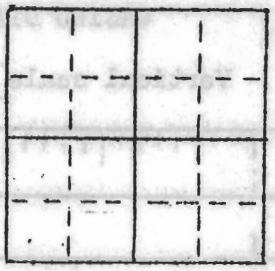
W-2863

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

RECORD OF WELL



Location:

Town: Mallard (N E / S W): County Palo Alto

NE NW NE sec. 25 T 94 N., R. 33 W. Ruthlake Twp.

Well name and number City Well No. 2.

Owner City of Mallard Address

Tenant Address

Contractor Thorpe Well Co. Address Des Moines

Drillers

Drilling dates Dec. 30. 1946 — Jan. 5, 1947

Well data:
Elevations: Drilling curb feet; Land surface 1220 feet

Determined by

Topographic position

Total depth: Reported 205 feet, Measured feet

Drilling method Cable Tool

Hole and casing data 16" hole. Gravel Pack — 37' of 6" screen set with 10' of pipe on top. Bottom of screen 201' Top 154' —
174' - 8" & 12" Steel Pipe - 2' above Surface

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 _____

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 34-205 No. spls. 33 No. dupls. & cond. 33 P+oF

Spls. prepared by REG Washed range. _____ by _____

Driller's log and cond. _____

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

Microscopic study 34-205 strip log 5-29-45

Gen. log _____ Correl. by R. Werner

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Water Quality
(ppm)

Local Well No. 094-33W-25ABA
Aquifer Code(s) QGGX
Owner's Name MALLARD CITY #2 (1947)
W Number 02863

Card Q

State: IOWA [19] (1 2) County: PALO ALTO [74] (3 4) Town: MALLARD, IOWA

Well No. Latitude [4256111N] (5–11) Longitude [094410 5] (12–18) Seq. No. [1] (19) Date M D Y [031869] (20–25)

Sampling Depth [201] (26–29) Type [1] (30) Kx10^6 [1500] (31–35) pH [72] (36–38) Temp. °F [48] (39–41)

SiO_2 [31.] (42–44) Ca [180.] (45–49) Mg [70.] (50–53) Na [74.] (54–58) K [4.6] (59–61)

HCO_3 [559] (62–65) CO_3 [0] (66 67) SO_4 [440.] (68–72) Cl [3.] (73–78) Source No. [3] [Q] (79 80)

Card R

Duplicate Columns 1-25 from Card Q

F [.4] (26–28) NO_3 [.2] (29–32) PO_4 [ ] (33–35) B [ ] (36–38) Al [ ] (39–41) Fe [92] (42–45)

Mn [.05] (46–49) Cu [ ] (50–52) Pb [ ] (53 54) Zn [ ] (55–57)

Determined Solids [1120] (58–63) Calc. [ ] (64–69) Ca,Mg Hardness [740] (70–73) Non-Carb. [282] (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 $CaCO_3$ [458] (32–35) Free CO_2 [ ] (36–38) SAR [ ] (39–41)

RSC [ ] (42–44) ABS [ ] (45–47) [ ] (48–50) [ ] (51–54)

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: 1/4/

Published:

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Water Quality
(ppm)

Local Well No. 094-33W-25ABA
Aquifer Code(s) QGGX
Owner's Name MALLARD CITY #2 (1947)
W Number 02863

Card Q

State: IOWA [19] (1-2) County: PALO ALTO [74] (3-4) Town: MALLARD, IOWA

Well No. Latitude [4256 11 N] (5-11) Longitude [094 41 05] (12-18) Seq. No. [1] (19) Date M D Y [10 16 52] (20-25)

Sampling Depth [201] (26-29) Type [1] (30) Kx10^6 [1310] (31-35) pH [7.6] (36-38) Temp. °F [ ] (39-41)

SiO_2 [ ] (42-44) Ca [175] (45-49) Mg [68] (50-53) Na [61] (54-58) K [4.0] (59-61)

HCO_3 [532] (62-65) CO_3 [0] (66-67) SO_4 [408] (68-72) Cl [60] (73-78) Source No. [3] (79) [Q] (80)

Card R

Duplicate Columns 1-25 from Card Q

F [.4] (26-28) NO_3 [13.] (29-32) PO_4 [ ] (33-35) B [ ] (36-38) Al [ ] (39-41) Fe [10.] (42-45)

Mn [0.] (46-49) Cu [ ] (50-52) Pb [ ] (53-54) Zn [ ] (55-57)

Solids Determined [1090] (58-63) Calc. [ ] (64-69) Hardness Ca,Mg [717] (70-73) Non-Carb. [281] (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 $CaCO_3$ [436] (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: [illegible] Date: [illegible]

Published: [illegible]

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

Record by P.J. Horick Source of data Files Date 6/14/65 Map H.& T.

