

DRILLER'S NOTEBOOK

Contractor, WELL RECORD

Geo. Tech. Eng. & Mfg. Co.

DRILLER, LEO WILHELM

ADDRESS, LEMARS IOWA

OWNER, IOWA Public Service Co.

ADDRESS, LEMARS IOWA.

R. J. CLARK, Local Mgr.

H. S. HANSEN, Supt.

RETURN TO

IOWA GEOLOGICAL SURVEY

IOWA CITY, IOWA

DRILLERS 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, 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.

WELL RECORD

Well is located in LEMARS IOWA
 miles E and miles E from
 W W
LEMARS in Plumouth
 (Post Office) (County)

in the 1/4 1/4 Sec. T. R.

Owned Iowa Public Service Co. Well No. 2

Address LEMARS IOWA

Contractor Gus Pech Fdry & Mfg Co

Address LEMARS IOWA

Driller LEO WILHELM

Well begun May 3, 1939;

completed June 20, 1939

Rig used—Cable, Rotary, Jet, or Hall auger

Depth of well 109 (Feet) Size of hole

(note total amount of each size) 16' incl
entire depth.

Main water supply at '94 to 109'
 (Feet below surface)

Final water head 55 ft from bottom
 (Feet above or below surface)

Is well pumped? yes;

Yield 500 Gal. 8 m.
 (Gallons per minute)

15 ft draw down.

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

RECORD OF PERMANENT CASING

[illegible]

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

Is screen used yes Diameter 16"
(Inches)

Length 15' Depth to bottom 15'
(Feet)

Depth to top _____ Slot size 175

Are packers or seals used? *Yes. Lead Pils*

Kind Johnson Eerdie Metel

Where used

Kind of pump.....Dia.
(Inches)Capacity of pump 3 (G.P.M.)

Power used 3
(Kind and amount)

Depth to bottom of pump line _____ feet

including _____ feet tailpiece

Remarks on construction of well. 300

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.

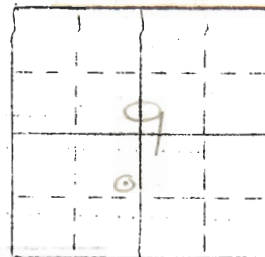
IOWA GEOLOGICAL SURVEY
In Cooperation with U. S. Geological Survey

W-0180

RECORD OF WELL

Location:

Town: LeMars (NE)
(SW): County Plymouth
E. America Twp.
SE NE SW sec. 9 T 92 N., R. 45 W.



Well name and number LeMars Town Well #2

Owner Iowa Public Service Co Address _____

Tenant _____ Address _____

Contractor Gus Peck Foundry Address _____

Drillers Leo Wilhelm

Drilling dates May 3 June 30 1939

Well data:

Elevations: Drilling curb 1215.0 feet; Land surface _____ feet

Determined by hand level

Topographic position valley

Total depth: Reported 10.9 feet, Measured _____ feet

Drilling method auger

Hole and casing data 16 gravel pack

94 of 16-inch std. steel casing

15 of 15-inch Johnson screen 125-slot

lead packer

6' of 3/8" hole; 8' of 3/32" hole; 30" hole to bottom of oil pack to 16

Original depth to water 55 ft. ^{above} curb Date _____

Original elevation of water level 1160 ft.; Source of data driller

Sources of water: Principal Pleist. 92-109; Others 9-90

little water from 21-33

Production data:

Date JUNE 19 20, 1939Static depth to water 55 Measuring point _____Pumping level 70 at 500 g.p.m.64 1/240061 1/230058200Specific capacity 33 1/3 g.p.m. per ft. drawdown; Temperature _____ °F.

Pump data: Type pump _____ Column Dia. _____ Length _____

Cylinder or bowls: Dia. _____ Length _____ Suction pipe _____

Power _____ Airline _____

Estimated rate of production: _____ g.p.m. for _____ hrs. a day

Use of water _____

WATER ANALYSES (in parts per million)

