DRILLER'S NOTEBOOK

WELL RECORD

DRILLER Thorpe Well Co

ADDRESS Des Moines, Iowa

OWNER City Waterworks

ADDRESS Lineville Iowa

RETURN TO
IOWA GEOLOGICAL SURVEY
IOWA CITY, IOWA

WHEN RECORD IS COMPLETED PUT IN ENVELOPE AND MAIL TO

THE DIRECTOR

IOWA GEOLOGICAL SURVEY

IOWA CITY, IOWA

DRILLER'S NOTE

It is important that a driller's notebook, filled out as completely as possible, be sent to the Iowa Geological Survey at the completion of each hole. A number of drillers have found it convenient to string samples from a single well on a heavy wire and attach the log book to them. A hole has been punched in the log book for this purpose.

Sample sacks and log books will be furnished by the Geological Survey. A copy of the log book will be made and returned if desired by the driller.

SUGGESTIONS TO DRILLERS

1. Samples should be taken from each bed passed through, and never more than 5 feet apart, even in the same bed.

2. Samples should not be washed, except to remove excess drilling mud, as washed samples may give a wrong idea of the character of the bed.

3. Fill out the label on each sample bag with the name of the well and the depth interval which the sample represents.

4. Make frequent use of the "Description" column to explain the material being drilled.

5. Note depth and thickness of all water-bearing layers.

6. Note the quality of the water from each layer: as hard, soft, salty, alkaline, or sulphur bearing.

7. Note height to which water from each layer rises in well, and give flow or capacity in gallons per minute.

8. Fossils, such as oyster, clam, and other shells, are important and should be placed in bags with the material with which they are found and carefully labeled as to the depth from which they were obtained.

9. If you do not understand what is wanted, or desire information on any point, write to the Iowa Geological Survey, Iowa City, Iowa.

10. Samples may be boxed and sent to IOWA GEOLOGICAL SURVEY, IOWA CITY, IOWA, EXPRESS COLLECT.

The Iowa Geological Survey desires to assist and cooperate with owners and drillers in every way possible, and will be glad to answer questions and assist in the solution of problems at any time.

PB-19825-SP

WELL RECORD

Well is located.....N/E miles S and.....N/E miles S from W/W

..... in....., (Nearest Town) (County)

in the ....¼....¼ Sec....T....R....

Owner...CITY.... Well No....1....#

Postoffice address ...KINGSVILLE IA

Contractor THORPE WELL CO.

Address ...240 6TH AVE D.M.

Driller ZON BROWER

Well begun...AUG-9..., 1954;

completed....., 19.....

Rig used—Cable, Rotary, Jet, or.....

Depth of well..... (Feet)

Size of hole (note total amount of each size).....

.....

Main water supply, at..... (Feet below surface)

Final water head..... (Feet above or below surface)

Is well pumped?.....

Yield ..... (Gallons per minute)

Water level when pumping.....

Position of well..... (Upland, valley, side hill, etc.)

Date and Time	Water Level	SOURCE OF WATER		Production in Gallons per Minute	Pumping Level
		Depth	Type of Rock		

NOTE: Water levels should be recorded at time of change AND at regular intervals; for example each morning before drilling starts or at the end of each 100 feet of drilling.

RECORD OF PERMANENT CASING

Size Pipe	Amount of Pipe	Depth to Bottom of Pipe	Depth to Top of Pipe	Type* and Weight of Pipe	DIAGRAM OF WELL
~16" O.D.	102	102	GROUND	Temp	
12" ID	341	341	11	11	

*As cast, wrought iron, steel, concrete, etc.

Is screen used?..... Diameter.....
(Inches)

Length..... Depth to bottom.....
(Feet)

Depth to top.....Slot size.....

Are packers or seals used?.....

Kind .....

Where used.....

Kind of pump.....Dia.....
(Inches)

Capacity of pump.....
(g.p.m.)

Power used.....
(Kind and amount)

Depth to bottom of pump line.....feet,

including .....feet tailpiece.

