10429

MASTER CARD – A

9-26-69
RP) - 26-73

STATE	COUNTY	LATITUDE DEG.	LATITUDE MIN.	LATITUDE SEC.	LATITUDE N or S	LONGITUDE DEG.	LONGITUDE MIN.	LONGITUDE SEC.	SEQ. NO
1 2	3 4	5 6	7 8	9 10	11	12 13 14	15 16	17 18	19
19	91	94	13	50	N	092	47	01	1

WELL SCHEDULE

US GEOLOGICAL SURVEY

IOWA DISTRICT WRD

WELL NO. 078174W11B CO. JASPER

OWNER Lynnville Township ADDRESS Lynnville

DRILLER Vermeers Well Co. DATE DRLD. Aug 20-28-1958

MAP

SOURCE OF DATA File

DESCRIPTION M. P. LSD FEET (ABOVE) (BELOW) LSD

CONTINUED FROM ABOVE	ACCURACY	LOCAL WELL NUMBER T.	R.	E/W	SEC.	QUARTERS	LOCAL USE W-NUMBER	OPTIONAL	OWNER OR NAME	OWNERSHIP	WATER USE	WELL USE	WELL DATA	FREQ. W/L	FIELD CHAR.	HYD. LAB.	QW-DATA	QW-FREQ.	PUMPAGE	APERTURE	LOG DATA	CARD DESIG.
	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
	A	078	17	W	11B		No 429	/ / 58	Lynnville Township	P	W	1		0			C	I			G	A

WELL-DESCRIPTION CARD – B

DUPLICATE CARD A CC 1-19	DEPTH OF WELL	ACCURACY	DEPTH CASED OR FIRST PERF.	DIAM. INCHES	WELL FINISH	METH DRILLED	YEAR DRILLED	PUMP SETTING	METH. LIFT	DEEP/SHALLOW	POWER	ALTITUDE OF LSD (FEET)	ACCURACY	WATER LEVEL (FEET)	ACCURACY	DATE MONTH	DATE YEAR	YIELD OF WELL (GPM)	METH. DET.	DRAW-DOWN (FEET)	ACCURACY	PUMPING PERIOD (HOURS)	QUALITY OF WATER IRON	SULF.	CHLOR.	HARD	SP. COND.	TEMP.	DATE SAMPLED	CARD DESIG.
	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
			105	8	X	C	958					88	7	129	2	58	58	40		1403										B

HYDROGEOLOGIC CARD – C

DUPLICATE CARD A CC 1-19	PHYS-IOG-RAPHY PROV.	SEC.	DRAINAGE BASIN	SUBBASIN	TOPO SETTING	MAJOR AQUIFER SYSTEM	SERIES USGS	SERIES IGS	UNIT	LITH-OLOGY	ORIG.	THICK-NESS	LENGTH WELL OPEN TO	DEPTH TO TOP OF	MINOR AQUIFER SYSTEM	SERIES USGS	SERIES IGS	UNIT	LITH-OLOGY	ORIG.	THICK-NESS	LENGTH WELL OPEN TO	DEPTH TO TOP OF	DEPTH TO CONSOLI-DATED ROCK	SOURCE	DEPTH TO BASEMENT	SOURCE	SURF. MAT. LITH-OLOGY	SURF. MAT. INFIL.	COEF. TRAN. SIG. FIG.	COEF. TRAN. XIO	COEF. STOR. SIG. FIG.	COEF. STOR. XIO-	GEOL. CARDS	CARD DESIG.
	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
																								85	C				Q2						C

CASING AND SCREEN (SIZE, TYPE, INTERVALS):

107' of 8" csg. 0-107

CODED BY Lemuel White SD DATE 5-4-74

PUNCHED BY " " DATE

VERIFIED BY DATE

SKETCH ON REVERSE: YES NO

WELL NO. 078-17W-11B

WI0429
10429

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

Location: NW part of Town (NE) (SW); County Jasper (E.)

Town: Lynnville

NW sec. 11 T. 78 N. R. 17 (W.) Twp

Well name and number

Owner City of Lynnville Address Lynnville

Tenant Address

Contractor Verwers Well Drlg Co. Address Lynnville

Drillers Lee Vos

Drilling dates Aug. 20-28, '58

Well data:
Altitudes: Drilling curb feet; Land surface feet

Determined by

Topographic position upland

Total depth: Reported 388 feet, Measured feet

Drilling method Cable Tools

Hole and casing data 388 ft of 8 5/8 in.