Date samples	_____	_____	_____	_____
Sampled by	_____	_____	_____	_____
Total solids	<u>39</u>	_____	_____	_____
Insoluble matter	<u>27.6</u>	_____	_____	_____
Alkalinity (Meo)	<u>278</u>	_____	_____	_____
Alkalinity (Phn)	_____	_____	_____	_____
pH	_____	_____	_____	_____
Fe ₂ O ₃ + Mn ₂ O ₃ + Al ₂ O ₃	<u>2.1</u>	_____	_____	_____
Alkali as sodium	<u>18.7</u>	_____	_____	_____
Calcium	<u>92.3</u>	_____	_____	_____
Magnesium	<u>25.4</u>	_____	_____	_____
Iron (unfiltered)	<u>0.5</u>	_____	_____	_____
Manganese	<u>0.3</u>	_____	_____	_____
Nitrate	<u>0.00</u>	_____	_____	_____
Fluoride	<u>0.0</u>	_____	_____	_____
Chloride	<u>1.0</u>	_____	_____	_____
Sulfate	<u>73.9</u>	_____	_____	_____
Bicarbonate	<u>339.2</u>	_____	_____	_____
Hardness (ppm)	<u>335</u>	_____	_____	_____
Hardness (gpg)	<u>19</u>	_____	_____	_____

Remarks _____

Laboratory data:

Sample storage location _____

Sample range 0 - 109 No. spls. 13 No. dupls. & cond. 13 goodSpls. prepared by Yoho Washed range _____ by _____Driller's log and cond. yes excellent

Insoluble residues: Prepared by _____ Studied by _____ Strip log _____

Microscopic study _____ strip log copied from driller's log

Gen. log _____ Correl. by _____

MASTER CARD - A

STATE		COUNTRY			LATITUDE			LONGITUDE			SEQ. NO								
					DEG.	MIN.	SEC.	N or S	DEG.	MIN.		SEC.							
1	97	5	4	2	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	97	5	4	2	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

WELL SCHEDULE

US GEOLOGICAL SURVEY

IOWA	DISTRICT	WRD
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WELL NO. 092-45W-09CAD

OWNER IOWA PUBLIC SERVICE#2

DRILLER GUS TECH FDRY & MFG. CO

MAP 1:63,360 COUNTY HWY.

SOURCE OF DATA File

DESCRIPTION	M. P.	FEET	ABOVE BELOW	LSD	12.5 FT.

[illegible]

WELL-DESCRIPTION CARD - B

DEPTH OF WELL		DEPTH OF FIRST PIPE	DIA. INCHES	YEAR DRILLED	PUMP SETTING	METH. LIFT	DEEP SHALLOW	POWER	ALTITUDE OF LSD (FEET)	WATER LEVEL (FEET)	DATE	YIELD OF WELL (GPM)	METH. DET.	DRAW-DOWN (FEET)	PUMPING PERIOD (HOURS)	QUALITY OF WATER							
ACCURACY											MONTH	YEAR				IRON	SULF	CHLOR	HARD	COND	TEMP	DATE SAMPLED	
20 21 22 23 24		25 26 27 28 29 30 31 32		33 34 35	36 37 38 39 40 41				42 43 44 45 46 47 48 49 50 51			52 53 54 55	56 57 58 59 60 61	62 63 64 65	66 67 68 69 70	71 72 73	74 75 76 77 78 79 80						
1093		9416GB939							12157	54	639		500	153		13074	50167B						

HYDROGEOLOGIC CARD - C

DUPLICATE CARD	PHYS. LOG-GRAPHY PROV. SEC.	DRAINAGE BASIN	MAJOR AQUIFER				MINOR AQUIFER				DEPTH TO CONSOLIDATED ROCK	DEPTH TO BASEMENT	SURF. MAT. LITHOLOGY	COEF. TRAN.	COEF. STOR.	CARDS DESIG.
			SERIES UNIT	THICK-NESS	LENGTH WELL OPEN TO	DEPTH TO TOP OF	SERIES UNIT	THICK-NESS	LENGTH WELL OPEN TO	DEPTH TO TOP OF						
20 21 22 23 24 25	26 27 28 29 30 31 32 33	34 35 36 37 38 39 40 41 42 43	44 45 46 47 48 49 50 51 52 53	54 55 56 57 58 59 60 61 62 63 64	65 66 67 68 69 70 71 72 73 74 75 76 77 78	79 80										
12 E 36 B	V Q G G X R O	15 81														
CC 1-19																

CASING AND SCREEN (SIZE, TYPE, INTERVALS):

94' OF 16" C56.

