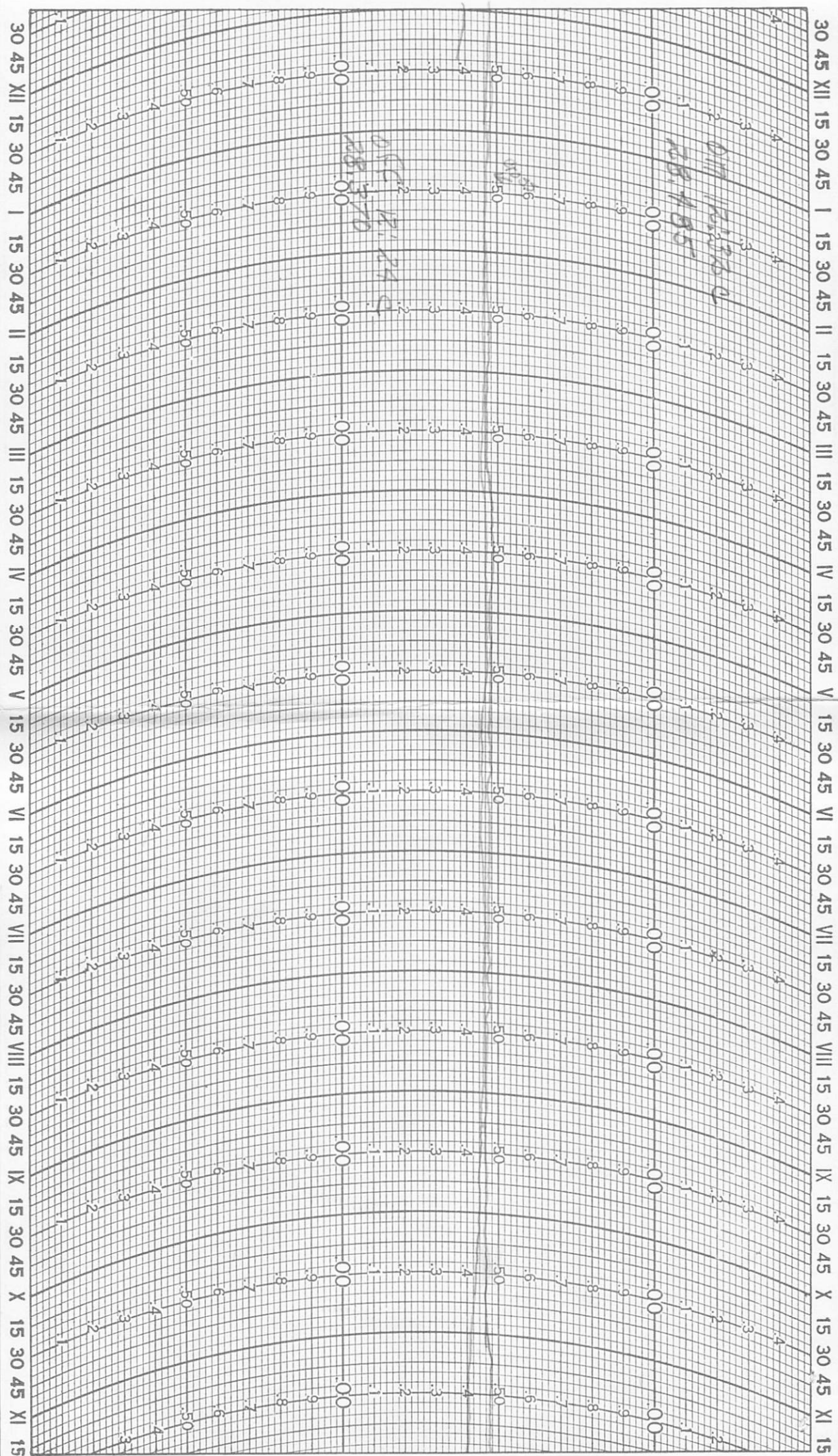


U. S. Department of Commerce, Weather Bureau

BAROGRAM

OPEN PRESSURE SCALE. 12 HOUR RECORD.

PEN ARM IS 7.625 INCHES LONG. AXIS 3.375 INCHES ABOVE CLOCK FLANGE.

