	Wet	Depth (DTW)					
[illegible]	[illegible]	[illegible]	139.2	260.8	15.6	1515	75	20.2	
	[illegible]	[illegible]	140.9	259.1	13.9	1545	105	14.7	
	[illegible]	[illegible]	141.5	258.5	13.3	1570	130	12.1	
	[illegible]	[illegible]	142.6	257.4	12.2	1622	182	8.9	
	[illegible]	[illegible]	143.8	256.2	11.0	1665	225	7.4	
	[illegible]	[illegible]	143.8	256.2	11.0	1698	258	6.6	
	[illegible]	[illegible]	145.0	255.0	9.8	1729	289	6.0	
	[illegible]	[illegible]	145.0	255.0	9.8	1755	315	5.6	
	[illegible]	[illegible]	145.5	254.5	9.3	1815	375	4.8	
	[illegible]	[illegible]	146.7	253.3	8.1	1875	435	4.3	
	[illegible]	[illegible]	146.7	253.3	8.1	1935	495	3.9	
	[illegible]	[illegible]	146.7	253.3	8.1	1995	555	3.6	
	[illegible]	[illegible]	147.3	252.7	7.5	2056	616	3.3	
	[illegible]	[illegible]	147.8	252.2	7.0	2113	673	3.1	
	[illegible]	[illegible]	148.4	251.6	6.4	2175	735	2.96	
	[illegible]	[illegible]	149.0	251.0	5.8	2235	795	2.81	
	[illegible]	[illegible]	149.6	250.4	5.2	2296	856	2.68	
	[illegible]	[illegible]	150.2	249.8	4.6	2356	916	2.57	
	[illegible]	[illegible]	150.2	249.8	4.6	2416	976	2.48	
	[illegible]	[illegible]	150.2	249.8	4.6	2475	1035	2.39	[illegible]
	[illegible]	[illegible]	150.2	249.8	4.6	2530	1090	2.32	
	[illegible]	[illegible]	150.7	249.3	4.1	2594	1154	2.25	
	[illegible]	[illegible]	150.7	249.3	4.1	2655	1215	2.19	

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AQUIFER TEST

Sheet 4 of 4

Owner H. PRENTICE Location _____ ~~Well No.~~ _____

Date JAN 10-13 '78 Meas. by _____ Test _____ County _____

Meas. point _____ Elev. Meas. Point _____

Meas. equipment _____

DTW_o _____ t_o _____ Q _____ r _____

Date	Hour	Water level ~~Held~~ Air	Water level ~~Wet~~ Head	Water level Depth (DTW)	s	t	t'	~~1440r²/t~~ t/t'	Remarks
JAN 12	0855	65.25	150.7	249.3	4.1	2710	1270	2.13	
	1125	65.25	150.7	249.3	4.1	2860	150 1420	2.01	
JAN 13	1000	66.25	153.0	247.0	1.8	4215	2775	1.52	

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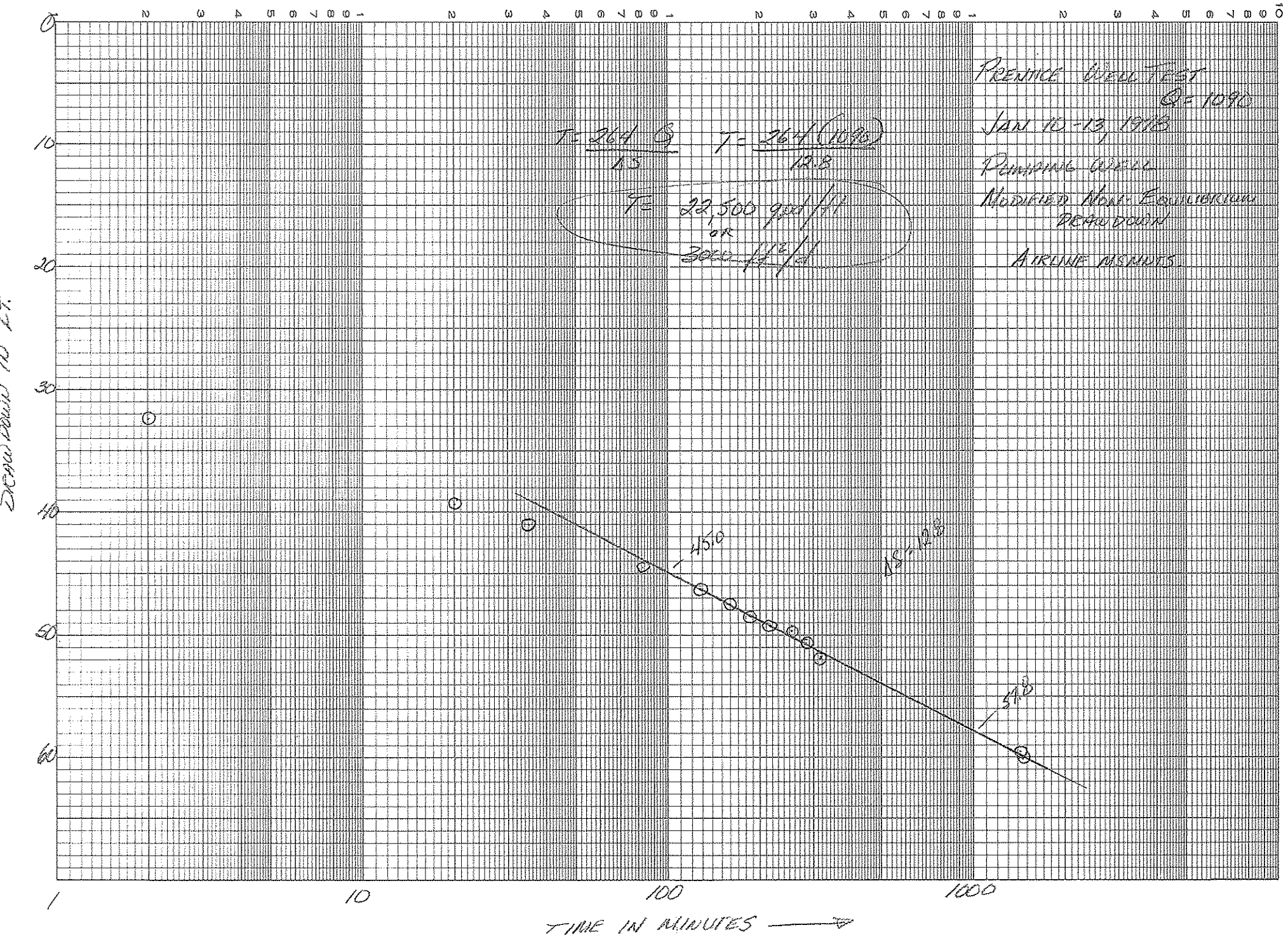

