WRD Exp. (GW)
April 1966

Well No. 076-12W-35 DBD

WELL SCHEDULE

U. S. DEPT. OF THE INTERIOR — GEOLOGICAL SURVEY — WATER RESOURCES DIVISION

MASTER CARD

Record by D. Gockel Source of data File Date 9-20-66 Map County Hwy.

State Iowa County (or town) Keokuk 54

Latitude: 41 deg 20 min 30 sec N Longitude: 092 deg 12 min 16 sec W Sequential number: 1

Lat-long accuracy: 2 T. 076 S, R 12 W Sec 35, SE ¼, NW ¼, SE ¼ 5 B & M

Local well number: 076/12W35DBD Other number: W-1610

Local use: 01610 Owner or name: Sigourney city well

Owner or name: SIGOURNEY CITY Address:

Ownership: (C) County, (F) Fed Gov't, (M) City, (N) Corp or Co, (P) Private, (S) State Agency, (W) Water Dist 67 M

Use of water: (A) Air cond, (B) Bottling, (C) Comm, (D) Dewater, (E) Power, (F) Fire, (H) Dom, (I) Irr, (M) Med, (N) Ind, (P) P S, (R) Rec, (S) Stock, (T) Instit, (U) Unused, (V) Repressure, (W) Recharge, (X) Desal-P S, (Y) Desal-other, (Z) Other 68 P

Use of well: (A) Anode, (D) Drain, (G) Seismic, (H) Heat Res, (O) Obs, (P) Oil-gas, (R) Recharge, (T) Test, (U) Unused, (W) Withdraw, (X) Waste, (Z) Destroyed 69 W

DATA AVAILABLE: Well data 1 Freq. W/L meas.: Inventory X Field aquifer char. 72

Hyd. lab. data: 73

Qual. water data; type: none 74

Freq. sampling: Pumpage inventory: yes (no) period: 76

Aperture cards: yes 77

Log data: Geologist log Drillers log G D

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 300 ft Meas. rept accuracy: Drillers log 3

Depth cased: (first perf.) 130 ft Casing type: steel ; Diam. 14 in 14

Finish: (C) porous concrete, (F) gravel w. (perf.), (G) gravel w. (screen), (H) horiz. gallery, (O) open end, (P) perf., (S) screen, (T) sd. pt., (W) shored, (X) open hole, (Z) other X

Method Drilled: (A) air rot, (B) bored, (C) cable, (D) dug, (H) hyd rot., (J) jetted, (P) air percussion, (R) reverse rotary, (T) trenching, (V) driven, (W) wash, (Z) other C

Date Drilled: 1942 9 4 2 Pump intake setting: ft

Driller: Thorpe Well Co. (name), Des Moines, Iowa (address)

Lift (type): (A) air, (B) bucket, (C) cent, (J) jet, (L) multiple (cent.), (M) multiple (turb.), (N) none, (P) piston, (R) rot, (S) submerg, (T) turb, (Z) other Deep / Shallow D

Power (type): diesel, elec, nat gas, gasoline, hand, LP gas, wind; H.P. Trans. or meter no.

Descrip. MP A LSD ft above/below LSD. Alt. MP 761

Alt. LSD: 761 7 6 1 Accuracy: (source) Altimeter 47 7

Water Level 120 ft above/below MP; Ft above/below LSD 1 2 0 Accuracy: Drillers log 52 D

Date meas: 1942 4 2 Yield: 35 gpm 3 5 Method determined

Drawdown: 125 ft 1 2 5 Accuracy: Drls. log 3 Pumping period hrs

QUALITY OF WATER DATA: Iron ppm Sulfate ppm Chloride ppm Hard. ppm

Sp. Conduct K x 10⁶ Temp. °F Date sampled

Taste, color, etc.