STATION Wason City Airport DATE PUT ON 3/12/01 DATE TAKEN OFF 3/13

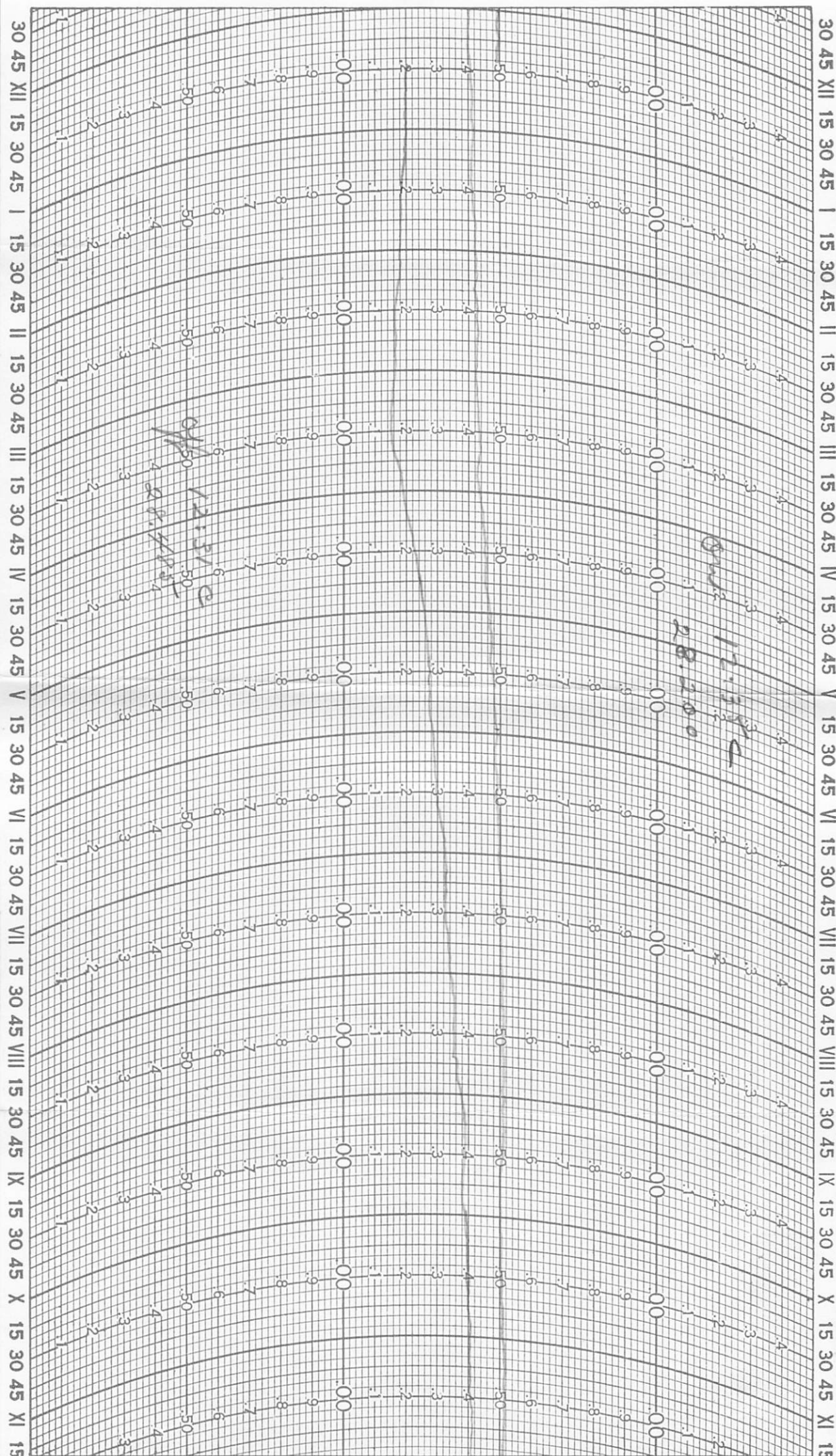
REMARKS

U. S. Department of Commerce, Weather Bureau

BAROGRAM

OPEN PRESSURE SCALE. 12 HOUR RECORD.

PEN ARM IS 7.625 INCHES LONG. AXIS 3.375 INCHES ABOVE CLOCK FLANGE.



STATION _____ DATE PUT ON 2/11 DATE TAKEN OFF 2/12

REMARKS _____

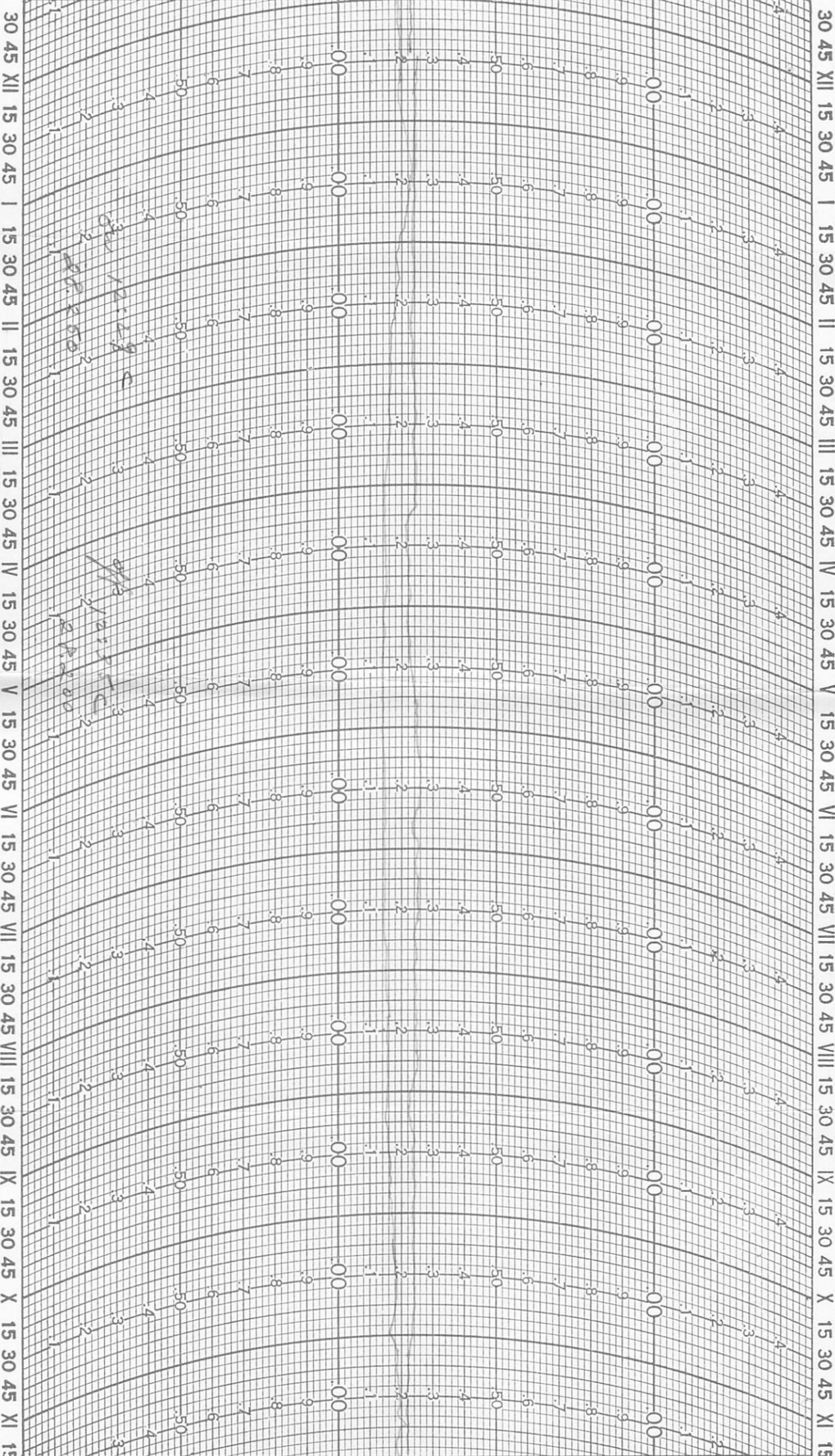
U. S. Department of Commerce, Weather Bureau

BAROGRAM

OPEN PRESSURE SCALE. 12 HOUR RECORD.

PEN ARM IS 7.625 INCHES LONG. AXIS 3.375 INCHES ABOVE CLOCK FLANGE.

29



STATION _____ DATE PUT ON 3/10 DATE TAKEN OFF 3/11

REMARKS _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington _____
District _____

Mason City # 314

8x6" grifone

Day	Time	elect. time	Mark	Rate	D/W	airline	Head	Q	Remarks
2/7	3:10					85.46			SWL.
	3:38								Start
		6	250	0.6	249.4				pump quit @ 6:15 min.
		8	180	5.9	174.1				recovery
		14	165						recovery
									Repaired pump shaft.
2/8 9AM									SWL = $120 - 2.6 = 117.4$
									total pump for several minutes.