Original depth to water 120 ft. above below Date

Source of data

Sources of water: Principal 350

Others

PRODUCTION DATA

Date _____

Static water level 120

Pumping water level 180

Yield (g.p.m.) 40

Measuring point _____

Duration of pumping _____

Specific capacity _____

LABORATORY DATA

DB3-4

Well No W 10429 Sample range 0-388 No. of samples 76

No. of dupls. and cond. 20 Cond Washed range 110-388

Samples prepared by Thomas Date 10/24/58

Logged by NORTHUP Date 9/19/59

Correlations by " Date 9/19/59

10429

Name Lynnville town well (1958)

Loc NE-NW 11-78N-17W, Jasper Co. 3 Bks N of Tower

T.D. 388'

Drilled Verwers Well Co. Aug 1958. LYNNVILLE

Log W-10429 Northup

Casing: ~~No information~~ 107' of 8" CASING 0 TO 107'

Prod. data

SWL 120' - SWL 110

PWL 180'

Yield 40 gpm

Main water at 350'

Analyses: No. 1241 (950) 1/22/59; No. 652 (548) 12/28/57; No. 866 (3402) 7/10/51
No. 2069 (3976) 1/30/63

Need: Elev. & casing data

Well No. 1 (1950) 381' deep

Elevation 880

Formation	Depth	Top	Base	Thick
Ste. Gen.	85			25
St. Louis	110			
Warsaw? Keok	160			
Burl.	215			85
Hampt.	300			23
Maynes Crk.	323			47
No. Hill	370			13
Maple Hill	383			

383
85
298

13380 gpd
365 | 4884900 gpy
361
1214
1095
1399
1095
3040
2920

33 gpd/per
400 | 13380
1200
1380

233070
domestic
school
store

Name: Lynnville Town well No. 1 (1950)

Loc. NW 11-78-17W Jasper Co.

T.D. 381'

Drilled Verwers Well Co. June-July, 1950

Log None

Casing 103' of 6¼" csg. 0-103'

Prod. data:	July 1950	Dec. 1960
SWL	95'	110'
PWL	105'	200'
Yield	16 gpm	55 gpm

Pop 411 (1960)

140 meters

13380 gpd

33 gpd/person

With school & store

35 gpd/person

No industry

90 | 55.0 | 61

540

100

Consumption

info from R. Cobble

August 9, 1962

Analysis: No. 652(548) 12/28/57; No. 866(3402) 7/10/51

UNDER TOWER

NEED LOC. O/K ELEV O/K

ELEV - 880

1 - 97 DRIFT

97 - 120 SANDSTONE (NOT IN 2nd)

120 - 375 LIMESTONE

375 - 381 - ~~SH~~SHALE

14536
13380
1156

14536 gpd with school + store included
360 / 5233070
360
1633
1440
1930
1800
1307
1080
2270
2160

JUL 18 1950

1

TOWN OF LYNNVILLE

COUNCILMEN
H. A. RUSSELL
LORY GAUSE
H. S. SHEPHERD
CARL JAY
WALTER RATCLIFF

G. C. VARBEL, MAYOR
LEE PARROTT, CLERK
RAY VERSTEEG, TREASURER

FINANCE COMMITTEE
H. A. RUSSELL
LORY GAUSE
CARL JAY

LYNNVILLE, IOWA
July 17, 1950

Dear Sir,

I have forwarded a water Sample this date from our Town well.

I am also enclosing the Driller Log of this well as requested by your Department.

Sincerely
Ernest L. Selle, Clerk,
Lynnville, Ia

Sample received and submitted for partial analysis

VERWERS WELL COMPANY, Box 81, Sully, Iowa

2

Well Information

NAME City of Lynnville ADDRESS Lynnville

Well No. ____ Date Begun June 26 Date Completed July 5

County Jasper State Iowa Location Edd Sparks Plot NR ____

Driller Cindy Verwers Helper Lee Vos Curb Elev. ____

Type of Well Drilled Total Depth 381 Producing Formation Lime Stone

Temporary

Casing Records

Permanent-

Casing ____ Ft. Size ____ Size 6 1/4 in. From top To 103

____ Ft. Size ____ Size ____ From ____ To ____

____ Ft. Size ____ Size ____ From ____ To ____

Total Casing Depth 103 Final Water Level 95 Main Water Supply 300-381

Yield Test 16 GPM with 105 Ft. of D.D. Drilling Time ____ Hrs.