Verified ERC Punched FCH

Well No. 076-12W-35 DBD

Well No. 076-12W-35 DBD

Latitude-longitude 41, 20, 30 (N) S 092, 12, 16
d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD (1–19)

Physiographic Province: Central lowland [12] (20–21) Section: Dissected

Till Plain [E] (22) Drainage Basin: Skunk [215C] (23–25) Subbasin: _____ (26)

Topo of well site: (D) depression, (C) stream channel, (E) dunes, (F) flat, (H) hilltop, (K) sink, (L) swamp, (Φ) offshore, (P) pediment, (S) hillside, (T) terrace, (U) undulating, (V) valley flat _____ (27)

MAJOR AQUIFER: Miss. system, Lower series [ML] (28–29) Kinderhook aquifer, formation, group [KX] (30–31)

Lithology: Med. LS [ML] (32–33) Origin: marine [6] (34) Aquifer Thickness: _____ ft

[ ] (35–37) Length of well open to: 55 ft [55] (38–40) Depth to top of: 246 ft [246] (41–43)

MINOR AQUIFER: Miss. system, Lower series [ML] (44–45) Osage Burl. aquifer, formation, group [OB] (46–47)

Lithology: Cherty Dol. [QD] (48–49) Origin: marine [6] (50) Aquifer Thickness: 96 ft

[96] (51–53) Length of well open to: 96 ft [96] (54–56) Depth to top of: 150 ft [150] (57–59)

Intervals Screened: none

Depth to consolidated rock: 127 ft [127] (60–62) Source of data: well cuttings [C] (64)

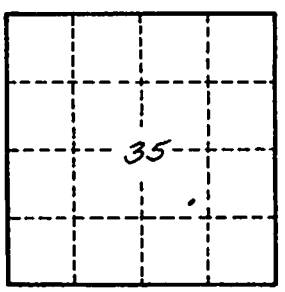
Depth to basement: _____ ft [ ] (63–68) Source of data: _____ (69)

Surficial material: _____ [ ] (70–71) Infiltration characteristics: _____ (72)

Coefficient Trans: _____ gpd/ft [ ] (73–75) Coefficient Storage: _____ [ ] (76–78)

Coefficient Perm: _____ gpd/ft^2; Spec cap: .28 gpm/ft; Number of geologic cards: _____ (79)

130' of 14" casing +2 to 128



Well No. 076-12W-35 DBD

GPO 857-700

1610

Name Sigourney city well

Loc SE NW SE 35-76N-12W, Keokuk Co.

T.D. 300'

Drilled Thorpe 1942

Log W-1610 Carrier

Casing 130' of 14" O.D. from +2 to 128'

Prod. data

SWL 120'

PWL 245'±

Yield 31 gpm

Run Cable - 4/70
50000 gpd from old RR well in Miss Aquifer
Rest from shallow wells

$\frac{.28}{170} = .17 \times 10^{-2}$

245
120
125 | 350
250
1000
1000

.28 gpm cap

.0017
170 | 2800
170
1100
1190

pier

772
120
652

Analysis: We have several analyses from the R.I. R.R. well 266 or 280' which the town uses partly for their water supply.

Need analysis; in use?

HASN'T BEEN USED SINCE 1951 - NEAR R.I WELL
R.I WELL FOR STANDBY

R.I.R.R. well is 50±' away.

LLS 6/67

Elevation 772'

Formation	Depth	Top	Base
K-B	123	649	
Hampton			
Pros. Hill	275	497	

275
123
152
+30
182

IOWA GEOLOGICAL SURVEY
Water Well Data Sheet

Survey Number W-1610

Town Sigourney County Keokuk T. 76 N., R. 12 W.

Name Sigourney City Well Location NW SW ¼ SE ¼, Sec. 35

Contractor Thorpe Well Co. Driller Ray McGrew Use

Construction Drilling Dates August 1942 Drilling Depth

Topog. Curb Elev. 761' Ref. (2' above ground level) Total Depth 300

Final Static Level above / below curb Pumping Level Draw down gpm 75-80 Time pumped Date

Depth to bot. pump ft. with ft. suction pipe. Calc. g/ft. drawdown Prin. Prod.

Producing Horizons

Water levels and pumping tests on various horizons during drilling:

Depth Range	Stat. Level	Pump Level	Draw down	gpm.	Temp.	Producing horizons	Producing formations	Formations cased out
220'	180							
240'	118							

Additional information 14" casing = drilling curb is 2' above ground level.