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY

 File No. { Washington _____
 District _____

Time	Min.	Elect. Line Meters	Rule	D/w	Head	Q	Airline	Remarks
3/8 9:29								Starting level 165 ft.
9:30								start
	0:50			220				
	2	230	-3.5					
	3	230	-2.1					
	4	230	-1.1					
	5	230	-0.3			838		
	6	230	-					
	7	230	+0.6					
	8	230	+0.8			825		pump rate falling off
	10	230	+1.2			"		
	12	230	1.6			"		
	14	230	2.0			"		
	16	230	2.4	232.4		838		increase rate
	18	230	3.0	233				
	20	230	3.3	233.3				
	26	230	3.6					
	35	230	3.4	233.4				
?	37	180	+3.9					stopped pump at 35 ft
	38	190	-3.1					Measuring
	39	190						
	40	190	+1.8					
	49	190	-3.1					
11:14	114	170	+3.1	173.1				
1 PM		170	+2.3	172.3				

 Bring up ~~start~~ log books

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY

 File No. { Washington _____
 District _____

Time	Min.	Mark	Rule	D/w	Airline	Head	p	Remarks
			SWL					170 + 3.2 = 173.2
1 pm	1:15	230		230.0				
	2	230	+4.4	234.4				
	4	240	-1.8	238.2				
	5		-0.9	239.1				
	6		-0.3	239.7				
	7		+0.3	240.3				at top 1100-1200
	8		+0.9	240.9				
	9		+1.3	241.3				
	10							decrease rate
	11	240	+0.6	240.6		1000		
	12		+1.2	241.2				
	14	240	+1.9	241.9				
	16		+2.3	242.3				
	18		+2.6	242.6				
	20		+2.85	242.8				
	25		+2.8	242.8				rate increased
	31	240	+3.1	243.1				slightly
	35	240	2.8	242.8				sand in 1400
	41	240	2.6	242.6		1000		sand in 1400
	50	240	2.65	242.6				
	60	240	2.5	242.5				
	75	240	2.25	242.25				
2:30	90	240	2.2	242.2		1000		
2:45	105	240	2.1	242.1				
	106					1200		increase rate to 1200 gpm
	110	250	1.6	251.6				
	112		2.2	252.2				
	114		2.6	252.6				
	116		3.0	253.0				
3 pm	120	250	3.7	253.7		60 1/2		

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY

 File No. { Washington
 District

min			D/w	Head	Q	
3:05	125	250	4.1	254.1	60 1/2	Water T = 51°
3:15	135	250	3.75	253.75	60 1/2	air temp 28°
3:30	150	250	3.8	253.8	60 1/2	
3:45	165	250	3.5	253.5	60 1/2	cloudy
4:00	180		3.2	253.2		
4:15	195		3.15	253.15	60 1/2	
4:30	210		3.05	253.05	61	T = 51°
4:45	225	250	3.0	253.0		slightly cloudy with sand
5:00	240	250	3.0	253.0	61	getting clearer.
5:30	270	250	3.0	253.0	61	
6:00	300	250	3.2	253.2	61	
6:30	330	250	3.2	253.2	61	
7:00	360	250	3.1	253.1	61	slightly cloudy, but
7:30	390		3.2	253.2	61	clearing
7:45						shut-off to surge
8:00					42 1001	
8:15	240	+1.7	241.7		46 1/2 985	T 51° : air 28 1/2°
8:35	240	+1.6	241.6			
8:38						opened full
8:45	250	+1.6	251.6		60 1/2 1200	clear
9:00	250	+3.4	253.4			
9:01						shut down to surge.
9:05						52 lbs on gage.
9:15					38 985	slightly cloudy
9:30	240	+0.8	240.8			
9:31						opened up full
10:00	250	+3.6	253.6		60 1/2 1195	

 333 235
 80 48
 253 183

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

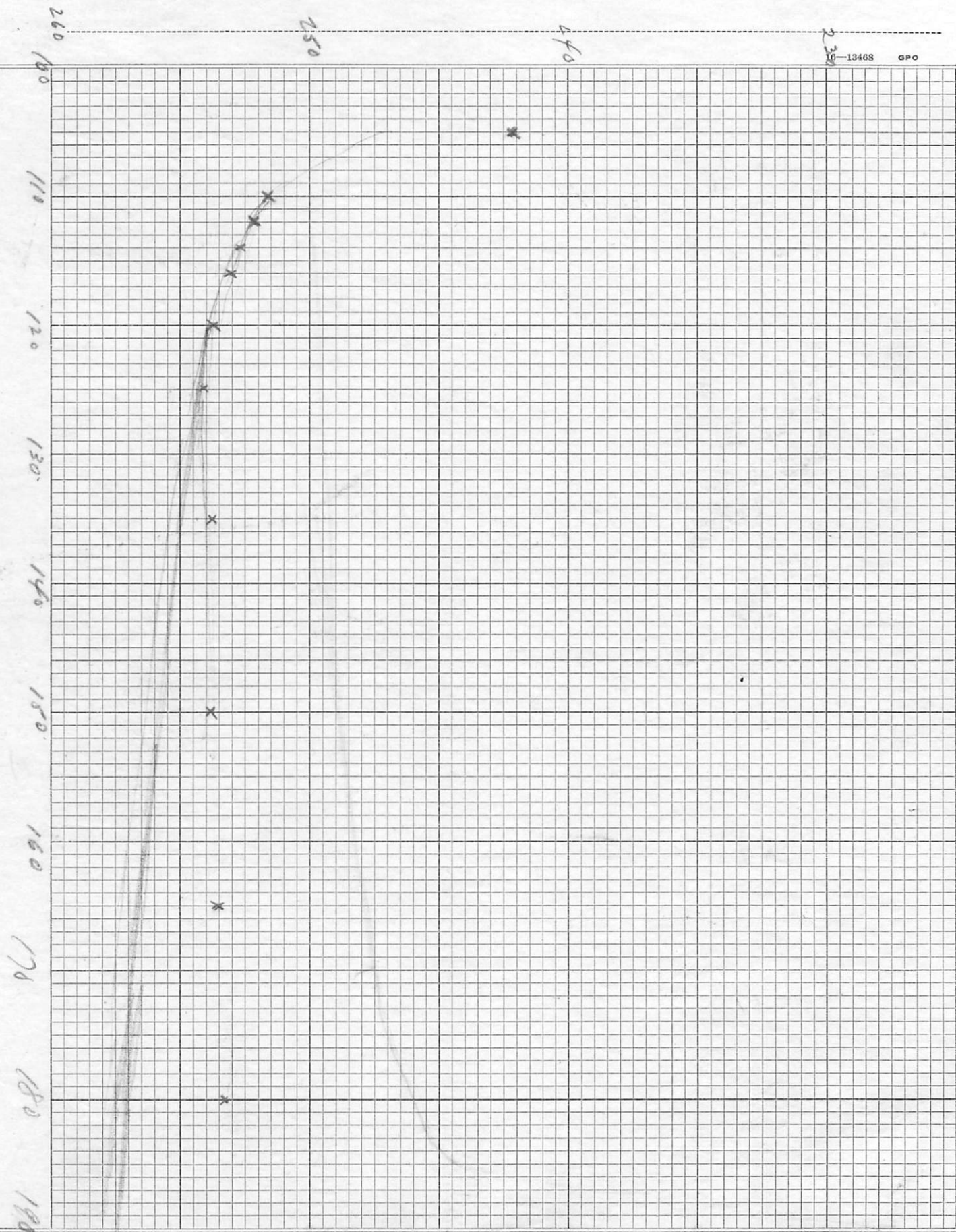
File No. { Washington -----
District -----