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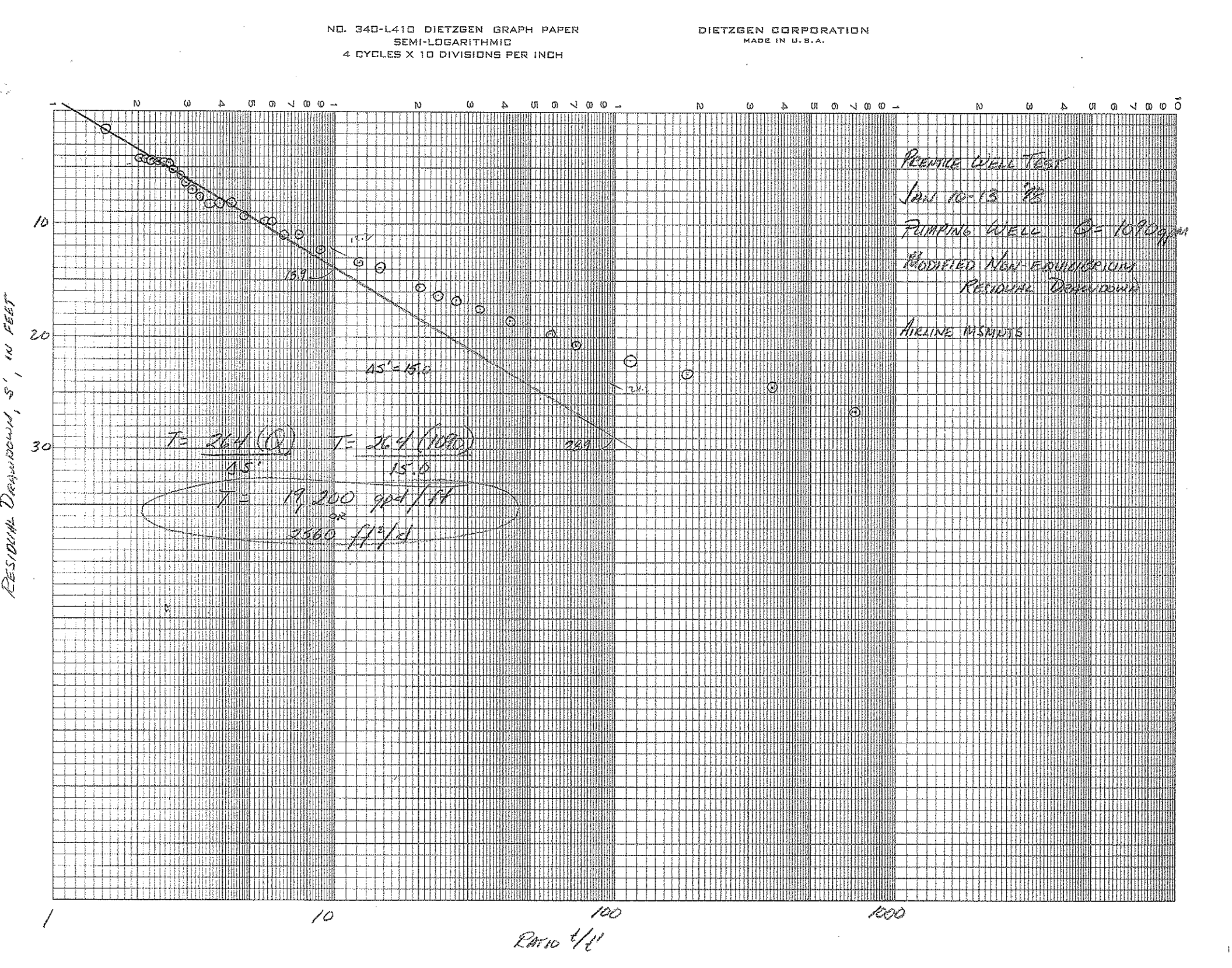