Laboratory Data

Sample range 0-300 Number samples 59 Number Duplicates 59 Cond. Mostly good.

Log Yes No, Cond. Boxed Heydon Range 0-300 Date 9-8-42

Remarks Gulf cut #224 from (70-300) 45 tanks.

Microscopic Study Range Carrier Strip Log ✓ Gen. Log ✓ Blue Print Samples Washed 122-300

Insol. Res. Study Range Strip Log Gen. Log Insol. Res. Prepared Well Corel.

IOWA GEOLOGICAL SURVEY
Generalized Log Based on Detailed
Description of Drill Cuttings

Name of Well Sigourney City Well Survey No. W- 1610

Location NW¼ SW¼ SE¼ sec. 35, T. 76 N., R. 12 W., Keokuk County

Drilled by Thorpe Well Company, Ray McGrew, Driller Date August, 1942

Total Depth 300 ft. Curb Elevation 761 ft. Static Level 120 ft.

Pumping Test ____ Hours ____ Min; Gal. per min. 35 Drawdown 125± ft. in ___ min.

Casing Data 130'± of 14" casing

No.	Description of Formations	Thick.	From (feet)	To
	Pleistocene			
1.	Clay sand and gravel intermixed	122	0	122
	Mississippian system Osage group Keokuk formation			
2.	Dolomite 20% to 65%, light buffish brown, fine-grained, granular dense, glauconitic in part. Limestone 40% to 60%, light buff mottled heavily by dark gray, fine-grained with abundant coarsely crystalline fossil fragments embedded. Chert 15% to 20%, light buffish gray speckled black and mottled brown translucent, vitreous, conchoidal, dense, fossiliferous	28	122	150
3.	Limestone, very light to light buff and drab mottled dark gray, very coarse-grained, with abundant fossil fragments embedded. Chert 10% to 15%, light drabbish and buffish gray, subvitreous, conchoidal, subtranslucent, dense. Dolomite trace, as in 122 to 150 feet	15	150	165
4.	Dolomite, light buff, fine-grained, granular, glauconitic grading into 20% limestone, light buff, coarse-grained, glauconitic	5	165	170

Notes:

	Description	Thick.	From	To
	Burlington formation			
5.	Dolomite 40% to 70%, light buff to gray, fine-grained, granular, slightly porous. Chert 30% to 50%, pale to light drabbish gray, subvitreous, conchoidal, opaque, dense, hard. Limestone 20% from 180 to 185 feet, very light yellow drab to buff, fine-grained, fossiliferous	15	170	185
6.	Dolomite, light gray to buff, fine-grained, dense, granular. Chert trace to 20%, pale to light bluish gray mottled light drab, vitreous, conchoidal, dense, chalcedonic, slightly quartzose with few vugs lined by crystalline quartz	25	185	210
7.	Dolomite 50% as in 185 to 210 feet, but more porous. Chert 25%, very light buffish gray, subvitreous, conchoidal, dense. Limestone 25%, light drab mottled medium gray, coarse-grained, with abundant coarsely crystalline fossil fragments embedded	5	210	215
8.	Dolomite 60% to 90%, light to light medium buffish brown and gray, fine-grained, granular, dense. Limestone 10% to 40%, light buff to gray, fine-grained, with very abundant coarsely crystalline fossil fragments and rounded grains of limestone embedded (clastic). Chert trace to 10% as in 210 to 215 feet, chalcedonic in part	19	215	234
9.	Limestone, light drab, very fine-grained, granular, dense, with masses of clear, coarsely crystalline calcite embedded	11	234	245
	Kinderhook group (undifferentiated)			
10.	Limestone, light buff and drab, mottled dark gray, very coarse-grained with abundant coarsely crystalline fossil fragments embedded, clastic, very fossiliferous. Chert trace to 40%, light to light medium bluish gray, subvitreous, conchoidal, opaque, dense	25	245	270
11.	Limestone, light yellow drab, heavily mottled medium gray, very coarse-grained, with coarsely crystalline fossil fragments embedded	5	270	275
	English River.? (Prospect Hill)			
12.	Siltstone, light medium gray, speckled black, coherent, soft, slightly dolomitic and sandy with shale parting 290 to 295 feet, light medium grayish green, slightly dolomitic and silty, faintly laminated	25	275	300
	Total Depth, 300'			