Remarks on construction of well.....

.....

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
	0	3	3	Top Soil
2	3	5	2	yellow clay
3	5	10	5	" "
4	10	15	5	" "
5	15	20	5	" " Some GRAVEL
6	20	25	5	"
7	25	30	5	GRAVEL & Yellow clay
8	30	35	5	" " "
9	35	40	5	yellow clay (SANDY)
10	40	45	5	SAND & CLAY
	45	50	5	" "
12	50	55	5	Yellow clay GRAVEL & BOLDERS
13	55	60	5	yellow clay & GRAVEL
14	60	65	5	" " "
15	65	70	5	" "
16	70	75	5	" "
17	75	80		" " "

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
18	80	85	5	Yellow CLAY ROCKS GRAVEL
19	85	90	5	" "
20	90	95	5	
21	95	100	5	
22	100	105	5	Blue CLAY + ROCK
23	105	110	5	" "
24	110	115	5	" "
25	115	120	5	" "
26	120	125	5	" "
27	125	130	5	" "
28	130	135	5	" "
29	135	140	5	" "
30	140	145	5	" "
31	145	150	5	" SANDY & ROCK
32	150	155	5	SAND
33	155	160	5	" "
34	160	164	4	Blue CLAY

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
35	164	165	1	SAND
36	165	170	5	" & YELLOW CLAY
37	170	175	5	" " "
38	175	180	5	" " "
39	180	185	5	" " "
40	185	190	5	" " "
41	190	195	5	" " "
42	195	200	5	" " "
43	200	205	5	SAND
44	205	210	5	BLUE CLAY
45	210	215	5	
46	215	220	5	
47	220	225	5	
48	225	230	5	
49	230	235	5	" "
50	235	240	5	" "
51	240	245	5	BLUE CLAY & GRAVEL

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
52	245	250	5	BLUE CLAY & GRAVE
53	250	255	5	
54	255	260	5	
55	260	265	5	
56	265	270	5	
	270	275	5	
58	275	280	5	
59	280	285	5	
60	285	290	5	
61	290	295	5	
62	295	300	5	
63	300	305	5	
64	305	310	5	
65	310	315	5	
66	315	322	7	
67	322	325	3	SAND & GRAVEL
68	325	330	5	" " (SOME WATER)

322
330
5

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
69	330	335	5	GRAY ~~Clay~~ Shale
70	335	340	5	
71	340	345	5	
72	345	350	5	"
73	350	355	5	Shale (GRAY)
74	355	360	5	
75	360	365	5	
76	365	370	5	"
77	370	375	5	"
78	375	380	5	"
79	380	385	5	"
80	385	390	5	"
81	390	395	5	BROWN & GRAY Shale
82	395	400	5	Shale (BROWN)
83	400	405	5	BROWN & GREEN Shale
84	405	410	5	
85	410	415	5	GRAY Sha

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
86	415	420	5	GRAY SHALE
87	420	425	5	" "
88	425	430	5	
89	430	435	5	"
90	435	440	5	
91	440	445	5	
92	445	450	5	(GRAY) SHALE
93	450	455	5	" "
94	455	460	5	" "
95	460	465	5	" "
96	465	470	5	(GREEN) SHALE
97	470	475	5	(BLACK) "
98	475	480	5	"
99	480	485	5	" "
100	485	490	5	(GREEN) SHALE
01	490	495	5	" "
02	495	500	5	SHALE (GRAY)

STATIC HEAD 335

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
103	500	505	5	SHALE GRAY
104	505	510	5	" "
105	510	515	5	" "
106	515	520	5	" "
107	520	525	5	" "
108	525	530	5	
109	530	535	5	
110	535	540	5	SAND STONE
111	540	545	5	"
112	545	550	5	SOME
113	550	554	4	"
114	554	555	1	SHALE GRAY Gas Sp
115	555	557	2	" " "
116	557	560	3	LIME STONE BROWN
117	560	565	5	" "
118	565	570	5	" " SHALE STREAKS
119	570	575	5	SHALE (BLACK)