____ GPM with ____ Ft. of D.D. 6 1/2 Days

____ GPM with ____ Ft. of D.D. ____ Mos.

FORMATIONS

From	To	Thickness	Kind of Rock	Color	Hard or Soft	Water
1	45	45	drift	yellow	soft	
45	97	52	drift	blue	"	
97	120	23	Sand Stone	yellow	"	
120	375	255	Lime Stone	several	hard	
375	381	6	Shale	green	soft	

Remarks ____

Total Cost of Well $ 1619.25 State Sales Tax $ 4.00 Total $ 1623.25

Casing Sizes

$4.25 Per. ft.

Casing Sizes

28750—8-18

3

July 7, 1950

Town Clerk
Lynnville, Iowa

Dear Sir:

As a result of a telephone call to the Iowa Geological Survey on June 30 we requested the State Hygenic Laboratory to send you a bottle for the purpose of collecting a water sample for bacterial analysis. This sample bottle was mailed on Saturday, July 1st. We have learned through the driller that the bottle did not reach you in time to be of use. We regret the delay which may have been caused by poor mail service due to the railroad strike.

We learned further that the sample was to be collected by use of a bailer from the new town well. Newly constructed wells are most generally contaminated because of contaminated casing and dall tools used in drilling the well. Further, the bailer on the well rig would likely be contaminated. These two factors would probably result in a bad sample being collected and hence the results would be misleading. Water samples for bacterial analysis are more likely to be representative when the well and pumping equipment have been sterilized with some disinfectant and the sample collected after the well has been pumped for a considerable time after being sterilized. Most wells will clear up from bacterial standpoint in a natural manner after being pumped for an indefinite period but sterilizing the well hastens the process. I am sure that the District Health Engineer will be glad to assist you in any problem of this kind.

It is our understanding that some water samples were collected from the well. We will be glad to make a partial mineral analysis of the water samples if they have been preserved.

We are sending you a gallon jug for your use in transferring the water sample to our container. The container should reach you within a few days. The partial analysis will include primarily a determination of the hardness, chloride content and the alkalinity. In the event you wish to submit the sample for analysis, we would appreciate receiving information on the construction of and production from the well together with a drillers log of the formations encountered.

We will be glad to collect a sample for a complete mineral analysis when the well is put into production or when any production tests are made.

Please feel assured that we will be of such assistance to the town as is within our means.

Very truly yours,

William E. Hale

WEH:GES

November 15, 1956

Mr. Tom C. Thorpe
Thorpe Well Company
2340 Sixth Avenue
Des Moines 13, Iowa

Dear Mr. Thorpe:

This is in reply to your letter of October 29 concerning the possibilities for a water supply of 40 gallons a minute at the new Lynnville Cooperative School to be located $1\frac{1}{2}$ miles west of Sully, Iowa. As nearly as we can place it the location of this school will be the center of the south line $SE\frac{1}{4}$ sec. 1, T. 78 N., R. 18 W., Jasper County. Pertinent comments on the geology and general ground-water conditions in this vicinity based on data in the files of the State-Federal Geological Survey investigations are summarized as follows:

A generalized log of the strata underlying this site down to the top of the Maquoketa shale is outlined below (all depth figures are referred to an estimated starting surface elevation of 910 feet above sea level).

Formation	Thickness (ft.)	Depth Range (ft.)
Quaternary system		
Pleistocene series (yellow and gray glacial till, pebbly)	160±	0- 160±
Pennsylvanian system		
Desmoinesian series (shale, perhaps some thin sandstone)	30	160±- 190
Mississippian system		
Ste. Genevieve limestone	10	190- 200
St. Louis sandy dolomite or limestone	40	200- 240

Formation	Thickness (ft.)	Depth Range (ft.)
Mississippian system (continued)		
Keokuk-Burlington cherty dolomite	140	240- 380
Hampton dolomite, cherty in lower half	60	380- 440
North Hill limestone	15	440- 455
Maple Mill shale	120	455- 575
Devonian system		
Lime Creek formation		
Owen dolomite	30	575- 605
Juniper Hill shale	85	605- 690
Cedar Valley formation (limestone, containing shale, in upper half; dolomite with gypsum in lower half)	300	690- 990
Wapsipinicon formation (dolomite, with gypsum in upper part, cherty limestone in lower part)	140	990-1130
Silurian system		
Undifferentiated dolomite	35	1130-1165
Ordovician system		
Maquoketa shale		1165-

Slight adjustments may be necessary on all these depths according to any difference between the assumed and actual surface elevation at the drilling site.

