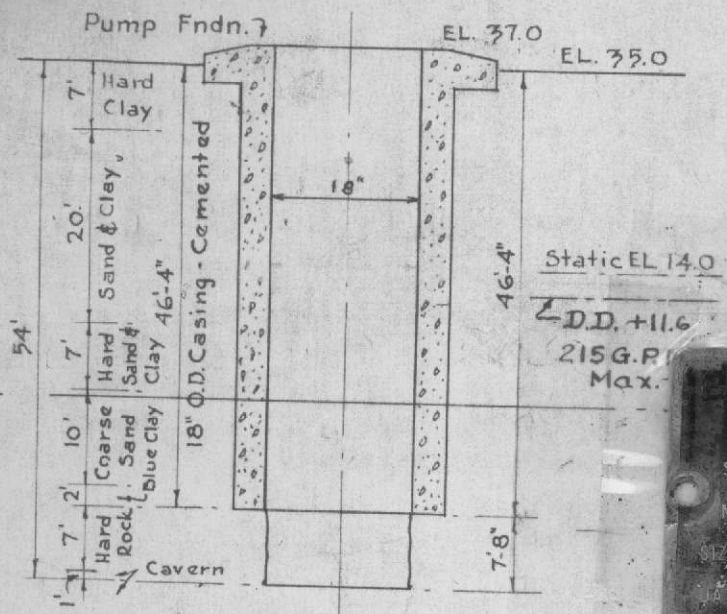


ANGLE DRIVE 7211.R  
 +83 actual. Recom. 215 G.P.M. 7 1/2 H.P.



AIR LINE. 50 FT. 10-15-53  
 STATIC - +17.5 ft. X"  
 DD. LEVEL. +10.5 ft. X"  
 DD. - 7 ft. "

(new air line - 11-29-66. 50 ft.  
 BY CAMPBELL)



GOULDS PUMPS INC

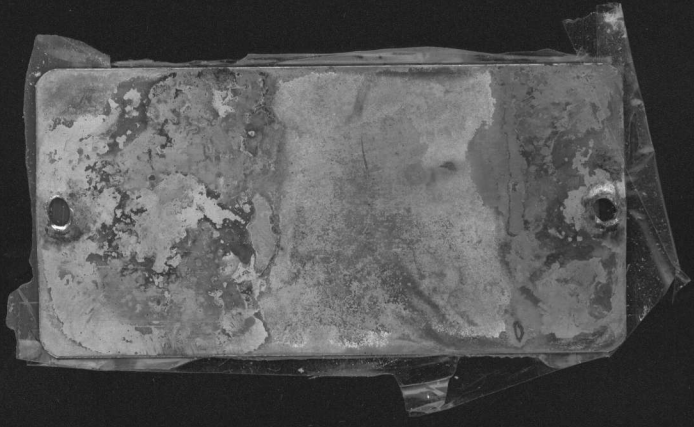
MOTOR DIVISION

SERIAL NO. M51-22-31

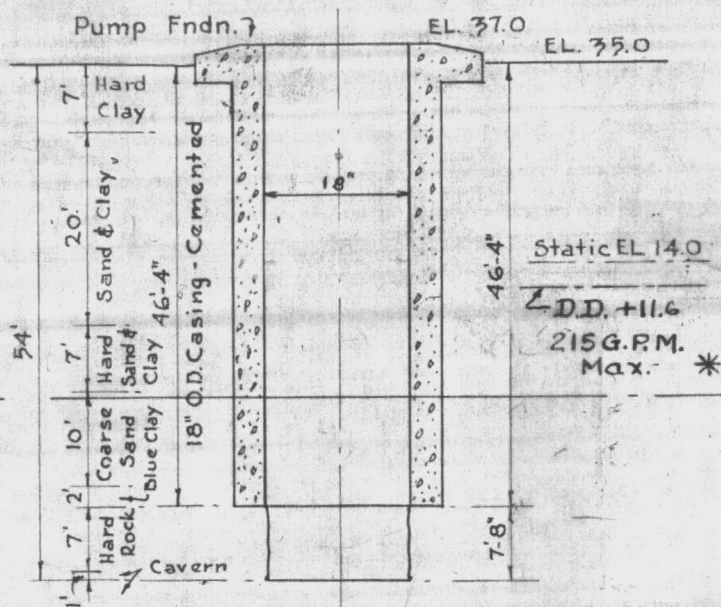
MODEL K-250

DATE FEB 1958





200 G.P.M. — SINGLE DRIVE — 1/2 H.P.  
 +83. " " actual. Recom. 215 G.P.M. 7 1/2 H.P.



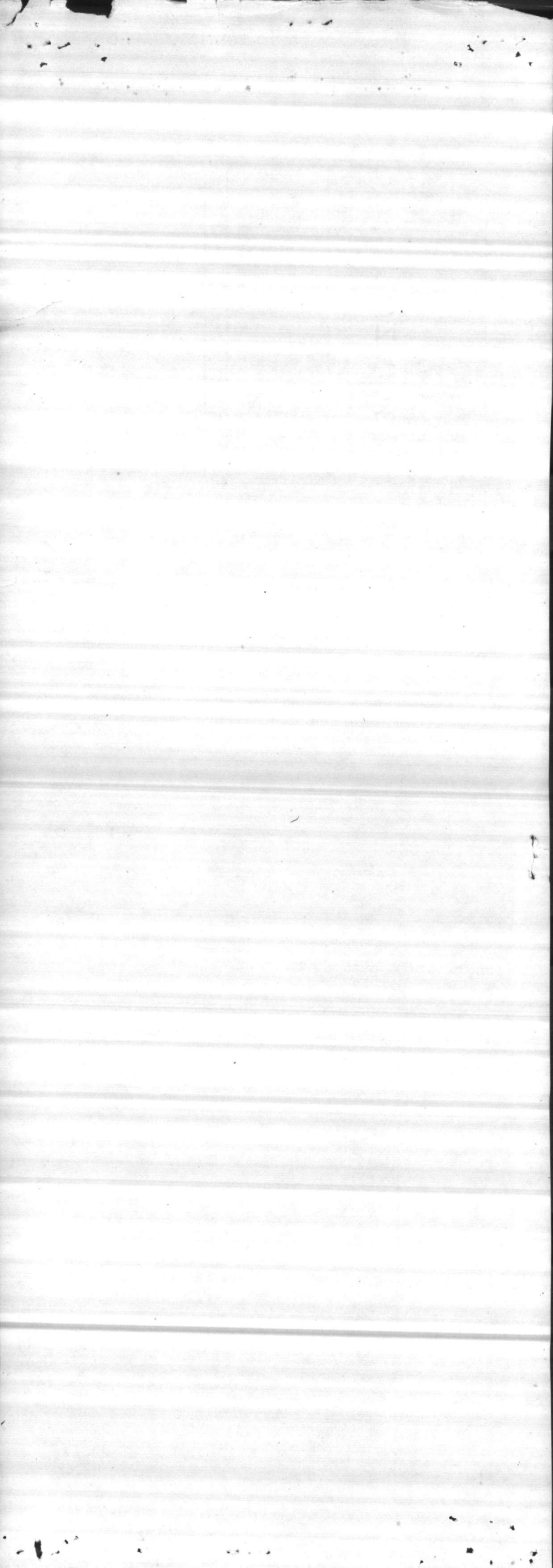
AIR LINE. 50 FT. 10-15-53

STATIC - +17.5 ft. X "

DD. LEVEL. +10.5 ft. "

DD. - 7 ft. "

(new air line - 11-29-CC. 50 ft.  
 BY. CAMPBELL)





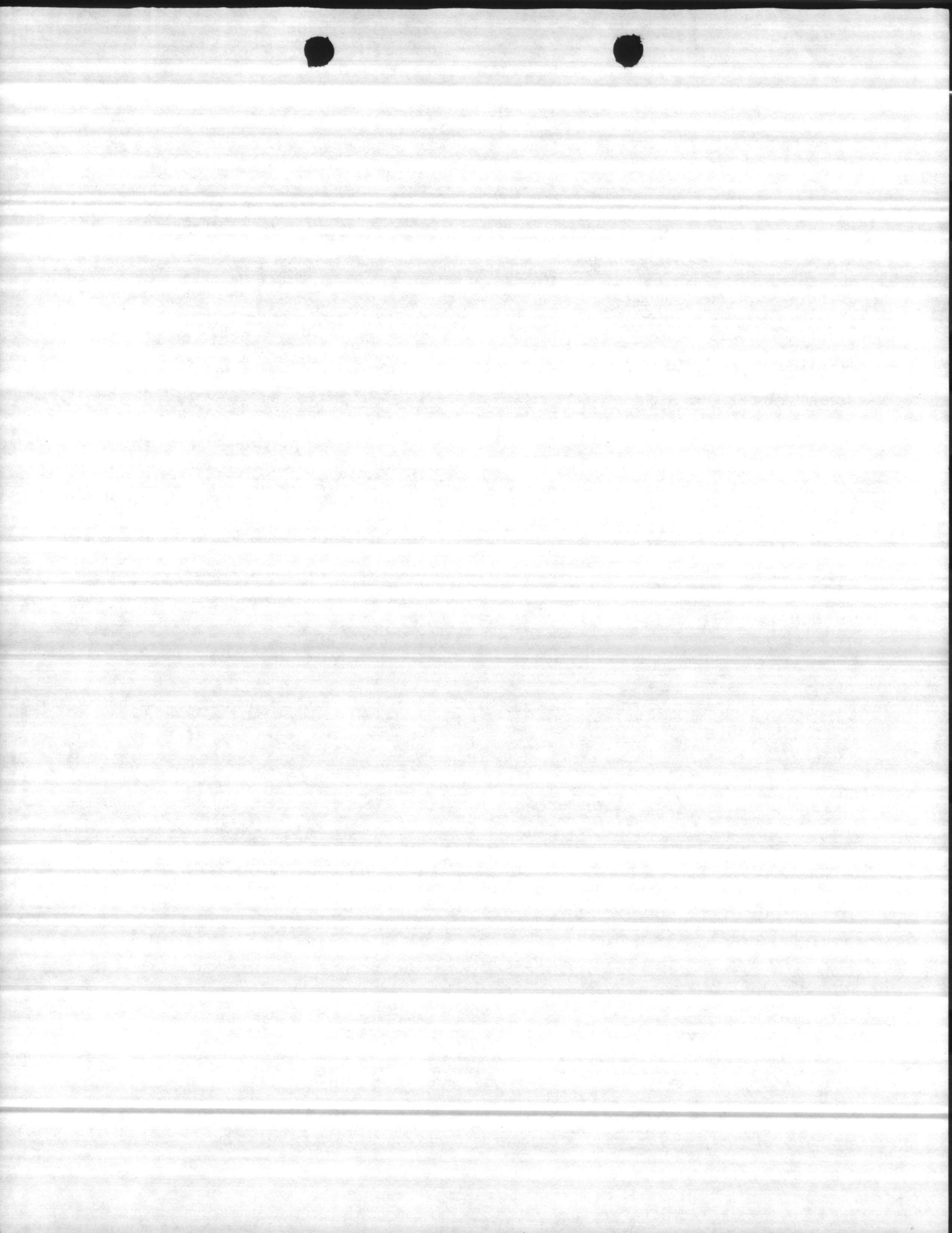
DATE 2-25-00

PWSID 04-67-041

WELL # HP 620  
WELL NAME HADNOT POINT HP20  
BLDG. HP 620  
CODE G.  
AVAILABILITY P.  
LOCATION SAW MILL ROAD.

LATITUDE 34.70856  
LONGITUDE 77.31402  
WELL DIAMETER 18"  
WELL DEPTH 52'  
SCREEN INTERVAL \_\_\_\_\_

YIELD 280  
STATIC LEVEL 20'  
PUMPING LEVEL 25'  
PUMP TYPE VERTICAL TURBINE  
MOTOR HP 5  
INTAKE DEPTH 32  
DESIGN CAPACITY 160  
ACTUAL GPM 280  
SIZE OF CONCRETE SLAB \_\_\_\_\_  
HEIGHT OF CASING 16"













# SOURCE INFORMATION GROUND WATER

Date Form Completed

M	M	D	D	Y	Y
2	7	2	5	9	5

PWSID  
0467041

Owner Assigned source Code: 220 Well Name (If purchase, name of system): HADNOT POINT 620

Code: G  
 G=Ground  
 W=Purchase/G  
 Y=G w/direct influence  
 Z=W w/direct influence

Availability: P  
 P=Permanent  
 E=Emergency  
 S=Seasonal  
 I=Interim  
 O=Other

If Purchase, seller ID#:      Source Begin Date:      Source exempt—SWTR?  Y  N Direct Influence Date:     

Location of well within the system (If purchase, location of master meter): SAW MILC ROAD

Latitude (N): 3442.30 Longitude (W): 07718.52 How Determined: 0 (G=GPS, M=Map, S=Surveyed) GPS Data:      No. of Sats. Locked on:     

(If purchase, use seller's primary source lat/long) Vulnerable (VOCs)  Y  N Assessment Date:     

## ENTRY POINT INFORMATION

Owner Assigned Entry Point Code: 100 Use Code: C (C=Ground/Permanent, D=Ground/non-permanent) Availability: P (P=Year-round, E=Emergency, S=Seasonal, I=Interim, O=Other)

Entry Point Name: ~~HP-20 MCB~~ HADNOT PT WTP

Location: \_\_\_\_\_

Well Site: Owned or controlled?  (Y,N) Control Area (100' radius)?  (Y,N) If no, explain: \_\_\_\_\_

Sources of pollution/distance: None

Surface water within 200'?  Y  N If yes, actual distance      feet If yes, bact. samples collected?      (Y,N)

Adequate slope?  (Y,N) Flooding?  (Y,N) Maintenance: OK

Well House: Free of stored materials?  (Y,N) Properly drained?  (Y,N) Locked?  (Y,N)

Condition of house: ok Type of freeze protection: None

Well: Diameter: 18" Type: OPEN HOLE Yield (gpm): 105/160 Properly sealed?  (Y,N)

Properly vented?  (Y,N) Casing depth 46 ft. (If unknown, put 'LNK') Well depth: 52' Meter available?  (Y,N)

Concrete slab adequate?  (Y,N) If no, explain: \_\_\_\_\_ Size: 76x6

Size of blow-off: 3" (C) Sample tap: Before treatment?  (Y,N) After treatment?      (Y,N)

Pumps: Capacity: GPM: 100 105 HP: 5 Pump intake depth: 52 Auxiliary Power?  (Y,N)

Type pump: VERTICAL TURBINE Height above floor (pump/casing): 16"

Storage at well site: Elev:      Hydro:      Ground:     