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
120	575	580	5	SHALE BLACK
121	580	585	5	" "
122	585	590	5	" "
123	590	595	5	" "
124	595	600	5	" " & GRAY
125	600	605	5	LIMESTONE
126	605	610	5	"
127	610	615	5	LIMESTONE (SANDY)
128	615	618	3	" "
129	618	625	7	SHALE (GRAY)
130	625	630	5	" "
131	630	635	5	" "
132	635	640	5	BLACK
133	640	645	5	BLACK SHALE & GRAVEL
134	645	650	5	" "
135	650	655	5	LIMESTONE (GRAY)
136	655	660	5	" " ( )

S.H. 335

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
137	660	665	5	LIMESTONE (GRAY)
138	665	670	5	" "
139	670	675	5	" SANDY
140	675	680	5	" "
141	680	685	5	SAND STONE WHITE
142	685	690	5	" "
143	690	695	5	" "
144	695	700	5	LIMESTONE (GRAY)
145	700	705	5	" (LARGE CUTTING)
146	705	710	5	SAND STONE (white)
147	710	715	5	" "
148	715	720	5	LIMESTONE & (Shale)
149	720	725	5	" & STATE HARD SAND
150	725	730	5	" (HARD)
151	730	735	5	" "
152	735	740	5	"
153	740	745	5	BLACK Shale & Dolomite

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
154	745	750	5	BLACK SHALE DOLOMITE
155	750	755	5	
156	755	760	5	SHALE (GRAY) DOLOMITE
157	760	765	5	" " "
158	765	770	5	SHALE (BLACK)
159	770	775	5	"
160	775	780	5	" "
161	780	785	5	GRAY SHALE & LIMESTONE
162	785	790	5	" " "
163	790	795	5	" " "
164	796	800	5	" " "
165	800	805	5	DOLOMITE (VERY HARD)
~~166~~	805	810	5	" " "
167	810	815	5	" " "
168	815	820	5	" " "
169	820	825	5	" " "
170	825	830	5	SAND & WHITE CHERT

2 Samples

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
171	830	835	5'	LIMESTONE (Brown)
172	835	840	5	" "
173	840	845	5	" "
174	845	850	5	" "
175	850	855	5	"
176	855	860	5	LIMESTON (GRAY)
177	860	865	5	" "
178	865	870	5	" (HARD)
179	870	875	5	" "
180	875	880	5	" "
181	880	885	5	" "
182	885	890	5	" "
183	890	895	5	" "
184	895	900	5	"
185	900	905	5	LIMESTONE GRAY SHALE STREAKS
186	903	910	5	SHALE (GRAY)
187	910	915	5	SHALE & LIMESTONE

~~865~~ 865

STATIC HEAD 318

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
88	915	920	5	LIMESTONE (GRAY)
89	920	925	5	SHALE & LIMESTONE
90	925	930	5	SHALE (GRAY)
191	930	934	4	LIMESTONE (BROWN)
192	934	940	6	LIMESTONE (GRAY)
193	940	945	5	" "
194	945	950	5	" "
195	950	955	5	" "
196	955	960	5	" "
197	960	965	5	" "
198	965	970	5	LIMESTONE BROWN
199	970	975	5	" "
	975	980	5	" GRAY
20	980	985	5	" "
201	985	990	5	" "
202	990	995	5	" "
203	995	1000	5	" "

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
203	1000	1005	5	LIMESTONE GRAY
204	1005	1010	5	"
205	1010	1015	5	"
206	1015	1020	5	" GRAY & DOLOMITE
207	1020	1025	5	
208	1025	1030	5	
209	1030	1035	5	" " "
210	1035	1040	5	" "
211	1040	1045	5	" " "
212	1045	1050	5	" " "
213	1050	1055	5	" " "
214	1055	1060	5	"
215	1060	1065	5	"
216	1065	1070	5	" "
217	1070	1075	5	" "
218	1075	1080	5	" "
219	1080	1085	5	"

