WRD Exp. (CW)
Aug. 1964

U. S. DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

Water Resources Division Well Schedule Form

MASTER CARD

Record by: W JOBLE Source of data: FILES Date: 6-23-65 Map: COND'T 4 HWY 7 1:63,360

State: IOWA (IA) County (or town): POCAHONTAS (7)

Latitude: 42 34 49 N (2 deg 7 min 9 sec 11) Longitude: 094 50 46 W (12 degrees 13 min sec 18) Sequential number: 1

Lat-long accuracy: 2 T 90 N S, R 34 E W, Sec 27, NENE ¼, NE ¼, SW ¼ 5

Local well number: 090 24 W 27 c a a (21 25 30 34) Other number: B & M W-0995

Local use: CITY 39 CITY 2 (35 42 45 51) Owner or name: CITY OF FONDA #2

Owner or name: FONDA IOWA (52 56 61 65) Address: FONDA, IOWA

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

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)

Use of well: (A) Anode, (D) Drain, (G) Seismic, (O) Obs, (P) Recharge, (R) Spring, (S) Test, (U) Unused, (W) Withdraw, (X) Waste, (Z) Destroyed (69)

DATA AVAILABLE: Well data: 1 (70) Freq. W/L meas.: ORIGINAL (Y) (71) Field aquifer char. (72)

Hyd. lab. data: (73)

Qual. water data; type: COMPLETE (C) (74)

Freq. sampling: INTERMITTENT (I) (75) Pumpage inventory: yes (no) period: (76)

Aperture cards: yes (77)

Log data: GEOLOGIC AND DRILLERS LOG (78 79)

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD (1 19) Depth, well: 300 ft (20 23) Meas. rept: DRL LOG (24) accuracy

Depth cased: (first perf.) 282 ft (25 28) Casing type: STEEL (29); Diam.: 10 in (30 35) 10

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, (X) other, (Z) (31)

Method Drilled: (A) air rot, (B) bored, (C) cable, (D) dug, (H) hyd rot., (J) jetted, (P) air percussion, (R) reverse rotary, (T) crenching, (V) driven, (W) drive wash, (Z) other (32)

Date Drilled: 1939 (33 35) Pump intake setting: ft (35 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) recip, (P) piston, (R) rot, (S) submers, (T) turb, (Z) other (39) Deep Shallow (40)

Power (type): (A) diesel, (E) elec, (G) gas, (L) gasoline, (N) hand, (P) nat gas, (W) wind; H.P. (41) Trans. or meter no.

Descrip. MP: LAND SURFACE ft above below lsd, Alt. MP: 1231

Alt. LSD: 1231 (42 45) Accuracy: (source) ALTIMETER (47)

Water Level: 26 ft above below MP; Wt above below lsd (48 51) Accuracy: DRL LOG (52)

Date meas: APR 1939 (53 55) Yield: 1180 gpm (56 60) Method determined (61)

Drawdown: 19 ft (62 64) Accuracy: DRL LOG (3) Pumping period hrs (65 68)

QUALITY OF WATER DATA: Iron 0.48 (3) ppm (69) Sulfate 468 (5) ppm (70) Chloride 45 (0) ppm (71) Hard. 730 ppm (72)

Sp. Conduct 1420 K x 10^6 (73) Temp. °F (74 76) Date sampled MAR 1961 (3) (77 79)

Taste, color, etc.

Well Number 34 49 N 094 50 W 1
d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD (1-19) Physiographic Province: CENTRAL LOWLAND (20-21) Section: WEST

LAKE (22) Drainage Basin: RACCOON (23-25) 215A Subbasin: (26)

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

MAJOR AQUIFER: MISSISSIPPIAN (system) UPPER (series) M S (28-29) aquifer, formation, group (30-31)

Lithology: DRY FINE GRAIN DOL (32-33) Origin: MARINE C (34) Aquifer Thickness: ft

(35-37) Length of well open to: 18 ft (38-40) Depth to top of: 282 ft (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: OPEN E 282 TO TD

Depth to consolidated rock: 265 ft (60-63) Source of data: SAMPLES (64)

Depth to basement: ft (65-68) Source of data: (69)

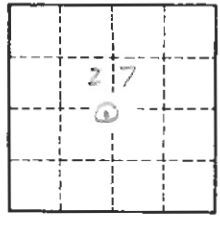
Surficial material: CALC (70-71) Infiltration characteristics: POOR (72)