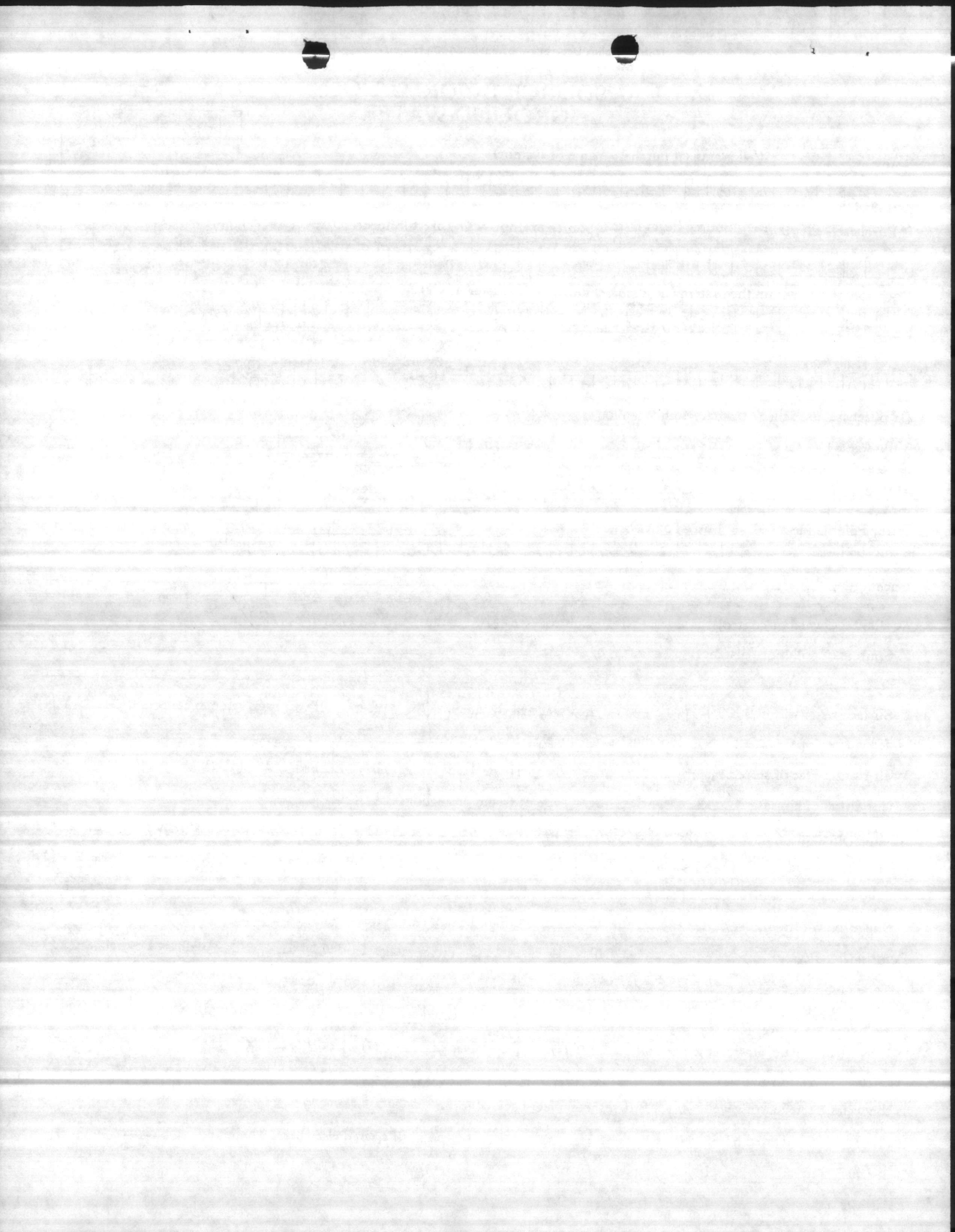
If hydroautomatic, air volume control?      (Y,N) Safety valves?      (Y,N) Coded?      (Y,N)

High service pumps: 1.      gpm      hp 2.      gpm      hp 3.      gpm      hp Auxiliary Power?      (Y,N)

Is the water treated at this well?  Y  N If yes, complete back of form.

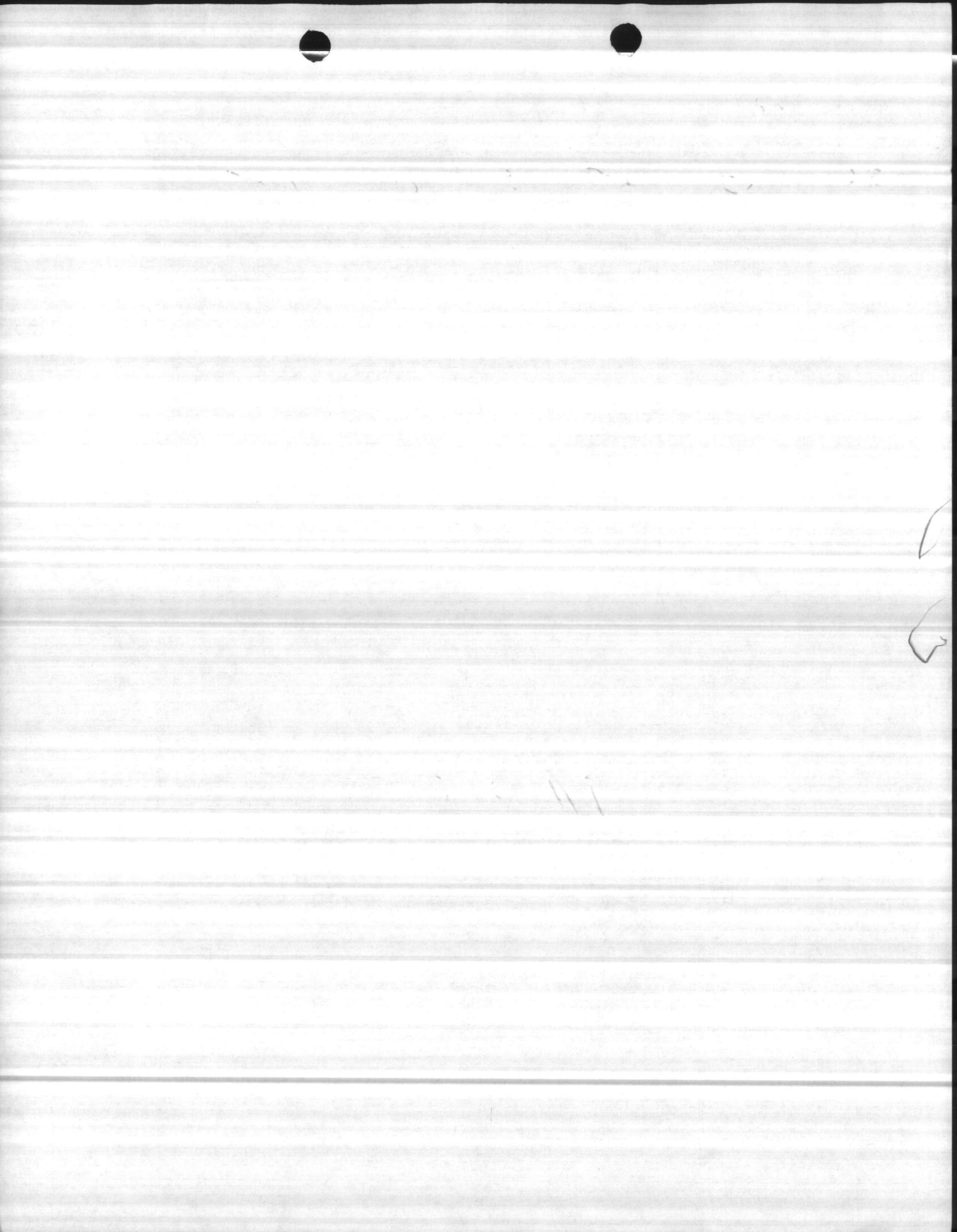
If other wells are treated here, which ones? \_\_\_\_\_ If treated elsewhere, where? HP-20 PLANT

If purchase, retreat?  Y  N If yes, complete back of form. 0 No meter  
2 No vent