STATIC HEAD 365

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
220	1085	1090	5	LIMESTONE GRAY
221	1090	1095	5	
222	1095	1100	5	LIMESTONE (SHALE STREAKS) (GRAY)
223	1100	1105	5	
224	1105	1110	5	
	1110	1115	5	LIME TONE GRAY + BROWN
	1115	1120	5	"
	1120	1125	5	
225	1125	1130	5	STATIC h=M.D) 3.57
226	1130	1135	5	LIMESTONE (GRAY)
230	1135	1140	5	"
231	1140	1145	5	" "
232	1145	1150	5	" "
233	1150	1155	5	" "
234	1155	1160	5	"
235	1160	1165	5	" " 344
236	1165	1170	5	"

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
8	1170	1175	5	LIMESTONE BROWN
	1175	1180	5	LIMESTONE & SHALE (GRAY)
	1180	1185	5	LIMESTONE (BROWN)
241	1185	1190	5	LIMESTONE (GRAY) SHALE
242	1190	1195	5	" " "
242	1195	1200	5	" "
243	1200	1205	5	" "
244	1205	1210	5	" "
245	1210	1215	5	" " "
246	1215	1220	5	" STATIC HEAD " 355' "
247	1220	1225	5	LIMESTONE (GRAY) (HARD)
248	1225	1230	5	LIMESTONE BROWN & GRAY
249	1230	1235	5	" " " "
250	1235	1240	5	" GRAY
251	1240	1245	5	" "
252	1245	1250	5	"
253	1250	1255	5	" SHALE SLIGHT

Sample No.	DEPTH From	DEPTH To	THICKNESS	DESCRIPTION OF BEDS — KIND OF ROCK, COLOR, HARD OR SOFT, WATER, ETC.
254	1255	1260	5	LIMESTONE (GRAY) (SHALY STREAK)
255	1260	1265	5	LIMESTONE (GRAY) LARGE CUTTING
256	1265	1270	5	BROWN
257	1270	1275	5	
258	1275	1280	5	
259	1280	1285	5	TOTAL - 1 (1292)
260				
261				
262				
263				
264				
265				
266				
267				
268				
269				
270				

Date and Time	Water Level	SOURCE OF WATER		Production in Gallons per Minute	Pumping Level
		Depth	Type of Rock		

NOTE: Water levels should be recorded at time of change AND at regular intervals; for example each morning before drilling starts or at the end of each 100 feet of drilling.

RECORD OF PERMANENT CASING

Size Pipe	Amount of Pipe	Depth to Bottom of Pipe	Depth to Top of Pipe	Type* and Weight of Pipe	DIAGRAM OF WELL
8"	100'	100'	Surface	Welded	

*As cast, wrought iron, steel, concrete, etc.

Is screen used?..... Diameter.....
(Inches)

Length..... Depth to bottom.....
(Feet)

Depth to top.....Slot size.....

Are packers or seals used?.....

Kind .....

Where used.....

Kind of pump.....Dia.....
(Inches)

Capacity of pump.....
(g.p.m.)

Power used.....
(Kind and amount)

Depth to bottom of pump line.....feet,

including .....feet tailpiece.

Remarks on construction of well.....

FOR FIGURING, CASING TALLY, ETC.

Temp CASING

16" OD - 102 FT

12" I.D. 341 FT

10" I.D. 535 FT

10" pipe I.D.
temp

FOR FIGURING, CASING TALLY, ETC.

18 - 8
16 - 8
18 -
20 - 9
19 - 5
14 - 5
20 -
20
19 - 11
21 - 8
20 - 6
18 - 4
18 - 2
20 - 2
16 - 3
20 - 1
22 - 8
18 - 10
16 - 2

15 - 10
16 - 7
18 - 1
20 - 8 ↔ 431-10
17 - 5
21 - 2
20 - 10
18 - 10
16 - 4 → 526-5
9. 0 <-> 535-5

FOR FIGURING, CASING TALLY, ETC.

