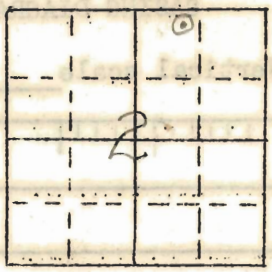
IOWA GEOLOGICAL SURVEY W-0174

In Cooperation with U. S. Geological Survey

RECORD OF WELL



Location:

Town: DALLAS CENTER (N E / S W): County DALLAS

NE-NW-NE sec. 2 T 79 N., R. 27 W. Adel Twp.

Well name and number City Well (1934)

Owner _____ Address _____

Tenant _____ Address _____

Contractor McCutcheon Well Co. Address _____

Drillers _____

Drilling dates 1934

Well data:

Elevations: Drilling curb _____ feet; Land surface 1049' feet

OCT 1, 1996 Aneroid from Dallas Center R.R. — Cooper + Barton

Determined by _____

Topographic position Plain

Total depth: Reported 604 feet, Measured _____ feet

Drilling method _____

Hole and casing data _____

Original depth to water 160 ft. ~~above~~ below curb Date _____

Original elevation of water level 901 ft.; Source of data _____

Sources of water: Principal Mississippian 590-605; Others Pennsylvanian 530-90

Production data: Date

Static depth to water 160 Measuring point

Pumping level at 32 g.p.m. sucked air

18

Specific capacity g.p.m. per ft. drawdown; Temperature 60 °F.

Pump data: Type pump Double Acting Cylind. Column Dia. Length 375

Cylinder or bowls: Dia. Length Suction pipe

Power Electric 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	June 17, 1937	Oct. 3, 1936		
Sampled by	Mullinex & Bolton	A.C. Tester		
Total solids	2074.0	2079.0		
Insoluble matter	24.0	10.5		
Alkalinity (Meo)	249.0	216.0		
Alkalinity (Phn)	0.0	0.0		
pH	7.8	7.1		
$Fe_2O_3 + Mn_2O_3 + Al_2O_3$	21.0	4.5		
Alkali as sodium	564.5	455.20		
Calcium	76.5	117.90		
Magnesium	14.9	32.10		
Iron (unfiltered)	0.6	0.6		
Manganese	0.30	0.00		
Nitrate	0.00	1.30		
Fluoride	2.9	1.0		
Chloride	72.0	70.0		
Sulfate	1112.0	1120.65		
Bicarbonate	297.7	263.52		
Hardness (ppm)	254.0	386.0		
Hardness (gpg)	14.9	22.6		

Remarks

Laboratory data: Sample storage location

Sample range 380 - 604 No. spls. 11 No. dupls. & cond. 16 Good

Spls. prepared by Washed range by

Driller's log and cond.

Insoluble residues: Prepared by Studied by Strip log

Microscopic study 380 - 604 Gulf strip log 1939 Gulf

Gen. log Correl. by Gardner

DEEP WELL STUDY

Well No. W— 0174
Depth 375 to 380
No. samples used 1
Analyst Scott
Date 3/14/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	30.31 gm.	100.0%	2. Wt. of F. P.	2.32
3. Wt. after solution, with filter paper	11.76 gm.			
4. Less wt. F. P. (2)	2.32 gm.			
5. Wt. Insol. Residue (3 minus 4)	9.44 gm.	31.1 %		
6. Wt. lost by solution (1 minus 5)	20.87 gm.	68.9 %		
7. To balance (5 plus 6)	30.31 gm.	100.0 %		

B. Subsidation:

1. Original Wt.	9.44 gm.	100.0%	
2. Cylinder (+1/32) 11.25 / 2.30 / 2.58	8.95 gm.	94.9 %	
3. Jar (1/32—1/64) 2.32	.26 gm.	2.8 %	
4. Drain	.23 gm.	2.4 %	

C. Screen Analysis 8.62

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm.		
½+¼ mm	.72	8.4
¼–⅛ mm	2.73	31.7
⅛–1/16	3.60	41.8
Pan	1.56	18.1
Total	8.61	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / ~~Bromoform~~ ±2.93 Sp. gr. Size–Grade(s) ⅛ - 1/16 mm.