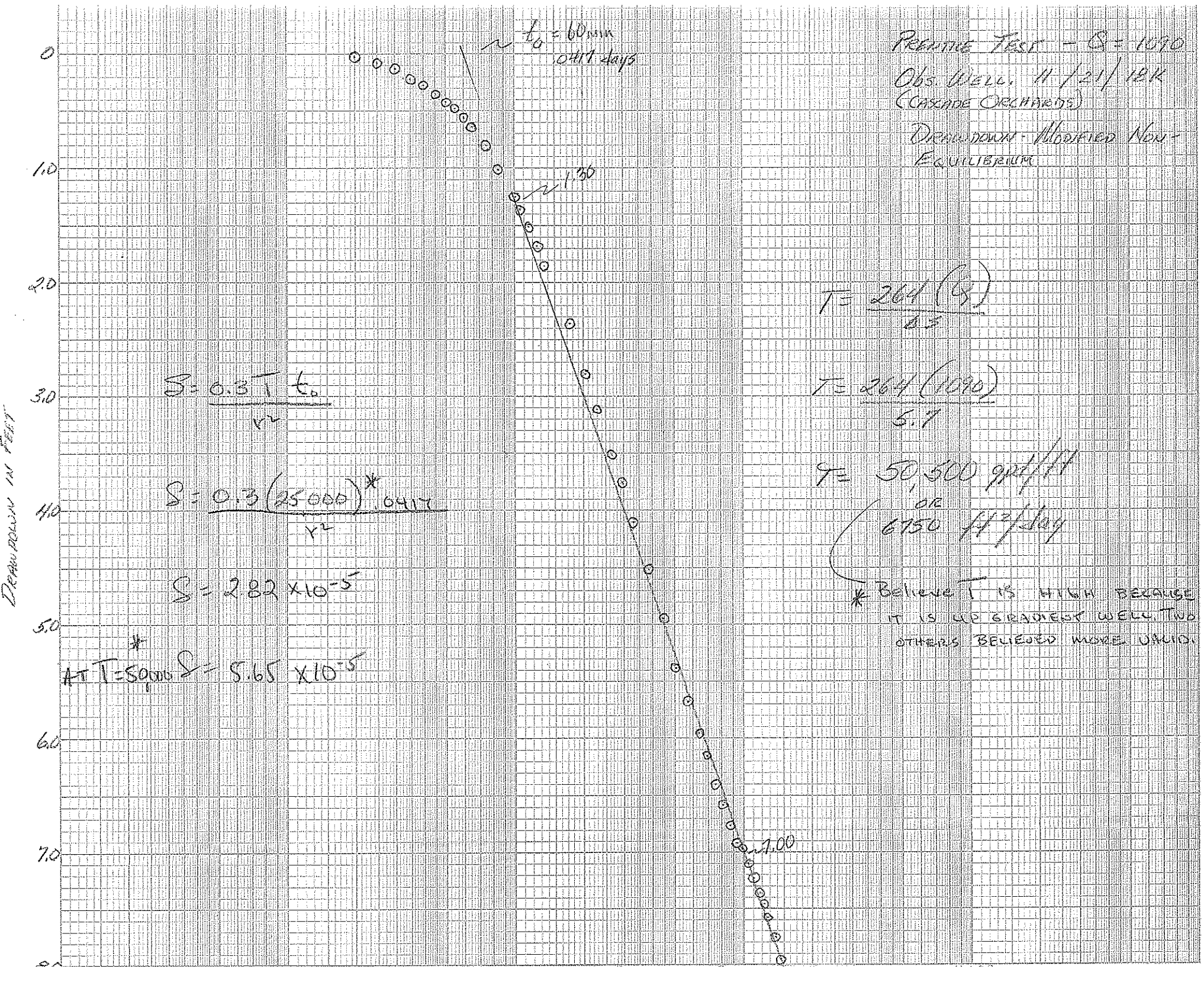

PRENTICE TEST - Q = 1090
Obs. WELL. 11/21/18K
(CASCADE ORCHARDS)
DRAWDOWN - MODIFIED NON-EQUILIBRIUM
t_0 = 60 min
.0417 days
1.30
1.00
$T = \frac{264(Q)}{\Delta s}$
$T = \frac{264(1090)}{5.7}$
T = 50,500 gpd/ft
OR
6750 ft²/day
* Believe T IS HIGH BECAUSE IT IS UP GRADIENT WELL. TWO OTHERS BELIEVED MORE VALID.
$S = \frac{0.3\,T\,t_0}{r^2}$
$S = \frac{0.3(25000)^{*}\,.0417}{r^2}$
$S = 2.82 \times 10^{-5}$
AT T = 50,000* S = 5.65 x10⁻⁵
DRAWDOWN IN FEET
0
1.0
2.0
3.0
4.0
5.0
6.0
7.0

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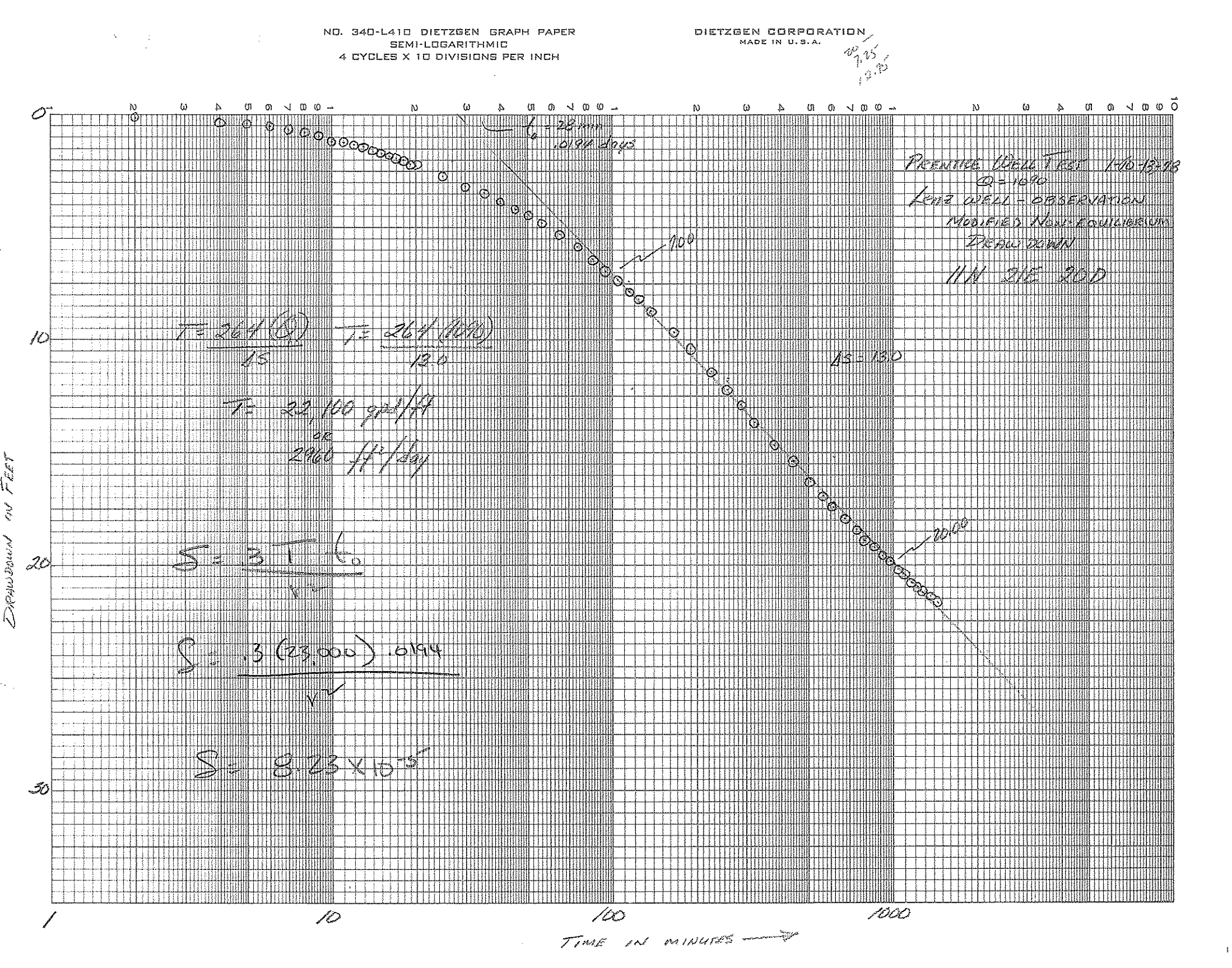