[illegible]

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

File { Washington
Number { District

(DO NOT USE THIS SPACE EXCEPT FOR BINDING PURPOSES)

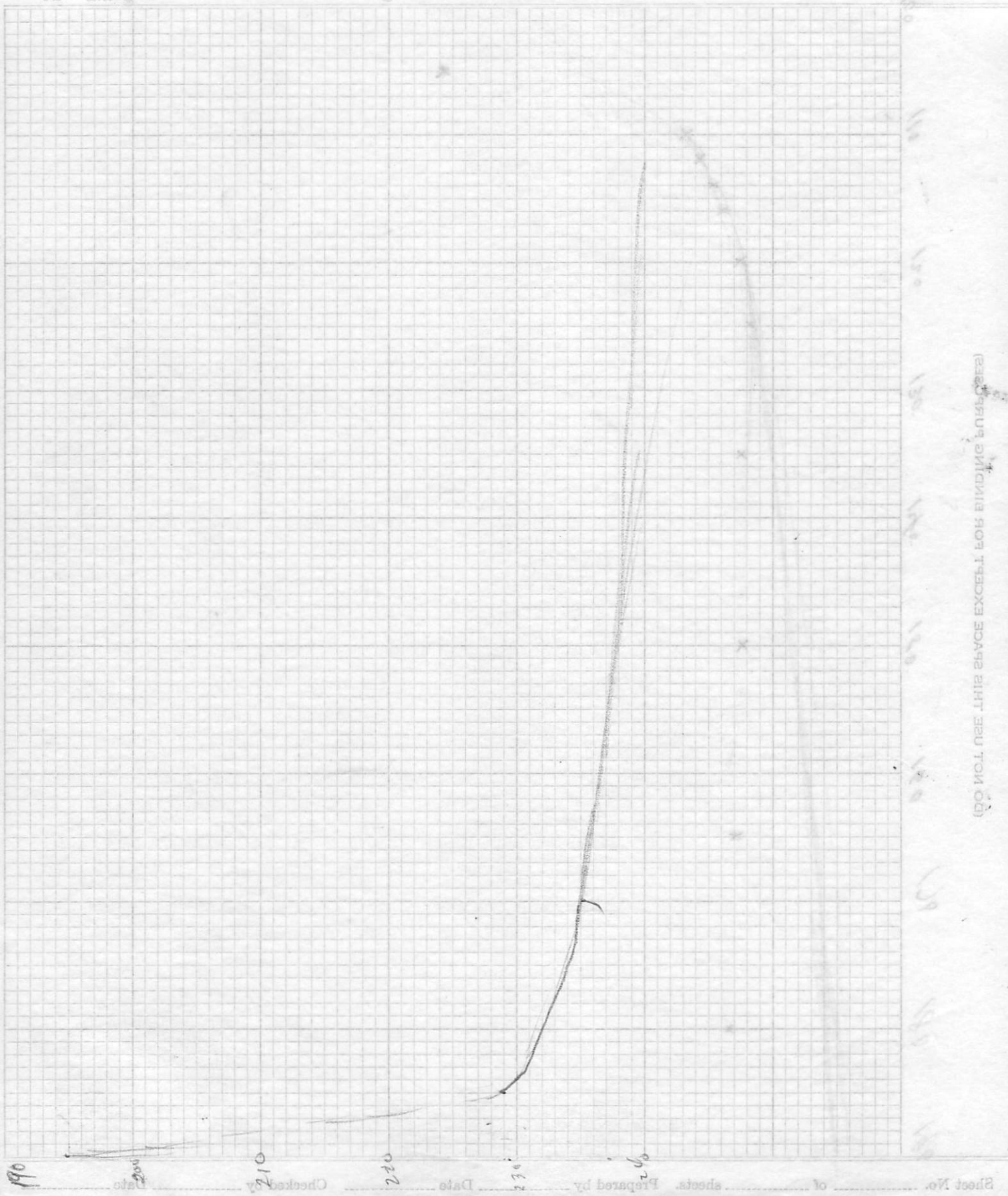


UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

File
Number
District

Washington

1908



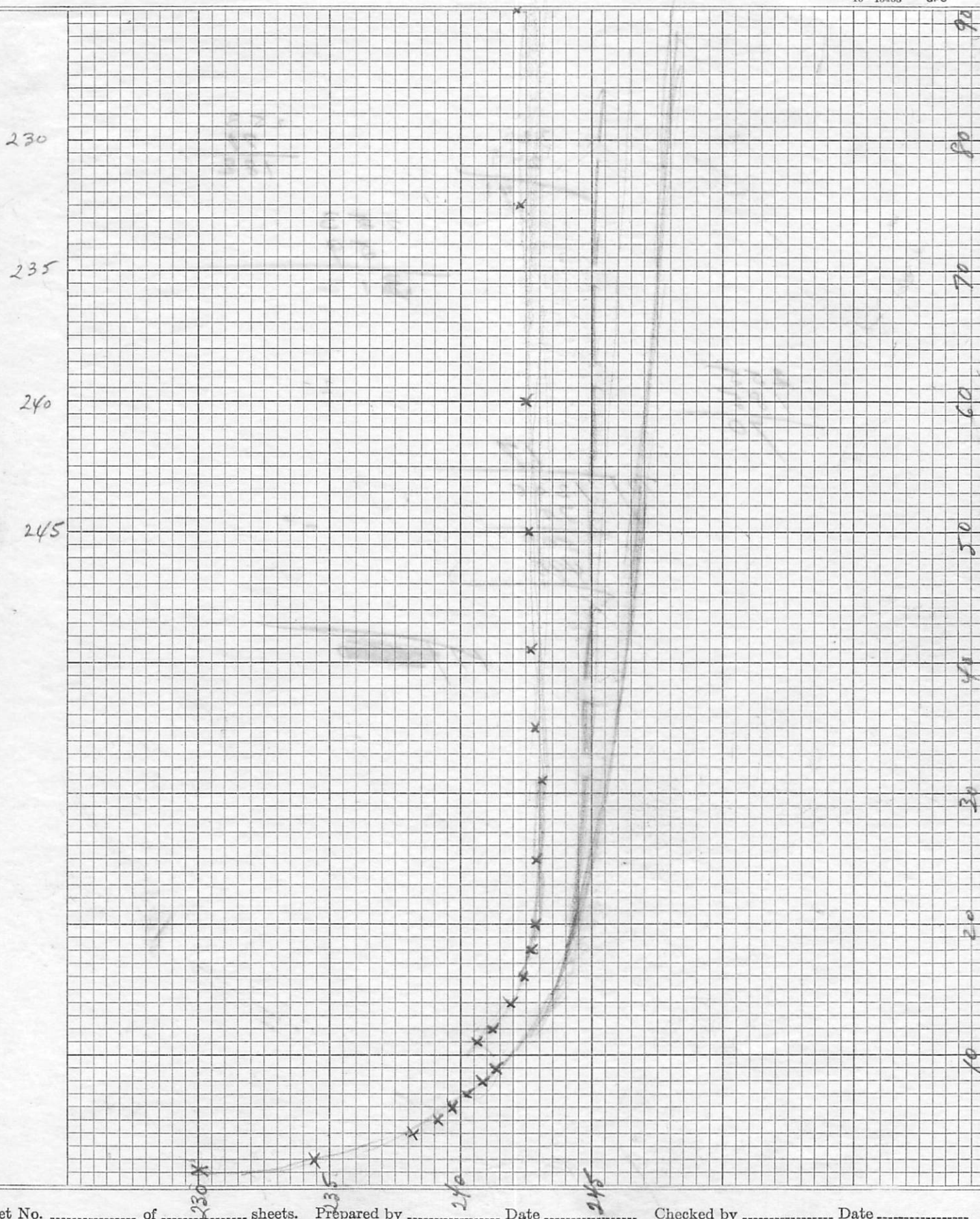
(DO NOT USE THIS SPACE EXCEPT FOR BINDING PURPOSES)

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

File { Washington
Number { District

16-13468 GPO

(DO NOT USE THIS SPACE EXCEPT FOR BINDING PURPOSES)



UNITED STATES
 DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY

 File No. { Washington _____
 District _____

1

Mason City #14

3/11/57

Time	elapsed Min	Hold	tape	D/W	s	h	(gpm)	Remarks
3/11/57 11:09				194.35				S.W.L.
11:11:15								Start Pump
16	5	230	-0.72	229.28	34.93	51	1100	
17	6		+0.12	230.12	35.77			
18	7		+0.72	230.72	36.37			water clear
19	8		+1.21	231.21	36.86			
20	9		+1.90	231.90	37.55			
21	10		2.32	232.32	37.97			
22	11		2.71	232.71	38.36			
23	12		3.10	233.10	38.75			
24	13		3.36	233.36	39.01			
25	14		3.60	233.60	39.25			
26	15		4.22	234.22	39.87			
27	16		4.74	234.74	40.39			
28	17		5.21	235.21	40.86	51 1/2	1105	
11:35	24	240	-3.92	236.08	41.73			water clear
11:40	29		3.31	236.69	42.34			extremely small
11:45	34		2.88	237.12	42.77			amount sand
11:50	39		2.49	237.51	43.16			
N 12:00	49		1.94	238.06	43.71	51-51 1/2		50°F water
12:10	59		1.50	238.50	44.15			53°F air
12:15	64		1.33	238.67	44.32	51	1100	water clear
12:30	79		0.80	239.20	44.85	51	1100	
12:45	94		0.20	239.80	45.45			
1:00	109		+0.12	240.12	45.77			
1:15	124		+0.42	240.42	46.07	51	1100	50°F water
1:30	139		0.65	240.65	46.30			54°F air
2:00	169		1.02	241.02	46.67	51	1100	
2:58	227		1.70	241.70	47.35	51	1100	water clear
3:30	259		1.86	241.86	47.51	51	1100	50°F water
4:00	289		2.17	242.17	47.82	51	1100	very little fine
5:00	349		2.85	242.85	48.50			sand.

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY

 File No. { Washington _____
 District _____

Mason City # 14 (Recovery)

3/12/57