Analyst Pyre
Date 4/3/35

Wt. of sample 3.59 gm. 100.0%

Heavy Minerals .09 gm. 2.5 %

Light Minerals 3.50 gm. 97.5 %

Shape Analysis:

A ..... %: a ..... %: C ..... %

r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
pyrite	329	95
zircon {zoned	1	0
zircon {unzoned	7	2
tourmaline {green	3	1
tourmaline {brown	2	1
garnet	1	0
leucoxene	4	1
	347	
Total		100%

Light Concentrate		
chert	52	6.1
clay aggregates	129	15.2
Feldspar	16	1.9
muscovite	3	.4
quartz	698	76.4
Total	848	100%

Classification Grouping: Primary Minerals: 91.7 %	Absol. %
zircon {zoned	0
zircon {unzoned	.1
tourmaline {green	0
tourmaline {brown	0
garnet	0
clay	14.8
feldspar	1.9
muscovite	.4
quartz	74.5
Secondary Minerals: 8.3 %	
pyrite	2.4
leucoxene	0
chert	5.9
Total	100%

Revised Lithologic Description (from descriptive log and laboratory data).

Limestone - 69% soluble; buff; med. grained ±25% quartz maj. grade ⅛-1/16 some with secondary enlargement; 4-5% chert; 2-3% pyrite; ±5% shale from above;

DEEP WELL STUDY

Well No. W— 0174
Depth 500 to 512
No. samples used 1
Analyst Scott
Date 3/14/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	30.07 gm.	100.0%	2. Wt. of F. P.	2.32
3. Wt. after solution, with filter paper	26.34 gm.			
4. Less wt. F. P. (2)	2.32 gm.			
5. Wt. Insol. Residue (3 minus 4)	24.02 gm.	80.0 %		
6. Wt. lost by solution (1 minus 5)	6.05 gm.	20.0 %		
7. To balance (5 plus 6)	30.07 gm.	%		

B. Subsidation:

1. Original Wt.	24.02 gm.	100.0%	
2. Cylinder (+1/32) 24.72 / 2.30 / 2.87	22.42 gm.	93.4 %	
3. Jar (1/32—1/64) 2.33	.54 gm. (22.96)	2.2 %	
4. Drain	1.06 gm.	4.4 %	

C. Screen Analysis 22.13

SIZE	GRAMS	%
2 plus	4	
2–1 mm	4.79	21.7
1–½ mm	5.67	25.6
½+¼ mm	1.82	8.2
¼–⅛ mm	2.58	11.7
⅛–1/16	5.82	26.3
Pan	1.43	6.5
Total	22.11	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst Pyre
Date 4/3/35

Acet. Tetrabr. / ~~Bromoform~~ ± 2.93 Sp. gr. Size–Grade(s) ⅛ - 1/16 mm.

Wt. of sample . . . . 3.00 gm. 100.0%

Heavy Minerals . . . . 102 gm. .7 %

Light Minerals . . . . 2.98 gm. 99.3 %

Shape Analysis:

A ..... %: a ..... %: C ..... %

r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate

	No. of Grains	Rel. %
barite	9	1.7
pyrite	280	54.5
*zircon {zoned	9	1.7
*zircon {unzoned	39	7.6
tourmaline {green	17	3.3
tourmaline {brown	9	1.7
tourmaline {blue	3	.6
garnet	1	.2
leucoxene	75	14.6
amphibole	4	.8
magnetite	8	1.6
Total . hematite	60 / .514	11.7 / 100%

Light Concentrate

clay aggregates	24	3.
Feldspar	1	0
muscovite	1	0
quartz	737	97
Total	763	100%

Classification Grouping:

Primary Minerals: 99.4 %	Absol. %
zircon {zoned	0
zircon {unzoned	.1
tourmaline {green	0
tourmaline {brown	0
tourmaline {blue	0
garnet	0
amphibole	0
magnetite	0
clay	3.0
Feldspar	0
muscovite	0
quartz	96.3

Secondary Minerals: .6 %

barite	0
pyrite	.4
leucoxene	.1
hematite	.1
Total	100%

Revised Lithologic Description (from descriptive log and laboratory data).

S.S. very poorly sorted; 99± % quartz; 20% soluble;

* many ±30% of zircons are pink

DEEP WELL STUDY

Well No. W— 0174

Depth 512 to 520

No. samples used

Analyst

Date

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	21.19 gm.	100.0%	2. Wt. of F. P.	2.34
3. Wt. after solution, with filter paper	22.98 gm.			
4. Less wt. F. P. (2)	2.34 gm.			
5. Wt. Insol. Residue (3 minus 4)	20.64 gm.	97.4 %		
6. Wt. lost by solution (1 minus 5)	.55 gm.	2.6 %		
7. To balance (5 plus 6)	21.19 gm.	100.0 %		

B. Subsidation:

1. Original Wt.	20.64 gm.	100.0%	
2. Cylinder (+1/32) 2.261, 2.230, 2.232	20.31 gm.	98.4 %	
3. Jar (1/32—1/64) 2.230	.02 gm.	.1 %	
4. Drain	.131 gm.	1.5 %	

C. Screen Analysis 20.42

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½+¼ mm	5.61	27.4
¼–⅛ mm	12.71	62.3
⅛–1/16	1.98	9.7
Pan	.12	.6
Total	20.42	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / ~~Bromoform~~ 2.93± Sp. gr. Size–Grade(s) ¼ - Pan mm.