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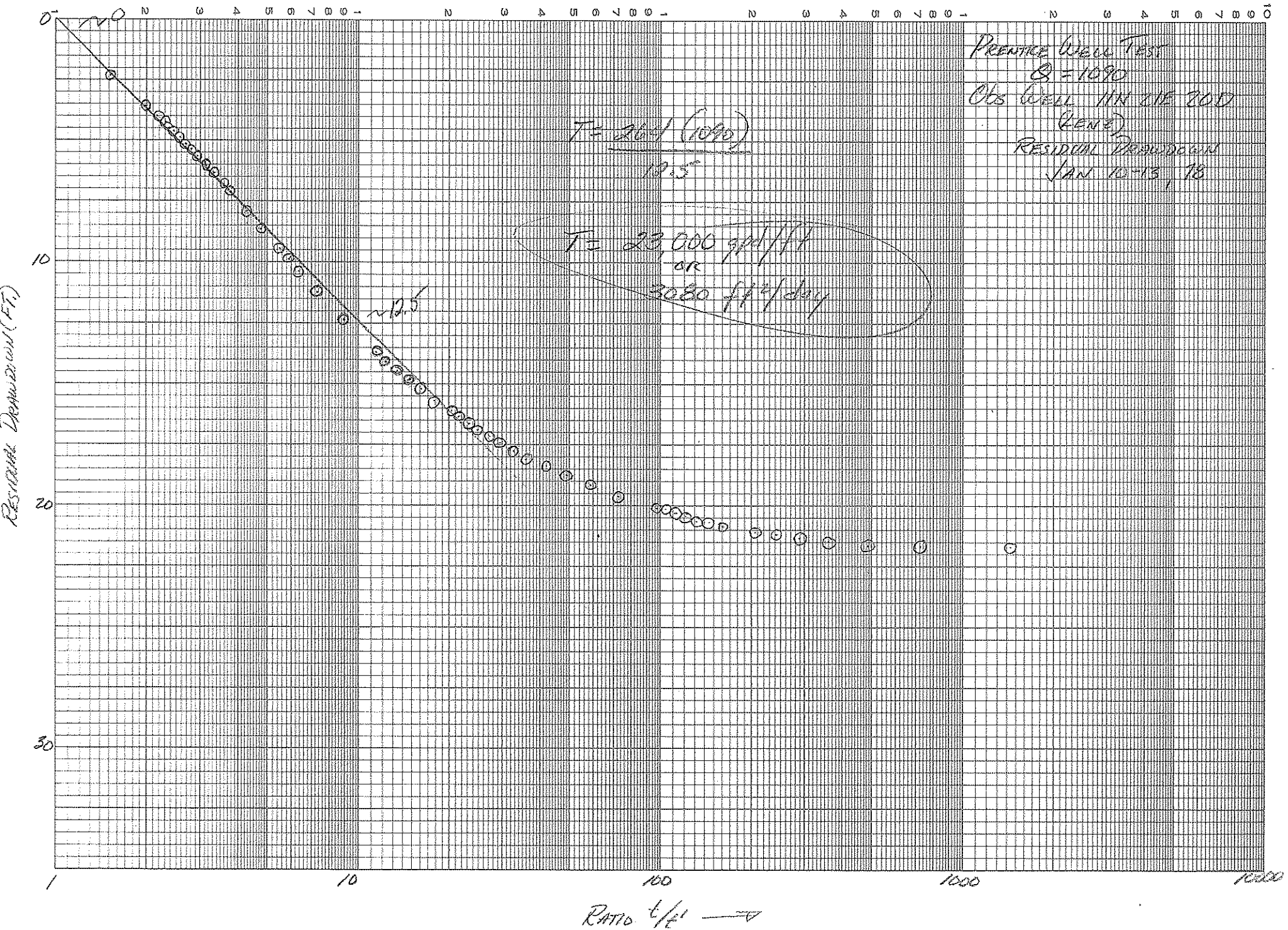

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AQUIFER TEST

Sheet 1 of 6

Owner Henry Lenz Location 11/21-20 D Well No. OBS

Date 1-10-78 Meas. by Oscar Ramirez Test _____ County YAK

Meas. point _____ Elev. Meas. Point ~~1095~~ 1104 ALTIMETER

Meas. equipment E-TAPE

DTW_o 203.94 t_o _____ Q _____ r 1275 FT.