Time	elapsed Min	Hold	type	$\frac{D}{W}$			Recovery %	Residual %	Remarks
3/12 12:30p				246.16					stop pump
	1	210	-0.28	209.72					
	2		-0.93	209.07					
	3		+2.81	212.81					
	4		+2.97	212.97			33.19	18.62	
	5		+2.27	212.27			33.89	17.92	
	6		+1.64	211.64			34.52	17.29	
	7		+1.25	211.25			34.91	16.90	
	8		+0.80	210.80			35.36	16.45	
	9		+0.41	210.41			35.75	16.06	
12:40	10		+0.03	210.03			36.13	15.68	
	11		-0.29	209.71			36.45	15.36	
	14		-1.15	208.85			37.31	14.50	
	16		-1.65	208.35			37.81	14.00	
	18		-1.94	208.06			38.10	13.71	
12:50	20		-2.41	207.59			38.57	13.24	
	22		-2.52	207.48			38.68	13.13	
	24		-2.90	207.10			39.06	12.75	
	26		-3.16	206.84			39.32	12.49	
	28		-3.38	206.62			39.54	12.27	
1:00	30		-3.57	206.43			39.73	12.08	
	35		-4.15	205.85			40.31	11.50	
1:10	40		-4.68	205.32			40.84	10.97	
1:15	45		-5.08	204.92			41.24	10.57	
1:20	50		-5.44	204.56			41.60	10.21	
1:30	60		-5.97	204.03			42.13	9.68	
1:40	70	200	+3.62	203.62			42.54	9.27	
1:57	87		+3.07	203.07			43.09	8.72	
2:53	143		+0.95	+0.9% = +1.87	201.87		44.29	7.52	M.P. changed 0.9% lower
3:45	195		0.00	+0.9% = +0.9%	200.9%		45.24	6.57	
5:05	275		-0.68	+0.9% = +0.24	200.24		45.9%	5.89	
									chg elect lines (to small)

9-26-69
RP 11-22-70

STATE		COUNTY		LATITUDE							LONGITUDE							SEQ. NO.
				DEG		MIN		SEC		N or S	DEG		MIN		SEC.			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	9	1	7	4	3	0	8	1	7	N	0	9	3	1	0	4	8	1

WELL SCHEDULE
US GEOLOGICAL SURVEY

IOWA DISTRICT WRD

WELL NO 096-20W-15 AAAA CO CERRØ GØRDØ
OWNER CITY WELL #14 ADDRESS MASON CITY
DRILLER LAYNE WESTERN DATE DRLD 3-12-57
MAP _____
SOURCE OF DATA FILE
DESCRIPTION M. P. LSD FEET (ABOVE) (BELOW) LSD

[illegible]

WELL-DESCRIPTION CARD - B

[illegible]

HYDROGEOLOGIC CARD - C

[illegible]

CASING AND SCREEN (SIZE, TYPE, INTERVALS):

20' CSG. SET AT 150'
120' ØF 18" CSG. SET AT 770'
107' ØF 16" CSG. SET AT 849'

CODED BY Hepburn SD DATE 12-20-72

PUNCHED BY KH - Davis DATE 1-2-72

VERIFIED BY _____ DATE _____

SKETCH ON REVERSE: YES _____ NO _____

A 4x4 grid with dashed lines. The number 15 is written in the center of the grid.