State Iowa (16) County (or town) Palo Alto (74)

Latitude: 42 56 11 N (1) Longitude: 094 41 05 (2) Sequential number: 1

Lat-long accuracy: 2 (20) T 94 N, R 33 W Sec 25, NE ¼, NW ¼, NE ¼ 5 PM

Local well number: 094 33W 25 a a (21-34) Other number: (W-2863 B & M)

Local use: 02863 47CITY 2 (35-51) Owner or name: MALLARD

Owner or name: MALLARD IOWA (52-66) Address: Mallard, Iowa

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, (C) Comm, (D) Dewatering, (F) Fire, (H) Dom, (I) Irr, (N) Ind, (P) P S, (S) Stock, (T) Instit, (U) Unused — (68) 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 — (69) W

DATA AVAILABLE: Well data (70) 4 Freq. W/L meas.: NONE (71) N Field aquifer char. (72)

Hyd. lab. data: (73)

Qual. water data; type: (74) C

Freq. sampling: IRREGULAR (75) I Pumpage inventory: yes / no, period: (76)

Aperture cards: yes (77)

Log data: GEOLOGIST LOG (78-79) G

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 201 ft (19-23) 201 Meas. / repr (24) 6

Depth cased (first perf.): 168 ft (25-28) 168 Casing type: Steel; Diam. 12 in (29-30) 12 accuracy

Finish: (C) porous concrete, (F) gravel w. (perf.), (G) gravel w. (screen), (H) horiz. gallery, (O) open end, (P) perf., screen, sd. pt., (S) shored, (T) open hole, (W) other, (Z) other — (31) G

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) drive wash, (Z) other — (32)

Date Drilled: JAN 1947 (33-35) 1947 Pump intake setting: ft (36-38)

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 — (39); Deep / Shallow (40)

Power (type): nat gas, LPG gas, diesel, elec, gasoline, hand, wind; H.P. (41) Trans. or meter no.

Descrip. MP LSD ft above / below lsd, Alt. MP 1220

Alt. LSD: 1220 (42-45) 1220 Accuracy: (source) ALTIMETER (47) 7

Water Level ft above / below MP; Ft above / below lsd (48-51) Accuracy: (52)

Date meas: (53-55) Yield: 150 gpm (56-60) 150 Method determined (61)

Drawdown: ft (62-64) Accuracy: (65) Pumping period hrs (66-68)

QUALITY OF WATER DATA: Iron ppm (69) 7 Sulfate ppm (70) 7 Chloride ppm (71) 0 Hard. ppm (72) 8

Sp. Conduct K x 10⁶ (73) 5 Temp. °F (74-76) 48 Date sampled 18 MAR 1969 (77-79) 369

Taste, color, etc.

094-33W-25 a ba

Well Number 42,56,11 (N) 094,41,05.1 (W)
d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD (1–19) | Physiographic Province: CENTRAL LOWLAND [12] (20–21) | Section: WESTERN LAKE [B] (22) | Drainage Basin: [23–25] | Subbasin: [26]

Topo of well site: local depression, (D) flat surface, (F) hilltop, (H) hillside, (S) terrace, (T) valley flat, (V) [27]

MAJOR AQUIFER: Quaternary system, Pleistocene series [QG] (28–29) Sand and gravel aquifer, formation, group [GX] (30–31)

Lithology: MEDIUM SAND [35] (32–33) Origin: GLACIAL [0] (34) Aquifer Thickness: 20 ft

[20] (35–37) Length of well open to: 20 ft [20] (38–40) Depth to top of: 175 ft [175] (41–43)

MINOR AQUIFER: [ ] system, [ ] series [ ] (44–45) [ ] aquifer, formation, group [ ] (46–47)

Lithology: [ ] (48–49) Origin: [ ] (50) Aquifer Thickness: [ ] ft

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

Intervals Screened: 168'–201'

Depth to consolidated rock: 200 ft [200] (60–63) Source of data: WELL CUTTINGS [C] (64)

Depth to basement: [ ] ft [ ] (65–68) Source of data: [ ] [ ] (69)

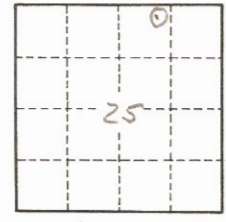
Surficial material: CLAYEY TILL [6T] (70–71) Infiltration characteristics: POOR [4] (72)

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

Coefficient Perm: [ ] gpd/ft²; Spec cap: [ ] gpm/ft; Number of geologic cards: [ ] (79)

Casing:

174'8" of 12" csg set at 168'
37'6" of 6" screen attached to 10' of pipe set from 154 to 201' Gravel packed with 10 Tons of gravel



Note: Top bedrock is Cretaceous Shale

GPO 844-225