Date	Hour	Water level			s	t	$\frac{1440r^2}{t}$	Remarks
		~~Held~~ S	Wet	Depth (DTW)				
1-10-77	1135	SWL 203.94						
	1140	"						
	1145	"				0		PUMP ON
	1147	.05				2		DRAWDOWN
	1149	.32				4		
	1150	.41				5		
	1151	.51				6		
	1152	.63				7		
	1153	.82				8		
	1154	.99				9		
	1155	1.2				10		
	1156	1.20				11		
	1157	1.35				12		
	1158	1.44				13		
	1159	1.56				14		
	1200	1.66				15		
	1201	1.78				16		
	1202	1.91				17		
	1203	2.0				18		
	1204	2.11				19		
	1205	2.20				20		START 5 min meas.
	1210	2.73				25		
	1215	3.15				30		

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AQUIFER TEST

Sheet #2 of 6

Owner H LeNz Location 11/21/20D Well No. OR5

Date _____ Meas. by Dave Ewing Test _____ County _____

Meas. point _____ Elev. Meas. Point _____

Meas. equipment E-Tape

DTW_o _____ t_o _____ Q _____ r _____

Date	Hour	Water level			s	t	$\frac{1440r^2}{t}$	Remarks
		Held	Wet	Depth (DTW)				
1-10-78	1220				3.45	35		
	1225				3.80	40		
	1230				4.12	45		
	1235				4.43	50		
	1241				4.82	56		10 min meas
	1250				5.33	65		9-min
	1300				5.88	75		
	1310				6.41	85		
	1320				6.91	95		
	1330				7.35	105		
	1340				7.79	115		
	1350				8.22	125		
	1403				8.71	138		
	1431				9.67	166		½ hr meas
	1455				10.43	190		
	1530				11.43	225		
	1604				12.29	259		
	1633				12.88	288		
	1705				13.61	320		
	1803				14.58	378		
	1904				15.42	439		
	2009				16.25	504		
	2110				16.91	565		

ECY 070-37

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AQUIFER TEST

Sheet 3 of 6

Owner H LENZ Location 11/21/20P Well No. _____

Date _____ Meas. by W. MYERS Test _____ County YAK

Meas. point _____ Elev. Meas. Point _____

Meas. equipment E-TAPE

DTW_o _____ t_o _____ Q _____ r _____

Date	Hour	Water level Held	Water level Wet	Water level Depth (DTW)	s	t		$\frac{1440r^2}{t}$	Remarks
1-10	2206				17.45	619			
	2304				17.84	677 (58)			
JAN 11	0007				18.43	740 (63)			
	0104				18.82	797 (57)			
	0205				19.19	858 (61)			
	0304				19.52	917 (59)			
	0410				19.84	983 (66)			
	0458				20.10	1031 (48)			
	0602				20.37	1095 (64)			
	0715				20.67	1168 (73)			
	0757				20.85	1210 (47)			
	0900				21.13	1273 (63)			
	1030				21.42	1363			1000 - pump on 8 min
	1144		DISREGARD 2 MIN ERROR.		21.74	1437 (74)			
	1145				21.74	1440		t/t'	START RECOVERY
	1146				21.74	1441	1	1441	
	1147				21.72	1442	2	721	
	1148				21.61	1443	3	481	
	1149				21.49	1444	4	361	
	1150				21.35	1445	5	289	
	1151				21.22	1446	6	241	
	1152				21.09	1447	7	207	
	1153								UNable To get Reading on time

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AQUIFER TEST

Sheet 4 of 6

Owner [illegible] Location 11/21/2000 Well No. [illegible]

Date _____ Meas. by [illegible] Test _____ County [illegible]

Meas. point _____ Elev. Meas. Point _____

Meas. equipment E-Tape

DTW_o _____ t_o _____ Q _____ r _____

Date	Hour	Water level			s	t	t'	~~1440.12~~ t/t'	Remarks
		Held	Wet	Depth (DTW)					
[illegible]	1154				20.26	1449	9	161	
	1155				20.65	1450	10	145	
	1156				20.97	1451	11	132	
	1157				21.46	1452	12	121	
	1158				20.85	1453	13	112	
	1159				20.23	1454	14	104	
	1200				20.10	1455	15	97	5 min meas
	1205				19.60	1460	20	73	
	1210				19.15	1465	25	58.6	
	1215				18.76	1470	30	49.0	
	1220				18.38	1475	35	42.1	
	1225				18.06	1480	40	37.0	
	1230				17.76	1485	45	33.0	
	1235				17.47	1490	50	29.8	
	1240				17.16	1495	55	27.2	
	1245				16.91	1500	60	25.0	
	1250				16.68	1505	65	23.2	
	1255				16.37	1510	70	21.6	
	1300				16.12	1515	75	20.2	
	1310				15.69	1525	85	17.9	10 min meas
	1320				15.22	1535	95	16.2	
	1330				14.82	1545	105	14.7	
	1340				14.45	1555	115	13.5	

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AQUIFER TEST

Sheet 5 of 6

Owner H Lenz Location 11/21/20D Well No. OB5

Date Jan 10-13 78 Meas. by [illegible] Test _____ County [illegible]