WELL NO. 096-20W-15 AA AA

temp. 51°

DETAILS OF WELL CONSTRUCTION MASON CITY, IOWA

OCT. 22, 1956

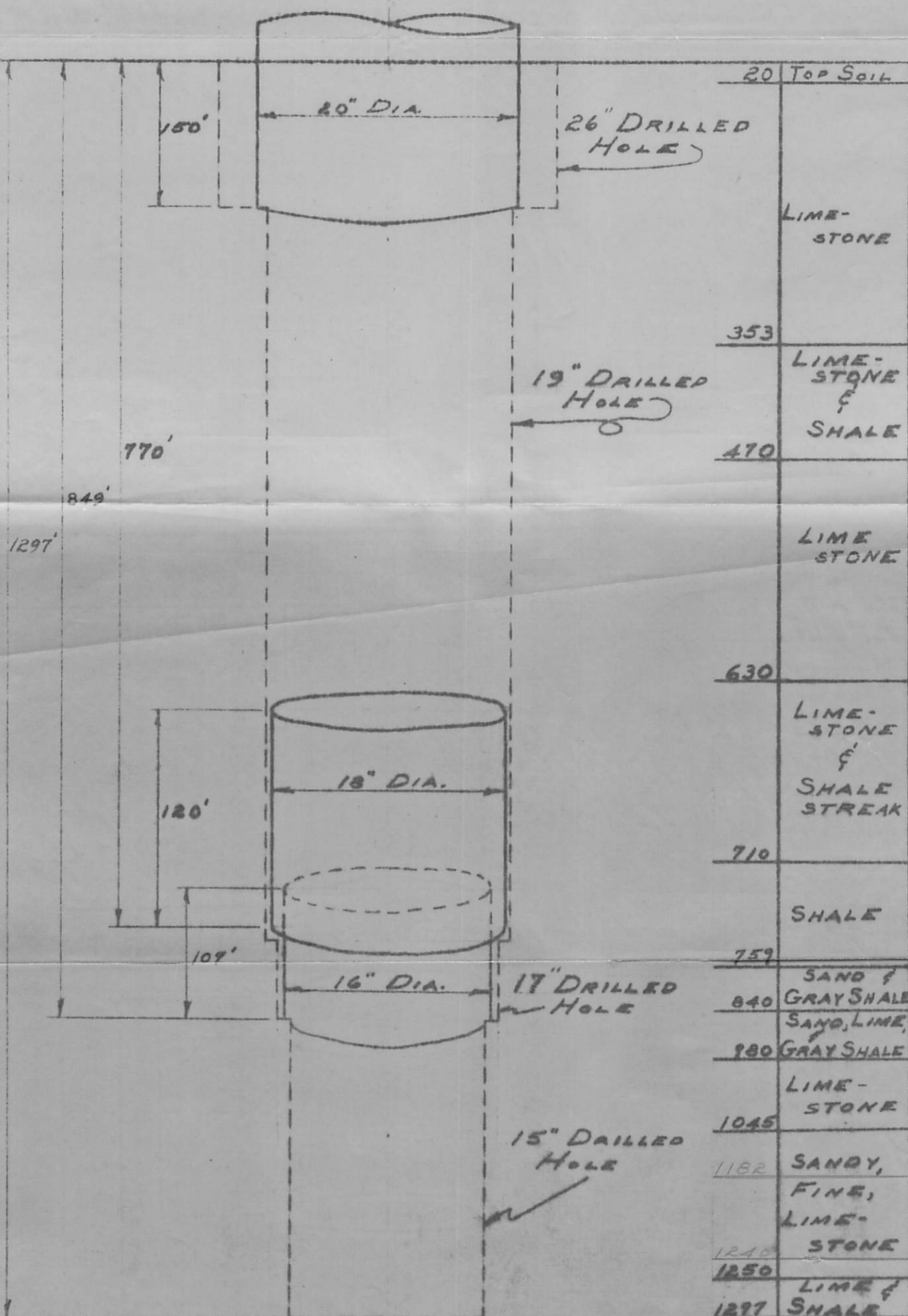
MAY 23 1957

LAYNE WESTERN CO.