John C. Moore Corporation, Rochester, N. Y. Binder and holes in leaves Patented. FORM 407356

New city well, Sigourney, Keokuk Co
Ray McGrew, driller

Davis 9-14-42

Reported by Ray McGrew:

Top of rock at 122'

First water at depth 220' with S.W.L. of 180 ft. below top 14" casing.

static water level at depth of 240' = 118 feet below top 14" casing

Casing:

45' of temporary 20" liner 0 to 45'

130' of 14" OD casing from about +2' to 128 feet

Railroad well (CRI&P)

266' deep
Reported to produce 200 g.p.m.

Measured S.W.L. of new Sigourney city well

123.7 ft. below top 14" OD casing which is 2.3 ft. above ground, at depth of 300'. 9-14-42 after well had rested from 5:00 pm Sept. 9 to 2:00 p.m Sept. 12, 1942

John C. Moore Corporation, Rochester, N. Y. Binder and holes in leaves Patented. FORM 407356

MOORE'S MODERN METHODS

Sigourney, Keotuk Co.
9-14-42
Davis

Copy of Record of Pumping Test on New City Well 9-12-42
from Thorpe record

Time	Rev. Engine	Rev. Pump	Water Level	G.P.M
12:00		Start Pump		
12:30 P.	935	1500	229	80
1:00	935	1500	234	80
2:00	935	1500	237	80
3:00	935	1500	238	80
4:00	925	1480	238	75
5:00	925	1480	238	75
5:30	925	1475	238	75

Bottom of bowls at 247'

∴ Water level recovered to 118' (= static level) in 8 minutes

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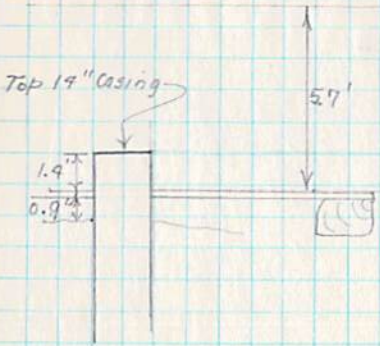
First pumping test: yield = about 23 g.p.m.

First Acid: 300 gal. acid. at 240'
Static level rose to about 118'
Production = about 55 gpm.

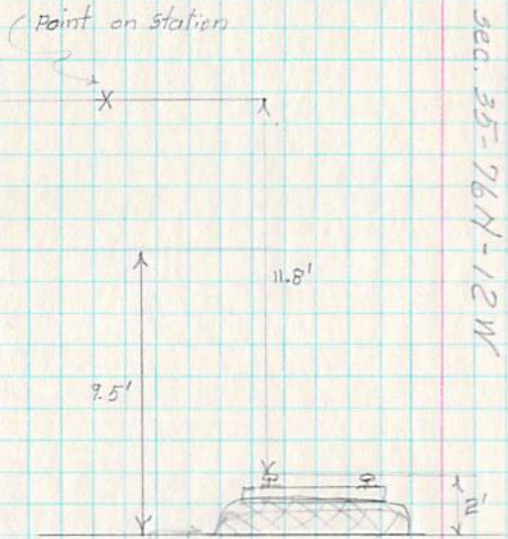
Second Acid: 500 gal. acid at 235'
Production = 75-80 gal. p.m (test of 7-12-42)

Acid poured down hole, through untreated 2" pipe to depths given above, i.e. 2" pipe extended to 240' & to 235'

Sigourney City well, Keokuk Co
NW SW SE sec. 35-76N-12W



El. top 19" Casing = drilling curb = 761'
El. top ground at well = 759



El. top subgrade = 752'
C.P.I. & P. Station

John C. Moore Corporation, Rochester, N. Y. Binder and holes in leaves Patented. FORM 407356

John C. Moore Corporation, Rochester, N. Y. Binder and holes in leaves Patented. FORM 407356

Sigourney city well

NW SW SE sec 35-76N-12W

Contractor Thorpe Well Co.
Driller Ray McGrew
Drilled Aug. 1942
T.D. 309 ft.
Elev. drilling curb: top 19" Casing = 761
Elev. ground = 759.