G868

Name Lineville town well 1954

Loc. SW in town SE 20-67-23W, Wayne Co. ADJ T. Town

Drilling depth 1260' Coose Maple Mill 1285-1281 Oct-61

Driller Thorpe Sept - Nov 1954 Rep 155 (1960)

Log W-6868 Northup

Casing 8"

PLUG BACK SVIL

3" 500 gals

870+

DRLD - 25 S
ACIDIZED

Analyses: No. 8798 (4195) 10/8/54 ; No. 913 (1657) 10/22/59 1285' ; No. 1866 (3547) 4/4/62 1285'

Remarks Well completed in top Lime Creek fm at T.D. 1285'

log, plat, etc

Elev. 1085.

Formation	Depth	Top	Base
St. Louis	830	265	201
Warsaw	894	201	150
Keck.	945	150	69
Burl.	1026	69	-15
Wasson	1110	-15	-48
Chouteau	1143	-48	-141
Bros. Hill	1236	-141	-145
Maple Mill	1240	-145	-165
Dev			
Lime Crk	1260	-165	

1240
830
410

NAME LINEVILLE TEST HOLES

LOC

T D 335 - 350' (Pleistocene well) Not used - "all water from deep well" LLS.

DRILLED - LAUNE VL 1-PR-62

LOG

HOLE 3" DRY HOLES

NEW METER SET AT 0-1-15-63 - 3,188,590 - 3-26-63 (GALS)

NO [illegible]

132 METAL [illegible]

[illegible]

56 [illegible] CITY SYS

NO'S

6868

IOWA GEOLOGICAL SURVEY
In Cooperation with U. S. Geological Survey
RECORD OF WELL

Location:

Town: Lineville (NE) (SW) :County Wayne ~~E.~~

IN TOWN sec. 20 T. 67 N., R. 23 W. Twp.

Well name and number

Owner Lineville City Well Address Lineville, Iowa

Tenant Address

Contractor Thorpe Well Co. Address Des Moines

Drillers

Drilling dates 1954

Well data:

Altitudes: Drilling curb feet; Land surface feet

Determined by

Topographic position

Total depth: Reported 1285' feet, Measured 1275' feet

Drilling method Cable tool

Hole and casing data

(Log to come Later)

Original depth to water ft. above below Date

Source of data

Sources of water: Principal

Others

Production Data

Date				
Static water level				
Measuring point				
Pumping water level				
Yield (g. p. m.)				
Duration of pumping				
Specific capacity				

Pump Data

Type pump _____ Column diameter and length _____

Cylinder or bowls diameter and length _____

Suction pipe _____ Airline _____

Power _____ Production _____ g. p. m. for _____ hours per day

Use of water _____

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 EF 4-395

Well No. 6868 Sample range 3-1285 ~~1145~~ No. of samples ~~203~~ 231

No. of dupls. and cond. ~~203~~ 231 FAIR Washed range [redacted] 535-1285'

Samples prepared by COX & MORGAN Date 10/11/54

Logged by NORTHUP Date NOV. 1954

Correlations by NORTHUP Date NOV. 1954

Wayne

December 7, 1954

Mr. R. W. Gearhart
349 21st Street South East
Cedar Rapids, Iowa

Dear Mr. Gearhart:

Enclosed is a report on the mineral analysis of water from the 1285-foot well in Lineville, Iowa, as shown by a sample collected by you on October 29, 1954.

If you have any questions concerning this report, please do not hesitate to let me hear from you.

Very truly yours,

H. G. Hershey
by Charles N. Brown

HGH:L

Wayne Co.

December 7, 1954

Water Superintendent
Lineville, Iowa

Dear Sir:

Enclosed is a report on the mineral analysis of water from your 1285-foot well as shown by a sample collected by Mr. R. W. Gearhart on October 29, 1954.

If you have any questions concerning this report, please do not hesitate to let me hear from you.

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