Meas. point _____ Elev. Meas. Point _____

Meas. equipment E-Tape

DTW_o _____ t_o _____ Q _____ r _____

Date	Hour	Water level Held	Water level Wet	Water level Depth (DTW)	s	t	t'	t/t'	Remarks
1-11-77	1350				14.05	1565	125	12.5	
	1400				13.70	1575	135	11.7	
	1445				12.34	1620	180	9.0	[illegible]
	1533				11.18	1668	228	7.32	
	1612				10.35	1709	267	6.39	
	1688				9.91	1733	293	5.91	
	1704				9.49	1759	319	5.51	
	1806				8.59	1821	381	4.78	
	1907				7.90	1882	442	4.26	
	2025				7.10	1960	520	3.77	
	2108				6.82	1998	558	3.58	
	2205				6.36	2060	620	3.32	
	2303				6.01	2118	678	3.12	
JAN 12	0005				5.69	2180	740	2.95	
	0105				5.39	2240	800	2.80	
	0207				5.15	2302	862	2.67	
	0306				4.92	2361	921	2.56	
	0406				4.69	2421	981	2.47	
	0505				4.50	2480	1040	2.38	
	0600				4.33	2535	1095	2.32	
	0702				4.15	2597	1157	2.24	
	0808				4.00	2658	1218	2.18	
	0859				3.88	2714	1274	2.13	

ECY 070-37

Department of Ecology

DEPARTMENT OF ECOLOGY
WATER RESOURCES DIVISION
OLYMPIA, WASHINGTON 98504

AQUIFER TEST

Owner H. LONG Location 11/21 20 D Well No. OBS

Date JAN 10-13 '78 Meas. by O. RANKER Test _____ County _____

Meas. point _____ Elev. Meas. Point _____

Meas. equipment _____

DTW_o _____ t_o _____ Q _____ r _____

Date	Hour	Water level			s	$\frac{t}{t'}$	~~$\frac{1440r^2}{t}$~~ $\frac{r^2}{t'}$	Remarks
		Held	Wet	Depth (DTW)				
JAN 12	1154				5.00	2889/1449	1.99	
JAN 13	1014			S 12.32	206.26	4329/2189	1.52	SWL

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. 804

Permit No. ✓

(1) OWNER: Name PRENTICE PARKING + STORAGE Address YAKIMA WASH

(2) LOCATION OF WELL: County YAKIMA — SE ¼ SW ¼ Sec. 17 T. 11 N., R. 21 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☐ Irrigation ☒ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 12 inches.
Drilled 437 ft. Depth of completed well 535 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 12" Diam. from 0 ft. to 437 ft.
Threaded ☐ ....." Diam. from ..... ft. to ..... ft.
Welded ☐ ....." Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☐
Type of perforator used.....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☐
Manufacturer's Name.....
Type..... Model No.....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☐ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Cement
Did any strata contain unusable water? Yes ☐ No ☐
Type of water?..... Depth of strata.....
Method of sealing strata off.....

(7) PUMP: Manufacturer's Name.....
Type: ..... H.P.....

(8) WATER LEVELS: Land-surface elevation above mean sea level.... .....ft.
Static level .....ft. below top of well Date.....
Artesian pressure .....lbs. per square inch Date.....
Artesian water is controlled by..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom?.....
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test.....gal./min. with.....ft. drawdown after.....hrs.
Artesian flow.....g.p.m. Date.....
Temperature of water..... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
SANDY OVERBURDEN	0	437
BLACK BASALT	437	450
BLACK POROUS - WATER	450	458
BLACK HARD BASALT	458	471
BLACK POROUS BASALT	471	486
GREY BASALT	486	500
SAND INTERBED WATER	500	535

RECEIVED
JUN 22 1977
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Work started April 18, 1977 Completed May 2, 1977

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME ADCOCK AIR DRILLING (Person, firm, or corporation) (Type or print)

Address 2033 3RD AVE N. LEWISTON

[Signed] Larry McLanahan (Well Driller)

License No. 001 Date 6/20, 1977

(USE ADDITIONAL SHEETS IF NECESSARY) casing provided not met

050-1-20

Original Copy - Owner's Copy
Third Copy - Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. [illegible]
Permit No. [illegible]

(1) OWNER: Name Cascade Orchards Address R1 2 Box 2386

(2) LOCATION OF WELL: County Yakima — NW ¼ SE ¼ Sec. 18 T. 11 N., R. 21 W.M.
Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☐ Irrigation ☒ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 10 inches.
Drilled.....ft. Depth of completed well 535 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 10 " Diam. from 0 ft. to 414 ft.
Threaded ☐ ....." Diam. from ..... ft. to ..... ft.
Welded ☒ ....." Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☒
Type of perforator used.....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name.....
Type..... Model No.....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 38 ft.
Material used in seal BENTLE
Did any strata contain unusable water? Yes ☐ No ☒
Type of water?..... Depth of strata.....
Method of sealing strata off CASEING

(7) PUMP: Manufacturer's Name Pancer
Type: Submersible H.P. 40

(8) WATER LEVELS: Land-surface elevation above mean sea level.... 1050 ft.
Static level 170 ft. below top of well Date 6-21-77
Artesian pressure ..... lbs. per square inch Date.....
Artesian water is controlled by..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☒ If yes, by whom? Weaver Drill
Yield: 180 gal./min. with 30 ft. drawdown after 5 hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test.....gal./min. with.....ft. drawdown after.....hrs.
Artesian flow.....g.p.m. Date.....
Temperature of water..... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
clay	1	4
gravel & clay	4	20
1 to 2 in. gravel & clay	20	58
B. clay sand	58	80
"	80	142
gravel	142	148
sand & fine gravel	148	153
sandstone clay	153	160
sand & gravel-water(20 gpm)	160	180
brown sand clay	180	270
blue shale	270	280
type of ~~blue~~ brown clay brule	280	284
clay-light & gummy	284	315
green shale gumbo	315	329
blue clay	329	360
brown clay	360	364
green shale	364	370
brown clay - gravel	370	376
smooth brown clay	376	411
gummy blue clay	411	416
broken basalt rock	416	418
solid rock	418	460
blue clay	460	465
sand stone	465	501
gummy brown clay	501	505
blue clay	505	522
sand stone	522	526
blue clay	526	535

