Punched FCH

WRD Exp. (GW)
Aug. 1964

Verified PMJ

U. S. DEPARTMENT OF THE INTERIOR — GEOLOGICAL SURVEY

Water Resources Division Well Schedule Form

MASTER CARD

COUNTY HWY

Record by R.W. COGLE Source of data FILE Date 7/6/65 Map 1:63,360

State IOWA (16) County (or town) HARRISON (43)

Latitude: 41 38 22 N Longitude: 095 46 51 W Sequential number: 1

Lat-long accuracy: 2 T 79 N S, R 42 E W, Sec 19 SE ¼, SE ¼, NW ¼ 5

Local well number: 079 42W 19 6 d d d B & M

Other number: W-0063

Local use: 00065 02 CITY

Owner or name: LOGAN CITY WELL

Owner or name: LOGAN IOWA

Address: LOGAN, IOWA

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

Use of water: (A) Air cond, (C) Comm, (D) Dewatering, (F) Fire, (H) Dom, (I) Irr, (N) Ind, (P) P S, (S) Stock, (T) Instit, (U) Unused — P

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

DATA AVAILABLE: Well data 1 Freq. W/L meas.: ORIGINAL 0 Field aquifer char.

Hyd. lab. data:

Qual. water data; type: COMPLETE — C

Freq. sampling: IRREGULAR I Pumpage inventory: yes (no) period:

Aperture cards: yes

Log data: GEOLOGIC — G

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 840 ft 840 Meas. rept DRL accuracy 3

Depth cased: (first perf.) 600 ft 600 Casing type: ; Diam. 8 in 8

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

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

Date Drilled: 1902 Pump intake setting: ft

Driller: name, 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

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

Descrip. MP LSD ft above below lsd, Alt. MP 1034

Alt. LSD: 1034 1034 Accuracy: (source) ALT. 7

Water Level 30 ft above below MP; Ft above below lsd +30 Accuracy: REPT 6

Date meas: Yield: 13 gpm 13 Method determined

Drawdown: ft Accuracy: Pumping period hrs

QUALITY OF WATER DATA: Iron 0.6 ppm 4 Sulfate 828 ppm 8 Chloride 130 ppm 3 Hard. 692 ppm 8

Sp. Conduct K x 10⁶ Temp. °F Date sampled 9/25/35 935

Taste, color, etc.

079-42W-19 6ddd

Well Number 41 38 22 N 095 46 51.1 W
(d m s d m s)

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD Physiographic Province: CENT. LOW. 12 Section: DISS. TILL PLAINS. E

Drainage Basin: BOYER 35B Subbasin:

Topo of well site: (D) local depression, (F) flat surface, (H) hilltop, (S) hillside, (T) terrace, (V) valley flat,

MAJOR AQUIFER: MISS. system, series M aquifer, formation, group X

Lithology: FINE LIMESTONE 2L Origin: MARINE 6 Aquifer Thickness: ft

Length of well open to: 221 ft 221 Depth to top of: 600 ft 600

MINOR AQUIFER: system, series aquifer, formation, group

Lithology: Origin: Aquifer Thickness: ft

Length of well open to: ft Depth to top of: ft

Intervals Screened: OPEN HOLE 600-821

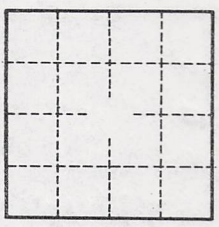
Depth to consolidated rock: < 22 ft Source of data: SAMPLES C

Depth to basement: ft Source of data:

Surficial material: Infiltration characteristics:

Coefficient Trans: gpd/ft Coefficient Storage:

Coefficient Perm: gpd/ft²; Spec cap: gpm/ft; Number of geologic cards:



UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Water Quality
(ppm)

Local Well No. 079-42W-19BDDD
Aquifer Code(s) MX
Owner's Name LOGAN CITY WELL (1902)
W Number 00065

Card Q

State: IOWA (19) County: HARRISON (43) Town: LOGAN, IOWA

Well No. Latitude 413822N (5–11) Longitude 0954651 (12–18) Seq. No. 1 (19) Date M D Y 09 25 35 (20–25)