Coefficient Trans: gpd/ft (73-75) Coefficient Storage: (76-78)

Coefficient Perm: gpd/ft^2; Spec cap: gpc/ft; Number of geologic cards: (79)

CASING

OPEN HOLE 282



Forecast for City Well

FONDA, POCAHONTAS COUNTY

W.C.S.
11/7/38

Data from I.E.R.A. Report:

Population: 1027 (1935 estimate)
Data on present well: T.D. 338' (now filled to 325') C.E. 1250', drilled approximately 1904, S.L. 25' below curb, pumping test 175 gpm with unknown dd. Water reported too hard for softener, casing: 10" to 250'; 8" to about 300', open hole to bottom.
Wells in the vicinity:
John Crafton - end of Main Street, S. of town - T.D. 218', ends in gravel, supply adequate
Guy Wile - just west of town - T.D. 218', gravel at 205', S.L. -11'
Recommendation made by I.E.R.A. report 1935:
"There seems to be an adequate supply of water from 200' to 253' in the sand and gravel found at this point and a good well could be developed".

Log of the present Fonda well:

	Thick	Depth
Soil and yellow clay; clay blue	197'	197'
Sand and gravel	23'	220'
Clay, hard, blue, with gravel	53'	273'
Sandstone	7'	280'
Shale, blue and red; limestone, sandstone, etc. (ss. entered)	51'	331'

Known elevations in Fonda:

Fonda	1231'	
Fonda, crossing I.C.	1231'	
Fonda	1230'	
Fonda, crossing C.M.&St. P.	1230'	
Elevation of present city well	1250'	(I.E.R.A. report, reference I.C. RR Sta.)

Data from 1938 subsurface maps:

Structure-contour Maps	Sea Level	Depth (CE 1230')
Top Mississippian	949'	281'
Top Devonian	600'	630'
Top Galena	400'	830'
Top St. Peter	240'	990'
Top Jordan	0-50'	1230-1280'
Top Dresbach	-600'	1830'

Isopac Maps	Thick
Base Maquoketa-Top Glenwood	460'
Galena-Decorah-Platteville	500'
St. Peter	37'
Jordan	60'
Maquoketa	90'

(Note: There is a discrepiancy in map data -- according to the structure contour maps the interval between the base of the maquoketa and the top of the St. Peter is 160' , while the thickness of the Galena-Decorah- Platteville on the Isopac maps is given as 500'.)

Analyses of deeper waters:

Town	County	T.D.	S.L.	gpm	Prod. Form	Ca	Mg	Fe	SO_4	HCO_3	Calc. Hard.
Lytton	Sac	1150'	-100'		Galena	100.2	115.9	1.8	775.5	375.7	729
Sac City	Sac	2047'	-128'	335	J. & St.P.	96.6	120.2	6.5	778.2	439.2	748
Ayrshire	Palo Alto	878'	-116'	120	St. Pet.	244.8	81.1	5.5	837.6	429.4	955
Farnhamville	Calhoun	776	- 20'	42	Kinderhook	150.1	44.8	1.1	253.4	370.9	561

In regard to the well at Sac City a test was run after passing the St. Peter. A capacity of 100 gpm with a static level of -113' was obtained. After passing the Jordan capacity was 175 gpm with static level at -123'. On completion of the well capacity was 335 gpm, lowering the head from 128-280' below the curb. Temp. 50°, Curb elevation 1274'

Information concerning this area is sparse, but from the evidence available a plentiful supply may be obtained from the Pleistocene gravels at a depth of approximately 200-220'. This water is admittedly hard, but available mineral analyses show deeper waters (except the Kinderhook at Farnhamville) to have a similar chemical composition. Nothing is known concerning the capacities or qualities of the intermediate formations in this area.

W-0995

Fonda (Pocahontas County)
Fonda city well No. 2

Thorpe Well Co., Des Moines
3/21/39 to 4/15/39
Harry West, driller

T.D. 300 ft.
S.W.L. 26 ft.
Production: 1180 g.p.m. with 19 ft. of drawdown

Casing: 282 ft. of 10" set at 282 ft.