15' OF 15" 125 SLOT LEAD PACKED, BAIL BOTTOM

CODED BY D. ADONSON

DATE 17 APRIL 1970

PUNCHED BY

VERIFIED BY

SKETCH ON REVERSE: YES

WELL NO. 002-15W-00CAD

UNITED STATES DEPARTMENT OF THE INTERIOR

Geological Survey
Water Resources DivisionLocal Well No. 092-45W-09CADAquifer Code(s) Q6GXWater Quality
(ppm)Owner's Name IOWA PUBLIC SERVICE #2W Number 00180

Card Q

State: IOWA 119 County: PLYMOUTH 715 Town: LE MAR, IOWA

Well No. 424749N 0960957 Seq. No. 1 Date 123052

Sampling Depth 109 Type 1 Kx10⁶ 642 pH 7.5 Temp. °F

SiO₂ Ca 100 Mg 26 Na 11 K 2.2

HCO₃ 322 CO₃ 0 SO₄ 101 Cl 7.0 Source No. 3 Q

Card R

Duplicate Columns 1-25 from Card Q

F 2 NO₃ 0 PO₄ B Al Fe 6

Mn 25 Cu Pb Zn

Determined 488 Solids Calc. Ca, Mg 357 Hardness Non-Carb. 93

Color No. R

Card S

Duplicate Columns 1-25 from Card Q

Br I Alk. as CaCO₃ 264 Free CO₂ SAR

RSC ABS

Alpha (pc/l) Beta (pc/l) Ra (pc/l) U (ug/l)

No. S
80Recorded by: D. AARONSONPunched by: Date: Published:

UNITED STATES DEPARTMENT OF THE INTERIOR

Geological Survey
Water Resources DivisionLocal Well No. 092-45W-09CADAquifer Code(s) Q66XOwner's Name IOWA PUBLIC SERVICE #2W Number 00180Water Quality
(ppm)

Card Q

State: Iowa 19 County: Plymouth 75 Town: LE MAR, IOWA

Well No. 424749N 0960957 Seq. No. 1 Date 012367

Sampling Depth 109 Type 1 Kx10⁶ 650 pH 7.4 Temp. °F 50

SiO₂ 23 Ca 96 Mg 23 Na 11 K 2.7

HCO₃ 315 CO₃ 0 SO₄ 100 Cl 5 Source No. 3Q

Card R

Duplicate Columns 1-25 from Card Q

F 4 NO₃ 9 PO₄ 33 B 36 Al 39 Fe 42

Mn 45 Cu 50 Pb 53 Zn 55

Determined 425 Solids 63 Calc. 64 Ca, Mg 336 Hardness Non-Carb. 78

Color 78 No. R

Card S

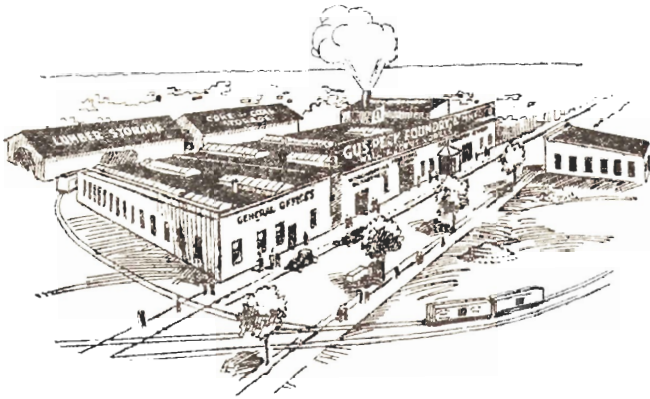
Duplicate Columns 1-25 from Card Q

Br 26 I 29 Alk. as CaCO₃ 258 Free CO₂ 36 SAR 39

RSC 42 ABS 45 48

Alpha (pc/l) 55 Beta (pc/l) 58 Ra (pc/l) 61 U (ug/l) 64

No. S
80Recorded by: D. AARONSONPunched by: 7 Date: Published:



Gus Pech Foundry and Manufacturing Co.

W. O. COLLINS, President and Manager

WELL DRILLING and BORING MACHINERY

MONITOR WELL AUGERS AND MONARCH ROCK DRILLS
REVOLVING AND JETTING MACHINERY

LE MARS, IOWA.

June 26, 1939.

Iowa Geological Survey,

Iowa City, Iowa.

Dear Sirs;-

Att. of Mr. Hershey

Pursuant to your request, we are sending you the various samples out of the No. 2 well put down for the Iowa Public Service Co. here at LeMars, Iowa.

This is a very good well and I trust that the samples will prove of interest to you.

Yours very truly

WHW-WOC

Gus Pech Foundry & Mfg Co.

A handwritten signature in cursive script, likely belonging to W. O. Collins, the President and Manager of the company.