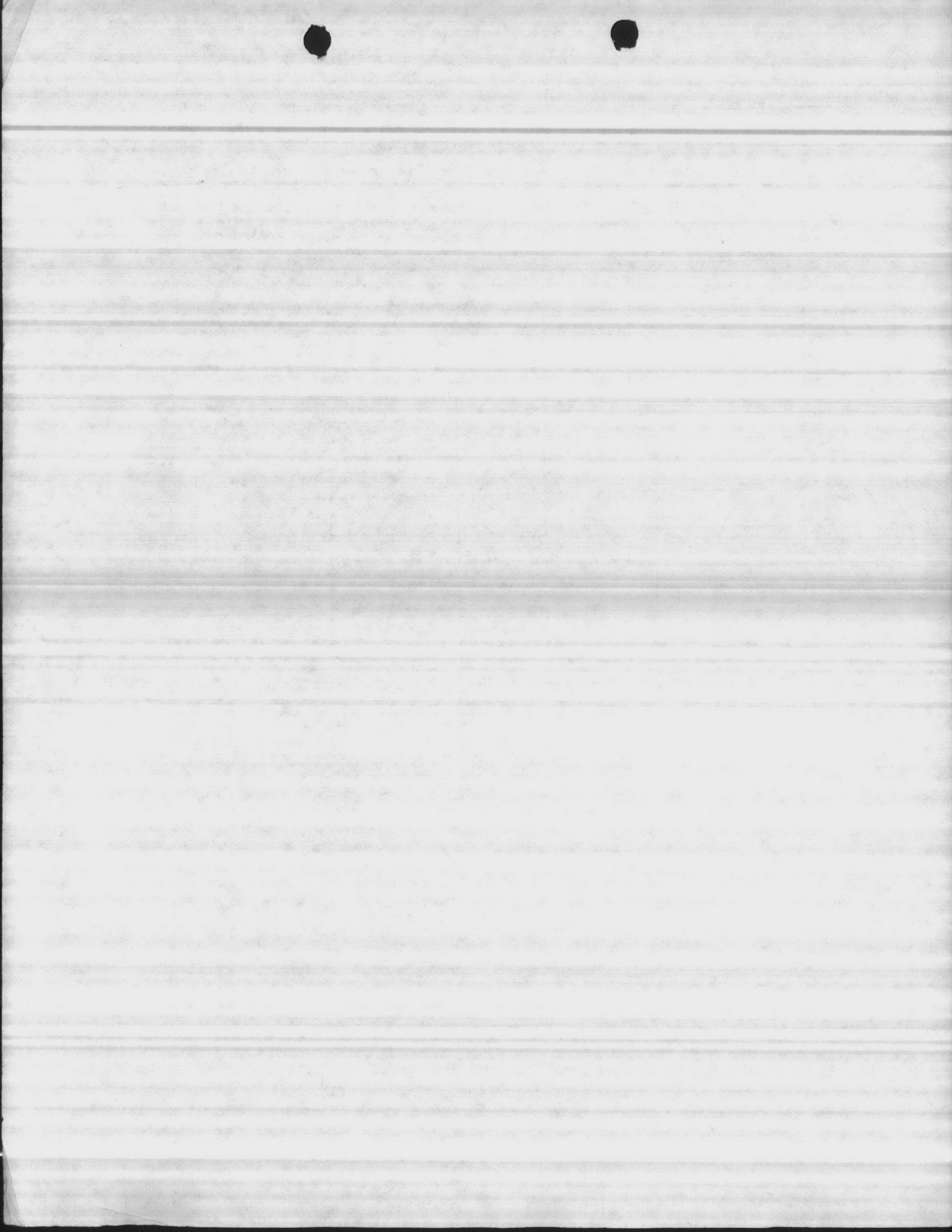




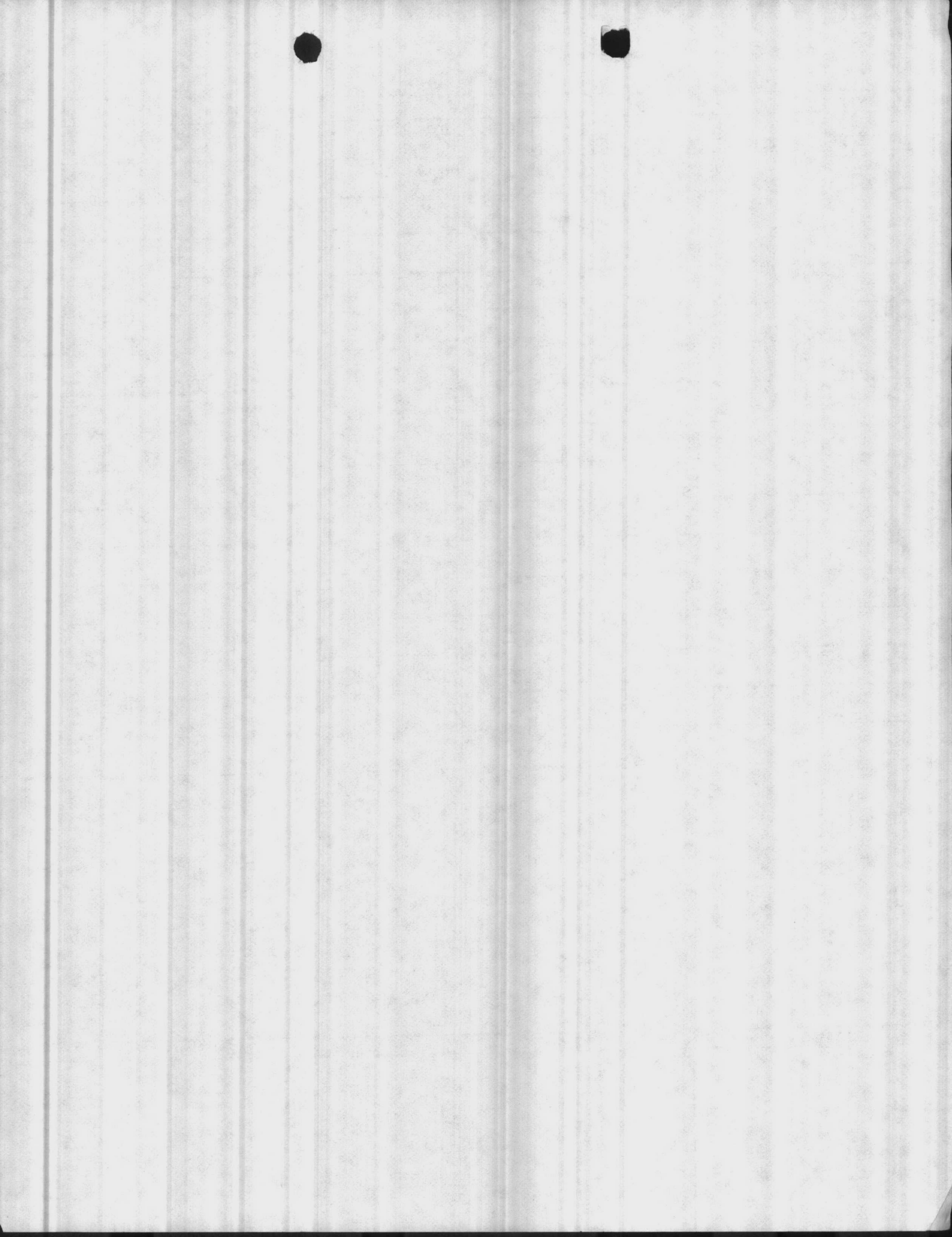






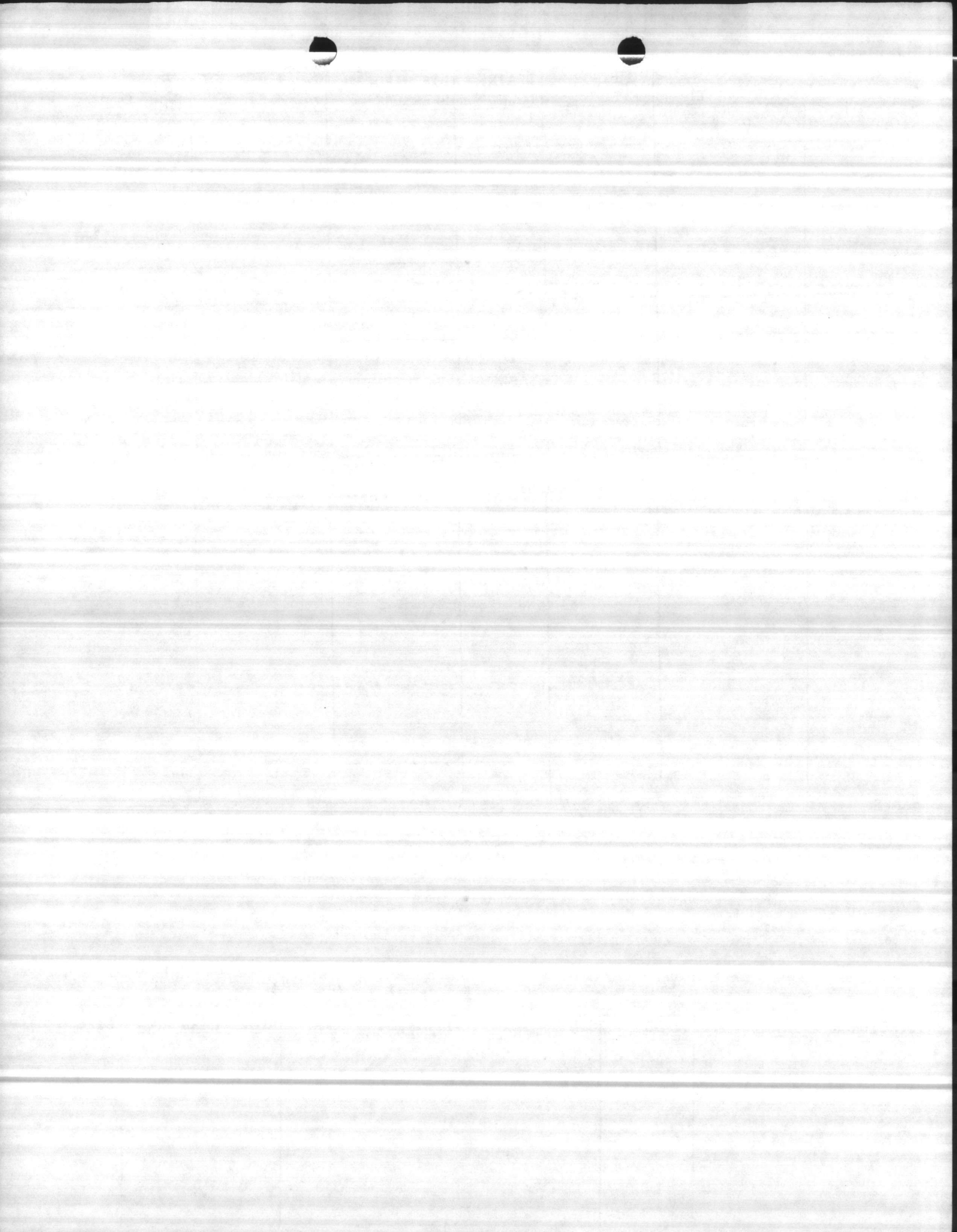






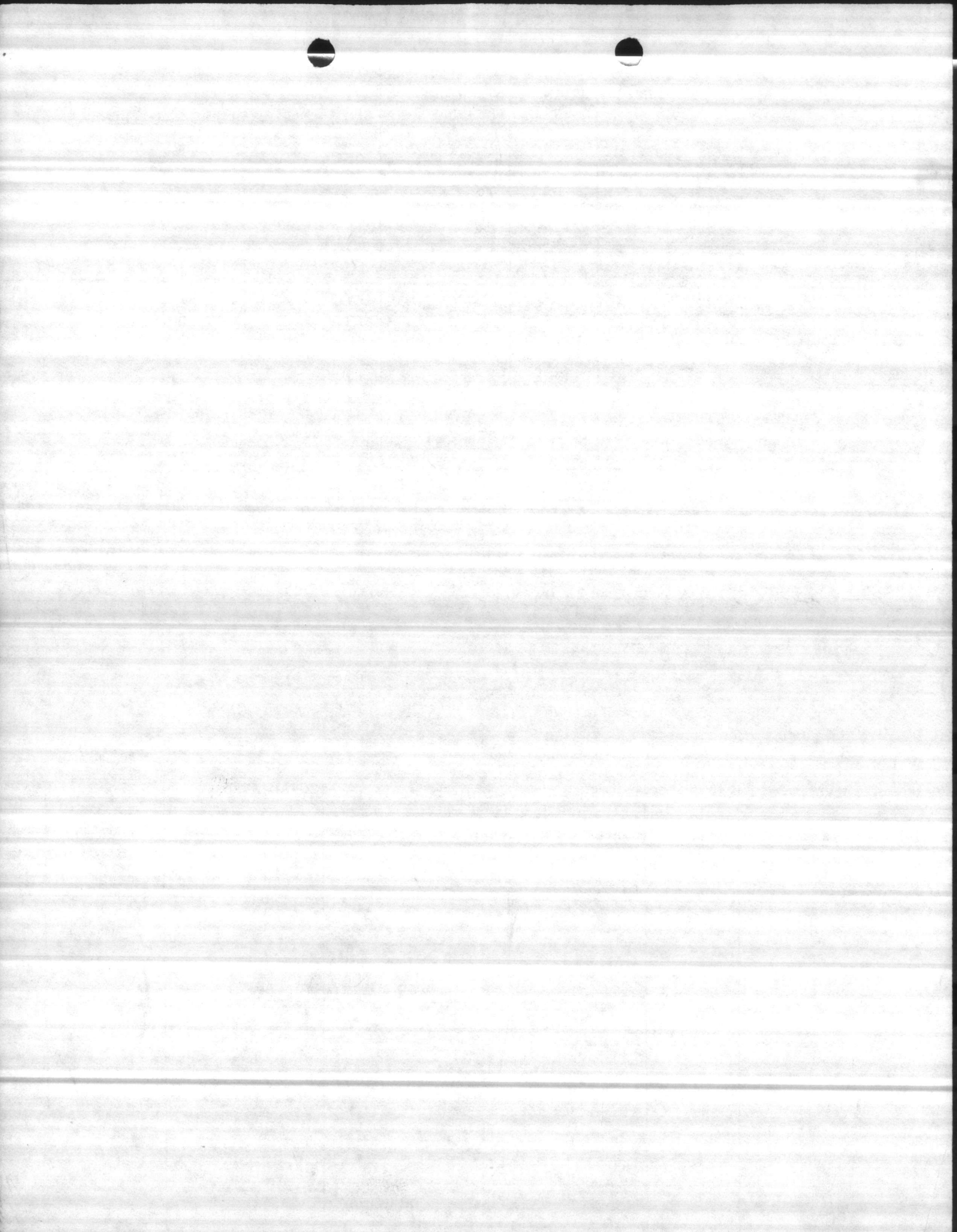






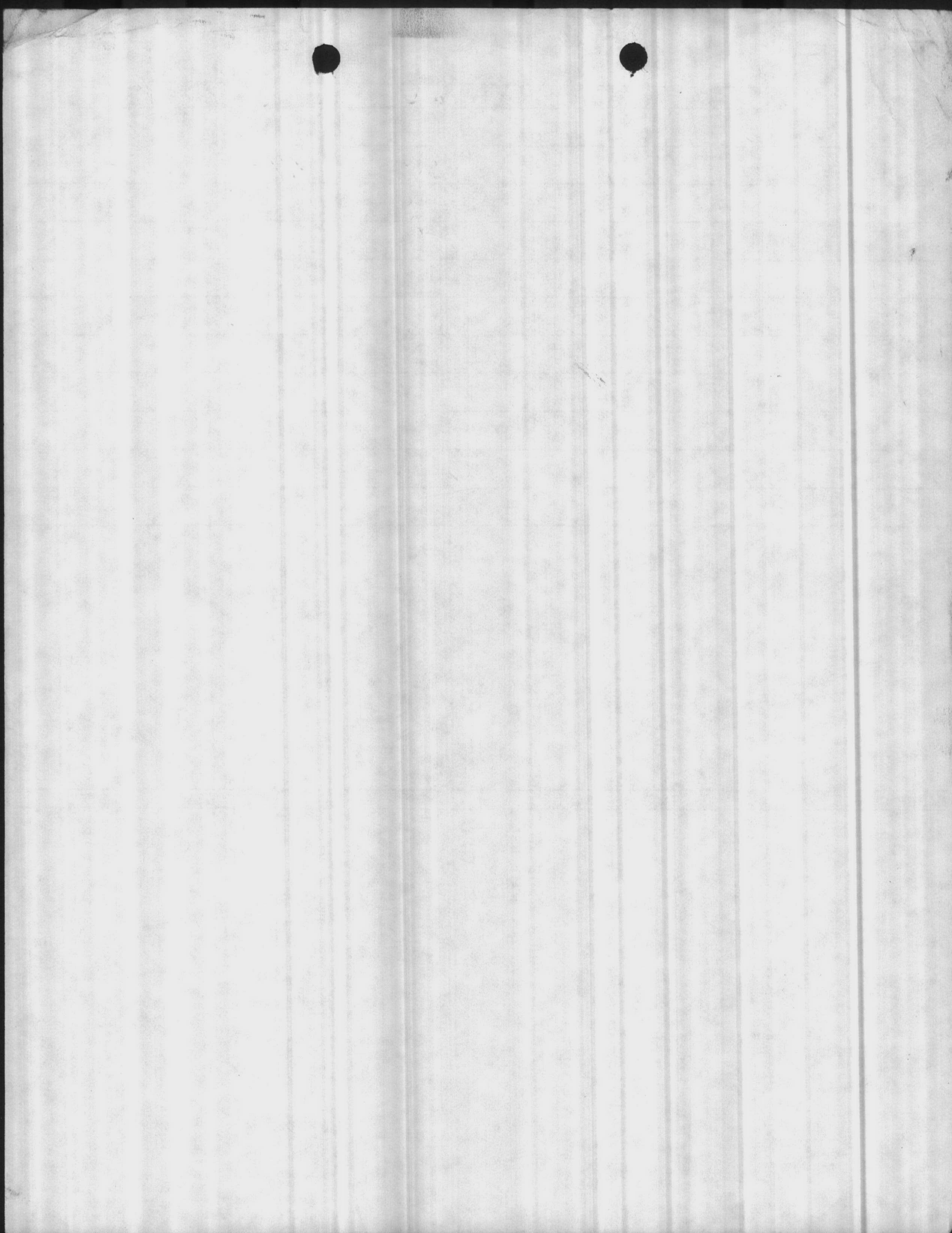












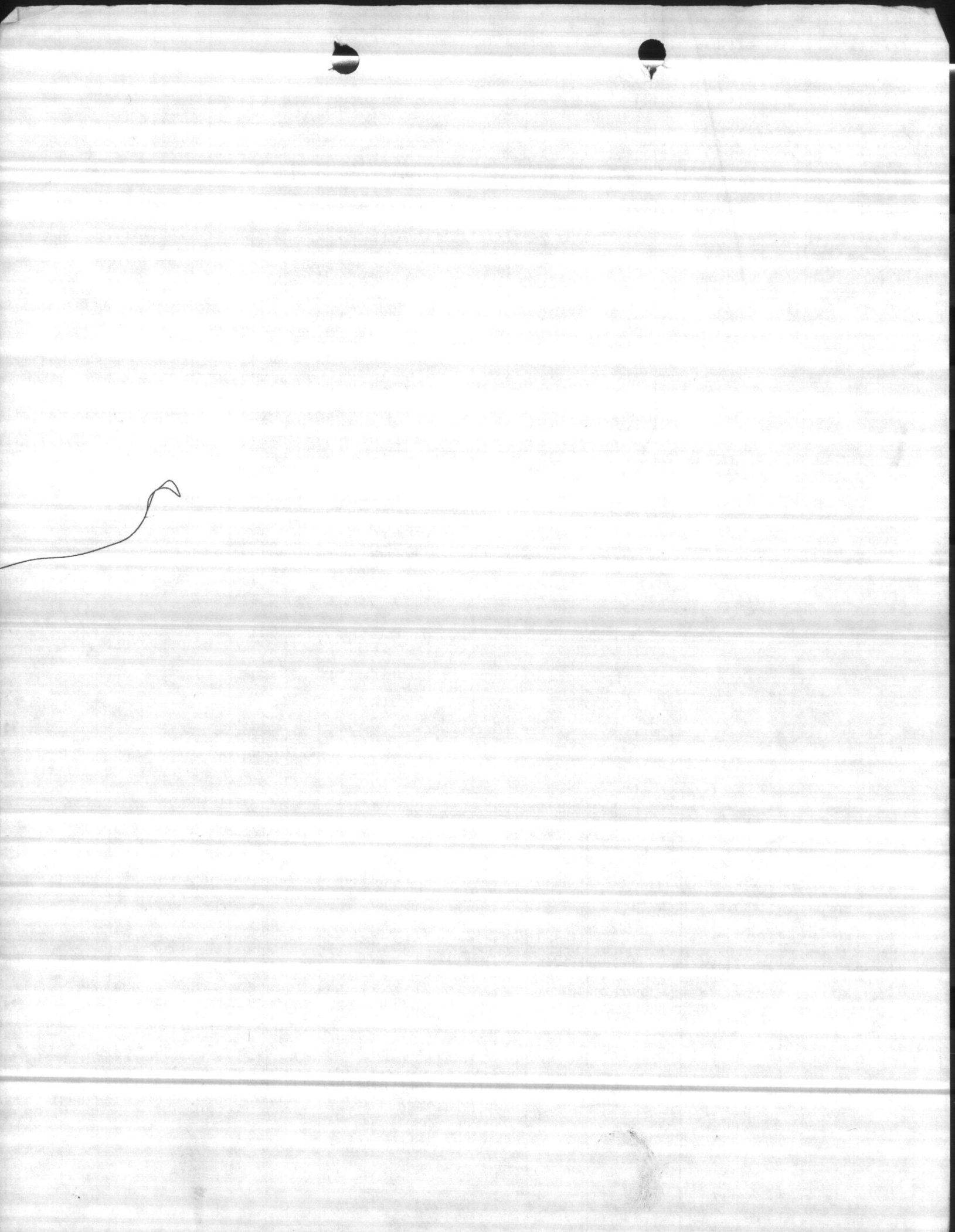


WELL NUMBER 620		BY THOMAS / PAYNOR			DATE 9-29-83	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME 1332
47'	74	34	10	46	100	1343
		36	12	42	111	1353
		39	15	38	128	1405

REMARKS

INSTALLED 8-30-82

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE
LAYNE R.K.H.C	5	74504		8"





W E L L D A T A

WELL #20

5 ADDITIONAL WELLS - OFF PINEY GREEN - TRAILER CAMP RD.

SPECIFICATIONS

Capacity 200 G.P.M.  
Head 72'  
Pump set 32' below top of foundation  
H.P. required 7 1/2

TEST

Static Level 12' below surface

<u>G.P.M.</u>	<u>PRESSURE</u>	<u>DRAW-DOWN</u>
180	30#	16'
190	29#	16.5'
200	28.5 #	17'
210	27.25#	17.5' = 83'
225	26#	18'
240	24#	18.5'
250	22.5#	18.5'

Air line 42'

THE FEDERAL BUREAU OF INVESTIGATION

DEPARTMENT OF JUSTICE

MEMORANDUM

TO : SAC, NEW YORK (100-100000)

RE: [Illegible]

Reference is made to New York letter to Bureau dated 1/11/50 and Bureau letter to New York dated 1/12/50.