John C. Moore Corporation, Rochester, N. Y. Binder and holes in leaves Patented. FORM 416905

Sigourney Keokuk Co.

now use Thorpe well pump approx 150 gpm

also a gravel well 200+ so of town
on occasion - high in iron

Have arrangement with the Rock
Island and use their well after
having reamed it out

old deep well was at fire
house possibly 3' above BM M-861939
785.819

Use 789'
Loc NW NW SE 2-75-12

Elev of Thorpe well approx 760'
Loc SE NW SE 35-76-12

(Stan Harris's notes
approx 1946)

Keokuk

September 3, 1942

Mr. T. W. Thorpe
Thorpe Well Company
2340 Sixth Avenue
Des Moines, Iowa

Dear Mr. Thorpe:

We have examined the samples from the well which you are drilling for the town of Sigourney, paying particular attention to porosity with a view toward acidizing.

The samples show that glacial drift is present from the surface to a depth of 122 feet. It is underlain by cherty limestones and dolomites of the Keokuk formation followed by cherty dolomites and limestones of the Burlington formation. Limestones predominate in the Keokuk while dolomites predominate in the Burlington. Underlying the Burlington are Hampton limestones containing a very small amount of chert which are in turn underlain by the English River siltstone. The top of the English River is at 275 feet and it contains a band of shale from 290 to 295 feet.

The upper portion of the bedrock from 122 to 235 feet is compact and argillaceous with consequent relatively low porosity. It appears doubtful that acidizing this portion of the section would be beneficial. From 235 to 275 feet, however, the calcareous materials are coarser grained on the whole and acidizing should increase the yield of any water entering the well in this interval. The English River is a siltstone or an extremely fine sandstone, the individual grains of which are composed chiefly of quartz with a very minor amount of limestone or dolomite. A small quantity of water may be available from this source, and although acid may increase the inflow I doubt that the increase would be great, certainly not comparable proportionally to the increase to be expected from the overlying limestones and dolomites.

I hope that this information will be useful to you and that the acidizing will be successful. I enjoyed very much spending the day with you at Burlington and Sigourney and I hope that we can get together soon again.

Very truly yours,

H. G. Hershey

HGH:N

Sigourney, Keokuk Sept. 2, 1942.

Visited the new well being constructed by Thorpe Well Co., with Mr. J.W. Thorpe. Pumping test was in progress

Well 300 feet deep with 14" OD casing was at top was producing "35 gpm from SWL of 120 feet with 125' feet of drawdown" according to Mr. Ray McGrew the driller who also reported that the chief water supply was entering the well at a depth of 245 feet.
Mr. Philip Thorpe said that some water was entering the well a short distance below the bottom of the casing. Made-up length of casing not obtained.

Mr. Thorpe and I recommended acidizing to the Mayor and to the Chairman of the Water Committee Mr. Hemsley.

Keokuk

MEMORANDUM

SUBJECT: Information on the C. R. I. and P. R.R. well now being used for city supply by the town of Sigourney. Received from Mr. A. I. Hemsley, Chairman of the Water Committee and from the present City ~~Council.~~ Marshall.

By: H. G. Hershey

Date: June 29, 1942

The well is reported to be 266 feet deep, containing 124 feet of eight-inch casing. Below the eight-inch casing the hole is reported to have been underreamed to a twelve-inch diameter to the total depth. The bottom of the bowls are at 128 feet with 20 feet of suction below. The Marshall reports that during the summer of 1941 when the pump was out of the hole the static level was 100 feet although he says the driller reports a static level of 70 feet at the time of drilling about six~~teen~~ years ago. Bedrock is reported to occur at 124 feet. The water is pumped to the surface with a Layne turbine and repumped into a nearby tank with a two-stage American centrifugal. See report on other wells in town

The site of a new well is immediately south of the Rock Island depot and 5 to 6 feet above the top of rail at the center of the depot. At the present time the town has on hand about 130 feet of 14 inch O.D. wrought steel (Standard) Youngstown pipe which they plan to use in the new well.

