IOWA GEOLOGICAL SURVEY W-1699

In Cooperation with U. S. Geological Survey

RECORD OF WELL



Location:

Town: Oxford (N E) (S W):County Johnson

SW/c - NW sec. 21 T 80 N., R. 8 W. Oxford Twp.

Well name and number Oxford City Well #2

Owner _____ Address _____

Tenant _____ Address _____

Contractor Chas D. Nolan Address Cedar Rapids

Drillers _____

Drilling dates July 1925

Well data:

Elevations: Drilling curb 733 feet; Land surface _____ feet

Determined by Hand level

Topographic position Valley

Total depth: Reported _____ feet, Measured 586 feet

Drilling method _____

Hole and casing data _____

Original depth to water _____ ft. above below _____ Date _____

Original elevation of water level _____ ft.; Source of data _____

Sources of water: Principal _____; Others _____

Production data: Date _____

Static depth to water _____ Measuring point _____

Pumping level _____ at _____ 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 City Supply

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 20-584 No. spls. 54 No. dupls. & cond. 54 Poor

Spls. prepared by Optell Washed range _____ by _____

Driller's log and cond. _____

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

Microscopic study _____ strip log _____

Gen. log _____ Correl. by _____

Sheet No. 1 Name of Well Oxford #2 Survey No. W-1699

Location Date Drilled Analyst SEH

00

10

20

sd med in silt drb noncalc

30

sd, glac, med qtz, 1% cht some ls A to a

40

50

60

Till, brn v. sdy ab'd't cht

70

80

90

00

Sheet No. 2 Name of Well. Oxford #2 Survey No. W-1699

Location ..... Date Drilled ..... Analyst S.E.H.

100 From 80

10

20

Till, drb

30

40

50

sh, lt gr. v. fnly micac greasy

60

65

70

sh v. lt gr ~~sl~~ calc ditto

to 280

80

85

90

200

Sheet No. 3 Name of Well Oxford City #2 Survey No. W-1699

Location ..... Date Drilled ..... Analyst SEHg

200

10

20

30

40

One spl of shale 165-280

50

60

70

80

LS, lt brn, fn to frag small cri
long slender selenite xtls wh cal

LS, lt brn mot gr. frag
glauc sl lt grn fis calc

90

LS lt brn gr mot frag some dolo glauc abd't cri

93

Dolo, yel drb, sacch, fn v. glac slthy fos bryo
Ch lt gr. sphled dk gr. 10%
Ls lt gr. crse frag 10%

300

Location ..... Date Drilled..... Analyst. SEM/jn

300
- 06
10
- 12
- 18
20
- 24
30
- 30
- 39
40
- 46
- 49
50
- 52
60
- 61
- 65
70
- 70
80
- 83
- 86
- 89
90
- 92
- 95
- 98
400 to 401

Dolo yel drb ditto glauc
Cht wh & pale gr. spkld blk 15% - 20

blk
ls med gr phen fn matrix w. crse xtls & fos emb
Cht wh some qtzose - 5% clear cal

ls ditto soft less pheno fos blk brach, coral

blk
ls lt me gr., fn soft v. fos pheno
arg

ls ditto pheno fos bryo, brach, cri
arg

lt gr brn, frag v. fos bry, cri, brach
arg

ls, lt med gr. pheno to frag v. fos dk fos
v. arg.

ls ditto

ls, gr. drb, slabby arg fos hrder

ls, lt med brn pheno fos

ls lt med brn pheno to fn dnse fos

ls, lt med brn, dnse xtln fos bryo, brach

Dolo, lt gr. v. fn, earthy

cht frags some rded, gr to dk gr pyr c
sd emb tr med highly fr., c to r cal

Dolo crm, v. fn xtln v. sdy vfn A 10% cal xtl
sd, fn to med, fr

Wapsi

ls, crm, v. fn dnse to sublith; sh, lt gr grn fis, mic cal xtls

Dolo lt brn sacch fn por sprkling

Dolo lt med brn ditto v. por

Dolo ditto

ditto por

ditto some dnse

Location ..... Date Drilled..... Analyst. S.S.H.Jr.

400

04 Dolo lt med brn fn xtln sprkling
30 Dolo lt gr. chty emb sdy (as from 370 to 380)

Dolo lt gr. slt & v. fn sd emb some med fr ctor
cht emb ~ 20

10 xtln qtz qtzose cht wh, vit, transl 10

Dolo lt med gr. v. fn dnse v. sltly arg
tr selenite

SIL 13 Dolo gr. crse med rh xtln v. crsely vuggy

16 to fn med

Dolo med xtln lt gr.