FACTS:

The following information was received from [Illegible]

<u>DATE</u>	<u>NAME</u>	<u>ADDRESS</u>
1/11/50	[Illegible]	[Illegible]
1/12/50	[Illegible]	[Illegible]
1/13/50	[Illegible]	[Illegible]
1/14/50	[Illegible]	[Illegible]
1/15/50	[Illegible]	[Illegible]
1/16/50	[Illegible]	[Illegible]
1/17/50	[Illegible]	[Illegible]
1/18/50	[Illegible]	[Illegible]
1/19/50	[Illegible]	[Illegible]
1/20/50	[Illegible]	[Illegible]
1/21/50	[Illegible]	[Illegible]
1/22/50	[Illegible]	[Illegible]
1/23/50	[Illegible]	[Illegible]
1/24/50	[Illegible]	[Illegible]
1/25/50	[Illegible]	[Illegible]
1/26/50	[Illegible]	[Illegible]
1/27/50	[Illegible]	[Illegible]
1/28/50	[Illegible]	[Illegible]
1/29/50	[Illegible]	[Illegible]
1/30/50	[Illegible]	[Illegible]

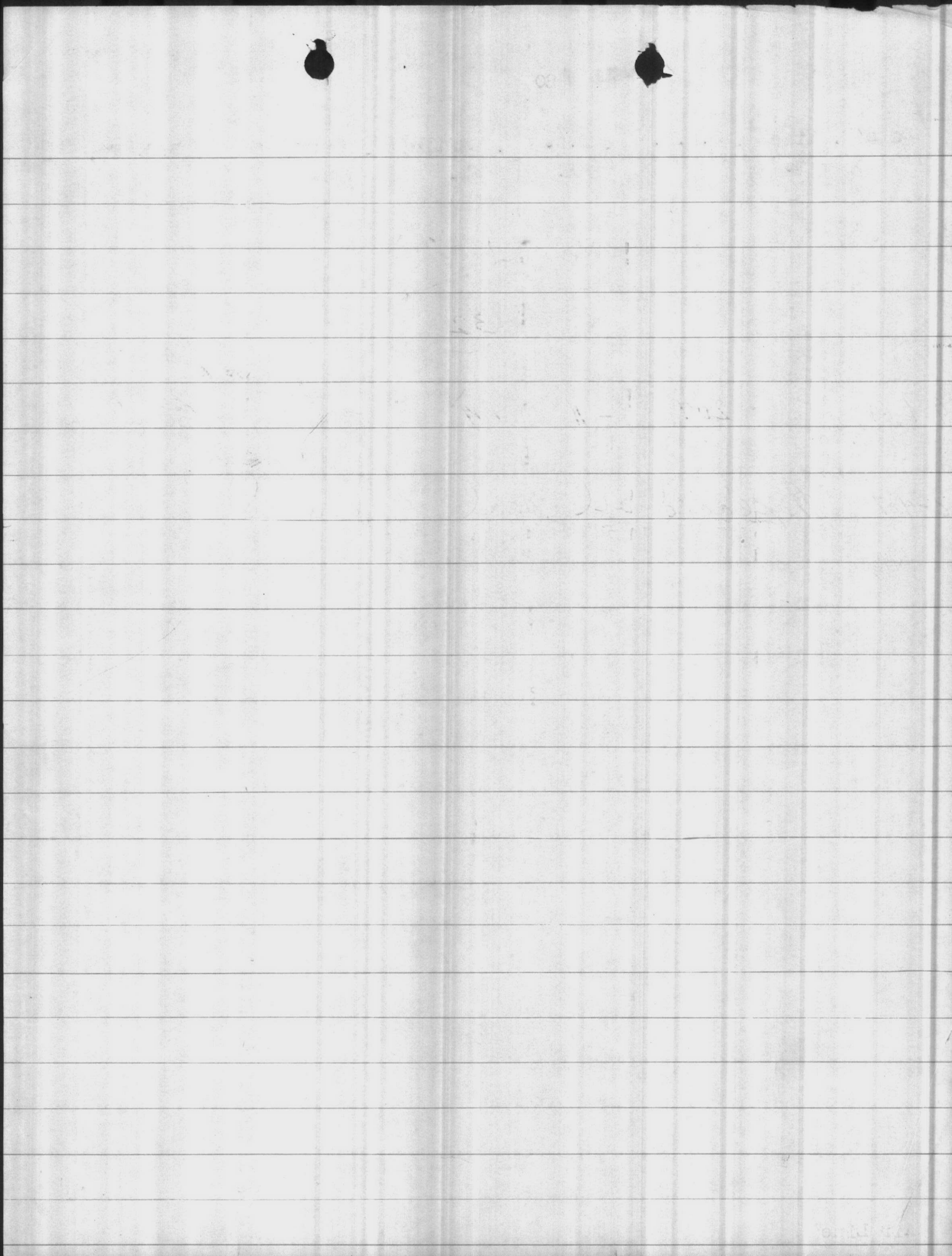
Very truly yours,  
[Illegible]

37  
11  
28



WELL # 20

Date	Line Ft.	G.P.M.	D.D. El. FT	Static El. FT	Shut Off Head FT	D.D. Ft.	
9-16-53	<sup>22</sup> 51'	110	+8.5	+15	72	6.5 old pump	
4/10/65	51'	250					
11/29/66	50'	267		32'		SEE TEST	
8/14/69	50'	207		32'		SEE WELL TEST	
9-4-69		207	-11'	+19'		30.0'	
6-4-71	Replaced oil seal & cleaned						
						3	
						<u>30</u>	
						<u>30</u>	
						22	





water level on # 620 = 16'-3"

Depth of well = 53'-3"

4 stage impeller

5" well

Head to strainer = 45'

impeller # 58517

Head # 27631

30' air line

call and give what information you have on this well or compare with them.

$$\begin{array}{r} 930 \\ 30 \\ \hline 18900 \end{array}$$



4 Oct. 1965

# G.P.M. Test on # 20 well:

Disch PRES	DRAW DOWN	G.P.M.	STATIC
13 CBS.	22 - FT.	270 gals.	36 FT.
17 "	20 "	250 "	
34 "	20 "	210 "	
11-29-67	MEASURED DISTANCE TO WATER 19'		BASE 16' HIGH

Test Run by MR. BARKER & RAYNOR

As of 3/1/67 well #20 has a Johnston pump on Joyce Base



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Handwritten text in the upper right section of the page.

A single handwritten character, possibly 'C', located in the lower middle section of the page.

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# PHYSICAL AND CHEMICAL ANALYSIS OF WATER

SAMPLE NO.

FROM: (Station or unit)

*Well 620*

DATE

*8-1-57*

TO: (Name and location of laboratory)

SAMPLE FROM (Location of sampling point)

COLLECTED BY

*Chadwick*

DATE

*8-1-57*

HOUR

SOURCE (Designate ground, surface, raw, treated)

*Raw*

REASON FOR EXAMINATION

EXAMINATION REQUESTED BY

*NOTE: All results reported in parts per million unless otherwise noted except for pH, temperature, and specific conductance. One liter of potable water is assumed to weigh one kilogram.*

I. FIELD ANALYSIS			III. ROUTINE LABORATORY ANALYSIS																																																				
1. pH	TEMPERATURE		(CHECK ONE)																																																				
	°F	°C	REQUESTED	NOT REQUESTED																																																			
ITEM	PPM																																																						
2. CARBON DIOXIDE (CO <sub>2</sub> )			1. COLOR																																																				
3. DISSOLVED OXYGEN (O <sub>2</sub> )			2. TURBIDITY																																																				
4. HYDROGEN SULFIDE (H <sub>2</sub> S)			3. ALKALINITY (CaCO <sub>3</sub> )																																																				
5. CHLORINE DEMAND (Cl <sub>2</sub> )			P	MO																																																			
FIELD ANALYSIS BY			<i>0</i>	<i>156</i>																																																			
DATE OF ANALYSIS			4. TOTAL HARDNESS (CaCO <sub>3</sub> )																																																				
			<i>162</i>																																																				
II. SPECIAL LABORATORY ANALYSES Check (X) individual items to be included in the Special Analyses. Request determination only of those substances suspected of being present in significant amounts.			5. NON-CARBONATE HARDNESS (CaCO <sub>3</sub> ) (By Computation)																																																				
			6. CARBONATE HARDNESS (CaCO <sub>3</sub> ) (By Computation)																																																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">(X)</th> <th style="width: 65%;">ITEM</th> <th style="width: 30%;">PPM</th> </tr> </thead> <tbody> <tr><td></td><td>1. As</td><td></td></tr> <tr><td></td><td>2. Se</td><td></td></tr> <tr><td></td><td>3. Pb</td><td></td></tr> <tr><td></td><td>4. B</td><td></td></tr> <tr><td></td><td>5. Cu</td><td></td></tr> <tr><td></td><td>6. Zn</td><td></td></tr> <tr><td></td><td>7. Cr (Hexavalent)</td><td></td></tr> <tr><td></td><td>8. PO</td><td></td></tr> <tr><td></td><td>9. Cd</td><td></td></tr> <tr><td></td><td>10. CN</td><td></td></tr> <tr><td></td><td>11. Phenolic Compounds (PPB)</td><td></td></tr> <tr><td></td><td>12. Others (Specify)</td><td></td></tr> <tr><td></td><td>13.</td><td></td></tr> <tr><td></td><td>14.</td><td></td></tr> <tr><td></td><td>15.</td><td></td></tr> <tr><td></td><td>16.</td><td></td></tr> </tbody> </table>			(X)	ITEM	PPM		1. As			2. Se			3. Pb			4. B			5. Cu			6. Zn			7. Cr (Hexavalent)			8. PO			9. Cd			10. CN			11. Phenolic Compounds (PPB)			12. Others (Specify)			13.			14.			15.			16.		7. TOTAL DISSOLVED SOLIDS	
			(X)	ITEM	PPM																																																		
	1. As																																																						
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*State whether determined or computed from P and MO alkalinity.																																																							

REMARKS (Such as unusual appearance, taste, odor, etc.)

LABORATORY ANALYSIS BY

*Justice*

DATE OF ANALYSIS

*8-1-57*

MEMORANDUM FOR THE SECRETARY OF DEFENSE  
SUBJECT: [Illegible]

1. [Illegible]

2. [Illegible]

3. [Illegible]

4. [Illegible]

5. [Illegible]

6. [Illegible]

7. [Illegible]

8. [Illegible]

U.S. DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY  
OFFICE OF WATER DATA COORDINATION  
INVENTORY OF HYDROLOGIC DATA STATIONS  
QUALITY OF WATER

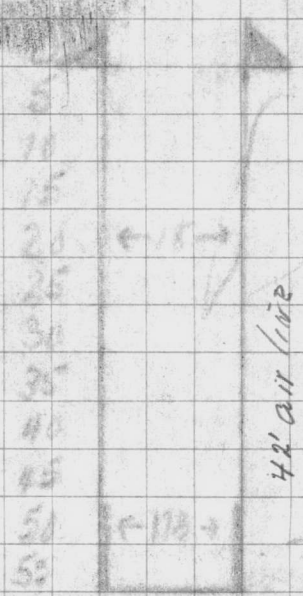
APPROVED.  
Budget Bureau No. 42-R1485  
Approval Expires June 30, 1968

1. AGENCY CODE <b>MC</b>		2. TYPE <b>Q</b>	3. LATITUDE ° ' " N <b>34 42 31</b>			4. LONGITUDE ° ' " W <b>77 18 51</b>			5.
6. AGENCY STATION NO. <b>620</b>		7. STATION NAME <b>HP20-620</b>							
8. DRAINAGE BASIN CODE No. Letter <b>06 N</b>		9. STATE CODE <b>32</b>	10. COUNTY CODE <b>133</b>		11. COUNTY NAME <b>ONslow</b>				
12. PERIOD OF RECORD Began Discontinued <b>1942</b>		Y <input type="checkbox"/> Continuous <input checked="" type="checkbox"/> Interruption Exceeds 1 Year			13. <b>ONslow</b>				
15. SITE <input type="checkbox"/> 101' Stream <input type="checkbox"/> 102 Canal		<input type="checkbox"/> 103 Lake <input type="checkbox"/> 104 Reservoir <input type="checkbox"/> 105 Estuary			<input type="checkbox"/> 106 Spring <input checked="" type="checkbox"/> 107 Well <input type="checkbox"/> 110 Other				
16. FREQUENCY OF MEASUREMENT <input type="checkbox"/> 201 Continuous Recorder <input type="checkbox"/> 202 Telemetered		<input type="checkbox"/> 203 Daily <input type="checkbox"/> 204 Weekly <input type="checkbox"/> 205 Monthly <input type="checkbox"/> 206 Quarterly			<input type="checkbox"/> 207 Seasonal <input type="checkbox"/> 208 Annual <input type="checkbox"/> 209 Other Periodic <input checked="" type="checkbox"/> 210 Occasional				
17. TYPES OF DATA AVAILABLE <i>Physical</i> <input type="checkbox"/> 311 Temperature <input type="checkbox"/> 312 Specific Conductance <input type="checkbox"/> 313 Turbidity <input type="checkbox"/> 314 Color <input type="checkbox"/> 315 Odor <input type="checkbox"/> 316 Radioactivity <input type="checkbox"/> 317 pH (field) <input checked="" type="checkbox"/> 318 pH (lab) <input type="checkbox"/> 319 Eh <input type="checkbox"/> 320 Other		<i>Chemical</i> <input type="checkbox"/> 331 Dissolved solids <input checked="" type="checkbox"/> 332 Chlorides Only <input type="checkbox"/> 333 Nutrients (Nitrogen and phosphorus compounds) <input type="checkbox"/> 334 Common ions <input checked="" type="checkbox"/> 335 Hardness <input checked="" type="checkbox"/> 336 Radiochemical <input type="checkbox"/> 337 Dissolved oxygen <input type="checkbox"/> 338 Other Gases <input type="checkbox"/> 339 Other			<i>Organic</i> <input type="checkbox"/> 351 Pesticides (insecticides, herbicides, etc.) <input type="checkbox"/> 352 Synthetic detergents <input type="checkbox"/> 353 Other <i>Biologic</i> <input type="checkbox"/> 361 Coliforms <input type="checkbox"/> 362 Other Micro-organisms <input type="checkbox"/> 363 BOD <input type="checkbox"/> 364 Other <i>Sediment</i> <input type="checkbox"/> 371 Concentration <input type="checkbox"/> 372 Particle size <input type="checkbox"/> 373 Other				
18. SUPPLEMENTARY DATA FOR SITE <input type="checkbox"/> 421 Surface Water Station <input type="checkbox"/> 422 Ground Water Station		<input type="checkbox"/> 423 Water Stage or Level <input checked="" type="checkbox"/> 424 Water discharge <b>X</b>			<input type="checkbox"/> 425 Time of Travel <input type="checkbox"/> 426 Drainage Area				
19. STORAGE OF DATA <input type="checkbox"/> 501 Periodic Report <input type="checkbox"/> 502 Areal Report		<input checked="" type="checkbox"/> 503 Not Published <input checked="" type="checkbox"/> 504 Data on Punched Card			<input type="checkbox"/> 505 Data on Magnetic Tape <input type="checkbox"/> 506 Other				
20. OFFICE AT WHICH DATA AVAILABLE Office <b>BASE MAINTENANCE DEPARTMENT, UTILITIES DIVISION</b> Street No. <b>MARINE CORPS BASE</b> City Code City, State, Zip <b>CAMP LEJEUNE, N. C. 28542</b> <b>0735</b>									
21. OFFICE COMPLETING FORM <b>BASE MAINTENANCE DEPARTMENT</b>									
22. COMPILER'S NAME								23. DATE Month Year <b>19</b>	





Well pumps 200 G.P.M. with 25'-0" Hd. below surface  
 Well recovers in 21' or instantly  
 Static level 10'-10" below surface.



Well # 20 Reg area  
 46'-4" 18" I.D. CASING  
 SET AND CEMENTED TOP  
 TO BOTTOM  
 1 1/2" hole drilled to a  
 depth of 54'  
 NO SCREEN OR TUBING USED  
 IN THIS WELL.

LOG of well # 20 Reg area

- 0' to 7' HARD CLAY
- 7' to 27' SAND AND CLAY MIXED
- 27' to 34' " " " HARD
- 34' to 44' COARSE SAND
- 44' to 46' BLUE CLAY
- 46' to 53' HARD ROCK
- 53' to 54' COBBLES

This well should not be pumped  
 more than 200 G.P.M. as it will fill  
 in fine sand after that amount is raised

EAST side of old P.G. St. Ferry Road

1400' EAST of Well 18



MANUFACTURER'S REPRESENTATIVES AND DISTRIBUTORS

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INDUSTRIAL EQUIPMENT & SUPPLIES  
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VISA, MASTERCARD, AMERICAN EXPRESS ACCEPTED

HONEYWELL

GASKETS

PUMPS

S

STEAM TRAPS

ASCO

McDONNELL-MILLER

FIREYE

620

HP-5 PH-3 HZ 60

FRAME 184TP VOLTS 230/400

AMPS - 7.2 TYPE AU PI

RPM 1750

SELF LUBRICATED FOR NORMAL  
BEARING LUB US MOTORS

5"

GOULD

pump model: 8R/JLO  
4 STAGE

3-10' - 5"

1-9' - 5"



MANUFACTURER'S REPRESENTATIVES AND DISTRIBUTORS  
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STEAM TRAPS • ASCO • McDONNELL-MILLER • FIREYE • MARSH/MARSHALLTOWN

Well 620

3-10' 5"  
 1-10' tail & screen

4 stage pump 5"

5
10
10
5
10

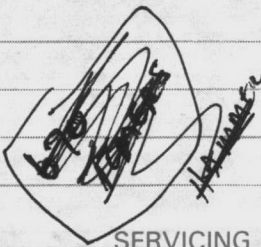


~~5 stage 6" 1 1/4" shaft~~  
~~1\* 10' 4"~~  
~~2- 5' 4"~~

~~4" 125 5~~

6 1/2 CENTER CRANK

Good





Handwritten scribbles and faint markings, possibly including a star-like symbol and some illegible characters.