Fill	0	to	5
Black soil	5	to	9
Yellow clay	9	to	15
Blue clay	15	to	50
Sand	50	to	53
Gray sandy drift	53	to	100
Blue drift, full of gravel	100	to	196
Gray drift, quite sandy	196	to	282
Limestone	282	to	290
(no samples)	290	to	299
Limestone (?)	299	to	300

MAY 19 1944
K. E. ANDERSON

IOWA GEOLOGICAL SURVEY
Water Well Data Sheet

Survey Number 4-0995

Town Fonda County Pocahontas T. 90 N., R. 34 E. W.

Name Town Well No 2 Location NE¼NE¼ SW¼, Sec. 27

Contractor Thorpe Well Co. Driller [illegible] Use Town Supply

Construction Drilled Drilling Dates [illegible] 1934 Drilling Depth

Topog. Upland plain Curb Elev. 1230 Ref. I.G.E.R. Total Depth 300

Final Static Level 26 above/below curb Pumping Level ____ Draw down ____ gpm ____ 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
240-300	31	37	11	800 Bailed ½ hr				
240-300	"	44	18	1180				

Additional information ____

Laboratory Data

Sample range 15-255 260-306 Number samples 50 Number Duplicates 49 Cond. Fair

Log Yes No, Cond. ____ Boxed Yahe & Marshall Range 45-300 Date June 2, 1939

Remarks ____

Microscopic Study Range		Strip Log	Gen. Log	Blue Print	Samples Washed
Insol. Res. Study Range		Strip Log	Gen. Log	Insol. Res. Prepared	Well Corel.

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

W-0995

RECORD OF WELL



Location:

Town: Fonda (N E S W); County Pocahontas E.

NE/4 - NE - SW sec. 27 T. 90 N., R. 34 W. Cedar Twp.

Well name and number City #2

Owner _____ Address _____

Tenant _____ Address _____

Contractor Thorpe Well Co Address Des Moines

Drillers Harry West

Drilling dates March 21, 1951 To April 15, 1951

Well data:

Elevations: Drilling curb 1230 feet; Land surface _____ feet

Determined by I.C.R.R.

Topographic position upland plain

Total depth: Reported 302 feet, Measured _____ feet

Drilling method cable tool

Hole and casing data 282' of 12" casing from ote 282'
(Give amount, size, kind, and depth of all casing; type and position of seals and packers; cementing; how finished--perforated pipe, screen, gravel pack, open hole, etc.)

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

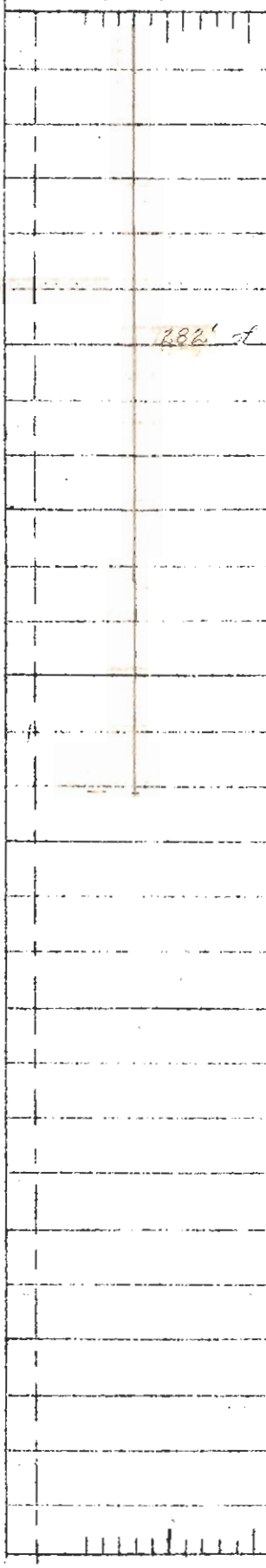
Original elevation of water level _____ ft.; Source of data _____

Sources of water: Principal Gilmore City; Others _____

CASING DIAGRAM

LOG

Vertical scale 1 space =



Fill

5 ft Bl soil

13 ft Yel clay

Bl clay

50 ft Sd

Gr. sdy drift

105

Bl drift, full of grav.

196

Gr drift, quite sdy

282 Ls

290 N.S.

292 Ls (i)

T.D. 300'

Production data: Date _____

Static depth to water 26' Measuring point _____

Pumping level 45' at 1180 g.p.m.