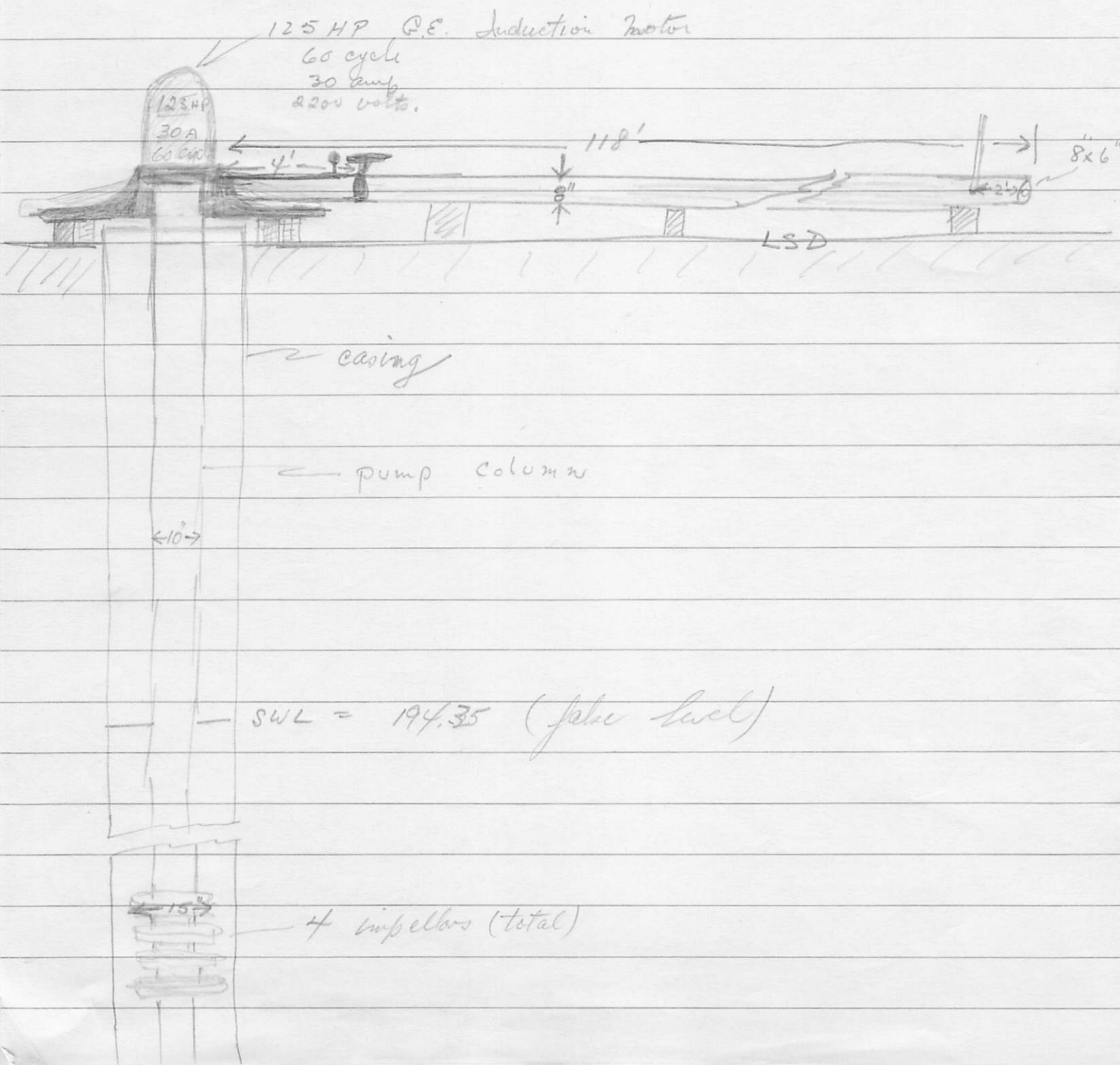
AMES, IOWA

CONSTRUCTION

LOG



Pumping Test Marion City # 14



UNITED STATES
 DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY

 File No. { Washington
 District

Disch line ~~10~~⁸" - 118' long
 8x6 orifice meter - 2' from end

15" bowls - 4 impellers
 10" pump column - set at
 330 with 20' tail pipe below

gate valve set 4' from
 pump column. w/ pressure gage

General Elect. ^{Induction} Motor

125' H P

30 amp

6 cycle

2200 volt

Pat - W

IOWA GEOLOGICAL SURVEY
In Cooperation with U. S. Geological Survey

W 8079

RECORD OF WELL

Location: KENTUCKY AVE. SE.
N. of MILWAUKEE ROAD TRAILS
(NE)
Town: MASON CITY (SW) : County CENNA GOND
NE 10 sec. 15 T. 96 N., R. 20 W. Twp.

Well name and number _____

Owner MASON CITY CITY WELL #14 Address _____

Tenant _____ Address _____

Contractor LAYNE-WESTERN Address AMES

Drillers _____

Drilling dates AUG. 22, 1956 - March 12, 1957

Well data:

Altitudes: Drilling curb _____ feet; Land surface _____ feet

Determined by _____

Topographic position _____

Total depth: Reported 1297 feet, Measured _____ feet

Drilling method CABLE TOOLS

Hole and casing data _____

Original depth to water 194.35 ft. above _____ below _____ Date _____

Source of data _____

Sources of water: Principal _____

Others _____

Production Data

Date			
Static water level	<u>199.35</u>		
Measuring point			
Pumping water level	<u>246.7</u>		
Yield (g. p. m.)	<u>1100</u>		
Duration of pumping			
Specific capacity			

Pump Data

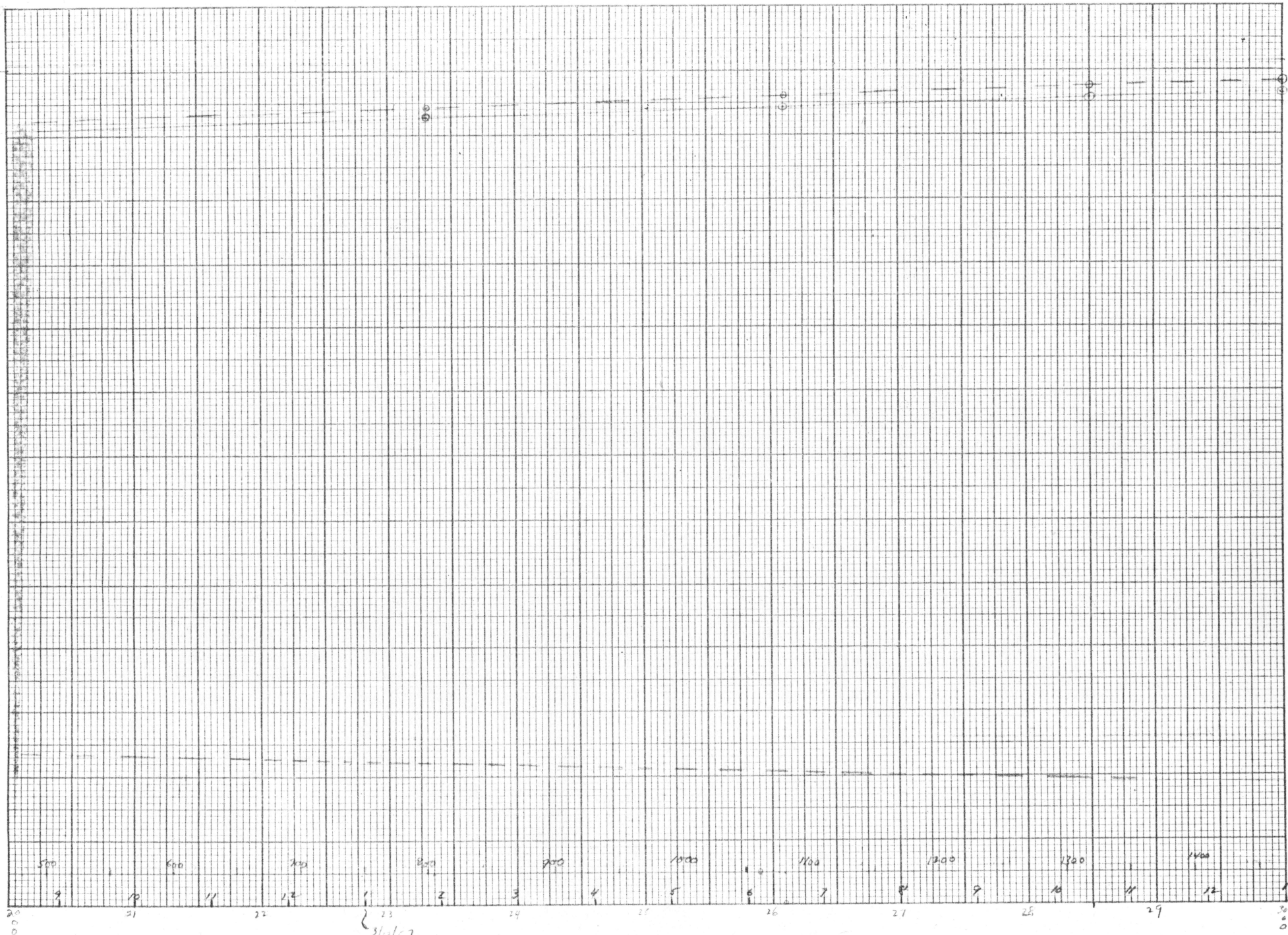
Type pump		Column diameter and length	
Cylinder or bowls diameter and length			
Suction pipe		Airline	
Power		Production	
Use of water		g. p. m. for	hours per day