Handwritten markings, possibly a date or number, appearing as "03/02".



WELL 20 - REGIMENTAL AREA

28 September, 1944

Elev. pump base + 37.0

Elev. surface + 35.0

Static water level + 14.0

Draw Down + 10.0

200 G.P.M. against 72' head

Air line 42' Elev. D.D. gauge +37

Shut-off head 108'

110 G.P.M. 30 lbs. pressure D.D. 24' to Elev. +15 T.H. 93'

135 G.P.M. 25 lbs. pressure D.D. 24' to Elev. +15 T.H. 81'

185 G.P.M. 20 lbs. pressure D.D. 25' to Elev. +14 T.H. 71'

200 G.P.M. 18 lbs. pressure D.D. 26' to Elev. +13 T.H. 67'

230 G.P.M. 12 lbs. pressure D.D. 27' to Elev. +12 T.H. 54'

270 G.P.M. 0 lbs. pressure D.D. 28' to Elev. +11 T.H. 28'

Recovers to +13 inst.

28 September, 1944

Elev. pump base + 37.0  
 Elev. surface + 35.0  
 Static water level + 14.0  
 Draw down - 10.0

200 G.P.M. against 75' head

Air line 45' Elev. 7.0' head + 37'

Shut-off head 108'

110 G.P.M. 30 lbs. pressure 7.0' to Elev. +15 T.M. 27  
 125 G.P.M. 30 lbs. pressure 7.0' to Elev. +15 T.M. 27  
 140 G.P.M. 30 lbs. pressure 7.0' to Elev. +14 T.M. 27  
 200 G.P.M. 18 lbs. pressure 7.0' to Elev. +13 T.M. 27  
 230 G.P.M. 12 lbs. pressure 7.0' to Elev. +12 T.M. 27  
 250 G.P.M. 0 lbs. pressure 7.0' to Elev. +11 T.M. 27

Pressure to 75' head



WELL 20 - REGIMENTAL AREA

28 September, 1944

Elev. pump base + 37.0

Elev. surface + 35.0

Static water level + 14.0

Draw Down + 10.0

200 G.P.M. against 72' head

Air line 42' Elev. D.D. gauge +37

Shut-off head 108'

110 G.P.M. 30 lbs. pressure D.D. 24' to Elev. +15 T.H. 93'

135 G.P.M. 25 lbs. pressure D.D. 24' to Elev. +15 T.H. 81'

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200 G.P.M. 18 lbs. pressure D.D. 26' to Elev. +13 T.H. 67'

230 G.P.M. 12 lbs. pressure D.D. 27' to Elev. +12 T.H. 54'

270 G.P.M. 0 lbs. pressure D.D. 28' to Elev. +11 T.H. 28'

Recovers to + 13 inst.

1944

1944  
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1944

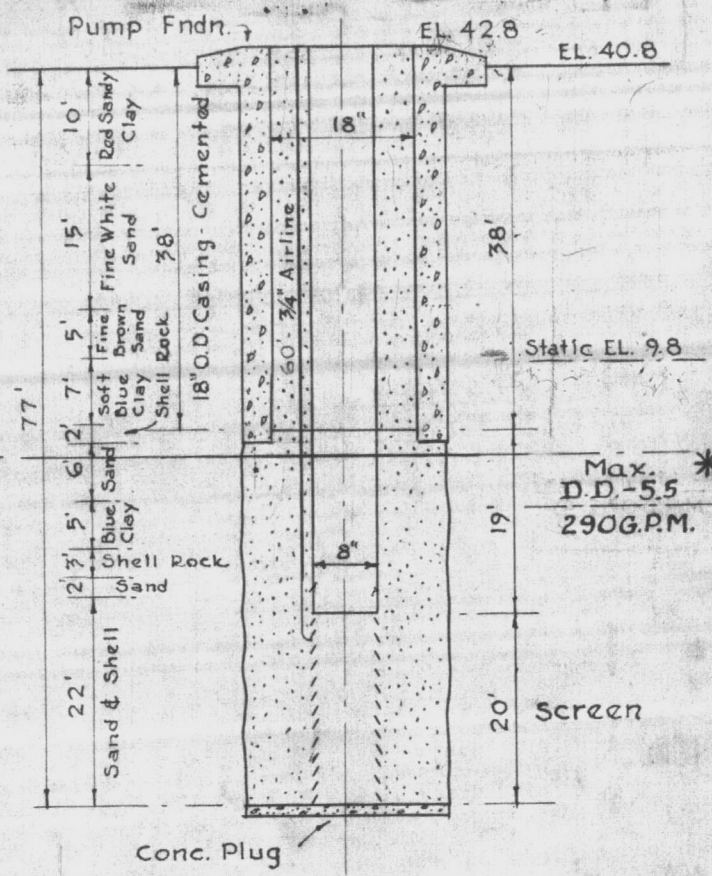
1944

1944

H.P. Well 620



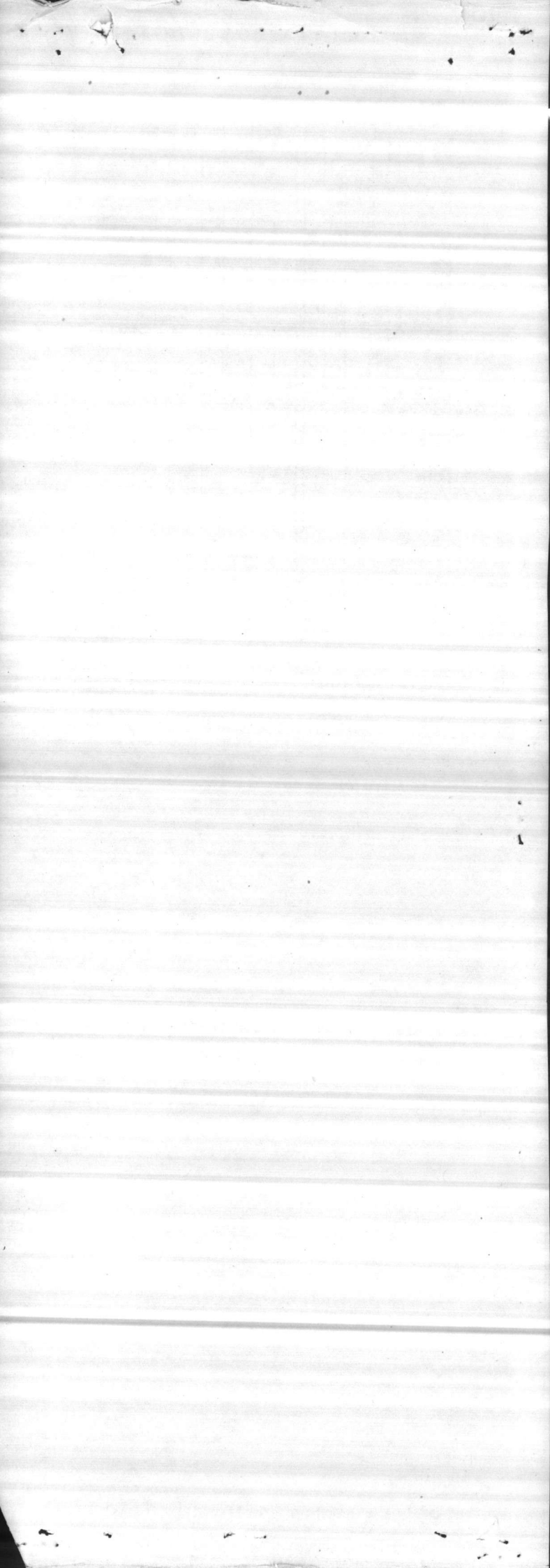
250 G.P.M. — DUAL DRIVE — 7 1/2 H.P.  
 25 " " " actual. Recom. 290 G.P.M. 10 H.P.



NEW PUMP- 9-29-53

Armco Iron Screen Used In This Well

D.T.A. WELL No. 21



PHYSICAL AND CHEMICAL ANALYSIS OF WATER

SAMPLE NO.

WW2-13

FROM: (Station or unit)

U.S. Marine Corps Base, Camp Lejeune, North Carolina

DATE

1 March 1960

TO: (Name and location of laboratory)

DPWO Sanitary Engineering Laboratory, Bldg. 4-29, Naval Base, Norfolk 11, Virginia

SAMPLE FROM (Location of sampling point)

Hadnot Point Area Well No. 21, Bldg. No. 621

COLLECTED BY

Mr. R. L. Cox

DATE

3 Feb. 1960

— HOUR

SOURCE (Designate ground, surface, raw, treated)

Ground

REASON FOR EXAMINATION

E.S.R., DPWO PROJECT NO. 09-2455

EXAMINATION REQUESTED BY

Mr. R. L. Cox

NOTE: All results reported in parts per million unless otherwise noted except for pH, temperature, and specific conductance. One liter of potable water is assumed to weigh one kilogram.

I. Laboratory FIELD ANALYSIS

1. pH	TEMPERATURE	
	°F	°C
7.7		24.
ITEM	PPM	
2. CARBON DIOXIDE (CO <sub>2</sub> )		
3. DISSOLVED OXYGEN (O <sub>2</sub> )		
4. HYDROGEN SULFIDE (H <sub>2</sub> S)		
5. CHLORINE DEMAND (Cl <sub>2</sub> )		

FIELD ANALYSIS BY

The temperature of the water at time of collection was 18.5°C

DATE OF ANALYSIS

II. SPECIAL LABORATORY ANALYSES

Check (X) individual items to be included in the Special Analyses. Request determination only of those substances suspected of being present in significant amounts.

(X)	ITEM	PPM
	1. As	
	2. Se	
	3. Pb	
	4. B	
	5. Cu	
	6. Zn	
	7. Cr (Hexavalent)	
X	8. PO <sub>4</sub>	0.0
	9. Cd	
	10. CN	
	11. Phenolic Compounds (PPB)	
	12. Others (Specify)	
X	13. Aluminum (Al)	0.0
	14.	
	15.	
	16.	

III. ROUTINE LABORATORY ANALYSIS

(CHECK ONE)		
X	REQUESTED	NOT REQUESTED
	1. COLOR	15.
	Apparent	
	True	3.
	2. TURBIDITY	0.8
	settled	
	Shaken	3.2
	3. ALKALINITY (CaCO <sub>3</sub> )	
	P	0.0
	MO	116.
	4. TOTAL HARDNESS (CaCO <sub>3</sub> )	129.6
	(Ca+Mg) Hardness	124.8
	5. NON-CARBONATE HARDNESS (CaCO <sub>3</sub> ) (By Computation)	13.6
	6. CARBONATE HARDNESS (CaCO <sub>3</sub> ) (By Computation)	116.
	7. TOTAL DISSOLVED SOLIDS	—
	8. SPECIFIC CONDUCTANCE (Micromhos)	230.
	9. CALCIUM (Ca)	46.6
	10. MAGNESIUM (Mg)	2.9
	11. SODIUM (Na) AND POTASSIUM (K) **	2.5
	12. HYDROXIDE (OH)* (as CaCO <sub>3</sub> )	0.0
	13. BICARBONATE (HCO <sub>3</sub> )* (as CaCO <sub>3</sub> )	116.
	14. CARBONATE (CO <sub>3</sub> )* (as CaCO <sub>3</sub> )	0.0
	15. SULFATE (SO <sub>4</sub> )	2.4
	16. CHLORIDE (Cl)	11.
	17. NITRATE (NO <sub>3</sub> )	—
	18. IRON (Fe) TOTAL	0.5
	19. MAGANESE (Mn)	0.0
	20. SILICA (SiO <sub>2</sub> )	10.
	21. FLUORIDE (F)	0.0

\*State whether determined or computed from P and MO alkalinity.

REMARKS (Such as unusual appearance, taste, odor, etc.)

Well pump auxiliary powered by gasoline engine.

\* Computed from P and MO alkalinity  
\*\* Computed

Note: At the time of analysis there was a small quantity of sediment in the bottom of the sample bottle. The well was in service at the time the sample was collected (discharge pressure = 65 psig).

LABORATORY ANALYSIS BY

George I. Earnest, Jr., Chemist

DATE OF ANALYSIS

29 Feb. 1960



DATE

TO: [REDACTED]

EXAMINATION REQUESTED BY: [REDACTED]

OVER: ALL RESULTS: [REDACTED]

ROUTINE LABORATORY ANALYSIS

FIELD ANALYSIS

CHECK BOX: [ ] NOT REQUESTED

1. [REDACTED]

2. [REDACTED]

3. [REDACTED]

4. [REDACTED]

5. [REDACTED]

6. [REDACTED]

7. [REDACTED]

8. [REDACTED]

9. [REDACTED]

10. [REDACTED]

11. [REDACTED]

12. [REDACTED]

13. [REDACTED]

14. [REDACTED]

15. [REDACTED]

16. [REDACTED]

17. [REDACTED]

18. [REDACTED]

19. [REDACTED]

20. [REDACTED]

21. [REDACTED]

22. [REDACTED]

23. [REDACTED]

24. [REDACTED]

25. [REDACTED]

26. [REDACTED]

27. [REDACTED]

28. [REDACTED]

29. [REDACTED]

30. [REDACTED]

31. [REDACTED]

32. [REDACTED]

DATE OF ANALYSIS: [REDACTED]

LABORATORY: [REDACTED]

001 110

21 October 1942

MEMORANDUM

**Wells:** Permanent water supply, Reg. Area  
By Layne Atlantic Co.

**Location:** 500' south of Highway 24 and 65' east of existing  
country road from Piney Green

**Date drilled:** October 1942

*Well No. 21*

**Drilling  
Equipment:** Rotary Rig and Rotary Bits

**States:** 23" diameter hole reamed and cased with 18" pit casing to  
a depth of 24ft. Angular space around this was filled  
with cement grout. A 17" hole was then drilled to a  
depth of 80'.

**Lay of  
Formation**

- 0 to 10' Red sandy clay
- 10' to 25' Fine white sand
- 25' to 30' Fine brown sand
- 30' to 37' Soft mucky blue clay
- 37' to 39' Shell rock
- 39' to 45' Sand
- 45' to 50' Blue clay
- 50' to 53' Shell rock
- 53' to 55' Sand
- 55' to 80' Sand and shell

**Remarks:** Due to the presence of sand in water bearing sand it  
was necessary to construct a gravel wall well.

**Gravel Wall  
Construction:** 57feet of 8" steel pipe with 20' of Armco Iron Screen  
on the bottom was placed in the well. The angular space  
around this was filled with a special 1/4" washed gravel.

**Air Line:** 60 ft. of 1/4" tube

**Static level:** 20' below surface

**Pumping:** Well was pumped full several hours to clear of sand.  
Well pumps 200 G.P.M. with 22' dd from static, recovers  
to 11' from static in 3 minutes.