Specific capacity 62.1 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 Town supply

WATER ANALYSES (in parts per million)

Date sampled	April 20, 1939			
Sampled by	L.D. Long			
Total solids	1038.			
Insoluble matter	30.0			
Alkalinity (Meo)	400.0			
Alkalinity (Phn)	0.0			
pH	7.3			
Fe_2O_3+ Mn_2O_3+Al_2O_3	9.0			
Alkali as sodium	79.5			
Calcium	[illegible]			
Magnesium	[illegible]			
Iron (unfiltered)	0.0			
Manganese	0.10			
Nitrate	0.00			
Fluoride	trace			
Chloride	7.0			
Sulfate	430.1			
Bicarbonate	488.			
Hardness (ppm)	660			
Hardness (gpg)	38.5			

Remarks _____

Laboratory data: Sample storage location _____

Sample range 45-300 No. spls. 52 No. dupls. & cond. 49 Fair

Spls. prepared by Yoho & Marshall Washed range _____ by _____

Driller's log and cond. yes fair

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

Microscopic study 45-300 Conselman strip log copied by [illegible]

Gen. log _____ Correl. by Conselman

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Local Well No. 090-34W-27CAAA
Aquifer Code(s) M3MX
Owner's Name FONDA CITY #2 (1939)
W Number 00995

Water Quality
(ppm)

Card Q

State: IOWA (1 2) = 19 County: POCAHONTAS (3 4) = 76 Town: FONDA, IOWA

Well No. Latitude: 42 34 49 N (5–11) Longitude: 094 50 46 (12–18) Seq. No. (19) = 1 Date (M D Y) (20–25) = 04 20 39

Sampling Depth (26–29) = 300 Type (30) = 1 Kx10⁸ (31–35) = [ ] pH (36–38) = 7.3 Temp.°F (39–41) = [ ]

SiO_2 (42–44) = [ ] Ca (45–49) = 166 Mg (50–53) = 58 Na +K (54–58) = 80 K (59–61) = C

HCO_3 (62–65) = 488 CO_3 (66–67) = [ ] SO_4 (68–72) = 431 Cl (73–78) = 70 Source No. (79–80) = 3 Q

Card R

Duplicate Columns 1-25 from Card Q

F (26–28) = [ ] NO_3 (29–32) = 0 PO_4 (33–35) = [ ] B (36–38) = [ ] Al (39–41) = [ ] Fe (42–45) = 20

Mn (46–49) = 10 Cu (50–52) = [ ] Pb (53–54) = [ ] Zn (55–57) = [ ]

Solids Determined (58–63) = 1040 Calc. (64–69) = [ ] Ca,Mg (70–73) = 660 Hardness Non-Carb. (74–77) = 260

Color (78–79) = [ ] No. (80) = R

Card S

Duplicate Columns 1-25 from Card Q

Br (26–28) = [ ] I (29–31) = [ ] Alk. as $CaCO_3$ (32–35) = 400 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. (80) = S

Recorded by: D. AARONSON

Punched by: T Date: [ ]

Published: [ ]

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Local Well No. 090-34W-27CAAA
Aquifer Code(s) N3MX
Owner's Name FONDA CITY #2 (1939)
W Number 00995

Water Quality
(ppm)

Card Q

State: IOWA (19) County: POCAHONTAS (76) Town: FONDA, IOWA

Well No. Latitude 42 34 49 N (5–11) Longitude 094 50 46 (12–18) Seq. No. 1 (19) Date M D Y 11 12 46 (20–25)

Sampling Depth 300 (26–29) Type 1 (30) Kx10^6 (31–35) pH 7.6 (36–38) Temp. °F (39–41)

SiO_2 (42–44) Ca 168 (45–49) Mg 68 (50–53) Na + K 75 (54–58) K .C (59–61)

HCO_3 449 (62–65) CO_3 0 (66–67) SO_4 465 (68–72) Cl 2 (73–78) Source No. 3 Q (79–80)

Card R

Duplicate Columns 1-25 from Card Q

F .6 (26–28) NO_3 .4 (29–32) PO_4 (33–35) B (36–38) Al (39–41) Fe 0. (42–45)

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

Determined Solids 1070 (58–63) Calc. (64–69) Ca,Mg Hardness 703 (70–73) Non-Carb. 335 (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 $CaCO_3$ 368 (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