Sampling Depth 840 (26–29) Type 1 (30) Kx10⁶ (31–35) pH 7.1 (36–38) Temp. °F (39–41)

SiO_2 (42–44) Ca 160 (45–49) Mg 71 (50–53) Na +K 259 (54–58) K C (59–61)

Source No. 3 Q (79–80)

HCO_3 239 (62–65) CO_3 (66–67) SO_4 828 (68–72) Cl 130 (73–78)

Card R

Duplicate Columns 1-25 from Card Q

F 2.5 (26–28) NO_3 0. (29–32) PO_4 (33–35) B (36–38) Al (39–41) Fe .6 (42–45)

Mn .1 (46–49) Cu (50–52) Pb (53–54) Zn (55–57)

Solids Determined 1650 (58–63) Calc. (64–69) Hardness Ca,Mg 692 (70–73) Non-Carb. 496 (74–77)

Color (78–79) No. R (80)

Card S

Duplicate Columns 1-25 from Card Q

Br (26–28) I (29–31) Alk. as $CaCO_3$ 196 (32–35) Free CO_2 (36–38) SAR (39–41)

RSC (42–44) ABS (45–47) (48–50)

Alpha (pc/l) (55–57) Beta (pc/l) (58–60) Ra (pc/l) (61–63) U (ug/l) (64–66)

No. S (80)

Recorded by: D. AARONSON

Punched by: T Date: 10

Published:

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Water Quality
(ppm)

Local Well No. 079-42W-19 BDDD
Aquifer Code(s) M X
Owner's Name LOGAN CITY WELL (1902)
W Number 00065

Card Q

State: IOWA [19] (1 2) County: HARRISON [43] (3 4) Town: LOGAN, IOWA

Well No. Latitude [413822N] (5–11) Longitude [0954651] (12–18) Seq. No. [1] (19) Date M D Y [1 1] (20–25)

Sampling Depth [840] (26–29) Type [1] (30) Kx10^6 (31–35) pH (36–38) Temp. °F (39–41)

SiO_2 [10.] (42–44) Ca [35.] (45–49) Mg [15.] (50–53) Na +K [461.] (54–58) K [.C] (59–61)

HCO_3 [411] (62–65) CO_3 (66 67) SO_4 [728.] (68–72) Cl [121.] (73–78) Source No. [3] (79) [Q] (80)

Card R

Duplicate Columns 1-25 from Card Q

F (26–28) NO_3 (29–32) PO_4 (33–35) B (36–38) Al (39–41) Fe [.3] (42–45)

Mn (46–49) Cu (50–52) Pb (53 54) Zn (55–57)

Solids Determined [1580] (58–63) Calc. (64–69) Ca,Mg [149] (70–73) Hardness Non-Carb. [0] (74–77)

Color (78 79) No. [R] (80)

Card S

Duplicate Columns 1-25 from Card Q

Br (26–28) I (29–31) Alk. as $CaCO_3$ [337] (32–35) Free CO_2 (36–38) SAR (39–41)

RSC (42–44) ABS (45–47) (48–50)

Alpha (pc/l) (55–57) Beta (pc/l) (58–60) Ra (pc/l) (61–63) U (ug/l) (64–66)

No. [S] (80)

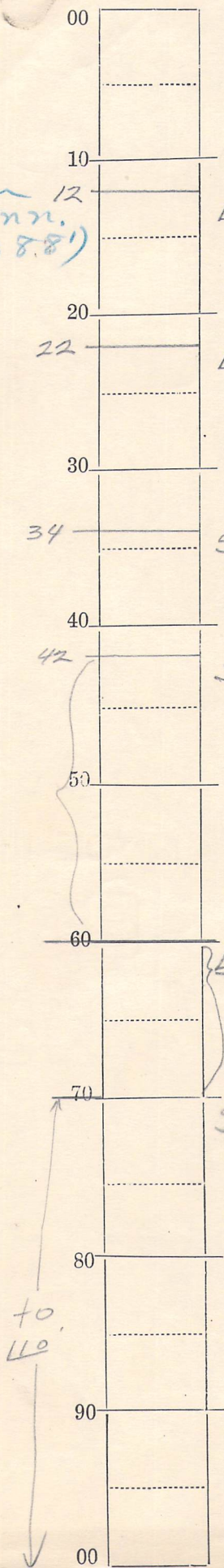
Recorded by: D. AARONSON

Punched by: J Date:

Published:

Sheet No. 1 Name of Well CITY WELL Logan Artesian Well Survey No. W 00 65

Location Logan, Ia. Date Drilled 1902 Analyst Hamilton



Ls. wh. to gray, partially xlized, massive; Brach frags. Crinoid stems.