N. H. Kellam  
Asst. Chem. Eng.



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Date	Line Ft.	G.P.M.	D.D. EL.	Static EL.	Shut Off Head	D.D. Ft.
9-14-53				+22.8 =	(20' FROM PUMP BASE)	
9-29-53	60	115	+14.8	+22.3	?	7.5
"	45	190	+6.8	-	-	15.5
"	52	175	+7.8	-	-	14.5
"	68	125	+10.8	-	-	11.5
11/1/66		263		26'		SE WELL TEST.
8/3/69		172	AIR LINE BROKE " " "			
5/25/69	Replaced shaft bearing and oil tubing					
6-1-71	Replaced oil seal & cleaned					

\* NEW PUMP - 9-29-53 - Pomona pump with Lagne Base <sup>as of</sup> 3/1/67  
 WATER LEVEL 20 FT. FROM BASE. 9-14-53.  
 Air Line 46 FT. NEW. LOWER. EL. - -3.2



HP. 602

INSTALLED IN 621 2/5/79

PUMP, LAYNE VERTICAL TURBINE  
DEEP WELL, SINGLE DRIVE COMPLETE  
WITH ELECTRIC MOTOR VERTICAL SHAFT  
5 HP 220/440 VOLTS 3 PHASE 60 CY.  
1800 RPM

WELL SIZE 8"

SIZE 5"

GPM 150

T.D.H 84'

STAGE 4

SETTING 50'

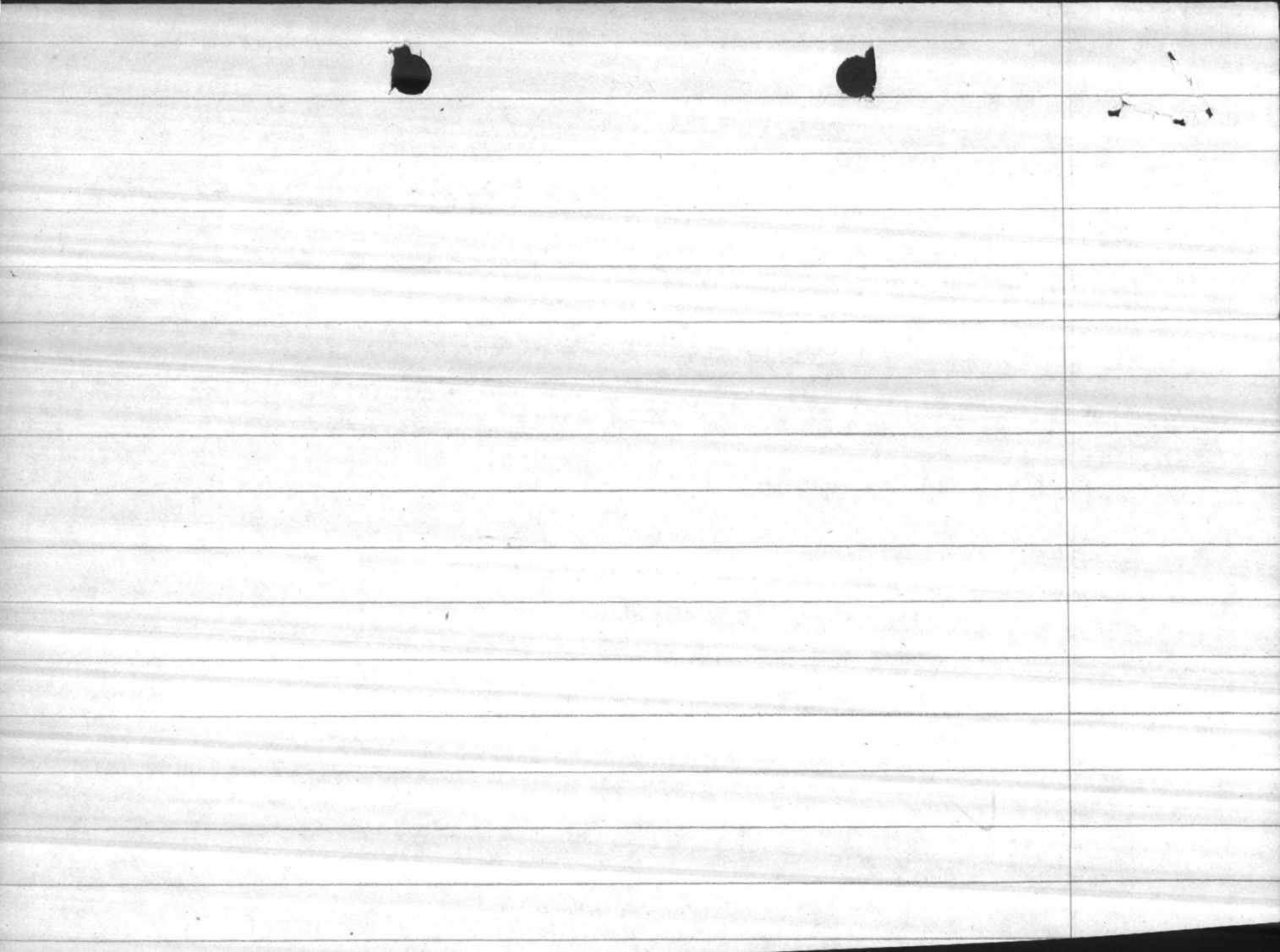
SUCTION 10'

WELL SIZE 8"

4140

EST. COST. \$2700.00





WATER ANALYSIS

By N. H. Kellom

Date Oct 6 1942

Sample from Well no 21 Reg. area

Total Solids \_\_\_\_\_ PPM      Dissolved Solids \_\_\_\_\_ PPM

Suspended Solids \_\_\_\_\_ PPM      Volatile Solids \_\_\_\_\_ PPM

Phenol. Alk. as CaCO<sub>3</sub> 0 PPM      Silica as SiO<sub>2</sub> \_\_\_\_\_ PPM

Total Alk. " " 140 "      Ferrous Iron as Fe \_\_\_\_\_ "

Carbonates " " 0 "      Total Iron as Fe .8 "

Bicarbonates " " 140 "      Aluminum as Al. \_\_\_\_\_ "

Chlorides as Cl. 8 "      Calcium as Ca. \_\_\_\_\_ "

Sulphates as SO<sub>4</sub> \_\_\_\_\_ "      Magnesium as Mg. \_\_\_\_\_ "

Nitrites as NO<sub>2</sub> \_\_\_\_\_ "      Sodium as Na. \_\_\_\_\_ "

Carbon Dioxide as CO<sub>2</sub> \_\_\_\_\_ "

pH 7.4 Soap Hardness as CaCO<sub>3</sub> 180 PPM

Odor Very Slight Turbidity 20

REMARKS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_





WELL 21 - REGIMENTAL AREA

28 September, 1944

Elev. pump base + 42.0  
Elev. surface + 40.0  
Static water level + 9.8  
Draw Down 18.8' - 4.0  
250 G.P.M. against 86' head  
Air line 62.5' Elev. D.D. gauge + 42.5

Shut-off head 117 ft.

135 G.P.M.	20 lbs. pressure	D.D. 34.5'	to Elev. +8.0	T.H. 80'
180 G.P.M.	16 lbs. pressure	D.D. 37'	to Elev. +5.5	T.H. 73'
190 G.P.M.	14 lbs. pressure	D.D. 38.5'	to Elev. +4.5	T.H. 70'
200 G.P.M.	12 lbs. pressure	D.D. 40'	to Elev. +2.5	T.H. 68'
225 G.P.M.	7.5 lbs. press.	D.D. 41.0'	to Elev. +1.5	T.H. 58'
255 G.P.M.	0 lbs. pressure	D.D. 43.5'	to Elev. -1.0	T.H. 43.5'

Recovers to Elev. + 9.5 in 3 minutes.

28 September 1951

Water pump base - 45.0

Water surface - 40.0

Static water level - 39.8

Drawdown 13.2

250 ft. ... 80 feet

Air line 25.0 Elev. H.L. gauge - 48.0

Static water level 117.2

155 ft. ... 20 lbs. pressure D.D. 34.0 to Elev. 8.0

180 ft. ... 36 lbs. pressure D.D. 37.0 to Elev. 0.0

190 ft. ... 44 lbs. pressure D.D. 38.0 to Elev. 1.0

200 ft. ... 52 lbs. pressure D.D. 40.0 to Elev. 2.0

225 ft. ... 77 lbs. pressure D.D. 43.0 to Elev. 5.0

250 ft. ... 100 lbs. pressure D.D. 47.0 to Elev. 10.0

Recovery to level - 4.0 in 5 minutes



WELL 21 - REGIMENTAL AREA

28 September, 1944

Elev. pump base +42.0

Elev. surface +40.0

Static water level +9.8

Draw Down 18.8' - 4.0

250 G.P.M. against 86' head

Air line 62.5' Elev. D.D. gauge +42.5

Shut-off head 117 ft.

135 G.P.M. 20 lbs. pressure D.D. 34.5' to Elev. +8.0 T.H. 80'

180 G.P.M. 16 lbs. pressure D.D. 37' to Elev. +5.5 T.H. 73'

190 G.P.M. 14 lbs. pressure D.D. 38.5' to Elev. +4.5 T.H. 70'

200 G.P.M. 12 lbs. pressure D.D. 40' to Elev. +2.5 T.H. 68'

225 G.P.M. 7.5 lbs. press. D.D. 41.0' to Elev. +1.5 T.H. 58'

255 G.P.M. 0 lbs. pressure D.D. 43.5' to Elev. -1.0 T.H. 43.5'

Recovers to Elev. + 9.5 in 3 minutes.

42  
27  
15

42  
30  
12

251  
468  
50.3 + 344  
258  
344  
369



1944

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1944

**PHYSICAL AND CHEMICAL ANALYSIS OF WATER**

SAMPLE NO.

FROM: (Station or unit)

Well 21 Bldg 621 HB

DATE

8-8-57

TO: (Name and location of laboratory)

SAMPLE FROM (Location of sampling point)

COLLECTED BY

Withrow

DATE

8-8-57

HOUR

SOURCE (Designate ground, surface, raw, treated)

Raw

REASON FOR EXAMINATION

EXAMINATION REQUESTED BY

NOTE: All results reported in parts per million unless otherwise noted except for pH, temperature, and specific conductance. One liter of potable water is assumed to weigh one kilogram.

I. FIELD ANALYSIS			III. ROUTINE LABORATORY ANALYSIS		
1. pH	TEMPERATURE		(CHECK ONE)		
	°F	°C	REQUESTED	NOT REQUESTED	
ITEM	PPM		1. COLOR		
2. CARBON DIOXIDE (CO <sub>2</sub> )			2. TURBIDITY		
3. DISSOLVED OXYGEN (O <sub>2</sub> )			3. ALKALINITY (CaCO <sub>3</sub> )		
4. HYDROGEN SULFIDE (H <sub>2</sub> S)			P	MO	
5. CHLORINE DEMAND (Cl <sub>2</sub> )			0	109	
FIELD ANALYSIS BY			4. TOTAL HARDNESS (CaCO <sub>3</sub> )		
DATE OF ANALYSIS			114		
II. SPECIAL LABORATORY ANALYSES			5. NON-CARBONATE HARDNESS (CaCO <sub>3</sub> ) (By Computation)		
Check (X) individual items to be included in the Special Analyses. Request determination only of those substances suspected of being present in significant amounts.			6. CARBONATE HARDNESS (CaCO <sub>3</sub> ) (By Computation)		
(X)	ITEM	PPM	7. TOTAL DISSOLVED SOLIDS		
	1. As		8. SPECIFIC CONDUCTANCE (Micromhos)		
	2. Se		ITEM		PPM
	3. Pb		9. CALCIUM (Ca)	43.2	
	4. B		10. MAGNESIUM (Mg)	1.2	
	5. Cu		11. SODIUM (Na) AND POTASSIUM (K)		
	6. Zn		12. HYDROXIDE ( <del>OH</del> CaCO <sub>3</sub> )	0.0	
	7. Cr (Hexavalent)		13. BICARBONATE (HCO <sub>3</sub> ) CaCO <sub>3</sub>	109.0	
	8. PO		14. CARBONATE (CO <sub>3</sub> ) CaCO <sub>3</sub>	0.0	
	9. Cd		15. SULFATE (SO <sub>4</sub> )		
	10. CN		16. CHLORIDE (Cl)	10.0	
	11. Phenolic Compounds (PPB)		17. NITRATE (NO <sub>3</sub> )		
	12. Others (Specify)		18. IRON (Fe) TOTAL	0.6	
	13.		19. MAGANESE (Mn)		
	14.		20. SILICA (SiO <sub>2</sub> )		
	15.		21. FLUORIDE (F)		
	16.		*State whether determined or computed from P and MO alkalinity.		

REMARKS (Such as unusual appearance, taste, odor, etc.)

LABORATORY ANALYSIS BY

Justice

DATE OF ANALYSIS

8-8-57

EXAMINED BY: (Name of analyst)

EXAMINATION METHOD: (Name of method)

NOTE: All results are given in milligrams unless otherwise noted except for pH, moisture, and specific gravity.

FIELD ANALYSIS	LABORATORY ANALYSIS
1. CARBON DIOXIDE (CO <sub>2</sub> )	
2. HYDROGEN SULFIDE (H <sub>2</sub> S)	
3. SULFUR DIOXIDE (SO <sub>2</sub> )	
4. FIELD MEASUREMENTS	

DATE OF ANALYSIS: (Date)

ANALYST: (Name of analyst)

REMARKS: (Notes on the analysis)

1. pH

2. SPECIFIC GRAVITY

3. MOISTURE

4. ...

5. ...

6. ...

7. ...

8. ...

9. ...

10. ...



U.S. DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY  
OFFICE OF WATER DATA COORDINATION  
INVENTORY OF HYDROLOGIC DATA STATIONS  
QUALITY OF WATER

APPROVED.  
Project Bureau No. 42-R1485  
Approval Expires June 30, 1968

1. AGENCY CODE <b>MC</b>	2. TYPE <b>Q</b>	3. LATITUDE ° <b>34</b> ' <b>42</b> " <b>53</b> N	4. LONGITUDE ° <b>77</b> ' <b>19</b> " <b>18</b> W	5.
-----------------------------	---------------------	--	---	----

6. AGENCY STATION NO. <b>621</b>	7. STATION NAME <b>HP20-621</b>
-------------------------------------	------------------------------------

8. DRAINAGE BASIN CODE No. <b>06</b> Letter <b>N</b>	9. STATE CODE <b>32</b>	10. COUNTY CODE <b>133</b>	11. COUNTY NAME <b>ONslow</b>
---	----------------------------	-------------------------------	----------------------------------

12. PERIOD OF RECORD Began <b>1942</b> Discontinued	Y <input type="checkbox"/> Continuous <input type="checkbox"/> Interruption Exceeds 1 Year	13.	14.
--	---	-----	-----

15. SITE <input type="checkbox"/> 101 Stream <input type="checkbox"/> 102 Canal	<input type="checkbox"/> 103 Lake <input type="checkbox"/> 104 Reservoir <input type="checkbox"/> 105 Estuary	<input type="checkbox"/> 106 Spring <input checked="" type="checkbox"/> 107 Well <input type="checkbox"/> 110 Other
---	---	---

16. FREQUENCY OF MEASUREMENT <input type="checkbox"/> 201 Continuous Recorder <input type="checkbox"/> 202 Telemetered	<input type="checkbox"/> 203 Daily <input type="checkbox"/> 204 Weekly <input type="checkbox"/> 205 Monthly <input type="checkbox"/> 206 Quarterly	<input type="checkbox"/> 207 Seasonal <input type="checkbox"/> 208 Annual <input type="checkbox"/> 209 Other Periodic <input checked="" type="checkbox"/> 210 Occasional
--	---	---