19

20 Dolo drb gr. fn xtln sprkling dnse to vuggy

23

Dolo lt drb ish gr. fn rather dnse fn sd, fr c

29

30 Dolo ditto vuggy

35

Dolo ditto vuggy

38

40 Dolo pale gr to wh, v. fn xtln por sh, lt grn tr

41

Dolo, pale gr to v. lt gr. por fos cast

45

Dolo, pale crm, v. fn dnse some vuggy tr pyr
cht wh irreg tr

50 Dolo v. lt gr. fn xtln v. vuggy in dnse
tr fos mold

60

67

Dolo, pale crm
cht trip wh cotton rock cri
Qtz xtln aggs

70

72

Dolo ditto
cht trip 10%
xtln qtz aggs

80

Dolo, lt crm, dnse fn ~~med~~ xtln sltly por

Dolo sltly grnish gr, v. sdy arg. sd v. fn to med fr
cht wh trip & lt gr conch op - 5%
auth & xtln qtz aggs

90

Dolo, crm, fn med. xtln dnse sltly por

- cht wh, vit, conch transl qtzose - 5%

Dolo ditto sltly vuggy
tr cht

98

500 to 503

Sheet No. 6 Name of Well Oxford #2 Survey No. W-1699

Location Date Drilled Analyst SEM

500

pass

05

Dolo, yel drb, fn to fn med xtln, v sltly par
Ch wh, subtransl, conch, subvit - 5%

08

10

Dolo ditto tr vugsy
Cht ditto some qtz ose

20

29

30

sltly grish
Dolo lt yel

Cht wh to pale gr mostly nachly op fos cri
some conch
Qtz vit subxtln clear
med sd tr 25

50

55

60

Dolo yel drb fn blk spkls (PV)
Cht wh 20

70

74

Dolo ditto
Dolo dk gr. fn dnse 15

80

Cht wh dull, subconch 35

84

-5 PV xtln

Maq

86

Sh grnish gr v. sltly dolo

90

600

Notes on Oxford City #2

The Oxford city well has very poor samples from 0 to 28'; the top of the Cedar Valley (actually Cedar Valley top may be higher). As a result the "shelled" limestone & dolomite was not observed. It is quite possible that that horizon in this area may turn out to be Lime Creek.

The Cedar Valley is 103 feet thick, and all limestone except the Tiedemann horizon near the top and 12 feet at the base which are dolomite. The upper 13 feet is light brown limestone. ~~Phenoclastic to fragmental~~. Similar limestone occurs in the Wm. Echrey well at Cosgrove. Below this is a 13 feet thick well developed Tiedemann horizon. The dolomite is drab saccharoidal and quite glauconitic. Chert, from 10 to 15%, is white to pale gray and speckled black, conchoidal, opaque. This same horizon with the same characteristics occurs in other wells in the Oxford area, & westward near the Amanas and northwestward in southern Benton County.

Most of the Cedar Valley is composed of light to light medium gray limestone, much of it very argillaceous and all very fossiliferous; most of the fossils black or gray. This horizon is 64 feet thick; it is found prominantly in every well in the area. Slide Dcv2 shows the typical lithology.

The basal 13 feet of the Cedar Valley is a very fine-

grained to earthy, very light gray dolomite. Light gray, fragmental chert, some pyritic is embedded; very well rounded fine-grained sand is also embedded. This horizon undoubtedly marks the base of the formation. Similar fragmental chert and sand occurs at Tiedemann & Dane but in limestone. at Tiedemann the horizon appears to near basal Wapsipinicon rather the Cedar Valley.

Only 3 feet of sublithographic limestone is present to mark the top of the Wapsipinicon formation — this is Davenport. The underlying Spring Grove is light medium brown dolomite, saccharoidal and very porous. Near the base the dolomite is sandy and cherty. The chert is white, in part quartzose and vitreous. Wapsipinicon thickness is 31 ft.

I have called the Silurian top at the base of this sandy dolomite. At this point there is a sharp change to light medum gray dolomite with a much coarser texture than any in the strata above. (Slide SG3) This dolomite extends downward for 25 feet. I have called this the Bowen. The Hopkinton is pale gray to cream at the top and very fine-grained crystalline. (Slide SH2) Some poorly preserved fossil casts and molds were observed. The dolomite becomes more yellowish with depth. Up to 10% chert occurs in the lower two thirds of the formation. In the upper part of the chert, it is almost entirely

tripolitic, while farther down it is white, conchoidal, opaque with some quartz sand ~~ithreons~~. Crystalline and authigenic quartz is present.)

The Alexandrian is distinctly more cherty - from 20 to 35%. The chert is white to pale gray, subconchoidal and much ~~and~~ hackly, dull and opaque. Dolomite is slightly grayish yellow, fine-grained and in the lower part, distinctly black speckled. The specks are clearly pyrite in some cases & the presumption is that the black specks are altered pyrite. As is the case throughout this area and also the Cedar Rapids region, the chert extends to the base of the Silurian. A map of thicknesses of Kankakee & Edgewood in outcrop was prepared by Anderson. The results show the Kankakee to thicken southward at the expense of the Edgewood and the reverse to be true to the north. Apparently in this area the non cherty Edgewood is absent entirely.