Analyst Pyre

Date 9/3/35

Wt. of sample 3.08 gm. 100.0%

Heavy Minerals .05 gm. 1.6 %

Light Minerals 3.03 gm. 98.4 %

Shape Analysis:

A %: a %: C %

r %: R %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
barite	1	.2
pyrite	528	81.5
zircon {zoned	10	1.5
zircon {unzoned	51	7.9
tourmaline {green	10	1.5
tourmaline {brown	5	.8
tourmaline {blue	2	.3
leucoxene	17	2.6
magnetite	4	.6
hematite	20	3.1
Total	648	100%

Light Concentrate		
clay aggregates	43	5
feldspar	5	1
quartz	765	94
Total	813	100%

Classification Grouping:	Absol. %
Primary Minerals: 98.6 %	
zircon {zoned	0
zircon {unzoned	.1
tourmaline {green	0
tourmaline {brown	0
tourmaline {blue	0
magnetite	0
clay aggregates	4.9
feldspar	1.0
quartz	92.6
Secondary Minerals: 1.4 %	
barite	0
pyrite	1.3
leucoxene	0
hematite	.1
Total	100%

Revised Lithologic Description (from descriptive log and laboratory data).

S.S. mod. grade ¼-⅛ (62%) 99+% quartz; 2-3% soluble; 3-9% clay & silt; many quartz grains with secondary enlargement

* ±15% of zircons are pink.

DEEP WELL STUDY

Well No. W— 0174
Depth 520 to 530
No. samples used 1
Analyst Scott
Date 3/14/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl ~~H₂O~~ .....%)

1. Sample weight . . . . . gm. 100.0%: 2. Wt. of F. P.
3. Wt. after solution, with filter paper . . . . . gm.
4. Less wt. F. P. (2) . . . gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . gm. %
6. Wt. lost by solution (1 minus 5) . . . . . gm. %
7. To balance (5 plus 6) . . gm. %

B. Subsidation:

1. Original Wt. . . . . 21.26 gm. 100.0%
2. Cylinder (+1/32) ~~22.94~~ ~~2.22~~ 20.72 gm. 97.5 %
3. Jar (1/32—1/64) ~~2.42~~ ~~2.35~~ .07 gm. .3 %
4. Drain . . . . . .47 gm. 2.2 %

C. Screen Analysis 20.74

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½+¼ mm	3.63	17.5
¼–⅛ mm	13.10	63.3
⅛–1/16	3.59	17.3
Pan	.40	1.9
Total	20.72	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst Pyre
Date 4/4/35

Acet. Tetrabr. / ~~Bromoform~~ ±2.93 Sp. gr. Size–Grade(s) ⅛- Pan mm.

Wt. of sample . . . . 3.12 gm. 100.0%

Heavy Minerals . . . . .02 gm. .6 %

Light Minerals . . . . 3.10 gm. 98.4 %

Shape Analysis:

A .....%: a .....%: C .....%

r .....%: R .....%.

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
pyrite	341	85
zircon {zoned	5	1
zircon {unzoned	27	7
tourmaline {green	5	1
tourmaline {brown	2	1
tourmaline {blue	1	0
leucoxene	17	4
anatase	3	1
Total	401	100%

Light Concentrate		
clay aggregates	25	4
Feldspar	9	1.4
carbonate	9	1.4
muscovite	2	.3
quartz	587	92.9
Total	632	100%

Classification Grouping:	Absol. %
Primary Minerals: 97.1 %	
zircon {zoned	0
zircon {unzoned	0
tourm {green	0
tourm {brown	0
tourm {blue	0
clay aggregates	3.9
Feldspar	1.4
muscovite	.3
quartz	91.5
Secondary Minerals: 1.9 %	
pyrite	.5
leucoxene	0
anatase	0
carbonate	1.4
Total	100%

Revised Lithologic Description (from descriptive log and laboratory data).