RECEIVED
JUN 27 1977
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE
3/31

Work started ~~4/31~~ 1977 Completed 6/15 1977

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Jim Downard (Person, firm, or corporation) (Type or print)
Address P.O. 713 Ephrata Nur
[Signed] E J Downard (Well Driller)
License No. 18H Date 6/15 1977

(USE ADDITIONAL SHEETS IF NECESSARY)

F. No. 7356—OS—(Rev. 4-71).

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. G-24658

(1) OWNER: Name Henry Lenz Address Rt. 2 Box 40 Zillah, Wa. 98953

(2) LOCATION OF WELL: County Yakima NW ¼ NW ¼ Sec 20 T. 11 N., R. 21 E.W.M.
Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☒ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 564 ft. Depth of completed well 544 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 10 " Diam. from Ø+1 ft. to 342'1" ft.
Threaded ☐ 8 " Diam. from +1 ft. to 487'2" ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 201 ft. below top of well Date
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 600 gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:
Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
top soil	0	17
sand and gravel	17	61
cemented sand and gravel	61	150
cemented sand	150	257
cemented sand and gravel	257	279
cemented sand withsmall gravel	279	383
green clay stone	383	438
brown clay	438	476
soft hasalt	476	487
basalt with water	487	543
sand	543	564

829-5876
Ok call ahead

Work started 4/17, 19 77 Completed 5/29, 19 77

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Bartholomew Drilling
(Person, firm, or corporation) (Type or print)

Address Nine Mile Falls, Wa. 99026

[Signed] (Well Driller)

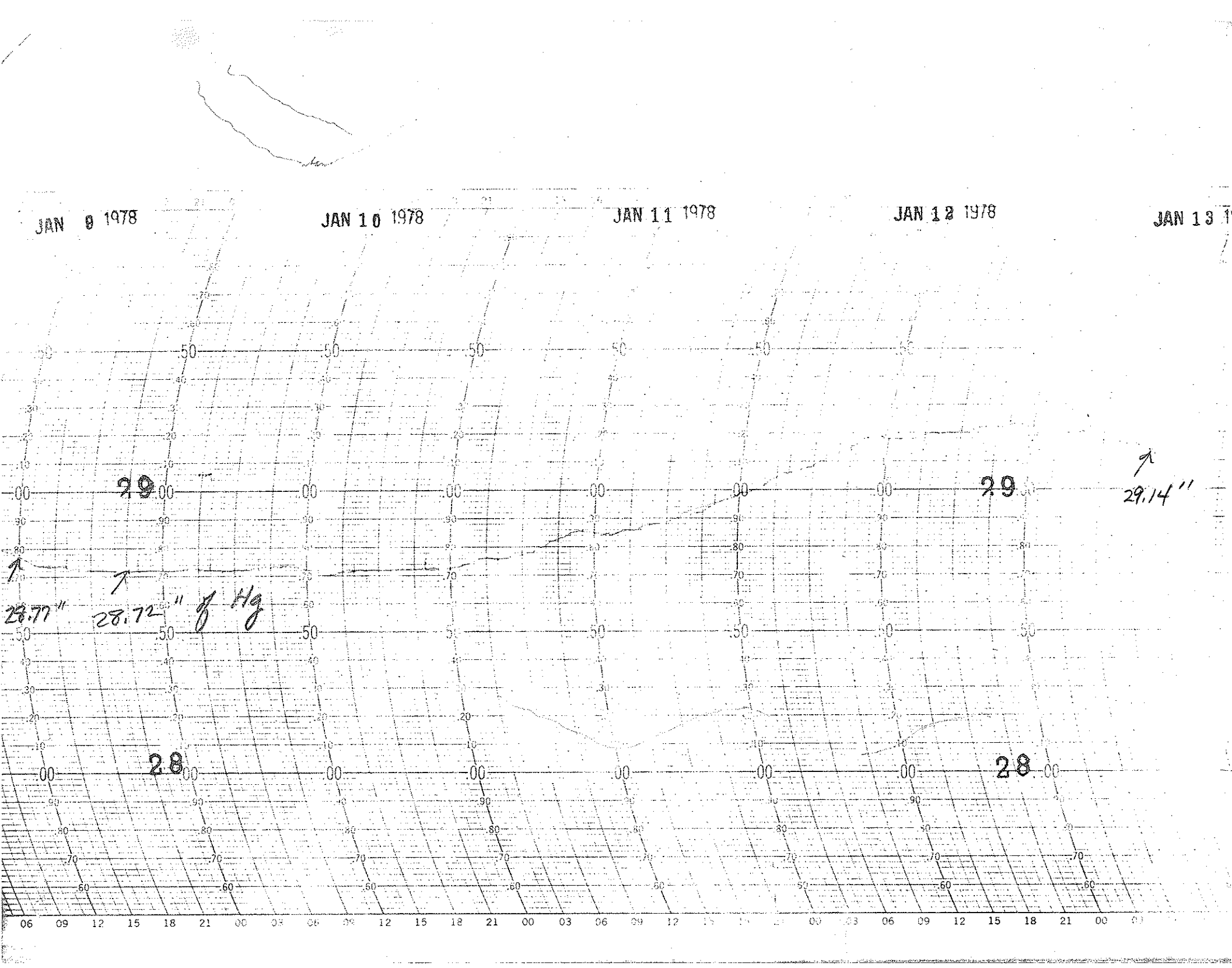
License No. 0027 Date 6/8, 19 77

(USE ADDITIONAL SHEETS IF NECESSARY)

OR

CY 050-1-20

3


JAN 9 1978
JAN 10 1978
JAN 11 1978
JAN 12 1978
JAN 13
29
29
28
28
28.77"
28.72" of Hg
29.14"
06 09 12 15 18 21 00 03 06 09 12 15 18 21 00 03 06 09 12 15 18 21 00 03

0942

Department of Ecology

908 909

DEPARTMENT OF ECOLOGY
WATER RESOURCES DIVISION
OLYMPIA, WASHINGTON 98504

288.95
125
163.85

AQUIFER TEST

Sheet 1 of 5

Owner CASCADE ORCHARDS Location 11/21-18 K Well No. CORS

Date 1-10-78 Meas. by NYERS/CANFIELD/NEWCOMB Test _____ County YAK

Meas. point _____ Elev. Meas. Point ~~1096~~ 1105 ACTIMETER

Meas. equipment E-TAPE

DTW$_o$ 163.85 t$_o$ 1145 Q 1090 GPM r 3325 FT.