The town has a population of approximately 2500.

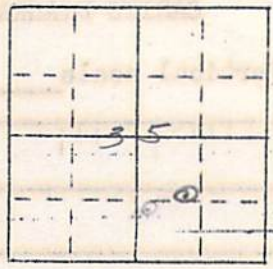
An old abandoned 4 or $4\frac{1}{2}$ inch well was drilled southwest of the railroad well and northwest of the proposed site. No one knows precisely what was done with the well but it appears doubtful that it was ever plugged. It was suggested to the chairman of the water committee and to the marshall that they make a small excavation at the site of this abandoned well and if possible to plug it and fix the surface in the vicinity so that there would be little or no possibility of surface water entering it. At present it appears highly probable that surface water is getting into this well.

HGH.

IOWA GEOLOGICAL SURVEY W-1610

In Cooperation with U. S. Geological Survey

RECORD OF WELL



Location:

Town: Sigourney (N E / S W): County Keokuk

SE-NW SE sec. 35 T 76 N., R. 12 W. Van Buren Twp.

Well name and number City Well (1942)

Owner City of Sigourney Address

Tenant Address

Contractor Thorpe Well Co. Address Des Moines

Drillers Roy McGrew.

Drilling dates August 1942

Well data:

Elevations: Drilling curb 761 feet; Land surface 759 feet

Determined by

Topographic position

Total depth: Reported 300 feet, Measured feet

Drilling method cable.

Hole and casing data 130' of 14" casing from +2' to 128'

Original depth to water ft. above / below Date

Original elevation of water level ft.; Source of data

Sources of water: Principal Mississippian; Others

Production data: Date _____

Static depth to water 120 Measuring point _____
Pumping level 245± at 35 g.p.m.

Specific capacity _____ 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				
Insoluble matter				
Alkalinity (Meo)				
Alkalinity (Phn)				
pH				
Fe_2O_3+ Mn_2O_3+Al_2O_3				
Alkali as sodium				
Calcium				
Magnesium				
Iron (unfiltered)				
Manganese				
Nitrate				
Fluoride				
Chloride				
Sulfate				
Bicarbonate				
Hardness (ppm)				
Hardness (gpg)				

Remarks _____

Laboratory data: Sample storage location _____

Sample range 0-300 No. spls. 59 No. dupls. & cond. 59 Geol.
Spls. prepared by Heyden. Washed range 122-300 by Heyden.
Driller's log and cond. _____
Insoluble residues: Prepared by _____ Studied by _____ Strip log _____
Microscopic study Cassin strip log Cassin
Gen. log Yes. Correl. by Cassin

WATER LEVEL DATA

Measuring point _____

Date	Depth to water	Altitude	Remarks
9/12/47	118'		300 gal. acid at 240' Prod. 55 g.p.m.
"			500 " " " 235; Prod. 75 g.p.m.

REMARKS

Sheet No. 2 Name of Well. Sigourney City Well Survey No. W.1610

Location Sigourney Date Drilled 1942 Analyst Carrier 9-3-42

T.D. 300, Dia. 13" casing 130'+, SWL = 120' GPM 35-125+ DD.

100

Clay, lt. med. brn-gr, stained yellish small part, calc, silty & gravelly.