Ls. gray, sub-xln, to granular, massive. Identical to 22'. Brach's present. Calcite veinlets cut ls.

Sh. gray-green, structureless, compact; streaked; slightly silty. Small, banchy carbonaceous streaks.

Sh, red and gray; streaked; compact, fissile; extremely calc; 3-6 mm slightly polished ls. granules, may be clastic.

Ls. wh. to light tan; saccharoidal, sugary; massive, interbedded with thin gray ls layers made of euhedral calcite xls. Pyrite and sulfides replace ls. Small amt anhydrite.

Sh, gray to lead colored; thin, fissile; highly calc; streaked by yellow limonite stains. Abundant brown and black carbonaceous matter along bedding.

Sheet No. 2 Name of Well ~~Logan~~ City Well Survey No. W-0065

Location Logan, Iowa Date Drilled 1902 Analyst Hamilton

00

See Sheet 2.

110

Ls white to gray, finely granular to saccaroidal, massive, Fossiliferous. Contains 2-5 mm. bl. Magnetite fragments, Fusulinids present.

115

Ls. white to gray; sub-litho; x/n, massive; elongate calcite Fusulinids present in ls. Sh 2% gray interbedded. Massive wh. gypsum present.

20

125

Ls red and wh. and gray; interbedded; silty residue; 2-5 mm Magnetite, associated with ls. and apparently occurs as veinlets.

*

130

40

No Sample

50

155

Sh, gray; highly calc; fissile, compact; Carbonaceous seams in shale. Clastic ls. fragments. Bl. fragmented magnetite

60

165

ls, gray; granular, massive, slightly silty; Ostracods; Pyrite ½%. Authgenic gypsum present. Magnetite present.

70

174

No Sample

80

184

Ls, wh to gray, granular, silty, massive. Ostracods present. Ostracods; Gypsum.

90

Ls, gray, highly calc. almost a marl. Heavy limonite stained.

00

+0.05

Sheet No. 3 Name of Well ~~Logan~~ City Well Survey No. W-0065

Location Logan, Iowa Date Drilled 1902 Analyst Hamilton.

00

205

10

20

No Sample

30

40

245 Sh, Black; slaty, carbonaceous, lignitic, non-calc. Pyrite or marcasite present as authigenic x/s.

50

260 Sh, wh to gray; highly calc; earthy, compact. Authigenic pyrite x/s in shale.

70

275 ls, wh to gray, granular, massive, Fragmental granules of magnetite present, Pyrrhotite in dark x/s. Fusulinids in ls.

80

Sh, gray; 280-286

286 Sh, gray, carbonaceous, calc; fissile. compact.

290 Ss, gray, fine sand 1/8-1/10 a. to A shape cemented by calc material. Glauconite and white authigenic mica abundant. Some green chlorite. Pyrite and pyrrhotite as authigenic x/s.

2 to 305 00

Sheet No. 4, Name of Well ~~Logan~~ City Well, Survey No. W-0065

Location Logan, Iowa, Date Drilled 1902, Analyst Hamilton

00

305 Sh, tan to gray; highly calc, silty; limonite colored. Small amount red sh. interbedded.

10

20

3 20 Ls, interbedded tan, red and buff; finegrained, Brach frag's. 10% bl. slaty sh. interbedded; All stained green-yel due to limonite.

325

30

40

3 50 Sh, interbedded yel, red, gray and green; highly calc, thinly laminated, fossile.