S.S. mod. grade ¼-⅛ m.g. A-a; prin. subsid ½-¼ & ⅛-1/16; 2-3% feldspar; 2-3% carbonate; 1% pyrite;

DEEP WELL STUDY

Well No. W— 0174
Depth 530 to 540
No. samples used 1
Analyst Scott
Date 3/14/35

MECHANICAL ANALYSIS

A. ~~Acid treatment (HCl 15 %)~~ H20

1. Sample weight	gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	gm.			
4. Less wt. F. P. (2)	gm.			
5. Wt. Insol. Residue (3 minus 4)	gm.	%		
6. Wt. lost by solution (1 minus 5)	gm.	%		
7. To balance (5 plus 6)	gm.	%		

B. Subsidation:

1. Original Wt.	22.60 gm.	100.0%	
2. Cylinder (+1/32) 21.51, 2.34, 2.35	22.17 gm.	98.1 %	
3. Jar (1/32—1/64) 2.31	.09 gm.	.2 %	
4. Drain	.39 gm.	1.7 %	

C. Screen Analysis 22.20

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	1.67	7.5
¼–⅛ mm	12.45	56.2
⅛–1/16	7.56	34.1
Pan	.49	2.2
Total	22.17	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / ~~Bromoform~~ 2.93 Sp. gr. Size–Grade(s) ⅛ - Pan mm.

Analyst Pyre
Date 4/9/35

Wt. of sample 3.06 gm. 100.0%

Heavy Minerals .03 gm. 1.0 %

Light Minerals 3.03 gm. 99.0 %

Shape Analysis:

A ....%: a ....%: C ....%

r ....%: R ....%.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
pyrite	688	77
zircon {zoned	7	1
zircon {unzoned	87	10
tourmaline {green	17	2
tourmaline {brown	11	1
tourmaline {blue	1	0
leucoxene	69	8
rutile	2	0
anatase	3	0
magnetite	8	1
Total	891	100%

Light Concentrate		
Carbonate	15	2
clayey silt aggregates	40	5
Feldspar	5	1
quartz	698	92
Total	758	100%

Classification Grouping:	Absol. %
Primary Minerals: 97.1 %	
zircon {zoned	0
zircon {unzoned	.1
tourmaline {green	0
tourmaline {brown	0
tourmaline {blue	0
rutile	0
magnetite	0
clayey silt	4.9
Feldspar	1.0
quartz	91.1
Secondary Minerals: 2.9 %	
pyrite	.8
leucoxene	.1
anatase	0
carbonate	2.0
Total	100%

Revised Lithologic Description (from descriptive log and laboratory data).

S. S. A-C; maj. grade ¼-⅛ m.m.; prin. subsid. ¼-1/16; 2-3% carbonate; 1% pyrite; 1% feldspar;

DEEP WELL STUDY

Well No. W— 0174
Depth 560 to 570
No. samples used 1
Analyst Scott
Date 3/14/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	30.44 gm.	100.0%	2. Wt. of F. P.	2.32
3. Wt. after solution, with filter paper	13.34 gm.			
4. Less wt. F. P. (2)	2.32 gm.			
5. Wt. Insol. Residue (3 minus 4)	11.02 gm.	36 %		
6. Wt. lost by solution (1 minus 5)	19.42 gm.	64 %		
7. To balance (5 plus 6)	30.44 gm.	100 %		

B. Subsidation:

1. Original Wt.	11.02 gm.	100.0%	
2. Cylinder (+1/32) 12.80 2.31 2.45	10.59 gm.	96.1 %	
3. Jar (1/32—1/64) 2.32	.13 gm.	1.2 %	
4. Drain	.30 gm.	2.7 %	

C. Screen Analysis 10.57

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½+¼ mm	2.75	26.3
¼–⅛ mm	5.44	51.9
⅛–1/16	2.29	21.8
Pan		
Total	10.48	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst Pyre
Date 4/4/35

Acet. Tetrabr. ~~Bromoform~~ ±2.93 Sp. gr. Size–Grade(s) ¼ - Pan mm.

Wt. of sample 3.00 gm. 100.0%

Heavy Minerals 116 gm. 5.3 %

Light Minerals 2.84 gm. 94.7 %

Shape Analysis:

A ....%: a ....%: C ....%

r ....%: R ....%.

Minerals Identified; Heavy Concentrate

	No. of Grains	Rel. %
pyrite	455	94
zircon (unzoned)	9	2
tour {green	2	0
tour {brown	3	1
garnet	1	0
leucoxene	14	3
magnetite	1	0
amphibole	1	0
Total	486	100%

Light Concentrate

clay & silt aggregates	193	22
feldspar	22	2
muscovite	5	1
quartz	666	75
Total	886	100%

Classification Grouping:

	Absol. %
Primary Minerals: 94.9 %	
zircon {unzoned	.1
tour {green	0
tour {brown	.1
garnet	0
magnetite	0
amphibole	0
clay & silt	20.8
muscovite	.9
feldspar	1.9
quartz	71.1
Secondary Minerals: 5.1 %	
pyrite	5.0
leucoxene	.1
Total	100%

Revised Lithologic Description (from descriptive log and laboratory data).