10

115

20

122 (mott transl brn in pt)

Cht. lt. bf. gr. mott med. gr, with blk fos spks, subvit conch, subtransl. to gran, opaque weathered appearing surfaces, dolomitic, pt - 20%

Dol. lt. drb brn, fn-grain, gran, dense, glauconitic (trace) - 20%

128 Ls. lt. bf. heavily mott. dk. gr. brn, etc. fn-grain to v. crse phenoclastic very irreg. mott & textured - 60%. Much loose sd. med to crse - A to C - first

30 Cht. lt. bf. - gr. (drb) speckled blk. heavily by fos spines? vit conch, transl. dense. impt - 20%

tr. bug, banded on outside with xln qtz. on inside - fossiliferous. - 25%

Dol. as above - mottled blk. - 35%

135. Ls. (lt. gr.) " - less crsely xline - (phenoclastic) - 40%. Glacial sd - ±10% ad.

Cht. lt. gr. slty bf tsh bluish, vit. subtransl, dense - fossil - (blk. spks) - 15%

Dol. lt. bf. brn. fn-gr. gran, dense tr. glauc. - 65%

Ls. lt. bf. mott gr & brn, fn. to phenoclastic - very scrappy & heterogeneous - 20%

40 140. Glacial sd - Strong tr - cave

Cht. ditto 135-140 foss. mott & spkled, transl. in pt etc - 20%

Dol. lt. bf - brn as above - no glauc - 20%

Keokuk. Ls. as above - v. fossiliferous & phenoclastic, v. scrappy, mottled & irreg. dense.

145. Glacial sd - cave - tr.

Cht. as in 140-145 - pale bluish gr - chalcedonic - in pt. - 20%

Dol. lt. bf - brn, etc as above - (140-145) - slty porous & strong tr emb. glauc 40%

Ls. as in 140-145 - with strong tr emb. glauconite - 40%

150 Cht. v. lt to lt. bf tsh & drb sh gr. irreg colored & mott dk brn sh gr. in pt. subvit conch subtransl dense. 5%

50 Dol. lt. - med. gr. fn-grain gran, dense - tr.

Ls. v. lt. to lt. bf & drb, mott dk. gr. v. crse grain phenoclastic to gran, dense - 85%

155. Glacial sd. - tr. cave

Cht. as above with few blk. fossil. frags. emb. - almost chalcedonic - 20%

Dol. tr as in 150-55' Tr. clear to pink & orange. angular. qtz.

Ls. as in 150-55 - v. fossiliferous - phenoclastic - pure. -

60 160. Glacial sd - tr - cave.

Cht. as above with tr. weathered appearing surfaces - 10%

Dol. lt bf - gr. fn-grain, gran. dense - 10%

Ls. v. lt to lt. bf mottled gr & slty drb, v. phenoclastic abund't fos. frags.

165. easily xline slty glauconitic 80%

Cht. as in 160-165 - 5%

Dol. lt. bf. fn-grain granular, slty porous, glauc. emb - tr. slty (70%) calc grading into

Ls. lt bf. phenoclastic, glauconitic (tr) - 30%

70 170. Cht. lt. drb sh-gr & gr. mott. subvit, conch, opaque - dense slty dolm - 30%

Burlington Dol - lt. bf. fn-grain, gran. mostly dense slty porous in about 20%-70%

175.

Cht. as in 170-75 - 50%

Dol. " " 170-75 - 50%

80 180.

Cht. pale drb-gr. to bluish gray, subvit conch, dense, hard slty

grany weathered appearing in pt. tr vugs - 40%

Dol. lt. yellow bf to gr. fn-grained, porous in part. - 40% Crinoids

185. Ls. v. lt. yell-drb to bf fn-grain, phenoclastic, irregular texture - 20%

Cht. as above 20%

Dol. lt. gr to bf, fn-grain, dense - granular. - 65%

90 Ls. v. lt. yell bf etc as above - v. crse grained, soft, dense - 15%

190.

Cht. as in 185-190 - 30% - slty mott by fos (?) spks.

Dol. " " 185-190 - 70%

195. Ls. " " 185-190 - 10% Tr. cristems.

Cht. as in 190-195 - tr.

Dol. lt. bf slty graysh, fn-grained, xln, gran, dense -

200 200.