→ It begins to look as though it may be possible to separate Gower from Hopkinton. At La Platte-Choate in Cedar Rapids there was a decided change from gray ~~to~~ to pink dolomite. The Gower was there interpreted as 60' thick. Here it is only 25' but the whole Silurian is ~~only~~ 180'

thick while at ~~Eolian Points~~ La Plant-Choate it is 285! (back to top p 3)

Maquoketa shale is typical but has been entered only two feet.

S E Harris Jr.
~~Sept~~ Oct 19, 1943

W-1699

Notes on Osfrd City Well #2

The samples down to the top of the Devonian lime are not especially good. This is particularly true in the case of the shale just above the limestone where one sample of gray shale is supposed to represent 115 feet. This is the interval which should show Lime Creek - very unfortunate. The Devonian section has good samples at 5 foot intervals but the Silurian intervals are longer. The well extends 2 feet into the Maquoketa.

Probably the uppermost 15' feet of limestone is Cedar Valley. As yet no criterion of any value has been found to mark the top of the Cedar Valley as distinct from the Shell Rock. However, it is thought that the lithology of this upper Osfrd City limestone is more typical of Cedar Valley as it is mostly fragmental and carries fossils and some glauconite.

The "Tiedemanni" horizon is well developed 15' below the top of the Cedar Valley. It is typical drab saccharoidal dolomite with white chert speckled black and containing some glauconite. Every well studied in this area has shown this zone, till now it is considered the best structural horizon in the Cedar Valley. It is certainly more trustworthy than the top of the limestone. Unfortunately the horizon has not been followed extensively enough over the State to be of broad value. Nevertheless there is some evidence that it can be extended at least as far as

293
303

Powesheik and Jefferson counties. A small scale structural map drawn on the top of the "Tiedemann" horizon is proposed.

The main body of the Cedar Valley is similar to the lower Littleton-Linwood members as developed at the Hospital wells in Iowa City. It is argillaceous limestone, light medium gray and phenoclastic-fragmental. Other wells near Oxford and westward to Blairstown show the same characteristics. The bottom twelve feet of Cedar Valley is light gray, very fine-grained dolomite with fine-grained sand and gray fragmental chert embedded. A ten-foot bed of dolomite is found at the base of the Tiedemann well but most of the wells have limestone to the base.

The top of the Wapsipinicon is marked by a 3-foot layer of sublithographic to very fine-grained limestone. This horizon, presumably Davenport, is apparently very persistent and is ~~generally~~ used by me in most wells where the top of the Wapsipinicon is present. No map of its distribution nor structure map has been made of it but probably one of the other should be prepared. The thickness of Cedar Valley from the "Tiedemann" top to top of Davenport remains quite uniform in this area at about 90 feet.

I have called only 30 feet of Wapsipinicon of which the lower 27 feet is Spring Grove. It is characteristically light medium brown and of fine-grained saccharoidal texture. The basal portion is light gray, silty and sandy and carries fragmental chert. The Wapsipinicon is certainly thinner in this area than in the southern part of the outcrop area. Farther south and also north where gypsum is found the formation is considered to be quite thick. Many of the wells near Oxford and the Amanas finish in the Wapsipinicon and thickness are as follows: Belle Plaine 50, Tudeman 50, Newhall City 47, Schultz 45, Becker 60, Oakdale 47, Hospital S.U.I. 55. Holscher near Oxford is 40 feet thick but continued at North Liberty the thickness has increased to 85 feet.

The Silurian at Oxford City is 169 feet thick this is considerably thinner than at Iowa City and much thinner than in the vicinity of Cedar Rapids. Southward only as far away as Brighton there appears to be no Silurian at all. Just what happens to the Silurian west of here in the Des Moines area or northwest in Tama Co. is not known. I have designated the lower in this well as the upper gray coarse medium-grained dolomite. It is vuggy and porous. The Hopkinton is more cream-colored and finer textured. A small amount of white chert and crystalline quartz occurs in the

interval from 467 to 524 ft. (top Hopkinton 438'). Presumably this is not Alexandrian but a slight development of the heavy chert of ~~Eagle~~ in northern Linn Co. near Troy Mills.

The Kanhakee is highly cherty, 20-25% and 35% in the bottom 10 feet. Apparently no Edgewood is present. The chert is white to pale gray, dull, hackly to subconchoidal and opaque. The high percentage and general appearance is suggestive of the very high chert above the Maquoketa in Tama, ~~Grundy~~ Polk counties etc, and even far southwest where there is no Maquoketa shale at all. I believe it is a suggestion worth working on and study of wells, especially those near Vinton & new ones in southern Tama & Benton County, may lead to some conclusions.

Two feet of gray green Maquoketa shale has been penetrated

T. D. 586'

S E H Jr.
Nov. 23, 1943