L.S. - 69% sol.; buff to light gray; fine grained; dense; ±25% s.s. A-C; mod. grade ¼-⅛ (52%); ±5% clay & silt; 2% pyrite;

DEEP WELL STUDY

Well No. W— 0174

Depth 570 to 575

No. samples used 1

Analyst Scott

Date 3/14/35

MECHANICAL ANALYSIS

A. ~~Acid treatment (HCl ..... %)~~ H_2O

1. Sample weight	..... gm.	100.0%	2. Wt. of F. P.	.....
3. Wt. after solution, with filter paper	..... gm.			
4. Less wt. F. P. (2)	..... gm.			
5. Wt. Insol. Residue (3 minus 4)	..... gm.	..... %		
6. Wt. lost by solution (1 minus 5)	..... gm.	..... %		
7. To balance (5 plus 6)	..... gm.	..... %		

B. Subsidation:

1. Original Wt.	21.31 gm.	100.0%	
2. Cylinder (+1/32) ~~2.74~~ ~~2.32~~ ~~2.68~~	2042 gm.	95.9 %	
3. Jar (1/32—1/64) ~~2.29~~	.39 gm.	1.8 %	
4. Drain	.50 gm.	2.3 %	

C. Screen Analysis 20.33

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
~~½~~+¼ mm	7.98	39.4
¼–⅛ mm	7.42	36.6
⅛–1/16	3.90	19.3
Pan	.96	4.7
Total	20.26	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. ~~Bromoform~~ ±2.93 Sp. gr. Size–Grade(s) 1/8 - Pan mm.

Analyst Pyre

Date 4/4/35

Wt. of sample . . . . 3.63 gm. 100.0%

Heavy Minerals . . . . .05 gm. 1.4 %

Light Minerals . . . . 3.58 gm. 98.6 %

Shape Analysis:

A ..... %: a ..... %: C ..... %

r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate

	No. of Grains	Rel. %
magnetite	3	.4
barite	6	.9
pyrite	547	83.8
zircon {zoned	6	.9
zircon {unzoned	45	6.9
tourmaline {green	6	.9
tourmaline {brown	7	1.1
tourmaline {blue	1	.2
garnet	1	.2
leucoxene	27	4.1
rutile	1	.2
amphibole	1	.2
anatase	1	.2
Total	652	100%

Light Concentrate

carbonate	346	49.6
Feldspar	333	47.8
quartz	18	2.6
Total	697	100%

Classification Grouping:

	Absol. %
Primary Minerals: 98.7 %	
magnetite	0
zircon {zoned	0
zircon {unzoned	.1
tourm {green	0
tourm {brown	0
tourm {blue	0
garnet	0
rutile	0
amphibole	0
Feldspar	47.1
quartz	2.5
carbonate	49.0
Secondary Minerals: 1.3 %	
barite	0
pyrite	1.2
leucoxene	.1
anatase	0
Total	100%

Revised Lithologic Description (from descriptive log and laboratory data).

* Limestone – gray; dense, fine grained 60-70%; S.S. maj. grade ¼-⅛, A-a 30-35%; ±1% pyrite;

* + ¼ grade is ±80% ls.

DEEP WELL STUDY

Well No. W— 0174
Depth 575 to 580
No. samples used 1
Analyst Scott
Date 3/14/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	30.52 gm.	100.0%	2. Wt. of F. P.	2.30
3. Wt. after solution, with filter paper	12.53 gm.			
4. Less wt. F. P. (2)	2.30 gm.			
5. Wt. Insol. Residue (3 minus 4)	10.23 gm.	33.6 %		
6. Wt. lost by solution (1 minus 5)	20.29 gm.	66.4 %		
7. To balance (5 plus 6)	30.52 gm.	100.0 %		

B. Subsidation:

1. Original Wt.	10.23 gm.	100.0%	
2. Cylinder (+1/32) 11.97 / 2.31 / 2.52	9.66 gm.	94.4 %	
3. Jar (1/32—1/64) 2.30 / .185	.22 gm.	2.2 %	
4. Drain	.35 gm.	3.4 %	

C. Screen Analysis 9.64

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½+¼ mm	1.08	11.4
¼–⅛ mm	3.36	35.3
⅛–1/16	3.61	37.9
Pan	1.47	15.4
Total	9.52	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst D. Frasché
Date 3-4-35

Acet. Tetrabr. / ~~Bromoform~~ ±2.93 Sp. gr. Size–Grade(s) 1/8 - 1/16 mm.