Local Well No. 090-34W-27CAAA
Aquifer Code(s) M3MX
Owner's Name FONDA CITY #2 (1939)
W Number 00995

Water Quality
(ppm)

Card Q

State: IOWA (1 2) = 19 County: POCAHONTAS (3 4) = 76 Town: FONDA, IOWA

Well No. Latitude 42 34 49 N (5–11) Longitude 094 50 46 (12–18) Seq. No. 1 (19) Date M D Y = 10 08 57 (20–25)

Sampling Depth 300 (26–29) Type 1 (30) Kx10⁶ 1330 (31–35) pH 7.6 (36–38) Temp. °F (39–41)

SiO_2 28. (42–44) Ca 165. (45–49) Mg 71. (50–53) Na 73. (54–58) K 6.6 (59–61)

HCO_3 437 (62–65) CO_3 0 (66 67) SO_4 476. (68–72) Cl 50. (73–78) Source No. 3 (79) Q (80)

Card R

Duplicate Columns 1-25 from Card Q

F .7 (26–28) NO_3 13. (29–32) PO_4 (33–35) B (36–38) Al (39–41) Fe .06 (42–45)

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

Solids Determined 1090 (58–63) Calc. (64–69) Hardness Ca,Mg 704 (70–73) Non-Carb. 346 (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 $CaCO_3$ 358 (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:

Published:

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

90-34W-27 CAAA

M M X

W-0995

Water Quality
(ppm)

Card Q

State: IOWA (1 2) County: POCAHONTAS (3 4) Town: FONDA

Well No. Latitude 423949N (5–11) Longitude (12–18) Seq. No. (19) Date M D Y 03 21 (20–25)

Sampling Depth (26–29) Type (30) $Kx10^6$ (31–35) pH 7.8 (36–38) Temp. °F (39–41)

SiO_2 (42–44) Ca 2 (45–49) Mg 3 (50–53) Na (54–58) K .6 (59–61)

HCO_3 (62–65) CO_3 (66–67) SO_4 (68–72) Cl 9.5 (73–78) Source (79) No. (80)

Card R

Duplicate Columns 1-25 from Card Q

F .4 (26–28) NO_3 less than .4 (29–32) PO_4 (33–35) B (36–38) Al (39–41) Fe less than .4 (42–45)

Mn less than .005 (46–49) Cu (50–52) Pb (53–54) Zn (55–57)

Determined Solids 0 (58–63) Calc. (64–69) Ca,Mg Hardness 13 (70–73) Non-Carb. 34 (74–77)

Color (78–79) No. (80)

Card S

Duplicate Columns 1-25 from Card Q

Br (26–28) I (29–31) Alk. as $CaCO_3$ 87 (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)

Verified PMJ
Punched FCH

No. 5 (80)

Recorded by: R.W. COBLE

Punched by: _____ Date: _____

Published: _____

UNITED STATES DEPARTMENT OF THE INTERIOR
Geological Survey
Water Resources Division

Water Quality
(ppm)

Local Well No. 090-34W-27CAAA
Aquifer Code(s) N3MX
Owner's Name FONDA CITY #2 (1939)
W Number 00995

Card Q

State: IOWA (19) County: POCAHONTAS (76) Town: FONDA, IOWA

Well No. Latitude 42 34 49 N (5–11) Longitude 094 50 46 (12–18) Seq. No. 1 (19) Date M D Y 09 27 67 (20–25)

Sampling Depth 300 (26–29) Type 1 (30) Kx10⁶ 1400 (31–35) pH 7.3 (36–38) Temp.°F 50 (39–41)

SiO_2 26. (42–44) Ca 170. (45–49) Mg 70. (50–53) Na 75. (54–58) K 6.2 (59–61)

HCO_3 454 (62–65) CO_3 0 (66–67) SO_4 470. (68–72) Cl 25. (73–78) Source No. 3 (79) Q (80)

Card R

Duplicate Columns 1-25 from Card Q

F .4 (26–28) NO_3 9.4 (29–32) PO_4 (33–35) B (36–38) Al (39–41) Fe .30 (42–45)

Mn .09 (46–49) Cu (50–52) Pb (53–54) Zn (55–57)

Determined Solids 1130 (58–63) Calc. (64–69) Ca,Mg Hardness 715 (70–73) Non-Carb. 343 (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 $CaCO_3$ 372 (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: _____ Date: _____

Published: _____