17. TYPES OF DATA AVAILABLE <i>Physical</i> <input type="checkbox"/> 311 Temperature <input type="checkbox"/> 312 Specific Conductance <input type="checkbox"/> 313 Turbidity <input type="checkbox"/> 314 Color <input type="checkbox"/> 315 Odor <input type="checkbox"/> 316 Radioactivity <input type="checkbox"/> 317 pH (field) <input checked="" type="checkbox"/> 318 pH (lab) <input type="checkbox"/> 319 Eh <input type="checkbox"/> 320 Other	<i>Chemical</i> <input type="checkbox"/> 331 Dissolved solids <input checked="" type="checkbox"/> 332 Chlorides Only <input type="checkbox"/> 333 Nutrients (Nitrogen and phosphorus compounds) <input type="checkbox"/> 334 Common ions <input checked="" type="checkbox"/> 335 Hardness <input type="checkbox"/> 336 Radiochemical <input type="checkbox"/> 337 Dissolved oxygen <input type="checkbox"/> 338 Other Gases <input type="checkbox"/> 339 Other	<i>Organic</i> <input type="checkbox"/> 351 Pesticides (insecticides, herbicides, etc.) <input type="checkbox"/> 352 Synthetic detergents <input type="checkbox"/> 353 Other <i>Biologic</i> <input type="checkbox"/> 361 Coliforms <input type="checkbox"/> 362 Other Micro-organisms <input type="checkbox"/> 363 BOD <input type="checkbox"/> 364 Other <i>Sediment</i> <input type="checkbox"/> 371 Concentration <input type="checkbox"/> 372 Particle size <input type="checkbox"/> 373 Other
--	---	---

18. SUPPLEMENTARY DATA FOR SITE <input type="checkbox"/> 421 Surface Water Station <input type="checkbox"/> 422 Ground Water Station	<input type="checkbox"/> 423 Water Stage or Level <input checked="" type="checkbox"/> 424 Water discharge	<input type="checkbox"/> 425 Time of Travel <input type="checkbox"/> 426 Drainage Area
--	--	---

19. STORAGE OF DATA <input type="checkbox"/> 501 Periodic Report <input type="checkbox"/> 502 Areal Report	<input checked="" type="checkbox"/> 503 Not Published <input type="checkbox"/> 504 Data on Punchcard	<input type="checkbox"/> 505 Data on Magnetic Tape <input type="checkbox"/> 506 Other
--	---	--

20. OFFICE AT WHICH DATA AVAILABLE Office <u>BASE MAINTENANCE DEPARTMENT, UTILITIES DIVISION</u>		
Street No. <u>MARINE CORPS BASE</u>	City Code	
City, State, Zip <u>CAMP LEJEUNE, N. C. 28542</u>	0735	

21. OFFICE COMPLETING FORM <u>BASE MAINTENANCE DEPARTMENT</u>
--

22. COMPILER'S NAME <u>F. E. TEW, JR.</u>	23. DATE Month <u>SEPT.</u> Year <u>1966</u>
--	---



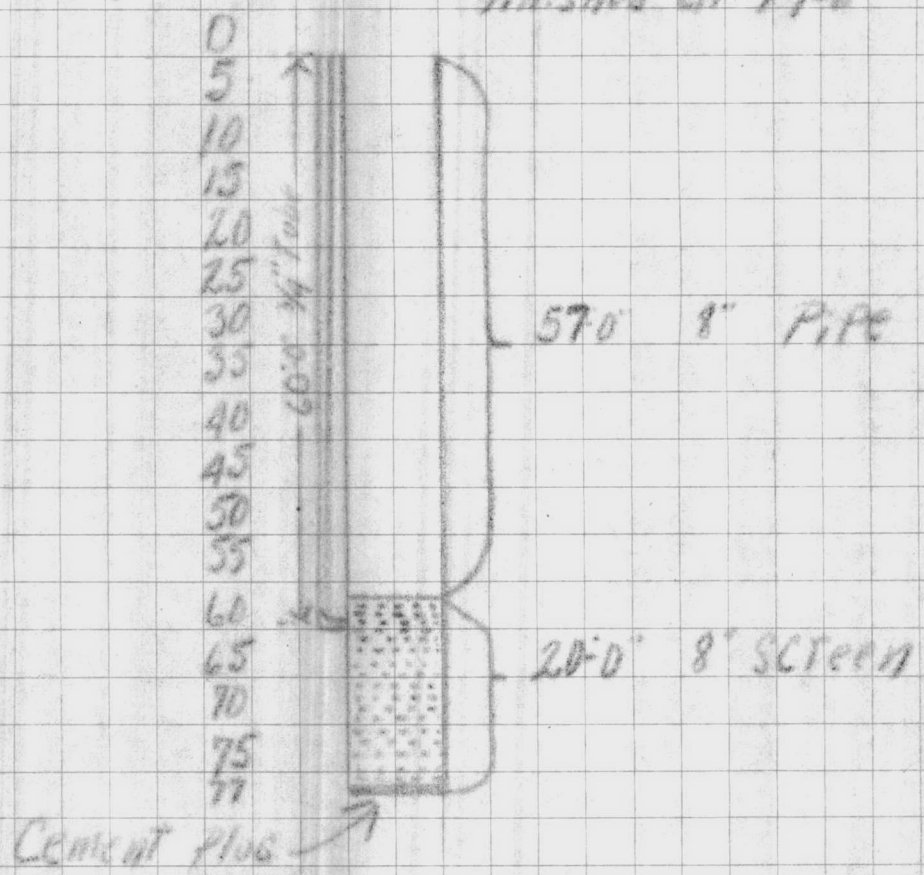
11/21

East side P. G. & S. FERRY Road  
450' south of P. G.



Well # 21 Neg Area  
finished at 77'-0"

300 1 1/2" Pit Case into set and cemented  
Well Pumps 200 GPM 4 1/2" drop down below surface  
Pressure 70 3/4" below surface in 3 minutes  
Static Apr 20' below surface



FINE 1/2\"/>

Log of formation

0' To	10'	Red Sandy Clay
10' To	25'	fine white sand
25' To	30'	fine brown sand
30' To	37'	Soft Mucky blue Clay
37' To	39'	Shell Rock
39' To	45'	Sand
45' To	50'	blue Clay
50' To	53'	Shell Rock
53' To	55'	Sand
55' To	80'	Sand and shell

W E L L D A T A

WELL #21

5 ADDITIONAL WELLS - PINEY GREEN - TRAILER CAMP TD.

SPECIFICATIONS

Capacity 250 G.P.M.  
Head 86'  
Pump Set 50' below top of foundation  
Dual Drive

TEST

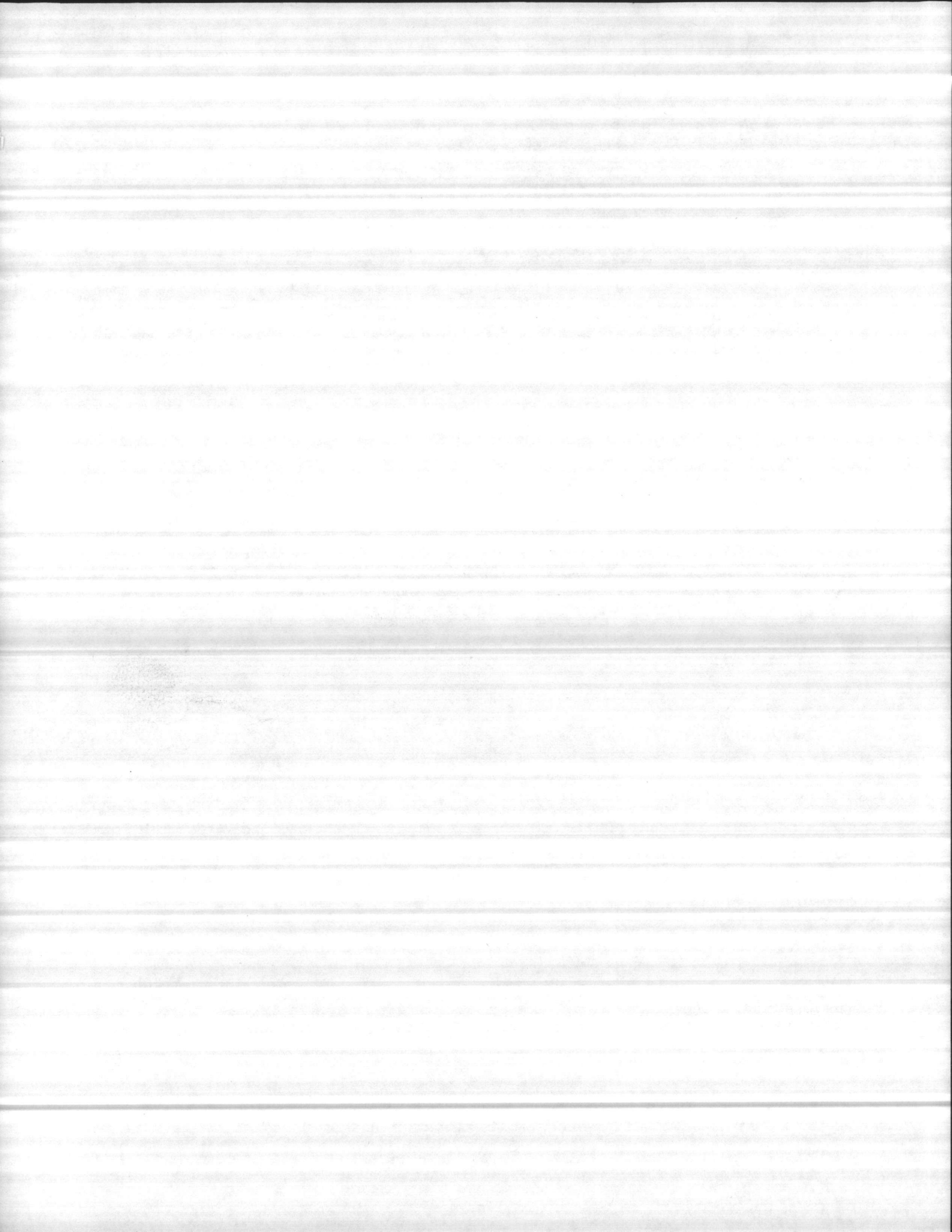
<u>G.P.M.</u>	<u>PRESSURE</u>	<u>DRAW-DOWN</u>
200	27#	31'
225	25#	32'
250	22.5#	32' = 84' (*)
275	20.0#	33.5'

(\*) Approximately 4' of head is lost in testing equipment

*This Well Will Only Pump around 250 GPM  
Against No Head Pressure*

*Air line 62.5*







W E L L D A T A

WELL #21

5 ADDITIONAL WELLS - PINEY GREEN - TRAILER CAMP ID.

SPECIFICATIONS

Capacity 250 G.P.M.  
Head 86'  
Pump Set 50' below top of foundation  
Dual drive

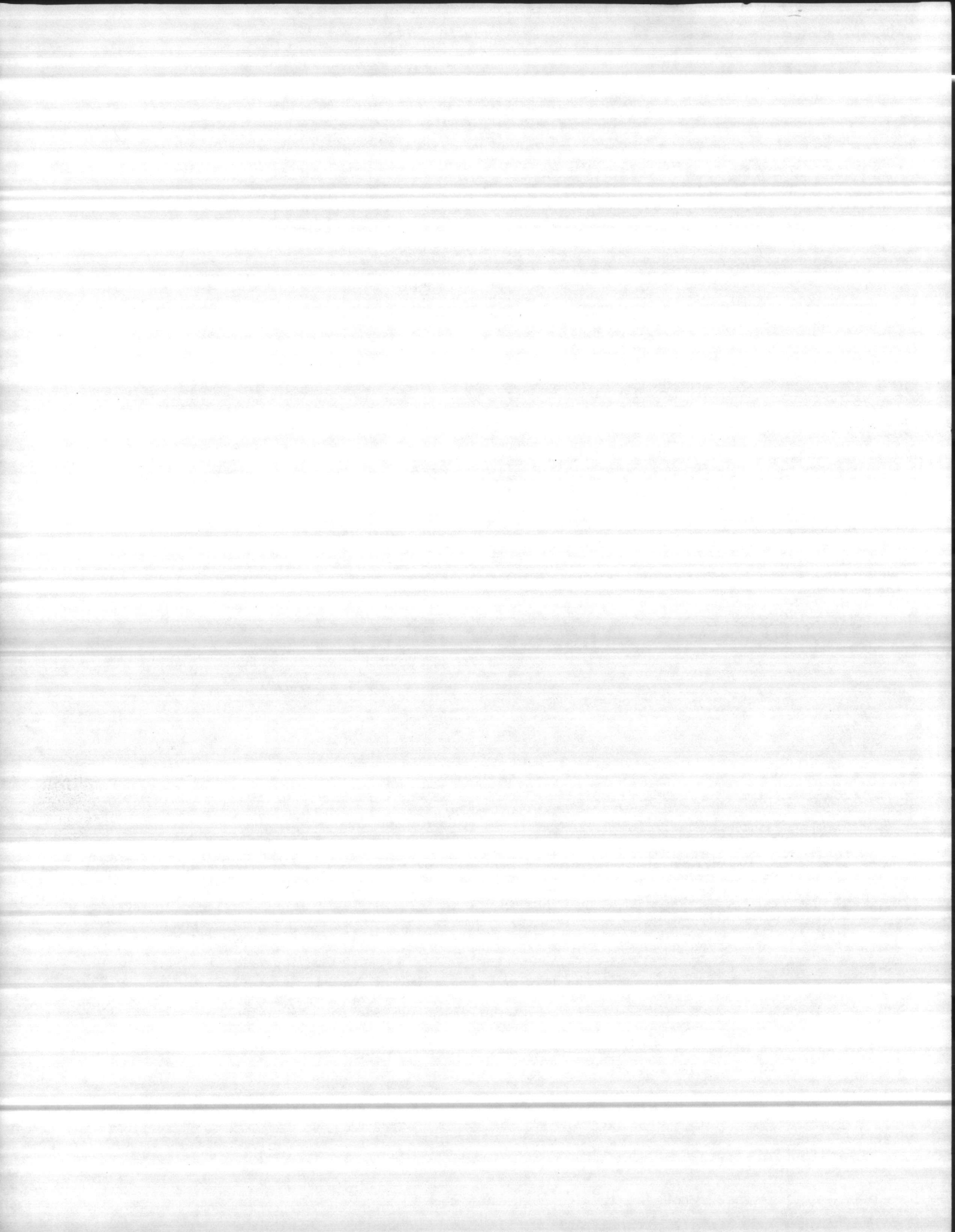
TEST

<u>G.P.M.</u>	<u>PRESSURE</u>	<u>DRAW-DOWN</u>
200	27#	31'
225	25#	32'
250	22.5#	32' = 84' (*)
275	20.0#	33.5'

(\*) Approximately 4' of head is lost in testing equipment

*This Well Will only pump around 250 GPM  
Against no head pressure*

*Air line 62.5*





W E L L D A T A

WELL #21

5 ADDITIONAL WELLS - PINEY GREEN - TRAILER CAMP "D".

SPECIFICATIONS

Capacity 250 G.P.M.  
Head 86'  
Pump Set 50' below top of foundation  
Dual Drive

TEST

<u>G.P.M.</u>	<u>PRESSURE</u>	<u>DRAW-DOWN</u>
200	27#	31'
225	25#	32'
250	22.5#	32' = 84' (*)
275	20.0#	33.5'

(\*) Approximately 4' of head is lost in testing equipment

*This Well Will Only Pump around 250 GPM  
Against No Head Pressure*

*Air line 62.5*

*D. W. H.*







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**PUMP DATA SHEET**  
 Goulds Turbine 60 Hz

Selection file: (untitled)  
 Catalog: TURB60.MPC v 1.6.4

Curve: 3103

Design Point: Flow: 200 US gpm  
 Head: 72 ft

Fluid: Water Temperature: 60 °F  
 SG: 1

Pump: **TURBINE - 1800** Size: **8RJLO (4 stages)**  
 Speed: 1760 rpm Dia: 4.5 in

Viscosity: 1.122 cP  
 Vapor pressure: 0.2568 psi<sub>a</sub>  
 Atm pressure: 14.7 psi<sub>a</sub>

Limits: Temperature: --- °F Sphere size: 0.43 in  
 Pressure: 425 psi<sub>g</sub> Power: --- bhp