Wt. of sample 3.64 gm. 100.0%

Heavy Minerals .08 gm. 2.2 %

Light Minerals 3.56 gm. 97.8 %

Shape Analysis:

A ..... %: a ..... %: C ..... %

r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
barite	5 - .5	
pyrite	1035 - 96	
zircon	15 - 1	
tourmaline green / blue	6 - 1	
garnet	2 - 0	
leucoxene	2 - 0	
	16 - 1.5	
Total	108	100%

Classification Grouping:

	Absol. %
Primary Minerals: 97.9 %	
zircon	0
tourmaline green / blue	0
garnet	0
Feldspar	2.9
Quartz	80.3
Clay	14.7

Light Concentrate		
feldspar	35 - 3	
quartz	840 - 82	
clay-minerals	154 - 15	
Total	1029	100%

Secondary Minerals: 2.1 %

barite	0
pyrite	2.1
leucoxene	0
Total	100%

Revised Lithologic Description (from descriptive log and laboratory data).

limestone 66% buff to dark brown-medium crystalline-firm. Sandstone 32% angular to subrounded grade 1/8-1/16-chief subsidiary 1/4-1/8 mm. Shale-1%

DEEP WELL STUDY

Well No. W— 0174

Depth 580 to 585

No. samples used 1

Analyst Scott

Date 3/4/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	21.01 gm.	100.0%	2. Wt. of F. P.	2.31
3. Wt. after solution, with filter paper	16.66 gm.			
4. Less wt. F. P. (2)	2.31 gm.			
5. Wt. Insol. Residue (3 minus 4)	14.35 gm.	68.3 %		
6. Wt. lost by solution (1 minus 5)	6.66 gm.	31.7 %		
7. To balance (5 plus 6)	21.01 gm.	100.0 %		

B. Subsidation:

1. Original Wt.	14.35 gm.	100.0%	
2. Cylinder (+1/32)	16.28 / 2.30 / 13.98 gm.	97.4 %	
3. Jar (1/32—1/64)	2.39 / 2.30 / .09 gm.	.6 %	
4. Drain	.28 gm.	2.0 %	

C. Screen Analysis 13.96

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½+¼ mm	1.46	10.4
¼–⅛ mm	8.91	63.7
⅛–1/16	3.26	23.3
Pan	1.36	2.6
Total	13.99	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / ~~Bromoform~~ 2.93 Sp. gr. Size–Grade(s) 1/8 - 1/16 mm.

Analyst D. Enasché

Date 3-4-35

Wt. of sample 3.25 gm. 100.0%

Heavy Minerals 0.55 gm. 1.7 %

Light Minerals 3.195 gm. 98.3 %

Shape Analysis:

A ....%: a ....%: C ....%

r ....%: R ....%.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
barite	7	1
pyrite	112	5-9
zircon	52	4
tourmaline green brown blue	5	0
	12	1
	3	0
garnet	2	0
leucoxene	46	4
anatase	2	0
rutile	2	0
hornblend	2	0
Total	1258	100%

Classification Grouping: Primary Minerals: 98.4 %	Absol. %
zircon	.1
tourmaline- green brown blue	0
	0
garnet	0
rutile	0
hornblend	0
feldspar	4.9
quartz	76.7
clay-minerals	16.7

Light Concentrate		
feldspar	56	5
quartz	807	78
clay-minerals	176	17
Total	1039	100%

Secondary Minerals: 1.6 %

barite	0
pyrite	1.5
leucoxene	.1
anatase	0
Total	100%

Revised Lithologic Description (from descriptive log and laboratory data).

Sandstone 68%- angular to subrounded - major grade 1/4 1/8 mm - chief subsidiary - 1/8-1/16 - hematite - 31% white to buff - occurs as small fragments - occurs around sand grains

DEEP WELL STUDY

Well No. W—	0117
Depth	595 to 600
No. samples used	1
Analyst	Scott
Date	3/14/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 31.08 gm. 100.0%:
2. Wt. of F. P. 2.32
3. Wt. after solution, with filter paper . . . . 17.22 gm.
4. Less wt. F. P. (2) . . . 2.32 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . . 14.90 gm 47.9 %
6. Wt. lost by solution (1 minus 5) . . . . . . 16.18 gm 52.1 %
7. To balance (5 plus 6) . . 31.08 gm 100.0 %