Sheet No. 3 Name of Well Sigourney City Well Survey No. W1610 2

Location ..... Date Drilled ..... Analyst Garner 9-3-42

200 — 200
Cht. lt. bluish gr. mott lt. drb. vitreous, conch, transl. (chalcedonic) - with tr. lt. drb. qtzitic material - 20%. Slty vuggy with clear crse x'ls. lining.
Dol. lt. bf-gry + drb-gr. fn-grain gran x'ln, dense. - 80%
205
Cht. as in 200-05 - mostly subabalcedonic mott with qtzose - some opaque, gray with fos. frags. motting - <10%
Dol. as in 200-05 - slty brnsh in part. - tr. emb. glauc. - tr. porous.
210 —
10
Cht. v. lt bf-gr. subvit conch, dense, opaque, few fossil frags. emb. tr. weathed looking - gran, soft opaque - 25%
Dol. as in 205-10 - but porous - sacch. 50%
215 — Ls. lt. drb - bf mott med. gr. crse-grain, phenoclastic, soft - 25%
Cht. pale to lt. bf-gr. etc as in 210-15 - <10%
Dol. lt. to lt. med bf - brn + bf-gr. fn-grained, gran, to little med. dense - 60%
220
20
Ls. lt. bf to gr. fn grained (pseudooolitic) to crse grained, scrappy heterogeneous (doubtful if there are any true ools - no concentric grains, but irreg. lt. grains recemented - clastic)
Cht. as above - strong tr. - tr. banded concentric - chalcedonic
Dol. as in 215-20 - very heterogeneous. - little med. brnsh-gr.
Ls. " " 215-20 - no glauc.
225 — One excellent rest - Kinkaid? - Dav. crinoids
Cht. as above - tr.
Dol. lt. med. brnsh-gr. fn-grained, gran. dense to subsacch. in small amt. 9%
230 — Ls. lt. drb y. fn-grained, slty porous with fn. drb dol. rh. emb. + clear crse calcite emb 10%
30
Dol. lt-med. brnsh gr, fn-grained, gran, x'ln mostly dense. 80%
Ls. lt. drb. v. fn to fn-grain, gran, dense with clear crse calcite emb. 20%
235 — 37
Ls. as in 230-35 - tr. brach shell frag. - non porous.
240
40
Ls. as in 236-240 with small amt dk. gr laminated. - non porous.
245 —
Cht. lt med. gr. to med. brnsh gr (in small part) subvit, conch, opaque, dnse 40%
Ls. lt. bf-drb to lt-med. gr. fn.-grain, granular, dense, fossil. - slty phenoclastic + slty dol. - tr rhombs emb - 60%
250
50
Cht. lt. bluish gr. subvit, conch, op, dnse, slty gran in pt. - 20%
Ls. as above - 10%
Ls. lt. bf + drb. mott dk. gr. v. crse grain, phenocl. (R) v. irregular, scrappy, clastic
255 — a bleaching on outcrop
Cht. lt. + med. drb. gr. etc as above - tr. plus tr. pale gr. granular
Ls. (slty) lt + med. drb-gr. fn-grain, gran dense - etc as in 245-50 - 70%
Ls. lt. bf + drb. mott. gr. phenoclastic as in 250-255 - 30%
260
60
Ls. mostly lt bf + drb mott. dk. gr. & phenocl. as in 255-260' with small amount of fn-grained, gran as in 255-60 also.
Brachia, barbs, Crinoids
265 —
Cht. med. gr, subvit, conch, dense opaque <10%
Ls. both types as in 260-65 both fossiliferous. cri; brach.
270
70
Ls. lt yell-drb to bf heavily mottled. med. gr. v. crse-grained, phenocl. scrappy, heterogeneous appearing. cri, brachs, + ostracodes
275 —
Cht. lt blu gr, chalcedonic, with round, pyritized, spicules emb - tr. cave?
Ls. as above - 10%
Eng. River
280
80
Siltstone - lt. med. gr. slt ly spked. blk. fairly soft, slty dolom. slty sdy (v. fn)
Siltstone as in 275-80
285 —
Siltstone as in 280-85
290
90
Sh. lt. med. gr-grn slty dolom. faintly lam, med. hard. slty silty. grading into minor amount siltstone as in 285-90.
295 —
Siltstone as in 285-290'
300
300 —