Most wells in the Sully-Lynnville area derive their water from dolomite and limestone strata belonging to the Mississippian system of rocks. Apparently there is little chance for obtaining adequate water for the school from the overlying unconsolidated glacial materials. At least the available information does not indicate that appreciable water-bearing sand and gravel occur in this vicinity, although enough water for an ordinary small farm well might be encountered at many places.

Wells penetrating the Mississippian rocks in this area generally do not yield more than 10-15 gallons a minute with considerable drawdown. Production data from a few wells penetrating the Mississippian section at Sully are given on the enclosed table.

Observations at the No. 2 Creamery Well indicate that continued pumping at 25 gallons a minute probably will lower the water level below 220 feet. How far below it is difficult to say. Later this well was reported to have had another 50 feet of pump column attached, but we have no further information regarding pumping water levels. On the basis of this information it seems that you may have trouble obtaining as much as 40 gallons a minute from the Mississippian rocks. Acidizing the water-bearing zones might appreciably increase the yield so that an adequate supply will be obtained. Test drilling will provide the most reliable information. Another factor to consider is the highly mineralized character of the water that is obtained from the Mississippian rocks. Analyses of the water from the Mississippian formations at Sully indicate it to be high in sulfate and very hard making it objectionable for drinking. The hardness of the water in these wells is more than 800 parts per million and the sulfate content more than 1100 parts per million.

In 1952 the Creamery drilled another well 1162 feet deep extending to the top of the Maquoketa shale. A pumping test developed 32 gallons a minute at a pumping water level of 290 feet. This was obtained at the expense of 132 feet of drawdown. The main water beds were the Hampton dolomite between 385 feet and 440 feet and the Cedar Valley-Wapsipinicon formations between 800 and 1158 feet. The water was very highly mineralized and hard owing to the gypsum bearing Devonian strata. Mineral analysis showed it to have 1889 parts per million sulfate and a hardness of 1114 parts per million.

If you wish we will review the possibilities of the deeper aquifers in this area. However, it seems that drilling would have to be extended below the St. Peter sandstone before an acceptable quality water will be found.

We will be interested to hear of the results of any drilling in this locality.

If any questions remain or if we can provide further information in this matter, please feel free to write us.

Very truly yours,

H. G. Hershey

HGH:PJH:L
Enclosure

Well name	Location	Depth (feet)	Source bed	SWL (feet)	PWL (feet)	Yield gpm
Sully Town Well No. 1 (1937)	NWNENW 8-78-17	440	Mississippian	124	250	12
Sully Co-op Creamery Well No. 1	SWNENW 8-78-17	345	Mississippian	?	190	13
Sully Co-op Creamery Well No. 2 (1943)	SWNENW 8-78-17	432	Mississippian	?	220	25

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J. WESLEY THORPE, VICE PRES.
TOM C. THORPE, VICE PRES.

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OUR NEW PHONE
CHERRY 3-6107

2340 SIXTH AVENUE
DES MOINES 13, IOWA

October 29, 1956

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Iowa Geological Survey
Iowa City, Iowa

Gentlemen:

We are preparing a cost forecast for the architect engineers for the Sully-Lynnville Cooperative School District for the construction of their new building approximately 1 1/2 miles west of Sully on the main county road.

We would be interested in hearing from you folks on the Geological forecast for supply of approximately 40 gmp. We are also interested in as high a quality water as can be obtained economically and would appreciate your suggestions on same as well as information on adjacent wells, quality water, pumping levels, static levels and etc. Inasmuch as the architects are in the design stage of this building it would be much appreciated by the writer if this could be handled as promptly as possible.

Thanking you, we remain

Yours sincerely,

THORPE WELL COMPANY

Tom C Thorpe

Tom C. Thorpe
Vice President

TCT:mb