60

70

80

90

Penn. (388')

4 00

Sheet No. 5 Name of Well Logan City Well Survey No. W-0065

Location Logan, Iowa Date Drilled 1902 Analyst Hamilton

00

10

20 No Sample (400-555)

30

40

50

555 Miss. (266')

60 Dolo, 60%; granular; med. grained; gray, massive;
Chert 40% blue-white, opalescent, Spkaleyite in
black perfect dodecahedral cleavage frags.
pyrite and tarnished sulfides, 1%.
5 Ss, 8%, clear wh qtz, ½-1mm, a.t. sl hi C. polished.

70 dolo, Same as in 560
5 chert 30%.

dolo, gray granular, x/n, massive. Bright green glauconite
rare. Pyrite and sulfides ½%.

80 dolo, gray, granular, calcitic. Glauconite rare.
5 pyrite present.

585 ls, buff, granular, massive; Pyrite, dark sulfides abund-
ant. Magnetite present

90 ls; wh. to cream, made of euhedral rhombs, pure.
595 2% pyrite and tarnished sulfides.
to
610

00

Sheet No. 6 Name of Well ~~Logan~~ City Survey No. W-0065

Location Logan, Iowa Date Drilled 1902 Analyst Hamilton

00

610 — Ls wh. x/n fine grained pure. Few sulfides. 2% ½-1mm a. to e qtz sand.

6 20 — Ls wh. x/n, completely x/lized, calcitic, massive tx. Pure. No sulfides. 1% ½-1mm qtz sand polished.

30

635 — Ls wh. pure, completely x/lized, calcitic; 1% ½-1mm qtz. sand; Shape C. abraded, polished.

40

Miss.

50

655 ↑ to 770 ↑ to 780 ↓ to 821 — Ls gray 70%; white 30%; interbedded; gray - fine grained euhedral x/s calcite tightly cemented into massive tx. wh. is wh. fine grained, Chert 10%.

60

Ls, wh. pure, clear x/n, calcitic tx. No sulfides or impurities

70

Ls wh. to buff, completely x/lized, calcitic, Contains pyrite and sulfides ½ % Qtz sand ½-1m A. to a.

80

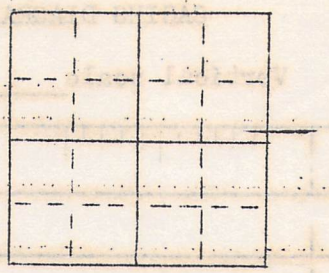
90

00

IOWA GEOLOGICAL SURVEY W-0065

In Cooperation with U. S. Geological Survey

RECORD OF WELL



Location:

Town: LOGAN (N E / S W): County HARRISON

sec. 18 or 19 T 79 N., R. 42 W. Jefferson Twp.

Well name and number TOWN WELL

Owner _____ Address _____

Tenant _____ Address _____

Contractor _____ Address _____

Drillers _____

Drilling dates 1902

Well data:

Elevations: Drilling curb 1033 feet; Land surface _____ feet

Gulf 1034'

Determined by _____

Topographic position _____

Total depth: Reported 821 feet, Measured _____ feet

Drilling method _____

Hole and casing data 30' of 8" pipe to rock

570' of 6" pipe

Original depth to water 30 ft. above ~~below~~ curb Date _____

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

Sources of water: Principal _____; Others _____

Production data: Date

Static depth to water +30 Measuring point

Pumping level flow at 13 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	1650.0			
Insoluble matter	26.3			
Alkalinity (Meo)				
Alkalinity (Phn)				
pH				
$Fe_2O_3 + Mn_2O_3 + Al_2O_3$				
Alkali as sodium	259.1			
Calcium	159.3			
Magnesium	70.8			
Iron (unfiltered)	0.6			
Manganese	0.1			
Nitrate	0.0			
Fluoride	2.5			
Chloride	130.0			
Sulfate	828.0			
Bicarbonate	239.1			
Hardness (ppm)	690.0			
Hardness (gpg)				

Remarks

Laboratory data: Sample storage location

Sample range 22-821 No. spls. 33 No. dupls. & cond. 28

Spls. prepared by Washed range by

Driller's log and cond.

Insoluble residues: Prepared by Studied by Strip log

Microscopic study 22-821 gulf strip log copied from Vol. 21; gulf

Gen. log Correl. by gardner

WATER LEVEL DATA

Measuring point _____

Date	Depth to water	Altitude	Remarks

REMARKS

Vol 21, p. 1133-39