July 7, 1939

Gus Pech-Foundry and Manufacturing Co.
Le Mars, Iowa

Attention: Mr. W. H. Wassmann

Gentlemen:

We have received the well cutting samples for well No. 2 which you put down for the Iowa Public Service Company at Le Mars. These samples will be of interest to us and we appreciate greatly your cooperation and courtesy in furnishing them.

Very truly yours,

HGH:m

H. G. Hershey

JUL 14 1950

IOWA PUBLIC SERVICE COMPANY

GENERAL OFFICES
ORPHEUM - ELECTRIC BUILDING
SIOUX CITY 4, IOWA

July 12, 1950

State University of Iowa
Iowa City, Iowa

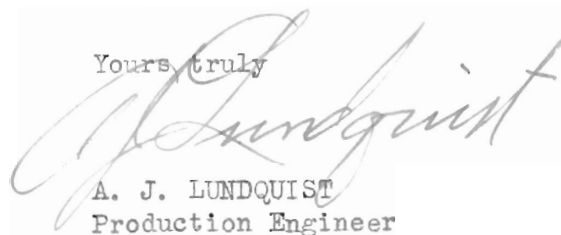
Department of Geology

Gentlemen:

At Le Mars, Iowa we have the city water supply. At the present time we are operating two wells 109' deep. We are contemplating sinking another well to a depth of about 300' at which depth we understand we will strike a water bearing sandstone.

We are interested in getting some information as to the source of water supply feeding this strata. Can you supply us, or if not, advise us where we can obtain a chart which will give us this information.

Yours, truly



A. J. LUNDQUIST
Production Engineer

AJL:fp

July 20, 1950

Mr. A. J. Lundquist
Production Engineer
Iowa Public Service Company
Orpheum-Electric Building
Sioux City 4, Iowa

Dear Mr. Lundquist:

Your letter of July 12, to the Department of Geology at the University of Iowa has been referred to us for attention. It will take us a short time to prepare a discussion of the geology and ground water conditions in the vicinity of Le Mars, but please feel assured we will send you the data as soon as possible.

Very truly yours,

H. G. Hershey

HGH:WEH:GES



Owner - Iowa Public Service well #2 [Plymouth]
 Location - SE 1/4 NE 1/4 SW 1/4 Sec. 9, T92N R45W
 Driller - Wassman Town - Le Mars
 Date - started May 6 1939 - Fin. June 20 1939

[data from record in Eas Tech Foundry]

Yellow cl.	10-12	
Yellow s.	12-14'	
Dirty gravel	14-17'	
Fine sand	17-24.5	
Sand & clay	24.5-33.5'	little water
gravel	33.5-45'	
hard gravel	45'-48'	
blue clay	48-81	
hard gravel & rock	81-83'	
Blue clay	83-84	
gravel	84-90	water
Blue clay	90-92	
Sand & gravel fm.	92-109	
↳ hard as shale		

Finished 16" gravel packed; 14" of 16"
 blue std. st. pipe; Johnson screen 15"-15"
 long - 125 slot; Lead packed bot. bottom.

M

June 21 49

Not elevated
 Aug. 1949



1111.51

13410.11
Elev. 1215.

11-22-7
24 1/2 - 33 1/2
33 1/2 - 45
45 - 58
58 - 71
71 - 83
83 - 94
94 - 100

100 - 110 100g
100 - 110 100g
100 - 110 100g
100 - 110 100g
100 - 110 100g

8' 1.32

15' - 16

12

6 1/2
1 1/2
15'

mer

Well Log Record

Contractor Wassmo Date drilled May 6 - 7 1939

Record obtained from 44-13 Recorded by ns

Survey
Number

W-0180

Study Range	Log	Log	Prepared	Corel.
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Le Mars Iowa (Plymouth Co.)
Elevation of Well of Iowa Public
Service Co. Le Mars above Sea Level -
U. S. Bench at Post Office established
in 1934 - Elev. 1231.29.

South Well.	# 1.	1219.16
North Well	# 2	1218.56.
Well	# 3	1219.16

Readings taken on Door Sill

Drilled Wells 109 ft Deep. 22 ft water
Bearing coarse sand & Gravel mixed.

#1 well being repaired # Johnson Copper screen
being put in ~~was~~ originally Telley Concrete screen
Well #2 same depth & formation and Telley
Concrete Screen.

Well #3 same depth & formation with Johnson
Copper screen.