NPSHa: --- ft

Specific Speed: Ns: 2625 Nss: ---

Piping: System: ---

Vertical Turbine: Bowl Size: 7.5 in Max Lateral: 0.63 in  
 Thrust K Factor: 5.3

Suction: --- in

Discharge: --- in

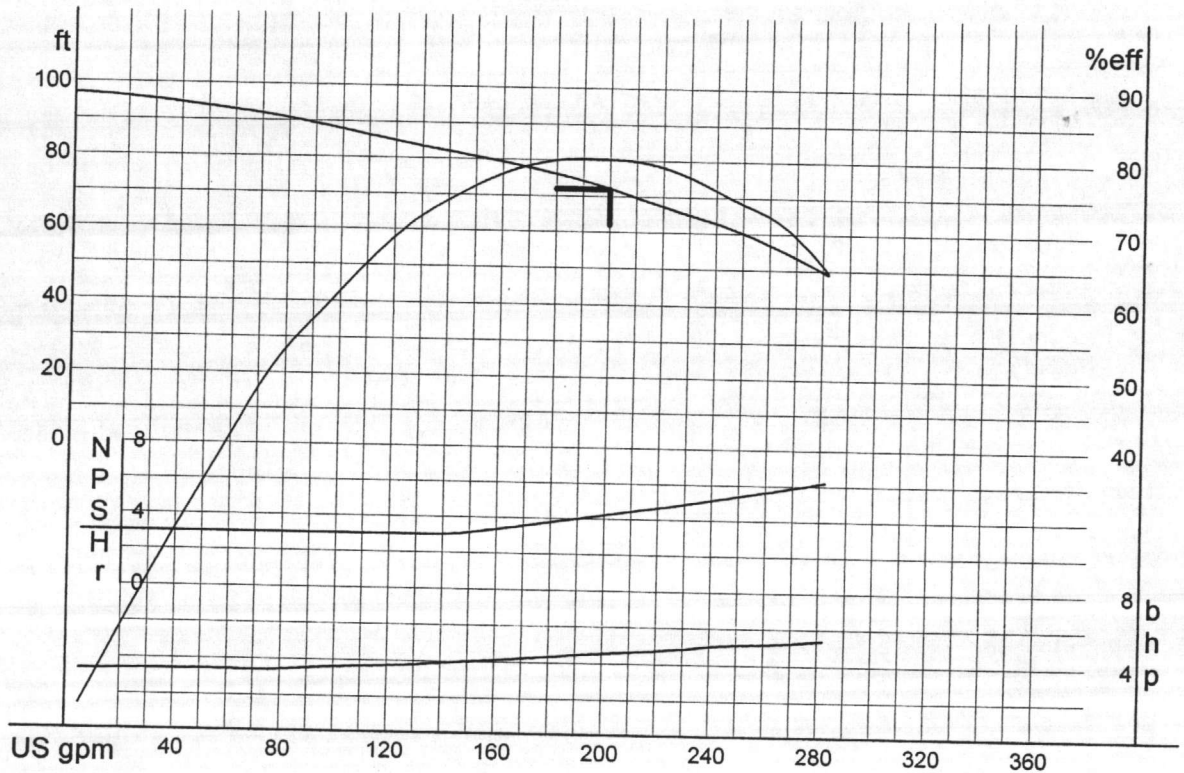
Motor: 7.5 hp Speed: 1800 Frame: 213  
 NEMA Standard WPI Enclosure  
 sized for Max Power on Design Curve

Suction Size-5" Discharge Sizes-5",6"

---- Data Point ----  
 Flow: 200 US gpm  
 Head: 72.2 ft  
 Eff: 80.1%  
 Power: 4.55 bhp  
 NPSHr: 4.21 ft

-- Design Curve --  
 Shutoff Head: 97 ft  
 Shutoff dP: 42 psi  
 Min Flow: - US gpm  
 BEP: 80.1% eff  
 @ 197 US gpm  
 NOL Pwr: 5.39 bhp  
 @ 282 US gpm

-- Max Curve --  
 Max Pwr: 8.73 bhp  
 @ 324 US gpm



--- PERFORMANCE EVALUATION ---

Flow US gpm	Speed rpm	Head ft	Pump %eff	Power bhp	NPSHr ft	Motor %eff	Motor kW	Hrs/yr	Cost /kWh
200	1760	72.2	80.1	4.55	4.21	87.1	3.89	1500	0.08
160	1760	79.3	78	4.11	3.34	87.1	3.52	3000	0.08
120	1760	84.8	68.7	3.73	3	86.9	3.2	1000	0.06

Total Annual Power Consumption: 19,595 kWh  
 Annual Operating Cost: \$1,503

AD: 1.00  
 AG: 21.23  
 BD: 10.00  
 Size: 8.00  
 8.00

Model: MSBM  
 Make: IBM  
 Type: 8.00  
 8.00

# Goulds Turbine Hydraulic Analysis of DWT-CATM Pump

Date: 11-16-2001

4 Stage 6x8RJLO

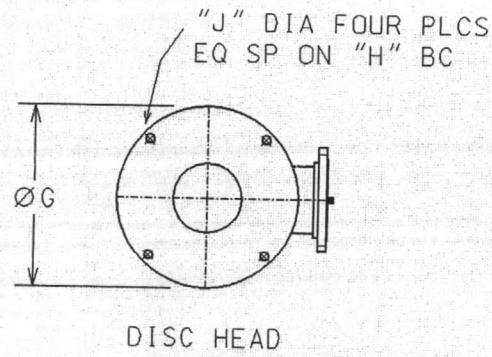
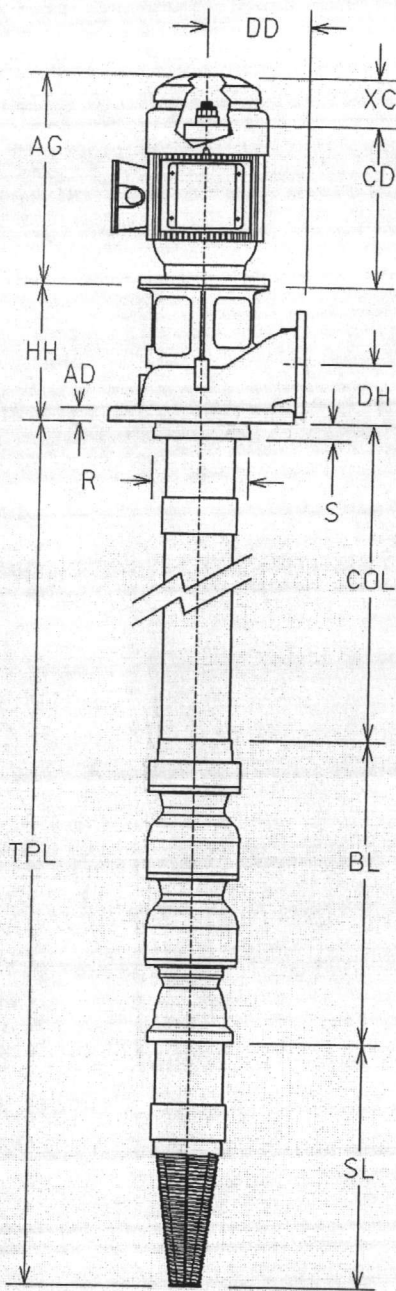
Version: 2.01P



## Pump Data

AD:	1.00
AG:	21.25
BD:	10.00
BL:	34.63
CAN:	N/A
CD:	17.56
CL:	N/A
COL:	360.00
DD:	12.00
DH:	6.75
G:	23.50
H:	21.25
HH:	15.50
J:	0.75
R:	10.25
S:	1.81
SL:	133.00
TPL:	527.63
UG:	N/A
V:	0.75
W:	
X:	
XC:	3.34
Y:	
Z:	

Size:	8RJLO
Stages:	4
Impellers:	Bronze
Bowl:	Cast Iron
Bearing:	Rubber
Basket:	No
LineShaft Type:	Open
Column:	Steel
Column:	5" Threaded
Bearing Spacing:	10 feet
Section Length:	10 feet
Head:	A:Cast
Flange (Disch.):	6" 125#
Inlet:	
Coupling:	416SS
Seal:	Packing
LineShaft:	416SS 1"
SubBase:	None



### Hydraulic Data

Flow (gpm):	200
Pump Head (ft):	51.7
TDH (ft):	72.2
Speed (rpm):	1760
Fluid:	Water
Temperature (F):	60
Viscosity:	1.122
Spec.Grav:	1

### Miscellaneous

Thrust At Design:	484
Thrust At Shutoff:	615
Min Water Level(in):	240

### Weight

Pump:	799
Motor:	120
Total:	919

### Motor Data

Model Number:	6968
Make:	USEM
HP:	5
RPM:	1800
Type:	TU
Efficiency:	82.5
Frame:	184TP
Ratchet:	NRR



General Party Parameters

File and Labels

EXL3

Group Opening Speed (GPM)

Power Power Data

Other Parameters

0.16

Thrust and Loss

Power Efficiency

80.10

Group Efficiency

Group Efficiency

83.50

Overall Efficiency

Power Efficiency

76.30

87.00

75.00

# Goulds Turbine Hydraulic Analysis of DWT-CATM Pump

Date: 11-16-2001

Version: 2.01P

4 Stage 6x8RJLO



## Overall Pump Parameters

Size and Model:	8RJLO	Pump Operating Speed, RPM:	1760
Capacity, GPM:	200	Total Dynamic Head, Ft.:	72.2
Total Pump Length, In.:	527.6	Impeller Trim, In.:	4.5
Pump Type:	OpenSump	Head Type:	A:Cast
Pump K-Factor:	5.3	Number of Stages:	4
		Pumping Level, In.:	240.0

## LineShaft-Related Data

Shaft Diameter, In.:	1	Shaft Limit, HP:	70
Shaft Material:	416SS	Matl Correction Fact:	1.18
LineShaft Length, In.:	360.00	Shaft Elongation, w/o Adder:	0.01
		LineShaft Type:	Open

## Bowl Data

Total Bowl Length, In.:	34.63	Bowl Diameter, In.:	7.5
		Bowl Shaft Limit, HP:	124

## Column Data

Column Diameter, In.:	5	Column Load, Lb.:	39.6
Wall Thickness, In.:	Standard	Column Elongation, In.:	0.00

## HorsePower Data

Shaft Friction Loss, Hp.:	0.16	Thrust Load Loss, Hp.:	0.06
Bowl HP At Design, Hp.:	4.55	Motor HorsePower, Hp.:	5

## Head Data

Column Loss, Ft.:	0.47	Discharge Head Loss, Ft.:	0.06
		Total Loss, Ft.:	0.53

## Other Data

Hydraulic Thrust, Lb.:	382.7	Thrust at Design, Lb.:	484.0
Thrust at Shutoff, Lb.:	615.3	Design NPSH, Ft.:	4.2
Max Lateral, In.:	0.63	Min. Lateral Required, In.:	0.01
		Actual Head above Grade, Ft.:	51.67

## Efficiency Data (Efficiencies estimated not guaranteed)

Bowl Efficiency:	80.10	Pump Efficiency:	76.36
Motor Efficiency:	82.50	Overall Efficiency:	63.00
		KWH/1000 gallons:	0.36

## Component Weights

Bowl Weight, Lbs.:	199	Column Weight, Lbs.:	600
Head Weight, Lbs.:	0	Can Weight, Lbs.:	0
Motor Weight, Lbs.:	120	Total Pump Weight, Lbs.:	919





W E L L D A T A

WELL #20

5 ADDITIONAL WELLS - OFF PINEY GREEN - TRAILER CAMP RD.

DEPTH 53' 3" SPECIFICATIONS

Capacity 200 G.P.M.

Head 72'

Pump set 32' below top of foundation

H.P. required ~~1 1/2~~

5 HP

TEST

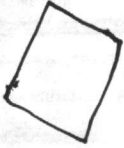
Static Level 12' below surface

<u>G.P.M.</u>	<u>PRESSURE</u>	<u>DRAW-DOWN</u>
180	30#	16'
190	29#	16.5'
200	28.5 #	17'
210	27.25#	17.5' = 83'
225	26#	18'
240	24#	18.5'
250	22.5#	18.5'

DISCHARGE  
6 1/2" CENTER LINE  
↑  
BASE

Air line 42'

NAME BRAND



CENTER LINE  
DISCHARGE

6" DISCHARGE HEAD

20"  
3"

18"  
OPEN HOLE

4  
STAGE  
COOLD

(142)

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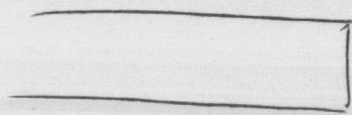
WELL #20

DATE	STATIC	
1942	+14'	ORIGINAL
9-16-53	+15'	GUAGE
10-15-53	+19'	GUAGE
FEB. 1961	+19'	GUAGE
FEB. 1966	+23'	GUAGE
11-29-66	+19'	GUAGE
6-29-67	+18'	MEAS.

WELL #21

DATE	STATIC	
1942	+9.8'	ORIGINAL
9-14-53	+22.8'	MEAS.
JAN. 1961	+15.8'	GUAGE
OCT. 1961	+18.8'	GUAGE
FEB. 1966	+19.8'	GUAGE
11-1-66	+18.8'	GUAGE







**FOREMAN'S  
LABOR DISTRIBUTION  
CARD**  
NAVMC 10041-5D

**DISTRIBUTION**

ACCOUNT NO.

WORK ORDER NO.

37

DATE

NAME

$$\begin{array}{r}
 204.2 \\
 1.93 \\
 \hline
 206.13 \\
 15.3 \\
 \hline
 221.43 \\
 6.1 \\
 \hline
 227.53
 \end{array}$$

$$\begin{array}{r}
 165 \\
 16.5 \\
 \hline
 181.5
 \end{array}$$

SIGNATURE OF FOREMAN



4-16-86

620 well

A-L	50'
S-L	20'
P-L	30'
D-D	10'
PSI	27'
G-PM	201'

IRS

We ~~was~~ were

11.17 Here

22

BORLOS Pumps

SN MS1-88-372

MODEL 8R JLO

Hostage

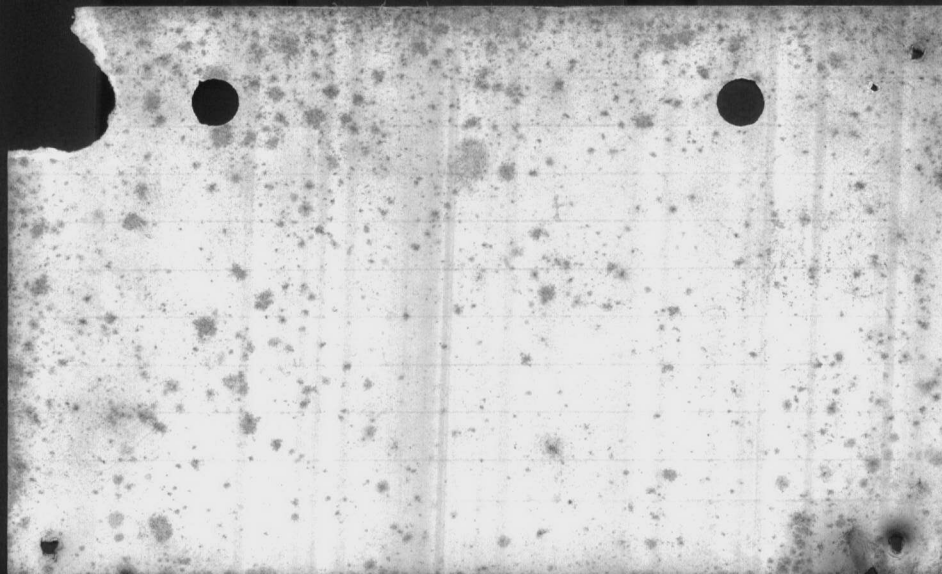
DATE 11-88





Well # 620

Pump Base Elev.	37'
Length of air line	50'
Elev. of lower end of air line	-13'
Pumping Level	2' ?
Discharge Pressure	30 #
Gallons Per Minute	207







2x18  
19  
2/9

H.P. Well 621