Date	Hour	Water level			s	t	$\frac{1440r^2}{t}$	Remarks
		Held	Wet	Depth (DTW)				
1-11-78	SWL 1100	163.85						
	1145	163.85			0			Pump ON
	1147	163.85			0	2		2 minute reading
	1200				0	15		1147 - 1200 no change
	1205				0.02	20		
	1210				0.08	25		
	1215				0.12	30		
	1220				0.22	35		
	1225				0.27	40		
	1230				0.35	45		
	1235				0.41	50		
	1240				0.47	55		
	1245				0.57	60		
	1250				0.63	65		
	1255				0.80	75		
	1300				1.01	85		
	1326				1.26	101		
	1330				1.35	105		
	1340				1.51	115		
	1350				1.68	125		
	1400				1.85	135		
	1438				2.36	173		
	1509				2.80	204		

ECY 070-37

Department of Ecology

DEPARTMENT OF ECOLOGY
WATER RESOURCES DIVISION
OLYMPIA, WASHINGTON 98504

AQUIFER TEST

Sheet 2 of 5

Owner Cascade Orchards Location 11/21 13 E K Well No. _____

Date _____ Meas. by _____ Test _____ County _____

Meas. point _____ Elev. Meas. Point _____

Meas. equipment _____

DTW_o _____ t_o _____ Q _____ r _____

Date	Hour	Water level			s	t	$\frac{1440r^2}{t}$	Remarks
		Held	Wet	Depth (DTW)				
JAN 10	1535				3.12	220		
	1610				3.51	265		
	1700				3.75	295		
	1713				4.10	328		
	1800				4.52	387		
	1913				4.96	448		
	2015				5.39	511		
	2113				5.89	573		
	2220				5.96	635		
	2311				6.16	686		
JAN 11	0010				6.40	751		
	0111				6.58	806		
	0212				6.76	867		
	0312				6.91	927		
	0415				6.96	990		PUMP CHECKED
	0503				7.10	1038		
	0608				7.23	1103		
	0720				7.36	1175		
	0821				7.47	1216		
	0905				7.59	1280		
	1035				7.77	1390		
	1150				7.95	1445		PUMP OFF 1145
	1155				7.95			

ECY 070-37

Department of Ecology

DEPARTMENT OF ECOLOGY
WATER RESOURCES DIVISION
OLYMPIA, WASHINGTON 98504

AQUIFER TEST

Owner CASCADE ORCHARDS Location 11/21/18K Well No. _____

Date _____ Meas. by _____ Test _____ County _____

Meas. point _____ Elev. Meas. Point _____

Meas. equipment _____

DTW_o _____ t_o _____ Q _____ r _____

Date	Hour	Water level			s	t	$\frac{1440r^2}{t}$	Remarks
		Held	Wet	Depth (DTW)				
JAN 11	1200				7.92			
	1205				7.92			
	1210				7.91			
	1215				7.86			
	1220				7.83			
	1225				7.75			
	1230				7.68			
	1235				7.62			
	1240				7.53			
	1245				7.45			
	1252				7.34			
	1255				7.29			
	1300				7.20			
	1311				6.99			
	1320				6.85			
	1330				6.70			
	1340				6.55			
	1353				6.36			
	1406				6.18			
	1436				5.70			
	1540				5.05			
	1613				4.69			
	1643				4.46			

Department of Ecology

DEPARTMENT OF ECOLOGY
WATER RESOURCES DIVISION
OLYMPIA, WASHINGTON 98504

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AQUIFER TEST

Sheet 4 of 5

Owner Cascade Orchards Location 11/21/18K Well No. OB5

Date _____ Meas. by D. [illegible] Test DD/Rec County YAK

Meas. point _____ Elev. Meas. Point _____

Meas. equipment E Tape

DTW_o _____ t_o _____ Q _____ r _____

Date	Hour	Water level			s	t	$\frac{1440r^2}{t}$	Remarks
		Held	Wet	Depth (DTW)				
[illegible]	1712				4.30			
	[illegible]				3.90			96
	[illegible]				3.59			31
	[illegible]				3.35			
	2110				3.19			
	2213				3.04			
	2311				2.87			
JAN 12	0014				2.76			DOUBLE CHECKED
	0113				2.63			
	0216				2.50			
	0315				2.44			DOUBLE CHECKED
	0414				2.35			
	0513				2.28			
	0605				2.17			
	0708				2.13			✓✓
	0809				2.06			
	0925				1.99			

ECY 070-37

Department of Ecology

DEPARTMENT OF ECOLOGY
WATER RESOURCES DIVISION
OLYMPIA, WASHINGTON 98504

AQUIFER TEST

Owner CASCADE ORCHARDS Location 11/21/18K Well No. _____

Date JAN 1— '78 Meas. by _____ Test _____ County _____

Meas. point _____ Elev. Meas. Point _____

Meas. equipment _____

DTW_o _____ t_o _____ Q _____ r _____

Date	Hour	Water level			s	t	$\frac{1440r^2}{t}$	Remarks
		Held	Wet	Depth (DTW)				
JAN 12	1230				1.93			
JAN 13	1037				164.75			SWL