Dissolved constituents and properties (in parts per million except as indicated)

Date sampled			
Sampled by			
Silica (SiO ₂)			
Iron (Fe)			
Manganese (Mn)			
Calcium (Ca)			
Magnesium (Mg)			
Potassium (K)			
Sodium (Na)			
Carbonate (CO ₃)			
Bicarbonate (HCO ₃)			
Sulfate (SO ₄)			
Chloride (Cl)			
Fluoride (F)			
Nitrate (NO ₃)			
Dissolved solids			
Hardness (as CaCO ₃)			
Total			
Grains per gallon			
Noncarbonate			
Alkalinity (as CaCO ₃)			
pH			
Specific conductance			
(micromhos at 25°C)			
Temperature (°F)			
Analysis No.			

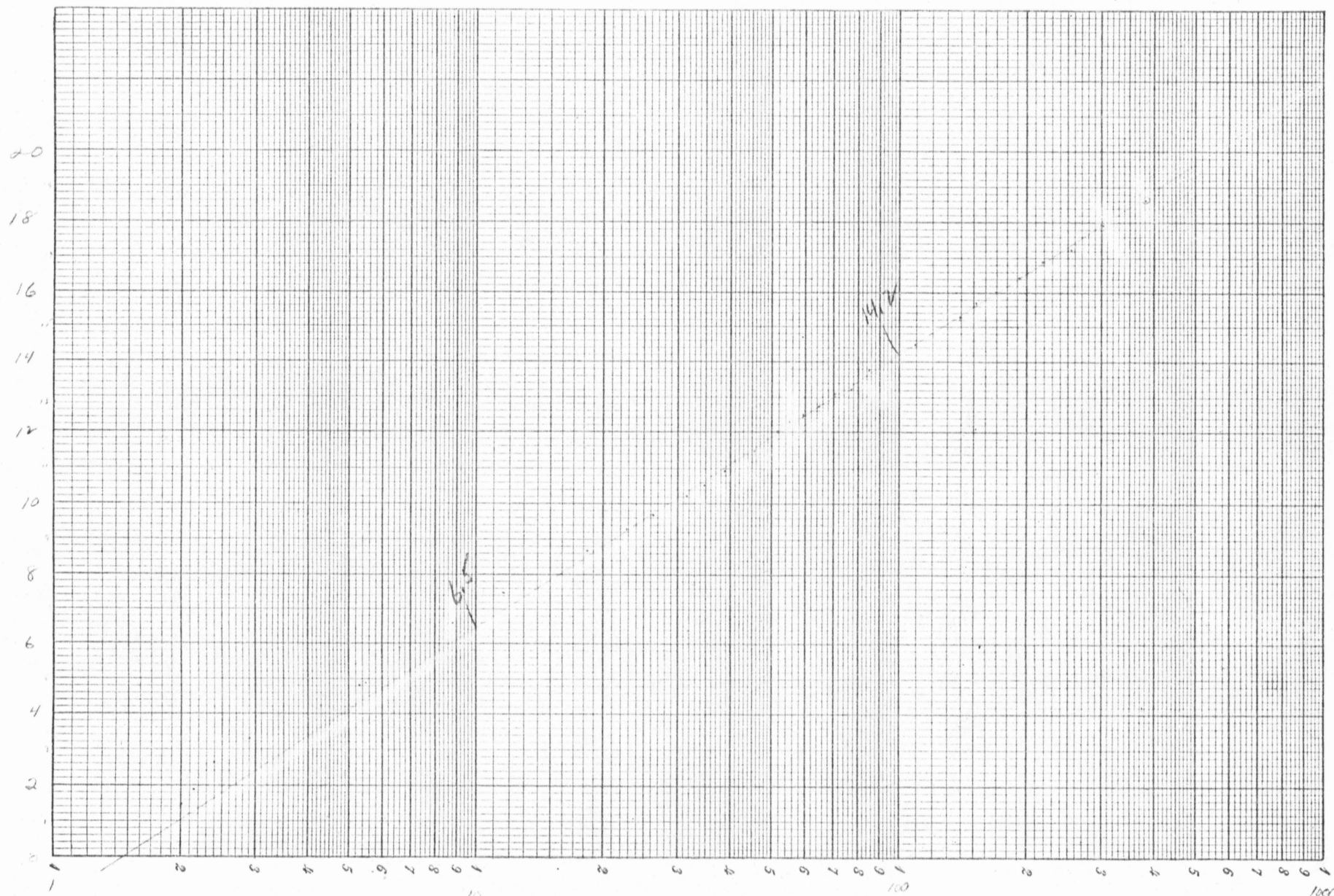
Laboratory Data

Well No.	<u>W 8079</u>	Sample range	<u>0-1297</u>	No. of samples	<u>250</u>
No. of dupls. and cond.	<u>247 Good</u>	Washed range	<u>19-1297</u>	Date	<u>10-16-56 → 3/12/57</u>
Samples prepared by	<u>Varland & Dow</u>	Date	<u>Feb 1956 - Wm 1957</u>	Date	<u>" "</u>
Logged by	<u>Nontup</u>	Date	<u>" "</u>	Date	<u>" "</u>
Correlations by	<u>" "</u>	Date	<u>" "</u>	Date	<u>" "</u>





in 1/4" plot for recovery formula
Mason City #14



$$T = \frac{2640}{\log \frac{264 \cdot 110}{2.7}} = 3260$$

t/4 = min