B. Subsidation:

1. Original Wt. . . . . . 14.90 gm 100.0%
2. Cylinder (+1/32) 16.89 / 2.25 . . . 14.64 gm 98.2 %
3. Jar (1/32—1/64) 2.40 / 2.30 . . . .10 gm .7 %
4. Drain . . . . .16 gm 1.1 %

C. Screen Analysis 14.53

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	5.91	42.75
¼–⅛ mm	6.46	46.75
⅛–1/16	1.45	10.5
Pan		
Total	13.82	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst	D. Frasché
Date	3-4-35

Acet. Tetrabr. / ~~Bromoform~~ } ±2.93 Sp. gr. Size–Grade(s) ¼ - Pan mm.

Wt. of sample . . . . 3.03 gm 100.0%

Heavy Minerals . . . . .093 gm 3.1 %

Light Minerals . . . . 2.937 gm 96.9 %

Shape Analysis:

A .... %: a .... %: C .... %

r .... %: R .... %.

Minerals Identified; Heavy Concentrate

Mineral	No. of Grains	Rel. %
barite	4	1
pyrite	425	81
zircon	27	5
tourmaline green	6	1
tourmaline brown	4	1
tourmaline blue	2	0
garnet	5	1
leucoxene	53	10
anatase	2	0
Total	528	100%

Light Concentrate

Mineral	No. of Grains	Rel. %
feldspar	42	3
quartz	1240	81
clay-minerals	240	16
Total	1522	100%

Classification Grouping:

Primary Minerals: 97.2 %

Mineral	Absol. %
zircon	.2
tourmaline - green	0
tourmaline - brown	0
tourmaline - blue	0
garnet	0
feldspar	2.9
quartz	78.6
clay-mineral	15.5

Secondary Minerals: 2.8 %

Mineral	Absol. %
barite	0
pyrite	2.5
leucoxene	.3
anatase	0
Total	100%

Revised Lithologic Description (from descriptive log and laboratory data).

Limestone 52%: buff - medium crystalline - firm

Sandstone 47% - angular to curvilinear - major grade

1/4-1/8 mm - principal - sub-sidiary 1/2-1/4.

DEEP WELL STUDY

Well No. W— 0174

Depth 600 to 604

No. samples used 1

Analyst Scott

Date 3-5

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	31.10 gm.	100.0%	2. Wt. of F. P. 2.30
3. Wt. after solution, with filter paper	21.47 gm.		
4. Less wt. F. P. (2)	2.30 gm.		
5. Wt. Insol. Residue (3 minus 4)	19.17 gm.	61.6 %	
6. Wt. lost by solution (1 minus 5)	11.93 gm.	38.4 %	
7. To balance (5 plus 6)	31.10 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	19.17 gm.	100.0%	
2. Cylinder (+1/32) 2.100 2.30 2.38	18.70 gm.	97.5 %	
3. Jar (1/32—1/64) 2.21	.17 gm.	.9 %	
4. Drain	.30 gm.	1.6 %	

C. Screen Analysis 18.70

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½+¼ mm	9.46	50.7
¼–⅛ mm	4.86	26.1
⅛–1/16	3.67	19.7
Pan	.65	3.5
Total	18.64	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst D. Trascher

Date 3-4-35

Acet. Tetrabr. / ~~Bromoform~~ ± 2.93 Sp. gr. Size–Grade(s) ⅛–1/16 mm.

Wt. of sample 3.64 gm. 100.0%

Heavy Minerals .055 gm. 1.5 %

Light Minerals 3.585 gm. 98.5 %

Shape Analysis:

A ..... %: a ..... %: C ..... %

r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
pyrite	610	6.7
zircon	60	6.7
tourmaline green	16	1.8
tourmaline brown	18	2.0
tourmaline blue	6	.7
tourmaline pink	5	.6
garnet	12	1.3
leucoxene	173	19.2
Total	900	100%

Classification Grouping:

Primary Minerals: 98.7 %

	Absol. %
zircon	.1
tourmaline green	0
tourmaline brown	0
tourmaline blue	0
tourmaline pink	0
garnet	0
feldspar	4.7
quartz	85.8
clay-minerals	7.9

Secondary Minerals: 1.3 %

pyrite	1.0
leucoxene	.3

Light Concentrate		
feldspar	90	5
quartz	1607	87
clay-minerals	147	8
Total	1844	100%

Total 100%

Revised Lithologic Description (from descriptive log and laboratory data).

Sandstone 61% angular-to-subangular-quartz grade ½-¼ mm-chief subsidiary-¼-⅛ mm-limestone 38%-buff medium crystalline-trace shale

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K. P. BUILDING - SIXTH AVENUE AT LOCUST, DES MOINES 9, PHONE 4-9109

August 5, 1946

Dr. H. G. Hershy
Iowa Geological Survey
Iowa City, Iowa

Dear Doctor Hershey:

There is a strong growing sentiment among the business men at Dallas Center that the present well has plenty of water and the trouble lies wholly in the pump. We had a man look the pump over and he reported it was OK. The Town is pumping approximately 7 GPM from the School well. The City well is not being used.

We feel we should exhaust every effort to properly test the static head, draw down and pumping level of the City well before we drill any more test holes.

I wonder if Mr. Hale, the next time he finds himself in the vicinity of Dallas Center, would notify me and let me meet him at Dallas Center and do all we can to measure the capacity of the Town well.

Very truly yours,

BROWN ENGINEERING COMPANY

E. S. Boudinot

E. S. Boudinot

ESB-m

Dallas Co.

October 11, 1939

Mr. A. B. Wieters, Director
Division of Public Health Engineering
Department of Health
Des Moines, Iowa

Dear Mr. Wieters:

Your letter of October 10 in regard to plugging the 2,000-foot well at Dallas Center has just been received.

The only record that we have of the well is that appearing in Volume 33 of the Iowa Geological Survey.

From the standpoint of improving the water, it is questionable whether plugging formations below the Mississippian would be justifiable. Waters from the deeper horizons appear to be more highly mineralize than those from the upper strata, although I think it would be well to obtain a sample for mineral analysis from the deep well before making definite recommendation. It would also be well to obtain a sample from the 810-foot school well and the 900-foot Minneapolis and St. Louis railroad well under as nearly a similar pumping conditions as possible. My reason for suggesting this is that it appears quite possible that the principle producing formation is the same in all three wells.

Plugging from 2,000 feet to 900 feet will be costly. To do the job properly it will be necessary to remove the casing from that interval and then fill the hole with heavy mud using concreate plugs at the top and bottom of each water-bearing formation. The details of this well will have to be worked out after all available information on the well is carefully studied. It will probably be necessary to check the casing record appearing in our Volume 33.

Your suggestion that Dallas Center get water from the Raccoon River Valley appears to be the best possibility for obtaining water ~~for~~ low mineralization although this will also be a costly project. Before committing myself finally on this I would have to make a field investigation.

Very truly yours,

H. G. Hershey
Assistant State Geologist

HGH:KN

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WALTER L. BIERRING, M. D.
COMMISSIONER

State of Iowa
Department of Health
Des Moines

DIVISION OF
PUBLIC HEALTH ENGINEERING
AND INDUSTRIAL HYGIENE

October 10, 1939.

Dr. H. G. Hershey,
Asst. State Geologist,
Iowa Geological Survey,
Iowa City, Iowa.

Dear Dr. Hershey:

Mr. Hicks of the McCutcheon Well Company just called me and said that the council at Dallas Center were interested in filling up their old 2,000 foot well to a depth between 800 and 900 feet, dynamiting the casing at this point in the hopes that they would get water similar to the school well which is at a depth of about 810 feet.

He stated that the new city well is not standing up and that they desire more water.

He does not have a log of the deep well and said the only information he has is that in the 1927 Geological Survey report, and that appears to be the only information which we have.

I am wondering if you have any additional information.

It occurs to me from looking over the available records, namely, the mineral analyses of the 900 foot Minneapolis and St. Louis Railroad well and the 810 foot high school well, that insofar as quality of water is concerned there would be little to be gained by filling in the well. The analyses of both these wells indicate excessive mineralization.

Mr. Hicks further asks for information as to how best to fill and seal this well keeping out the lower water, and if you have any suggestions along this line they would be very greatly appreciated.

I think without doubt their best bet at Dallas Center would be to go out west to the Raccoon River valley and develop a shallow supply, and possibly we might be able to persuade them that this is the best thing to do. I would also like to have your reaction in regard to this suggestion.

Very truly yours,

A. H. Wieters, Director,
Division of Public Health Engineering.

AHW/MM

MAP NO. W-0174

STATE Iowa	COMPANY Dallas Center
COUNTY DALLAS	FARM / WELL NO.
T. / R.	CONTRACTOR
	COMMENCED
	COMPLETED
	REMARKS
ALTITUDE	
PRODUCTION	

CASING RECORD

	10"
	8¼"
20"	6⅝"
15½"	5 1/16"
12½"	

SHOT QUARTS BETWEEN

Form 186—In stock and for sale by MID-WEST PTG. CO., TULSA